ANNUAL REPORT

For the

COMPREHENSIVE ENVIRONMENTAL MONITORING PROGRAM

Covering the period:

July 24, 1982 through June 30, 2014

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March 2015

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EXECUTIVE SUMMARY

The Comprehensive Environmental Monitoring Program (CEMP) safeguards the unique environmental resources at the Natural Energy Laboratory of Hawaii Authority (NELHA). The CEMP, in combination with an independent biota monitoring survey, determines if any negative impact has occurred to the class AA marine water chemistry, and if there are observable changes in the diversity and abundance of the coral cover and marine biota populations. Over the past twenty-two years, the benthic data indicates a gradual increase in coral cover since Hurricane Iniki in September 1992 and a strong northwest swell in January 1993. During the same twenty-two year period, fish communities have remained relatively constant and chlorophyll-a, a measure of phytoplankton biomass, has never exceeded the State of Hawaii Department of Health (HDOH) limit. The nearshore marine water chemistry has been stable over the same period of time. Groundwater water chemistry has been comparatively constant over the past twenty-five years with intermittent anthropogenic enriched nutrient spikes and associated recoveries.

This report covers the period of July 2013 to June 2014 in the context of a twenty-five year historical perspective. The CEMP water quality monitoring program began in March 1989 and was fully implemented by July 1993. Prior to March 1989, NELHA provided marine water quality data with its weekly pipeline water quality monitoring program. This report will address the HDOH rules for class AA marine water and discuss general trends with respect to NELHA's groundwater, anchialine ponds, and terrestrial seawater disposal monitoring programs.

Intrusion of naturally occurring and anthropogenic enriched groundwater can greatly influence the nearshore environment. NELHA's Water Quality Laboratory is tasked with identifying and correcting harmful levels of anthropogenic nutrient enrichment to the groundwater, anchialine ponds and class AA marine water surrounding its facility. The challenge for NELHA is identifying naturally occurring nutrient enrichment versus anthropogenic nutrient subsidies. Most scientists performing similar monitoring programs use a conservative mixing model and/or isotopic tracers to determine whether anthropogenic supplementation has occurred. In this report, NELHA extensively used the conservative mixing model technique to describe groundwater water quality chemistry. NELHA follows the HDOH protocols to describe nearshore marine water chemistry.

For the period of July 2013 to June 2014, no extraordinary groundwater water quality issues were noted. For the same period, NELHA's ocean transect sampling results were within the historical range of NELHA pipeline and ocean transect data set. The results are also similar to other West Hawaii marine water quality monitoring programs.

Since July 2010, a seawater disposal monitoring program was gradually phased in and fully executed by January 2011. The seawater disposal monitoring program involves quarterly sampling of terrestrial seawater disposal sites at the NELHA facility. NELHA measures total suspended solids, biological oxygen demand, total nitrogen, and total phosphorous as guided by HAR Title 11 Chapter 62 with further recommendations from the Department of Health, Wastewater Branch. The results of the seawater disposal monitoring program are summarized in this report. No unusual seawater disposal observations have been noted since its inception.

In conclusion, the benthic, biota and water chemistry data show:

- Coral cover has gradually increased from the early 1990's storm events
- Fish communities have been constant over the past twenty-two years
- Chlorophyll-a, a measure of phytoplankton biomass, has never exceeded the very conservative HDOH limit
- Nearshore ocean water chemistry has been historically consistent
- Groundwater has been comparatively stable over the past twenty-five years with intermittent nutrient spikes and associated recoveries

In addition, NELHA has successfully implemented over the last seven years several enhancements to its CEMP program including:

- Implementing a seawater disposal monitoring program
- Funding additional laboratory equipment to enhance the NELHA Water Quality Laboratory analytical abilities
- 62% increase in groundwater monitoring wells, totaling 34 wells
- Aligning sampling techniques with EPA and HDOH protocols
- Participation in the EPA's Discharge Monitoring Report-Quality Assurance Study Program
- Documenting events with the use of NELHA Environmental Incident Report Form

With these enhancements, the NELHA Water Quality Laboratory has further improved its ability to find and identify the causes of episodic events and institute timely corrective actions.

In Memoriam

Joseph Bybee
1974 – 2014

INTRODUCTION

NELHA History

NELHA began as "NELH" in 1974 when the Hawaii State Legislature created the Natural Energy Laboratory of Hawaii on 322 acres of land at Keahole Point. NELH was mandated to provide a support facility for research on the ocean thermal energy conversion (OTEC) process and its related technologies.

In 1979, a barge dubbed "Mini-OTEC," anchored offshore of Keahole Point, demonstrated the world's first production of net electrical power via closed-cycle OTEC. In 1980, after necessary environmental impact and other surveys were completed, and master permits obtained, the NELH facilities and the first pipeline to draw deep seawater from 2000 feet and surface seawater from 45 feet depths were constructed at Keahole Point. In 1981, shore-based OTEC research began with a project testing biofouling and corrosion countermeasures for the closed cycle OTEC process. By 1984 it had become apparent that the seawater being pumped up for OTEC research could also be channeled into many other commercial uses. New legislation legalized commercialization on state property allowing NELH to host new business ventures. In 1985, the Legislature created the Hawaii Ocean Science and Technology (HOST) Park on an adjacent 548 acres at Keahole Point in anticipation of expansion needs of NELH's growing businesses. In 1990, HOST Park and NELH were melded into one agency, the NELH Authority (NELHA), attached to the Department of Business, Economic Development & Tourism of the Hawaii State Government. In 1998 – 1999, the Legislature expanded the activities allowed at NELHA to include other business activities that could enhance economic development and generate additional revenues to support the growing park.

Today, NELHA is lessor to approximately 37 enterprises which generate approximately $123 million per year in total economic impact, including tax revenues, over 617 jobs, construction activity and high value product exports *(Economic Impact of The Natural Energy Laboratory Hawaii Authority Tenants On The State Of Hawaii, UHERO, 2015)*. NELHA also operates three pipeline systems that pump deep and surface seawater to shore 24/7 with the third being the world's largest to a depth of 3,000 feet.

CEMP History

NELH began weekly water quality monitoring of its surface seawater on July 24, 1982. The initial monitoring program sampled incoming surface seawater from NELH's 12 inch pipeline. The parameters monitored were ortho-phosphate phosphorus, nitrate + nitrite nitrogen, dissolved silica, salinity, and temperature. On January 3, 1986, the monitoring program added total ammonia nitrogen, total dissolved phosphorous, total dissolved nitrogen, total organic carbon, and total suspended. Dissolved oxygen and pH were added to the program on January 8, 1987 when the program started sampling the surface seawater 28 inch pipeline. Alkalinity was added in June of the same year. Microbiology sampling for vibrio and total count marine agar started on March 23, 2005. Microbiology and total organic carbon analysis was discontinued after June 2007 and alkalinity was discontinued after June 2008.

Weekly water quality sampling of the deep seawater 40 inch pipeline started on August 16, 1988. The parameters monitored initially were ortho-phosphate phosphorus,

nitrate + nitrite nitrogen, total ammonia nitrogen, dissolved silica, total dissolved phosphorous, total dissolved nitrogen, total organic carbon, alkalinity, salinity, pH, and temperature. Dissolved oxygen was added on September 15, 1988, total suspended solids on September 26, 1994 and Microbiology on March 23, 2005. Microbiology and total organic carbon analysis was discontinued after June 2007 and alkalinity was discontinued after June 2008.

Sampling for both the 40 inch deep seawater pipeline and the 28 inch surface seawater pipeline was reduced from weekly to monthly on October 12, 1999. In 2005, water quality monitoring began on the surface seawater 24 inch and 55 inch pipelines and the deep seawater 18 inch and 55 inch pipelines. Water quality sampling was discontinued on the earthquake damaged 18 inch deep seawater pipeline by December 2006 and restarted in October 2009 after its repair. Since August 2010, the pump has been inoperable however sampling has continued intermittently at this monitoring point.

The Comprehensive Environmental Monitoring Program (CEMP) was crafted in 1987 as a cooperative effort between the Natural Energy Laboratory of Hawaii (NELH) and Hawaii Ocean Science and Technology (HOST) Park at Keahole Point on the Big Island of Hawaii. Legislation enacted in 1990 combined these two organizations into the Natural Energy Laboratory of Hawaii Authority (NELHA). In 1989, GK & Associates issued a report describing the sampling frequency, locations and pertinent analysis to be performed for the CEMP. In July 1993, the CEMP was further expanded from the GK & Associates report by the NELHA staff reflecting on the guidelines outlined in the *1992 West Hawaii Coastal Monitoring Program*. The CEMP was changed in minor ways, mostly in the area of sample frequencies over the next fourteen years.

After a thorough review, the CEMP was modified again in July 2007 to realign its ocean transect stations to the 2004 HDOH, Hawaii Administrative Rules (HAR) Title 11 Chapter 54 by combining the coastal samples with the offshore samples into six transects. Bottom transect sampling was discontinued, as they are not required by the 2004 HDOH HAR Title 11 Chapter 54 and the data indicates little or no difference from the surface seawater samples (See ***Figure 1***). NELHA added to the ocean sampling program the measurement of chlorophyll a, total dissolved nitrogen, and total dissolved phosphorus to all 5 transect stations. Fecal coliform microbiology testing of ocean transects and brackish groundwater samples were discontinued due to the EPA discrediting this test for brackish and marine waters. The enterococci microbiology test is only required at recreational areas. As of 2008, the HDOH has included NELHA's beach park as part of its tier II beach rotational sampling program. In addition, all septic tanks were identified on the facility and have been put on a maintenance schedule with a pumping requirement of every three to five years. In December 2007, NELHA discontinued total dissolved nitrogen and total dissolved phosphorus from the groundwater monitoring program. It was shown that groundwater has a diminutive fraction of organic nutrients and inorganic nutrient measurements provided acceptable monitoring information (See ***Figure 20***).

The NELHA Water Quality Laboratory has implemented additional changes to the CEMP program for the period of July 2010 to June 2011. Since July 2010, a seawater disposal monitoring program was partially implemented and by January 2011 fully executed. A quarterly seawater disposal monitoring program samples approximately 53 seawater disposal locations for total suspended solids, biological oxygen demand, total nitrogen and total phosphorous as guided by HAR Title 11 Chapter 62 and with further

recommendations from the HDOH, Wastewater Branch. The results of the seawater disposal monitoring program are forwarded to the Department of Health, Wastewater Branch initially on a quarterly basis and now on a yearly basis as part of the annual CEMP report. A discussion can be found in the seawater disposal monitoring program section and in Appendix D. Finally, the County Planning Department, Department of Land and Natural Resources Department of Aquatic Resources, and the Department of Health Wastewater Branch and Clean Water Branch have approved frequency changes for the biota monitoring survey from biannually to yearly and groundwater monitoring from monthly to quarterly. These monitoring frequency changes were implemented after January 2011. The biota monitoring surveys are in a separate annual report that can be found on NELHA's website: http://nelha.hawaii.gov/resources/library/nelha-lab-reports/

GK & Associates in their 1989 report established the CEMP objectives and outlined a four step process to accomplish this.

The CEMP stated objectives:

1. To protect the unique environmental resources of the Keahole Point area and their diverse uses
2. To provide the information necessary to comply with the permit requirements of various County, State and Federal Agencies

The CEMP attempts to meet the objective of protecting Keahole's environmental resources and their uses through a four-step process consisting of:

1. Establishing a baseline for groundwater and offshore water quality and coastal biota
2. Comparing monitoring results with baseline information to detect unacceptable changes
3. Tracing the cause of an unacceptable change to its source
4. Providing facilities management with options for corrective measures

The CEMP has a rich historical record of water quality data within the NELHA property and the surrounding class AA coastline. The CEMP has also found and mitigated several water quality issues over the past twenty-two years by tracing the cause of an unacceptable change to its source. The CEMP established a baseline in 2007 for groundwater water quality chemistry by identifying historical periods of little or no activity then calculating the monitored analytes mean and standard deviations from that data set. Therefore the baseline is the mean and detected changes can be found outside the calculated three standard deviations from the mean (±3s) (See ***Figure 7***). The mean and calculated three standard deviations (±3s) control plots in conjunction with the conservative mixing model (See ***Figure 5 & 6***) are used to evaluate overall environmental impact to the groundwater within the NELHA facility. Nearshore water quality chemistry is regulated by the Hawaii State Department of Health (HDOH) and a methodology and standards have been adopted as outlined by HAR Title 11 Chapter 54, August 31, 2004. The HDOH Criteria from 1989 – present is outlined in ***Table 1***. Seawater disposal water quality is regulated by HAR Title 11 Chapter 62.

Parameter	1989-2004 criterion	2004 – present criterion
Total Ammonia Nitrogen (µg NH3-N/L)	**Wet 3.5** **Dry 2.5**	**2.5**
Chlorophyll-a (µg/L)	**Wet 0.3** **Dry 0.15**	**0.3**
Turbidity (N.T.U.)	**Wet 0.5** **Dry 0.2**	**0.1**
Total Dissolved Nitrogen (µg N/L)	**Wet 150** **Dry 110**	**100**
Nitrate and Nitrite Nitrogen (µg NO_3+NO_2-N/L)	**Wet 5** **Dry 3.5**	**4.5**
Total Dissolved Phosphorous (µg P/L)	**Wet 20** **Dry 16**	**12.5**
Ortho-Phosphate Phosphorus (µg PO_4-P/L)	**n/a**	**5.0**

Table 1. *Pre & post 2004 HDOH HAR 11-54 Criteria for the Kona Coast Area as geometric mean values.*

NELHA adopted the *1992 West Hawaii Coastal Monitoring Program* guidelines for sampling offshore ocean transects from July 1993 to June 2007. The *1992 West Hawaii Coastal Monitoring Program* guidelines do not follow the same sampling protocol as the HDOH, HAR Title 11 Chapter 54 rules. Ocean transect station locations are the main differences between the two methods as seen in ***Figure 1***.

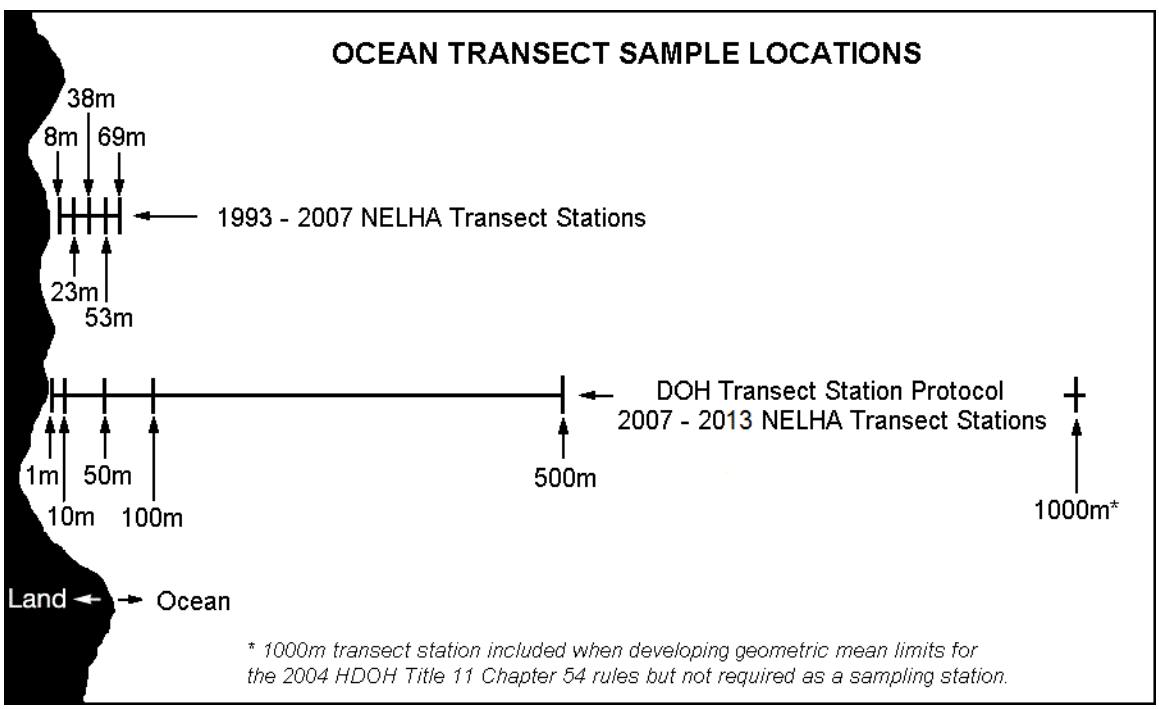


Figure 1. *Comparison of NELHA and HDOH ocean transect station distances from the shoreline.*

As of July 1, 2007, NELHA follows the sampling and reporting procedures as outlined in the *1997 Rational for the Development of Area-Specific Water Quality Criteria for the West Coast of the Island of Hawaii and Procedures for Their Use* report. The CEMP water chemistry results are reported to the Hawaii County Planning Department, Hawaii Department of Health, National Marine Fisheries Service, US Army Corps of Engineers, U.S. Fish & Wildlife Service, Coastal Zone Management Program, Department of Land and Natural Resources, and Division of Aquatic Resources on a yearly basis as specified in our permits.

PERMIT REQUIREMENTS

NELH began in 1974 with the issuance of several environmental impact statements and permits. The first impact statement was issued on January 1976, *Environmental Assessment of Natural Energy Laboratory at Keahole Point, Hawaii* report and was prepared by RM Towill. Followed up by the December 1976 *Environmental Impact Statement for the Natural Energy Laboratory of Hawaii at Keahole Point, Hawaii (Phase I)* also prepared by RM Towill.

On February 11, 1977, CDUA HA-879 was issued, which allowed governmental use of conservation land areas at Keahole Point TMK's 7-3-43:3, 4, 5 and adjacent coastal water and submerged lands. The Land Use Commission approved reclassifying NELH land from Conservation to Urban on February 17, 1978.

The County of Hawaii, Planning Commission issued a Special Management Area (SMA) Use Permit No.77 on November 16, 1978. The condition that is pertinent to the CEMP is Condition #9.

SMA 77 Condition #9:

> *All other applicable rules, regulations and requirements, including those of the HDOH and Department of Water Supply, shall be complied with.*

By July 1980, a draft environmental assessment related to the construction and operation of stage I of the seacoast test facility was issued. By August 1985 the final environmental impact statement was issued: *Development Plan for the Hawaii Ocean Science & Technology Park and Expansion of the Natural Energy Laboratory of Hawaii* by Traverse Group, Inc.

On June 6, 1986, SMA Use Permit No. 239 was issued by the County of Hawaii, Planning Commission and the approval of change of zone for TMK 7-3-09:Por. of 5 and 7-3-43:Por. of 3. The condition that is pertinent to the CEMP is Condition #8. SMA Use Permit No. 239 was amended on September 22, 1994 to include parcel 23 for which same types of projects are allowable on the rest of the NELH and HOST Park properties. This changed Condition #8 to Condition #10.

SMA 239 Condition #10 (formally Condition #8):

> *Offshore water quality monitoring data shall be submitted annually to the Planning Department prior to the anniversary date (June 4, 1986) of granting of the SMA Use Permit.*

On July 31, 1986 the Department of Land and Natural Resources approved HA-1862, (supersedes HA-879). This Conservation District use application allowed for the use of approximately 2,940 acres of ocean waters and submerged lands in the vicinity of Keahole Point, Hawaii for temporary and permanent ocean research, alternative energy and mariculture research and commercial mariculture and energy activities and facilities. Immediate construction and development of three ocean water pipelines and use of portions of two parcels of land for pipeline and utility easements, pump stations and road improvement and maintenance activities on and offshore of Keahole Point, Hawaii was approved. The conditions that are pertinent to the CEMP are conditions #5, 15, 16, and 19.

CDUA: HA-1862 Condition #5:

> *The applicant shall comply with all applicable Public Health Regulations*

CDUA: HA-1862 Condition #15:

> *The monitoring program includes anchialine ponds at NELH/HOST park site. Monitoring program should describe the existing conditions at these sites in terms of water quality and endemic aquatic fauna, and the program should last a minimum of 10 years. This program should be coordinated with this Dept. and the appropriate Fed., State and County Agencies.*

CDUA: HA-1862 Condition #16:

> *Should the long term studies indicate that the anchialine ponds at NELH/HOST Park are being adversely affected by seawater plume, the NELH and HOST Park shall take necessary mitigative measures to alleviate these effects which may include the installation of an ocean outfall for the disposal of return seawater.*

CDUA: HA-1862 Condition #19:

> *A long term monitoring/sampling program to determine the impacts of impingement and entrainment on fish eggs, larvae, and juveniles be conducted. These studies should be coordinated with the National Marine Fisheries Service, The Division of Aquatic Resources, and the U.S. Fish and Wildlife Service.*

On September 29, 1994 the Department of Land and Natural Resources approved HA-1862A. This Conservation District Use Application allowed for the use of approximately 350 acres of ocean waters and submerged lands in the vicinity of Keahole Point, Hawaii for temporary and permanent ocean research, alternative energy and mariculture research and commercial mariculture and energy activities and facilities; and for the pipeline and utility easements, construction and maintenance of pumps, and other related maintenance activities on and offshore of Keahole Point, Hawaii; use of one parcel of land, TMK: 7-3-09: 23 for establishment of aqua cultural activities and its related facilities and uses. The conditions that are pertinent to the CEMP are conditions #1, 4 and 8.

CDUA: HA-1862A Condition #1:

> *The applicant shall comply with all applicable statutes, ordinances, rules and regulations of the Federal, State and County governments and applicable parts of Section 13-2-21, Administrative Rules, as amended*

CDUA: HA-1862A Condition #4:

> *The applicant shall comply with all applicable Department of Health Administrative Rules*

CDUA: HA-1862A Condition #8:

> *That the applicant shall comply with all applicable conditions to Conservation District Permit HA-1862 and its previous amendments*

NELHA continues to maintain the CEMP as mandated by SMA 77 Condition #9, SMA 239 Condition #10, CDUA: HA-1862A Condition #5, 15, 16, and 19 and CDUA: HA-1862A Condition #1, 4, and 8.

PURPOSE

The purpose of the CEMP is to fulfill NELHA's regulatory requirements and to protect the unique environmental resources of the Keahole Point area and their diverse uses as outlined in the objectives of the 1989 GK & Associate report. This report will review up to twenty-five years of groundwater and twenty-one years of marine water chemistry data collected at NELHA.

RATIONALE AND APPROACH

Analytical

The NELHA Water Quality Laboratory follows *Standard Methods for the Examination of Water and Wastewater 20th Edition* and EPA test methods for its analytical procedures. NELHA continuously reviews, monitors and updates its analytical methods and procedures to insure high quality data. The NELHA Water Quality Laboratory also voluntarily participates in the EPA's Discharge Monitoring Report-Quality Assurance Study Program (See ***Appendix F)***. In 2007, NELHA Water Quality Laboratory transitioned many of its analysis from bench top laboratory methods to in situ methods. This transition has allowed NELHA to sample additional groundwater locations with a smaller staff and provides results in the field for faster response times and enhances the water sampling protocols.

NELHA has invested significant resources to sharpen its nutrient analytical techniques and equipment. Nutrients such as nitrate + nitrite nitrogen, ortho-phosphate phosphorous and total ammonia nitrogen are critical parameters for water quality monitoring. In September of 2007, NELHA transitioned from the Technicon AutoAnalyser II to the Astoria-Pacific A2 for its nutrient analysis. The NELHA Water Quality Laboratory did experience challenges with its nutrient analytical equipment transition for the 1st and 2nd quarters of the 2007 - 2008 fiscal year but since then NELHA has developed standard operating procedures and quality assurance programs to insure quality analytical results. Since May 2009, the NELHA Water Quality laboratory has

refined its nutrient analyses quality control standards to include two low nutrient control standards every fifteenth unknown analysis. It also collects quarterly low nutrient seawater approximately 2 miles off shore for dilution water and blanks.

Even though NELHA strives to report the most accurate and precise nutrient results using standard methods and techniques, it is important to recognize method weaknesses and inherent analytical problems with nutrient analysis of brackish and marine waters. The nutrient analysis is a colorimetric method. This method relies on the precise addition of reactants and reagents to generate a color. The amount color generated from the reaction is related to the concentration of the analyte being analyzed. A photo detector determines the samples transmittances, deepness of color, and compares it to a recent calibration curve. This type of analyses has many challenges that the reader should keep in mind when reviewing the data. First, at high concentrations the results tend to have high standard deviations which are documented in *Standard Methods for the Examination of Water and Wastewater 20th Edition*. Second, at very low concentrations, such as 5 µg/L (5 parts per billion), the instrument is approaching the method detection limit. In addition, there are refractive index issues (***Figure 2a***.) that cause leading and trailing noise on the measured sample peaks as the salinity varies from baseline water to sample. The method requires baseline water (de-ionized water or low nutrient seawater) to be free of nitrate + nitrite nitrogen, ortho-phosphate phosphorous and total ammonia nitrogen to establish a zero. Baselines also shift during the analysis and cause small but sometimes substantial errors at low concentrations (***Figure 2b***.). It is also important to note that the HDOH analytical laboratory uses NELHA surface seawater as their baseline water and sample blanks for the state wide nutrient analysis program.

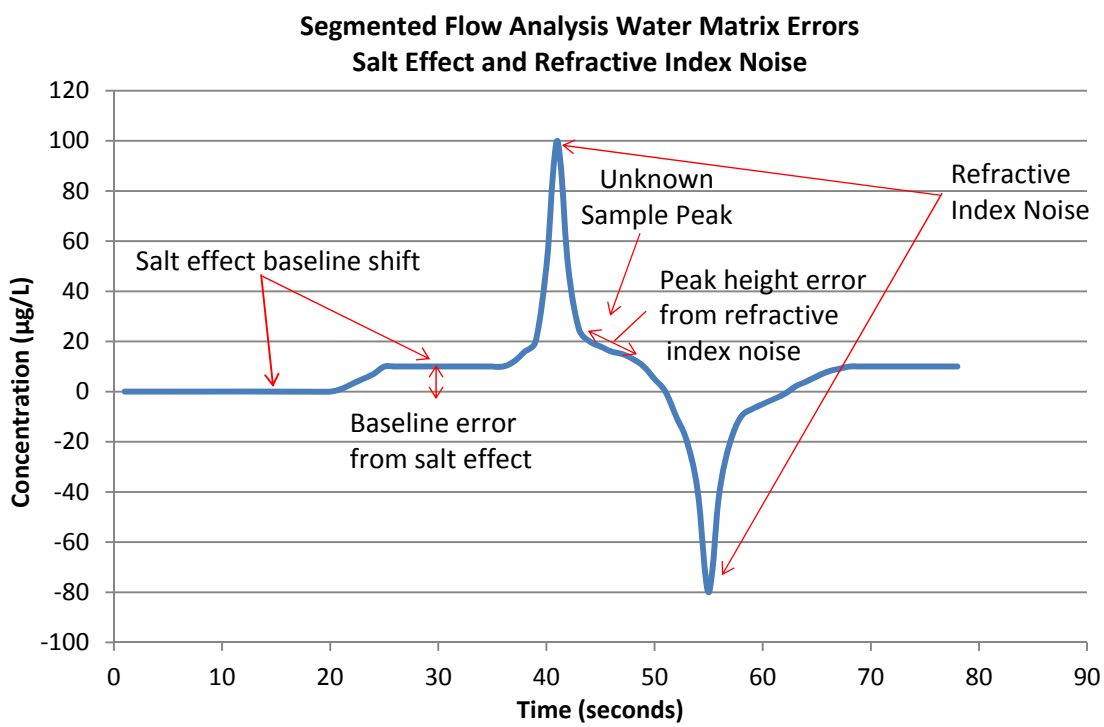


Figure 2a. *Segmented flow analysis salt effect and refractive index noise diagram showing the noise to signal differences when the unknown sample salinity is different than the baseline salinity.*

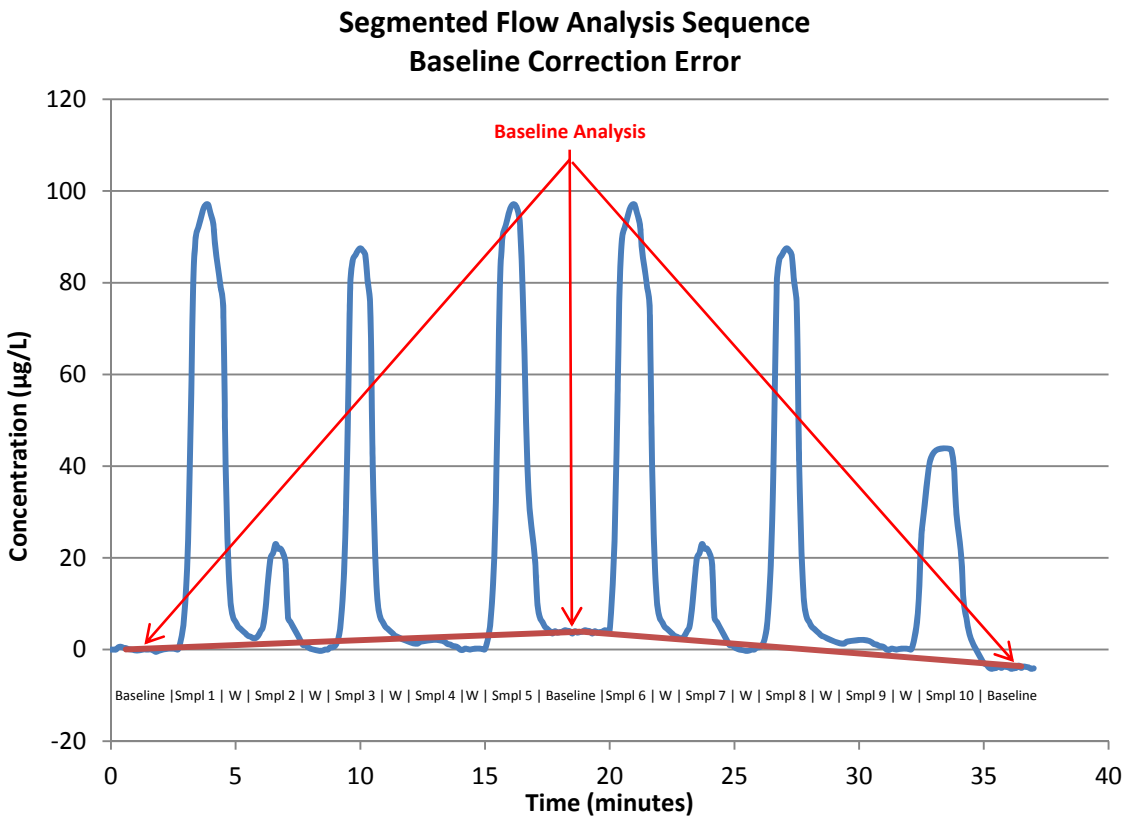


Figure 2b. *This diagram shows an example of how the baseline is drawn. The baseline is established by preforming a baseline analysis after five unknown samples and then drawing a linear line from one baseline analysis to the next. The analytical software then measures peak heights from the baseline to the peak crest. For example, an error can be seen in sample 4 and 9. For sample 4, the analytical software would measure a smaller than actual peak height and report a lower than actual concentration. The opposite would be true for sample 9, as the analytical software would measure a higher than actual peak height and report a higher than actual concentration. This effect becomes significant at very low concentration measurements.*

Marine Water

Marine water quality monitoring from 1993 to 2007 followed the 1989 GK & Associates *HOST and NELH Cooperative Environmental Monitoring Program* report and incorporated the recommendations from the *1992 West Hawaii Coastal Monitoring Program Monitoring Guidelines*. The frequency of sampling for the marine water sampling program is on a quarterly basis. The marine water quality stations include coastal sampling locations accessible by land and marine transects accessible by boat. Site locations were determined based on a salinity survey and the location of pipelines or flow envelops monitored by groundwater wells, return seawater trenches and anchialine pond locations. The sites were selected by design to provide the earliest detection of change in the groundwater intrusion to the coastal environment. The transect station distances adopted in 1993 are perpendicular to the shoreline extending to the approximate 20 meter depth contour. Ocean bottom sampling was included in the sampling regime due to concerns related to dense cold deep seawater sinking to lower depths when returning to the environment. Surface ocean water samples monitored the brackish, less dense

groundwater intrusion into the marine water, which tends to float when the ocean mixing energy is low. This strategy of focusing on groundwater intrusions at known infiltration locations was well thought out and effectively implemented by the staff at NELHA twenty-one years ago.

Since July 2007, NELHA has implemented the standard sampling procedure and analytical protocol of the August 31, 2004, HAR Title 11 Chapter 54 for its quarterly ocean transect sampling program. This adjustment required incorporating the coastal sampling program into its ocean transects at the specified distances in the Hawaii Administrative Rules. It also required the addition of total dissolved phosphorous, total dissolved nitrogen, pH, dissolved oxygen and chlorophyll-a analytes to be measured for all the transect stations. Historically, these analytes were only measured at the first station of the five station transect and at the coastal location. In addition, the NELHA Water Quality Laboratory has invested in a boat deck mounted GPS with programed waypoints to standardize the transect station locations. To enhance consistency and productivity, the NELHA Water Quality Laboratory incorporated the use of a peristaltic pump for sampling and a handheld YSI meter for in situ measurements of pH, DO, salinity, and temperature.

NELHA will represent the marine water transect data in one summary table and 7 analyte transect summary plots, for the 2013 – 2014 sampling, in Appendix A. For a historical perspective, the 1993 – 2014 five stations transect data will be presented in historical data tables and analyte station plots in Appendix A. The data tables and graphs will include geometric mean data, HDOH, HAR Title 11 Chapter 54 limits, and data range bars in the transect summary plots. See ***Figure 3*** for an example of transect summary plot and ***Figure 4*** for an example of a historical station plot. Please note, the historical station plots is a comparison of the perceived distances from the shoreline from 1993 – 2007 with the 2007 – 2014 data using HDOH, HAR Title 11 Chapter 54 locations that were sampled with the use of GPS coordinates (See ***Figure 1*** for a graphical representation of the different distances). ***Table 2*** represents the current transect locations as GPS coordinates and distances from the shoreline with the perceived distances from the shoreline from 1993 – 2007.

	GPS Coordinates 2007-2011						Distance from Shoreline (meters)	
Transect	*1*	*2*	*3*	*4*	*5*	*6*	*2007-2011*	1993-2007
Station 1	*19˚43'55N 156˚03'25W*	*19˚43'52N 156˚03'35W*	*19˚43'40N 156˚03'43W*	*19˚43'36N 156˚03'40W*	*19˚43'19N 156˚03'27W*	*19˚42'44N 156˚02'60W*	*1*	*8*
Station 2	*19˚43'55N 156˚03'25W*	*19˚43'52N 156˚03'35W*	*19˚43'40N 156˚03'43W*	*19˚43'36N 156˚03'40W*	*19˚43'19N 156˚03'28W*	*19˚42'44N 156˚02'60W*	*10*	*23*
Station 3	*19˚43'56N 156˚03'26W*	*19˚43'54N 156˚03'36W*	*19˚43'40N 156˚03'45W*	*19˚43'35N 156˚03'41W*	*19˚43'19N 156˚03'29W*	*19˚42'44N 156˚03'1W*	*50*	*38*
Station 4	*19˚43'58N 156˚03'27W*	*19˚43'55N 156˚03'37W*	*19˚43'40N 156˚03'47W*	*19˚43'34N 156˚03'43W*	*19˚43'18N 156˚03'31W*	*19˚42'43N 156˚03'3W*	*100*	*53*
Station 5	*19˚45'61N 156˚03'34W*	*19˚44'6N 156˚03'45W*	*19˚43'39N 156˚04'1W*	*19˚43'26N 156˚03'53W*	*19˚43'14N 156˚03'44W*	*19˚42'40N 156˚03'16W*	*500*	*69*

Table 2. *GPS coordinates and distances from shoreline for NELHA Ocean transect 1-6.*

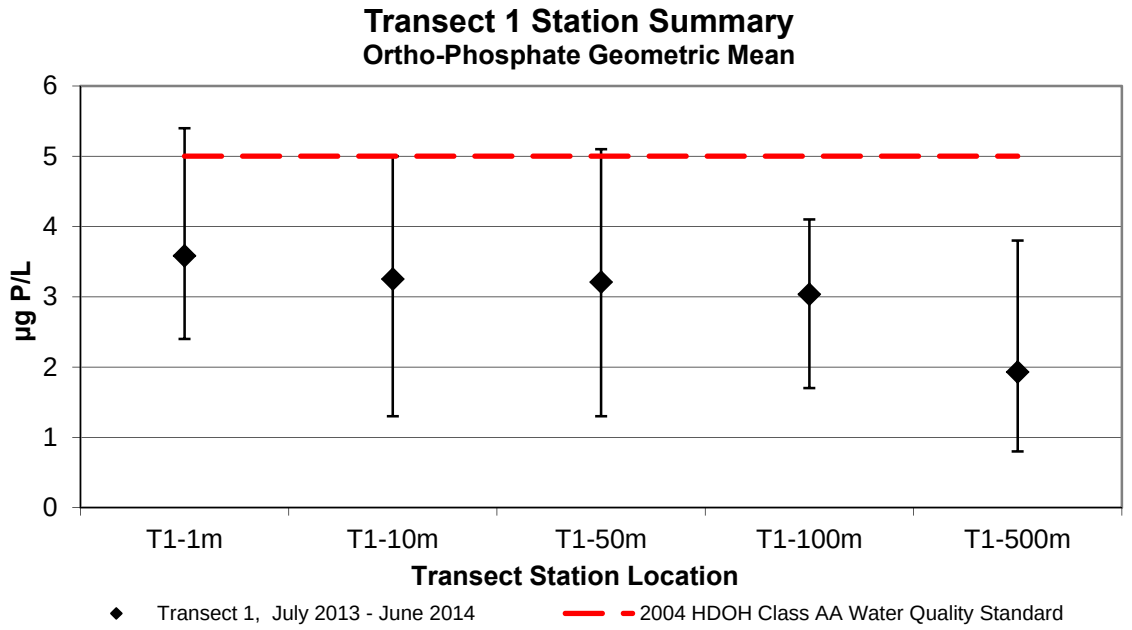


Figure 3. *Ocean transect summary plot example. The x axis is distances from the shoreline in meters (for example, T1-50m would be transect 1, at a station 50 meters from the shoreline). The y axis represents ortho-phosphate phosphorus concentrations. The closed diamonds are the yearly geometric mean of the 2013 – 2014 quarterly sampling. The range bars represent the minimum and maximum values of the plotted geometric means. The dashed line represents the HDOH, HAR Title 11 Chapter 54 limits.*

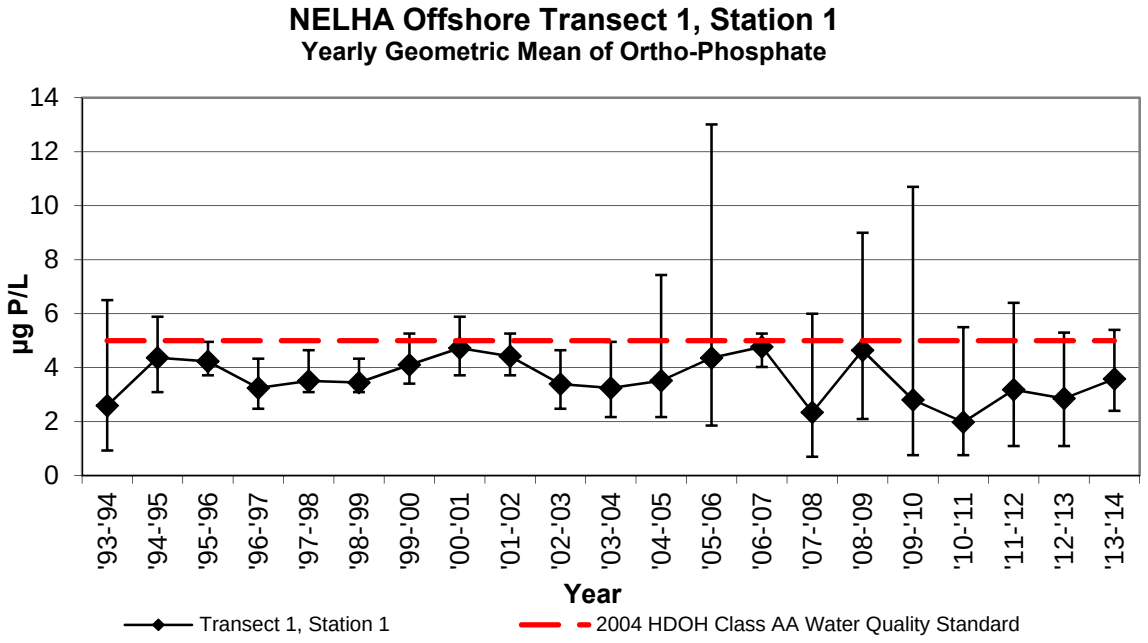


Figure 4. *Ocean transect historical station plot example. The x axis displays the year of the ocean transect station data (the plot title states the plot represents Transect 1, Station 1 for the fiscal years of 1993 – 1994 to 2012 – 2014). The y axis represents ortho-phosphate phosphorus concentrations. The closed diamonds are the yearly geometric mean of the 1993–2014 quarterly sampling. The range bars represent the minimum and maximum values of the plotted geometric means. The dashed line represents the HDOH, HAR Title 11 Chapter 54 limits.*

Groundwater

Conservative Mixing Model

NELHA evaluates groundwater within this report using two methods, a conservative mixing model (Dollar and Atkinson, 1992) and a timeline control plot. The conservative mixing model plots a linear relationship, called the conservative mixing line, in conjunction with groundwater data. The conservative mixing line is the connection of pipeline seawater and upslope control well groundwater "endpoints" to describe the natural mixing of groundwater with seawater. The groundwater "endpoint" represents a high nutrient concentration at a salinity value in the brackish water regime. The control groundwater (W1, & W13) "endpoint" is then connected to either surface seawater (SSW) "endpoint" (low nutrient concentration and elevated salinity) or deep seawater (DSW) "endpoint" (high nutrient concentration and elevated salinity). By plotting the well data with the two conservative mixing lines, one can better interpret the nutrient concentration of the brackish water. The conservative mixing model shows nutrient enrichment if a sample is plotted above the surface seawater conservative mixing line. The conservative mixing model also shows nutrient uptake if a sample is plotted below the surface seawater conservative mixing line. In addition, by including the deep seawater conservative mixing line to the graphs, one can view the nutrient enrichment in relationship to nutrient rich deep seawater disposal at NELHA. See ***Table 3*** for endpoint data and potable groundwater nutrient data, and ***Figure 5-6*** for model examples.

SITE ID	n	PO4 (µg/L)	NO3 (µg/L)	NH3 (µg/L)	Si (µg/L)	TDP (µg/L)	TDN (µg/L)	SALINITY (PSU)	pH	DO (ppm)
SSW (Mean '82-'14)	1063	4.1	3.5	3.7	82.1	11.2	73.5	34.72	8.26	6.70
DSW 2000' (Mean '88-'14)	816	94	576	2.5	2374	97	617	34.39	7.58	1.28
DSW 3000' (Mean '06-'14)	113	93	599	3.2	2783	94	630	34.51	7.62	1.69
Well 1 (Mean '89-'14)	265	104	1179	3.3	18203	107	1221	8.74	7.89	7.20
Mean Potable Wells West Hawaii	42	105	1405	3.0	26078	179*	1998*	0.30		
Min. Potable Wells	1	44	615	0.0	16362	77*	952*	0.06		
Max. Potable Wells	1	148	3320	22	32043	256*	4727*	0.98		
Tap Water (NELHA)	1	127	1164	<1.1	24491	132	1821	0.75	7.59	
NELHA Groundwater Y intercept	1354	136	1632					0		
1997 HDOH Y intercepts	?	116	1101			111	1475	0		
Rain Water	1	27	67	85	10	37	109	0.02		
R1 Treated Effluent (Maui)	1	1700	6320	260		1720	7330		6.9	1.6
§11-54-6, HDOH West Hawaii Limit		5.0	4.5	2.5		12.5	100			

Table 3. *Well 1, surface and deep seawater data was used for the conservative mixing line end points. Additional data in the table is for comparative purposes, which include surface and deep seawater, groundwater, potable wells situated from Kawaihae to Kealakekua Bay in West Hawaii (unpublished data courtesy of T. Nance and S. Dollar), tap water at NELHA, Y intercepts from NELHA SSW and Well 1 end points, Y intercepts from the March 1997 HDOH Rationale for the Development of Area-Specific Water Quality Criteria for the West Coast of the Island of Hawaii and Procedures for their use, rain water from the Kona Palisades subdivision and R1 treated wastewater effluent at the Kihei Treatment Plant on Maui. *Total Phosphorus or Total Nitrogen reported.*

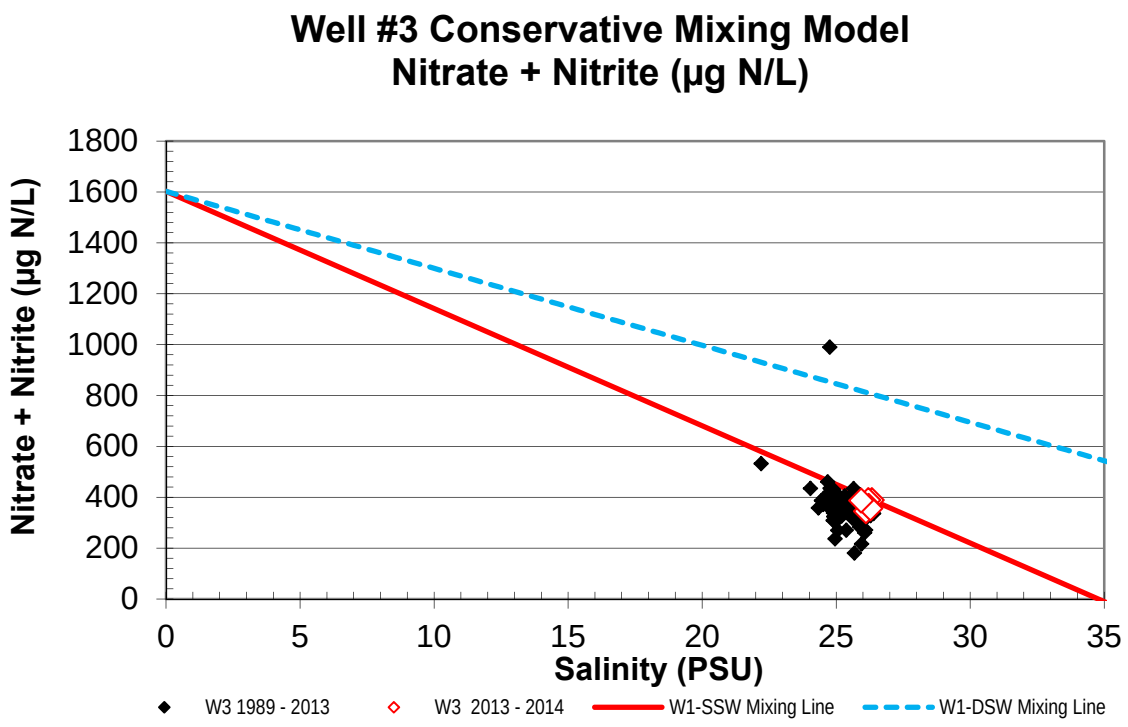


Figure 5. *Typical conservative mixing model with no nutrient subsidies.*

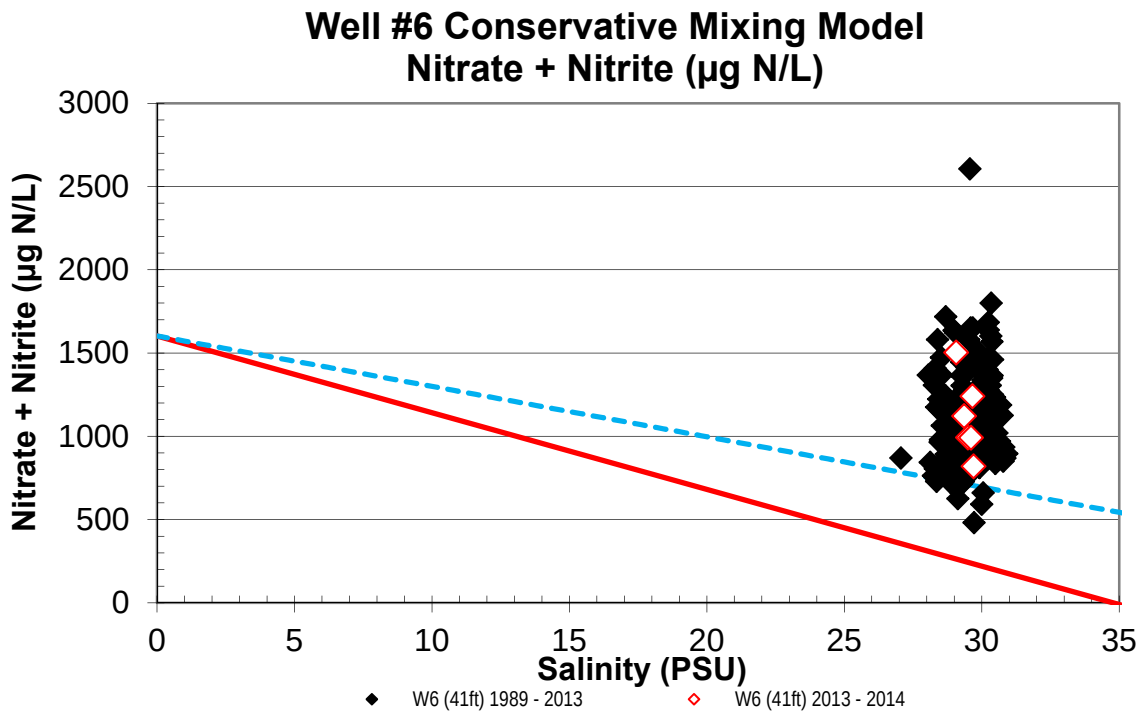


Figure 6. *Typical conservative mixing model with nutrient subsidies above the surface seawater and deep seawater mixing plot lines.*

In addition to using a conservative mixing model, NELHA will represent the groundwater data in a timeline control plot format (See ***Figure 7-8)***. The baseline for the timeline control plot groundwater water quality chemistry was developed by identifying historical periods of little or no activity and calculating the analytes mean and standard deviation. Therefore the baseline is the mean and detected changes can be found outside the calculated three standard deviations (±3s). The NELHA water quality laboratory will use the timeline control plot in conjunction with the conservative mixing model to evaluate groundwater data.

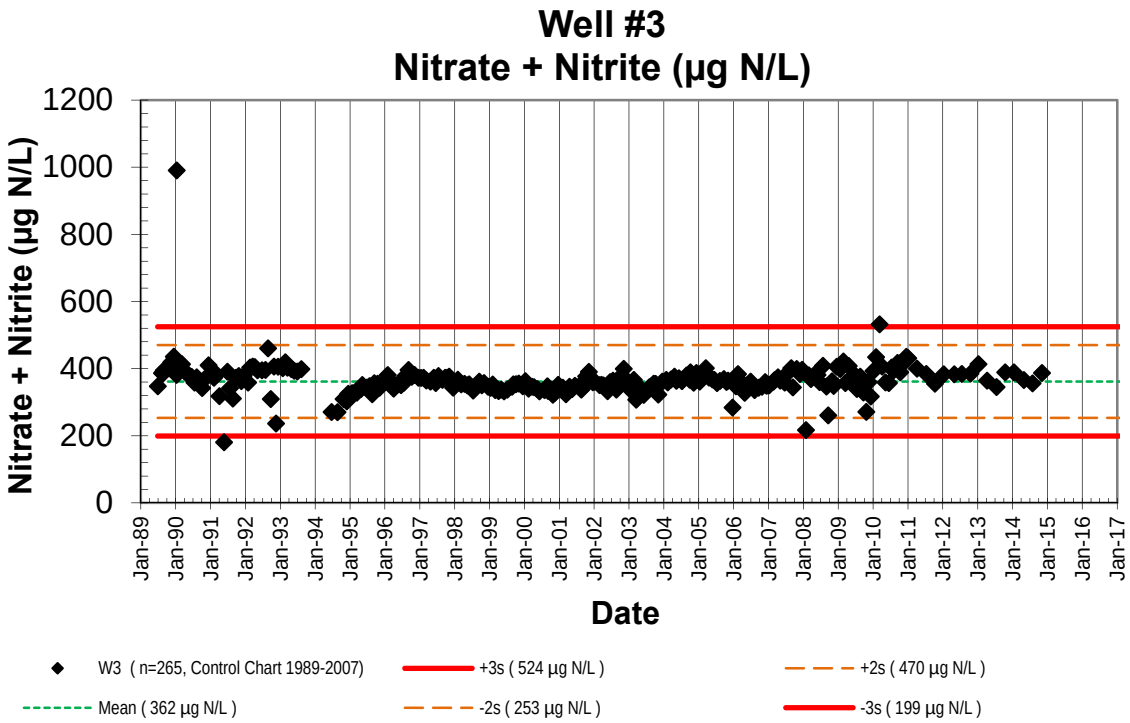


Figure 7. *An example of a stable groundwater control plot showing time on the x axis and concentration on the y axis with data from well 3 from 1989 to 2014 as closed diamonds. The green short dashed line represents the mean, the red solid lines represent three standard deviations (±3s) from the mean, and the orange long dashed lines represent two standard deviations (±2s) from the mean. The sample population used to calculate the mean and standard deviations were from 1989 – 2007.*

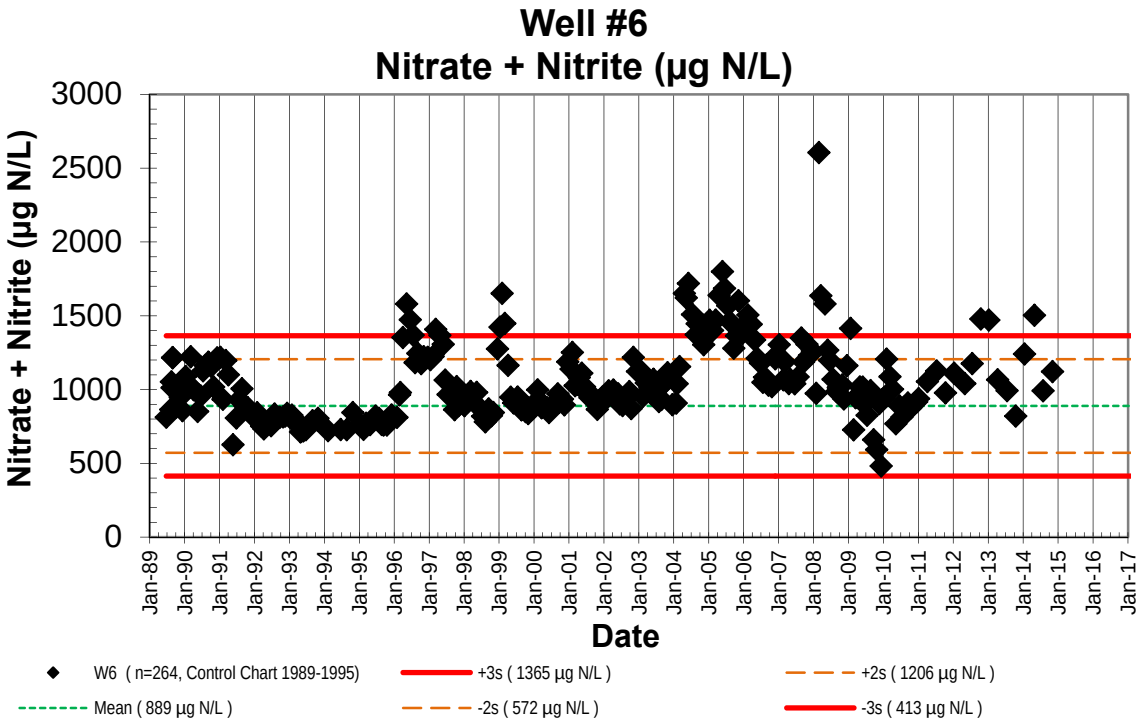


Figure 8. *An example of an irregular groundwater control plot showing time on the x axis and concentration on the y axis with data from well 6 from 1989 to 2013 as closed diamonds. The green short dashed line represents the mean, the red solid lines represent three standard deviations (±3s) from the mean, and the orange long dashed lines represent two standard deviations (±2s) from the mean. The sample population used to calculate the mean and standard deviations were from 1989 to 1995.*

Wells

The groundwater monitoring program has three components: groundwater wells, anchialine ponds, and seawater return trenches. The first component, groundwater wells, focuses on 34 strategically placed wells on the NELHA property. NELHA began monitoring 15 groundwater wells on June 1989. Six additional wells were added to the program on May 1992 to evaluate the performance of seawater return trench 4. In 2008, NELHA received $300,000 of Capital Improvement Project (CIP) funding from the State legislature to add an additional 13 groundwater monitoring wells to the CEMP program. By January 2009, all 34 wells on the NELHA property were monitored at a monthly frequency (See ***Table 4*** for GPS coordinates and ***Figure 9a-9b*** for map locations). The well monitoring frequency was reduced to quarterly on January 2011 to enhance the overall monitoring at the facility with the addition of 53 seawater disposal monitoring locations.

Wells are in groupings of up to three bore holes in a Well-Set. A Well-Set usually has a shallow well ranging in salinity from 5-31 PSU, a mid-depth well ranging in salinity from 14-33 PSU, and a deep well ranging in salinity from 15-34 PSU. The wells were drilled with truck-mounted rotary drilling equipment. The wells were monitored during the drilling for temperature and conductivity in an attempt to delineate fresh, brackish, and salt water boundaries. A two-inch PVC casing and screen were installed in each bore hole with the screened portion isolating the zone (fresh, brackish, salt water).

The annulus space of the wells was packed with sand blasting material and/or crushed basalt rock. The wells were sealed using bentonite and cement grout.

A dedicated bladder pump sampling system was recommended by C.W. Associates (1988 Geolabs-Hawaii 8-9) for the initial 21 wells. It is unclear to the author the rational used to determine the installation depths of the dedicated bladder pumps. It is also unclear if the bladder pump depths have changed over time as the dedicated pumping systems were periodically refurbished with new bladders, tubing and check valves. It was also recommended that purge pumps be installed to purge the well 3-10 well volumes prior to sampling (1988 Geolabs-Hawaii 9). The NELHA well purging and sampling procedure from 1989 – 2007 was based on purge time. The purging procedure for the dedicated bladder pumps was 5 minutes for shallow wells, 10 minutes for mid depth wells, and 15 minutes for deep wells, before samples were taken. Sample bottles were triple rinsed with sample water prior to actual sample collection. By July 2007, the purge time protocol was changed to a purge volume protocol or in situ stability criteria of temperature and salinity. The NELHA Water Quality Laboratory also added in July 2007 depth to water measurements to the matrix of field data monitored at each well.

It is standard procedure that a well should be purged sufficiently to ensure a representative sample. The standard purge volumes that the EPA, USGS and Standard Methods recommend fall in the range of 3 – 10 well volumes (EPA 2; USGS Chapter 2, 49; Standard Methods 1-28). Due to the highly porous nature of the formation and past experience examining temperature, conductivity and pH changes during the purge cycle, the NELHA Water Quality Laboratory adopted a standard practice of purging three well volumes. In June 2010, NELHA adjusted the purge volumes protocol, based on the stability criteria the USGS reports in the *National field manual for the collection of water-quality data* (variously dated USGS) of ± 0.2˚C for temperature and ± 3% for salinity. In situ measurements of these analytes are recorded on the sample manifest sheet during the purging period until the stability criteria is met then sampling commences after the sample bottles have been rinsed three times with the purge water.

The NELHA Water Quality Laboratory specified Grundfos Redi-Flo 2, Variable Frequency Drive (VFD) and a Reel-EZ pump system in September 2008 as part of a greater CIP project to expanding our 21 environmental groundwater monitoring well program to a total of 34 environmental groundwater monitoring wells. The system was chosen based on recommendations from various environmental engineering consultants, the NELHA Operations Department's positive operational experience with Grundfos pumps, system mobility criteria and pump flow rate specifications. One of the issues identified with the older bladder pump system was pumping preformance. By choosing a system with a potential 9 gallon per minute flow rate and the ability to lift 250 feet, the NELHA Water Quality Laboratory would be able to reduce the time requirements to purge each well. However, dedicated bladder pump systems have the advantage of simpler design, reduced chances of cross contamination and the use of corrosion resistant plastic parts. It was initially proposed to install dedicated submersible pump system for all our wells. Unfortunately, due to the low conductivity requirements of the various centrifugal pumping systems available on the market, it was determined that NELHA's environmental monitoring wells were outside the appropriate application for this class of pumps to deploy as a dedicated system.

The two new mobile Grundfos Redi-Flo 2 pumps were phased into operation by October 2008. During the phase in period the older bladder pumps were extracted from each environmental monitoring well and measurements were made to determine the bladder pump intake screen depth from the top of the casing. By January 2009, 13 drilled wells were brought on line. For the newer wells, the pumping depths were chosen based on the mid-point of the screened zone. However, in some circumstances, when the depth to water measurement was lower than the top of the screened zone, the pumping depth was designated at the mid-point of the groundwater column.

In April 2009, the NELHA Water Quality Laboratory experienced complications with the Grundfos Pumps. Due to severe overheating and silt contamination, both Grundfos pumps windings eventually shorted out. Two new Grundfos pumps were purchased to replace the damaged pumps and two additional 12 volt Proactive Mini-Monsoon sampling pumps were added to the NELHA Water Quality Laboratory groundwater pumping system. The Mini-Monsoon pumps are designed to pump in substandard conditions with a lift of 70 feet and a 400 hour services life. The NELHA Water Quality Laboratory will use these pumps in high conductivity applications, where there is silt and sand present in the well, and when the lift requirements are less than 70 feet. The Grundfos pumps will be reserved for applications that require greater than 70 feet of lift in low conductivity groundwater.

Anchialine Pond

Anchialine pond water quality monitoring is the second component of the CEMP groundwater program. Anchialine ponds are defined as land locked pools adjacent to the sea with measurable salinities and tidal fluctuations. Natural anchialine ponds are restricted to highly porous substrates, such as lavas or limestone. Most of the known Hawaiian anchialine ponds are found on the western and southern shorelines of the Big Island of Hawaii. NELHA historically has monitored two clusters of anchialine ponds, one located in the northern NELHA complex, and the second grouping found in the southern part of the facility located on the Department of Transportation, Keahole Airport property. A third anchialine pond area was discovered just north of the 55” pump station and was added to the program on July 9, 2012. Water quality parameters were monitored historically on a quarterly basis. On December 2007, the NELHA Water Quality Laboratory changed its monitoring frequency of the anchialine ponds to monthly but reduced back to its historical quarterly sampling frequency by January 2011.

Seawater Return Trenches

The third groundwater water quality monitoring component is the sampling of seawater return trenches. There are two seawater return trenches that were historically monitored on a quarterly basis on the NELHA property. The seawater return trenches are located close to aquaculture clients and an onshore OTEC facility where excess seawater from their operations was gravity feed into the seepage trench. The trenches are designed to increase residence time and warm the deep seawater before it moves through the porous basalt lava rock towards the ocean. The increased residence and contact time with the porous formation allows natural processes to breakdown nutrients before reaching the nearshore environment. Long term monitoring insures that the trenches are within baseline water chemistry levels acceptable by the HDOH, HAR Title 11 Chapter 62 rules.

On December 2007, the NELHA Water Quality Laboratory changed its monitoring frequency of seawater return trenches to monthly. Since January 2011, seawater return trench water chemistry monitoring has been reduced to its historical quarterly sampling frequency.

Groundwater GPS Coordinates

Location	Latitude	Longitude	Location	Latitude	Longitude
Well-Set 1 (W1)	19°42'57"N	156°02'05"W	Well-Set 10 (W10)	19°43'21"N	156°03'23"W
Well-Set 2 (W2)	19°42'45"N	156°02'55"W	Well-Set 11 (W11)	19°43'31"N	156°03'30"W
Well-Set 3 (W3)	19°43'40"N	156°03'07"W	Well-Set 12 (W12)	19°44'57"N	156°03'04"W
Well-Set 4 (W4)	19°43'38"N	156°03'17"W	Well-Set 13 (W13)	19°43'27"N	156°01'58"W
Well-Set 5 (W5)	19°43'44"N	156°03'38"W	Seawater Return Trench 4 (SRT4)	19°43'47"N	156°03'31"W
Well-Set 6 (W6)	19°43'36"N	156°03'35"W	Seawater Return Trench 5 (SRT5)	19°43'23"N	156°03'17"W
Well-Set 7 (W7)	19°43'49"N	156°03'34"W	Anchialine Pond 1 (A1)	19°43'53"N	156°03'25"W
Well-Set 8 (W8)	19°43'47"N	156°03'28"W	Anchialine Pond 2 (A2)	19°42'60"N	156°02'54"W
Well-Set 9 (W9)	19°42'54"N	156°02'38"W	Anchialine Pond 3 (A3)	19˚42'50"N	156°02'54"W

Table 4. *Groundwater GPS coordinates.*

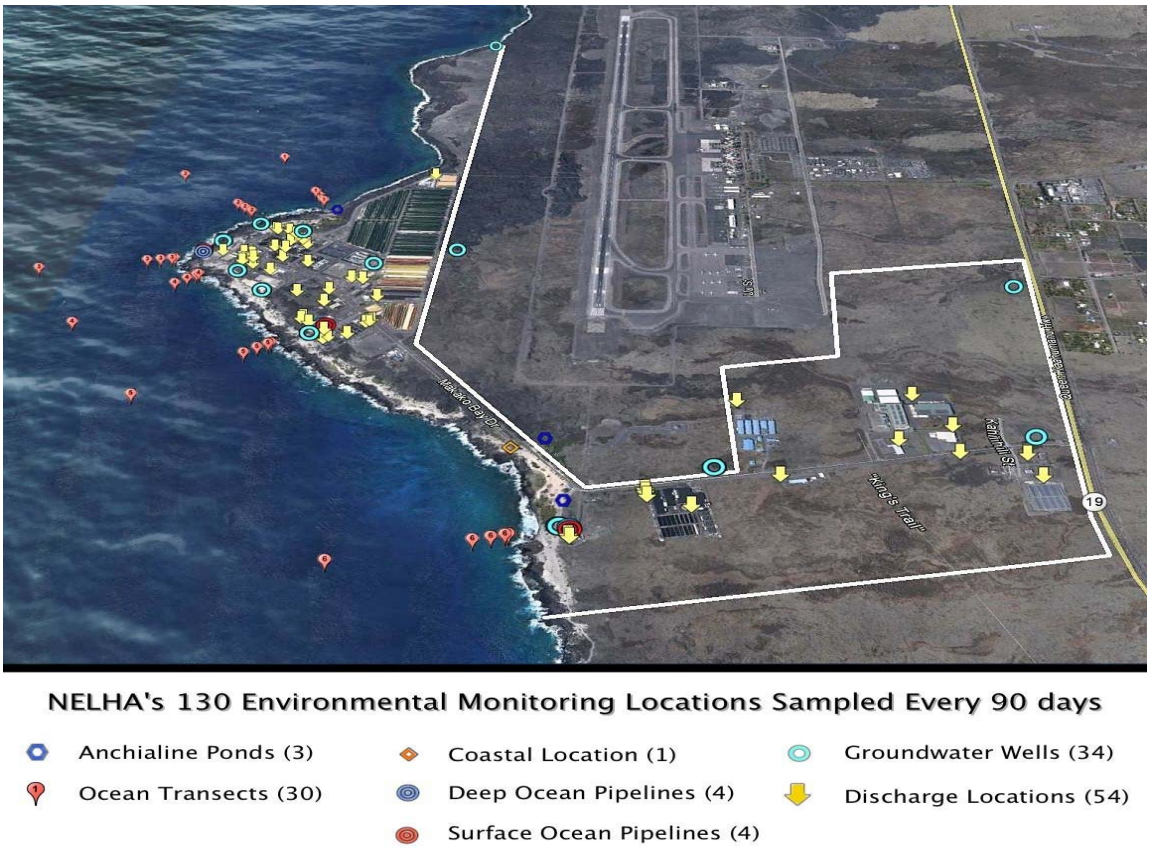


Figure 9a. *Google Map view of water quality monitoring stations at NELHA.*

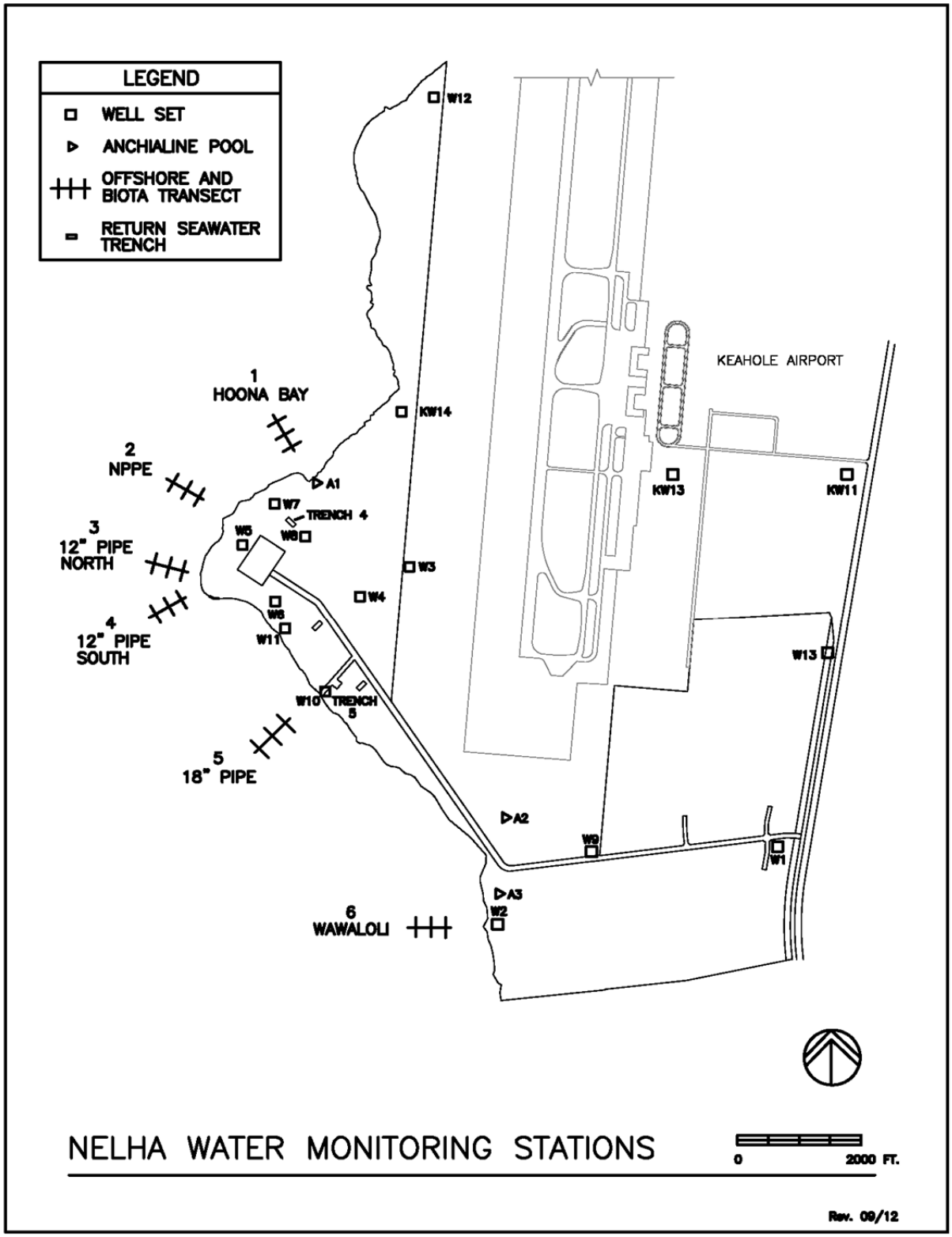


Figure 9b. *Locations of water quality monitoring stations at NELHA.*

MARINE SAMPLING REGIME CHANGE

The HDOH has outlined in the report *1997 Rational for the Development of Area-Specific Water Quality Criteria for the West Coast of the Island of Hawaii and Procedures for Their Use* specific methods on how to sample and calculate a geometric mean or the slope of a linear regression to evaluate ocean transect results with the stated HDOH limits. NELHA changed its marine water transect sampling procedure by July 2007 to comply with the HDOH, HAR Title 11 Chapter 54 rules. However, there are several challenges NELHA faces with its pre July 2007 data set when comparing results to the 2004 HDOH procedures and specification. First, the historical NELHA transect stations are located in the nearshore region. In contrast, the HDOH transect station locations represent both the nearshore and offshore (see ***Figure 1***). The second problem with NELHA's historical data is the interpretation of the 1 meter sample. Historically these samples were labeled as coastal samples and were taken on different day/month from the ocean transect samples within the quarterly sampling frequency. It is difficult to merge the coastal historical data with the nearshore transect data. This can be seen if the salinity data triggers the required linear regressions on the data set. On several occasions, the historical data set would generate positive slopes from the regression because of the differences of salinity values on dissimilar sampling dates. NELHA will not be representing the nearshore data in the HDOH methodology using the historical coastal data for this report. NELHA rectified this situation by collecting all offshore transect data on the same day starting on July 1, 2007.

MARINE SAMPLING RESULTS

NELHA has compiled the calculated geometric mean results according to the HDOH, HAR Title 11 Chapter 54 protocol. There is a great degree of interpretation on how to evaluate the HDOH rules. NELHA will follow the *1997 Rational for the Development of Area-Specific Water Quality Criteria for the West Coast of the Island of Hawaii and Procedures for Their Use* report. This report is very clear on how to handle surface seawater samples when the salinity is below 32 PSU. However, what is unclear from the report is how to compare data with salinity values above 32 PSU. From the 1997 Rational report, "For those parameters with concentrations that do not exist in a distinct onshore/offshore gradient a geometric mean "not to exceed" value is given for all open coastal waters of the area." There have been two approaches discussed by experts in the field regarding the geometric mean "not to exceed" value. The first approach is to directly compare the results of each yearly geometric mean transect stations to the HDOH limits. The second approach is to take the geometric mean of all the transect stations and compare that result to the HDOH limits. NELHA will report the ocean transect data in this report as yearly geometric means of transect stations to the HDOH limits for the 2013 – 2014 fiscal year and the historical data for trend evaluations. This decision was guided by comments made during the April 24, 2008 West Hawaii Water Quality Conference sponsored by the County of Hawaii, Planning Department.

NELHA would also like to point out that very small changes in salinity may create large changes in the nutrient concentrations in the nearshore environment. Salinity changes due to groundwater infiltration may lead to significant nutrient subsidies to the nearshore environment. Let us consider the groundwater contribution that would reduce the salinity from 35 PSU to above 32 PSU by applying the conservative mixing line with

one "endpoint" from the 28 inch surface seawater pipeline at NELHA and the other "endpoint" from brackish water from a control wells at eastern boarder of the HOST Park property. The control wells, well 1 and well13 represent groundwater upslope of NELHA's activities and is in alignment with well nutrient data obtained from the Kailua Kona Airport, well WA11A. NELHA's control wells are also in the mid-range of the potable well data for West Hawaii (see ***Table 3***). The plotted results show very small changes in salinity will have a dramatic effect on analyte concentrations such as nitrate + nitrite nitrogen or ortho-phosphate phosphorus in the nearshore environment (see ***Figure 10a***).

Figure 10a shows a scatter plot of sixteen years of nitrate + nitrite nitrogen data of ocean transect six with the HDOH and NELHA groundwater to surface seawater conservative mixing line as described above. By examining the slope of the NELHA conservative mixing line one can see that 0.05 PSU change from the average 34.76 salinity of surface seawater brings the conservative mixing line outside of the 2004 HDOH HAR §11-54-6 limit represented as the red horizontal dashed line. For reference the geometric mean of all of the transect data is shown as a blue filled diamond which is outside of the 2004 HDOH HAR §11-54-6 limit but below the conservative mixing line. In comparison, the same data was plotted against a silicate conservative mixing line in ***Figure 10b.*** Silicate is another indicator of fresh water influx to the nearshore environment. The plotted data from ocean transect 6 shows a stronger relationship to silicate than salinity.

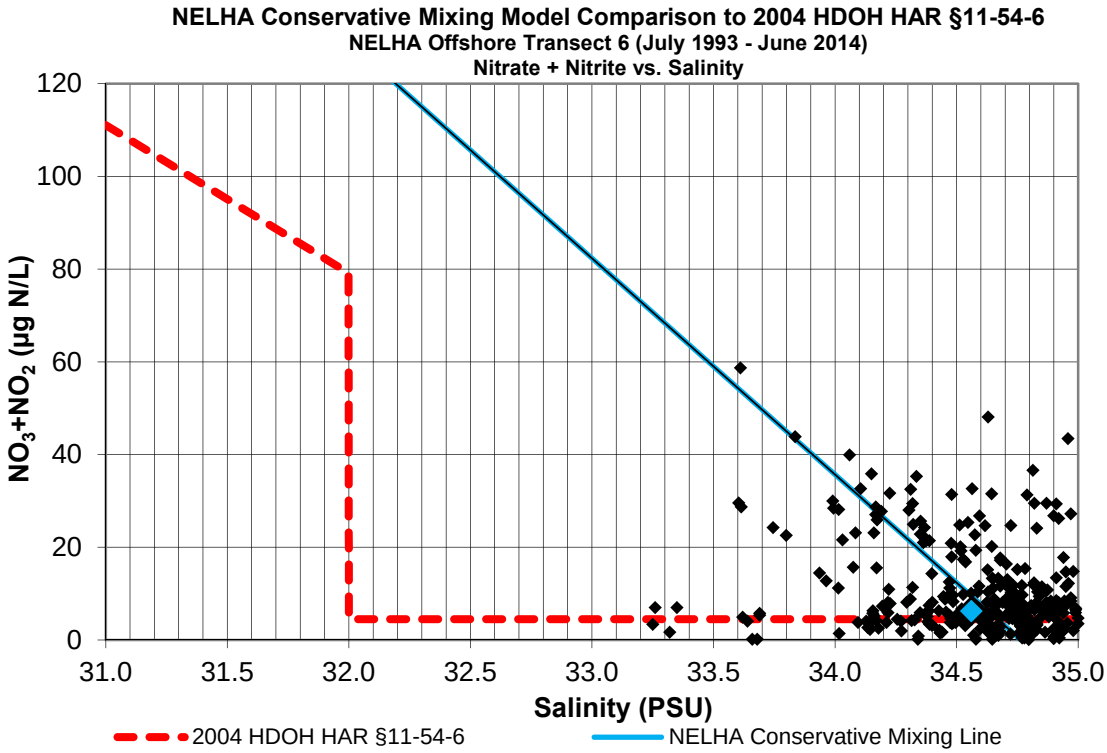


Figure 10a. *A comparison plot shows historical data from transect 6, black diamonds, with NELHA's conservative mixing model, blue line, and the irregular HDOH mixing plot line equation, dashed red line, following the1997 Rational for the Development of Area-Specific Water Quality Criteria for the West Coast of the Island of Hawaii and Procedures for Their Use report.*

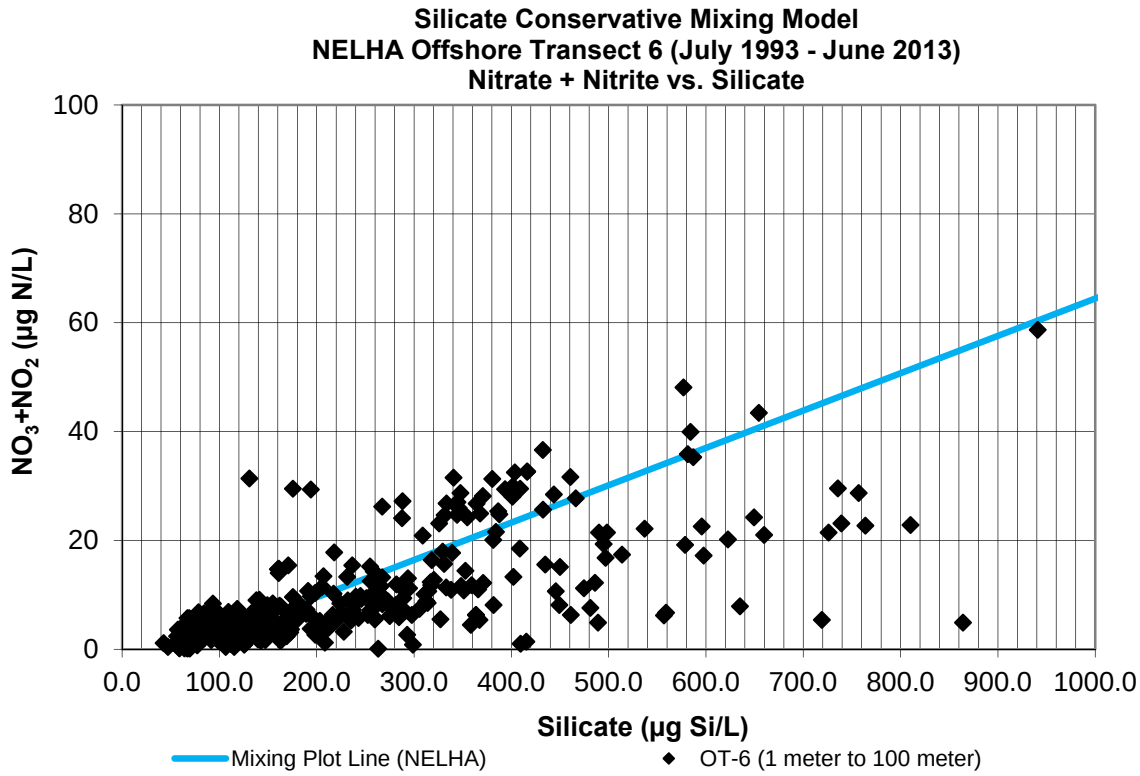


Figure 10b. *Silicate conservative mixing model plotted with nearshore ocean transect 6 historical data.*

From 1993 to 2007 the NELHA Water Quality Laboratory conducted surface and bottom sampling at its six ocean transect locations. Disposal of cold dense nutrient rich deep seawater from the OTEC facility into seawater return trenches prompted concerns that this thermally cold water body would concentrate at the bottom region of the nearshore environment. When comparing fourteen years of bottom sample data to surface sample data, there is no conclusive evidence of substantial differences in nutrient concentrations based on depth. ***Figure 11-12*** shows a typical transect analysis of nitrate + nitrite nitrogen and ortho-phosphate phosphorus. From this plot, one can conclude that the bottom samples are more likely to have lower nutrient concentrations than the corresponding surface samples. NELHA has discontinued bottom sampling of its six offshore transects based on the above analysis and a review of the regulatory requirements in HDOH, HAR Title 11 Chapter 54.

NELHA has historically taken surface seawater samples from our 12 inch and 28 inch pipeline starting in July 1982 (see Appendix C). The 12 inch pipeline data set brackets July 1982 to December 1988. The analysis of surface seawater continued with the 28 inch pipeline from January 1989 to present date. The 12 inch pipeline and 28 inch pipeline reside in similar locations. This historical record may be very informative for water quality data taken prior to, during and present day aquaculture, mariculture and water bottling activities at NELHA and HOST Park.

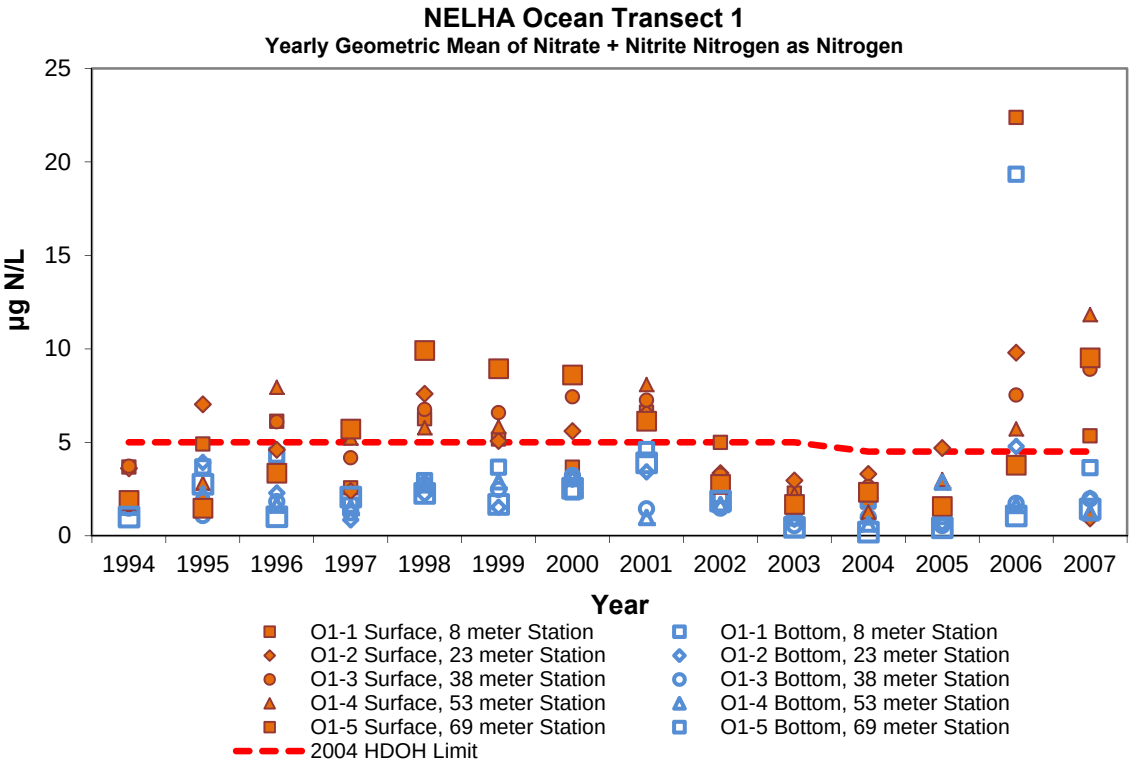


Figure 11. *Comparison of surface, orange closed symbols, and bottom, blue open symbols, ocean transect sampling for the analyte nitrate + nitrite nitrogen.*

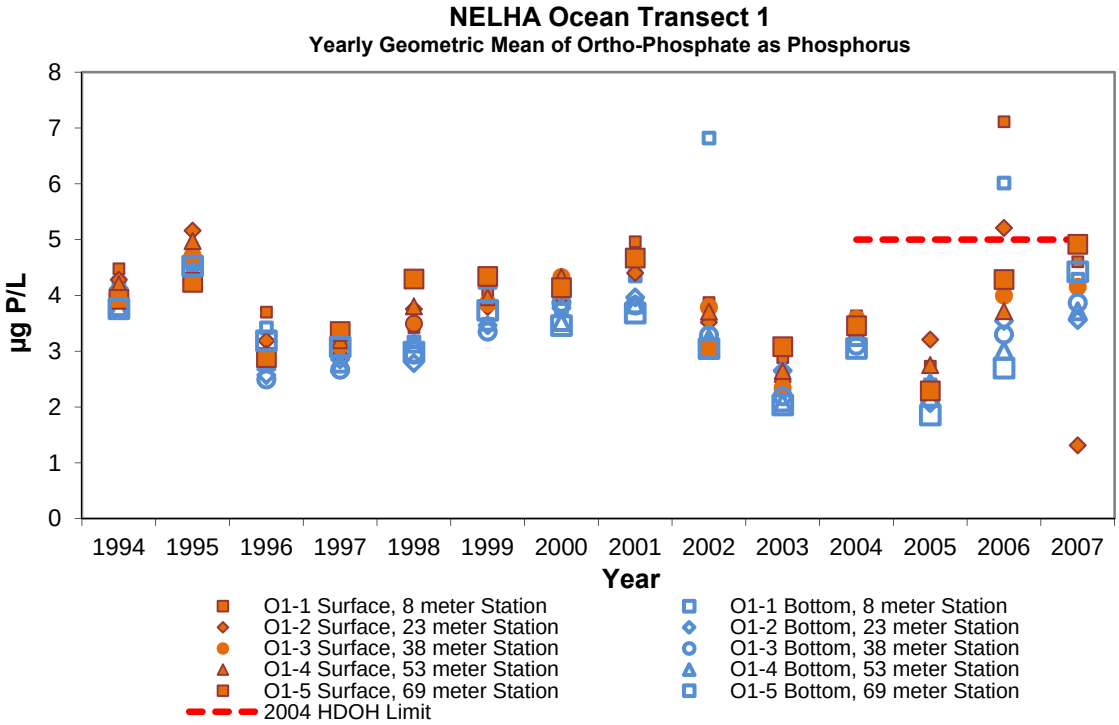


Figure 12. *Comparison of surface, orange closed symbols, and bottom, blue open symbols, ocean transect sampling for the analyte ortho-phosphate phosphorus.*

The intake location of the 12 inch surface seawater pipeline was 100 meters from the shoreline at a pipe depth of 8 meters in an ocean depth of 20 meters. The intake location of NELHA's 28 inch surface seawater pipeline is located 163 meters from the shoreline at a pipe depth of 21 meters in an ocean depth of 27.4 meters. The 12 inch pipeline and 28 inch pipeline sampling is approximately 31 to 94 meters further from the shoreline than NELHA's furthest transect station between 1994-2007, but within the range of the HDOH transect station sampling protocol and therefore the current NELHA transects. In addition, the sampling was conducted at 8 to 21 meters from the air water interface, which is 7 - 20 meters deeper than the HDOH transect station sampling protocol. One might conclude that the water quality from the 12 and 28 inch surface seawater pipeline would be more representative of open ocean water than nearshore seawater and therefore have no issues meeting the HDOH 2004 limits. In ***Figure 13***, the salinity from the 12 and 28 inch surface seawater pipeline averages around 34.7 PSU with a 0.4 PSU standard deviation. This suggests very little groundwater influence on the water quality. Please note, from May 2004 to December 2004 the salinity analysis was performed using a refractometer due to the repair of the A.G.E. Model 2100 precision salinometer. From July 2009 to present date the salinity analysis was performed using a hand held YSI 556 multiprobe as the company who supported the A.G.E Model 2100 precision salinometer is no longer commercial available for parts, or repairs.

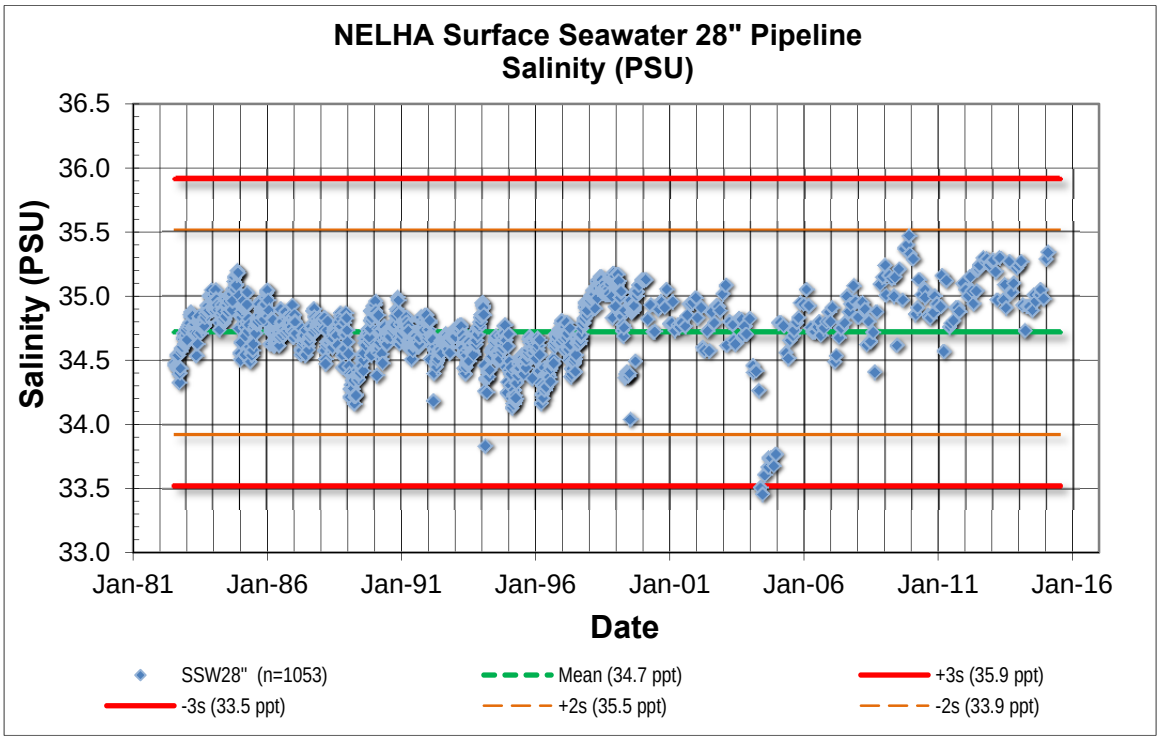


Figure 13. *Historical NELHA 28" pipeline surface seawater salinity data.*

In ***Figure 14*** the Ortho-Phosphorus scatter plot shows a great deal of variability. The mean Ortho-Phosphorus result from July 1982 to present date is 4.14 µg P/L with a standard deviation of 1.67 µg P/L. The geometric mean for the same period is 3.89 µg P/L and NELHA's annual geometric means are plotted as blue diamonds in ***Figure 14***. The 2004 HDOH limit is 5.0 µg P/L and is represented as the red line shown in the

scatter plot below. Before 2004 there were no HDOH limits for Ortho-Phosphorus. By visual inspection of ***Figure 14*** one can see the most recent upward trend is in line with the historical data. The evaluation of the data to the HDOH limits needs to be put in contexts of the analytical technique used and its limitations. In general, the nutrient analysis (ortho-phosphate phosphorus, nitrate + nitrite nitrogen, and total ammonia nitrogen) uses a colorimetric technique which is approaching the detection limits of the analytical equipment below 5.0 µg/L. In addition, there is a relationship between higher silicate and lower salinity concentrations with increased ortho-phosphate concentrations. Small changes in silicate and/or salinity can cause the ortho-phophate concentrations to exceed the HDOH limits. This is directly due to the infiltration of groundwater into the nearshore environment as discussed in ***Figure 10a***.

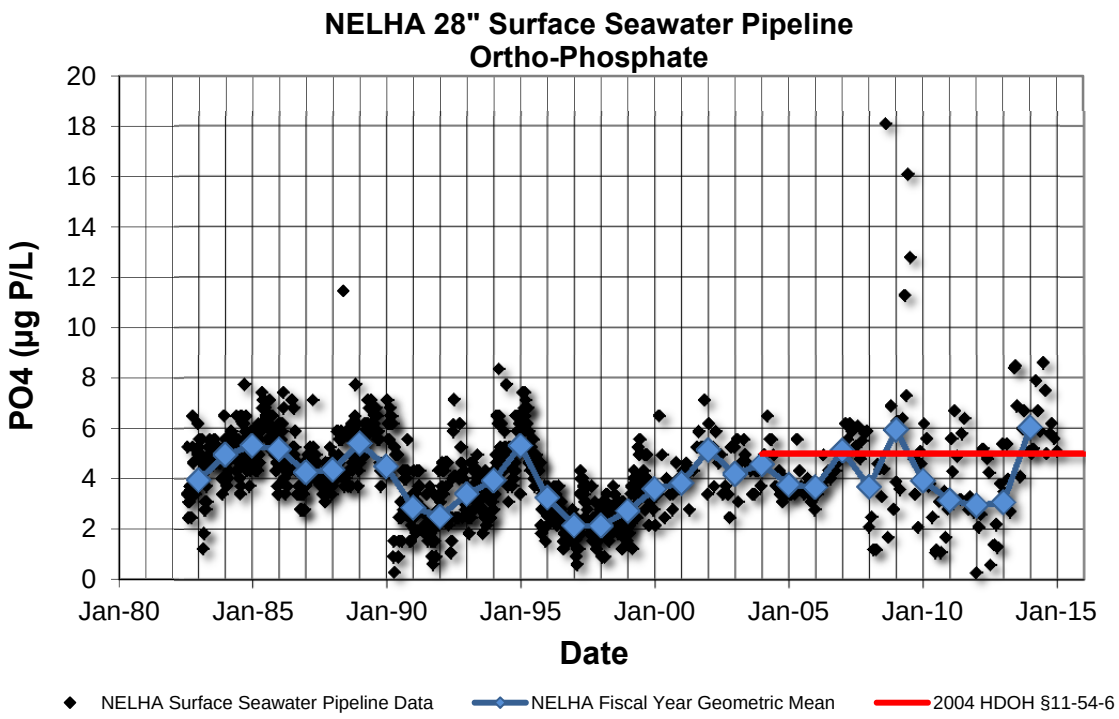


Figure 14. *Historical NELHA 28" pipeline surface seawater ortho-phosphate phosphorus data with NELHA annual geometric means in comparison to the HDOH limit.*

Figure 15 shows a nitrate + nitrite nitrogen scatter plot with the HDOH limits from 1979 to 2004, a geometric mean not to exceed 5.0 µg N/L and the HDOH limits from 2004 to present, geometric mean not to exceed 4.5 µg N/L. The mean nitrate + nitrite nitrogen result from July 1982 to present date is 3.48 µg N/L with a standard deviation of 3.14 µg N/L. The geometric mean for the same period is 2.88 µg N/L and NELHA's annual geometric means are plotted as blue diamonds in ***Figure 15***. Visually, the most recent data is more scattered than data in the early 1980's with slightly greater concentrations nitrate + nitrite nitrogen. As discussed in ***Figure 10a,*** some of the variation in the nitrate + nitrite nitrogen concentrations may also be due to small influx of groundwater.

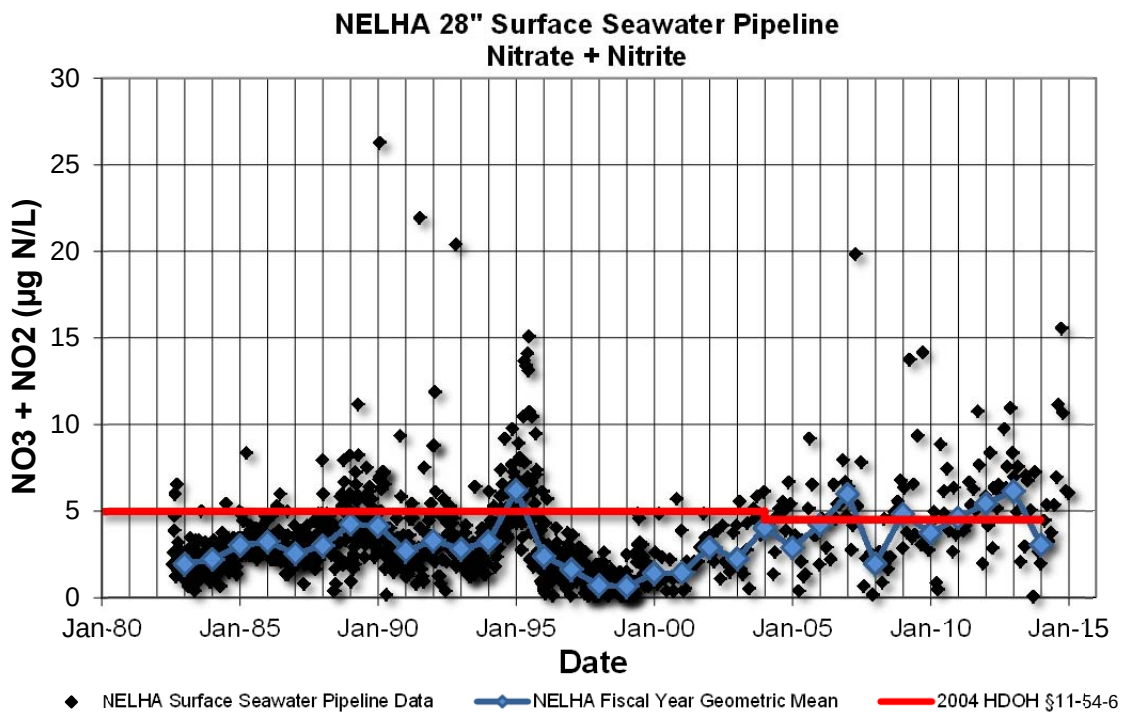


Figure 15. *Historical NELHA 28" pipeline surface seawater nitrate + nitrite nitrogen data with NELHA annual geometric means in comparison to the HDOH limits.*

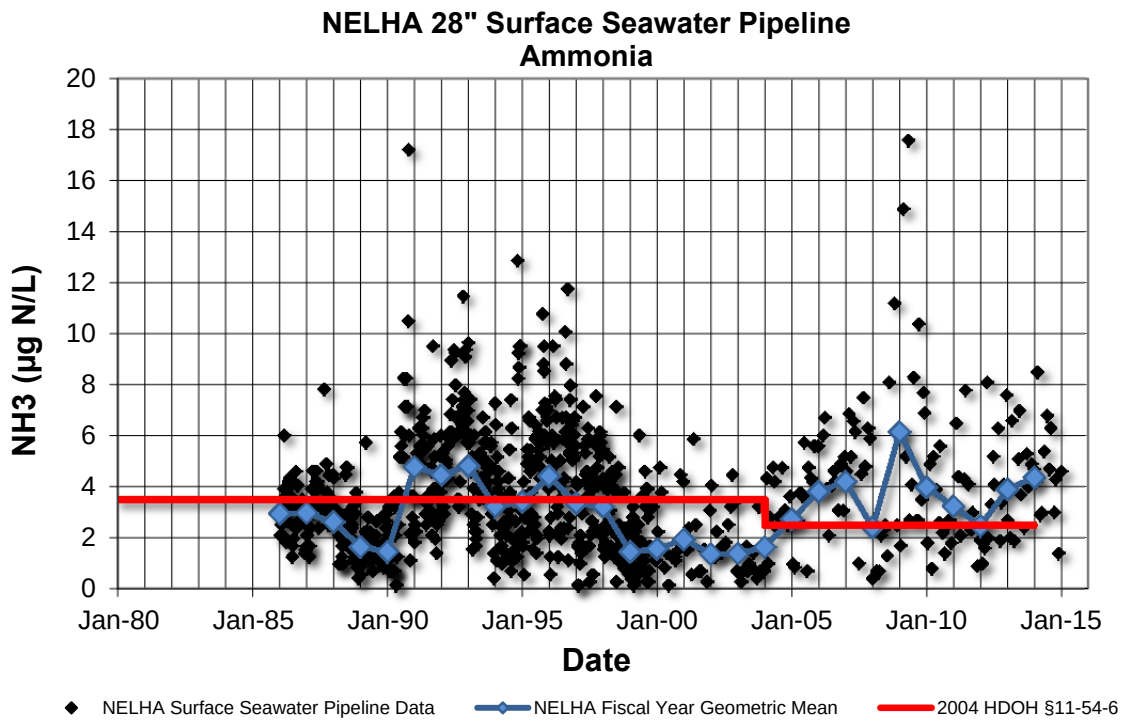


Figure 16. *Historical NELHA 28" pipeline surface seawater total ammonia nitrogen data with NELHA annual geometric means in comparison to the HDOH limits.*

Figure 16 shows the total ammonia nitrogen scatter plot with the HDOH 1979 to 2004 geometric mean not to exceed 3.5 µg N/L limit and the HDOH 2004 to present geometric mean not to exceed 2.5 µg N/L limit. The mean total ammonia nitrogen result from July 1982 to present date for NELHA's 28" Surface Seawater Pipeline is 3.73 µg N/L with a standard deviation of 3.13 µg N/L. The geometric mean for the same period is 2.84 µg N/L. NELHA's annual geometric means are plotted as blue diamonds in ***Figure 16***. It has been noted in the literature that total ammonia nitrogen has no relationship with salinity.

Ocean Transect Observations

NELHA's twenty-one years of ocean transect data shows chlorophyll-a results below the HDOH criteria for Class AA marine waters. However, total ammonia nitrogen, nitrate + nitrite nitrogen, ortho-phosphate phosphorus, total dissolved phosphorous, total dissolved nitrogen and turbidity on occasions have been slightly over the 2004 HDOH limit. Historically, the total ammonia nitrogen and nitrate + nitrite nitrogen show small fluctuations over the past twenty years of monitoring. After reviewing all the transect data, it appears that the yearly transect variations is minimal and there seems to be no upward trends. In addition, total dissolved nitrogen and total dissolved phosphorous are now monitored on all transect stations and therefore NELHA has only seven years of historical data to determine long term trends for these analytes for stations 2-5.

Ocean Transect Station Percent Compliance to
HDOH, HAR Title 11 Chapter 54 Water Quality Limits
NELHA Fiscal Year 2013-2014

Ocean Transect #	1	2	3	4	5	6
Ortho-Phosphate Phosphorus	100%	100%	100%	100%	100%	100%
Nitrate + Nitrite Nitrogen	20%	60%	40%	100%	40%	40%
Total Ammonia Nitrogen	20%	40%	0%	40%	40%	40%
Total Dissolved Phosphorus	0%	0%	0%	0%	0%	0%
Total Dissolved Nitrogen	80%	100%	100%	100%	60%	100%
Turbidity	100%	100%	100%	100%	100%	100%
Chlorophyll-a	100%	100%	100%	100%	100%	100%

Ocean Transect Station Percent Compliance to
HDOH, HAR Title 11 Chapter 54 Water Quality Limits
NELHA Fiscal Year 1993-1994 through 2012-2013

Ocean Transect #	1	2	3	4	5	6
Ortho-Phosphate Phosphorus	99%	99%	98%	99%	99%	94%
Nitrate + Nitrite Nitrogen	53%	71%	74%	94%	77%	33%
Total Ammonia Nitrogen	61%	58%	47%	49%	54%	45%
Total Dissolved Phosphorus	73%	61%	80%	73%	73%	68%
Total Dissolved Nitrogen	91%	95%	95%	100%	95%	98%
Turbidity	70%	82%	79%	85%	79%	67%
Chlorophyll-a	100%	100%	100%	100%	100%	100%

Table 5. *The summary tables outline percent compliance of nearshore surface seawater transect stations for the period of July 2013 to June 2014 and July 1993 to June 2013.*

Although NELHA has identified sample locations that have results slightly greater than the 2004 HDOH limit, it is more difficult to determine from the current data if the higher values are natural changes in the ocean; anthropogenic or natural subsides from groundwater, sampling contamination, and/or analytical issues measuring at the detection limits of our segmented flow nutrient analyzer. Reviewing the March 1987 *Alternative Methods of Seawater Return Flow Disposal* shows ocean transect data collected did not meet the 2004 HDOH limits. For example in 1987 the geometric mean total ammonia nitrogen was 3.2 µg N/L (2.5 µg N/L HDOH limit), total nitrogen was 220 µg N/L (100 µg N/L HDOH limit) and turbidity was 0.75 NTU (0.1 NTU HDOH limit). Please note, the 1987 report does not specify the location of the transect data or frequency of the sampling. Even during 1987, when there was very little aquaculture and mariculture activities at NELH and no development activity in the HOST Park, the ocean transect sampled exceeded the 2004 HDOH nearshore water quality limits for West Hawaii.

Ocean Transect 1

Ocean transect 1 is located just north of the NELHA Research Campus in the groundwater sampling envelope of anchialine pond A1. The location of this transect is known to have high volumes of fresh water infiltrating the nearshore environment. Historically, NELHA has observed slightly elevated values for total ammonia nitrogen between 1994 – 1998 and 2005 – 2007. The 2013 – 2014 values for total ammonia nitrogen are slightly above geometric mean 2.5 µg N/L HDOH limit, except for the 2.5 µg N/L value reported at the 500 meter distance station. The historical nitrate + nitrite nitrogen values have been scattered, above and below the 2004 HDOH limit. This trend continues for the 2013 – 2014 with results highest (5.5 µg N/L) in the nearshore and lowest offshore. The turbidity data had increased during the 2005 – 2008 period. The 2013 – 2014 turbidity values are below the 2004 HDOH limit. In general, the five stations of ocean transect 1 have been in compliance with the HDOH specifications for ortho-phosphate phosphorus, and chlorophyll-a. See ***Appendix A-T1*** for each of the transect station data tables and yearly trend plots. The % coral cover in transect 1 (Ho'ona Bay) is 37.3% shallow, 70.2% mid, 90.0% deep with a corresponding biomass of 74.5 g/m^2 shallow, 27.7 g/m^2 mid, 44.0 g/m^2 deep (2015 Bybee-Marine Environmental Monitoring Report 20, 25).

Ocean Transect 2

Ocean transect 2 is located just north of the Keahole Point Lighthouse in the groundwater sampling envelope of Well-Set 7 & 8 and seawater return trench 4. Historically, NELHA has observed slightly elevated values for total ammonia nitrogen between 1994 – 1998 and 2005 – 2007. The 2013 – 2014 values for total ammonia nitrogen are slightly elevated in the nearshore (4.2 µg N/L) and offshore (3.0 µg N/L) regions. In addition, the nitrate + nitrite nitrogen values are within the historical trends. The turbidity data had increased during the 2005 – 2008 period, similar to ocean transect one. However, turbidity for 2013 – 2014 has returned to its historical measurements below the 2004 HDOH limit. Total dissolved phosphorus trended slightly above the 2004 HDOH limit in all of the transect stations, including the furthest station 500 meters from

the shoreline for 2013 – 2014. In general, the five stations of ocean transect 2 have been in compliance with the HDOH specifications for ortho-phosphate phosphorus, total dissolved nitrogen and chlorophyll-a. See ***Appendix A-T2*** for each of the transect station data tables and yearly trend plots. The % coral cover in transect 2 (NPPE) is 59.0% shallow, 70.8% mid, 85.4% deep with a corresponding biomass of 81.9 g/m^2 shallow, 58.3 g/m^2 mid, 30.9 g/m^2 deep (2015 Bybee-Marine Environmental Monitoring Report 20, 25).

Ocean Transect 3

Ocean transect 3 is located seaward of the Keahole Point Lighthouse in the groundwater flow envelope of Well-Set 5. Historically, NELHA has observed slightly elevated values for total ammonia nitrogen from 1993 – 1998 and 2006 – 2007. The 2013 – 2014 values for total ammonia nitrogen are above the HDOH limit, including the 500 meter station (2.8 µg N/L). The nitrate + nitrite nitrogen has been within the historical trends where values are elevated in the nearshore and lower offshore. The turbidity data had increased during the 2005 – 2008 period, similar to ocean transects 1 and 2. However, turbidity for 2013 – 2014 has returned to its historical measurements below the HDOH limit. In general, the five stations of ocean transect 3 have been in compliance with the HDOH specifications for ortho-phosphate phosphorus, total dissolved nitrogen and chlorophyll-a. See ***Appendix A-T3*** for each of the transect station data tables and yearly trend plots. The % coral cover in transect 3 (12" Pipe North) is 43.4% shallow, 61.5% mid, 57.3% deep with a corresponding biomass of 93.0 g/m^2 shallow, 72.8 g/m^2 mid, 153 g/m^2 deep (2015 Bybee-Marine Environmental Monitoring Report 20, 25).

Ocean Transect 4

Ocean transect 4 is located south of the Keahole Point Lighthouse in the groundwater flow envelope of Well-Set 6. Historically NELHA has observed slightly elevated values for total ammonia nitrogen from 1994 – 1998 and 2005 – 2007. The 2012 – 2013 values for total ammonia nitrogen are below or within 1 µg N/L of the HDOH limit. The turbidity data had increased during the 2005 – 2008 period, similar to ocean transects 1, 2 and 3. In 2013 – 2014 turbidity values are below the 2004 HDOH limit. In general, the five stations of ocean transect 4 have been in compliance with the HDOH specifications for ortho-phosphate phosphorus, total dissolved phosphorus, nitrate + nitrite nitrogen, total dissolved nitrogen and chlorophyll-a. See ***Appendix A-T4*** for each of the transect station data tables and yearly trend plots. The % coral cover in transect 4 (12" Pipe South) is 33.4% shallow, 42.4% mid, 34.9% deep with a corresponding biomass of 89.0 g/m^2 shallow, 54.4 g/m^2 mid, 65.8 g/m^2 deep (2015 Bybee-Marine Environmental Monitoring Report 20, 25).

Ocean Transect 5

Ocean transect 5 is located between the NELHA research campus and the beach park in the groundwater flow envelope of seawater return trench 5, Well-Set 10 and 13. Historically NELHA has observed slightly elevated values for total ammonia nitrogen from 1994 – 1998 and 2005 – 2007. The 2013 – 2014 values for total ammonia nitrogen are below or within 1.5 µg N/L of the HDOH limit. The historical trend of nitrate + nitrite

nitrogen has been either slightly above or below the HDOH limit. The 2013 – 2014values for nitrate + nitrite nitrogen are elevated in the nearshore and below the HDOH limit offshore. The turbidity data had increased during the 2005 – 2008 period and was also high in 1996 – 1997. This year turbidity has been below the 2004 HDOH limit. In general, the five stations of ocean transect 5 have been in compliance with the HDOH specifications for ortho-phosphate phosphorus, total dissolved phosphorus, total dissolved nitrogen, and chlorophyll-a. See ***Appendix A-T5*** for each of the transect station data tables and yearly trend plots. The % coral cover in transect 5 (18" Pipe) is 50.8% shallow, 54.4% mid, 35.5% deep with a corresponding biomass of 79.6 g/m^2 shallow, 82.5 g/m^2 mid, 175.6 g/m^2 deep (2015 Bybee-Marine Environmental Monitoring Report 20, 25).

Ocean Transect 6

Ocean transect 6 is located south of the beach park in the flow envelope of Well-Set 1, 2 and 9. The location of this transect is known to have high volumes of fresh water infiltrating the nearshore. The area's development above ocean transect 6 has been limited before 2000. Historically NELHA has observed slightly elevated values for total ammonia nitrogen from 1994 – 1998 and 2005 – 2007. The 2013 – 2014 values for total ammonia nitrogen are slightly elevated in the nearshore (4.2, 4.8, & 4.3 µg N/L). The nitrate + nitrite nitrogen has also been slightly elevated in the nearshore but within the historical average. Turbidity has been elevated historically in the nearshore but in 2013 – 2014 was below the 2004 HDOH limit. In general, the five stations of ocean transect 6 have been in compliance with the HDOH specifications for ortho-phosphate phosphorus, total dissolved nitrogen, and chlorophyll-a. See ***Appendix A-T6*** for each of the transect station data tables and yearly trend plots. The % coral cover in transect 6 (Wawaloli Beach) is 43.4% shallow, 70.7% mid, 28% deep with a corresponding biomass of 51.4 g/m^2 shallow, 60.7 g/m^2 mid, 157.8 g/m^2 deep (2015 Bybee-Marine Environmental Monitoring Report 20, 25).

GROUNDWATER SAMPLING RESULTS

NELHA historically monitored twenty-one wells, two trenches and two anchialine ponds located on or in the vicinity of the facility. The wells have been good indicators for acute incidences of groundwater nutrient subsidies from business activities such as leaky tanks/ponds, effluent, and/or malfunctioning equipment. As such, NELHA successfully executed a $298,489.40 CIP contract in late 2008 to upgrade the CEMP groundwater monitoring program by adding an additional thirteen groundwater monitoring wells in areas not covered by the original program (see ***Figure 9a and 9b*** *for groundwater well locations)*. As of January 1, 2009, the NELHA Water Quality Laboratory has been monitoring thirty-four wells, two trenches and two anchialine ponds. On February 23, 2012, NELHA was notified of 4 ft. x 4 ft. anchialine pond located just north of the 55 in. pump station. NELHA has added the newly discovered anchialine pond, A3, to its quarterly water chemistry monitoring program on July 9, 2012 and in its biota monitoring program in fiscal year 2014 – 2015.

In this report, NELHA plotted ortho-phosphate phosphorus, nitrate + nitrite nitrogen and silicate silicon data using a conservative mixing model. Historical data is

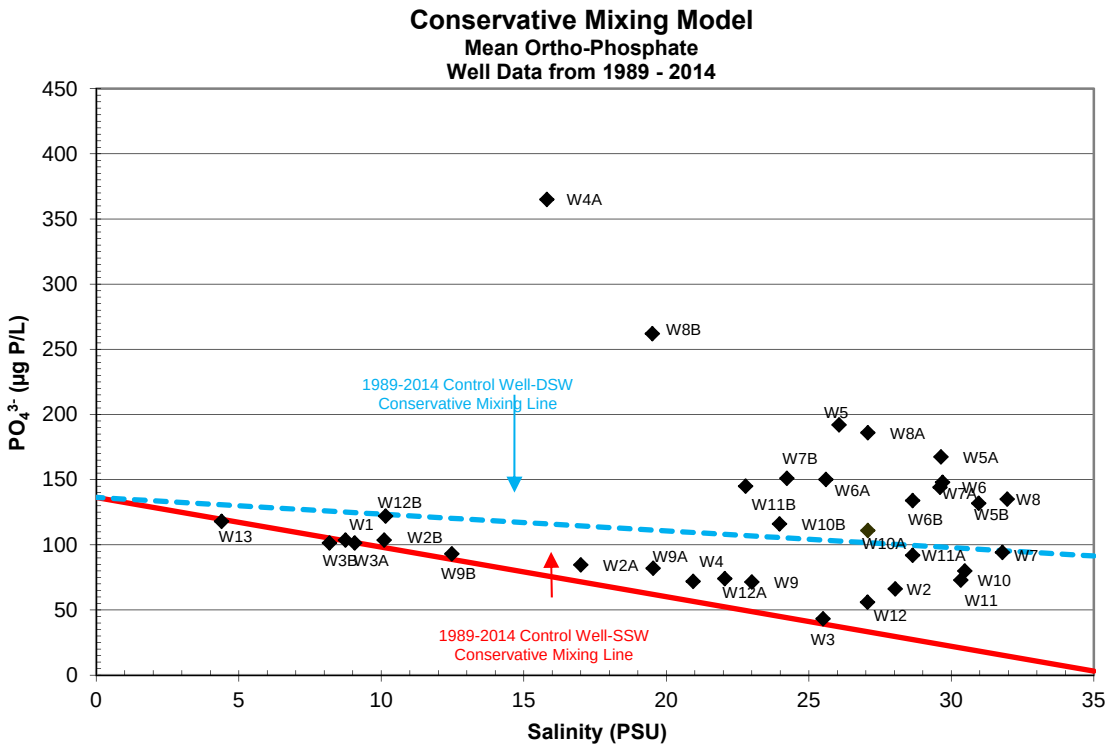
represented as closed diamonds. Fiscal year 2013 – 2014 data is represented as red open diamonds. Data points found on the graph above the surface seawater conservative mixing line (red) can be interpreted as subsidies to the analyte being plotted. The groundwater conservative mixing model plots and equations can be found in ***Appendix B-1***. In addition to the conservative mixing model plots, timeline control plots for ortho-phosphate phosphorus, nitrate + nitrite nitrogen, silicate silicon, total ammonia nitrogen, dissolved oxygen, temperature, pH, and salinity are presented. The timeline control plots include indicator lines calculated from specified data ranges for the analytes mean, two standard deviations (±2s) and three standard deviations (±3s) from the mean. Each well, trench and pond will be discussed from the historical perspective with comments on recent trends.

After reviewing the groundwater data for fiscal year 2013 – 2014, the NELHA Water Quality Laboratory has identified specific wells that have nutrient subsidies above the 2013-2014 deep sea water conservative mixing line. Wells W4A, W5, W5A, W5B, W6, W6A, W6B, W7, W7A, W7B, W8A, W8B, W10A, W10B and W11B were identified as being above the NELHA deep seawater conservative mixing line for ortho-phosphate phosphorus (***Figure 17)***. Ortho-phosphate phosphorous concentration in potable water wells in West Hawaii range from 45 to 148 µg P/L with a mean of 104 µg P/L (unpublished data courtesy of T. Nance and S. Dollar). NELHA's groundwater well Ortho-phosphate phosphorous concentrations for fiscal year 2012-0213 range of 45 to 279 µg P/L with a mean of 128 µg P/L.

Wells W2, W2A, W2B, W5, W5A, W5B, W6, W6A, W6B, W7, W7A, W7B, W8B, W11B and W13were identified as being above the NELHA deep seawater conservative mixing line for nitrate + nitrite nitrogen (***Figure 18)***. In comparison, the natural nutrient variations found within potable water wells in West Hawaii have a range from 615 to 3319 µg N/L and a mean of 1405 µg N/L for nitrate + nitrite nitrogen (unpublished data courtesy of T. Nance and S. Dollar). NELHA's groundwater well for fiscal year 2012 – 2013 shows a range of 286 to 2239 µg N/L and a mean of 1053 µg N/L for nitrate + nitrite nitrogen.

The silicate silicon conservative mixing model for fiscal 2013 – 2014 shows most of the well data either close to the surface seawater or deep seawater mixing plot line (***Figure 19***). NELHA has found no EPA, or HDOH guidelines, rules or regulations regarding non-point source discharges. NELHA is aware of an EPA limit for groundwater of 10,000 µg N/L for nitrate + nitrite nitrogen. NELHA groundwater monitoring in thirty four wells show a range of range of 286 to 2239 µg N/L for nitrate + nitrite nitrogen.

A comparison of total nutrient (organic + inorganic) to inorganic nutrient in historical groundwater data show identical trends. The overall concentration of total nutrient is just slightly higher than inorganic nutrient concentrations in groundwater samples ***(Figure 20).*** This trend holds for both nitrate + nitrite nitrogen to total dissolved nitrogen and ortho-phosphate phosphorus to total dissolved phosphorous. NELHA discontinued total dissolved nitrogen and total dissolved phosphorous from the groundwater analyte testing matrix as of January 1, 2008. Historically, there has been no evidence of a significant nutrient concentration in groundwater coming from an organic source. The analysis of total dissolved nitrogen and total dissolved phosphorous can be



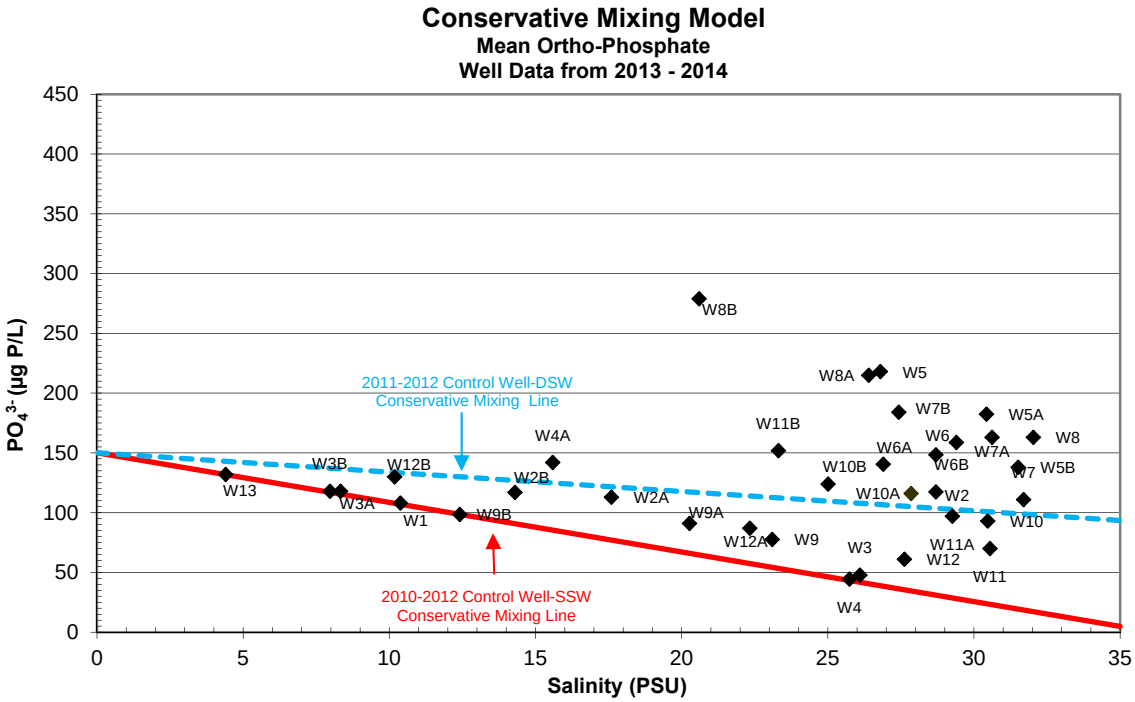
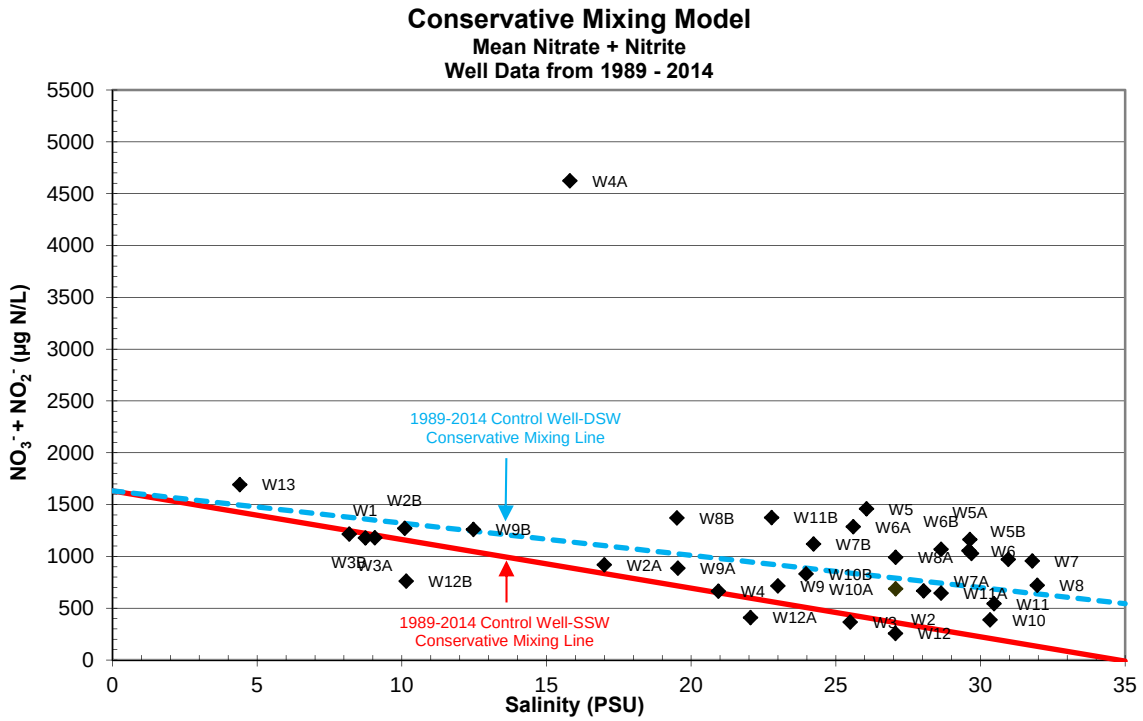


Figure 17. *Conservative mixing model showing mean ortho-phosphate phosphorus verses mean salinity well data from 1989 – 2014 and 2013 – 2014. NELHA control well to surface seawater (SSW) conservative mixing line is the solid red line while the NELHA control well to deep seawater (DSW) conservative mixing line is the blue dashed line. Ortho-phosphate phosphorous concentration in potable water wells in West Hawaii have a range of 45 to 148 µg P/L and mean of 104 µg P/L (unpublished data courtesy of T. Nance and S. Dollar).*



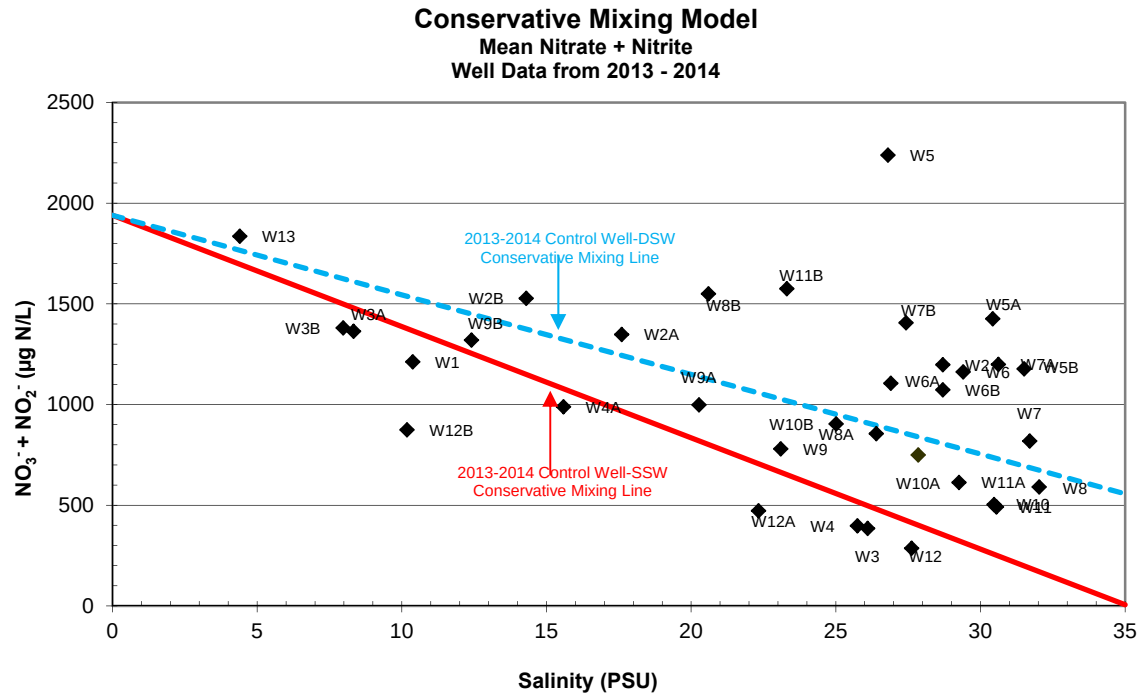
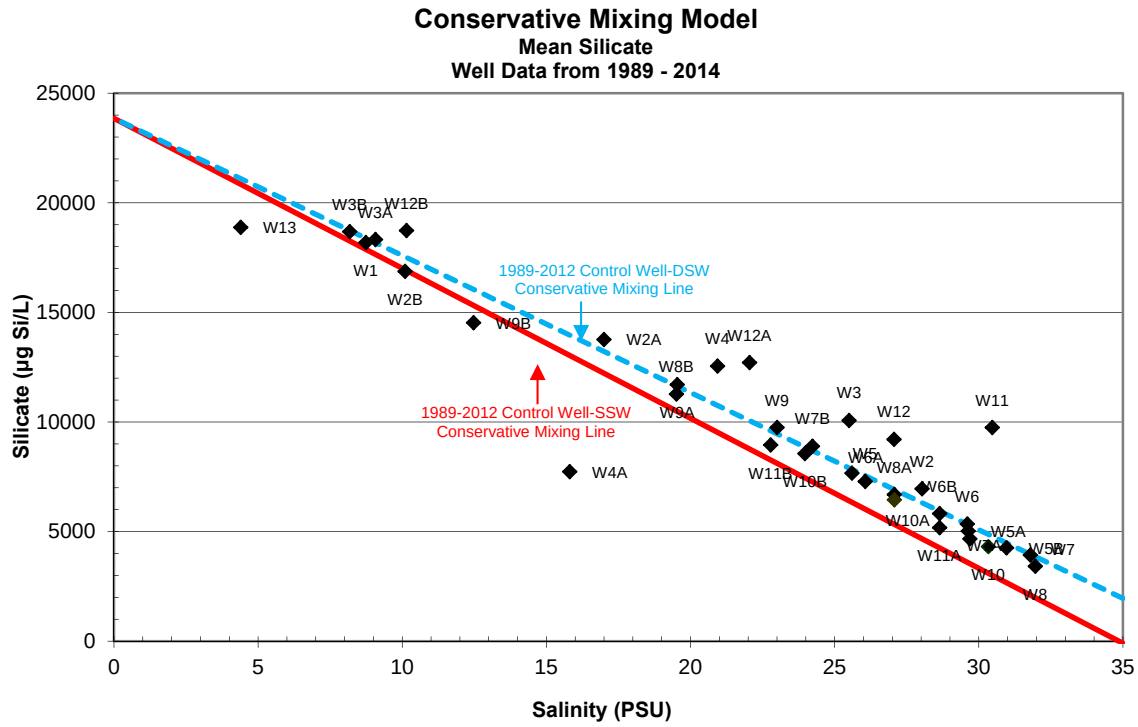


Figure 18. *Conservative mixing model showing mean nitrate + nitrite nitrogen verses mean salinity well data from 1989 - 2014 and 2013 – 2014. NELHA control well to surface seawater (SSW) conservative mixing line is the solid red line while the NELHA control well to deep seawater (DSW) conservative mixing line is the blue dashed line. Nitrate + nitrite nitrogen concentration in potable water wells in West Hawaii have a range 615 to 3319 µg N/L and a mean of 1405 µg N/L (unpublished data courtesy of T. Nance and S. Dollar).*



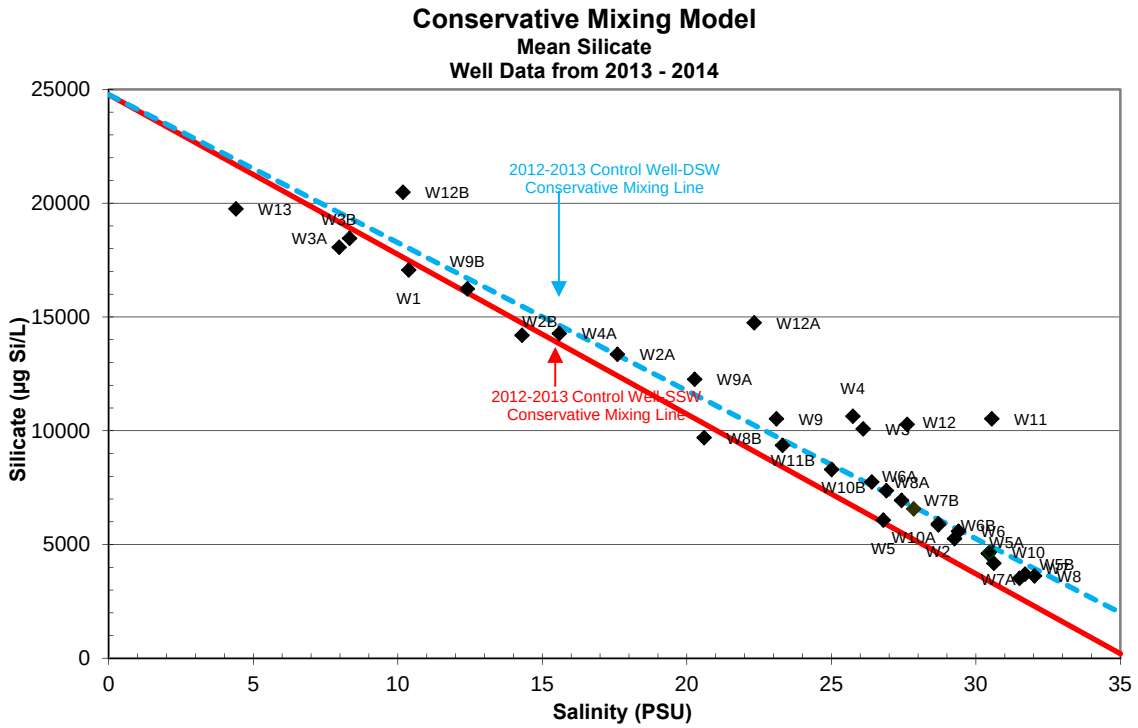


Figure 19. *Conservative mixing model showing mean silicate silicon verses mean salinity well data from 1989 – 2013 and 2013 – 2014. NELHA control well to surface seawater (SSW) conservative mixing line is the solid red line while the NELHA control well to deep seawater (DSW) conservative mixing line is the blue dashed line.*

reinstated if the need arises. However, the time requirements of photo oxidizing total dissolved nitrogen and phosphorous or total nitrogen and phosphorus are significant and the value of the result tend to be minimal from a monitoring and management perspective. The analytical difference between total dissolved nitrogen and total nitrogen is a filtration step prior to the oxidation and analysis of total dissolved nitrogen. Same is true for total dissolved phosphorus and total phosphorus. NELHA does perform total nitrogen and total phosphorous analysis for seawater disposal samples.

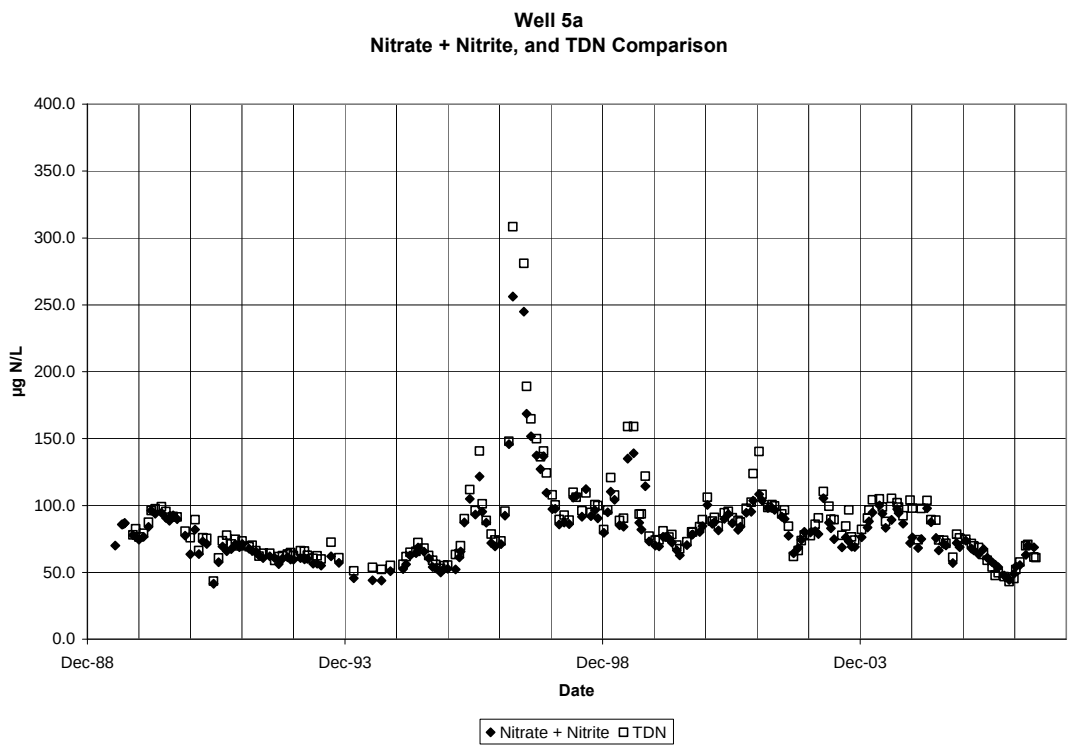


Figure 20. *Typical brackish water nitrate + nitrite nitrogen and total dissolved nitrogen comparison.*

Well 1

Well 1 consists of one 135 ft. depth well located at the eastern edge of the HOST Park property next to the Gateway Center approximately 5300 feet from the shoreline. It monitors the base line groundwater entering the NELHA property. The data from well 1 is used as an end member to calculate the conservative mixing model throughout the report. Well 1 has been historically a stable well. It has also tracked consistently with a sister well found at the top of the Kona International Airport property. In general, the historical salinity data is trending upward. The nutrient concentrations have stabilized from the 2008-2009 period and the temperature has been rising over the past few years. These trends might be attributable to the changes in the purging and sampling procedures or analytical changes from the acquisition of the Astoria Pacific Segmented Flow Analyzer in 2007. See ***Appendix B-1-1*** for data tables and analyte plots of Well-Set 1.

Well-Set 2

Well-Set 2 consists of three wells at depths of 14.5 ft. (W2B), 24.5 ft. (W2A), and 48 ft. (W2). Well-Set 2 is located at the western edge of the HOST Park property seaward

of the 55 inch pumping station approximately 240 feet from the shoreline. These three wells monitor the activities of the businesses in the HOST Park region. The businesses in this area fall into two general categories, aquaculture and deep seawater bottling. Well-Set 2 historically has been stable and was considered a control well before 2001. Since 2001, well-set 2 has shown a step change in nutrient and dissolved oxygen concentrations after the addition of the 55 inch pumping station, and the newly established activities in the HOST Park region. The ortho-phosphate phosphorous, nitrate + nitrite nitrogen and dissolved oxygen step change is most pronounced in well 2 and least pronounced in well 2A and 2B. The data suggests nutrient subsidies beyond the deep seawater conservative mixing line for the analyte nitrate + nitrite nitrogen between 2001 and 2004 with the highest concentration being 1925 µg N/L for well 2. For the 2013 – 2014 fiscal year the mean nitrate + nitrite nitrogen for well 2 was 1198 µg N/L. In addition, an upward trend in salinity in well 2B has been observed. See ***Appendix B-2-1 - B-2B-8*** for data tables and analyte plots of Well-Set 2.

Well-Set 3

Well-Set 3 consists of three wells at depths of 25 ft. (W3B), 35 ft. (W3A), and 65 ft. (W3). Well-Set 3 was located on the NELHA property until August 1993 when it was relocated in March 1994 to an area just east of Cyanotech Corporation on the Department of Transportation's property approximately 2300 feet from the shoreline. These three wells screen the incoming groundwater to the NELHA property. Well-Set 3 has been stable throughout its twenty-five years of monitoring and the data aligns itself to the surface seawater conservative mixing model. See ***Appendix B-3-1 - B-3B-8*** for data tables and analyte plots of Well-Set 3.

Well-Set 4

Well-Set 4 consists of two wells at depths of 39.5 feet (W4A), and 67 feet (W4). Well-Set 4 is adjacent to the Cyanotech Corporation processing facility approximately 1800 feet from the shoreline. When reviewing the historical data of Well-Set 4 one can see several spikes that have occurred in the mid 1990's. The shallow well was the indicator well in all cases. NELHA, in conjunction with Cyanotech Corporation's staff have been able to identify sources of problems and made appropriate corrective actions. In recent history, Well-Set 4 has been trending downward from the spikes of the mid 1990's with the results within the last eight years being clustered around the deep seawater mixing plot line. During the 2013 – 2014 fiscal year, Well-Set 4 has maintained background nutrient concentrations. See ***Appendix B-4-1 – B-4A-8*** for data tables and analyte plots of Well-Set 4.

Well-Set 5

Well-Set 5 consists of three wells at depths of 18 feet (W5), 28 feet (W5A) and 55 feet (W5B). Well-Set 5 is located just northwest of the NELHA research campus approximately 280 feet from the shoreline. The historical data of Well-Set 5 shows nutrient levels that trend higher than the deep sea conservative mixing model. The most recent data points are slightly higher than the historical trend. See ***Appendix B-5-1 – B-5B-8*** for data tables and analyte plots of Well-Set 5.

Well-Set 6

Well-Set 6 consists of three wells at depths of 18 feet (W6A), 29 feet (W6B) and 49.6 feet (W6). Well-Set 6 is located just southwest of the NELHA research campus approximately 220 feet from the shoreline. Well-Set 6 results generally look similar to Well-Set 5. Nutrients are higher than the deep sea conservative mixing model and the shallow well salinity has a general trend upward. See ***Appendix B-6-1 – B-6B-8*** for data tables and analyte plots of Well-Set 6.

Well-Set 7

Well-Set 7 consists of three wells at depths of 20 feet (W7B), 34 feet (W7A) and 58 feet (W7). Well-Set 7 is located just north of the NELHA research campus within the Ho‘ona archaeology preserve, approximately 200 feet from the shoreline. The wells in Well-Set 7 are packed with sand from a high surf event and are currently being sampled by a peristaltic pump. Well-Set 7 results generally look similar to Well-Set 6 and 5. Nutrients are higher than the deep seawater mixing plot line. During the 2002 – 2005 fiscal years there was an observable increase in ortho-phosphate phosphorous concentrations in well 7B that receded to an elevated plateau above the historical mean. See ***Appendix B-7-1 – B-7B-8*** for data tables and analyte plots of Well-Set 7.

Well-Set 8

Well-Set 8 consists of three wells at depths of 25 feet (W8B), 39 feet (W8A) and 65 feet (W8). Well-Set 8 is located just northeast of the NELHA research campus nestled between Taylor Shellfish-Kona, Shrimp Improvement System, Cyanotech Corporation, Seawater Return Trench 4 and the Ho’ona archeological preserve approximately 760 feet from the shoreline. Well-Set 8’s ortho-phosphate phosphorus started to trend upward 2001 – 2002, peaking in 2003 – 2004, and is trending downward closer to the deep seawater mixing plot line in 2007. Total ammonia nitrogen values also increased from 2001 – 2002, peaking in 2003 – 2004 and have trended downward to the surface seawater mixing plot line by 2007. The NELHA staff did not identify any specific cause for the ortho-phosphate phosphorous and total ammonia nitrogen increases. On April 30, 2012 during a routine groundwater sampling of Well 8B, the NELHA Water Quality Laboratory discovered both total ammonia nitrogen and ortho-phosphate phosphorous concentrations elevated from the CEMP baseline data. On further investigation, debris and water from raceway cleaning operation was discharged in near proximity of Well 8B. The tenant responsible has implemented two corrective actions to prevent reoccurrence of this type of spill. They include the removal of discharge pipes to the incident area and the conversion of an unused raceway to serve as an evaporation pond to receive pond cleaning discharge water. Since April 30, 2012, Well 8B has slowly returned to its baseline concentrations for total ammonia nitrogen and ortho-phosphate phosphorous. However, on January 7, 2013 elevated nitrate & nitrite nitrogen values were observed. The elevated nitrate & nitrite nitrogen values may be related to the April 30, 2012 observations as the plume slowly moves through the formation. The elevated nitrate & nitrite nitrogen values have reduced to background levels by March 20, 2013. We are observing elevated phosphorous concentrations in Well Set 8 and will investigate in 2015 if they continue to rise. See ***Appendix B-8-1 – B-8B-8*** for data tables and analyte plots of Well-Set 8.

Well-Set 9

Well-Set 9 consists of three wells at depths of 45 feet (W9B), 65 feet (W9A) and 85 feet (W9). Well-Set 9 is located just west of Moana Technologies, Inc. on the north side of the Makako Bay Drive in the utility corridor bordering the airport boundary approximately 2000 feet from the shoreline. Well-Set 9 is a newly established groundwater sampling location as of January 23, 2009. Although there is limited data (n=41), it appears that W9, W9A and W9B nutrients are trending slightly above the predicted concentration from the conservative mixing model. See ***Appendix B-9-1 – B-9B-4*** for data tables and analyte plots of Well-Set 9.

Well-Set 10

Well-Set 10 consists of three wells at depths of 20 feet (W10B), 40 feet (W10A) and 60 feet (W10). Well-Set 10 is located seaward of Keahole Point Hatcheries and Ocean Rider, Inc. at the end of an access road by the 18" Kau pumping station approximately 350 feet from the shoreline. Well-Set 10 is a newly established groundwater sampling location as of January 21, 2009 in the flow envelope of seawater return trench 5 and ocean transect 5. Well-Set 10 is above the predicted nitrate + nitrite nitrogen and ortho-phosphate phosphorous concentrations of the conservative mixing line. See ***Appendix B-10-1 – B-10B-4*** for data tables and analyte plots of Well-Set 10.

Well-Set 11

Well-Set 11 consists of three wells at depths of 20 feet (W11B), 40 feet (W11A) and 60 feet (W11). Well-Set 11 is located southwest of Mera Pharmaceuticals in the utility corridor approximately 350 feet from the shoreline. Well-Set 11 is a newly established groundwater sampling location as of January 22, 2009. Well-Set 11 is above the predicted ortho-phosphate phosphorous and nitrate + nitrite nitrogen concentrations of the conservative mixing model. See ***Appendix B-11-1 – B-11B-4*** for data tables and analyte plots of Well-Set 11.

Well-Set 12

Well-Set 12 consists of three wells at depths of 20 feet (W12B), 40 feet (W12A) and 60 feet (W12). Well-Set 12 is located in a remote area in the upper northwest corner of the NELHA property approximately 300 feet from the shoreline. This Well-Set is considered a control site. Well-Set 12 is a newly established groundwater sampling location as of January 27, 2009. It appears after five and half years of sampling Well-Set 12, nutrients are trending slightly above the conservative mixing model for ortho-phosphate phosphorous and slightly below for nitrate + nitrite nitrogen. See ***Appendix B-12-1 – B-12B-4*** for data tables and analyte plots of Well-Set 12.

Well 13

Well 13 consists of one well at a depth of 150 feet (W13). Well 13 is located in the northeast corner of the HOST Park property in close proximity of the intersection of the Queen Kaahumanu Highway and Kaiminani Drive approximately 8000 feet from the

shoreline. This well monitors agricultural activities just east of NELHA and is considered a control well like Well 1. Well 13 is a newly established groundwater sampling location as of January 23, 2009. It appears after five and a half years of sampling Well 13, nitrate + nitrite nitrogen and ortho-phosphate phosphorous is trending above the predicted concentration from the conservative mixing model. See ***Appendix B-13-1 – B-13-4*** for data tables and analyte plots of Well-Set 13.

Seawater Return Trench 4

Seawater return trench 4 is approximately 110 feet long by 25 feet wide by 15 feet deep with a permeability of 430 feet per day that was determined on June 4, 1992. Seawater return trench 4 is located just northeast of the NELHA research campus between Well-Set 8 and Well-Set 7 at approximately 650 feet from the shoreline. From January 1992 to approximately May 2002 the trench received OTEC return seawater and minimal aquaculture seawater disposal. Since May 2002, the seawater return trench was mostly used for aquaculture seawater disposal and the ortho-phosphate phosphorus values started to trend upward. A nitrate + nitrite nitrogen and ortho-phosphate phosphorus spike occurred in January 2004. Since January 2004, the level of ortho-phosphate phosphorus remained relatively high with an additional spike in January 2005 and a recovery by November 2005. By November 2008 the ortho-phosphate phosphorus and nitrate + nitrite nitrogen concentrations became elevated but returned to the predicted deep seawater conservative mixing model concentrations. The total ammonia nitrogen values were higher than baseline in 2006 – 2007 but returned to its historical concentrations by 2007 – 2008. Due to operational changes, seawater return trench 4 was receiving excess deep seawater from the earthquake damaged 40" pipeline starting January 2009. The repairs to the 40" deep seawater pipeline were completed in late September 2009 and the facility has shifted back to its normal operations. Seawater return trench 4 is currently used as an OTEC seawater disposal location and has shown nutrient levels between the deep and surface seawater conservative mixing models and is reflective of the mixed seawater disposal from the Makai Ocean Engineering OTEC test facility. See ***Appendix B-T4-1 – B- T4-6*** for data tables and analyte plots of seawater return trench 4.

Seawater Return Trench 5

Seawater return trench 5 is approximately 60 feet long by 20 feet wide by 10 feet deep. Seawater return trench 5 is located south of the NELHA research campus after the Kau pumping station access road in the flow envelope of Well-Set 10 and ocean transect 5. The NELHA Water Quality Laboratory has observed several nitrate + nitrite nitrogen and ortho-phosphate phosphorus spikes from September 1992 to January 1997. All the spikes were one time incidences and values fell back to normal levels soon after. Since January 1997, the monitoring results have been within its historical baseline activity. The only significant observation in 2007 – 2008 was the lack of tenant activity at the end of the fiscal year which dried up the trench. During the 2009 – 2010 fiscal year there were no observations of significant changes from baseline results in seawater return trench 5. However, seawater return trench 5 was the focus of an unfounded complaint by the local Surfrider Foundation, claiming a NELHA tenant was disposing fish processing waste into this trench. The trench was inspected by NELHA's Water Quality Laboratory,

Department of Health, Clean Water Branch and Wastewater Branch. No fowl smells or evidence of fish waste were found at the site. In July 2012, mechanical aeration was added to seawater return trench 5 to increase the dissolved oxygen concentrations, turn up settled solids and to enhance microbial remediation. Since these changes, seawater return trench 5 has had observable higher than normal total ammonia nitrogen, nitrate & nitrite nitrogen, total dissolved nitrogen, ortho-phosphate phosphorus, total dissolved phosphorous and suspended solids concentrations. See ***Appendix B-T5-1 – B- T5-6*** for data tables and analyte plots of seawater return trench 5.

Anchialine Pond A1

Anchialine pond A1 is located north of the NELHA research campus in the Ho'ona archaeology preserve. The water quality data for anchialine pond A1 has been in agreement with our expectations from historical data with the exception of one significant water quality issue discovered on December 11, 2007. The elevated nitrate + nitrite nitrogen concentrations from baseline levels can be attributed to difficulties businesses had during two "100 year" storm events that occurred on December 3 and December 6, 2007. In response to the rain events the NELHA Water Quality Laboratory increased the sampling schedule for our trenches and ponds from a quarterly frequency to a monthly frequency. By January 2008, anchialine pond A1 recovered to baseline nutrient concentrations. Historically, the nitrate + nitrite nitrogen data fluctuates below 1500 µg N/L to above 400 µg N/L with most recent data points plotted above the surface seawater mixing model. The ortho-phosphate phosphorus data shares a similar pattern. During the 2013 – 2014 fiscal year, the nitrate + nitrite nitrogen and ortho-phosphate concentrations were within the historical trend. See ***Appendix B-A1-1 – B- A1-6*** for data tables and analyte plots of anchialine pond A1.

Anchialine Pond A2

Anchialine pond A2 is located east of the NELHA beach park. The water quality data for anchialine pond A2 has been historically consistent. The nitrate + nitrite nitrogen data fluctuates very little, however, most data points are above the surface seawater and deep seawater conservative mixing model. The ortho-phosphate phosphorus data is also consistent with the vast majority of data points sitting on the surface seawater conservative mixing lines. There have been some isolated cases of elevated total ammonia nitrogen results, but in each situation the pond rapidly returns to baseline levels. Anchialine pond A2 salinity has been increasing slowly over time from 7.5 PSU in 1993 to less than 12 PSU today. Please note: anchialine pond A2 is used by the public as a bathing pond. See ***Appendix B-A2-1 – B- A2-6*** for data tables and analyte plots of anchialine pond A2.

Anchialine Pond A3

Anchialine pond A3 is located south of the beach park. Anchialine pond A3 was just recently placed on the CEMP monitoring program when re-discovered during a land survey just north of the 55 inch pumping station. Although the data set is very limited (ten samplings), the water quality appears to have similar concentration ranges as anchialine pond A1 and A2. See ***Appendix B-A3-1 – B- A3-6*** for data tables and analyte plots of anchialine pond A3.

Coastal Site C24

Coastal Site C24 is located at the beach park. The water quality data for coastal site C24 has been historically consistent since 1991. The nitrate + nitrite nitrogen data fluctuates significantly due to tide and tends to have concentrations above the conservative mixing model. This nutrient subsidy is most likely due to the proximity of the beach park bathroom facilities which are located only few hundred feet from the sampling location. Coastal site C24 is also monitored by the HDOH for microbiology indicators (Enterococci and Clostridium Perfringens) as a tier II beach. The results of the bi-monthly sampling by the HDOH suggest no indication of fecal contamination. The HDOH monitoring results can be found on the World Wide Web at:

http://emdweb.doh.hawaii.gov/CleanWaterBranch/WaterQualityData/Default.aspx?Identifier=1237

http://health.hawaii.gov/cwb/files/2013/06/SampleSite_Kona1237.pdf

The ortho-phosphate data also fluctuates significantly at coastal site C24 but does follow the predicted concentrations from the conservative mixing model. All other analytes seem to be within the normal historical ranges.

MARINE BIOTA MONITORING PROGRAM

NELHA's marine resources are examined by its Marine Biota Monitoring Program. The Marine Biota Monitoring Program is performed under contract by technical consultants to evaluate the benthic and biota communities in the nearshore environment and anchialine ponds found on the grounds of the facility. Due to fiscal issues in 2009 with the State of Hawaii budget and other delays not attributed to NELHA, the Marine Biota Monitoring Program contract was not encumbered until 12-28-09. As such, only the March 2010 Marine Biota Monitoring Program survey was performed during the 2009 – 2010 fiscal year. As of April 15, 2011, NELHA received written and verbal approvals from the Department of Aquatic Resources, County Planning Department and the Department of Health to reduce the frequency of the Marine Biota Monitoring Program from biannually to annually.

Please see the separate report *Marine Environmental Monitoring Program for the Natural Energy Laboratory of Hawaii Authority, Survey Report July 2014.* Below is the executive summary from the July 2014 Report:

EXECUTIVE SUMMARY

The Natural Energy Lab of Hawaii Authority is a state agency that operates a Hawaii Ocean Science and Technology Park at Kailua-Kona on the Island of Hawaii focused on research, education, and commercial activities that support sustainable industry development in Hawaii. Near shore marine resources in this area (Keahole Point) have long been recognized as very abundant and diverse, especially the near shore fish community. After the building of NELHA, which included infrastructure on the reef, a comprehensive monitoring program was commenced to ensure the long term

health and protection of marine systems in the area. This monitoring program includes water quality, anchialine shrimp ponds, benthic communities and near shore fish communities.

Since 1989 a series of more than 30 surveys has been conducted and extensive reports have been prepared. Results, summaries and references for these reports can be found throughout this report which presents the results of the 2014 survey.
The anchialine ponds in the vicinity of the NELHA facility form northern and southern complexes consisting of five ponds in the North group and nine in the South group. A faunal census of each pond in the vicinity of the NELHA facility was undertaken on the 17th and 18th of July 2014. Temperature and salinity measurements were taken and visual observations of organisms within each pond were supplemented by photographs and high-definition video.

The results of the 2014 anchialine pond survey were consistent with previous surveys. Based on the faunal census performed, almost all anchialine ponds in the vicinity of the NELHA facility in which exotic fish were not present, supported communities of abundant and diverse native organisms. Further, ponds with fish had clear water and were not overgrown by opportunistic algae. This may indicate that the ōpae 'ula were still active in the ponds at night to avoid predation by the introduced fish.

There are six survey sites located along the NELHA coastline, containing three 50 m transects at one of three depths, 15 ft., 30 ft., and 50 ft. representing three different habitat zones. Benthic biota studies have shown a gradual increase in coral cover over time with Porites meandrina and Porites lobata always among the dominant species. Data from the present study show a similar pattern.

Over all, coral cover across the six study sites in 2014 was 53.8%. The two most dominant corals were Porites lobata (35.5%) and Pocillopora meandrina (10.6%) which were present on all transects. Other corals present were Leptastrea purpurea, Montipora capitata, Montipora flabellata, Montipora patula, Pavona varians, Pocillopora eydouxi, Pocillopora lingulata, Pocillopora meandrina, Porites compressa, Porites lutea and Fungia scutaria. These corals accounted for approximately 7% of the coral cover.

The fish community was monitored at the same 6 sites as the benthic community but on 25 meter transects. Historical results show a highly variable fish community from year to year. Data from the 2014 study were, on average, higher than 2013 although lower than 2010 findings. Some of that may be attributable to natural variation and some of it is likely due to survey techniques which will continue to be modified and improved in future surveys.

The results of the anchialine pond biota, benthic biota and near shore fish biota studies all support the conclusion that the habitats and communities adjacent to the NELHA facility are not impacted by human-mediated inputs.

SEAWATER DISPOSAL MONITORING PROGRAM

The NELHA Water Quality Laboratory in partnership with Department of Health (HDOH), Wastewater Branch has implemented a seawater disposal monitoring program which commenced in January 2011. This program examines on a quarterly basis approximately 53 nonpoint seawater disposal locations at the NELHA facility. These locations mostly encompass older seepage pits and leach fields that are regulated under Hawaii Administrative Rules (HAR), Title 11 Chapter 62. Seawater disposal from injection wells are regulated by the Underground Injection Control (UIC), HAR, Title 11 Chapter 23 by the HDOH, Safe Drinking Water Branch and are not included in the seawater disposal monitoring program. The results of this program are sent yearly to the HDOH, Wastewater Branch. The analytes tested in the seawater disposal monitoring program are biological oxygen demand 5 day test (BOD_5), and total suspended solids (TSS), which have a 30 mg/L mean limit and not to exceed 60 mg/L in HAR, Title 11 Chapter 62. In addition to BOD_5 and TSS, total nitrogen and total phosphorous are required monitoring analytes.

NELHA has prepared a brief *Business Sector Seawater Disposal Summary Table* (see ***Table 6)*** summarizing the seawater disposal data collected from July 2010 and December 2014. The data is organized into five business activity sectors which include:

Extraction – Desalinization and brine/salt production
Fin Fish – Warm and cold water fish production
Shell Fish – Shrimp and bivalve (clams) production
Algae – Micro and macro algae for food and feed stock production
Energy – Thermal process water and algae for energy production

The analytes are reported in ***Table 6*** as a weighted mean. The weighted analyte mean is calculated by the percentage of seawater disposal flow each NELHA client contributes to the business sector. This *"weights"* the analyte concentration based on the daily seawater disposal flow volume the NELHA client contributes to the business sector. The business sector's reported weighted mean is the sum of all *"weighted"* analyte concentration fractions from the client's seawater disposal discharges. The standard deviations reported are calculated from the raw data and is not weighted.

Business Sector Seawater Disposal Summary Table
July 2010 – December 2014

Analysis		BOD (mg/L)		TSS (mg/L)		Total Nitrogen (µg N/L)		Total Phosphorous (µg P/L)		Flow Volume (Kgal/Day)		
HDOH Limit		30 mg/L		30 mg/L		N/A		N/A		N/A		
Sector	n	Weighted Mean	Std. Dev.	Weighted Mean	Std. Dev.	Weighted Mean	Std. Dev.	Weighted Mean	Std. Dev.	Total Volume	Mean	%
Extraction	56	<2.0	0.0	2.9	0.5	919	109	145	27	301	75	1.1
Fin Fish	207	2.4	0.9	3.8	2.1	423	282	69	45	2010	147	7.3
Shell Fish	214	3.2	3.3	6.2	6.2	771	584	116	94	10423	745	38.1
Algae	105	4.6	2.4	12.8	5.5	1020	473	134	118	13801	1725	50.4
Energy	173	2.1	0.1	2.7	0.6	514	106	78	15	866	34	3.1

Table 6. *Seawater Disposal Summary Table highlights the analytes flow volume weighted mean within each of the NELHA client activity sector groupings.*

CRITIQUE OF "A REVIEW OF COASTAL MONITORING…IN WEST HAWAII"

In 2004, the Hawaii County Planning Department contracted the Marine Science Department at the University of Hawaii at Hilo to evaluate monitoring data from development projects in West Hawaii. In 2006, an evaluation report, *A Review of Coastal Monitoring Data for Developments in West Hawaii*, was issued. The evaluation report included several data sets from NELHA's CEMP program. NELHA found many inaccuracies and defects in the author's interpretation of the CEMP data sets. NELHA had an opportunity to formally respond to these issues on October 23, 2008 in a meeting with the authors of the report, Hawaii County Planning Department Director, Coastal Zone Management Staff, Division of Aquatic Resources Director, one member of the public, and two other Environmental Scientists who had similar interpretation issues with the report. The mediated meeting ended with no clear conclusion. NELHA has included in Appendix F a two page summary critique of *A Review of Coastal Monitoring Data for Developments in West Hawaii*.

CONCLUSION

For the past twenty-five years, NELHA's Management and Water Quality Laboratory in combination with the objectives of the Comprehensive Environmental Monitoring Program has shown increases of coral cover over time, a stable fish community and verified that chlorophyll-a, a measure of phytoplankton biomass, has never exceeded the HDOH limit in the Class AA ocean waters. The NELHA Water Quality Laboratory has not only accomplished its primary goal of collecting baseline water quality data for the CEMP, but also identified problems and implemented corrective actions. The CEMP program changed in the 2007 – 2008 fiscal year to address HDOH regulations, successfully transitioned to Astoria Pacific Auto Analyzer for our nutrient analysis, voluntarily participated in the EPA's DMRQA analytical certification process, implemented an Environmental Incident Report Form to document incidence at the facility and became more efficient by using in situ instrumentation for pH, salinity, DO, and temperature. In the 2008 – 2009 fiscal year, NELHA successfully developed 13 additional groundwater monitoring wells in locations previously not monitored, upgraded its groundwater sampling equipment and successfully implemented a septic tank maintenance log. In the 2010 – 2011 fiscal year, the NELHA Water Quality Laboratory implemented a tenant effluent monitoring program which collects samples at approximately 53 seawater disposal locations on the facility on a quarterly basis. This year, the NELHA Water Quality Lab collected 596 samples and performed 7,064 analytical tests while continually striving to build a more efficient and effective sampling and analytical program. NELHA believes the above enhancements to the CEMP program in conjunction with working closely with regulatory agencies such as the Department of Health has strengthened the overall program as it becomes more effective in identifying potential environmental issues and mitigating them in a timely matter.

LITERATURE CITED

Bybee, D.R., Bybee, J.D., Bybee, J.C., Bybee, J.H., Bybee, S.M., Hyde S.K., Smith B., 2015, *Marine Environmental Monitoring Program for the Natural Energy Laboratory of Hawaii Authority Survey Report July 2014*
Bybee Consulting LLC

Clesceri, L.S., Greenberg, A.E., Eaton, A.D., 1998, *Standard Methods for the Examination of Water and Wastewater 20th Edition*
Washington DC, American Public Health Association, American Water Works Association, Water Environment Federation

Department of Health, Amendment and Compilation of Chapter 11-54 Hawaii Administrative Rules, August 31, 2004

Department of Health Environmental Planning Office, *1997*, *Rational for the Development of Area-Specific Water Quality Criteria for the West Coast of the Island of Hawaii and Procedures for their use*
Prepared by the State of Hawaii

Dollar, S.J., and Atkinson, M.J., 1992, *Effects of Nutrient Subsidies from Groundwater to Nearshore Marine Ecosystems Off the Island of Hawaii*
Estuarine, Coastal and Shelf Science, v. 35, p. 409-424.

EPA SOP#:2007, 1995, *Groundwater Well Sampling*

EPA SOP# GW 0001, 1996, *Low Stress (Low Flow) Purging and Sampling Procedure for the Collection of Ground Water Samples from Monitoring Wells;* Region 1

EPA-625-/6-74-003a, 1974, *Methods for Chemical Analysis of Water and Waste*, Environmental Research Center, Cincinnati, Ohio, p. 10-12

Geolabs-Hawaii, 1988, *Installation Report Water Quality Monitoring Wells Natural Energy Laboratory of Hawaii and Hawaii Ocean Science and Technology Park Keahole, North Kona, Hawaii (Well 1-6)*
C.W. Associates Inc. dba Geolabs-Hawaii, 2006 Kalihi Street, Honolulu, Hawaii 96819

Geolabs-Hawaii, 1992, *Installation Report Water Quality Monitoring Wells Natural Energy Laboratory of Hawaii and Hawaii Ocean Science and Technology Park Keahole, North Kona, Hawaii (Well 7-8)*
C.W. Associates Inc. dba Geolabs-Hawaii, 2006 Kalihi Street, Honolulu, Hawaii 96819

Geolabs-Hawaii, 1994, *Installation Report Water Quality Monitoring Wells Natural Energy Laboratory of Hawaii and Hawaii Ocean Science and Technology Park Keahole, North Kona, Hawaii (relocation Well 3)*

C.W. Associates Inc. dba Geolabs-Hawaii, 2006 Kalihi Street, Honolulu, Hawaii 96819

GK & Associates, 1989, *Natural Energy Laboratory of Hawaii Authority Comprehensive Environmental Monitoring Program*
Revised 1993 by NELHA Staff

GK & Associates, 1989, *Hawaii Ocean Science and Technology Park and Natural Energy Laboratory of Hawaii Cooperative Environmental Monitoring Program*
Contract No. 23321

Hunt, C.D., Jr., 2007, *Ground-Water Nutrient Flux to Coastal Waters and Numerical Simulation of Wastewater Injection at Kihei, Maui, Hawaii*.
US Geological Survey Scientific Investigations Report 2006-5283, 69p

MCM Planning, 1987, *Final Supplemental Environmental Impact Statement, Alternative Methods of Seawater Return Flow Disposal*

Nance, T., and Dollar, S., Summary of Potable Well Data from Kawaihae to Kealakekua Bay in West Hawaii
Unpublished

RM Towill, 1976, *Environmental Assessment of Natural Energy Laboratory at Keahole Point*

U.S. Geological Survey, variously dated, *National field manual for the collection of water-quality data: U.S. Geological Survey Techniques of Water-Resources Investigations,* book 9, chaps. A1-A9 available online at
http://pubs.water.usgs.gov/twri9A

Valley Well Drilling and AMEC Earth & Environmental, Inc., *Summary Report of Installation of Groundwater Monitoring Wells (Well 9 – 13)*
AMEC Earth & Environmental, Inc. dba Valley Well Drilling 91-458 Komohana Street, Kapolei, Hawaii 96707

West Hawaii Coastal Monitoring Task Force. 1992, *West Hawaii coastal monitoring program monitoring guidelines*,
Unpublished

APPENDIX A - NELHA Ocean Transect Data Tables and Graphs

Ocean Transect 1
2013 – 2014 Summary Data Table & Graphs...……...……Appendix A-T1-1
Station 1 Historical Data Table & Graphs…...……...Appendix A-T1-S1-1
Station 2 Historical Data Table & Graphs…...……...Appendix A-T1-S2-1
Station 3 Historical Data Table & Graphs……...……...Appendix A-T1-S3-1
Station 4 Historical Data Table & Graphs…..……...Appendix A-T1-S4-1
Station 5 Historical Data Table & Graphs…….……....Appendix A-T1-S5-1
Ocean Transect 2
2013 – 2014 Summary Data Table & Graphs...……...……Appendix A-T2-1
Station 1 Historical Data Table & Graphs…...……...Appendix A-T2-S1-1
Station 2 Historical Data Table & Graphs…...……...Appendix A-T2-S2-1
Station 3 Historical Data Table & Graphs……...……...Appendix A-T2-S3-1
Station 4 Historical Data Table & Graphs…..……...Appendix A-T2-S4-1
Station 5 Historical Data Table & Graphs…….……....Appendix A-T2-S5-1
Ocean Transect 3
2013 – 2014 Summary Data Table & Graphs...……...……Appendix A-T3-1
Station 1 Historical Data Table & Graphs…...……...Appendix A-T3-S1-1
Station 2 Historical Data Table & Graphs…...……...Appendix A-T3-S2-1
Station 3 Historical Data Table & Graphs……...……...Appendix A-T3-S3-1
Station 4 Historical Data Table & Graphs…..……...Appendix A-T3-S4-1
Station 5 Historical Data Table & Graphs…….……....Appendix A-T3-S5-1
Ocean Transect 4
2013 – 2014 Summary Data Table & Graphs...……...……Appendix A-T4-1
Station 1 Historical Data Table & Graphs…...……...Appendix A-T4-S1-1
Station 2 Historical Data Table & Graphs…...……...Appendix A-T4-S2-1
Station 3 Historical Data Table & Graphs……...……...Appendix A-T4-S3-1
Station 4 Historical Data Table & Graphs…..……...Appendix A-T4-S4-1
Station 5 Historical Data Table & Graphs…….……....Appendix A-T4-S5-1
Ocean Transect 5
2013 – 2014 Summary Data Table & Graphs...……...……Appendix A-T5-1
Station 1 Historical Data Table & Graphs…...……...Appendix A-T5-S1-1
Station 2 Historical Data Table & Graphs…...……...Appendix A-T5-S2-1
Station 3 Historical Data Table & Graphs……...……...Appendix A-T5-S3-1
Station 4 Historical Data Table & Graphs…..……...Appendix A-T5-S4-1
Station 5 Historical Data Table & Graphs…….……....Appendix A-T5-S5-1
Ocean Transect 6
2013 – 2014 Summary Data Table & Graphs...……...……Appendix A-T6-1
Station 1 Historical Data Table & Graphs…...……...Appendix A-T6-S1-1
Station 2 Historical Data Table & Graphs…...……...Appendix A-T6-S2-1
Station 3 Historical Data Table & Graphs……...……...Appendix A-T6-S3-1
Station 4 Historical Data Table & Graphs…..……...Appendix A-T6-S4-1
Station 5 Historical Data Table & Graphs…….……....Appendix A-T6-S5-1

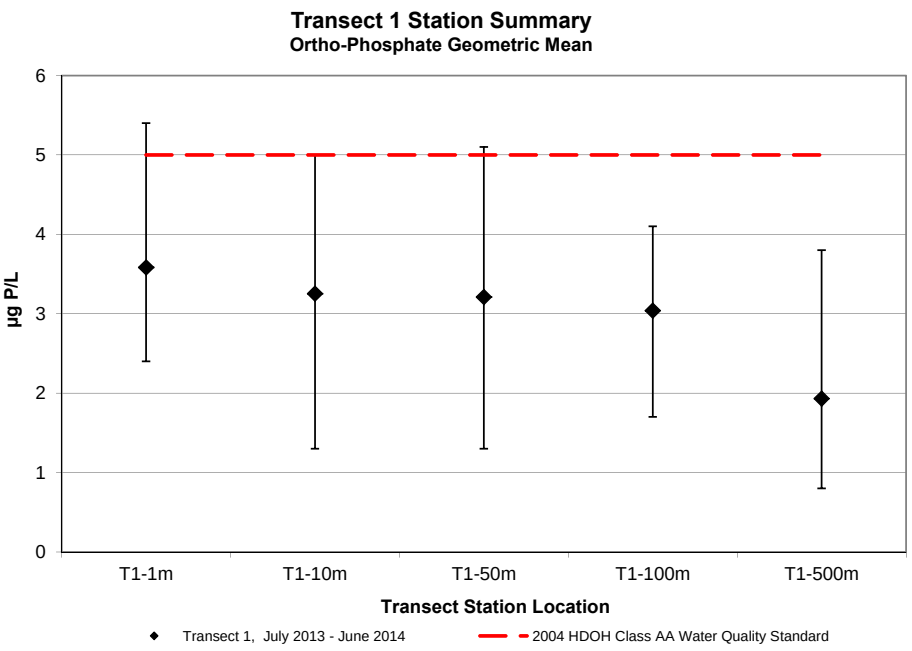
NELHA Water Quality Laboratory

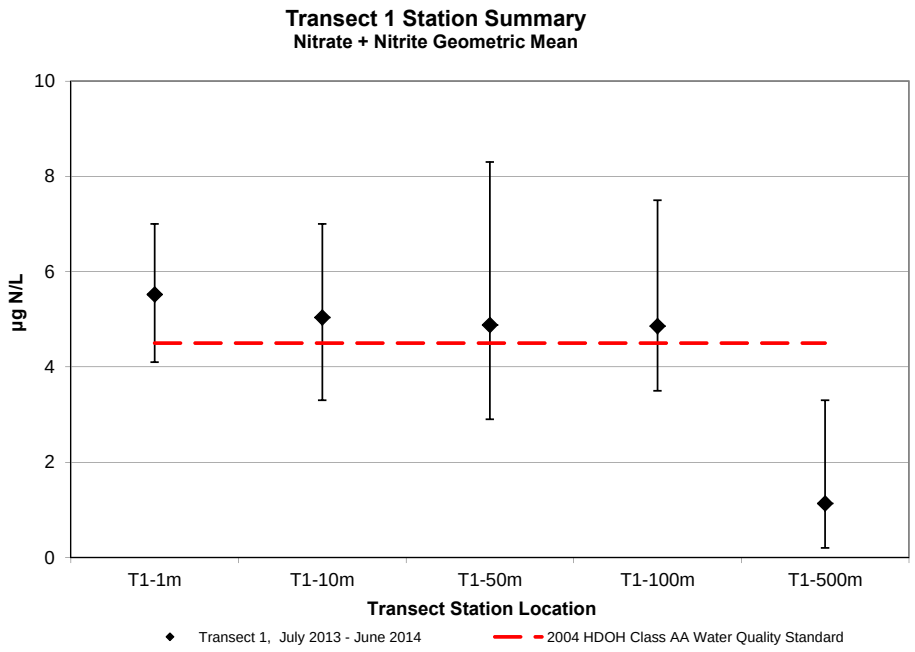
Transect 1

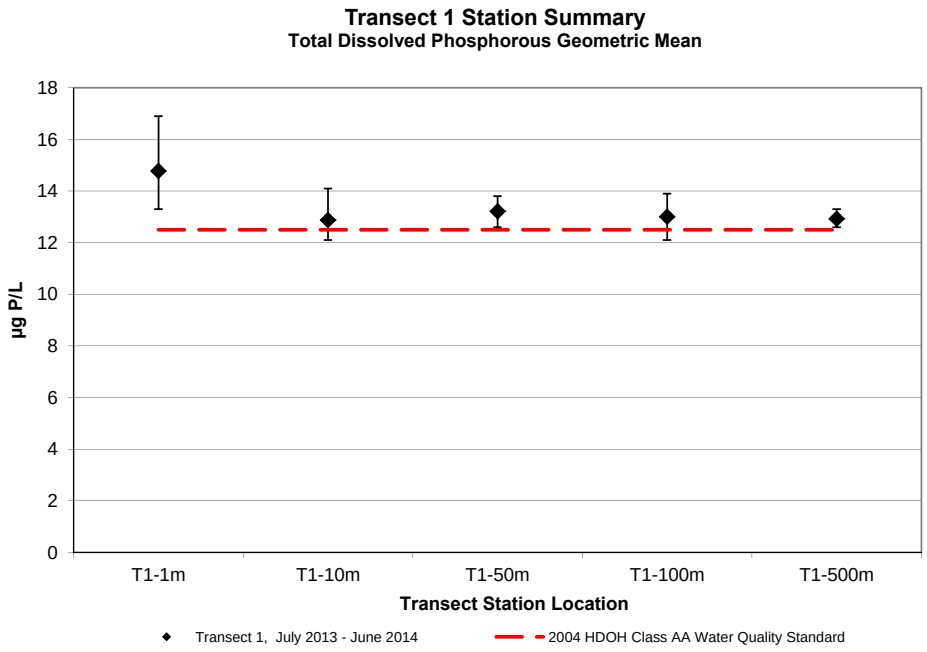
July 2013 - June 2014

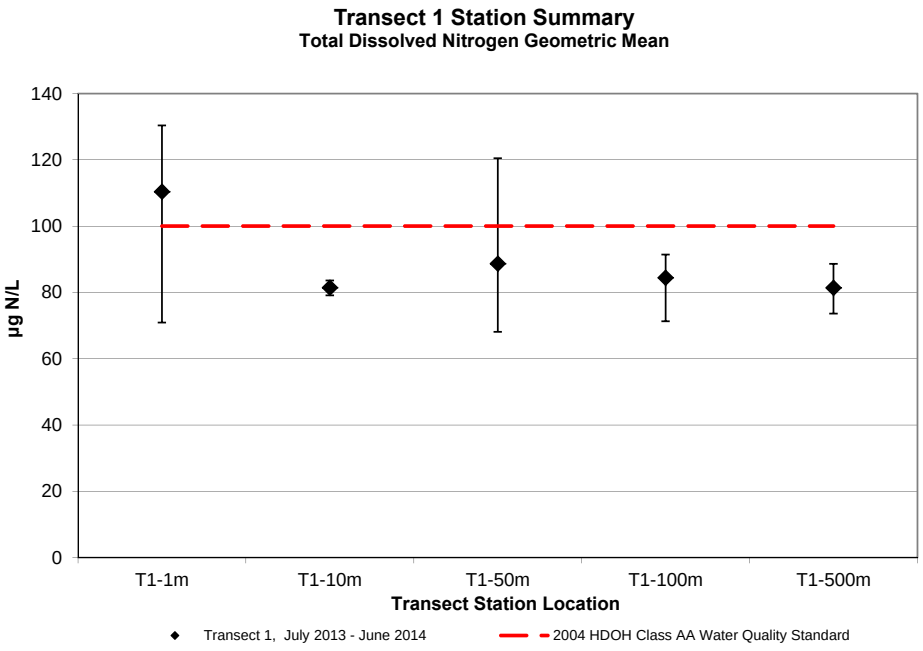
SITE ID	DATE	TIME	Tide		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(ft)	(cycle)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT					0.16	**5**	0.32	**4.5**	0.18	**2.5**			0.40	**12.5**	7.1	**100**	**0.10**					**0.30**
T1-1m	8/1/13	850	0.6	Flood	0.08	2.4	0.29	4.1	0.24	3.3	5.0	142	0.43	13.3	5.06	71	0.10	35.08	26.1	8.23	6.76	0.13
T1-1m	10/29/13	928	1.0	Flood	0.10	3.1	0.35	4.9	0.36	5.0	2.5	70	0.55	16.9	9.31	130	0.04	35.28	27.0	8.25	6.21	0.17
T1-1m	2/4/14	928	1.0	Ebb	0.13	4.1	0.47	6.6	1.09	15.2	3.5	97	0.44	13.5	8.90	125	0.02	34.91	25.2	8.22	6.33	0.15
T1-1m	5/6/14	923	0.6	Flood	0.17	5.4	0.50	7.0	0.39	5.5	3.7	105	0.51	15.7	9.20	129	0.09	34.69	25.8	8.21	6.59	0.16
Geomean	**'13-'14**				0.12	**3.6**	0.39	***5.5***	0.4	***6.1***			0.5	***14.8***	7.9	***110***	**0.05**					**0.15**
T1-10m	8/1/13	854	0.6	Flood	0.04	1.3	0.24	3.3	0.06	0.9	4.6	129	0.39	12.2	5.65	79	0.07	35.00	26.1	8.26	6.79	0.11
T1-10m	10/29/13	931	1.0	Flood	0.14	4.3	0.34	4.8	0.35	4.9	2.5	69	0.43	13.2	5.97	84	0.07	35.28	27.0	8.24	6.19	0.16
T1-10m	2/4/14	932	1.0	Ebb	0.13	4.0	0.41	5.8	0.64	8.9	3.0	83	0.39	12.1	5.70	80	0.02	34.92	25.2	8.22	6.35	0.16
T1-10m	5/6/14	929	0.6	Flood	0.16	5.0	0.50	7.0	0.47	6.6	3.6	103	0.46	14.1	5.94	83	0.05	34.69	25.8	8.21	6.54	0.07
Geomean	**'13-'14**				0.10	**3.3**	0.36	***5.0***	0.29	***4.0***			0.42	***12.9***	5.8	**81**	**0.05**					**0.12**
T1-50m	8/1/13	859	0.6	Flood	0.04	1.3	0.30	4.2	0.07	1.0	5.3	149	0.41	12.6	4.86	68	0.08	35.07	26.1	8.25	6.63	0.18
T1-50m	10/29/13	935	1.0	Flood	0.16	5.1	0.21	2.9	0.34	4.8	1.9	52	0.43	13.2	6.10	86	0.02	35.29	27.1	8.22	6.06	0.21
T1-50m	2/4/14	936	1.0	Ebb	0.10	3.2	0.40	5.6	0.38	5.3	3.6	102	0.43	13.3	8.60	121	0.02	34.89	25.2	8.21	6.30	0.17
T1-50m	5/6/14	933	0.6	Flood	0.16	5.0	0.59	8.3	0.56	7.8	3.5	100	0.45	13.8	6.28	88	0.06	34.71	25.8	8.22	6.36	0.16
Geomean	**'13-'14**				0.10	**3.2**	0.35	***4.9***	0.27	***3.8***			0.43	***13.2***	6.3	**89**	**0.04**					**0.18**
T1-100m	8/1/13	905	0.6	Flood	0.05	1.7	0.34	4.7	0.06	0.8	5.2	145	0.41	12.7	5.09	71	0.06	35.08	26.0	8.24	6.69	0.13
T1-100m	10/29/13	940	1.0	Flood	0.13	4.1	0.25	3.5	0.57	8.0	2.2	62	0.43	13.4	6.20	87	0.02	35.30	27.1	8.21	6.17	0.23
T1-100m	2/4/14	941	1.0	Ebb	0.12	3.7	0.54	7.5	0.41	5.8	4.3	121	0.39	12.1	6.40	90	0.02	34.87	25.2	8.21	6.31	0.16
T1-100m	5/6/14	940	0.6	Flood	0.11	3.3	0.32	4.5	0.30	4.2	3.2	91	0.45	13.9	6.53	91	0.06	34.74	25.9	8.22	6.37	0.17
Geomean	**'13-'14**				0.10	**3.0**	0.35	***4.9***	0.25	***3.5***			0.42	***13.0***	6.0	**84**	**0.03**					**0.17**
T1-500m	8/1/13	911	0.7	Flood	0.03	0.8	0.24	3.3	0.06	0.9	6.6	184	0.41	12.6	5.74	80	0.06	35.09	26.0	8.25	6.14	0.15
T1-500m	10/29/13	946	1.0	Flood	0.12	3.8	0.18	2.5	0.41	5.8	2.3	66	0.42	13.0	5.25	74	0.02	35.28	27.1	8.20	6.13	0.24
T1-500m	2/4/14	949	1.0	Ebb	0.08	2.4	0.07	1.0	0.24	3.4	2.9	80	0.41	12.8	6.33	89	0.02	34.91	25.3	8.23	6.25	0.22
T1-500m	5/6/14	951	0.6	Flood	0.06	1.9	0.01	0.2	0.15	2.1	1.2	33	0.43	13.3	5.98	84	0.06	34.83	26.0	8.22	6.12	0.14
Geomean	**'13-'14**				0.06	**1.9**	0.08	**1.1**	0.18	**2.5**			0.42	***12.9***	5.8	**81**	**0.03**					**0.18**

NELHA Water Quality Laboratory
Transect 1
July 2013 - June 2014

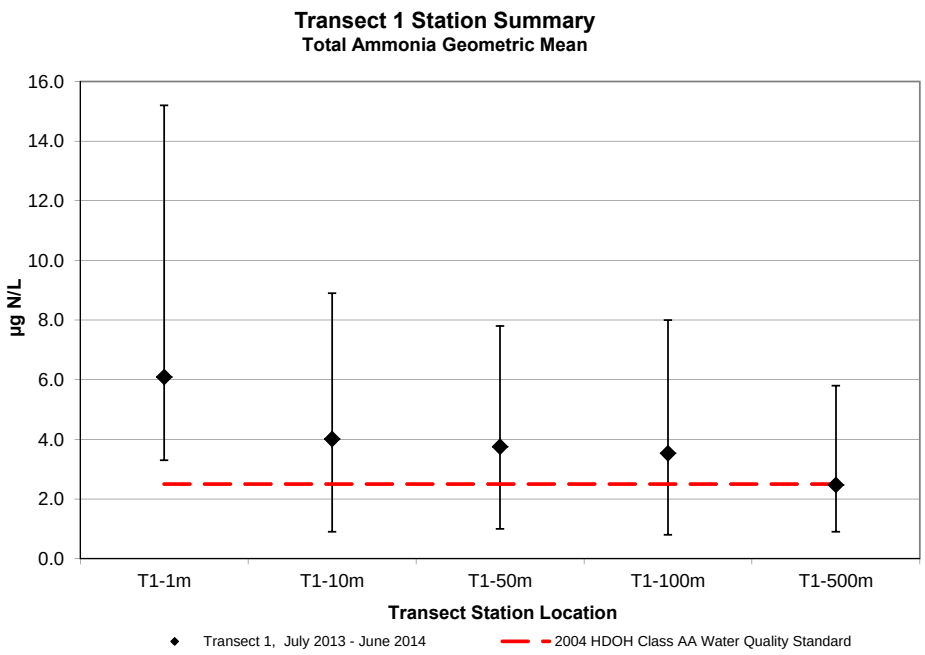


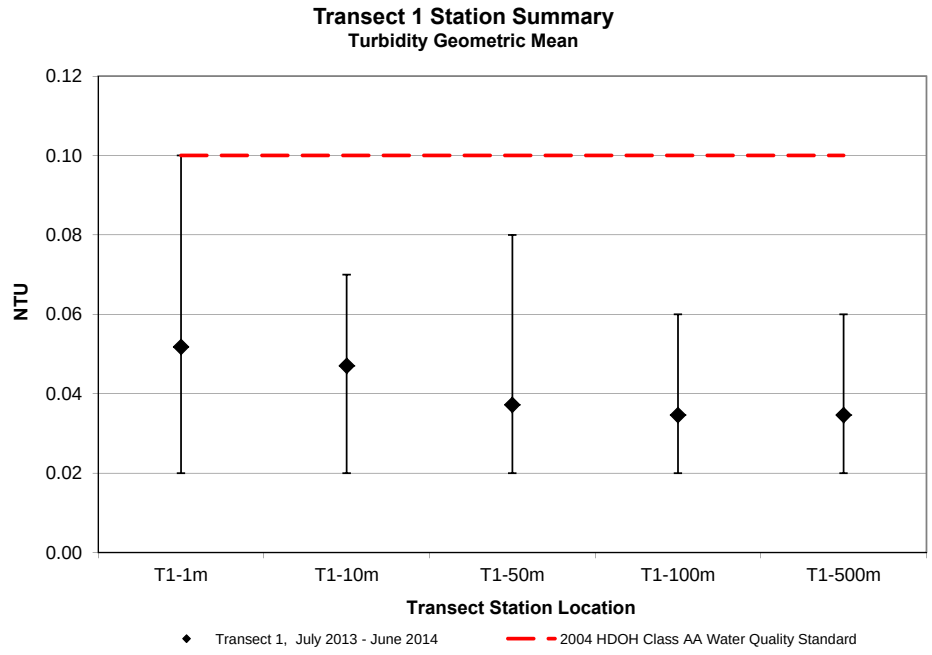


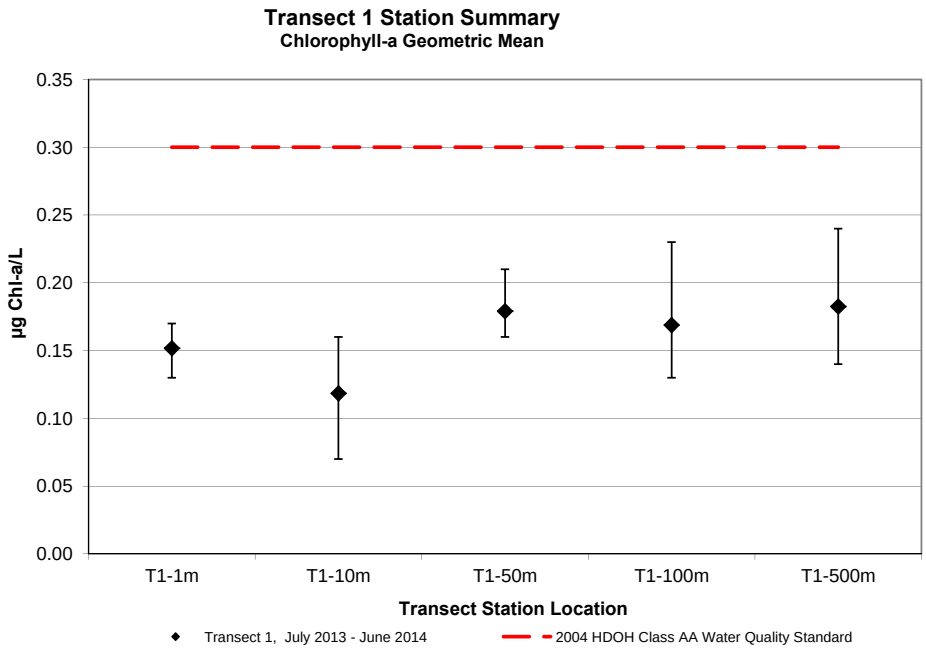




NELHA Water Quality Laboratory
Transect 1
July 2013 - June 2014







NELHA Water Quality Laboratory

Transect 1, Station 1

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TP		TOC	Turbidity	Salinity	Temp.	pH	DO	Chl a	Fecal Coliform	Enterococci
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg P/L)	(mgC/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)	Bact/100 ml	Bact/100 ml
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**				**0.10**					**0.30**		
O1-1S-8m	7/27/93	1213	0.03	0.9	0.03	0.4	0.14	2.0	2.5	70	0.28	8.7	7.2	101	0.28	8.7	1.18	0.09	34.508	26.6	8.27	7.03	0.06	no sample	no sample
O1-1S-8m	12/7/93	1113	0.06	1.9	0.20	2.8	0.15	2.1	4.5	125	0.23	7.1	5.2	72	0.23	7.1	1.13	0.11	34.789	25.9	8.26	6.90	0.09	no sample	no sample
O1-1S-8m	3/16/94	1041	0.21	6.5	0.77	10.8	0.20	2.8	10.5	295	0.34	10.5	4.1	57	0.34	10.5	1.14	0.11	34.269	24.7	8.25	7.11	0.09	<1	<1
O1-1S-8m	6/14/94	1032	0.13	4.0	0.14	2.0	0.03	0.4	2.7	77	0.30	9.3	6.4	90	0.30	9.3	1.12	0.11	34.564	25.4	8.25	7.05	0.03	<1	<1
Geomean	**'93-'94**			**2.6**		**2.2**		**1.5**				**8.8**		**78**				**0.10**					**0.06**		
O1-1S-8m	9/15/94	1050	0.10	3.1	0.09	1.3	0.14	2.0	3.0	83	0.28	8.7	5.2	72	0.30	9.3	1.20	0.12	34.630	27.8	8.29	6.99	0.09	<1	<1
O1-1S-8m	11/16/94	947	0.16	5.0	0.49	6.9	0.50	7.0	6.4	180	0.36	11.2	5.3	75	0.38	11.8	1.06	0.07	34.473	26.1	8.25	6.87	0.17	1	<1
O1-1S-8m	3/21/95	1214	0.19	5.9	0.26	3.6	0.09	1.3	4.8	135	0.35	10.8	4.9	68	0.35	10.8	0.94	0.10	34.165	25.0	8.25	7.11	0.14	<1	<1
O1-1S-8m	6/26/95	959	0.13	4.0	0.33	4.6	0.45	6.3	4.7	131	0.32	9.9	6.1	85	0.32	9.9	0.98	0.07	34.492	26.7	8.23	6.94	0.12	<1	<1
Geomean	**'94-'95**			**4.4**		**3.5**		***3.2***				**10.1**		**75**				**0.09**					**0.13**		
O1-1S-8m	9/25/95	907	0.12	3.7	0.44	6.2	0.15	2.1	7.2	202	0.31	9.6	6.0	83	0.31	9.6	1.16	0.12	34.408	27.1	8.26	6.72	0.17	<1	<1
O1-1S-8m	11/13/95	1153	0.16	5.0	0.40	5.6	0.50	7.0	7.0	197	0.31	9.6	5.8	81	0.31	9.6	1.02	0.06	34.248	27.0	8.30	8.75	0.05	<1	<1
O1-1S-8m	3/11/96	937	0.14	4.3	0.42	5.9	0.33	4.6	3.7	103	0.35	10.8	4.8	67	0.35	10.8	1.07	0.06	34.181	25.1	8.24	7.06	0.01	<1	<1
O1-1S-8m	5/13/96	903	0.13	4.0	0.48	6.7	0.19	2.7	7.6	213	0.30	9.3	7.6	107	0.30	9.3	1.24	0.07	34.165	26.6	8.21	7.06	0.11	<1	<1
Geomean	**'95-'96**			**4.2**		***6.1***		***3.7***				**9.8**		**83**				**0.07**					**0.06**		
O1-1S-8m	7/30/96	815	0.14	4.3	0.86	12.0	0.16	2.2	9.4	263	0.28	8.7	5.1	72	0.28	8.7	1.00	0.13	34.289	27.9	8.23	6.59	0.08	<1	1
O1-1S-8m	10/1/96	1208	0.08	2.5	0.21	2.9	0.54	7.6	3.4	95	0.28	8.7	4.9	68	0.28	8.7	0.99	0.10	34.692	27.9	8.22	6.84	0.02	<1	<1
O1-1S-8m	1/6/97	1215	0.09	2.8	0.07	1.0	0.14	2.0	2.6	74	0.30	9.3	4.6	65	0.32	9.9	1.03	0.10	34.703	25.5	8.27	6.97	0.07	1	<1
O1-1S-8m	4/21/97	1206	0.12	3.7	0.50	7.0	0.22	3.1	2.0	56	0.36	11.2	6.0	85	0.37	11.5	1.12	0.14	34.560	26.6	8.27	6.76	0.01	<1	<1
Geomean	**'96-'97**			**3.2**		**3.9**		***3.2***				**9.4**		**72**				***0.12***					**0.03**		
O1-1S-8m	8/18/97	1143	0.10	3.1	0.16	2.2	0.25	3.5	4.1	116	0.34	10.5	4.3	60	0.35	10.8	1.16	0.10	34.627	27.0	8.40	6.45	0.06	<1	<1
O1-1S-8m	10/6/97	1205	0.11	3.4	0.20	2.8	0.34	4.8	31.8	892	0.36	11.2	4.5	63	0.36	11.2	1.00	0.12	34.667	27.4	8.47	6.77	0.10	<1	<1
O1-1S-8m	3/3/98	1205	0.10	3.1	0.46	6.4	0.24	3.4	4.9	136	0.34	10.5	4.8	67	0.34	10.5	0.99	0.09	34.959	25.1	8.23	7.04	0.05	<1	<1
O1-1S-8m	5/4/98	1118	0.15	4.6	1.24	17.4	0.16	2.2	13.2	371	0.43	13.3	5.6	78	0.44	13.6	0.87	0.20	34.720	23.8	8.24	7.24	0.11	<1	<1
Geomean	**'97-'98**			**3.5**		***5.1***		***3.3***				**11.3**		**67**				***0.12***					**0.08**		
O1-1S-8m	7/6/98	1220	0.10	3.1	0.14	2.0	0.10	1.4	3.5	99	0.36	11.2	5.3	75	0.37	11.5	1.07	0.08	35.020	26.4	8.24	7.17	0.17	<1	<1
O1-1S-8m	10/5/98	1149	0.10	3.1	0.50	7.0	0.14	2.0	6.6	184	0.40	12.4	6.7	94	0.40	12.4	1.10	0.08	35.020	27.4	8.23	7.28	0.07	<1	<1
O1-1S-8m	1/13/99	1157	0.11	3.4	0.45	6.3	0.10	1.4	4.8	135	0.35	10.8	5.4	75	0.36	11.2	1.13	0.10	35.027	25.2	8.24	7.11	0.06	<1	<1
O1-1S-8m	4/12/99	927	0.14	4.3	0.52	7.3	0.11	1.5	6.9	194	0.39	12.1	6.0	84	0.40	12.4	1.11	0.12	34.606	24.1	8.21	7.09	0.12	<1	<1
Geomean	**'98-'99**			**3.5**		***5.0***		**1.6**				**11.6**		**81**				**0.09**					**0.10**		
O1-1S-8m	7/6/99	930	0.11	3.4	0.13	1.8	0.06	0.8	2.6	72	0.34	10.5	4.7	66	0.34	10.5	1.00	0.08	34.942	25.6	8.20	6.77	0.17	29	<1
O1-1S-8m	10/4/99	1021	0.17	5.3	0.61	8.5	0.16	2.2	8.5	239	0.35	10.8	5.1	72	0.35	10.8	0.99	0.12	34.794	25.9	8.26	7.00	0.06	<1	<1
O1-1S-8m	1/4/00	1213	0.11	3.4	0.60	8.4	0.37	5.2	13.2	371	0.35	10.8	5.6	79	0.35	10.8	0.98	0.08	35.050	24.7	8.23	7.11	0.13	<1	<1
O1-1S-8m	4/17/00	1004	0.15	4.6	0.28	3.9	0.02	0.3	4.8	134	0.35	10.8	7.1	99	0.36	11.2	1.02	0.10	34.592	24.3	8.26	7.05	0.11	<1	<1
Geomean	**'99-'00**			**4.1**		***4.8***		**1.3**				**10.8**		**78**				**0.09**					**0.11**		
O1-1S-8m	7/24/00	1234	0.12	3.7	0.10	1.4	0.01	0.1	6.4	180	0.35	10.8	5.8	81	0.36	11.2	1.02	0.08	34.770	27.2	8.28	6.95	0.11	<1	<1
O1-1S-8m	10/30/00	1256	0.14	4.3	0.28	3.9	0.31	4.3	6.1	172	0.34	10.5	5.1	71	0.35	10.8	1.13	0.08	34.907	27.3	8.24	6.64	0.24	<1	<1
O1-1S-8m	2/26/01	1233	0.19	5.9	0.84	11.8	0.16	2.2	12.2	343	0.38	11.8	5.9	82	0.39	12.1	1.04	0.09	34.476	24.9	8.22	6.83	0.09	<1	<1
O1-1S-8m	5/7/01	1019	0.17	5.3	1.04	14.6	0.35	4.9	10.9	306	0.40	12.4	5.4	76	0.41	12.7	0.99	0.12	34.698	24.6	8.20	7.29	0.10	<1	<1
Geomean	**'00-'01**			**4.7**		***5.5***		**1.6**				**11.4**		**77**				**0.09**					**0.12**		
O1-1S-8m	8/21/01	1201	0.17	5.3	0.63	8.8	0.03	0.4	6.2	174	0.35	10.8	5.9	82	0.35	10.8	1.05	0.12	34.688	26.8	8.23	7.18	0.12	<1	<1
O1-1S-8m	10/8/01	950	0.12	3.7	0.09	1.3	0.05	0.7	2.5	70	0.37	11.5	6.0	84	0.37	11.5	1.10	0.12	34.938	27.2	8.21	6.72	0.09	<1	<1
O1-1S-8m	3/5/02	1108	0.17	5.3	0.71	9.9	0.09	1.3	8.5	238	0.38	11.8	6.9	96	0.39	12.1	0.95	0.16	34.630	24.3	8.23	6.88	0.16	<1	1
O1-1S-8m	4/17/02	1126	0.12	3.7	0.69	9.7	0.24	3.4	6.4	180	0.40	12.4	6.0	84	0.42	13.0	1.00	0.08	34.372	25.7	8.21	6.75	0.14	<1	<1
Geomean	**'01-'02**			**4.4**		***5.7***		**1.1**				**11.6**		**87**				***0.12***					**0.12**		

NELHA Water Quality Laboratory

Transect 1, Station 1

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TP		TOC	Turbidity	Salinity	Temp.	pH	DO	Chl a	Fecal Coliform	Enterococci
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg P/L)	(mgC/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)	Bact/100 ml	Bact/100 ml
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**				**0.10**					**0.30**		
O1-1S-8m	7/8/02	1020	0.15	4.6	0.05	0.7	0.11	1.5	3.5	99	0.44	13.6	6.5	91	0.44	13.6	1.06	0.08	34.645	26.5	8.22	6.81	0.18	1	<1
O1-1S-8m	10/9/02	1109	0.08	2.5	0.66	9.2	0.09	1.3	6.0	168	0.31	9.6	6.1	86	0.31	9.6	0.95	0.12	34.876	27.0	8.26	6.82	0.10	<1	<1
O1-1S-8m	3/11/03	1004	0.12	3.7	0.64	9.0	0.04	0.6	5.0	139	0.34	10.5	6.2	87	0.36	11.2	0.99	0.22	34.880	24.5	8.24	7.04	0.17	<1	1
O1-1S-8m	4/22/03	1100	0.10	3.1	0.32	4.5	0.07	1.0	2.9	81	0.33	10.2	5.2	73	0.36	11.2	1.03	0.06	35.018	25.1	8.26	7.06	0.08	<1	<1
Geomean	**'02-'03**			**3.4**		**4.0**		**1.0**				**10.9**		**84**				***0.11***					**0.13**		
O1-1S-8m	8/18/03	1300	0.07	2.2	0.34	4.8	0.30	4.2	6.2	173	0.38	11.8	7.5	105	0.38	11.8	n/a	0.10	34.869	28.1	8.24	6.82	0.05	<1	<1
O1-1S-8m	10/29/03	1048	0.09	2.8	0.07	1.0	0.18	2.5	3.1	86	0.36	11.2	4.2	58	0.39	12.1	n/a	0.11	34.836	27.6	8.21	n/a	0.16	<1	<1
O1-1S-8m	3/11/04	950	0.16	5.0	0.41	5.7	0.20	2.8	2.9	81	0.41	12.7	5.2	72	0.40	12.4	n/a	n/a	34.291	25.6	8.25	6.24	0.17	<1	<1
O1-1S-8m	5/20/04	930	0.12	3.7	0.08	1.1	0.18	2.5	4.2	118	0.34	10.5	5.6	78	0.36	11.2	n/a	n/a	33.510	26.5	8.23	6.82	0.01	<1	<1
Geomean	**'03-'04**			**3.2**		**2.3**		***2.9***				**11.5**		**77**				**0.10**					**0.06**		
O1-1S-8m	9/20/04	935	0.09	2.8	0.05	0.7	0.19	2.7	3.1	86	0.34	10.5	5.9	82	0.34	10.5	n/a	0.18	33.720	27.7	8.24	6.60	0.11	<1	<1
O1-1S-8m	11/17/04	906	0.11	3.4	0.17	2.4	0.26	3.6	2.3	65	0.36	11.2	5.8	81	0.35	10.8	n/a	0.08	33.600	27.1	8.27	6.59	0.03	<1	<1
O1-1S-8m	1/13/05	1030	0.07	2.2	0.21	2.9	0.08	1.1	3.6	102	0.27	8.4	4.1	57	0.28	8.7	n/a	0.06	35.852	25.2	8.33	6.78	0.09	<1	<1
O1-1S-8m	4/11/05	1026	0.24	7.4	1.54	21.6	0.28	3.9	11.2	315	0.41	12.7	6.3	88	0.42	13.0	n/a	0.12	34.232	25.2	8.30	7.08	0.08	<1	1
Geomean	**'04-'05**			**3.5**		**3.2**		***2.6***				**10.6**		**76**				**0.10**					**0.07**		
O1-1S-8m	7/20/05	1012	0.06	1.9	0.02	0.3	0.32	4.5	1.4	39	0.35	10.8	4.4	61	0.35	10.8	n/a	0.08	34.756	26.6	8.25	6.67	0.01	<1	<1
O1-1S-8m	10/11/05	900	0.06	1.9	0.07	1.0	0.08	1.1	4.0	113	0.31	9.6	3.6	51	0.31	9.6	1.26	0.17	34.938	26.5	8.28	6.64	0.12	<1	1
O1-1S-8m	3/13/06	944	0.26	8.1	3.20	44.8	0.28	3.9	20.3	571	0.55	17.0	8.7	122	0.54	16.7	n/a	0.19	34.266	24.4	8.28	7.23	0.12	<1	<1
O1-1S-8m	5/15/06	943	0.42	13.0	5.14	72.0	0.67	9.4	39.3	1103	0.76	23.5	10.2	143	0.89	27.6	1.12	0.24	33.529	25.0	8.26	7.12	0.84	<1	<1
Geomean	**'05-'06**			**4.4**		***5.5***		***3.7***				***14.3***		**86**				***0.16***					**0.10**		
O1-1S-8m	8/14/06	937	0.15	4.6	0.40	5.6	0.32	4.5	4.5	125	0.44	13.6	5.8	81	0.41	12.7	1.10	0.13	34.545	26.5	8.26	7.19	0.08	<1	<1
O1-1S-8m	11/1/06	943	0.17	5.3	0.99	13.9	0.88	12.3	9.9	279	0.37	11.5	7.1	99	0.43	13.3	1.30	0.22	34.598	26.8	8.27	7.12	0.23	<1	<1
O1-1S-8m	2/12/07	1005	0.17	5.3	0.97	13.6	0.46	6.4	7.3	205	0.41	12.7	6.3	88	0.41	12.7	1.13	0.44	34.414	24.5	8.23	6.81	0.19	<1	<1
O1-1S-8m	4/9/07	938	0.13	4.0	0.15	2.1	0.39	5.5	5.2	145	0.36	11.2	4.8	67	0.54	16.7	0.98	0.49	34.658	25.1	8.21	6.62	0.02	<1	<1
Geomean	**'06-'07**			**4.8**		***6.9***		***6.6***				**12.2**		**83**				***0.28***					**0.09**		
T1-1m	9/26/07	855	0.19	6.0	0.81	11.3	0.34	4.7	9.3	260	0.43	13.4	7.0	98				0.08	34.750	26.8	8.10	6.12	0.12		
T1-1m	12/13/07	1030	0.06	1.9	0.61	8.6			6.8	190	0.43	13.4	7.0	99				0.19	34.672	25.7	8.36	6.43	0.23		
T1-1m	3/10/08	930	0.02	0.7	0.26	3.7	0.06	0.8	3.4	96	0.41	12.6	7.9	111				0.09	34.893	24.9	8.09	6.51	0.24		
T1-1m	6/5/08	941	0.12	3.8	0.19	2.7	0.16	2.2	12.6	354	0.30	9.3	11.9	167				0.10	34.817	24.9	8.09	6.81	0.21		
Geomean	**'07-'08**			**2.3**		***5.6***		**2.0**				**12.0**		***115***				***0.11***					**0.19**		
T1-1m	9/22/08	1037	0.07	2.1	0.09	1.3	0.41	5.8	2.1	59	0.32	9.9	5.4	76				0.10	34.750	26.6	7.95	6.7	0.0		
T1-1m	11/17/08	916	0.13	4.1	0.23	3.2	0.28	3.9	2.7	75	0.29	8.9	4.1	58				0.15	34.950	25.7	8.10	5.4	0.0		
T1-1m	2/9/09	913	0.19	6.0	0.30	4.2	0.12	1.7	2.1	60	0.32	9.8	4.6	65				0.27	34.961	24.9	8.06	6.3	0.0		
T1-1m	4/13/09	907	0.29	9.0	0.36	5.1	0.33	4.6	3.7	105	0.60	18.7	5.7	80				0.20	34.958	23.9	8.05	6.1	0.1		
Geomean	**'08-'09**			**4.6**		**3.1**		***3.6***				**11.3**		**69**				***0.17***					**0.02**		
T1-1m	9/9/09	856	0.35	10.7	0.36	5.1	0.16	2.2	9.8	276	0.65	20.0	7.2	101				0.11	35.08	26.8	8.22	6.01	0.06		
T1-1m	11/23/09	928	0.02	0.8	0.33	4.6	0.04	0.6	33.5	940	0.31	9.7	6.4	90				0.08	35.17	25.3	8.25	6.13	0.18		
T1-1m	2/23/10	928	0.16	5.1	0.44	6.1	0.39	5.5	42.7	1199	0.35	10.8	5.1	71				0.10	35.03	24.6	8.21	6.23	0.32		
T1-1m	5/25/10	1056	0.05	1.5	0.12	1.7	0.12	1.7	10.3	290	0.58	18.1	6.2	87				0.08	34.96	25.1	8.25	7.01	0.09		
Geomean	**'09-'10**			**2.8**		**3.9**		**1.9**				***14.0***		**87**				**0.09**					**0.13**		
T1-1m	8/10/10	937	0.03	0.9	0.49	6.8	0.26	3.7	5.8	164	0.29	8.9	3.3	46				0.08	34.84	26.0	8.24	6.45	0.07		
T1-1m	11/8/10	927	0.02	0.8	0.29	4.0	0.16	2.2	5.3	149	0.38	11.7	4.7	65				0.18	35.25	26.4	8.24	6.18	0.04		
T1-1m	1/11/11	935	0.13	4.1	0.21	2.9	0.03	0.4	3.3	93	0.44	13.5	3.9	55				0.09	35.01	25.0	8.21	6.42	0.08		
T1-1m	4/26/11	935	0.18	5.5	0.35	4.9	0.14	1.9	6.8	192	0.48	14.9	3.5	49				0.08	34.95	25.1	8.23	6.46	0.14		
Geomean	**'10-'11**			**2.0**		**4.4**		**1.6**				**12.0**		**53**				**0.10**					**0.07**		

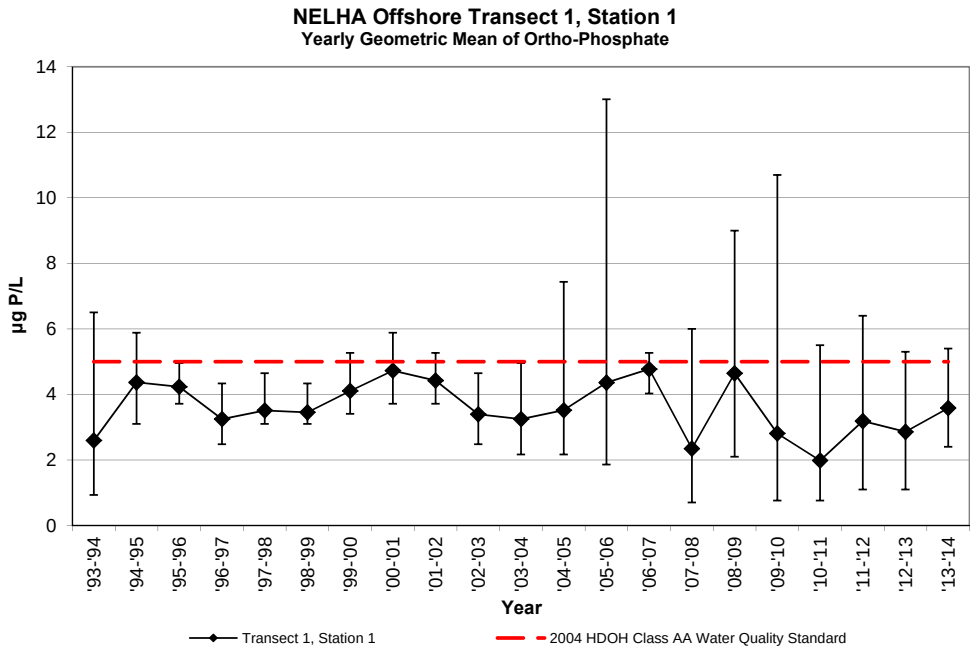
NELHA Water Quality Laboratory

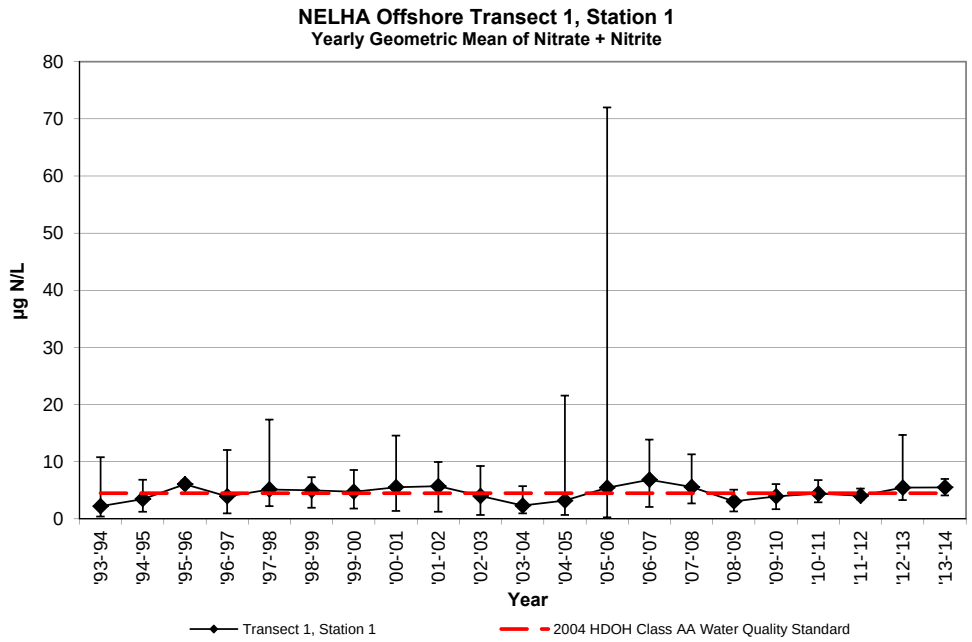
Transect 1, Station 1

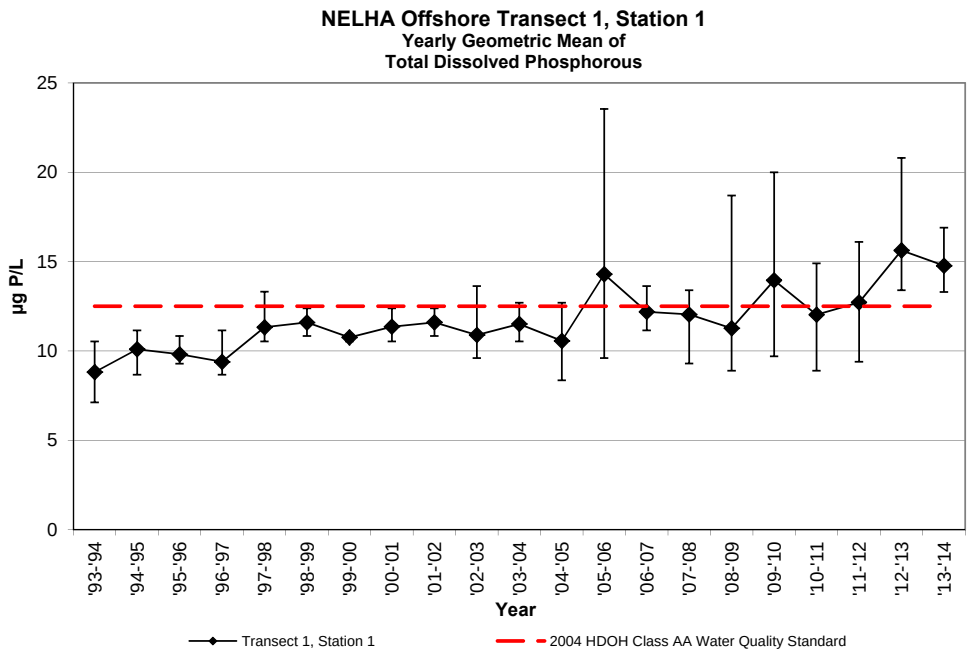
July 1993 - June 2014

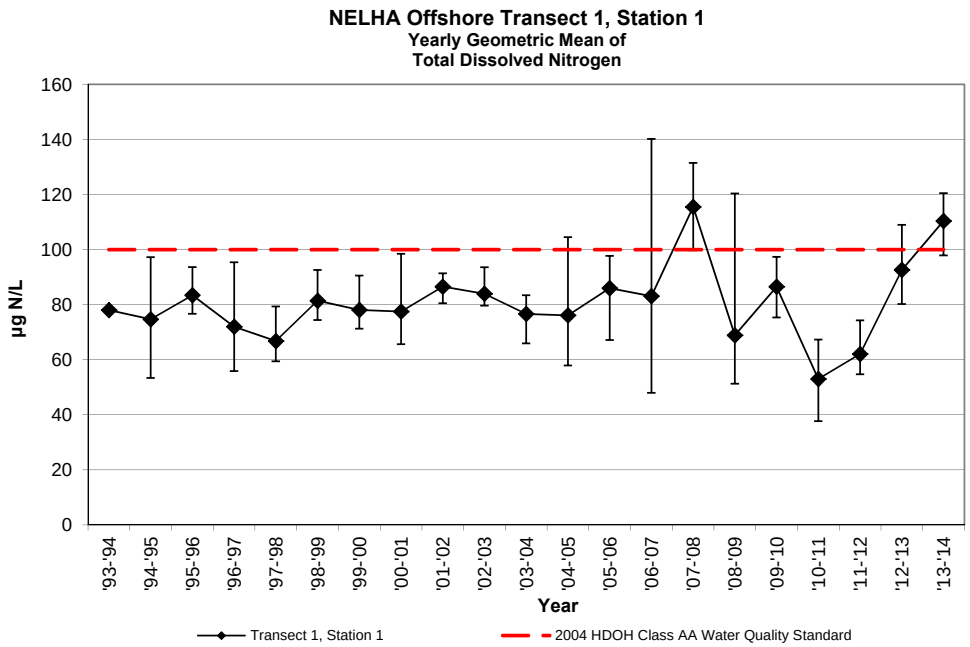
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TP		TOC	Turbidity	Salinity	Temp.	pH	DO	Chl a	Fecal Coliform	Enterococci
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg P/L)	(mgC/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)	Bact/100 ml	Bact/100 ml
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**				**0.10**					**0.30**		
T1-1m	7/26/11	944	0.21	6.4	0.38	5.3	0.10	1.4	2.8	80	0.52	16.1	4.1	58				0.05	34.76	25.9	8.25	6.36	0.09		
T1-1m	10/18/11	927	0.04	1.1	0.29	4.1	0.26	3.7	2.3	64	0.30	9.4	5.6	79				0.09	35.04	26.5	8.19	6.45	0.11		
T1-1m	1/25/12	949	0.11	3.4	0.26	3.6	0.08	1.1	3.1	86	0.42	13.1	4.7	66				0.10	35.00	24.7	8.18	6.72	0.11		
T1-1m	4/24/12	1014	0.14	4.3	0.24	3.4	0.29	4.1	2.6	73	0.43	13.2	3.5	50				0.11	35.10	24.7	8.20	6.56	0.13		
Geomean	**'11-'12**			**3.2**		**4.0**		**2.2**				***12.7***		**62**				**0.08**					**0.11**		
T1-1m	7/24/12	929	0.04	1.1	0.64	3.3	0.48	2.6	1.5	32	0.36	20.8	11.0	103				0.08	35.08	26.3	8.22	6.87	0.04		
T1-1m	11/27/12	931	0.12	3.7	1.20	14.7	0.32	5.2	8.6	221	0.44	13.9	6.2	80				0.07	35.04	25.0	8.20	6.83	0.30		
T1-1m	1/24/13	938	0.08	3.1	0.18	3.3	0.17	4.3	1.5	55	0.44	13.4	6.5	101				0.08	35.02	24.7	8.21	6.40	0.09		
T1-1m	4/16/13	939	0.15	5.3	0.38	5.6	0.17	1.1	1.0	27	0.48	15.4	6.9	89				0.07	35.15	24.9	8.21	7.04	0.08		
Geomean	**'12-'13**			**2.9**		***5.5***		***2.8***				***15.6***		**93**				**0.07**					**0.10**		
T1-1m	8/1/13	850	0.04	2.4	0.30	4.1	0.07	3.3	5.3	142	0.41	13.3	4.9	71				0.10	35.08	26.1	8.23	6.76	0.13		
T1-1m	10/29/13	928	0.16	3.1	0.21	4.9	0.34	5.0	1.9	70	0.43	16.9	6.1	130				0.04	35.28	27.0	8.25	6.21	0.17		
T1-1m	2/4/14	928	0.10	4.1	0.40	6.6	0.38	15.2	3.6	97	0.43	13.5	8.6	125				0.02	34.91	25.2	8.22	6.33	0.15		
T1-1m	5/6/14	923	0.16	5.4	0.59	7.0	0.56	5.5	3.5	105	0.45	15.7	6.3	129				0.09	34.69	25.8	8.21	6.59	0.16		
Geomean	**'13-'14**			**3.6**		***5.5***		***6.1***				***14.8***		**110**				**0.05**					**0.15**		

NELHA Water Quality Laboratory
Transect 1, Station 1
July 1993 - June 2014

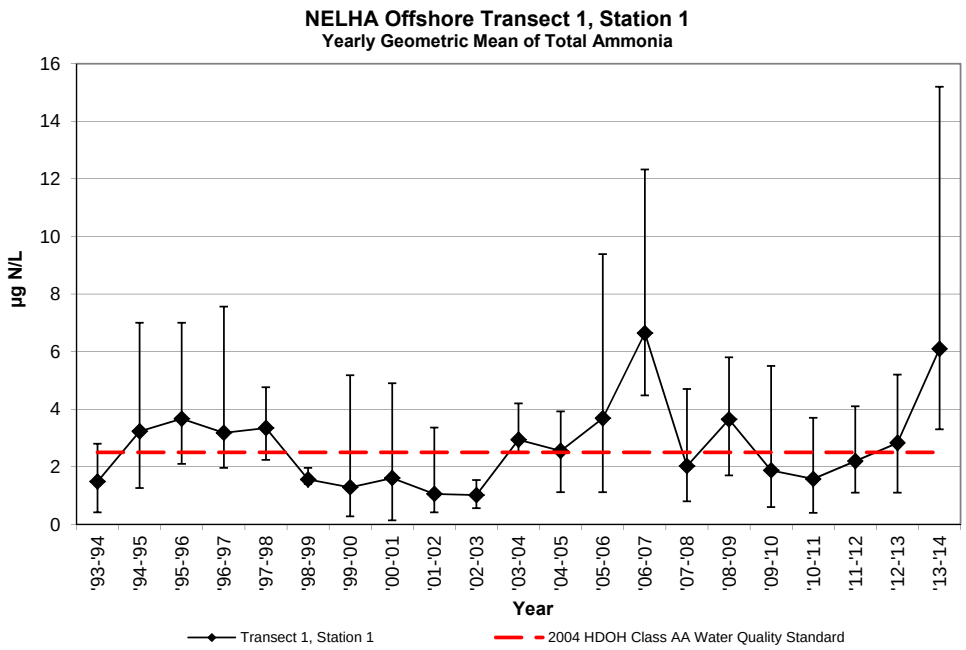


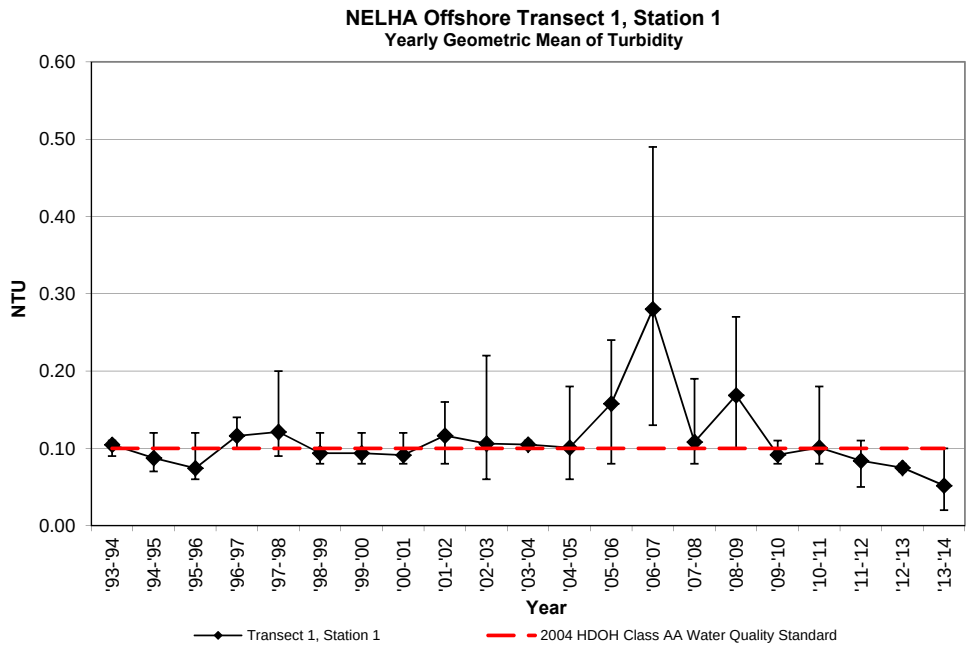


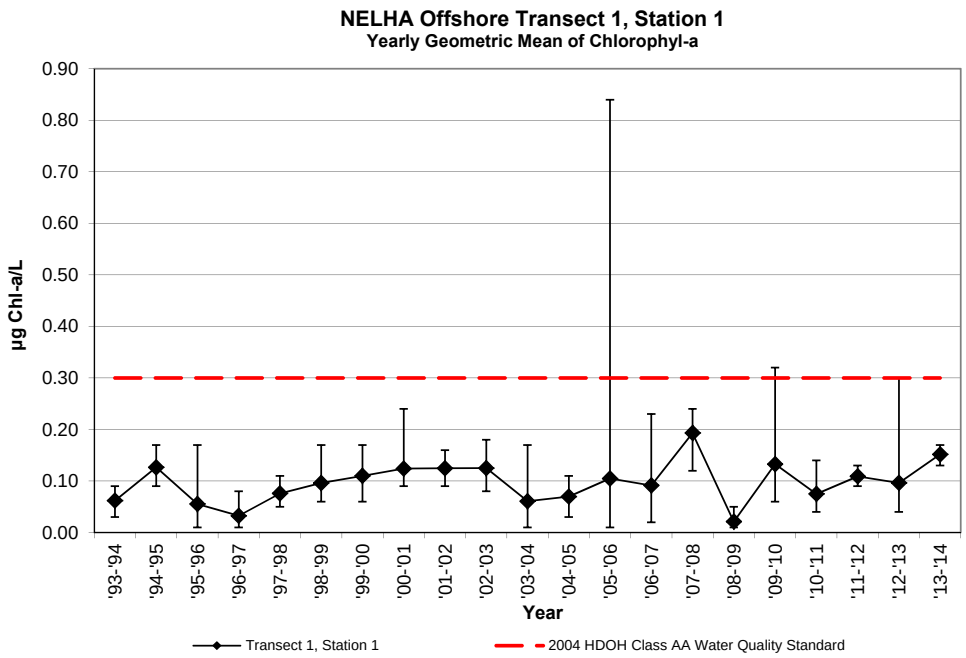




NELHA Water Quality Laboratory
Transect 1, Station 1
July 1993 - June 2014







NELHA Water Quality Laboratory

Transect 1, Station 2

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O1-2S-23m	7/27/93	1201	0.10	3.1	0.09	1.3	0.27	3.8	2.0	55					0.10	34.502	26.6			
O1-2S-23m	12/7/93	1058	0.06	1.9	0.15	2.1	0.11	1.5	3.5	99					0.11	34.805	25.9			
O1-2S-23m	3/16/94	1032	0.19	5.9	0.63	8.8	0.22	3.1	8.8	248			3.8	53	0.12	34.330	24.7			
O1-2S-23m	6/14/94	1021	0.12	3.7	0.10	1.4	0.01	0.1	2.7	75					0.08	34.575	25.4			
Geomean	**'93-'94**			**3.3**		**2.4**		**1.3**							**0.10**					
O1-2S-23m	9/15/94	1036	0.10	3.1	0.14	2.0	0.14	2.0	3.8	106					0.12	34.596	27.7			
O1-2S-23m	11/16/94	932	0.16	5.0	0.50	7.0	0.52	7.3	6.1	170					0.07	34.490	26.1			
O1-2S-23m	3/21/95	1203	0.27	8.4	0.13	1.8	0.16	2.2	3.4	94					0.09	34.210	25.0			
O1-2S-23m	6/26/95	948	0.14	4.3	0.98	13.7	0.58	8.1	8.5	239					0.07	34.384	26.7			
Geomean	**'94-'95**			**4.9**		**4.3**		***4.0***							**0.09**					
O1-2S-23m	9/25/95	900	0.12	3.7	0.54	7.6	0.22	3.1	7.5	210					0.14	34.373	27.1			
O1-2S-23m	11/13/95	1147	0.17	5.3	0.92	12.9	0.53	7.4	13.3	373					0.07	34.039	27.0			
O1-2S-23m	3/11/96	932	0.13	4.0	0.28	3.9	0.31	4.3	2.4	69					0.07	34.210	25.0			
O1-2S-23m	5/13/96	856	0.12	3.7	0.42	5.9	0.19	2.7	6.9	193					0.07	34.162	26.5			
Geomean	**'95-'96**			**4.1**		***6.9***		***4.0***							**0.08**					
O1-2S-23m	7/30/96	850	0.09	2.8	0.38	5.3	0.11	1.5	4.8	135					0.08	34.420	27.8			
O1-2S-23m	10/1/96	1203	0.08	2.5	0.26	3.6	0.53	7.4	3.9	109					0.09	34.659	28.0			
O1-2S-23m	1/6/97	1211	0.08	2.5	0.08	1.1	0.13	1.8	2.5	70					0.17	34.711	25.5			
O1-2S-23m	4/21/97	1200	0.10	3.1	0.44	6.2	0.23	3.2	2.0	55					0.10	34.556	26.5			
Geomean	**'96-'97**			**2.7**		**3.4**		***2.9***							***0.11***					
O1-2S-23m	8/18/97	1140	0.10	3.1	0.15	2.1	0.21	2.9	4.4	122					0.09	34.608	26.9			
O1-2S-23m	10/6/97	1159	0.10	3.1	0.16	2.2	0.33	4.6	10.8	304					0.09	34.673	27.4			
O1-2S-23m	3/3/98	1201	0.10	3.1	0.45	6.3	0.23	3.2	5.3	149					0.07	34.955	25.1			
O1-2S-23m	5/4/98	1113	0.18	5.6	1.74	24.4	0.16	2.2	19.0	534					0.09	34.508	23.8			
Geomean	**'97-'98**			**3.6**		***5.2***		***3.1***							**0.08**					
O1-2S-23m	7/6/98	1214	0.10	3.1	0.16	2.2	0.10	1.4	3.9	110					0.10	35.009	26.5			
O1-2S-23m	10/5/98	1144	0.12	3.7	0.69	9.7	0.15	2.1	6.1	172					0.08	34.977	27.4			
O1-2S-23m	1/13/99	1153	0.10	3.1	0.20	2.8	0.14	2.0	4.5	128					0.08	35.038	25.2			
O1-2S-23m	4/12/99	922	0.15	4.6	0.65	9.1	0.08	1.1	8.8	248					0.07	34.553	24.0			
Geomean	**'98-'99**			**3.6**		***4.8***		**1.6**							**0.08**					
O1-2S-23m	7/6/99	926	0.10	3.1	0.21	2.9	0.08	1.1	2.6	72					0.10	34.940	25.6			
O1-2S-23m	10/4/99	1016	0.15	4.6	0.63	8.8	0.13	1.8	8.0	225					0.08	34.803	25.9			
O1-2S-23m	1/4/00	1208	0.13	4.0	1.23	17.2	0.38	5.3	11.2	316					0.08	34.866	24.6			
O1-2S-23m	4/17/00	1000	0.14	4.3	0.13	1.8	0.02	0.3	6.4	179					0.06	34.648	24.2			
Geomean	**'99-'00**			**4.0**		***5.3***		**1.3**							**0.08**					
O1-2S-23m	7/24/00	1230	0.12	3.7	0.55	7.7	0.06	0.8	8.0	224					0.08	34.730	27.3			
O1-2S-23m	10/30/00	1247	0.14	4.3	0.29	4.1	0.28	3.9	8.5	239					0.07	34.902	27.2			
O1-2S-23m	2/26/01	1228	0.19	5.9	0.97	13.6	0.19	2.7	13.8	386					0.11	34.425	24.9			
O1-2S-23m	5/7/01	1017	0.13	4.0	0.49	6.9	0.30	4.2	5.2	145					0.07	34.805	24.6			
Geomean	**'00-'01**			**4.4**		***7.3***		**2.5**							**0.08**					
O1-2S-23m	8/21/01	1151	0.15	4.6	0.50	7.0	0.07	1.0	5.1	143					0.09	34.717	26.7			
O1-2S-23m	10/8/01	947	0.11	3.4	0.20	2.8	0.05	0.7	4.6	128					0.07	34.941	27.2			
O1-2S-23m	3/5/02	1101	0.14	4.3	0.42	5.9	0.05	0.7	4.3	121					0.12	34.669	24.3			
O1-2S-23m	4/17/02	1121	0.10	3.1	0.22	3.1	0.24	3.4	4.7	131					0.09	34.457	25.6			
Geomean	**'01-'02**			**3.8**		**4.3**		**1.1**							**0.09**					

NELHA Water Quality Laboratory

Transect 1, Station 2

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O1-2S-23m	7/8/02	1016	0.17	5.3	0.16	2.2	0.17	2.4	4.9	138					0.06	34.613	26.5			
O1-2S-23m	10/9/02	1104	0.07	2.2	0.22	3.1	0.08	1.1	2.7	76					0.06	34.941	27.0			
O1-2S-23m	3/11/03	956	0.11	3.4	1.46	20.4	0.03	0.4	7.7	217					0.09	34.788	24.5			
O1-2S-23m	4/22/03	1056	0.08	2.5	0.45	6.3	0.07	1.0	3.6	101					0.07	34.991	25.2			
Geomean	**'02-'03**			**3.1**		***5.5***		**1.0**							**0.07**					
O1-2S-23m	8/18/03	1116	0.05	1.5	0.10	1.4	0.30	4.2	1.9	53					0.11	34.875	28.0			
O1-2S-23m	10/29/03	1033	0.09	2.8	0.03	0.4	0.18	2.5	2.8	78					0.10	34.850	27.4			
O1-2S-23m	3/11/04	944	0.15	4.6	0.66	9.2	0.15	2.1	3.5	98					n/a	34.275	25.5			
O1-2S-23m	5/20/04	936	0.11	3.4	0.13	1.8	0.21	2.9	2.6	72					n/a	33.54	26.5			
Geomean	**'03-'04**			**2.9**		**1.8**		***2.8***							**0.10**					
O1-2S-23m	9/20/04	931	0.08	2.5	0.08	1.1	0.25	3.5	1.8	49					0.08	33.71	27.7			
O1-2S-23m	11/17/04	902	0.11	3.4	0.45	6.3	0.24	3.4	4.3	122					0.10	33.63	27.1			
O1-2S-23m	1/13/05	1025	0.07	2.2	0.35	4.9	0.06	0.8	3.7	103					0.08	34.840	25.1			
O1-2S-23m	4/11/05	1018	0.21	6.5	2.49	34.9	0.24	3.4	16.9	474					0.08	34.821	25.2			
Geomean	**'04-'05**			**3.3**		***5.9***		**2.4**							**0.08**					
O1-2S-23m	7/20/05	1005	0.05	1.5	0.02	0.3	0.12	1.7	1.3	37					0.09	34.739	26.2			
O1-2S-23m	10/11/05	853	0.05	1.5	0.02	0.3	0.14	2.0	2.3	64					0.15	34.919	26.5			
O1-2S-23m	3/13/06	937	0.16	5.0	1.43	20.0	0.28	3.9	9.8	274					0.12	34.620	24.4			
O1-2S-23m	5/15/06	937	0.21	6.5	2.83	39.6	0.33	4.6	25.7	722					0.20	33.990	24.9			
Geomean	**'05-'06**			**3.0**		**2.8**		***2.8***							***0.13***					
O1-2S-23m	8/14/06	930	0.27	8.4	0.65	9.1	0.33	4.6	6.5	182					0.12	34.504	26.5			
O1-2S-23m	11/1/06	934	0.13	4.0	0.75	10.5	0.58	8.1	8.2	231					0.18	34.660	26.7			
O1-2S-23m	2/12/07	958	0.19	5.9	1.53	21.4	0.46	6.4	10.8	303					0.17	34.230	24.5			
O1-2S-23m	4/9/07	932	0.12	3.7	0.32	4.5	0.23	3.2	4.7	131					0.20	34.649	25.0			
Geomean	**'06-'07**			***5.2***		***9.8***		***5.3***							***0.16***					
T1-10m	9/26/07	907	0.29	9.0	2.71	37.9	0.34	4.7	22.0	619	0.60	18.6	9.5	133	0.12	33.972	26.8	8.10	6.39	0.32
T1-10m	12/13/07	1032	0.07	2.1	0.39	5.5			13.2	370	0.37	11.6	7.0	99	0.19	34.638	25.7	8.32	6.33	0.21
T1-10m	3/10/08	932	0.02	0.7	0.64	8.9	0.06	0.8	12.8	360	0.42	13.1	10.2	143	0.15	34.867	25.0	8.10	6.57	0.25
T1-10m	6/5/08	942	0.10	3.2	0.35	4.9	0.16	2.2	10.3	290	0.28	8.8	9.2	129	0.11	34.8026	25.0	8.08	6.73	0.22
Geomean	**'07-'08**			**2.6**		***9.8***		**2.0**				***12.6***		***125***	***0.14***					**0.25**
T1-10m	9/22/08	1041	0.06	1.9	0.12	1.7	0.04	0.6	2.5	70	0.25	7.7	5.0	70	0.12	34.832	26.62	7.99	6.53	0.06
T1-10m	11/17/08	923	0.17	5.3	0.23	3.2	0.14	1.9	3.3	93	0.36	11.3	4.7	66	0.08	34.951	25.62	8.16	5.3	0.07
T1-10m	2/9/09	918	0.10	3.1	0.10	1.4	0.12	1.7	1.6	46	0.22	6.8	4.9	69	0.18	34.984	24.86	8.06	6.23	0.01
T1-10m	4/13/09	912	0.17	5.2	0.21	2.9	1.25	17.5	2.7	75	0.40	12.5	6.7	94	0.10	34.985	23.89	8.1	6.01	0.04
Geomean	**'08-'09**			**3.6**		**2.2**		**2.4**				**9.3**		**74**	***0.11***					**0.04**
T1-10m	9/9/09	911	0.30	9.3	0.27	3.8	0.10	1.4	13.3	375	0.54	16.7	7.4	104	0.14	35.2	26.6	8.23	5.76	0.04
T1-10m	11/23/09	934	0.03	0.8	0.24	3.4	0.14	1.9	19.1	536	0.34	10.4	6.8	95	0.08	35.19	25.3	8.27	6.13	0.20
T1-10m	2/23/10	942	0.17	5.4	0.43	6	0.40	5.6	31.5	886	0.35	10.9	4.9	69	0.09	35.04	24.59	8.21	6.23	0.32
T1-10m	5/25/10	1100	0.04	1.2	0.12	1.7	0.12	1.7	14.6	411	0.36	11.2	5.2	73	0.07	34.97	25.13	8.23	7.02	0.09
Geomean	**'09-'10**			**2.6**		**3.4**		**2.2**				**12.1**		**84**	**0.09**					**0.12**
T1-10m	8/10/10	942	0.04	1.2	0.58	8.1	0.06	0.9	4.8	135	0.29	9.0	3.3	46	0.08	34.84	25.97	8.25	6.41	0.07
T1-10m	11/8/10	931	0.01	0.3	0.17	2.4	0.14	2.0	2.3	65	0.35	10.7	3.4	48	0.04	35.26	26.42	8.25	6.15	0.05
T1-10m	1/11/11	940	0.13	3.9	0.22	3.1	0.01	0.1	4.4	123	0.42	12.9	3.6	51	0.09	35.01	24.98	8.21	6.41	0.09
T1-10m	4/26/11	940	0.14	4.4	0.44	6.2	0.07	1.0	8.3	234	0.45	14.0	3.9	55	0.09	34.94	25.03	8.21	6.53	0.12
Geomean	**'10-'11**			**1.6**		**4.4**		**0.7**				**11.5**		**50**	**0.07**					**0.08**

NELHA Water Quality Laboratory

Transect 1, Station 2

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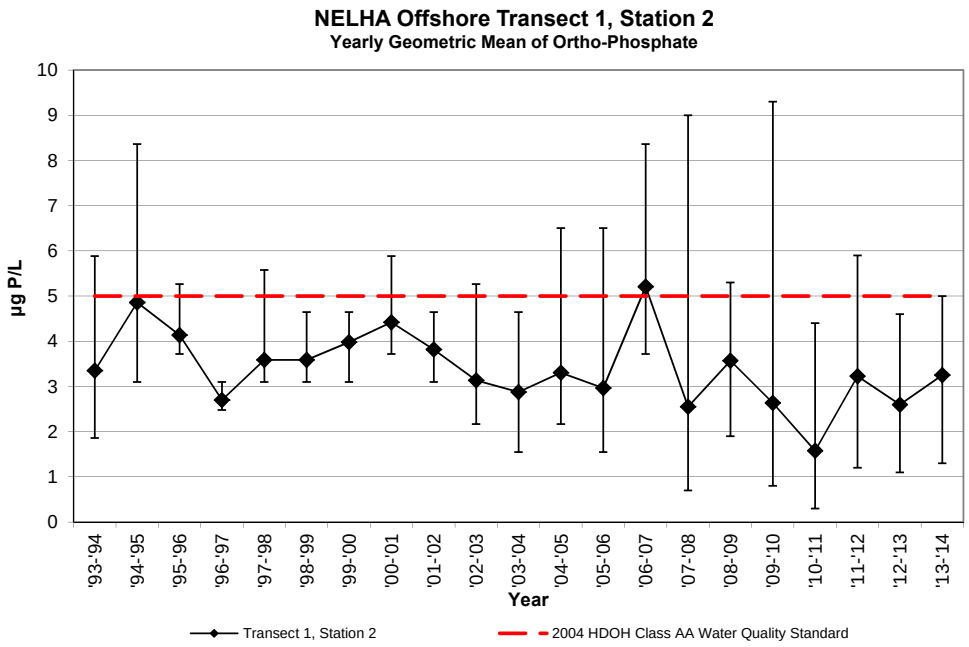
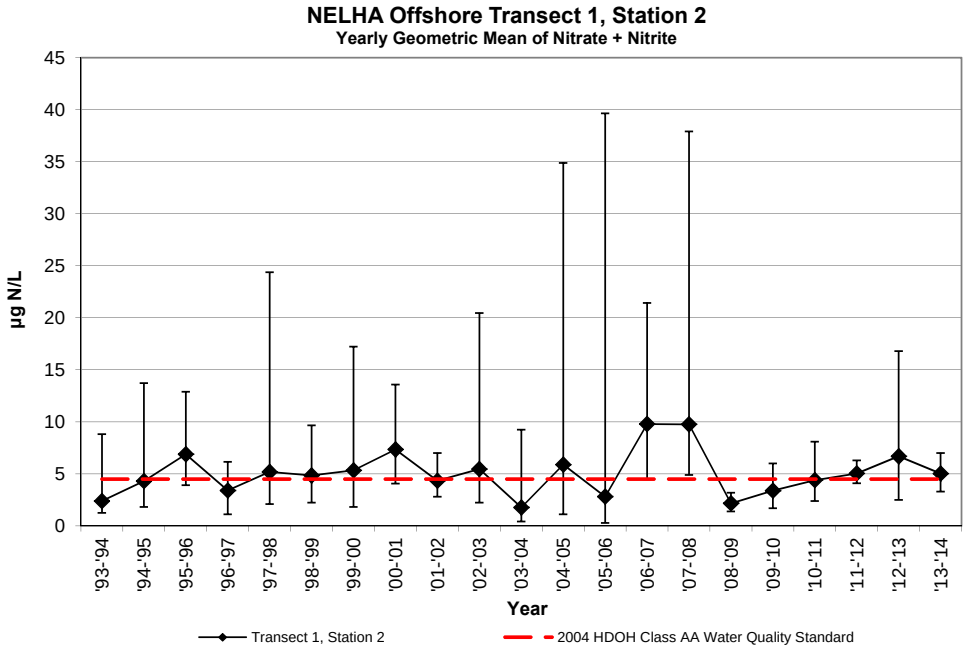
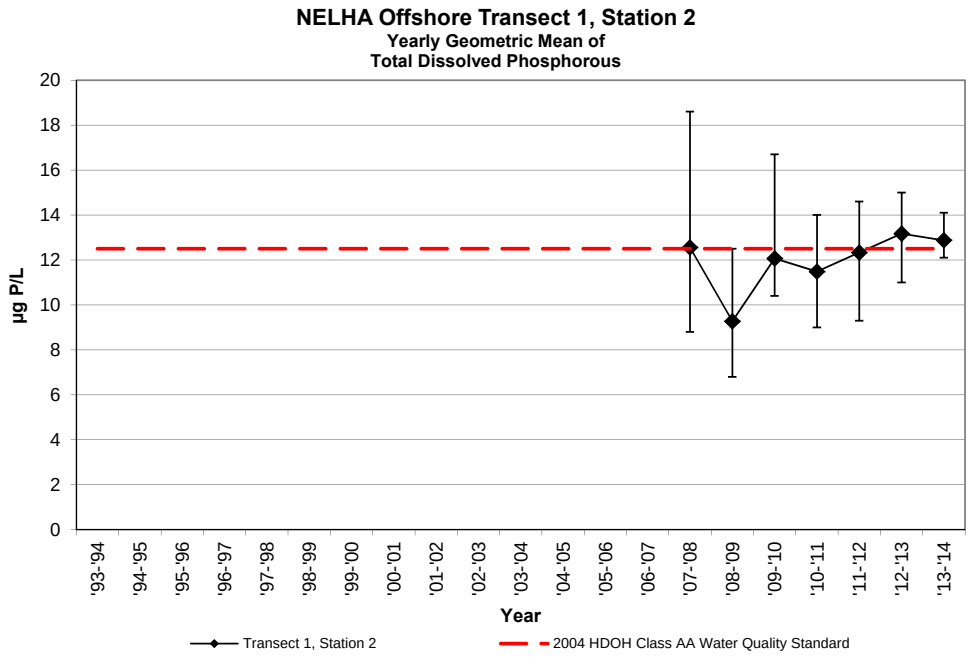
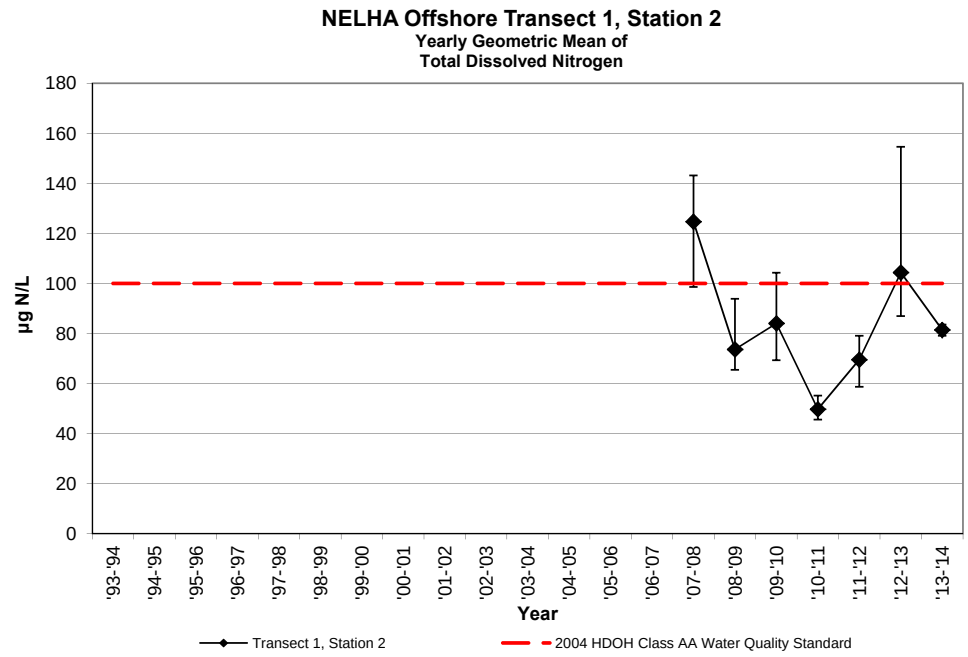
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
T1-10m	7/26/11	952	0.19	5.9	0.35	4.9	0.12	1.7	2.3	66	0.47	14.6	5.0	70	0.08	34.78	25.87	8.24	6.46	0.10
T1-10m	10/18/11	930	0.04	1.2	0.29	4.1	0.29	4.0	2.7	76	0.30	9.3	5.1	72	0.07	35.04	26.5	8.20	6.59	0.10
T1-10m	1/25/12	953	0.11	3.4	0.36	5.1	0.16	2.2	4.4	124	0.43	13.3	5.6	79	0.1	34.95	24.64	8.19	6.84	0.06
T1-10m	4/24/12	1019	0.15	4.5	0.45	6.3	0.24	3.4	4.4	122	0.41	12.8	4.2	59	0.08	35.06	24.7	8.23	6.63	0.20
Geomean	**'11-'12**			**3.2**		***5.0***		***2.7***				**12.3**		**70**	**0.08**					**0.10**
T1-10m	7/24/12	935	0.04	1.1	0.64	9	0.48	6.7	1.5	41	0.36	11.0	11.0	155	0.06	35.00	26.3	8.23	6.86	0.03
T1-10m	11/27/12	936	0.12	3.6	1.20	16.8	0.32	4.5	8.6	242	0.44	13.5	6.2	87	0.08	35.04	25.0	8.20	6.82	0.30
T1-10m	1/24/13	942	0.08	2.5	0.18	2.5	0.17	2.4	1.5	43	0.44	13.5	6.5	91	0.07	35.02	24.7	8.20	6.27	0.13
T1-10m	4/16/13	944	0.15	4.6	0.38	5.3	0.17	2.4	1.0	28	0.48	15.0	6.9	97	0.03	35.16	24.9	8.21	7.00	0.06
Geomean	**'12-'13**			**2.6**		***6.7***		***3.6***				***13.2***		***104***	**0.06**					**0.09**
T1-10m	8/1/13	854	0.04	1.3	0.24	3.3	0.06	0.9	4.6	129	0.39	12.2	5.6	79	0.07	35.00	26.1	8.26	6.79	0.11
T1-10m	10/29/13	931	0.14	4.3	0.34	4.8	0.35	4.9	2.5	69	0.43	13.2	6.0	84	0.07	35.28	27.0	8.24	6.19	0.16
T1-10m	2/4/14	932	0.13	4	0.41	5.8	0.64	8.9	3.0	83	0.39	12.1	5.7	80	0.02	34.92	25.2	8.22	6.35	0.16
T1-10m	5/6/14	929	0.16	5	0.50	7	0.47	6.6	3.6	103	0.46	14.1	5.9	83	0.05	34.69	25.8	8.21	6.54	0.07
Geomean	**'13-'14**			**3.3**		***5.0***		***4.0***				***12.9***		**81**	**0.05**					**0.12**

NELHA Water Quality Laboratory
Transect 1, Station 2
July 1993 - June 2014

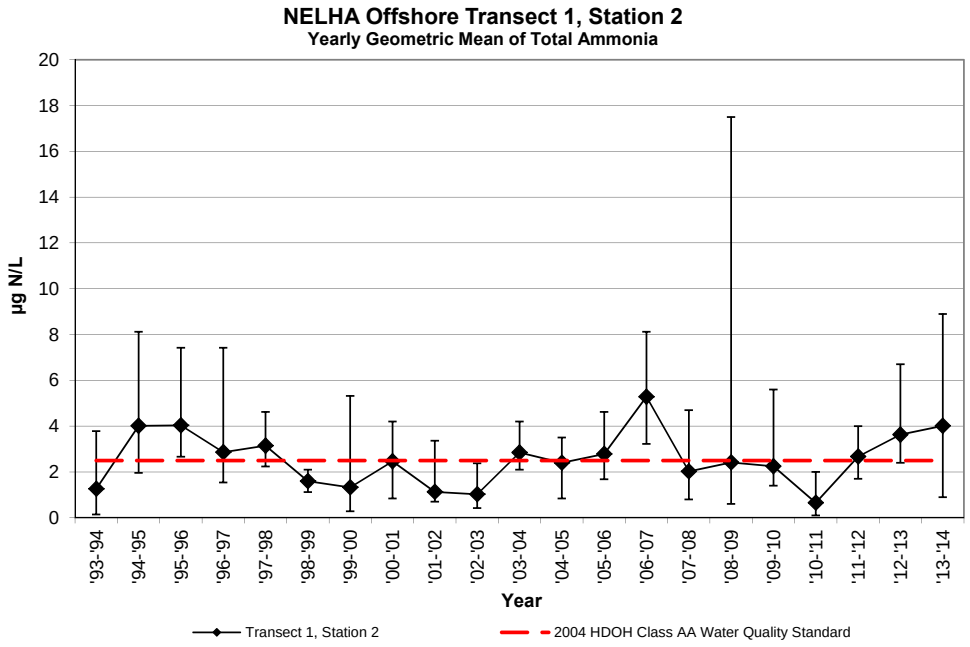


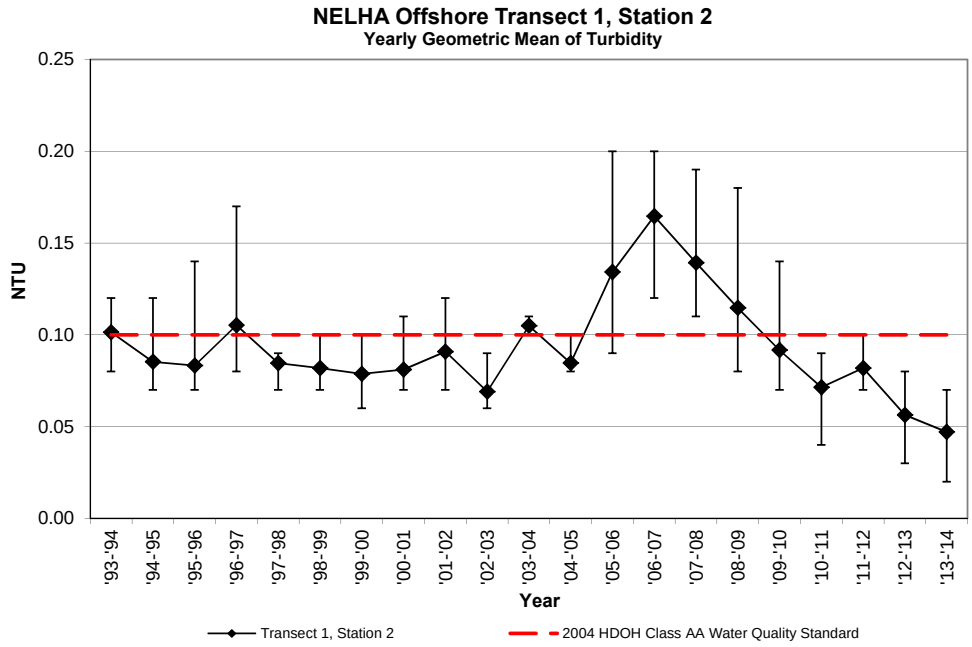


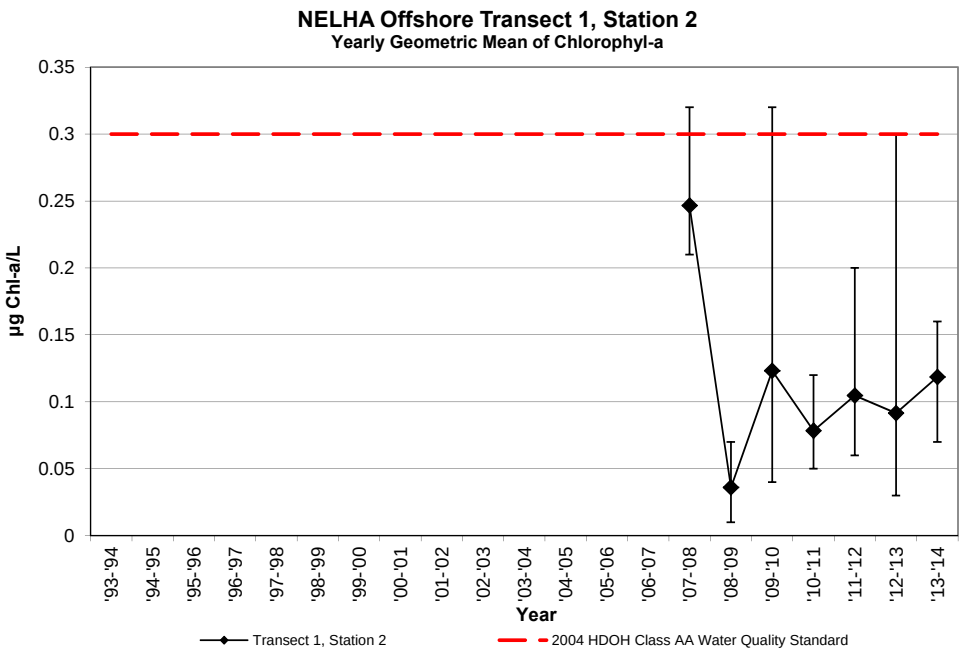




NELHA Water Quality Laboratory
Transect 1, Station 2
July 1993 - June 2014







NELHA Water Quality Laboratory
Transect 1, Station 3
July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O1-3S-38m	7/27/93	1149	0.06	1.9	0.05	0.7	0.18	2.5	1.8	51					0.10	34.500	26.6			
O1-3S-38m	12/7/93	1048	0.06	1.9	0.11	1.5	0.10	1.4	2.5	71					0.07	34.822	25.8			
O1-3S-38m	3/16/94	1026	0.19	5.9	0.86	12.0	0.20	2.8	11.5	323					0.12	34.244	24.7			
O1-3S-38m	6/14/94	1014	0.11	3.4	0.05	0.7	0.01	0.1	2.4	68					0.08	34.584	25.4			
Geomean	**'93-'94**			**2.9**		**1.7**		**1.1**							**0.09**					
O1-3S-38m	9/15/94	1032	0.10	3.1	0.46	6.4	0.14	2.0	7.6	213					0.08	34.450	27.7			
O1-3S-38m	11/16/94	929	0.14	4.3	0.25	3.5	0.50	7.0	3.2	90					0.07	34.574	26.0			
O1-3S-38m	3/21/95	1154	0.18	5.6	0.08	1.1	0.12	1.7	3.3	93					0.08	34.220	25.0			
O1-3S-38m	6/26/95	947	0.15	4.6	0.80	11.2	0.55	7.7	10.2	285					0.07	34.324	26.8			
Geomean	**'94-'95**			**4.3**		**4.1**		***3.7***							**0.07**					
O1-3S-38m	9/25/95	850	0.18	5.6	0.57	8.0	0.28	3.9	5.9	165					0.09	34.358	27.1			
O1-3S-38m	11/13/95	1144	0.11	3.4	0.07	1.0	0.45	6.3	1.5	43					0.07	34.364	27.0			
O1-3S-38m	3/11/96	926	0.13	4.0	0.43	6.0	0.39	5.5	4.3	120					0.07	34.147	25.1			
O1-3S-38m	5/13/96	851	0.11	3.4	0.50	7.0	0.19	2.7	8.1	227					0.06	34.136	26.5			
Geomean	**'95-'96**			**4.0**		**4.3**		***4.4***							**0.07**					
O1-3S-38m	7/30/96	845	0.09	2.8	0.45	6.3	0.12	1.7	5.6	156					0.08	34.395	27.8			
O1-3S-38m	10/1/96	1158	0.06	1.9	0.37	5.2	0.50	7.0	5.0	140					0.08	34.622	27.9			
O1-3S-38m	1/6/97	1204	0.08	2.5	0.07	1.0	0.13	1.8	2.5	69					0.08	34.708	25.6			
O1-3S-38m	4/21/97	1152	0.09	2.8	0.38	5.3	0.24	3.4	2.8	78					0.12	34.561	26.6			
Geomean	**'96-'97**			**2.4**		**3.6**		***2.9***							**0.09**					
O1-3S-38m	8/18/97	1135	0.14	4.3	1.48	20.7	0.23	3.2	19.2	539					0.11	34.162	27.0			
O1-3S-38m	10/6/97	1156	0.10	3.1	0.20	2.8	0.34	4.8	5.5	155					0.08	34.673	27.4			
O1-3S-38m	3/3/98	1157	0.09	2.8	0.53	7.4	0.24	3.4	5.9	166					0.06	34.937	25.1			
O1-3S-38m	5/4/98	1108	0.20	6.2	2.07	29.0	0.26	3.6	22.1	621					0.10	34.403	23.8			
Geomean	**'97-'98**			**3.9**		***10.6***		***3.7***							**0.09**					
O1-3S-38m	7/6/98	1209	0.09	2.8	0.13	1.8	0.08	1.1	3.9	108					0.08	35.011	26.4			
O1-3S-38m	10/5/98	1139	0.10	3.1	0.38	5.3	0.16	2.2	4.9	136					0.09	35.033	27.3			
O1-3S-38m	1/13/99	1148	0.10	3.1	0.53	7.4	0.11	1.5	7.0	197					0.10	34.961	25.2			
O1-3S-38m	4/12/99	917	0.16	5.0	0.77	10.8	0.08	1.1	17.0	477					0.08	34.511	24.0			
Geomean	**'98-'99**			**3.4**		***5.3***		**1.4**							**0.09**					
O1-3S-38m	7/6/99	920	0.10	3.1	0.19	2.7	0.05	0.7	2.5	71					0.12	34.943	25.6			
O1-3S-38m	10/4/99	1011	0.15	4.6	0.63	8.8	0.15	2.1	7.7	217					0.08	34.828	25.9			
O1-3S-38m	1/4/00	1204	0.15	4.6	1.49	20.9	0.40	5.6	12.3	345					0.11	34.810	24.6			
O1-3S-38m	4/17/00	955	0.14	4.3	0.21	2.9	0.01	0.1	3.8	106					0.08	34.611	24.2			
Geomean	**'99-'00**			**4.1**		***6.2***		**1.0**							**0.10**					
O1-3S-38m	7/24/00	1228	0.13	4.0	0.59	8.3	0.06	0.8	7.8	219					0.07	34.735	27.3			
O1-3S-38m	10/30/00	1240	0.14	4.3	0.43	6.0	0.28	3.9	9.3	260					0.11	34.898	27.1			
O1-3S-38m	2/26/01	1223	0.24	7.4	1.68	23.5	0.17	2.4	25.5	717					0.13	34.052	25.0			
O1-3S-38m	5/7/01	1014	0.14	4.3	0.54	7.6	0.31	4.3	5.5	154					0.06	34.796	24.6			
Geomean	**'00-'01**			**4.9**		***9.7***		**2.4**							**0.09**					
O1-3S-38m	8/21/01	1142	0.15	4.6	0.44	6.2	0.02	0.3	6.6	185					0.10	34.741	26.7			
O1-3S-38m	10/8/01	940	0.10	3.1	0.18	2.5	0.06	0.8	7.8	220					0.07	34.940	27.2			
O1-3S-38m	3/5/02	1058	0.14	4.3	0.32	4.5	0.04	0.6	6.3	178					0.08	34.734	24.2			
O1-3S-38m	4/17/02	1118	0.14	4.3	0.50	7.0	0.26	3.6	4.7	131					0.06	34.436	25.7			
Geomean	**'01-'02**			**4.1**		***4.7***		**0.8**							**0.08**					

NELHA Water Quality Laboratory

Transect 1, Station 3

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O1-3S-38m	7/8/02	1007	0.19	5.9	0.05	0.7	0.11	1.5	15.8	442					0.08	34.636	26.5			
O1-3S-38m	10/9/02	1100	0.06	1.9	0.36	5.0	0.04	0.6	4.7	132					0.08	34.920	27.0			
O1-3S-38m	3/11/03	949	0.13	4.0	0.67	9.4	0.03	0.4	5.8	163					0.16	34.844	24.5			
O1-3S-38m	4/22/03	1054	0.07	2.2	0.24	3.4	0.06	0.8	3.1	87					0.07	35.009	25.2			
Geomean	**'02-'03**			**3.1**		**3.2**		**0.7**							**0.09**					
O1-3S-38m	8/18/03	1106	0.06	1.9	0.08	1.1	0.25	3.5	2.4	69					0.14	34.855	27.5			
O1-3S-38m	10/29/03	1024	0.06	1.9	0.01	0.1	0.18	2.5	2.3	65					0.10	34.903	27.5			
O1-3S-38m	3/11/04	938	0.15	4.6	0.79	11.1	0.09	1.3	3.9	110					n/a	34.266	25.6			
O1-3S-38m	5/20/04	943	0.12	3.7	0.07	1.0	0.18	2.5	3.1	87					n/a	33.47	26.6			
Geomean	**'03-'04**			**2.8**		**1.1**		**2.3**							***0.12***					
O1-3S-38m	9/20/04	923	0.09	2.8	0.07	1.0	0.21	2.9	2.0	56					0.09	33.75	27.8			
O1-3S-38m	11/17/04	856	0.11	3.4	0.32	4.5	0.18	2.5	2.8	79					0.09	33.58	27.1			
O1-3S-38m	1/13/05	1020	0.07	2.2	0.37	5.2	0.06	0.8	3.8	107					0.08	34.858	25.5			
O1-3S-38m	4/11/05	1009	0.18	5.6	1.95	27.3	0.23	3.2	13.4	377					0.09	34.147	25.1			
Geomean	**'04-'05**			**3.3**		***5.0***		**2.1**							**0.09**					
O1-3S-38m	7/20/05	958	0.06	1.9	0.02	0.3	0.21	2.9	1.6	45					0.08	34.731	26.4			
O1-3S-38m	10/11/05	846	0.04	1.2	0.01	0.1	0.14	2.0	2.1	59					0.12	34.907	26.5			
O1-3S-38m	3/13/06	930	0.11	3.4	0.27	3.8	0.28	3.9	3.0	85					0.09	34.729	24.5			
O1-3S-38m	5/15/06	931	0.18	5.6	2.20	30.8	0.11	1.5	24.8	697					0.08	34.045	24.7			
Geomean	**'05-'06**			**2.6**		**1.5**		**2.4**							**0.09**					
O1-3S-38m	8/14/06	924	0.14	4.3	0.39	5.5	0.15	2.1	3.8	108					0.14	34.706	26.5			
O1-3S-38m	11/1/06	928	0.10	3.1	0.36	5.0	0.46	6.4	5.0	140					0.24	34.753	26.7			
O1-3S-38m	2/12/07	950	0.15	4.6	0.86	12.0	0.39	5.5	6.9	193					0.21	34.424	24.5			
O1-3S-38m	4/9/07	925	0.12	3.7	0.47	6.6	0.30	4.2	5.4	152					0.17	34.629	25.3			
Geomean	**'06-'07**			**3.9**		***6.8***		***4.2***							***0.19***					
T1-50m	9/26/07	919	0.21	6.6	1.05	14.7	0.34	4.8	10.4	292	0.42	13.0	6.2	87	0.09	34.680	26.8	8.09	6.32	0.12
T1-50m	12/13/07	1036	0.11	3.4	0.67	9.4			5.8	162	0.41	12.7	7.1	99	0.12	34.503	25.7	8.31	6.28	0.25
T1-50m	3/10/08	938	0.05	1.7	0.64	9.0	0.06	0.8	5.2	147	0.43	13.3	8.7	123	0.10	34.787	25.0	8.10	6.50	0.20
T1-50m	6/5/08	944	0.09	2.8	0.29	4.1	0.16	2.2	18.6	522	0.26	8.1	8.2	116	0.08	34.8034	25.0	8.08	6.78	0.29
Geomean	**'07-'08**			**3.2**		***8.5***		**2.0**				**11.5**		***105***	**0.10**					**0.20**
T1-50m	9/22/08	1047	0.06	1.8	0.17	2.4	0.07	1	2.6	72	0.25	7.7	5.0	70	0.07	34.805	26.6	8.01	6.33	0.10
T1-50m	11/17/08	927	0.16	5.1	0.40	5.6	0.14	1.9	3.6	102	0.37	11.5	6.1	86	0.33	34.905	25.6	8.20	6.17	0.08
T1-50m	2/9/09	924	0.09	2.8	0.10	1.4	0.12	1.7	1.1	32	0.16	4.9	5.7	80	0.11	35.049	24.9	8.07	6.20	0.01
T1-50m	4/13/09	916	0.22	6.7	0.15	2.1	0.24	3.4	2.8	79	0.51	15.9	6.5	91	0.14	34.983	23.9	8.13	5.79	0.04
Geomean	**'08-'09**			**3.6**		**2.5**		**1.8**				**9.1**		**81**	***0.14***					**0.04**
T1-50m	9/9/09	919	0.17	5.3	0.50	7	0.04	0.5	8.1	226	0.56	17.4	7.1	99	0.11	35.15	26.8	8.22	5.54	0.16
T1-50m	11/23/09	938	0.03	0.8	0.22	3.1	0.14	1.9	9.7	273	0.37	11.6	5.2	74	0.06	35.16	25.3	8.29	6.11	0.17
T1-50m	2/23/10	945	0.17	5.2	0.39	5.4	0.49	6.9	17.6	495	0.38	11.8	4.5	63	0.06	35.03	24.6	8.20	6.22	0.20
T1-50m	5/25/10	1104	0.02	0.7	0.06	0.8	0.05	0.7	13.7	386	0.29	9	3.2	45	0.08	35.00	24.9	8.22	6.85	0.10
Geomean	**'09-'10**			**2.0**		**3.1**		**1.5**				**12.1**		**68**	**0.08**					**0.15**
T1-50m	8/10/10	945	0.05	1.5	0.86	12	0.05	0.7	6.2	173	0.29	9.1	3.4	48	0.04	34.31	26.0	8.24	6.38	0.12
T1-50m	11/8/10	934	0.02	0.5	0.14	2	0.12	1.7	3.5	98	0.41	12.6	4.0	56	0.03	35.25	26.4	8.25	6.13	0.08
T1-50m	1/11/11	945	0.14	4.3	0.54	7.5	0.06	0.9	3.7	104	0.51	15.7	4.5	64	0.06	35.02	25.0	8.20	6.46	0.09
T1-50m	4/26/11	945	0.14	4.4	0.53	7.4	0.05	0.7	3.3	94	0.47	14.6	3.8	53	0.06	34.95	25.0	8.21	6.50	0.2
Geomean	**'10-'11**			**1.9**		**6.0**		**0.9**				***12.7***		**55**	**0.05**					**0.11**

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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
T1-50m	7/26/11	957	0.19	5.9	0.33	4.6	0.13	1.8	2.4	69	0.48	15	4.4	62	0.04	34.80	26.0	8.25	6.39	0.06
T1-50m	10/18/11	935	0.04	1.3	0.29	4	0.26	3.6	2.6	72	0.31	9.6	4.8	68	0.1	35.03	26.5	8.20	6.57	0.12
T1-50m	1/25/12	958	0.10	3.1	0.30	4.2	0.11	1.6	3.6	100	0.44	13.7	5.7	80	0.05	34.98	24.7	8.18	6.57	0.12
T1-50m	4/24/12	1026	0.12	3.7	0.26	3.7	0.23	3.2	3.1	88	0.39	12.1	3.8	53	0.12	35.07	24.8	8.21	6.66	0.24
Geomean	**'11-'12**			**3.1**		**4.1**		**2.4**				**12.4**		**65**	**0.07**					**0.12**
T1-50m	7/24/12	943	0.04	1.2	0.49	6.9	0.35	4.9	2.3	64	0.34	10.6	5.0	71	0.07	35.07	26.3	8.22	6.42	0.03
T1-50m	11/27/12	940	0.12	3.7	1.10	15.4	0.45	6.3	8.6	241	0.35	10.8	4.1	58	0.05	35.05	25.1	8.20	6.72	0.28
T1-50m	1/24/13	946	0.07	2.1	0.01	0.1	0.21	2.9	0.9	26	0.41	12.6	4.8	68	0.03	35.04	24.7	8.20	6.25	0.10
T1-50m	4/16/13	950	0.15	4.5	0.46	6.5	0.11	1.6	2.1	58	0.47	14.5	5.8	81	0.02	35.14	24.9	8.21	6.83	0.06
Geomean	**'12-'13**			**2.5**		**2.9**		***3.5***				**12.0**		**69**	**0.04**					**0.08**
T1-50m	8/1/13	859	0.04	1.3	0.30	4.2	0.07	1	5.3	149	0.41	12.6	4.9	68	0.08	35.07	26.1	8.25	6.63	0.18
T1-50m	10/29/13	935	0.16	5.1	0.21	2.9	0.34	4.8	1.9	52	0.43	13.2	6.1	86	0.02	35.29	27.1	8.22	6.06	0.21
T1-50m	2/4/14	936	0.10	3.2	0.40	5.6	0.38	5.3	3.6	102	0.43	13.3	8.6	121	0.02	34.89	25.2	8.21	6.30	0.17
T1-50m	5/6/14	933	0.16	5	0.59	8.3	0.56	7.8	3.5	100	0.45	13.8	6.3	88	0.06	34.71	25.8	8.22	6.36	0.16
Geomean	**'13-'14**			**3.2**		***4.9***		***3.8***				***13.2***		**89**	**0.04**					**0.18**

NELHA Water Quality Laboratory
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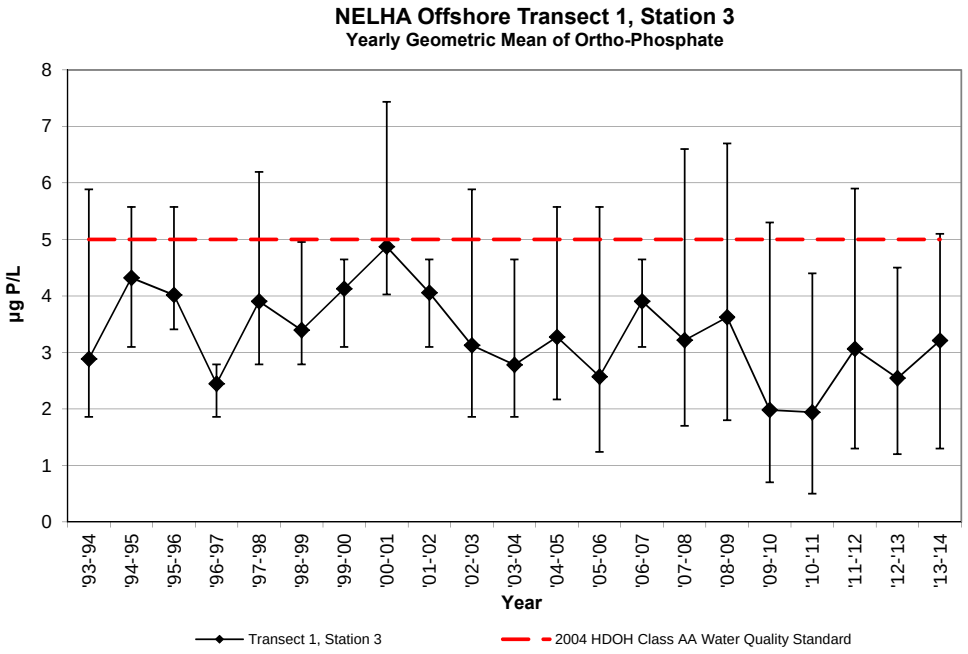
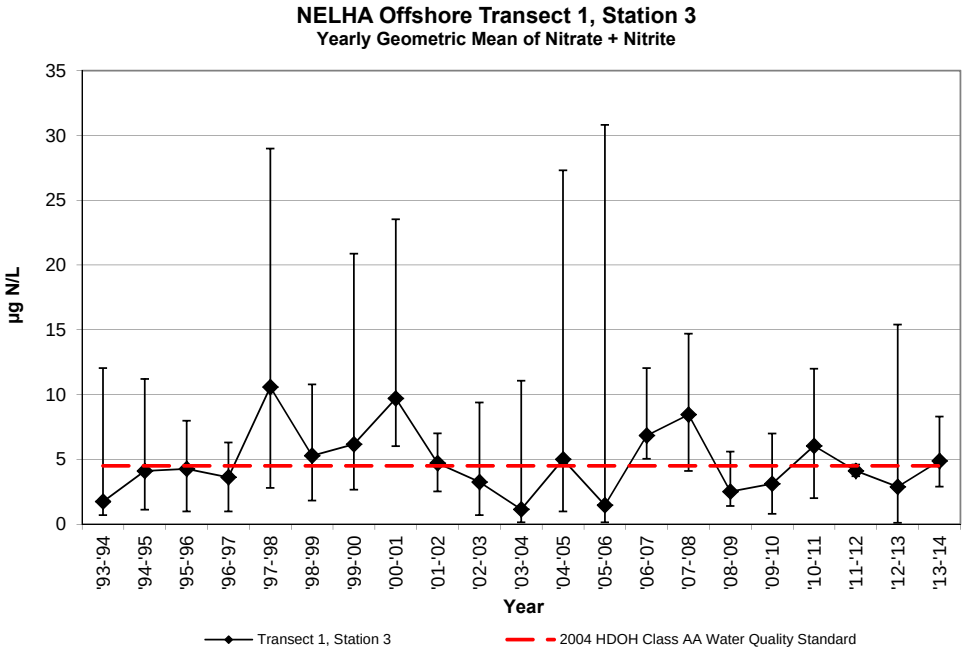
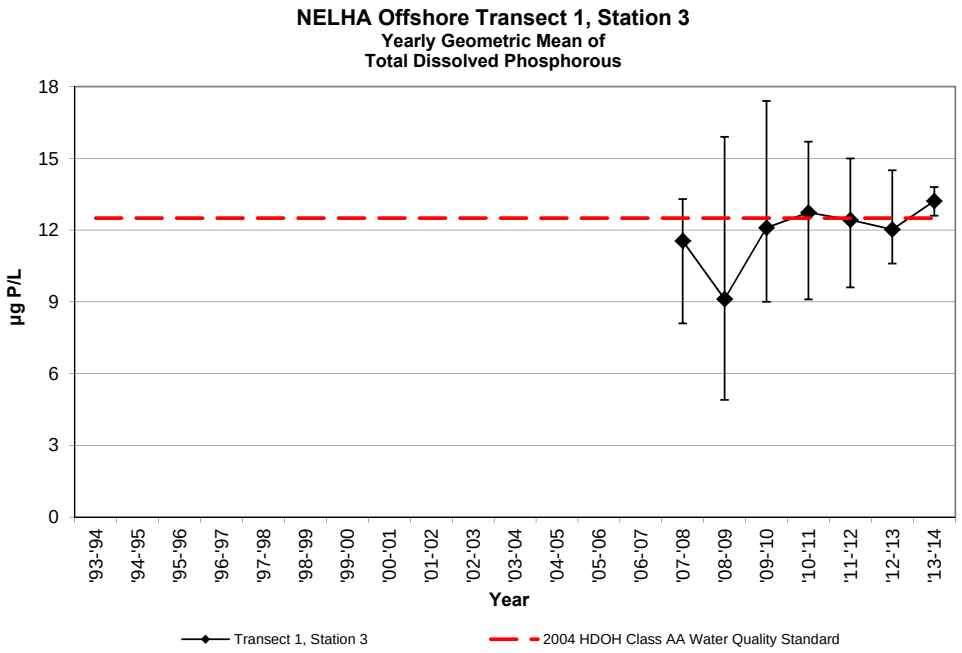
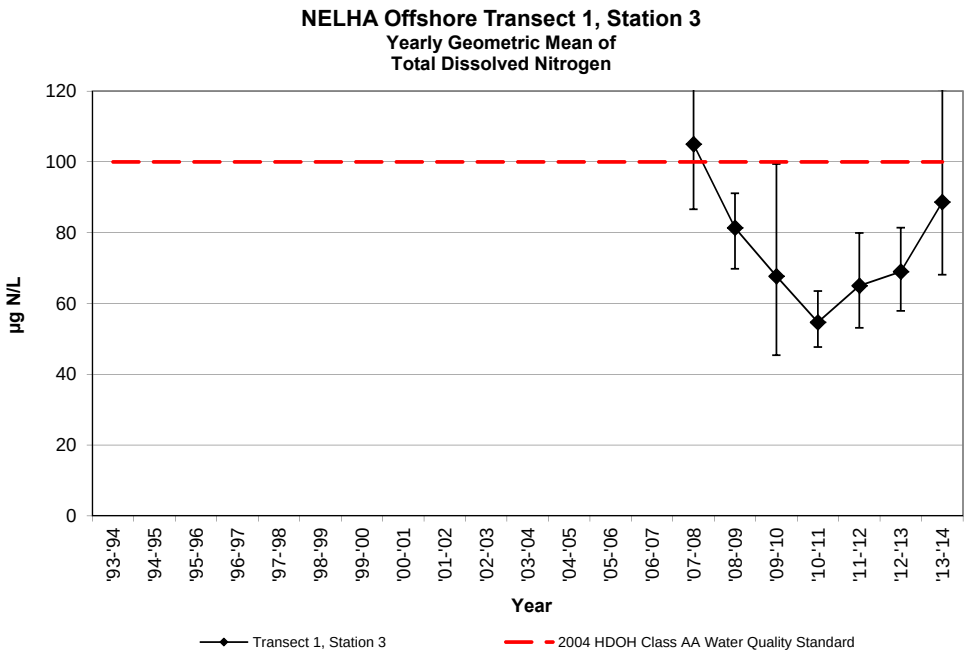
July 1993 - June 2014

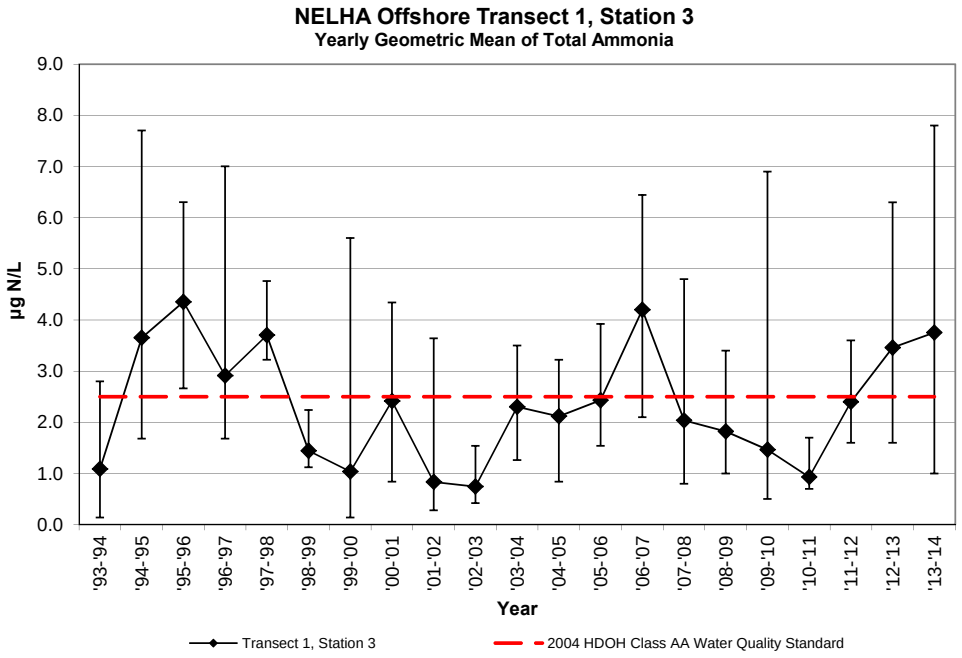


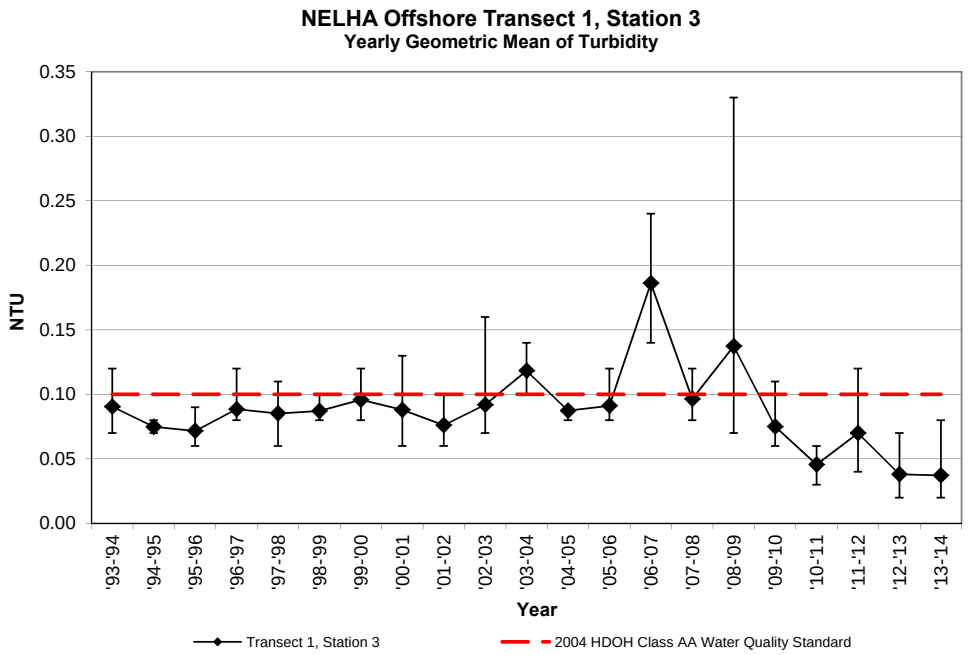


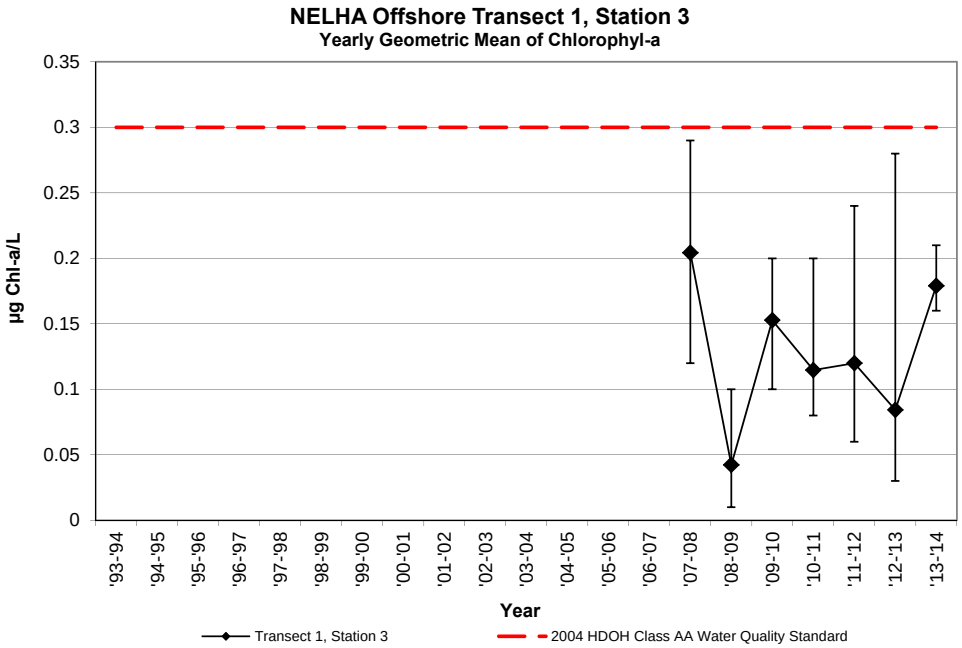




NELHA Water Quality Laboratory
Transect 1, Station 3
July 1993 - June 2014







NELHA Water Quality Laboratory
Transect 1, Station 4
July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O1-4S-53m	7/27/93	1136	0.11	3.4	0.09	1.3	0.24	3.4	3.8	107					0.07	34.516	26.6			
O1-4S-53m	12/7/93	1041	0.06	1.9	0.14	2.0	0.11	1.5	2.4	66					0.06	34.817	25.8			
O1-4S-53m	3/16/94	1020	0.19	5.9	0.60	8.4	0.17	2.4	8.3	233					0.11	34.343	24.7			
O1-4S-53m	6/14/94	1008	0.11	3.4	0.02	0.3	0.01	0.1	1.8	49					0.07	34.588	25.4			
Geomean	**'93-'94**			**3.4**		**1.6**		**1.1**							**0.08**					
O1-4S-53m	9/15/94	1027	0.09	2.8	0.02	0.3	0.11	1.5	2.8	80					0.07	34.633	27.6			
O1-4S-53m	11/16/94	927	0.18	5.6	0.85	11.9	0.52	7.3	10.8	303					0.07	34.325	26.0			
O1-4S-53m	3/21/95	1149	0.18	5.6	0.10	1.4	0.15	2.1	3.3	94					0.08	34.215	25.1			
O1-4S-53m	6/26/95	940	0.21	6.5	1.23	17.2	0.20	2.8	17.5	493					0.08	34.145	26.7			
Geomean	**'94-'95**			**4.9**		**3.0**		***2.9***							**0.07**					
O1-4S-53m	9/25/95	844	0.16	5.0	1.34	18.8	0.22	3.1	16.2	454					0.13	34.048	27.0			
O1-4S-53m	11/13/95	1140	0.11	3.4	0.01	0.1	0.36	5.0	1.7	49					0.05	34.361	27.1			
O1-4S-53m	3/11/96	921	0.14	4.3	0.79	11.1	0.38	5.3	7.6	215					0.06	34.017	25.3			
O1-4S-53m	5/13/96	844	0.14	4.3	0.82	11.5	0.28	3.9	11.3	316					0.09	34.023	26.6			
Geomean	**'95-'96**			**4.2**		**4.3**		***4.2***							**0.08**					
O1-4S-53m	7/30/96	840	0.07	2.2	0.28	3.9	0.10	1.4	5.9	165					0.06	34.455	27.9			
O1-4S-53m	10/1/96	1152	0.06	1.9	0.57	8.0	0.61	8.5	7.1	200					0.08	34.720	27.9			
O1-4S-53m	1/6/97	1159	0.09	2.8	0.22	3.1	0.14	2.0	3.6	100					0.08	34.704	25.6			
O1-4S-53m	4/21/97	1146	0.09	2.8	0.40	5.6	0.22	3.1	2.2	61					0.09	34.555	26.4			
Geomean	**'96-'97**			**2.4**		***4.8***		***2.9***							**0.08**					
O1-4S-53m	8/18/97	1130	0.14	4.3	1.38	19.3	0.23	3.2	17.2	482					0.11	34.185	27.1			
O1-4S-53m	10/6/97	1151	0.10	3.1	0.16	2.2	0.36	5.0	4.0	112					0.07	34.698	27.5			
O1-4S-53m	3/3/98	1152	0.11	3.4	0.56	7.8	0.21	2.9	5.7	160					0.09	34.926	25.1			
O1-4S-53m	5/4/98	1102	0.23	7.1	2.69	37.7	0.26	3.6	28.2	791					0.09	34.213	23.8			
Geomean	**'97-'98**			**4.2**		***10.6***		***3.6***							**0.09**					
O1-4S-53m	7/6/98	1204	0.10	3.1	0.16	2.2	0.10	1.4	3.8	106					0.11	35.008	26.5			
O1-4S-53m	10/5/98	1134	0.09	2.8	0.12	1.7	0.11	1.5	1.8	50					0.09	34.974	27.4			
O1-4S-53m	1/13/99	1143	0.11	3.4	0.67	9.4	0.18	2.5	8.2	231					0.07	34.942	25.2			
O1-4S-53m	4/12/99	912	0.17	5.3	0.74	10.4	0.08	1.1	9.7	272					0.08	34.500	24.0			
Geomean	**'98-'99**			**3.5**		**4.4**		**1.6**							**0.09**					
O1-4S-53m	7/6/99	915	0.12	3.7	0.19	2.7	0.05	0.7	6.6	184					0.08	34.938	25.6			
O1-4S-53m	10/4/99	1005	0.12	3.7	0.32	4.5	0.13	1.8	4.9	138					0.07	34.938	25.9			
O1-4S-53m	1/4/00	1159	0.15	4.6	1.49	20.9	0.39	5.5	13.1	367					0.08	34.810	24.5			
O1-4S-53m	4/17/00	951	0.14	4.3	0.38	5.3	0.04	0.6	5.8	162					0.05	34.567	24.2			
Geomean	**'99-'00**			**4.1**		***6.0***		**1.4**							**0.07**					
O1-4S-53m	7/24/00	1220	0.14	4.3	0.94	13.2	0.09	1.3	13.5	378					0.10	34.599	27.4			
O1-4S-53m	10/30/00	1234	0.13	4.0	0.27	3.8	0.31	4.3	6.5	181					0.08	34.912	27.1			
O1-4S-53m	2/26/01	1218	0.21	6.5	1.14	16.0	0.20	2.8	18.1	508					0.10	34.299	24.9			
O1-4S-53m	5/7/01	1008	0.16	5.0	0.95	13.3	0.30	4.2	9.0	253					0.07	34.700	24.6			
Geomean	**'00-'01**			**4.9**		***10.1***		***2.8***							**0.09**					
O1-4S-53m	8/21/01	1143	0.16	5.0	0.57	8.0	0.02	0.3	5.4	153					0.11	34.713	26.7			
O1-4S-53m	10/8/01	936	0.10	3.1	0.18	2.5	0.11	1.5	3.0	85					0.07	34.940	27.1			
O1-4S-53m	3/5/02	1052	0.14	4.3	0.36	5.0	0.02	0.3	5.0	140					0.09	34.665	24.2			
O1-4S-53m	4/17/02	1112	0.15	4.6	0.33	4.6	0.18	2.5	8.0	225					0.10	34.440	25.7			
Geomean	**'01-'02**			**4.2**		**4.7**		**0.7**							**0.09**					

NELHA Water Quality Laboratory
Transect 1, Station 4
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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O1-4S-53m	7/8/02	1002	0.14	4.3	0.04	0.6	0.10	1.4	3.2	90					0.10	34.660	26.5			
O1-4S-53m	10/9/02	1055	0.07	2.2	0.35	4.9	0.06	0.8	3.8	106					0.12	34.921	27.0			
O1-4S-53m	3/11/03	941	0.19	5.9	1.95	27.3	0.04	0.6	13.1	367					0.11	34.622	24.5			
O1-4S-53m	4/22/03	1049	0.14	4.3	0.81	11.3	0.08	1.1	6.7	187					0.08	34.902	25.2			
Geomean	**'02-'03**			**3.9**		***5.4***		**0.9**							**0.10**					
O1-4S-53m	8/18/03	1055	0.04	1.2	0.01	0.1	0.30	4.2	2.8	78					0.08	34.835	27.8			
O1-4S-53m	10/29/03	1016	0.05	1.5	0.04	0.6	0.05	0.7	3.0	83					0.09	34.839	27.6			
O1-4S-53m	3/11/04	931	0.13	4.0	0.02	0.3	0.05	0.7	1.7	46					n/a	34.241	25.6			
O1-4S-53m	5/20/04	948	0.12	3.7	0.20	2.8	0.21	2.9	4.8	134					n/a	33.48	26.6			
Geomean	**'03-'04**			**2.3**		**0.5**		**1.6**							**0.08**					
O1-4S-53m	9/20/04	918	0.09	2.8	0.07	1.0	0.27	3.8	2.3	66					0.18	33.66	27.9			
O1-4S-53m	11/17/04	851	0.10	3.1	0.25	3.5	0.13	1.8	2.4	66					0.09	33.62	27.4			
O1-4S-53m	1/13/05	1014	0.04	1.2	0.01	0.1	0.04	0.6	1.8	49					0.08	34.860	25.9			
O1-4S-53m	4/11/05	1003	0.24	7.4	2.35	32.9	0.25	3.5	16.1	451					0.08	34.031	25.1			
Geomean	**'04-'05**			**3.0**		**2.0**		**1.9**							**0.10**					
O1-4S-53m	7/20/05	950	0.13	4.0	1.50	21.0	0.17	2.4	0.9	26					0.10	34.401	26.5			
O1-4S-53m	10/11/05	840	0.05	1.5	0.06	0.8	0.18	2.5	4.2	117					0.08	34.907	26.5			
O1-4S-53m	3/13/06	924	0.10	3.1	0.09	1.3	0.26	3.6	2.6	73					0.10	34.807	24.6			
O1-4S-53m	5/15/06	927	0.16	5.0	1.73	24.2	0.17	2.4	20.0	562					0.12	34.192	25.0			
Geomean	**'05-'06**			**3.1**		***4.8***		***2.7***							**0.10**					
O1-4S-53m	8/14/06	916	0.13	4.0	0.54	7.6	0.22	3.1	4.4	124					0.18	34.579	26.5			
O1-4S-53m	11/1/06	920	0.10	3.1	0.33	4.6	0.41	5.7	5.0	141					0.21	34.756	26.7			
O1-4S-53m	2/12/07	943	0.18	5.6	1.40	19.6	0.46	6.4	9.3	261					0.31	34.333	24.5			
O1-4S-53m	4/9/07	919	0.14	4.3	0.51	7.1	0.33	4.6	6.4	180					0.45	34.597	25.3			
Geomean	**'06-'07**			**4.2**		***8.4***		***4.8***							***0.27***					
T1-100m	9/26/07	928	0.18	5.7	0.35	4.9	0.12	1.7	4.1	114	0.45	13.8	4.9	68	0.07	34.920	26.80	8.14	6.33	0.16
T1-100m	12/13/07	1039	0.10	3.1	0.27	3.8			15.0	422	0.36	11.2	5.2	73	0.12	34.490	25.68	8.30	6.15	0.27
T1-100m	3/10/08	940	0.14	4.3	0.59	8.2	0.06	0.8	5.6	159	0.45	13.8	8.1	113	0.07	34.841	24.94	8.12	6.59	0.32
T1-100m	6/5/08	941	0.11	3.3	0.24	3.4	0.16	2.2	17.7	497	0.29	9.0	8.0	111	0.08	34.814	25.02	8.08	6.72	0.20
Geomean	**'07-'08**			**4.0**		***4.8***		**1.4**				**11.8**		**89**	**0.08**					**0.23**
T1-100m	9/22/08	1053	0.06	1.8	0.14	2.0	0.15	2.1	2.3	66	0.25	7.8	4.9	68	0.10	34.814	26.63	8.01	6.83	0.10
T1-100m	11/17/08	932	0.15	4.7	0.07	1.0	0.14	1.9	3.7	104	0.39	12.1	5.8	81	0.09	34.934	25.67	8.22	6.11	0.07
T1-100m	2/9/09	933	0.09	2.9	0.16	2.2	0.12	1.7	1.7	49	0.22	6.7	5.4	76	0.14	35.058	24.90	8.06	6.15	0.01
T1-100m	4/13/09	923	0.23	7.1	0.23	3.2	0.34	4.7	3.8	107	0.48	14.8	4.9	69	0.16	34.968	24.02	8.15	5.90	0.05
Geomean	**'08-'09**			**3.6**		**1.9**		**2.4**				**9.8**		**73**	***0.12***					**0.04**
T1-100m	9/9/09	926	0.13	4.1	0.16	2.2	0.10	1.4	6.0	169	0.50	16	5.3	75	0.12	35.16	26.85	8.23	5.50	0.27
T1-100m	11/23/09	942	0.03	0.8	0.43	6	0.12	1.7	33.5	941	0.42	13	7.7	108	0.09	35.13	25.34	8.26	6.13	0.13
T1-100m	2/23/10	951	0.17	5.2	0.22	3.1	0.48	6.7	93.0	2612	0.40	12	4.4	62	0.05	35.06	24.58	8.21	6.13	0.34
T1-100m	5/25/10	1109	0.02	0.7	0.07	1	0.04	0.5	4.1	114	0.29	9	4.6	65	0.08	35.01	24.90	8.25	6.84	0.10
Geomean	**'09-'10**			**1.9**		**2.5**		**1.7**				**12.2**		**75**	**0.08**					**0.19**
T1-100m	8/10/10	948	0.04	1.2	0.92	12.9	0.05	0.7	11.5	324	0.58	18	4.9	68	0.09	34.73	25.96	8.24	6.42	0.10
T1-100m	11/8/10	938	0.00	0.1	0.25	3.5	0.17	2.4	2.2	62	0.41	13	4.7	66	0.08	35.26	26.42	8.24	6.12	0.06
T1-100m	1/11/11	949	0.13	4.1	0.54	7.5	0.01	0.1	5.6	158	0.45	14	3.9	55	0.05	35.01	24.97	8.21	6.47	0.11
T1-100m	4/26/11	950	0.12	3.6	0.34	4.8	0.15	2.1	10.5	295	0.43	13	4.2	59	0.06	34.97	25.02	8.22	6.46	0.12
Geomean	**'10-'11**			**1.2**		**6.3**		**0.8**				***14.3***		**62**	**0.07**					**0.09**

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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
T1-100m	7/26/11	1006	0.16	5	0.02	0.3	0.09	1.3	1.8	50	0.48	15	5.1	71	0.08	34.86	26.18	8.26	6.42	0.07
T1-100m	10/18/11	938	0.02	0.6	0.21	2.9	0.18	2.5	3.2	90	0.32	10	5.7	80	0.07	35.05	26.58	8.20	6.55	0.09
T1-100m	1/25/12	1006	0.10	3.2	0.51	7.1	0.11	1.5	5.7	159	0.47	15	5.6	78	0.09	34.93	24.62	8.17	6.53	0.10
T1-100m	4/24/12	1031	0.11	3.5	0.21	3	0.16	2.3	2.8	79	0.40	13	4.3	60	0.13	35.07	24.78	8.21	6.60	0.07
Geomean	**'11-'12**			**2.4**		**2.1**		**1.8**				***12.7***		**72**	**0.09**					**0.08**
T1-100m	7/24/12	951	0.03	0.9	0.37	5.2	0.23	3.2	2.4	69	0.30	9	4.1	58	0.08	35.08	26.30	8.23	6.81	0.14
T1-100m	11/27/12	944	0.09	2.9	0.79	11	0.31	4.3	6.5	184	0.48	15	6.5	91	0.05	35.10	25.07	8.20	6.74	0.20
T1-100m	1/24/13	950	0.05	1.7	0.01	0.1	0.18	2.5	1.1	32	0.44	14	5.0	70	0.06	35.10	24.80	8.23	6.43	0.05
T1-100m	4/16/13	956	0.15	4.6	0.19	2.6	0.14	2	0.7	21	0.47	15	4.9	68	0.03	35.17	24.90	8.20	6.85	0.05
Geomean	**'12-'13**			**2.1**		**2.0**		***2.9***				***12.9***		**71**	**0.05**					**0.09**
T1-100m	8/1/13	905	0.05	1.7	0.34	4.7	0.06	0.8	5.2	145	0.41	13	5.1	71	0.06	35.08	26.04	8.24	6.69	0.13
T1-100m	10/29/13	940	0.13	4.1	0.25	3.5	0.57	8	2.2	62	0.43	13	6.2	87	0.02	35.30	27.08	8.21	6.17	0.23
T1-100m	2/4/14	941	0.12	3.7	0.54	7.5	0.41	5.8	4.3	121	0.39	12	6.4	90	0.02	34.87	25.22	8.21	6.31	0.16
T1-100m	5/6/14	940	0.11	3.3	0.32	4.5	0.30	4.2	3.2	91	0.45	14	6.5	91	0.06	34.74	25.88	8.22	6.37	0.17
Geomean	**'13-'14**			**3.0**		***4.9***		***3.5***				***13.0***		**84**	**0.03**					**0.17**

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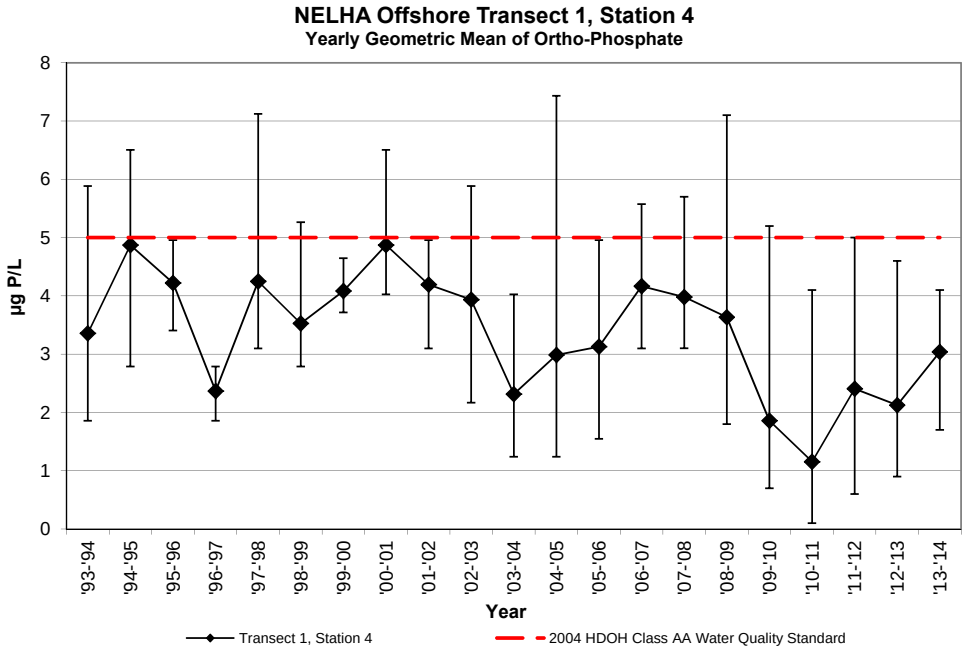
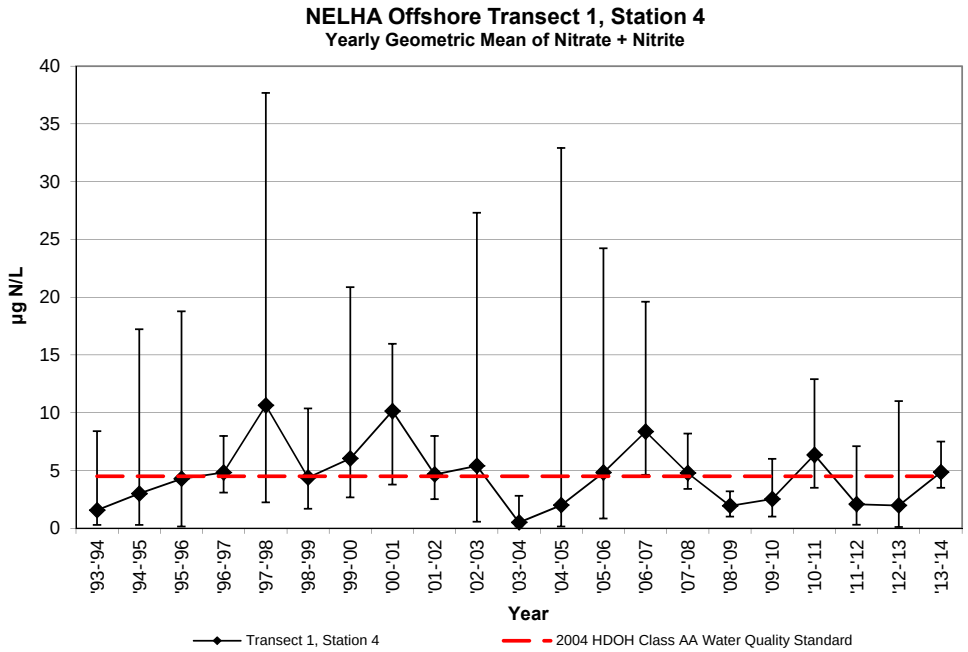
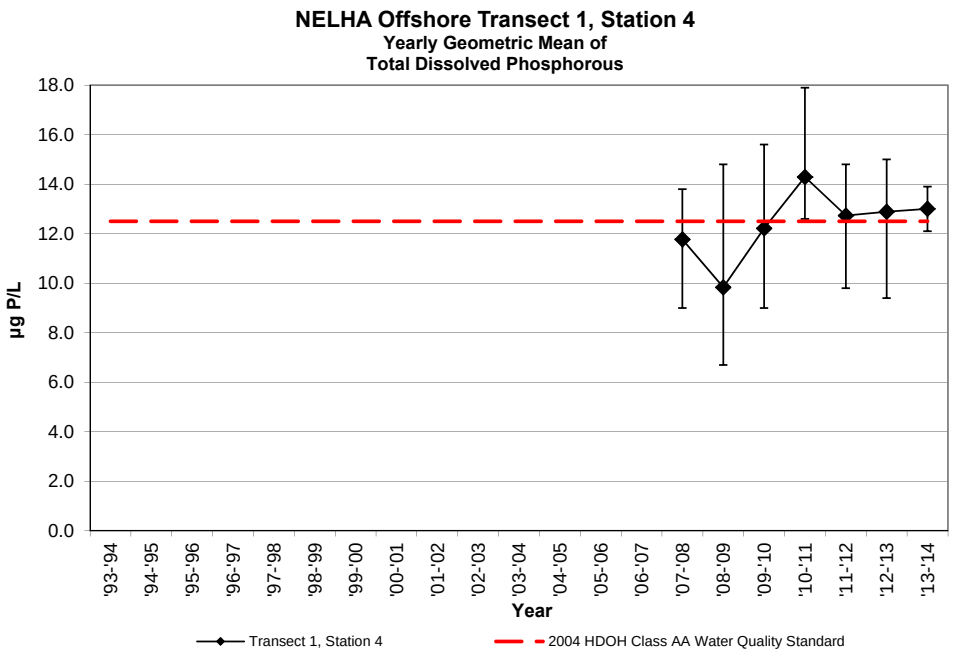
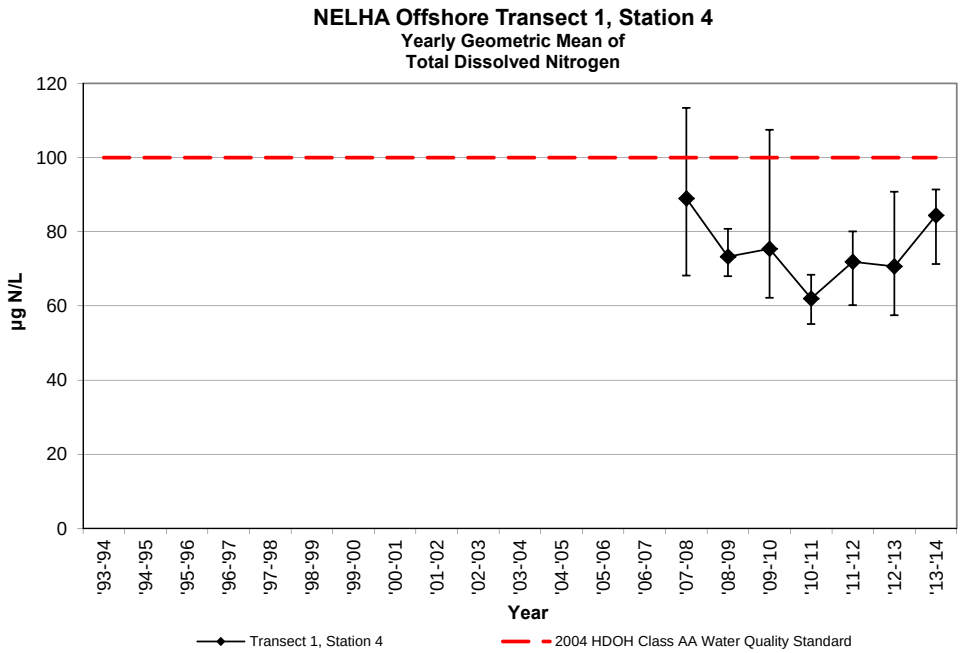
Transect 1, Station 4
July 1993 - June 2014









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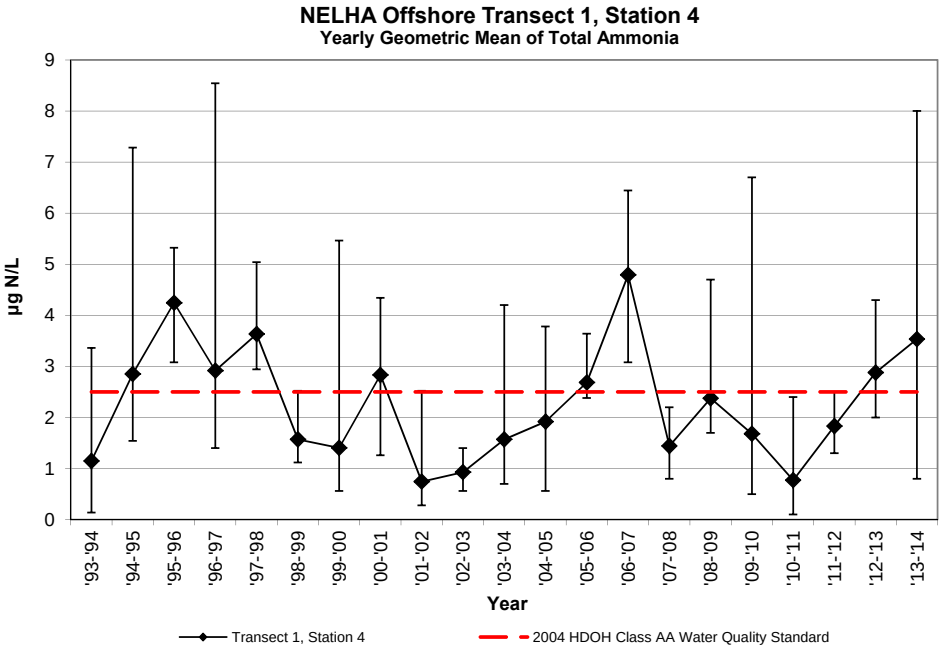
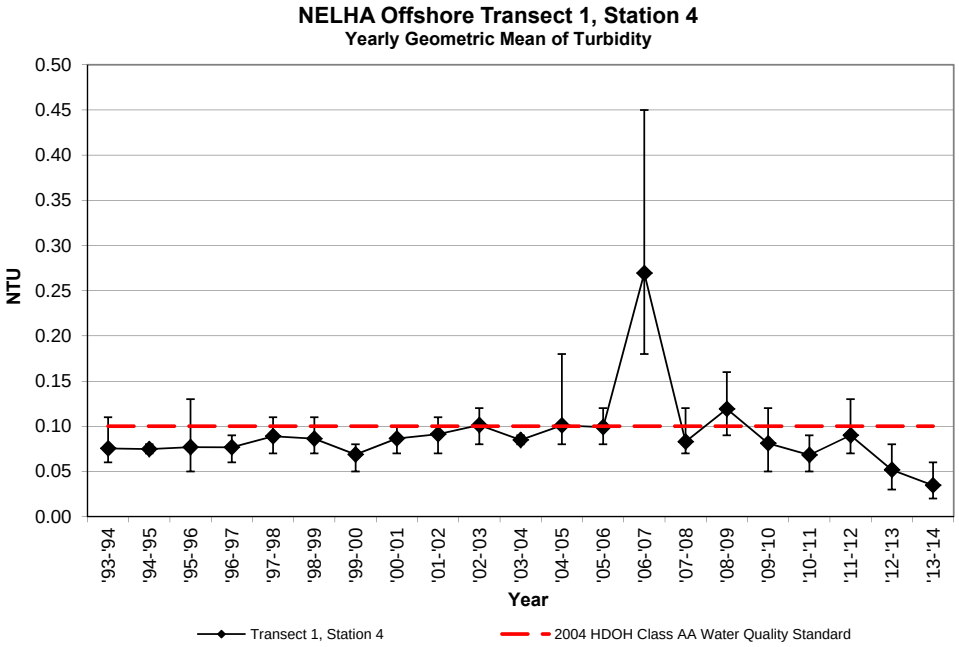
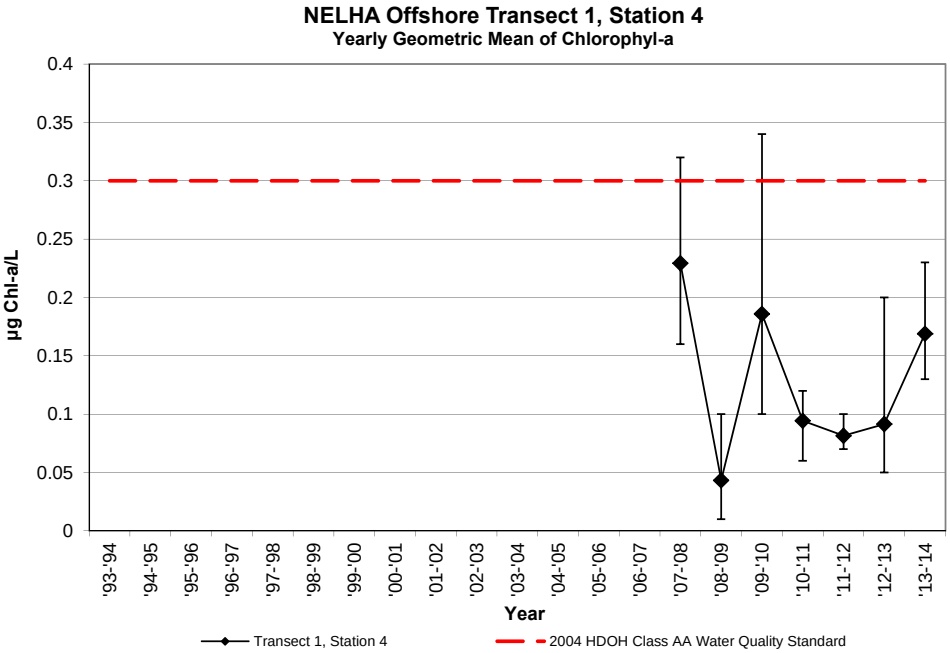
Transect 1, Station 4
July 1993 - June 2014







NELHA Water Quality Laboratory
Transect 1, Station 5
July 1993 - June 2014

SITE ID	DATE M/D/Y	TIME (2400)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	Turbidity (NTU)	Salinity (PSU)	Temp. (˚C)	pH (unit)	DO (ppm)	Chl a (µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O1-5S-69m	7/27/93	1125	0.04	1.2	0.01	0.1	0.18	2.5	3.8	107					0.07	34.499	26.6			
O1-5S-69m	12/7/93	1031	0.06	1.9	0.10	1.4	0.18	2.5	2.4	68					0.08	34.817	25.9			
O1-5S-69m	3/16/94	1012	0.18	5.6	0.45	6.3	0.20	2.8	9.0	252					0.09	34.400	24.8			
O1-5S-69m	6/14/94	1001	0.10	3.1	0.04	0.6	0.01	0.1	2.0	57					0.08	34.585	25.4			
Geomean	**'93-'94**			**2.5**		**0.9**		**1.3**							**0.08**					
O1-5S-69m	9/15/94	1020	0.08	2.5	0.02	0.3	0.09	1.3	3.6	101					0.09	34.634	27.6			
O1-5S-69m	11/16/94	923	0.18	5.6	0.92	12.9	0.55	7.7	12.3	345					0.06	34.295	26.0			
O1-5S-69m	3/21/95	1142	0.17	5.3	0.01	0.1	0.12	1.7	4.1	115					0.10	34.215	25.1			
O1-5S-69m	6/26/95	940	0.17	5.3	1.19	16.7	0.53	7.4	15.2	426					0.08	34.165	26.7			
Geomean	**'94-'95**			**4.4**		**1.7**		***3.3***							**0.08**					
O1-5S-69m	9/25/95	835	0.11	3.4	0.52	7.3	0.26	3.6	10.2	286					0.12	34.388	27.1			
O1-5S-69m	11/13/95	1131	0.11	3.4	0.02	0.3	0.40	5.6	2.1	58					0.06	34.370	27.1			
O1-5S-69m	3/11/96	914	0.14	4.3	0.74	10.4	0.39	5.5	7.2	202					0.08	34.285	25.0			
O1-5S-69m	5/13/96	838	0.10	3.1	0.01	0.1	0.26	3.6	3.1	88					0.05	34.311	27.4			
Geomean	**'95-'96**			**3.5**		**1.3**		***4.5***							**0.07**					
O1-5S-69m	7/30/96	830	0.09	2.8	0.31	4.3	0.12	1.7	3.9	108					0.08	34.448	28.2			
O1-5S-69m	10/1/96	1147	0.06	1.9	1.42	19.9	0.69	9.7	15.4	431					0.08	34.280	27.8			
O1-5S-69m	1/6/97	1153	0.09	2.8	0.16	2.2	0.17	2.4	3.0	84					0.08	34.700	25.7			
O1-5S-69m	4/21/97	1136	0.09	2.8	0.38	5.3	0.25	3.5	1.9	54					0.07	34.554	26.5			
Geomean	**'96-'97**			**2.5**		***5.7***		***3.4***							**0.08**					
O1-5S-69m	8/18/97	1125	0.17	5.3	1.90	26.6	0.23	3.2	22.4	628					0.11	34.021	27.2			
O1-5S-69m	10/6/97	1145	0.10	3.1	0.24	3.4	0.32	4.5	13.8	387					0.08	34.665	27.4			
O1-5S-69m	3/3/98	1145	0.11	3.4	0.50	7.0	0.22	3.1	7.3	204					0.08	34.936	25.1			
O1-5S-69m	5/4/98	1056	0.28	8.7	3.87	54.2	0.21	2.9	65.9	1851					0.10	33.838	23.7			
Geomean	**'97-'98**			**4.7**		***13.6***		***3.4***							**0.09**					
O1-5S-69m	7/6/98	1155	0.10	3.1	0.16	2.2	0.10	1.4	4.1	115					0.10	34.997	26.4			
O1-5S-69m	10/5/98	1127	0.12	3.7	0.81	11.3	0.16	2.2	7.5	211					0.10	34.926	27.3			
O1-5S-69m	1/13/99	1137	0.13	4.0	1.11	15.5	0.10	1.4	11.5	324					0.11	34.822	25.2			
O1-5S-69m	4/12/99	906	0.18	5.6	1.46	20.4	0.08	1.1	15.5	435					0.09	34.307	24.0			
Geomean	**'98-'99**			**4.0**		***9.5***		**1.5**							**0.10**					
O1-5S-69m	7/6/99	910	0.11	3.4	0.16	2.2	0.09	1.3	5.0	139					0.09	34.936	25.6			
O1-5S-69m	10/4/99	1000	0.15	4.6	0.64	9.0	0.16	2.2	17.2	482					0.10	34.796	26.0			
O1-5S-69m	1/4/00	1154	0.12	3.7	1.23	17.2	0.40	5.6	10.9	305					0.08	34.884	24.6			
O1-5S-69m	4/17/00	946	0.19	5.9	1.40	19.6	0.02	0.3	16.8	472					0.05	34.221	24.3			
Geomean	**'99-'00**			**4.3**		***9.1***		**1.5**							**0.08**					
O1-5S-69m	7/24/00	1212	0.10	3.1	0.23	3.2	0.03	0.4	3.1	87					0.09	34.879	27.2			
O1-5S-69m	10/30/00	1228	0.14	4.3	0.36	5.0	0.36	5.0	6.9	195					0.08	34.877	27.1			
O1-5S-69m	2/26/01	1210	0.22	6.8	1.44	20.2	0.20	2.8	26.5	743					0.11	34.138	24.8			
O1-5S-69m	5/7/01	1003	0.14	4.3	0.80	11.2	0.31	4.3	8.3	232					0.08	34.720	24.6			
Geomean	**'00-'01**			**4.5**		***7.8***		**2.3**							**0.09**					
O1-5S-69m	8/21/01	1126	0.14	4.3	0.29	4.1	0.02	0.3	4.0	112					0.12	34.745	26.7			
O1-5S-69m	10/8/01	929	0.12	3.7	0.11	1.5	0.07	1.0	3.0	83					0.08	34.929	27.2			
O1-5S-69m	3/5/02	1046	0.15	4.6	0.49	6.9	0.06	0.8	7.4	208					0.11	34.574	24.3			
O1-5S-69m	4/17/02	1107	0.13	4.0	0.23	3.2	0.22	3.1	3.6	102					0.08	34.455	25.7			
Geomean	**'01-'02**			**4.2**		**3.4**		**0.9**							**0.10**					

NELHA Water Quality Laboratory
Transect 1, Station 5
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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O1-5S-69m	7/8/02	955	0.12	3.7	0.12	1.7	0.12	1.7	4.7	131					0.08	34.638	26.5			
O1-5S-69m	10/9/02	1050	0.04	1.2	0.11	1.5	0.06	0.8	4.6	130					0.07	34.956	26.9			
O1-5S-69m	3/11/03	933	0.17	5.3	1.62	22.7	0.04	0.6	11.0	308					0.09	34.738	24.4			
O1-5S-69m	4/22/03	1044	0.12	3.7	1.28	17.9	0.09	1.3	7.9	222					0.08	34.845	25.2			
Geomean	**'02-'03**			**3.1**		***5.7***		**1.0**							**0.08**					
O1-5S-69m	8/18/03	1040	0.04	1.2	0.01	0.1	0.30	4.2	3.4	95					0.02	34.806	27.6			
O1-5S-69m	10/29/03	1006	0.12	3.7	0.01	0.1	0.09	1.3	1.2	34					0.07	34.846	27.5			
O1-5S-69m	3/11/04	924	0.16	5.0	0.66	9.2	0.05	0.7	11.3	316					n/a	34.279	25.8			
O1-5S-69m	5/20/04	954	0.12	3.7	0.08	1.1	0.18	2.5	3.2	91					n/a	33.45	26.6			
Geomean	**'03-'04**			**3.0**		**0.7**		**1.7**							**0.04**					
O1-5S-69m	9/20/04	912	0.09	2.8	0.08	1.1	0.27	3.8	2.4	68					0.08	33.73	n/a			
O1-5S-69m	11/17/04	844	0.09	2.8	0.18	2.5	0.16	2.2	2.2	62					0.08	33.65	26.8			
O1-5S-69m	1/13/05	1010	0.05	1.5	0.19	2.7	0.05	0.7	2.7	77					0.08	34.854	25.9			
O1-5S-69m	4/11/05	955	0.20	6.2	1.66	23.3	0.38	5.3	12.4	348					0.08	34.175	25.1			
Geomean	**'04-'05**			**2.9**		**3.6**		**2.4**							**0.08**					
O1-5S-69m	7/20/05	940	0.06	1.9	0.01	0.1	0.13	1.8	1.6	46					0.10	34.730	25.1			
O1-5S-69m	10/11/05	833	0.05	1.5	0.05	0.7	0.13	1.8	2.5	70					0.11	34.906	26.5			
O1-5S-69m	3/13/06	915	0.10	3.1	0.01	0.1	0.25	3.5	2.4	66					0.13	34.824	24.5			
O1-5S-69m	5/15/06	920	0.18	5.6	1.80	25.2	0.11	1.5	17.6	494					0.26	34.243	24.6			
Geomean	**'05-'06**			**2.7**		**0.8**		**2.1**							***0.14***					
O1-5S-69m	8/14/06	911	0.17	5.3	0.43	6.0	0.33	4.6	4.6	129					0.18	34.579	26.6			
O1-5S-69m	11/1/06	916	0.12	3.7	0.68	9.5	0.46	6.4	6.6	186					0.47	34.748	26.7			
O1-5S-69m	2/12/07	937	0.21	6.5	2.43	34.0	0.26	3.6	14.3	402					0.23	34.175	24.5			
O1-5S-69m	4/9/07	909	0.12	3.7	0.19	2.7	0.40	5.6	4.0	111					0.44	34.664	25.5			
Geomean	**'06-'07**			**4.7**		***8.5***		***5.0***							***0.30***					
T1-500m	9/26/07	832	0.11	3.5	0.06	0.9	0.31	4.4	5.0	141	0.32	9.9	4.18	59	0.07	34.992	26.81	8.11	6.20	0.05
T1-500m	12/13/07	1044	0.15	4.7	0.03	0.4			5.6	157	0.42	13.0	6.33	89	0.18	34.720	25.65	8.28	6.20	0.20
T1-500m	3/10/08	946	0.15	4.7	0.36	5.1	0.06	0.8	4.5	127	0.38	11.8	7.60	106	0.10	34.888	24.96	8.20	6.53	0.21
T1-500m	6/5/08	941	0.12	3.8	0.13	1.8	0.16	2.2	16.6	466	0.26	7.9	6.55	92	0.08	34.815	25.04	8.07	6.63	0.13
Geomean	**'07-'08**			**4.1**		**1.3**		**2.0**				**10.5**		**84**	**0.10**					**0.13**
T1-500m	9/22/08	1101	0.05	1.4	0.05	0.7	0.14	2.0	1.4	40	0.25	7.8	5.9	83	0.08	34.839	26.74	8.02	6.27	0.05
T1-500m	11/17/08	939	0.16	5.0	0.04	0.5	0.14	1.9	2.8	80	0.37	11.5	5.5	77	0.20	34.966	25.64	8.24	5.99	0.08
T1-500m	2/9/09	939	0.09	2.9	0.21	2.9	0.12	1.7	2.9	81	0.17	5.2	4.9	69	0.09	35.047	24.91	8.06	6.04	0.01
T1-500m	4/13/09	932	0.14	4.4	0.30	4.2	3.47	48.6	4.6	128	0.48	15	10.5	147	0.18	34.924	24.11	8.15	6.03	0.10
Geomean	**'08-'09**			**3.1**		**1.4**		***4.2***				**9.1**		**90**	***0.13***					**0.04**
T1-500m	9/9/09	935	0.11	3.5	0.11	1.6	0.12	1.7	6.1	171	0.53	16.4	6.4	90	0.11	35.200	26.83	8.20	5.66	0.26
T1-500m	11/23/09	951	0.03	0.8	0.08	1.1	0.05	0.7	15.9	448	0.40	12.5	5.1	72	0.07	35.180	25.31	8.25	6.16	0.18
T1-500m	2/23/10	1002	0.15	4.6	0.00	0.05	0.48	6.7	14.5	407	0.38	11.9	4.0	57	0.04	35.060	24.63	8.21	6.03	0.23
T1-500m	5/25/10	1115	0.01	0.3	0.01	0.1	0.04	0.5	2.3	66	0.31	9.6	4.8	67	0.11	35.060	25.24	8.22	6.87	0.05
Geomean	**'09-'10**			**1.4**		**0.3**		**1.4**				**12.4**		**70**	**0.08**					**0.15**
T1-500m	8/10/10	955	0.02	0.6	0.67	9.4	0.05	0.7	7.2	202	0.27	8.3	3.6	50	0.06	34.77	25.98	8.22	6.28	0.06
T1-500m	11/8/10	943	0.00	0.1	0.02	0.3	0.07	1.0	7.0	197	0.32	9.9	4.4	62	0.04	35.31	26.58	8.25	6.17	0.03
T1-500m	1/11/11	957	0.11	3.5	0.00	0.1	0.07	1.0	0.6	17	0.42	13.1	3.0	43	0.04	35.04	25.12	8.21	6.34	0.13
T1-500m	4/26/11	935	0.10	3.2	0.21	3.0	0.08	1.1	4.7	132	0.46	14.1	3.5	49	0.08	34.94	25.03	8.22	6.33	0.14
Geomean	**'10-'11**			**0.9**		**0.8**		**0.9**				**11.1**		**51**	**0.05**					**0.08**

NELHA Water Quality Laboratory
Transect 1, Station 5
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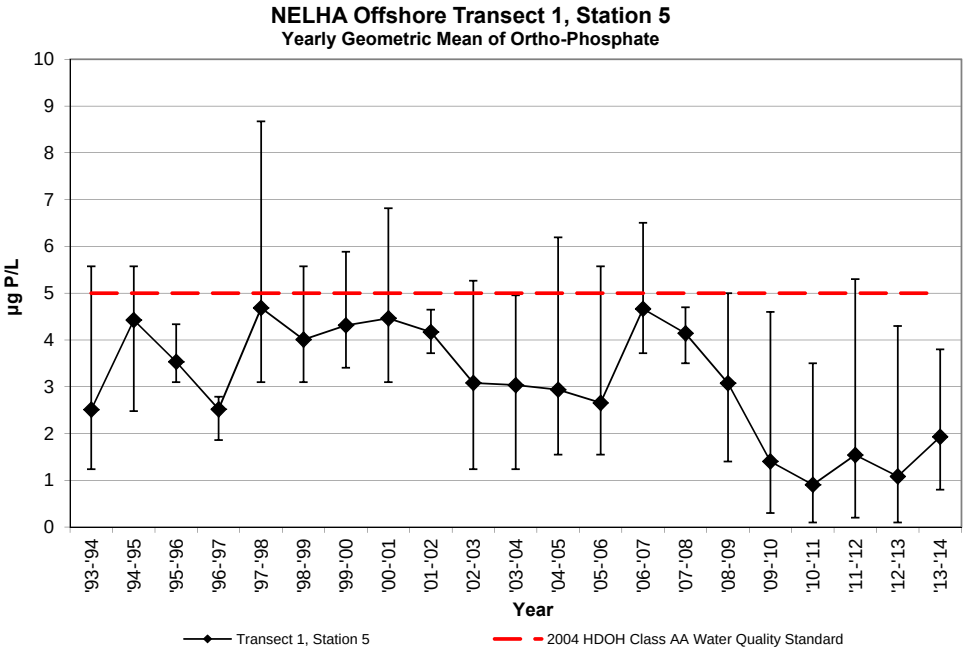
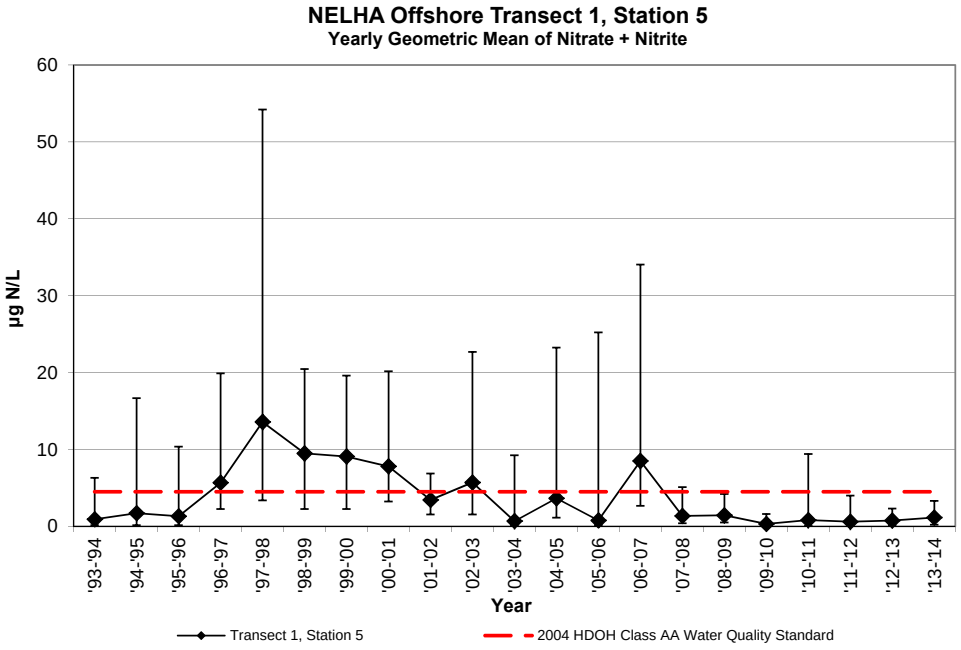
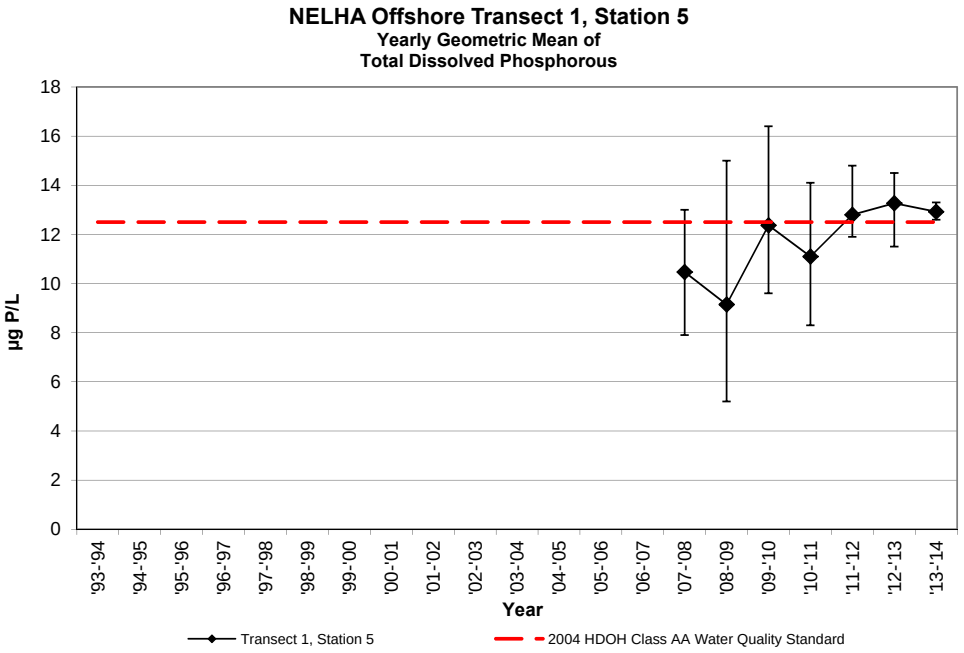
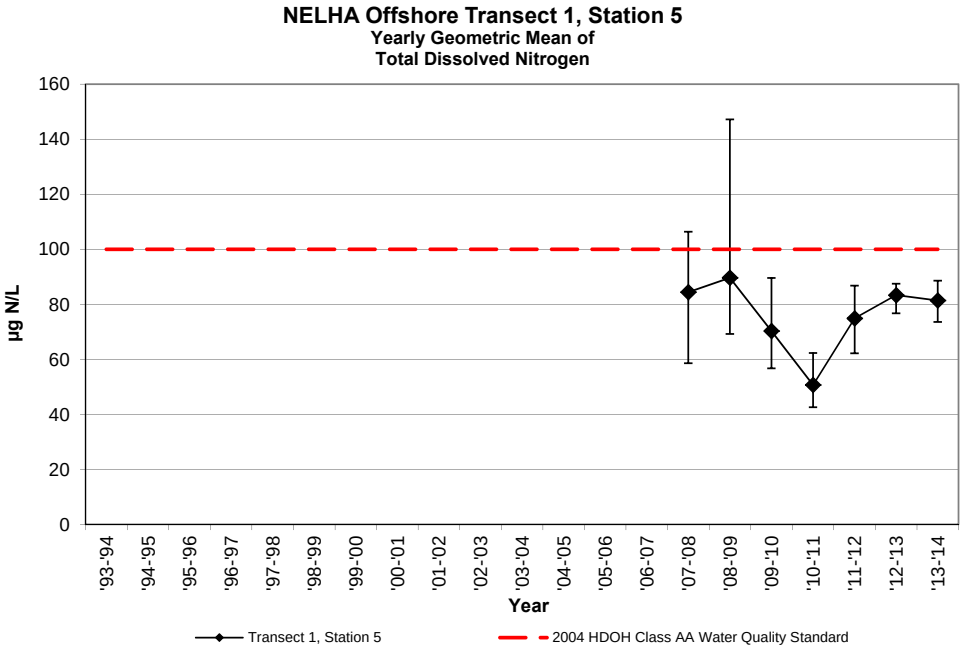
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
T1-500m	7/26/11	1017	0.17	5.3	0.29	4.0	0.06	0.9	2.7	76	0.48	14.8	5.4	76	0.08	34.79	26.10	8.26	6.32	0.08
T1-500m	10/18/11	947	0.01	0.2	0.03	0.4	0.11	1.5	2.0	55	0.39	12	5.5	77	0.08	35.06	26.60	8.23	6.78	0.13
T1-500m	1/25/12	1013	0.06	1.9	0.01	0.2	0.04	0.6	1.8	51	0.41	12.7	6.2	87	0.07	35.04	24.77	8.20	6.74	0.08
T1-500m	4/26/11	935	0.09	2.8	0.03	0.4	0.15	2.1	0.9	24	0.38	11.9	4.4	62	0.11	35.19	24.64	8.22	6.66	0.08
Geomean	**'11-'12**			**1.5**		**0.6**		**1.1**				***12.8***		**75**	**0.08**					**0.09**
T1-500m	7/24/12	956	0.00	0.1	0.16	2.3	0.09	1.3	1.6	44	0.37	11.5	5.5	77	0.03	35.09	26.36	8.23	6.76	0.08
T1-500m	11/27/12	950	0.06	2.0	0.16	2.3	0.31	4.4	2.5	71	0.42	13.0	5.9	82	0.09	35.22	25.10	8.21	6.87	0.09
T1-500m	1/24/13	957	0.05	1.6	0.01	0.1	0.12	1.7	1.1	31	0.47	14.5	6.2	88	0.04	35.10	24.69	8.22	6.33	0.09
T1-500m	4/16/13	1003	0.14	4.3	0.04	0.6	0.07	1.0	0.7	18	0.46	14.3	6.2	88	0.03	35.12	24.91	8.21	6.74	0.05
Geomean	**'12-'13**			**1.1**		**0.8**		**1.8**				***13.3***		**83**	**0.04**					**0.08**
T1-500m	8/1/13	911	0.03	0.8	0.24	3.3	0.06	0.9	6.6	184	0.41	12.6	5.7	80	0.06	35.09	26.01	8.25	6.14	0.15
T1-500m	10/29/13	946	0.12	3.8	0.18	2.5	0.41	5.8	2.3	66	0.42	13.0	5.3	74	0.02	35.28	27.05	8.20	6.13	0.24
T1-500m	2/4/14	949	0.08	2.4	0.07	1.0	0.24	3.4	2.9	80	0.41	12.8	6.3	89	0.02	34.91	25.26	8.23	6.25	0.22
T1-500m	5/6/14	951	0.06	1.9	0.01	0.2	0.15	2.1	1.2	33	0.43	13.3	6.0	84	0.06	34.83	26.00	8.22	6.12	0.14
Geomean	**'13-'14**			**1.9**		**1.1**		**2.5**				***12.9***		**81**	**0.03**					**0.18**

NELHA Water Quality Laboratory
Transect 1, Station 5
July 1993 - June 2014

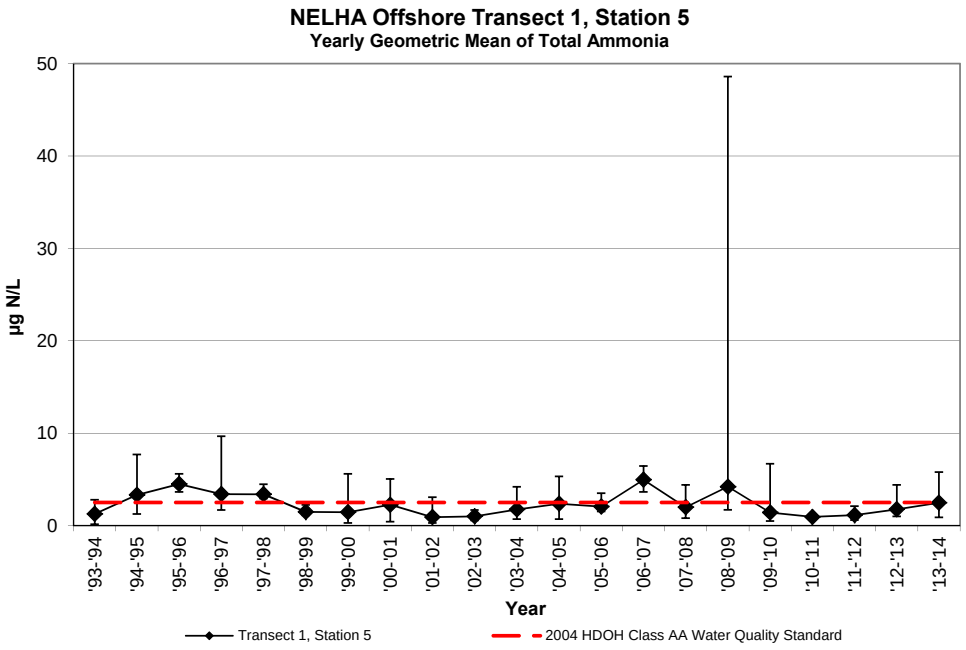


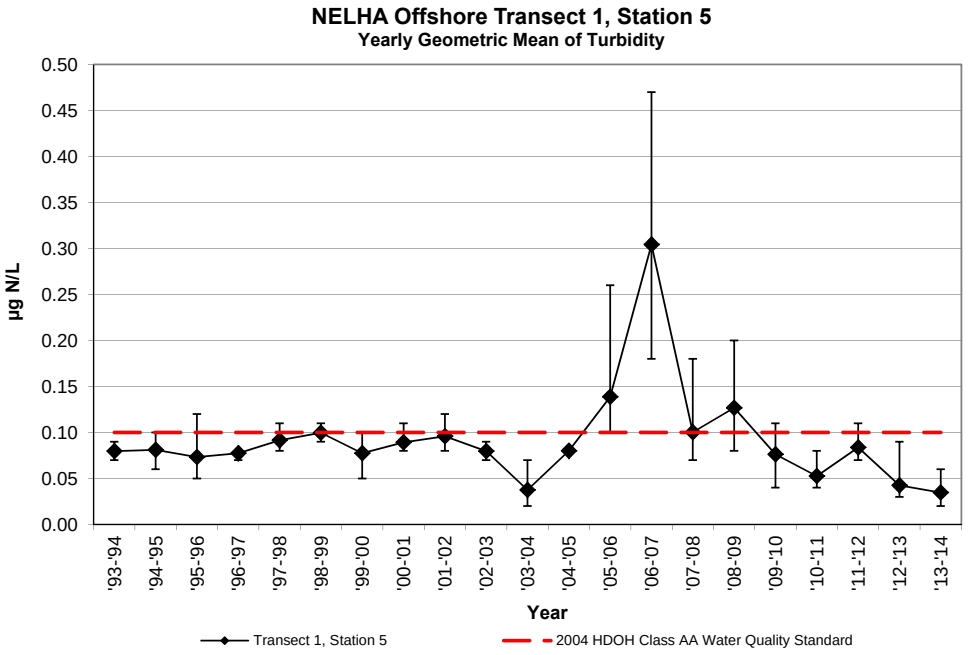


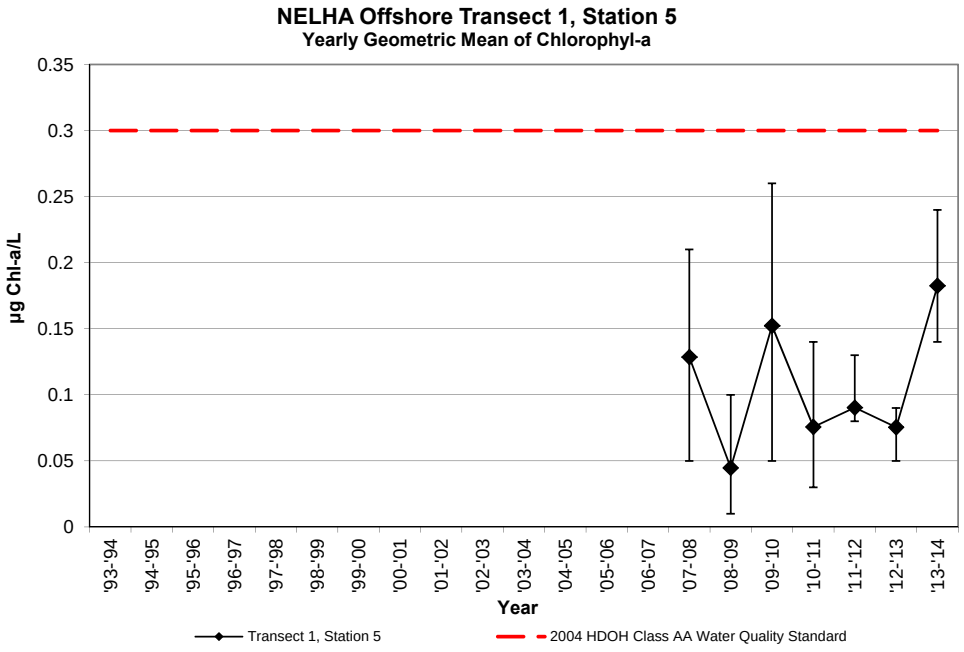




NELHA Water Quality Laboratory
Transect 1, Station 5
July 1993 - June 2014







NELHA Water Quality Laboratory

Transect 2

July 2013 - June 2014

SITE ID	DATE	TIME	Tide		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(ft)	(cycle)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT					0.16	**5**	0.32	**4.5**	0.18	**2.5**			0.40	**12.5**	7.1	**100**	**0.10**					**0.30**
T2-1m	8/1/13	928	0.9	Flood	0.07	2.2	0.36	5.1	0.09	1.3	3.8	106	0.51	15.8	9.12	128	0.06	35.22	26.1	8.24	6.95	0.19
T2-1m	10/29/13	954	1.1	Flood	0.15	4.6	0.57	8.0	0.26	3.7	2.6	74	0.45	13.8	6.54	92	0.05	35.27	27.0	8.20	6.50	0.26
T2-1m	2/4/14	959	1.0	Ebb	0.11	3.4	0.39	5.4	0.45	6.3	5.8	162	0.42	12.9	6.49	91	0.02	34.94	25.2	8.22	6.53	0.2
T2-1m	5/6/14	1000	0.7	High	0.13	4.1	0.56	7.8	0.74	10.3	2.9	83	0.46	14.4	6.68	94	0.06	34.77	25.9	8.22	6.29	0.16
Geomean	**'13-'14**				0.11	**3.4**	0.46	***6.4***	0.3	***4.2***			0.5	***14.2***	7.1	**100**	**0.04**					**0.20**
T2-10m	8/1/13	924	1.0	Flood	0.05	1.6	0.44	6.1	0.01	0.2	3.5	99	0.51	15.9	6.62	93	0.06	35.22	26.1	8.25	6.9	0.19
T2-10m	10/29/13	957	1.1	Flood	0.15	4.8	0.53	7.4	0.31	4.4	2.6	72	0.45	14	6.53	91	0.02	35.27	27.0	8.20	6.53	0.19
T2-10m	2/4/14	1002	1.0	Ebb	0.13	3.9	0.38	5.3	0.65	9.1	2.5	70	0.39	12.2	7.13	100	0.02	34.94	25.2	8.21	6.37	0.18
T2-10m	5/6/14	1005	0.7	High	0.12	3.8	0.50	7.0	0.32	4.5	3.0	84	0.41	12.6	7.77	109	0.03	34.78	25.9	8.23	6.29	0.15
Geomean	**'13-'14**				0.11	**3.3**	0.46	***6.4***	0.16	**2.3**			0.44	***13.6***	7.0	**98**	**0.03**					**0.18**
T2-50m	8/1/13	928	1.0	Flood	0.02	0.5	0.07	1.0	0.01	0.1	4.0	114	0.46	14.2	6.94	97	0.20	35.23	26.2	8.25	6.69	0.14
T2-50m	10/29/13	1001	1.2	Flood	0.15	4.5	0.39	5.4	0.27	3.8	2.8	78	0.50	15.4	6.77	95	0.03	35.29	27.0	8.23	6.44	0.20
T2-50m	2/4/14	1007	1.0	Ebb	0.11	3.4	0.40	5.6	0.50	7.0	2.5	69	0.40	12.3	6.78	95	0.02	34.95	25.2	8.21	6.42	0.09
T2-50m	5/6/14	1010	0.7	High	0.08	2.5	0.11	1.6	0.18	2.5	2.4	68	0.45	13.8	7.37	103	0.02	34.80	26.0	8.21	6.09	0.06
Geomean	**'13-'14**				0.07	**2.1**	0.19	**2.6**	0.11	**1.6**			0.45	***13.9***	7.0	**97**	**0.04**					**0.11**
T2-100m	8/1/13	935	1.0	Flood	0.02	0.6	0.19	2.7	0.03	0.4	5.2	147	0.67	20.7	6.20	87	0.18	35.18	26.1	8.25	6.67	0.13
T2-100m	10/29/13	1005	1.2	Flood	0.14	4.2	0.26	3.7	0.49	6.9	2.3	65	0.46	14.3	5.91	83	0.08	35.30	27.0	8.21	6.25	0.17
T2-100m	2/4/14	1014	1.0	Ebb	0.10	3.1	0.33	4.6	0.54	7.6	2.4	67	0.41	12.6	5.90	83	0.02	34.94	25.2	8.21	6.38	0.16
T2-100m	5/6/14	1015	0.7	High	0.08	2.4	0.13	1.8	0.22	3.1	2.4	66	0.41	12.8	5.56	78	0.05	34.81	26.0	8.21	6.08	0.15
Geomean	**'13-'14**				0.07	**2.1**	0.21	**3.0**	0.20	***2.8***			0.48	***14.8***	5.9	**82**	**0.06**					**0.15**
T2-500m	8/1/13	943	1.1	Flood	0.02	0.6	0.11	1.6	0.01	0.2	5.3	149	0.42	13.0	3.92	55	0.06	35.18	26.2	8.25	6.66	0.12
T2-500m	10/29/13	1010	1.2	Flood	0.13	4.1	0.25	3.5	1.39	19.4	2.9	80	0.47	14.7	6.68	94	0.03	35.27	27.0	8.20	6.32	0.23
T2-500m	2/4/14	1020	0.9	Ebb	0.08	2.5	0.12	1.7	0.58	8.1	2.0	56	0.37	11.6	4.27	60	0.02	34.99	25.2	8.20	6.29	0.17
T2-500m	5/6/14	1023	0.7	High	0.07	2.3	0.01	0.1	0.26	3.6	1.6	45	0.42	12.9	5.28	74	0.06	34.83	26.1	8.22	5.98	0.15
Geomean	**'13-'14**				0.06	**1.9**	0.07	**1.0**	0.22	***3.0***			0.42	***13.0***	4.9	**69**	**0.04**					**0.16**

NELHA Water Quality Laboratory
Transect 2
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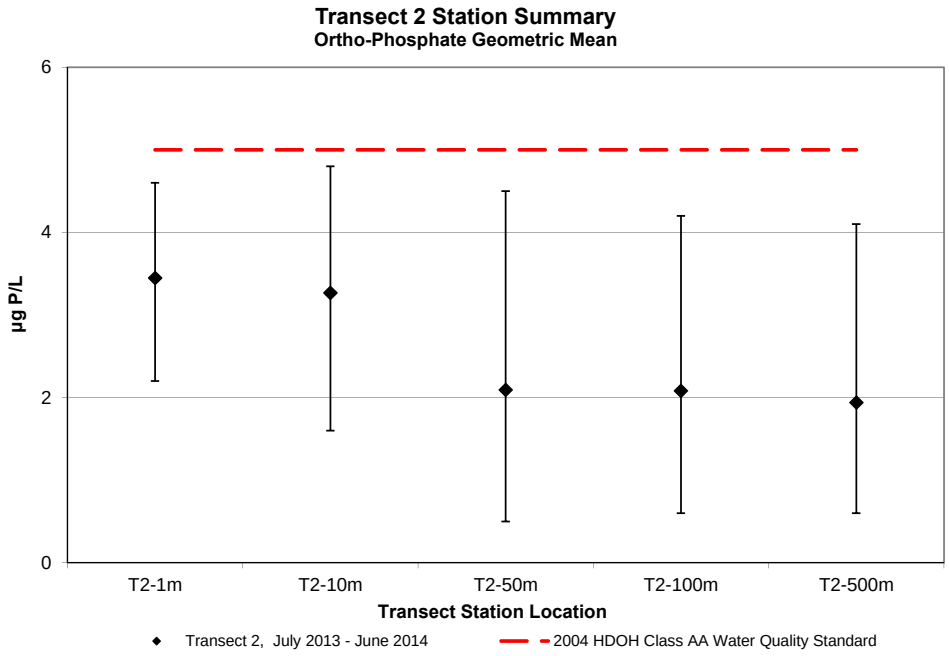

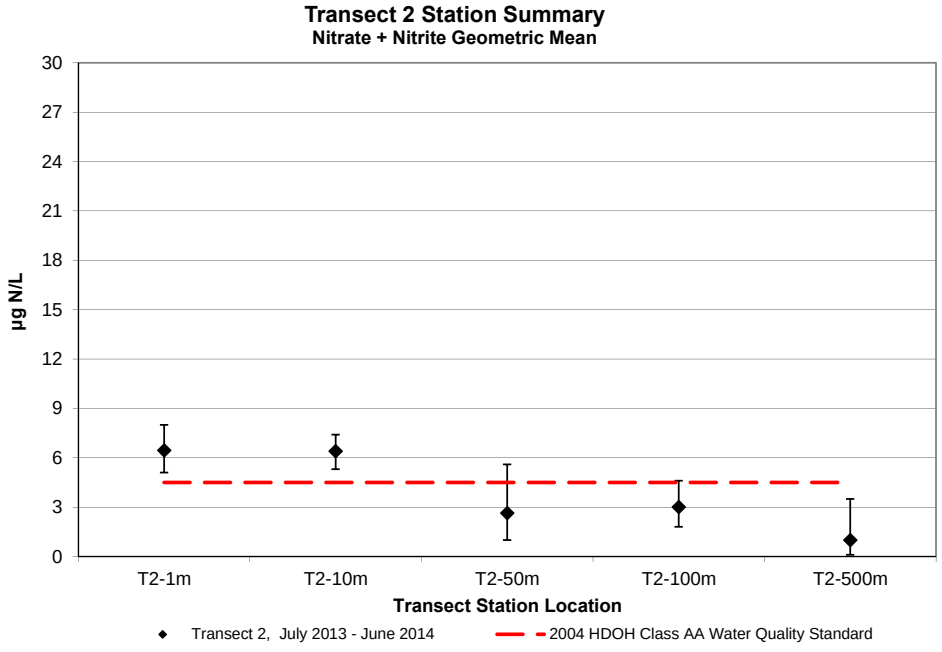

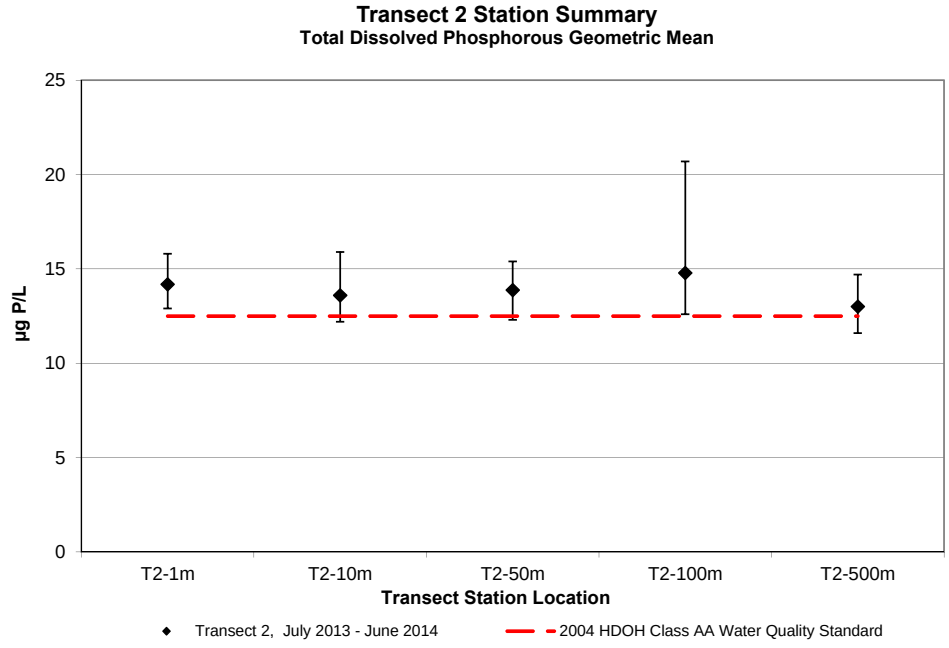

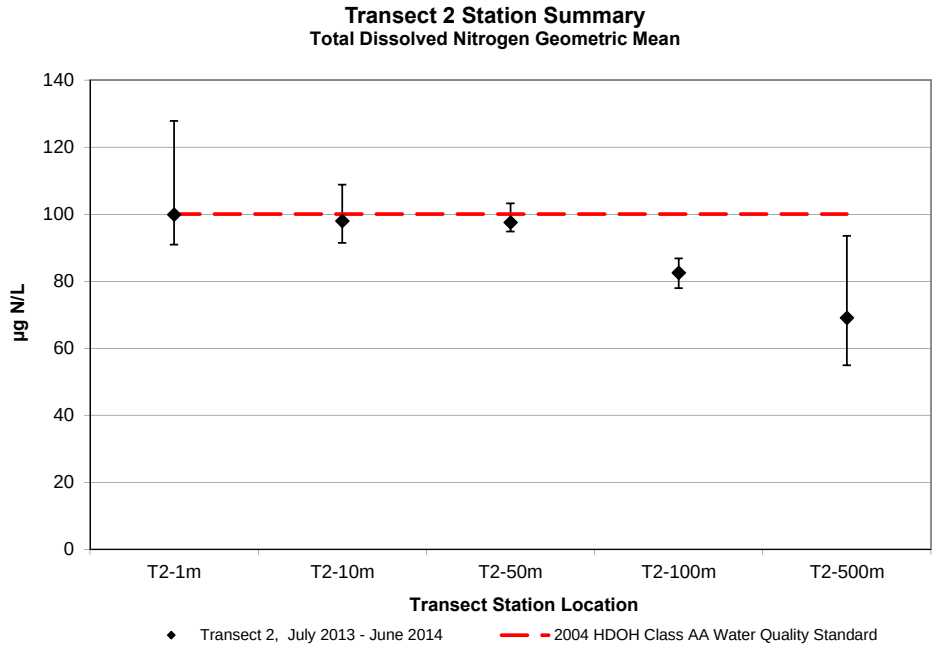

NELHA Water Quality Laboratory
Transect 2
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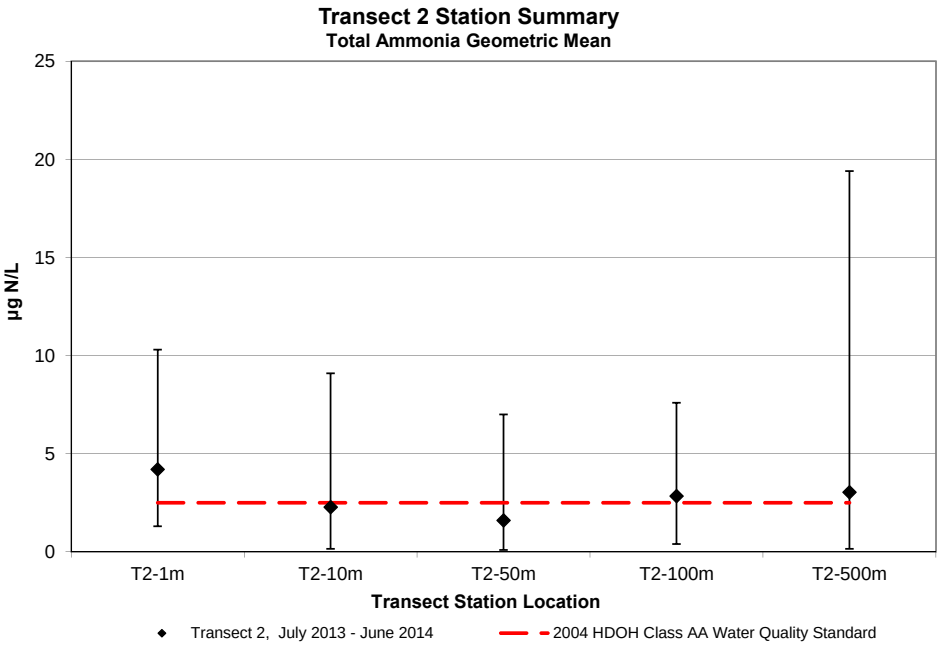
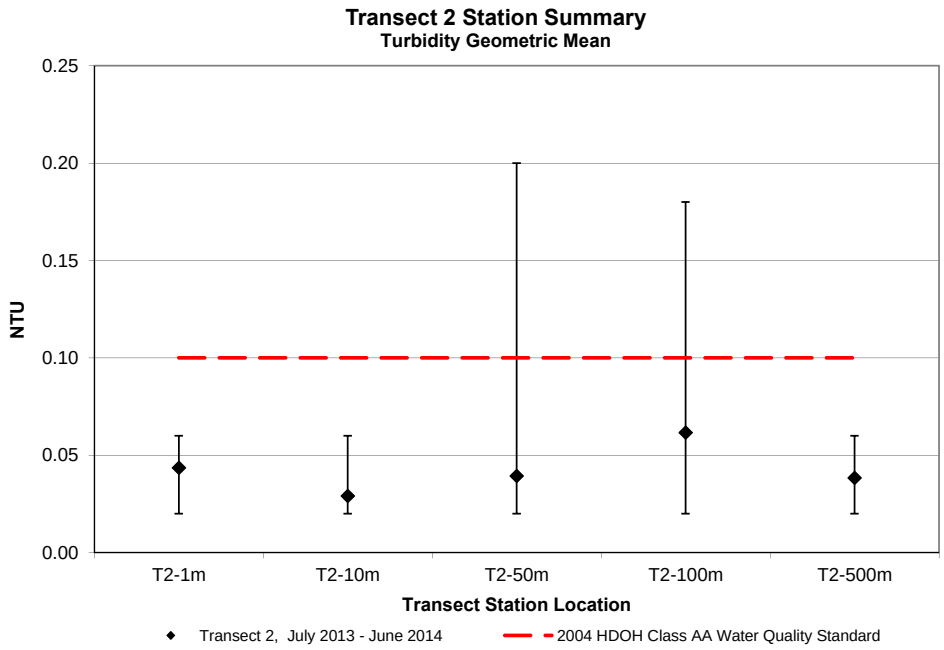
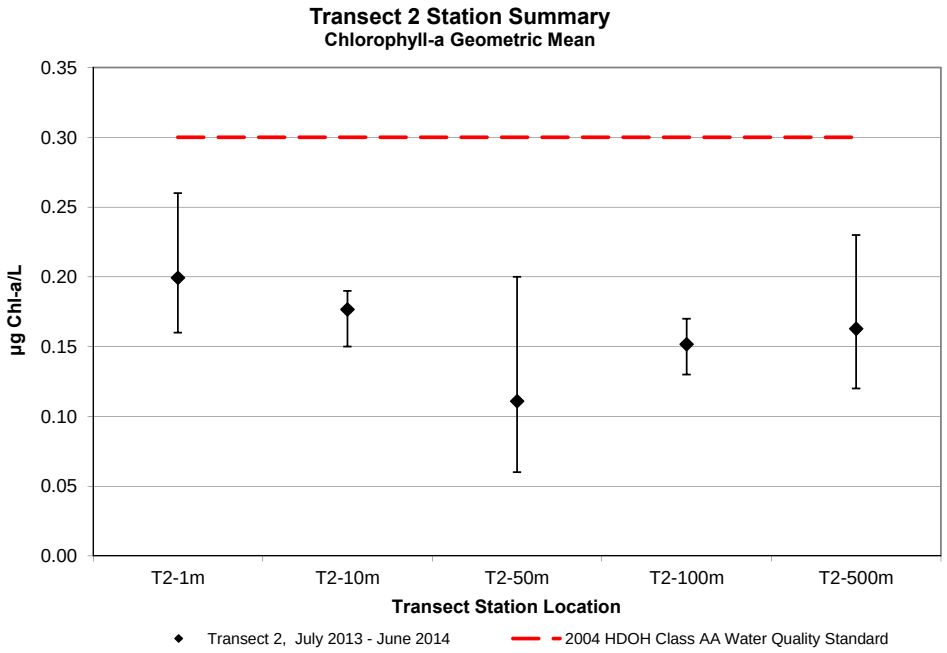






NELHA Water Quality Laboratory
Transect 2, Station 1
July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TP		TOC	Turbidity	Salinity	Temp.	pH	DO	Chl a	Fecal Coliform	Enterococci
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg P/L)	(mgC/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)	Bact/100 ml	Bact/100 ml
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**				**0.10**					**0.30**		
O2-1S-8m	7/27/93	1008	0.07	2.2	0.04	0.6	0.24	3.4	2.3	65	0.29	9.0	7.7	108	0.29	8.98	1.43	0.06	34.472	26.7	8.263	6.95	0.07		
O2-1S-8m	12/7/93	932	0.08	2.5	0.20	2.8	0.18	2.5	4.3	120	0.25	7.7	5.3	74	0.25	7.74	1.10	0.08	34.765	25.7	8.240	6.98	0.12		
O2-1S-8m	3/16/94	929	0.17	5.3	0.37	5.2	0.20	2.8	6.6	185	0.31	9.7	3.5	49	0.31	9.60	1.19	0.08	34.408	24.5	8.248	7.23	0.15	<1	<1
O2-1S-8m	6/14/94	906	0.13	4.0	0.14	2.0	0.02	0.3	2.6	73	0.29	9.0	6.4	90	0.29	8.98	1.08	0.11	34.545	25.3	8.223	7.09	0.12	<1	<1
Geomean	**'93-'94**			**3.3**		**2.0**		**1.6**				**8.8**		**77**				**0.08**					**0.11**		
O2-1S-8m	9/8/94	1027	0.10	3.1	0.34	4.8	0.27	3.8	4.2	117	0.29	9.0	6.8	95	0.32	9.91	1.25	0.11	34.563	27.7	8.260	6.81	0.15	<1	<1
O2-1S-8m	11/16/94	827	0.17	5.3	0.70	9.8	0.52	7.3	7.2	202	0.29	9.0	5.5	77	0.37	11.46	1.02	0.07	34.430	25.9	8.219	6.76	0.05	<1	<1
O2-1S-8m	3/21/95	1024	0.19	5.9	0.22	3.1	0.12	1.7	3.9	108	0.34	10.5	7.0	98	0.34	10.53	1.11	0.09	34.196	25.1	8.243	7.31	0.09	<1	<1
O2-1S-8m	6/26/95	833	0.12	3.7	0.38	5.3	0.50	7.0	3.5	97	0.29	9.0	5.6	79	0.29	8.98	1.00	0.09	34.517	26.5	8.219	6.96	0.13	<1	<1
Geomean	**'94-'95**			**4.3**		***5.3***		***4.2***				**9.3**		**87**				**0.09**					**0.10**		
O2-1S-8m	9/25/95	1011	0.12	3.7	0.31	4.3	0.24	3.4	6.0	168	0.32	9.9	5.6	79	0.33	10.22	0.98	0.09	34.483	27.1	8.249	6.84	0.11	<1	<1
O2-1S-8m	11/13/95	1014	0.13	4.0	0.19	2.7	0.44	6.2	1.9	52	0.31	9.6	4.8	67	0.31	9.60	0.98	0.06	34.419	26.8	8.282	6.67	0.06	<1	<1
O2-1S-8m	3/11/96	1102	0.15	4.6	0.31	4.3	0.42	5.9	2.6	73	0.33	10.2	4.9	69	0.33	10.22	1.07	0.10	34.225	25.4	8.257	7.27	0.08	<1	<1
O2-1S-8m	5/13/96	1007	0.10	3.1	0.12	1.7	0.19	2.7	2.3	65	0.30	9.3	4.1	58	0.30	9.29	1.06	0.07	34.307	26.9	8.221	7.14	0.10	<1	<1
Geomean	**'95-'96**			**3.8**		**3.0**		***4.2***				**9.8**		**68**				**0.08**					**0.09**		
O2-1S-8m	7/30/96	920	0.12	3.7	1.32	18.5	0.29	4.1	5.1	142	0.27	8.4	5.1	72	0.27	8.36	1.03	0.13	34.396	27.9	8.217	6.52	0.09	1	<1
O2-1S-8m	10/1/96	1039	0.09	2.8	0.17	2.4	0.62	8.7	2.4	67	0.29	9.0	4.7	66	0.29	8.98	1.00	0.08	34.733	28.0	8.231	6.94	0.08	<1	<1
O2-1S-8m	1/6/97	1105	0.10	3.1	0.29	4.1	0.23	3.2	3.3	93	0.27	8.4	3.7	52	0.31	9.60	1.07	0.08	34.663	25.7	8.276	7.68	0.02	<1	<1
O2-1S-8m	4/21/97	1050	0.11	3.4	1.04	14.6	0.28	3.9	3.7	104	0.36	11.2	5.4	75	0.37	11.46	1.11	0.12	34.512	26.5	8.278	6.93	0.07	1	<1
Geomean	**'96-'97**			**3.2**		***7.1***		***4.6***				**9.1**		**65**				**0.10**					**0.06**		
O2-1S-8m	8/18/97	1048	0.11	3.4	0.63	8.8	0.23	3.2	4.8	134	0.33	10.2	5.1	71	0.34	10.53	1.08	0.12	34.586	26.8	8.406	6.68	0.11	<1	<1
O2-1S-8m	10/6/97	1108	0.10	3.1	0.48	6.7	0.43	6.0	5.1	142	0.37	11.5	4.9	69	0.37	11.46	1.03	0.11	34.697	27.6	8.484	6.93	0.15	1	<1
O2-1S-8m	3/3/98	1042	0.10	3.1	0.40	5.6	0.22	3.1	4.1	115	0.35	10.8	5.0	70	0.35	10.84	1.06	0.07	34.973	24.9	8.231	7.07	0.04	<1	<1
O2-1S-8m	5/4/98	1011	0.12	3.7	0.70	9.8	0.11	1.5	7.5	209	0.39	12.1	5.0	70	0.41	12.70	0.89	0.07	34.908	23.8	8.220	7.00	0.17	<1	<1
Geomean	**'97-'98**			**3.3**		***7.6***		***3.1***				**11.1**		**70**				**0.09**					**0.10**		
O2-1S-8m	7/6/98	1113	0.14	4.3	0.76	10.6	0.14	2.0	5.4	153	0.39	12.1	5.6	79	0.39	12.08	1.06	0.09	34.942	26.3	8.215	7.03	0.11	<1	<1
O2-1S-8m	10/5/98	1047	0.13	4.0	0.63	8.8	0.19	2.7	4.7	131	0.37	11.5	6.1	85	0.42	13.01	1.02	0.12	35.019	27.1	8.233	7.49	0.10	<1	<1
O2-1S-8m	1/13/99	1057	0.12	3.7	0.58	8.1	0.18	2.5	4.2	117	0.37	11.5	6.1	86	0.37	11.46	1.27	0.12	35.054	25.0	8.223	7.12	0.44	<1	<1
O2-1S-8m	4/12/99	1037	0.13	4.0	0.30	4.2	0.11	1.5	4.4	124	0.39	12.1	4.8	67	0.39	12.08	1.01	0.08	34.655	24.2	8.231	7.40	0.15	<1	<1
Geomean	**'98-'99**			**4.0**		***7.5***		**2.1**				**11.8**		**79**				**0.10**					**0.16**		
O2-1S-8m	7/6/99	1055	0.11	3.4	0.07	1.0	0.10	1.4	2.9	82	0.36	11.2	5.4	76	0.36	11.15	1.05	0.09	34.948	25.7	8.219	7.07	0.16	1	<1
O2-1S-8m	10/4/99	1135	0.14	4.3	0.19	2.7	0.15	2.1	5.3	148	0.40	12.4	4.5	63	0.41	12.70	1.02	0.12	34.942	26.0	8.266	7.00	0.10	<1	<1
O2-1S-8m	1/4/00	1114	0.12	3.7	0.60	8.4	0.42	5.9	12.9	361	0.32	9.9	5.9	83	0.32	9.91	0.96	0.10	35.084	24.8	8.226	7.00	0.05	<1	<1
O2-1S-8m	4/17/00	1102	0.15	4.6	0.36	5.0	0.08	1.1	4.3	122	0.37	11.5	5.9	82	0.36	11.15	1.04	0.11	34.609	24.3	8.269	n/a	0.05	<1	<1
Geomean	**'99-'00**			**4.0**		**3.2**		**2.1**				**11.2**		**76**				**0.10**					**0.08**		
O2-1S-8m	7/24/00	1119	0.11	3.4	0.31	4.3	0.06	0.8	3.3	92	0.33	10.2	5.4	76	0.34	10.53	1.03	0.08	34.888	27.3	8.271	8.54	0.15	<1	<1
O2-1S-8m	10/30/00	1138	0.14	4.3	0.39	5.5	0.31	4.3	18.3	515	0.35	10.8	5.2	73	0.36	11.15	1.07	0.09	34.927	27.1	8.255	6.80	0.10	<1	<1
O2-1S-8m	2/26/01	1127	0.16	5.0	0.59	8.3	0.20	2.8	7.0	195	0.37	11.5	6.1	85	0.37	11.46	1.08	0.11	34.652	24.9	8.224	6.80	0.06	<1	<1
O2-1S-8m	5/7/01	1129	0.14	4.3	0.72	10.1	0.36	5.0	4.5	127	0.38	11.8	6.1	85	0.40	12.39	1.13	0.08	34.808	24.7	8.205	7.23	0.15	<1	<1
Geomean	**'00-'01**			**4.2**		***6.7***		***2.7***				**11.1**		**80**				**0.09**					**0.11**		
O2-1S-8m	8/21/01	1029	0.15	4.6	0.37	5.2	0.03	0.4	3.0	83	0.38	11.8	5.2	73	0.39	12.08	1.06	0.10	34.795	26.7	8.220	6.90	0.13	<1	<1
O2-1S-8m	10/8/01	1049	0.18	5.6	0.19	2.7	0.08	1.1	2.4	67	0.35	10.8	5.3	75	0.35	10.84	1.03	0.07	34.949	27.3	8.239	7.02	0.15	<1	<1
O2-1S-8m	3/5/02	1000	0.16	5.0	0.33	4.6	0.09	1.3	7.1	198	0.37	11.5	5.8	81	0.39	12.08	0.99	0.07	34.686	24.2	8.221	6.85	0.13	<1	<1
O2-1S-8m	4/17/02	1010	0.17	5.3	0.36	5.0	0.27	3.8	5.0	140	0.41	12.7	6.1	85	0.43	13.32	0.95	0.08	34.455	25.6	8.183	6.54	0.14	<1	<1
Geomean	**'01-'02**			***5.1***		**4.2**		**1.2**				**11.7**		**78**				**0.08**					**0.14**		

NELHA Water Quality Laboratory
Transect 2, Station 1
July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TP		TOC	Turbidity	Salinity	Temp.	pH	DO	Chl a	Fecal Coliform	Enterococci
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg P/L)	(mgC/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)	Bact/100 ml	Bact/100 ml
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**				**0.10**					**0.30**		
O2-1S-8m	7/8/02	1125	0.20	6.2	0.35	4.9	0.17	2.4	4.2	119	0.44	13.6	5.9	83	0.44	13.63	1.02	0.11	34.629	26.7	8.244	7.05	0.20	<1	<1
O2-1S-8m	10/9/02	958	0.09	2.8	0.47	6.6	0.11	1.5	3.7	103	0.31	9.6	6.3	88	0.32	9.91	0.95	0.08	34.903	27.1	8.259	8.13	0.12	1	1
O2-1S-8m	3/12/03	1125	0.12	3.7	0.13	1.8	0.03	0.4	6.6	186	0.34	10.5	8.1	113	0.39	12.08	1.09	0.10	34.774	25.1	8.275	7.37	0.16	<1	<1
O2-1S-8m	4/22/03	1124	0.12	3.7	1.09	15.3	0.03	0.4	4.5	126	0.36	11.2	5.6	78	0.37	11.46	0.99	0.11	34.948	25.3	8.258	7.36	0.15	<1	<1
Geomean	**'02-'03**			**3.9**		***5.5***		**0.9**				**11.1**		**89**				**0.10**					**0.15**		
O2-1S-8m	8/18/03	1135	0.10	3.1	0.18	2.5	0.25	3.5	3.5	98	0.36	11.2	6.4	90	0.37	11.46	n/a	0.06	34.821	28.2	8.241	6.83	0.12	<1	<1
O2-1S-8m	10/29/03	1158	0.10	3.1	0.07	1.0	0.10	1.4	12.3	345	0.38	11.8	5.7	80	0.38	11.77	n/a	0.12	34.811	27.6	8.245	n/a	0.14	<1	<1
O2-1S-8m	3/11/04	1027	0.17	5.3	0.32	4.5	0.04	0.6	5.6	156	0.42	13.0	5.8	81	0.44	13.63	n/a	n/a	34.344	25.8	8.277	6.48	0.17	<1	<1
O2-1S-8m	5/20/04	1021	0.12	3.7	0.15	2.1	0.22	3.1	3.3	92	0.37	11.5	5.7	80	0.38	11.77	n/a	n/a	33.48	26.8	8.250	6.98	0.01	<1	<1
Geomean	**'03-'04**			**3.7**		**2.2**		**1.7**				**11.8**		**82**				**0.08**					**0.07**		
O2-1S-8m	9/20/04	1010	0.10	3.1	0.08	1.1	0.26	3.6	1.5	43	0.34	10.5	5.9	82	0.34	10.53	n/a	0.10	33.76	27.8	8.249	6.82	0.10	1	<1
O2-1S-8m	11/17/04	942	0.08	2.5	0.25	3.5	0.19	2.7	2.1	60	0.36	11.2	5.5	77	0.36	11.15	n/a	0.08	33.57	26.9	8.281	6.77	0.13	<1	<1
O2-1S-8m	1/13/05	1105	0.07	2.2	0.26	3.6	0.11	1.5	2.9	82	0.28	8.7	5.4	75	0.28	8.67	n/a	0.11	34.831	25.9	8.342	7.06	0.09	<1	<1
O2-1S-8m	4/11/05	1104	0.16	5.0	0.71	9.9	0.30	4.2	7.8	219	0.41	12.7	5.6	79	0.42	13.01	n/a	0.10	34.481	25.3	8.317	7.21	0.07	<1	<1
Geomean	**'04-'05**			**3.0**		**3.5**		***2.8***				**10.7**		**78**				**0.10**					**0.10**		
O2-1S-8m	7/20/05	1054	0.19	5.9	0.40	5.6	0.16	2.2	3.7	103	0.39	12.1	4.4	61	0.39	12.08	n/a	0.08	34.669	26.5	8.248	6.61	0.02	<1	<1
O2-1S-8m	10/11/05	940	0.06	1.9	0.03	0.4	0.14	2.0	2.3	65	0.32	9.9	2.7	37	0.35	10.84	1.02	0.16	34.919	26.5	8.282	6.72	0.11	<1	<1
O2-1S-8m	3/13/06	1051	0.12	3.7	0.09	1.3	0.41	5.7	2.7	76	0.35	10.8	4.0	55	0.39	12.08	n/a	0.13	34.782	24.6	8.278	7.59	0.10	<1	<1
O2-1S-8m	5/15/06	1019	0.28	8.7	0.95	13.3	0.13	1.8	6.5	184	0.55	17.0	6.6	93	0.55	17.04	1.14	0.14	34.615	25.0	8.260	6.97	0.72	<1	1
Geomean	**'05-'06**			**4.3**		**2.5**		***2.6***				**12.2**		**59**				***0.12***					**0.11**		
O2-1S-8m	8/14/06	1018	0.21	6.5	0.49	6.9	0.33	4.6	3.3	92	0.47	14.6	6.3	88	0.48	14.87	1.14	0.12	34.614	26.6	8.255	7.22	0.11	<1	<1
O2-1S-8m	11/1/06	1024	0.10	3.1	0.23	3.2	0.43	6.0	2.6	72	0.31	9.6	5.5	77	0.32	9.91	1.12	0.13	34.820	27.0	8.254	6.70	0.16	<1	<1
O2-1S-8m	2/12/07	1045	0.17	5.3	0.58	8.1	0.51	7.1	5.6	158	0.38	11.8	6.0	84	0.38	11.77	1.09	0.70	34.490	24.5	8.226	7.01	0.16	<1	<1
O2-1S-8m	4/9/07	1016	0.14	4.3	0.23	3.2	0.29	4.1	3.6	102	0.35	10.8	5.4	75	0.48	14.87	0.95	0.53	34.697	25.1	8.224	7.09	0.02	<1	<1
Geomean	**'06-'07**			**4.6**		***4.9***		***5.3***				**11.6**		**81**				***0.28***					**0.09**		
T2-1m	9/26/07	943	0.16	4.9	0.35	4.9	0.41	5.8	14.0	392	0.37	11.5	5.2	73				0.08	34.939	26.79	8.15	6.38	0.08		
T2-1m	12/13/07	1121	0.11	3.4	0.39	5.5			13.0	365	0.38	11.7	6.9	96				0.18	34.685	25.69	8.24	6.61	0.25		
T2-1m	3/10/08	1010	0.16	4.9	0.37	5.2	0.06	0.8	5.2	147	0.36	11.2	8.4	117				0.41	34.903	24.92	8.19	6.58	0.19		
T2-1m	6/5/08	1015	0.11	3.5	0.64	9.0	0.16	2.2	20.2	567	0.25	7.8	7.8	109				0.08	34.783	25.05	8.09	6.83	0.27		
Geomean	**'07-'08**			**4.1**		***6.0***		**2.2**				**10.4**		**97**				***0.15***					**0.18**		
T2-1m	9/22/08	1108	0.05	1.7	0.04	0.6	0.15	2.1	2.0	57	0.26	8.2	5.9	82				0.06	34.811	26.7	8.02	6.38	0.07		
T2-1m	11/17/08	950	0.14	4.2	0.21	3.0	0.14	1.9	2.5	71	0.26	8.2	5.4	76				0.19	34.964	25.7	8.24	6.11	0.02		
T2-1m	2/9/09	948	0.09	2.8	0.60	8.4	0.12	1.7	3.5	100	0.11	3.5	5.1	72				0.14	35.066	24.8	8.08	6.09	0.03		
T2-1m	4/13/09	942	0.43	13.3	1.92	26.9	0.47	6.6	5.3	148	0.50	15.4	6.9	96				0.10	34.868	24.0	8.18	6.18	0.14		
Geomean	**'08-'09**			**4.0**		**4.5**		***2.6***				**7.8**		**81**				***0.11***					**0.05**		
T2-1m	9/9/09	947	0.15	4.6	0.49	6.8	0.30	4.2	6.7	189	0.52	16.2	5.8	81				0.07	35.15	26.9	8.21	5.60	0.21		
T2-1m	11/23/09	1003	0.03	0.8	0.16	2.3	0.03	0.4	23.8	669	0.27	8.4	5.0	70				0.07	35.20	25.3	8.27	6.40	0.15		
T2-1m	2/23/10	1012	0.16	5.1	0.29	4.1	0.43	6.0	16.3	458	0.31	9.6	4.7	66				0.07	35.06	24.6	8.18	6.49	0.37		
T2-1m	5/25/10	1026	0.05	1.5	0.31	4.3	0.19	2.6	3.7	105	0.25	7.6	5.7	80				0.11	34.95	25.1	8.23	7.00	0.08		
Geomean	**'09-'10**			**2.3**		**4.1**		**2.3**				**10.0**		**74**				**0.08**					**0.17**		
T2-1m	8/10/10	1005	0.08	2.5	1.38	19.3	0.16	2.2	10.8	304	0.52	16.2	5.8	81				0.06	34.81	26.0	8.22	6.67	0.06		
T2-1m	11/8/10	952	0.03	0.9	0.44	6.2	0.24	3.3	2.6	72	0.36	11.2	4.7	65				0.10	35.25	26.4	8.25	6.42	0.06		
T2-1m	1/11/11	1009	0.14	4.2	0.25	3.5	0.08	1.1	2.8	79	0.44	13.5	3.9	55				0.08	34.96	25.0	8.24	6.61	0.13		
T2-1m	4/26/11	1009	0.11	3.4	0.44	6.2	0.10	1.4	9.1	256	0.44	13.7	5.1	72				0.10	34.97	25.0	8.21	6.53	0.14		
Geomean	**'10-'11**			**2.4**		***7.1***		**1.8**				***13.5***		**67**				**0.08**					**0.09**		

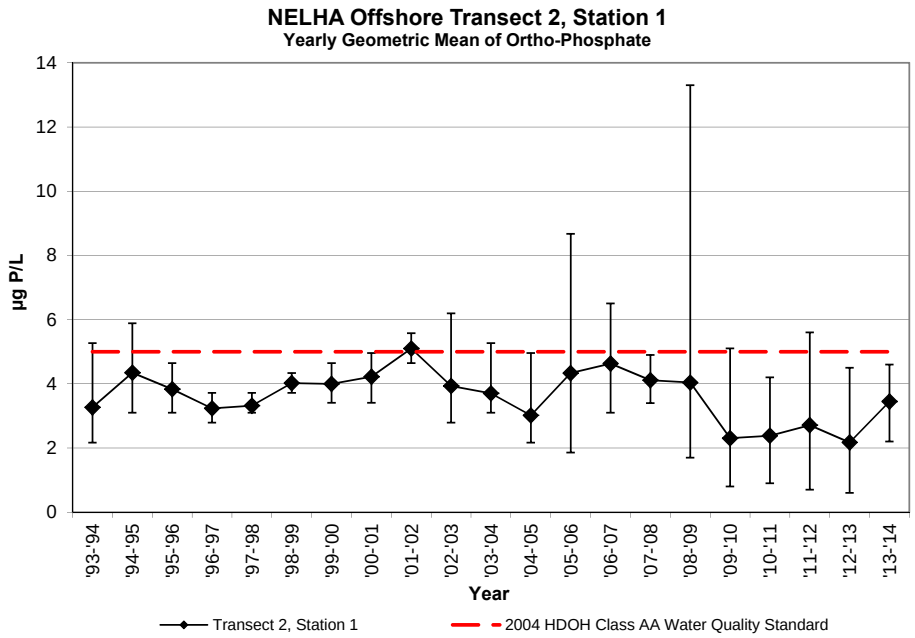
NELHA Water Quality Laboratory

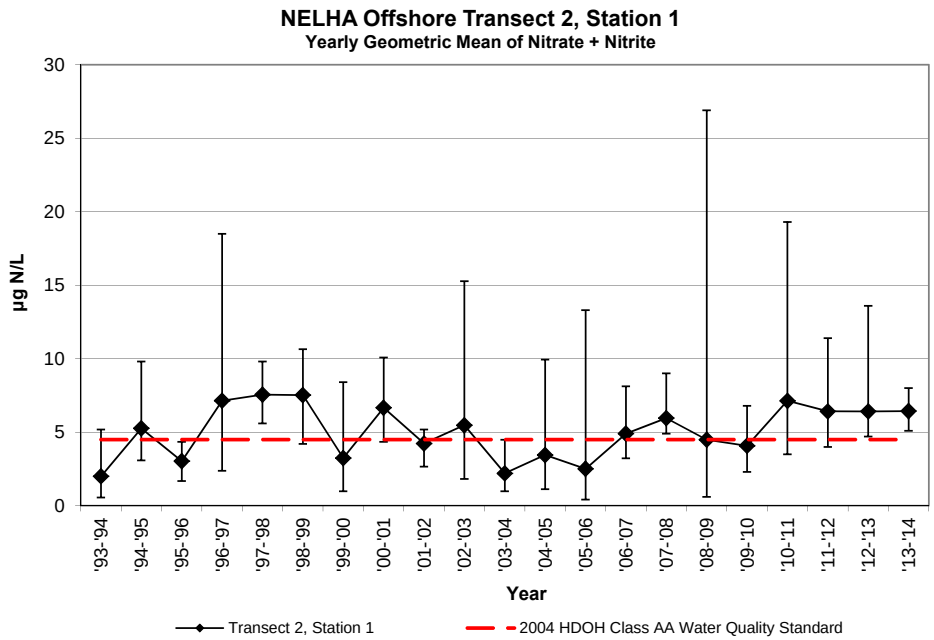
Transect 2, Station 1

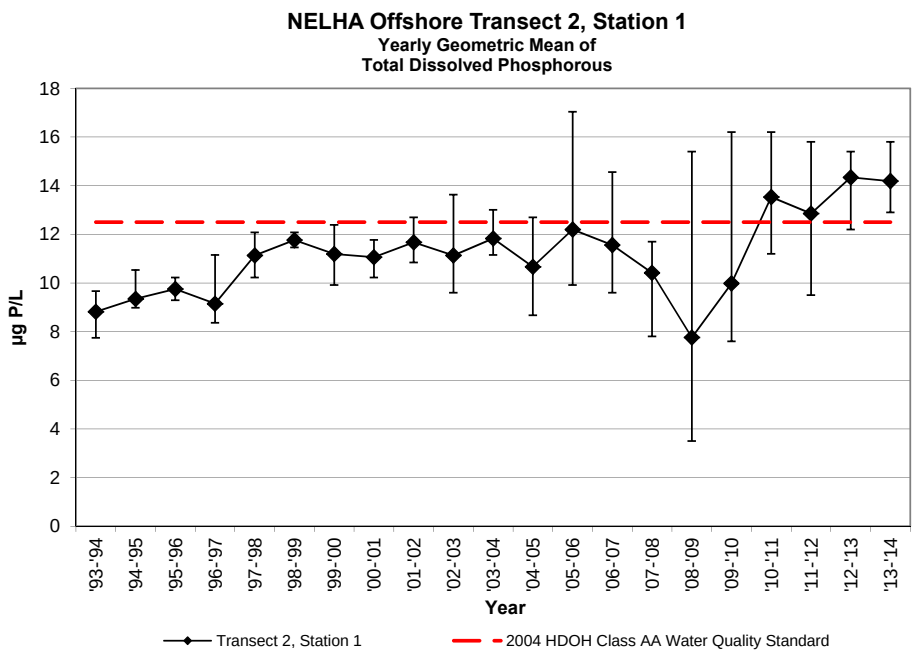
July 1993 - June 2014

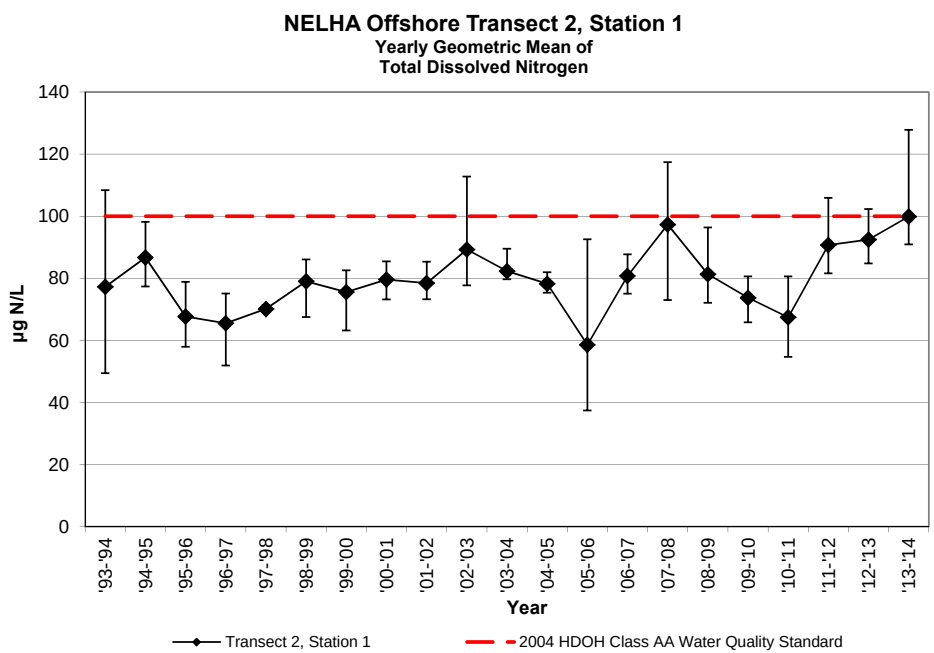
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TP		TOC	Turbidity	Salinity	Temp.	pH	DO	Chl a	Fecal Coliform	Enterococci
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg P/L)	(mgC/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)	Bact/100 ml	Bact/100 ml
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**				**0.10**					**0.30**		
T2-1m	7/26/11	1032	0.18	5.6	0.49	6.9	0.14	1.9	3.5	98	0.51	15.8	6.3	88				0.06	34.81	25.9	8.25	6.66	0.09		
T2-1m	10/18/11	957	0.02	0.7	0.29	4.0	0.29	4.1	3.1	88	0.31	9.5	6.4	89				0.09	35.06	26.6	8.22	6.93	0.12		
T2-1m	1/25/12	1023	0.10	3.0	0.39	5.4	0.17	2.4	4.3	121	0.45	14.0	7.6	106				0.08	34.98	24.7	8.20	6.96	0.10		
T2-1m	4/24/12	1049	0.15	4.6	0.81	11.4	0.24	3.3	4.0	113	0.42	13.0	5.8	82				0.07	35.09	24.7	8.21	6.86	0.10		
Geomean	**'11-'12**			**2.7**		***6.4***		***2.8***				***12.9***		**91**				**0.07**					**0.10**		
T2-1m	7/24/12	1010	0.02	0.6	0.36	5.0	0.27	3.8	2.3	64	0.39	12.2	6.8	95				0.12	35.07	26.3	8.23	6.83	0.12		
T2-1m	11/27/12	959	0.11	3.3	0.97	13.6	0.40	5.6	7.2	203	0.48	14.9	6.1	85				0.06	35.05	25.1	8.21	6.89	0.35		
T2-1m	1/23/13	1005	0.08	2.5	0.38	5.3	0.26	3.6	1.9	54	0.49	15.1	7.3	102				0.09	35.12	24.7	8.21	6.52	0.16		
T2-1m	4/16/13	1013	0.15	4.5	0.34	4.7	0.11	1.6	0.9	26	0.50	15.4	6.3	89				0.07	35.14	24.9	8.22	6.95	0.06		
Geomean	**'12-'13**			**2.2**		***6.4***		***3.3***				***14.3***		**92**				**0.08**					**0.14**		
T2-1m	8/1/13	928	0.07	2.2	0.36	5.1	0.09	1.3	3.8	106	0.51	15.8	9.1	128				0.06	35.22	26.1	8.24	6.95	0.19		
T2-1m	10/29/13	954	0.15	4.6	0.57	8.0	0.26	3.7	2.6	74	0.45	13.8	6.5	92				0.05	35.27	27.0	8.20	6.50	0.26		
T2-1m	2/4/14	959	0.11	3.4	0.39	5.4	0.45	6.3	5.8	162	0.42	12.9	6.5	91				0.02	34.94	25.2	8.22	6.53	0.20		
T2-1m	5/6/14	1000	0.13	4.1	0.56	7.8	0.74	10.3	2.9	83	0.46	14.4	6.7	94				0.06	34.77	25.9	8.22	6.29	0.16		
Geomean	**'13-'14**			**3.4**		***6.4***		**4.2**				***14.2***		**100**				**0.04**					**0.20**		

NELHA Water Quality Laboratory
Transect 2, Station 1
July 1993 - June 2014

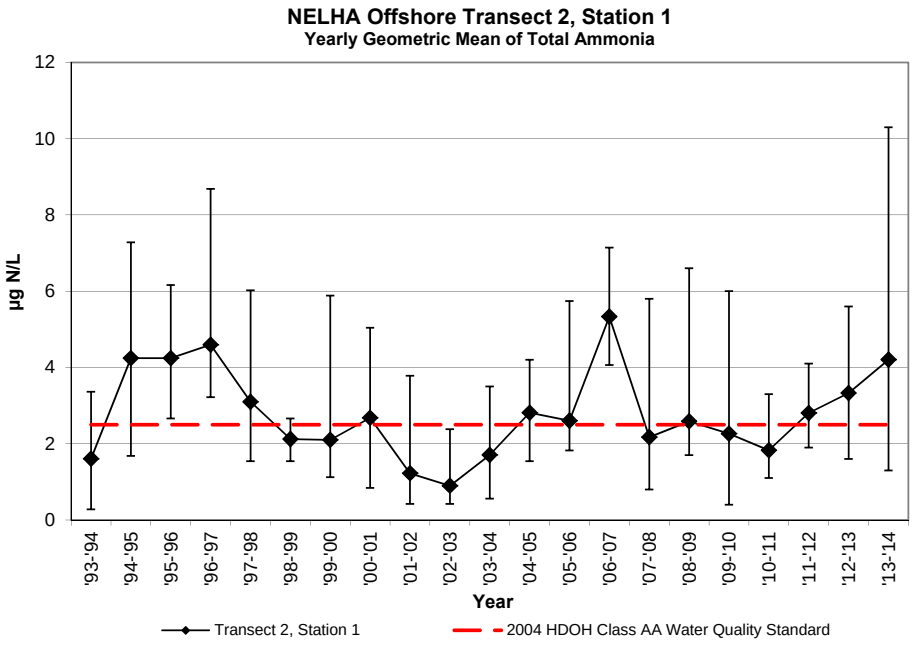


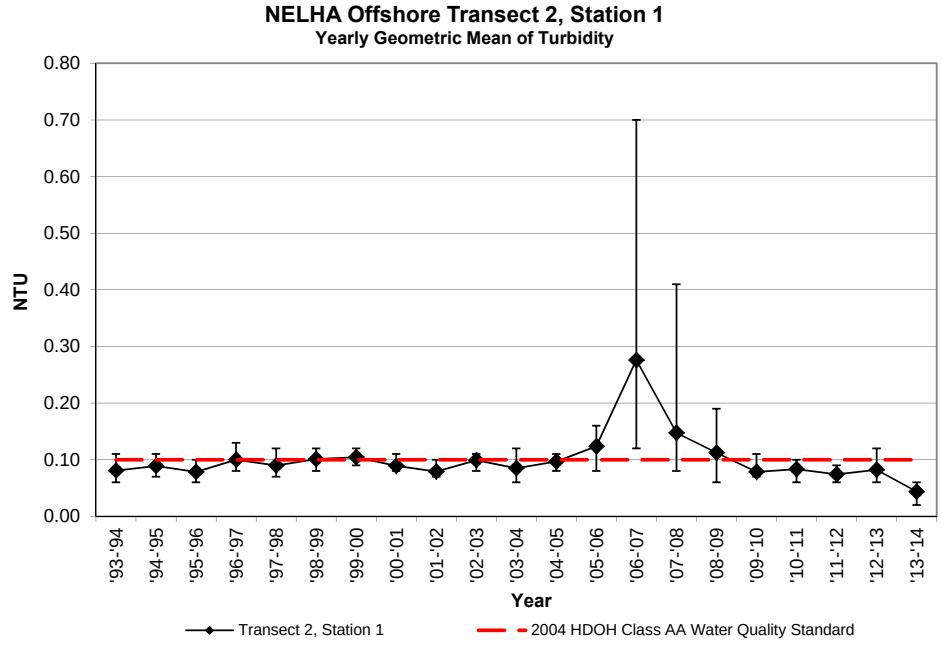


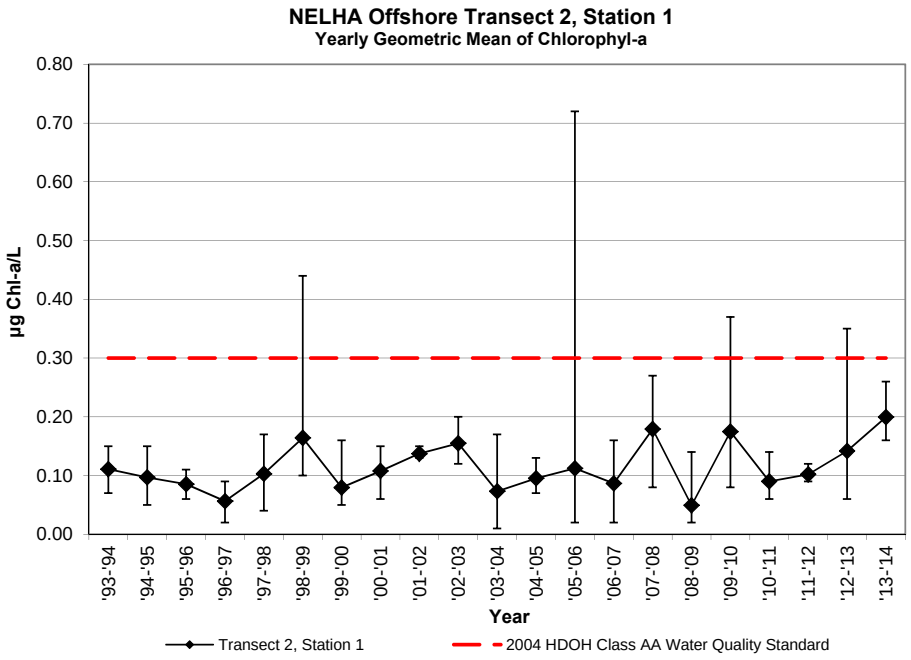




NELHA Water Quality Laboratory
Transect 2, Station 1
July 1993 - June 2014







NELHA Water Quality Laboratory

Transect 2, Station 2

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O2-2S-23m	7/27/93	1003	0.12	3.7	0.09	1.3	0.34	4.8	2.8	78					0.08	34.462	26.7			
O2-2S-23m	12/7/93	923	0.08	2.5	0.21	2.9	0.18	2.5	4.1	114					0.08	34.770	25.7			
O2-2S-23m	3/16/94	922	0.16	5.0	0.17	2.4	4.85	67.9	2.8	78					0.09	34.464	24.5			
O2-2S-23m	6/14/94	859	0.13	4.0	0.13	1.8	0.04	0.6	7.5	211					0.13	34.568	25.3			
Geomean	**'93-'94**			**3.7**		**2.0**		***4.6***							**0.09**					
O2-2S-23m	9/8/94	1024	0.10	3.1	0.29	4.1	0.22	3.1	3.7	104					0.14	34.573	27.6			
O2-2S-23m	11/16/94	818	0.18	5.6	0.63	8.8	0.50	7.0	6.3	176					0.07	34.449	26.0			
O2-2S-23m	3/21/95	1016	0.20	6.2	0.20	2.8	0.18	2.5	3.8	105					0.14	34.204	25.0			
O2-2S-23m	6/26/95	827	0.13	4.0	0.46	6.4	0.48	6.7	4.0	111					0.06	34.499	26.5			
Geomean	**'94-'95**			**4.6**		***5.0***		***4.4***							**0.10**					
O2-2S-23m	9/25/95	1025	0.14	4.3	0.28	3.9	0.24	3.4	5.0	139					0.13	34.484	27.2			
O2-2S-23m	11/13/95	1006	0.11	3.4	0.18	2.5	0.40	5.6	1.7	48					0.05	34.416	26.9			
O2-2S-23m	3/11/96	1055	0.13	4.0	0.22	3.1	0.43	6.0	2.3	66					0.07	34.264	25.5			
O2-2S-23m	5/13/96	1002	0.10	3.1	0.08	1.1	0.19	2.7	2.3	65					0.07	34.308	27.0			
Geomean	**'95-'96**			**3.7**		**2.4**		***4.2***							**0.08**					
O2-2S-23m	7/30/96	945	0.12	3.7	1.60	22.4	0.31	4.3	5.5	154					0.11	34.366	27.9			
O2-2S-23m	10/1/96	1032	0.08	2.5	0.14	2.0	0.59	8.3	2.1	59					0.08	34.742	27.9			
O2-2S-23m	1/6/97	1101	0.10	3.1	0.22	3.1	0.23	3.2	3.1	86					0.11	34.675	25.7			
O2-2S-23m	4/21/97	1045	0.10	3.1	0.75	10.5	0.25	3.5	4.1	114					0.10	34.529	26.4			
Geomean	**'96-'97**			**3.1**		***6.1***		***4.5***							**0.10**					
O2-2S-23m	8/18/97	1038	0.11	3.4	0.50	7.0	0.22	3.1	6.4	178					0.12	34.553	26.7			
O2-2S-23m	10/6/97	1102	0.09	2.8	0.21	2.9	0.38	5.3	5.0	140					0.09	34.719	27.5			
O2-2S-23m	3/3/98	1036	0.10	3.1	0.32	4.5	0.22	3.1	4.4	125					0.12	34.983	24.9			
O2-2S-23m	5/4/98	1006	0.12	3.7	0.63	8.8	0.07	1.0	6.9	194					0.07	34.929	23.8			
Geomean	**'97-'98**			**3.2**		***5.3***		***2.7***							**0.10**					
O2-2S-23m	7/6/98	1105	0.38	11.8	0.92	12.9	0.25	3.5	15.3	429					0.13	34.935	26.3			
O2-2S-23m	10/5/98	1042	0.11	3.4	0.43	6.0	0.19	2.7	3.4	95					0.09	35.055	27.3			
O2-2S-23m	1/13/99	1052	0.12	3.7	0.60	8.4	0.26	3.6	4.8	135					0.08	35.046	25.0			
O2-2S-23m	4/12/99	1032	0.13	4.0	0.26	3.6	0.08	1.1	4.1	115					0.07	34.663	24.1			
Geomean	**'98-'99**			**4.9**		***7.0***		**2.5**							**0.09**					
O2-2S-23m	7/6/99	1047	0.11	3.4	0.13	1.8	0.11	1.5	2.4	68					0.12	34.955	25.7			
O2-2S-23m	10/4/99	1128	0.12	3.7	0.28	3.9	0.13	1.8	7.7	216					0.09	34.905	26.1			
O2-2S-23m	1/4/00	1108	0.09	2.8	0.41	5.7	0.35	4.9	3.6	100					0.08	35.092	24.8			
O2-2S-23m	4/17/00	1056	0.12	3.7	0.21	2.9	0.11	1.5	3.4	94					0.04	34.650	24.3			
Geomean	**'99-'00**			**3.4**		**3.3**		**2.1**							**0.08**					
O2-2S-23m	7/24/00	1115	0.11	3.4	0.22	3.1	0.06	0.8	3.1	87					0.11	34.881	27.3			
O2-2S-23m	10/30/00	1133	0.13	4.0	0.23	3.2	0.34	4.8	4.0	113					0.08	34.953	27.0			
O2-2S-23m	2/26/01	1121	0.16	5.0	0.44	6.2	0.25	3.5	6.0	168					0.11	34.670	24.9			
O2-2S-23m	5/7/01	1126	0.14	4.3	0.60	8.4	0.31	4.3	4.2	117					0.08	34.822	24.7			
Geomean	**'00-'01**			**4.1**		***4.8***		***2.8***							**0.09**					
O2-2S-23m	8/21/01	1024	0.14	4.3	0.49	6.9	0.02	0.3	4.0	113					0.09	34.773	26.7			
O2-2S-23m	10/8/01	1044	0.14	4.3	0.21	2.9	0.06	0.8	2.4	68					0.13	34.949	27.3			
O2-2S-23m	3/5/02	956	0.14	4.3	0.26	3.6	0.04	0.6	7.2	202					0.12	34.694	24.2			
O2-2S-23m	4/17/02	1004	0.15	4.6	0.45	6.3	0.27	3.8	10.1	283					0.06	34.458	25.5			
Geomean	**'01-'02**			**4.4**		***4.6***		**0.8**							**0.10**					

NELHA Water Quality Laboratory

Transect 2, Station 2

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O2-2S-23m	7/8/02	1120	0.18	5.6	0.20	2.8	0.10	1.4	3.5	99					0.12	34.650	26.6			
O2-2S-23m	10/9/02	958	0.06	1.9	0.13	1.8	0.09	1.3	2.6	74					0.10	34.936	27.1			
O2-2S-23m	3/12/03	1115	0.12	3.7	0.31	4.3	0.03	0.4	3.8	106					0.11	34.785	25.1			
O2-2S-23m	4/22/03	1120	0.10	3.1	0.87	12.2	0.03	0.4	3.3	94					0.09	34.984	25.2			
Geomean	**'02-'03**			**3.3**		**4.1**		**0.7**							**0.10**					
O2-2S-23m	8/18/03	1245	0.07	2.2	0.25	3.5	0.25	3.5	2.4	68					0.06	34.825	28.2			
O2-2S-23m	10/29/03	1147	0.08	2.5	0.06	0.8	0.10	1.4	2.3	63					0.10	34.839	27.6			
O2-2S-23m	3/11/04	1020	0.12	3.7	0.07	1.0	0.04	0.6	2.4	67					n/a	34.357	25.8			
O2-2S-23m	5/20/04	1026	0.11	3.4	0.01	0.1	0.17	2.4	1.6	44					n/a	33.520	26.9			
Geomean	**'03-'04**			**2.9**		**0.8**		**1.6**							**0.08**					
O2-2S-23m	9/20/04	1004	0.09	2.8	0.07	1.0	0.23	3.2	2.1	58					0.08	33.710	27.8			
O2-2S-23m	11/17/04	934	0.07	2.2	0.18	2.5	0.20	2.8	1.5	43					0.05	33.570	27.1			
O2-2S-23m	1/13/05	1059	0.05	1.5	0.07	1.0	0.09	1.3	2.0	55					0.09	34.775	24.9			
O2-2S-23m	4/11/05	1101	0.18	5.6	0.56	7.8	0.30	4.2	3.2	89					0.15	34.471	25.3			
Geomean	**'04-'05**			**2.7**		**2.1**		***2.6***							**0.09**					
O2-2S-23m	7/20/05	1052	0.19	5.9	0.45	6.3	0.18	2.5	3.7	103					0.11	34.668	26.9			
O2-2S-23m	10/11/05	934	0.06	1.9	0.04	0.6	0.17	2.4	2.7	74					0.11	34.862	26.5			
O2-2S-23m	3/13/06	1041	0.11	3.4	0.36	5.0	0.21	2.9	3.1	86					0.09	34.803	24.6			
O2-2S-23m	5/15/06	1014	0.12	3.7	1.41	19.7	0.13	1.8	9.5	266					0.16	34.541	24.9			
Geomean	**'05-'06**			**3.4**		**4.3**		**2.4**							***0.11***					
O2-2S-23m	8/14/06	1008	0.13	4.0	0.32	4.5	0.22	3.1	2.8	78					0.13	34.595	26.7			
O2-2S-23m	11/1/06	1017	0.09	2.8	0.27	3.8	0.41	5.7	2.5	71					0.48	34.823	26.9			
O2-2S-23m	2/12/07	1039	0.13	4.0	0.19	2.7	0.34	4.8	2.4	67					0.29	34.549	24.5			
O2-2S-23m	4/9/07	1009	0.19	5.9	0.25	3.5	0.36	5.0	3.5	98					0.82	34.692	25.1			
Geomean	**'06-'07**			**4.0**		**3.5**		***4.5***							***0.35***					
T2-10m	9/26/07	954	0.17	5.2	0.24	3.3	0.27	3.8	2.7	76	0.28	8.7	4.1	58	0.10	34.967	26.8	8.17	6.21	0.13
T2-10m	12/13/07	1124	0.11	3.3	0.44	6.1			20.1	566	0.38	11.7	8.4	118	0.16	34.697	25.7	8.23	6.54	0.24
T2-10m	3/10/08	1014	0.19	6.0	0.29	4.0	0.06	0.8	14.4	405	0.45	13.8	7.8	109	0.12	34.901	24.9	8.20	6.62	0.32
T2-10m	6/5/08	1017	0.12	3.7	0.46	6.4	0.16	2.2	17.2	483	0.27	8.5	11.0	154	0.07	34.809	25.0	8.08	6.77	0.15
Geomean	**'07-'08**			**4.4**		***4.8***		**1.9**				**10.5**		***103***	***0.11***					**0.20**
T2-10m	9/22/08	1114	0.05	1.7	0.12	1.7	0.09	1.3	2.4	67.7	0.25	7.7	5.0	71	0.07	34.801	26.7	8.02	6.64	0.06
T2-10m	11/17/08	958	0.19	5.8	0.20	2.8	0.14	1.9	2.9	81.8	0.41	12.7	5.5	77	0.06	34.957	25.6	8.24	6.08	0.04
T2-10m	2/9/09	953	0.10	3.0	0.46	6.5	0.12	1.7	2.8	77.4	0.19	6.0	5.7	79	0.09	35.068	24.9	8.06	6.30	0.01
T2-10m	4/13/09	946	0.32	9.9	1.88	26.4	0.44	6.1	5.0	141.8	0.47	14.6	8.1	114	0.10	34.884	23.9	8.18	6.41	0.06
Geomean	**'08-'09**			**4.1**		***5.3***		**2.2**				**9.6**		**84**	**0.08**					**0.03**
T2-10m	9/9/09	953	0.87	27.1	0.41	5.7	0.28	3.9	6.0	168	0.47	14.7	6.8	95	0.07	35.16	27.0	8.21	5.58	0.26
T2-10m	11/23/09	1008	0.03	0.8	0.04	0.5	0.01	0.1	24.4	684	0.39	12.2	6.8	95	0.07	35.20	25.3	8.26	6.42	0.16
T2-10m	2/23/10	1016	0.18	5.5	0.26	3.7	0.44	6.2	15.4	434	0.41	12.6	7.5	105	0.13	35.06	24.6	8.19	6.39	0.22
T2-10m	5/25/10	1029	0.04	1.3	0.16	2.2	0.18	2.5	2.6	73.3	0.25	7.8	6.1	86	0.07	34.96	25.1	8.23	7.00	0.10
Geomean	**'09-'10**			**3.5**		**2.2**		**1.6**				**11.5**		**95**	**0.08**					**0.17**
T2-10m	8/10/10	1010	0.06	2.0	1.26	17.6	0.09	1.2	7.3	206	0.47	14.7	6.8	95	0.06	34.82	26.0	8.23	6.63	0.08
T2-10m	11/8/10	956	0.02	0.6	0.38	5.3	0.19	2.7	5.6	157	0.37	11.5	7.0	98	0.11	35.25	26.4	8.25	6.35	0.08
T2-10m	1/11/11	1013	0.15	4.6	0.25	3.5	0.15	2.1	5.1	144	0.42	12.9	3.6	51	0.06	34.96	25.0	8.24	6.66	0.15
T2-10m	4/26/11	1013	0.11	3.4	0.28	3.9	0.27	3.8	5.5	154	0.43	13.2	5.4	76	0.10	34.99	25.0	8.21	6.63	0.11
Geomean	**'10-'11**			**2.1**		***6.0***		**2.3**				***13.0***		**77**	**0.08**					**0.10**

NELHA Water Quality Laboratory

Transect 2, Station 2

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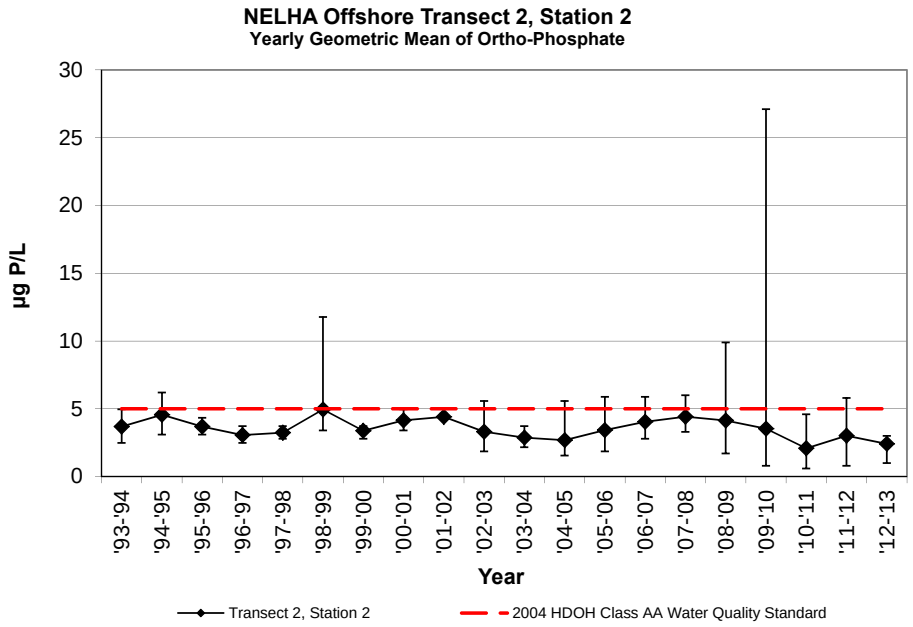
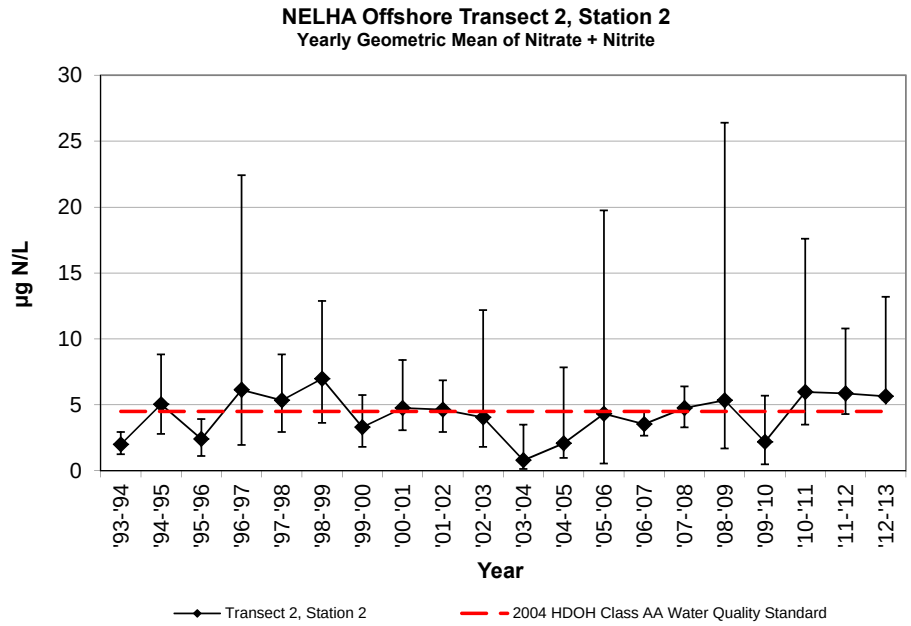
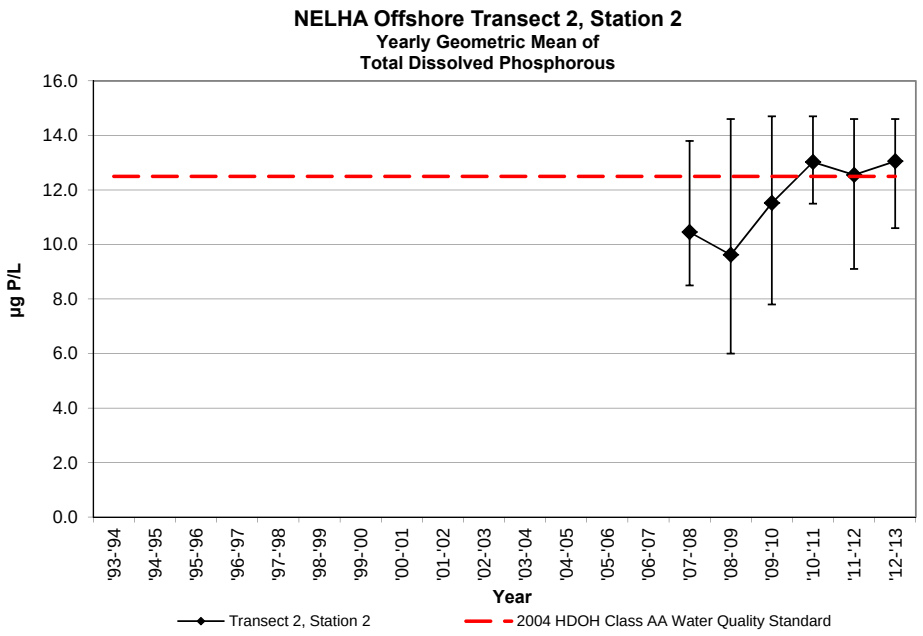
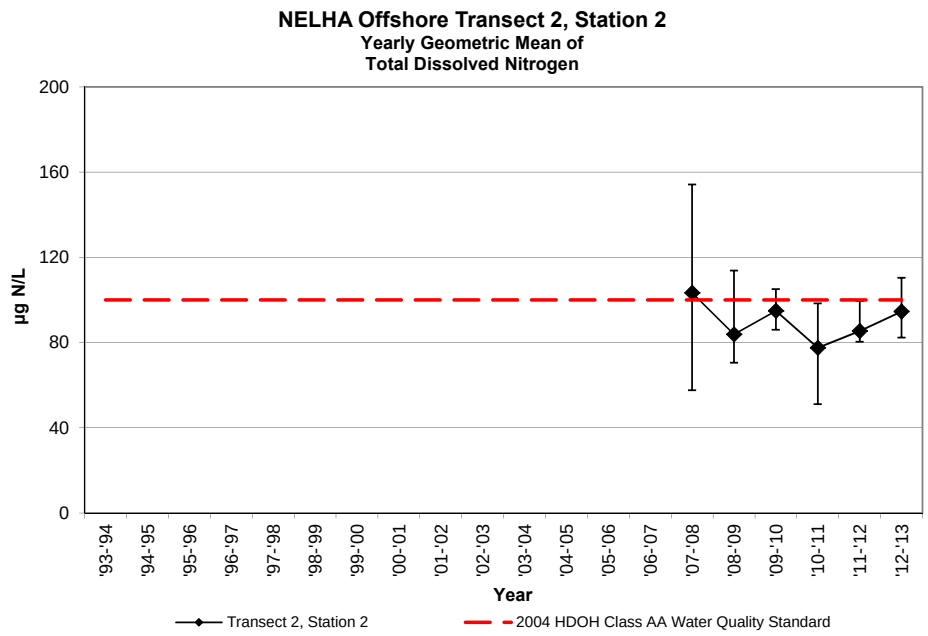
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
T2-10m	7/26/11	1037	0.19	5.8	0.34	4.8	0.14	1.9	1.5	41	0.47	14.6	5.7	80	0.08	34.81	25.9	8.26	6.77	0.11
T2-10m	10/18/11	1002	0.03	0.8	0.31	4.3	0.36	5.0	2.1	58	0.29	9.1	5.9	82	0.07	35.06	26.6	8.22	7.01	0.13
T2-10m	1/25/12	1027	0.11	3.3	0.38	5.3	0.19	2.6	3.4	96	0.41	12.8	7.1	100	0.07	34.98	24.7	8.20	6.95	0.08
T2-10m	4/24/12	1053	0.17	5.4	0.77	10.8	0.18	2.5	3.6	100	0.47	14.6	5.8	81	0.20	35.07	24.7	8.20	6.86	0.12
Geomean	**'11-'12**			**3.0**		***5.9***		***2.8***				***12.6***		**85**	**0.09**					**0.11**
T2-10m	7/24/12	1014	0.03	1.0	0.39	5.5	0.29	4.0	1.9	54	0.34	10.6	6.5	91	0.14	35.07	26.3	8.21	6.81	0.11
T2-10m	11/27/12	1002	0.10	3.0	0.94	13.2	0.29	4.0	6.7	188	0.47	14.6	7.9	110	0.04	35.07	25.1	8.21	6.91	0.25
T2-10m	1/23/13	1010	0.09	2.9	0.39	5.4	0.24	3.3	1.8	50	0.40	12.5	5.9	82	0.02	35.12	24.7	8.21	6.53	0.15
T2-10m	4/16/13	1018	0.13	3.9	0.19	2.6	0.09	1.3	0.3	9	0.48	15.0	6.9	97	0.05	35.15	25.0	8.22	6.90	0.04
Geomean	**'12-'13**			**2.4**		***5.7***		***2.9***				***13.1***		**95**	**0.05**					**0.11**
T2-10m	8/1/13	924	0.05	1.6	0.44	6.1	0.01	0.2	3.5	99	0.51	15.9	6.6	93	0.06	35.22	26.1	8.25	6.90	0.19
T2-10m	10/29/13	957	0.15	4.8	0.53	7.4	0.31	4.4	2.6	72	0.45	14.0	6.5	91	0.02	35.27	27.0	8.20	6.53	0.19
T2-10m	2/4/14	1002	0.13	3.9	0.38	5.3	0.65	9.1	2.5	70	0.39	12.2	7.1	100	0.02	34.94	25.2	8.21	6.37	0.18
T2-10m	5/6/14	1005	0.12	3.8	0.50	7.0	0.32	4.5	3.0	84	0.41	12.6	7.8	109	0.03	34.78	25.9	8.23	6.29	0.15
Geomean	**'13-'14**			**3.3**		***6.4***		**2.3**				***13.6***		**98**	**0.03**					**0.18**

NELHA Water Quality Laboratory
Transect 2, Station 2
July 1993 - June 2014

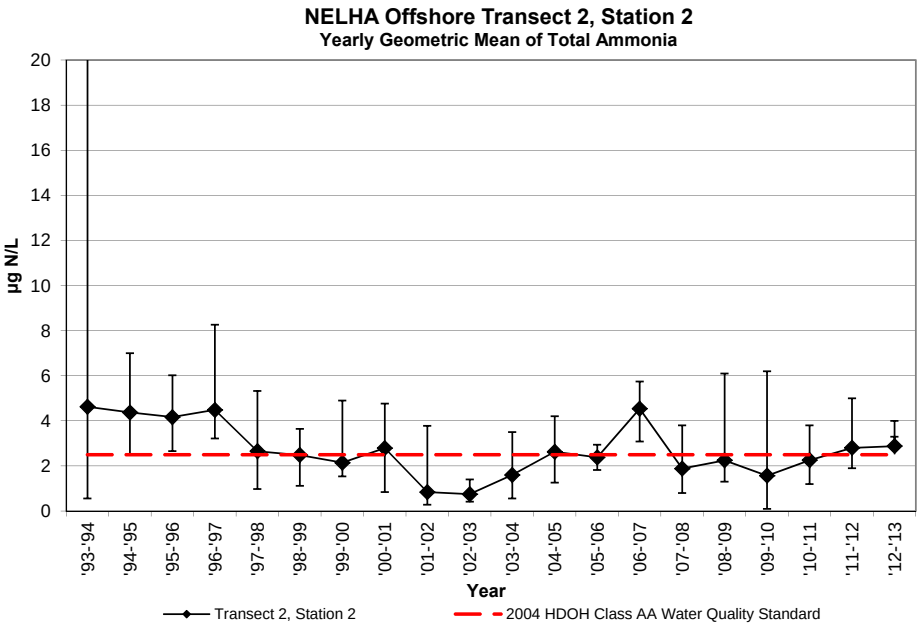


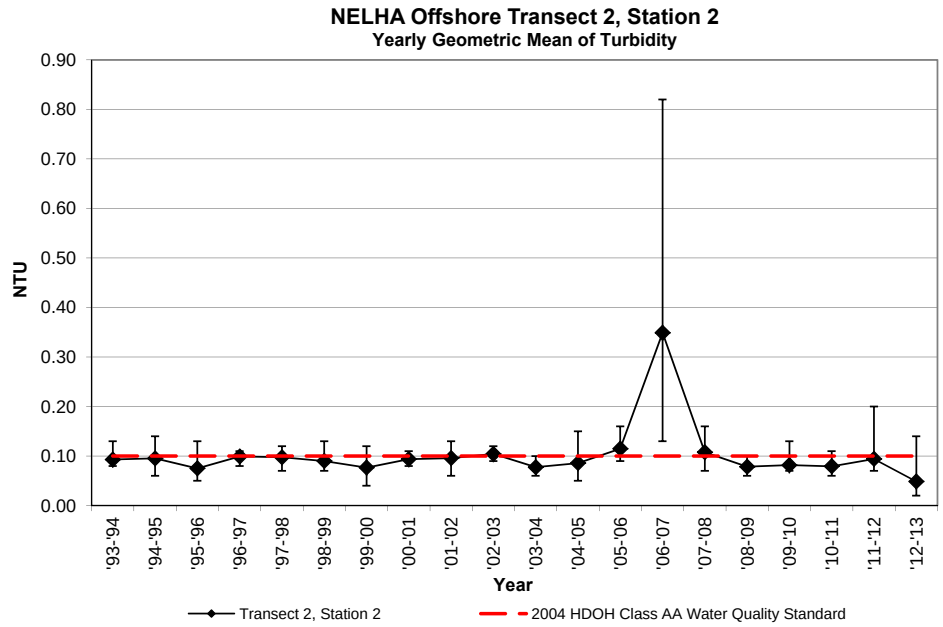


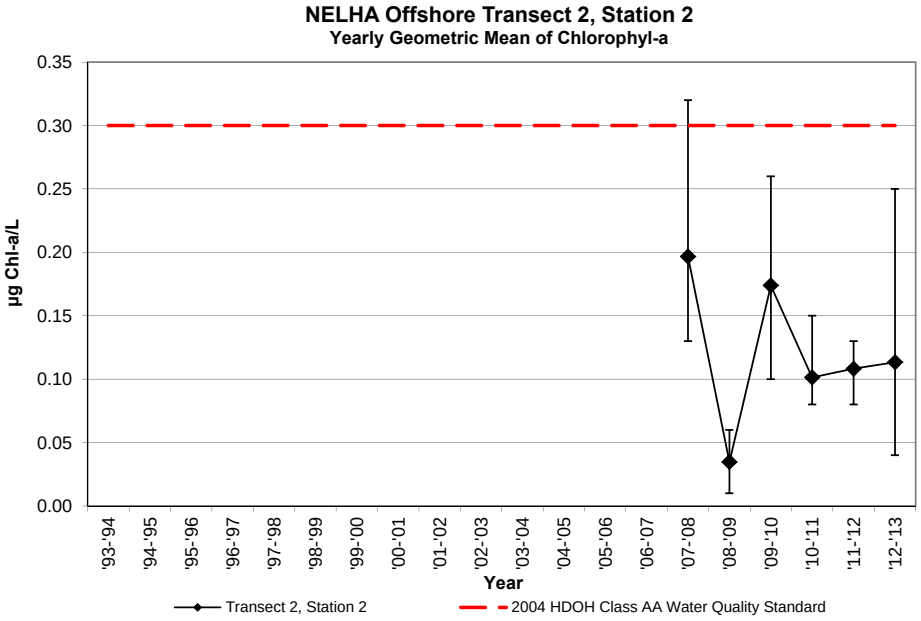




NELHA Water Quality Laboratory
Transect 2, Station 2
July 1993 - June 2014







NELHA Water Quality Laboratory
Transect 2, Station 3
July 1993 - June 2014

SITE ID	DATE M/D/Y	TIME (2400)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	Turbidity (NTU)	Salinity (PSU)	Temp. (˚C)	pH (unit)	DO (ppm)	Chl a (µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O2-3S-38m	7/27/93	954	0.07	2.2	0.05	0.7	0.24	3.4	2.4	66					0.08	34.471	26.6			
O2-3S-38m	12/7/93	916	0.10	3.1	0.20	2.8	0.20	2.8	3.6	102					0.06	34.774	25.6			
O2-3S-38m	3/16/94	915	0.16	5.0	0.29	4.1	0.17	2.4	5.5	154					0.10	34.442	24.6			
O2-3S-38m	6/14/94	854	0.12	3.7	0.15	2.1	0.08	1.1	2.7	75					0.11	34.541	25.3			
Geomean	**'93-'94**			**3.3**		**2.0**		**2.2**							**0.09**					
O2-3S-38m	9/8/94	1019	0.10	3.1	0.26	3.6	0.20	2.8	3.4	95					0.08	34.590	27.7			
O2-3S-38m	11/16/94	816	0.15	4.6	0.24	3.4	0.52	7.3	3.4	94					0.07	34.555	26.0			
O2-3S-38m	3/21/95	1014	0.20	6.2	0.17	2.4	0.18	2.5	3.4	95					0.10	34.210	25.4			
O2-3S-38m	6/26/95	825	0.12	3.7	0.45	6.3	0.49	6.9	4.9	137					0.07	34.514	26.5			
Geomean	**'94-'95**			**4.3**		**3.7**		***4.3***							**0.08**					
O2-3S-38m	9/25/95	1037	0.12	3.7	0.35	4.9	0.20	2.8	5.4	153					0.12	34.476	27.3			
O2-3S-38m	11/13/95	1001	0.11	3.4	0.18	2.5	0.40	5.6	2.1	60					0.07	34.391	26.8			
O2-3S-38m	3/11/96	1051	0.13	4.0	0.21	2.9	0.47	6.6	2.9	82					0.10	34.245	25.3			
O2-3S-38m	5/13/96	956	0.10	3.1	0.04	0.6	0.23	3.2	1.9	53					0.07	34.317	26.9			
Geomean	**'95-'96**			**3.5**		**2.1**		***4.3***							**0.09**					
O2-3S-38m	7/30/96	940	0.11	3.4	0.96	13.4	0.18	2.5	3.7	103					0.10	34.462	27.9			
O2-3S-38m	10/1/96	1028	0.07	2.2	0.13	1.8	0.59	8.3	2.0	56					0.08	34.722	27.9			
O2-3S-38m	1/6/97	1056	0.09	2.8	0.23	3.2	0.20	2.8	3.3	93					0.09	34.668	25.7			
O2-3S-38m	4/21/97	1040	0.10	3.1	0.79	11.1	0.22	3.1	2.7	77					0.09	34.530	26.4			
Geomean	**'96-'97**			**2.8**		***5.4***		***3.7***							**0.09**					
O2-3S-38m	8/18/97	1027	0.11	3.4	0.56	7.8	0.26	3.6	8.0	224					0.10	34.538	26.8			
O2-3S-38m	10/6/97	1058	0.10	3.1	0.18	2.5	0.33	4.6	4.0	111					0.09	34.724	27.5			
O2-3S-38m	3/3/98	1032	0.09	2.8	0.27	3.8	0.20	2.8	3.3	92					0.08	34.989	24.9			
O2-3S-38m	5/4/98	1001	0.11	3.4	0.70	9.8	0.11	1.5	7.2	202					0.07	34.914	23.8			
Geomean	**'97-'98**			**3.2**		***5.2***		***2.9***							**0.08**					
O2-3S-38m	7/6/98	1100	0.13	4.0	0.75	10.5	0.07	1.0	9.3	260					0.10	34.937	26.3			
O2-3S-38m	10/5/98	1037	0.09	2.8	0.16	2.2	0.16	2.2	3.5	98					0.08	35.102	27.3			
O2-3S-38m	1/13/99	1047	0.11	3.4	0.41	5.7	0.10	1.4	3.3	94					0.07	35.080	24.9			
O2-3S-38m	4/12/99	1027	0.13	4.0	0.25	3.5	0.06	0.8	4.2	119					0.08	34.665	24.1			
Geomean	**'98-'99**			**3.5**		***4.7***		**1.3**							**0.08**					
O2-3S-38m	7/6/99	1040	0.11	3.4	0.10	1.4	0.09	1.3	2.5	70					0.09	34.945	25.7			
O2-3S-38m	10/4/99	1122	0.12	3.7	0.30	4.2	0.10	1.4	6.1	172					0.09	34.915	26.0			
O2-3S-38m	1/4/00	1103	0.11	3.4	0.32	4.5	0.35	4.9	3.5	97					0.10	35.094	24.8			
O2-3S-38m	4/17/00	1052	0.12	3.7	0.36	5.0	0.15	2.1	7.2	202					0.06	34.618	24.3			
Geomean	**'99-'00**			**3.6**		**3.4**		**2.1**							**0.08**					
O2-3S-38m	7/24/00	1110	0.11	3.4	0.25	3.5	0.03	0.4	2.8	78					0.08	34.879	27.3			
O2-3S-38m	10/30/00	1127	0.12	3.7	0.03	0.4	0.31	4.3	4.5	127					0.08	34.997	27.0			
O2-3S-38m	2/26/01	1116	0.16	5.0	0.28	3.9	0.20	2.8	5.0	140					0.14	34.707	24.9			
O2-3S-38m	5/7/01	1122	0.14	4.3	0.46	6.4	0.33	4.6	3.8	107					0.06	34.833	24.6			
Geomean	**'00-'01**			**4.1**		**2.5**		**2.2**							**0.09**					
O2-3S-38m	8/21/01	1020	0.14	4.3	0.29	4.1	0.03	0.4	2.5	69					0.08	34.792	26.6			
O2-3S-38m	10/8/01	1039	0.14	4.3	0.16	2.2	0.05	0.7	2.7	75					0.08	34.960	27.3			
O2-3S-38m	3/5/02	953	0.15	4.6	0.20	2.8	0.03	0.4	4.2	119					0.10	34.683	24.2			
O2-3S-38m	4/17/02	1000	0.16	5.0	0.29	4.1	0.26	3.6	4.3	122					0.10	34.466	25.5			
Geomean	**'01-'02**			**4.6**		**3.2**		**0.8**							**0.09**					

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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O2-3S-38m	7/8/02	1117	0.18	5.6	0.17	2.4	0.11	1.5	3.6	100					0.08	34.660	26.5			
O2-3S-38m	10/9/02	952	0.05	1.5	0.20	2.8	0.13	1.8	2.7	76					0.09	34.931	27.0			
O2-3S-38m	3/12/03	1112	0.12	3.7	0.27	3.8	0.03	0.4	10.6	298					0.21	34.805	25.1			
O2-3S-38m	4/22/03	1116	0.10	3.1	0.42	5.9	0.04	0.6	2.6	73					0.13	35.026	25.2			
Geomean	**'02-'03**			**3.2**		**3.5**		**0.9**							***0.12***					
O2-3S-38m	8/18/03	1238	0.08	2.5	0.08	1.1	0.20	2.8	2.3	64					0.04	34.839	28.2			
O2-3S-38m	10/29/03	1128	0.06	1.9	0.06	0.8	0.10	1.4	2.2	63					0.09	34.862	27.6			
O2-3S-38m	3/11/04	1014	0.13	4.0	0.04	0.6	0.04	0.6	1.7	46					n/a	34.361	25.7			
O2-3S-38m	5/20/04	1032	0.11	3.4	0.01	0.1	0.21	2.9	1.6	46					n/a	33.36	27.0			
Geomean	**'03-'04**			**2.8**		**0.5**		**1.6**							**0.06**					
O2-3S-38m	9/20/04	957	0.10	3.1	0.11	1.5	0.23	3.2	2.2	61					0.08	33.74	27.8			
O2-3S-38m	11/17/04	930	0.10	3.1	0.19	2.7	0.23	3.2	1.8	51					0.09	33.52	27.4			
O2-3S-38m	1/13/05	1052	0.06	1.9	0.17	2.4	0.06	0.8	2.5	70					0.09	34.838	24.9			
O2-3S-38m	4/11/05	1053	0.14	4.3	0.38	5.3	0.29	4.1	2.9	83					0.07	34.511	25.3			
Geomean	**'04-'05**			**3.0**		**2.7**		**2.4**							**0.08**					
O2-3S-38m	7/20/05	1049	0.05	1.5	0.01	0.1	0.13	1.8	1.4	40					0.07	34.747	26.8			
O2-3S-38m	10/11/05	926	0.06	1.9	0.01	0.1	0.19	2.7	4.5	126					0.13	34.900	26.5			
O2-3S-38m	3/13/06	1035	0.10	3.1	0.23	3.2	0.29	4.1	5.6	158					0.10	34.814	24.6			
O2-3S-38m	5/15/06	1007	0.10	3.1	1.54	21.6	0.17	2.4	13.4	376					0.13	34.389	24.9			
Geomean	**'05-'06**			**2.3**		**1.1**		***2.6***							**0.10**					
O2-3S-38m	8/14/06	1003	0.13	4.0	0.36	5.0	0.20	2.8	3.2	89					0.13	34.602	26.6			
O2-3S-38m	11/1/06	1011	0.09	2.8	0.24	3.4	0.37	5.2	2.4	69					0.30	34.806	26.8			
O2-3S-38m	2/12/07	1034	0.13	4.0	0.25	3.5	0.40	5.6	2.9	82					0.12	34.543	24.5			
O2-3S-38m	4/9/07	1003	0.10	3.1	0.18	2.5	0.26	3.6	3.7	104					0.17	34.685	25.1			
Geomean	**'06-'07**			**3.4**		**3.5**		***4.1***							***0.17***					
T2-50m	9/26/07	1002	0.17	5.3	0.29	4.0	0.11	1.6	5.0	141	0.09	2.8	5.45	76	0.04	34.945	26.8	8.16	6.23	0.09
T2-50m	12/13/07	1126	0.10	3.2	0.31	4.3			16.3	456	0.38	11.8	6.15	86	0.14	34.707	25.7	8.23	6.45	0.25
T2-50m	3/10/08	1017	0.20	6.1	0.41	5.7	0.06	0.8	4.1	115	0.41	12.7	7.08	99	0.25	34.870	25.0	8.19	6.54	0.26
T2-50m	6/5/08	1020	0.12	3.8	0.26	3.6	0.16	2.2	21.2	595	0.20	6.1	8.82	124	0.06	34.798	25.2	8.06	6.44	0.19
Geomean	**'07-'08**			**4.5**		**4.3**		**1.4**				**7.1**		**95**	**0.10**					**0.18**
T2-50m	9/22/08	1120	0.05	1.5	0.04	0.6	0.04	0.6	1.8	50	0.27	8.5	4.85	68	0.09	34.812	26.7	8.03	6.60	0.09
T2-50m	11/17/08	1000	0.16	5.0	0.16	2.2	0.16	2.2	2.4	66	0.39	12.0	5.83	82	0.06	34.962	25.7	8.25	6.05	0.06
T2-50m	2/9/09	1002	0.06	2.0	0.10	1.4	0.10	1.4	1.2	33	0.14	4.3	5.53	77	0.07	35.116	24.9	8.06	5.99	0.01
T2-50m	4/13/09	951	0.26	7.9	0.49	6.9	0.49	6.9	3.5	98	0.47	14.5	6.98	98	0.10	34.955	24.0	8.18	6.15	0.02
Geomean	**'08-'09**			**3.3**		**1.9**		**1.9**				**8.9**		**81**	**0.08**					**0.03**
T2-50m	9/9/09	1000	0.19	5.8	0.29	4.0	0.38	5.3	8.3	233	0.43	13.3	8.45	118	0.05	35.22	27.0	8.21	5.76	0.15
T2-50m	11/23/09	1014	0.03	0.8	0.15	2.1	0.01	0.2	15.7	441	0.40	12.4	5.84	82	0.08	35.21	25.4	8.25	6.33	0.13
T2-50m	2/23/10	1020	0.16	5.1	0.28	3.9	0.45	6.3	14.7	414	0.43	13.4	6.64	93	0.13	35.06	24.6	8.18	6.22	0.28
T2-50m	5/25/10	1035	0.04	1.1	0.06	0.8	0.05	0.7	3.1	87	0.35	10.8	6.05	85	0.06	35.00	24.9	8.22	6.84	0.10
Geomean	**'09-'10**			**2.3**		**2.3**		**1.5**				**12.4**		**93**	**0.07**					**0.15**
T2-50m	8/10/10	1015	0.00	0.1	0.51	7.1	0.05	0.7	2.2	61	0.43	13.3	8.5	118	0.06	34.87	26.1	8.23	6.44	0.08
T2-50m	11/8/10	1002	0.02	0.7	0.39	5.5	0.21	3.0	4.1	116	0.32	9.8	6.4	90	0.09	35.26	26.4	8.25	6.28	0.09
T2-50m	1/11/11	1017	0.14	4.3	0.30	4.2	0.07	1.0	12.4	348	0.51	15.7	4.5	64	0.05	34.92	24.9	8.23	6.44	0.16
T2-50m	4/26/11	1019	0.12	3.7	0.53	7.4	0.16	2.2	18.4	517	0.42	13.0	4.6	64	0.09	34.98	25.0	8.21	6.43	0.14
Geomean	**'10-'11**			**1.0**		***5.9***		**1.5**				***12.8***		**81**	**0.07**					**0.11**

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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
T2-50m	7/26/11	1044	0.19	6.0	0.42	5.9	0.15	2.1	3.0	84	0.48	15.0	6.2	87	0.04	34.79	26.0	8.26	6.68	0.09
T2-50m	10/18/11	1007	0.04	1.3	0.25	3.5	0.26	3.7	2.3	66	0.32	9.9	4.9	68	0.05	35.05	26.6	8.21	6.79	0.10
T2-50m	1/25/12	1031	0.06	2.0	0.02	0.3	0.02	0.3	1.4	41	0.37	11.6	5.1	71	0.07	35.03	24.7	8.20	6.73	0.13
T2-50m	4/24/12	1057	0.15	4.5	0.42	5.9	0.15	2.1	3.0	84	0.45	13.8	5.2	73	0.07	35.10	24.8	8.22	6.70	0.16
Geomean	**'11-'12**			**2.9**		**2.5**		**1.5**				**12.4**		**74**	**0.06**					**0.12**
T2-50m	7/24/12	1020	0.02	0.6	0.26	3.6	0.16	2.2	2.0	57	0.41	12.6	5.5	77	0.09	35.06	26.3	8.23	6.64	0.14
T2-50m	11/27/12	1006	0.10	3.1	1.01	14.2	0.25	3.5	7.4	207	0.41	12.6	6.2	87	0.03	35.00	25.0	8.21	6.90	0.11
T2-50m	1/23/13	1014	0.10	3.0	0.39	5.4	0.25	3.5	1.9	54	0.49	15.1	7.4	104	0.05	35.11	24.6	8.22	6.46	0.14
T2-50m	4/16/13	1022	0.14	4.2	0.19	2.6	0.18	2.5	0.4	11	0.47	14.5	5.8	81	0.03	35.10	24.9	8.23	6.90	0.05
Geomean	**'12-'13**			**2.2**		***5.2***		***2.9***				***13.7***		**87**	**0.04**					**0.10**
T2-50m	8/1/13	928	0.02	0.5	0.07	1.0	0.01	0.1	4.0	114	0.46	14.2	6.9	97	0.20	35.23	26.2	8.25	6.69	0.14
T2-50m	10/29/13	1001	0.15	4.5	0.39	5.4	0.27	3.8	2.8	78	0.50	15.4	6.8	95	0.03	35.29	27.0	8.23	6.44	0.20
T2-50m	2/4/14	1007	0.11	3.4	0.40	5.6	0.50	7.0	2.5	69	0.40	12.3	6.8	95	0.02	34.95	25.2	8.21	6.42	0.09
T2-50m	5/6/14	1010	0.08	2.5	0.11	1.6	0.18	2.5	2.4	68	0.45	13.8	7.4	103	0.02	34.80	26.0	8.21	6.09	0.06
Geomean	**'13-'14**			**2.1**		**2.6**		***1.6***				***13.9***		**97**	**0.04**					**0.11**

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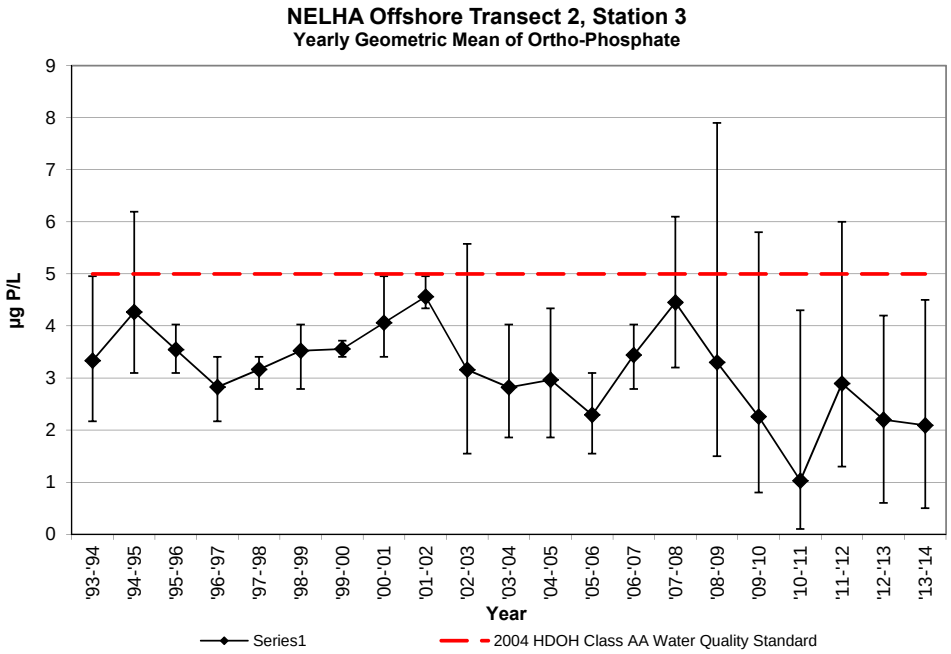
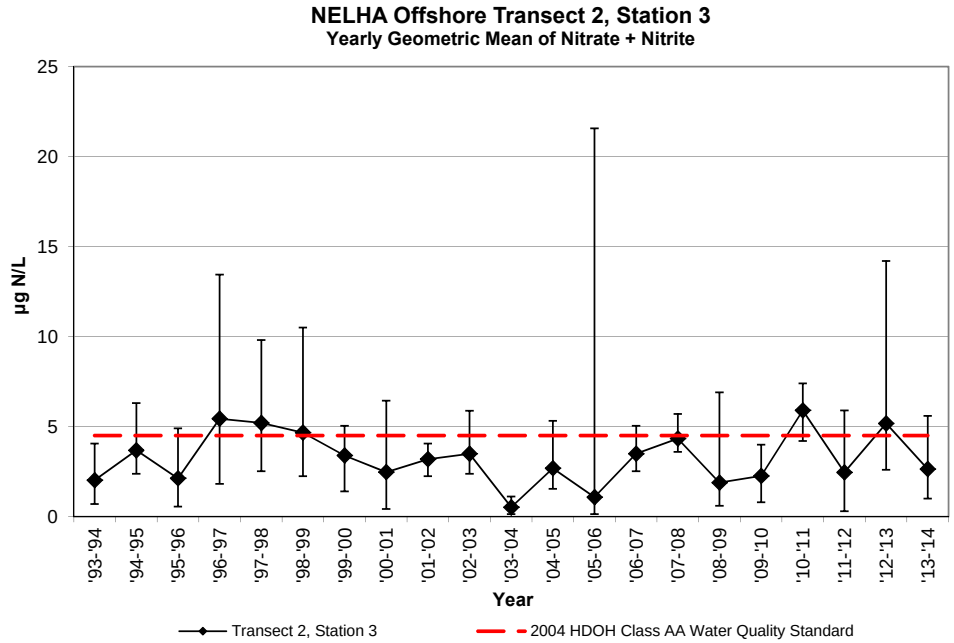
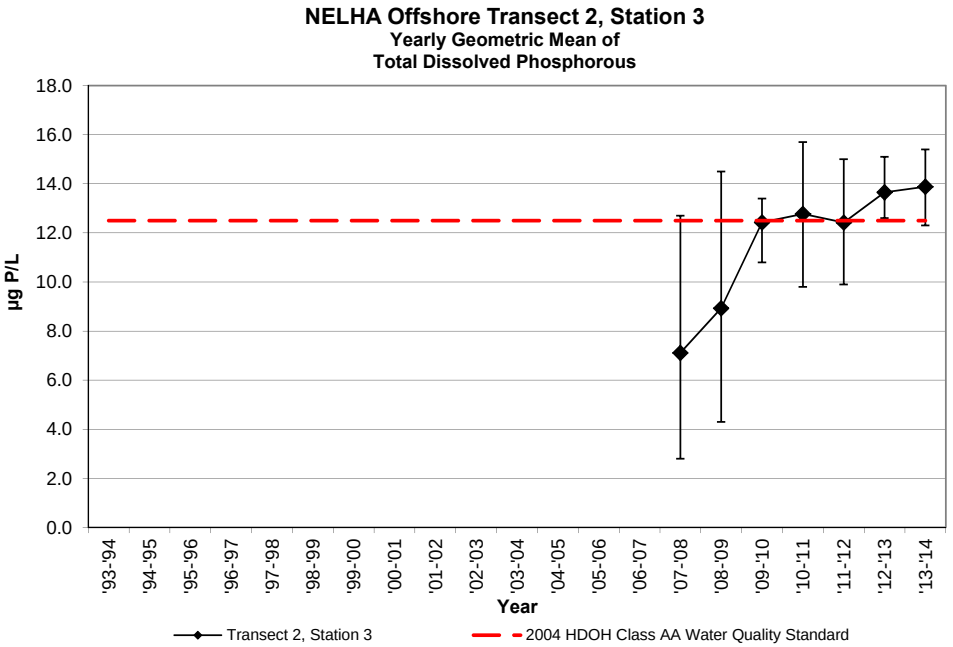
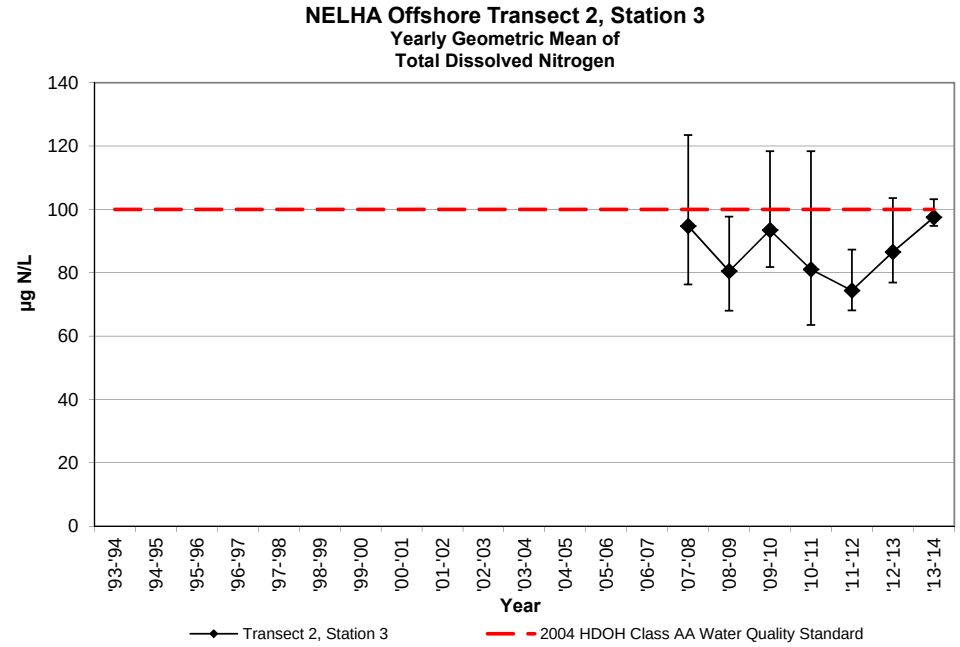
July 1993 - June 2014









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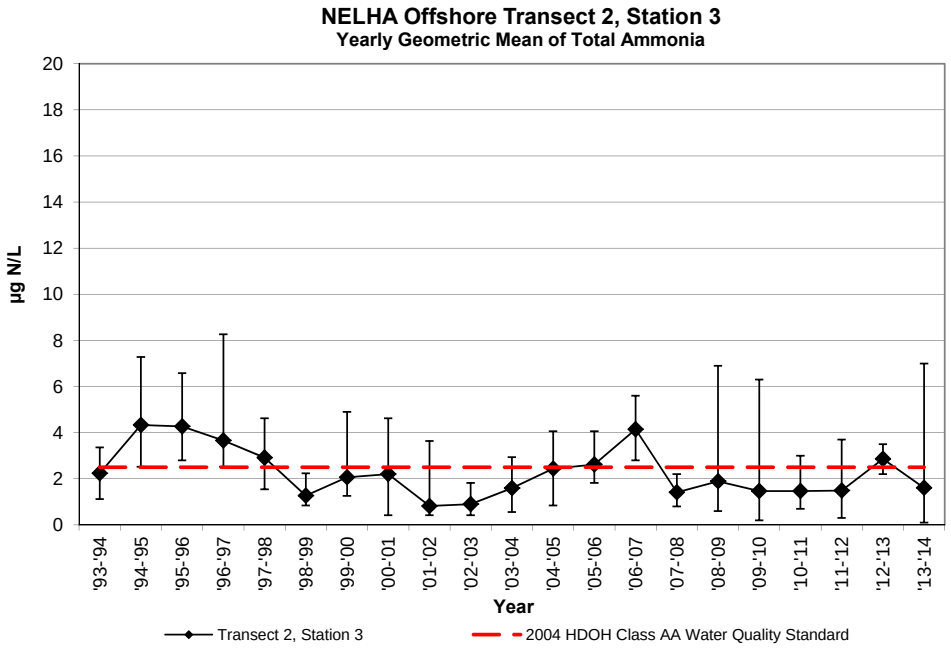

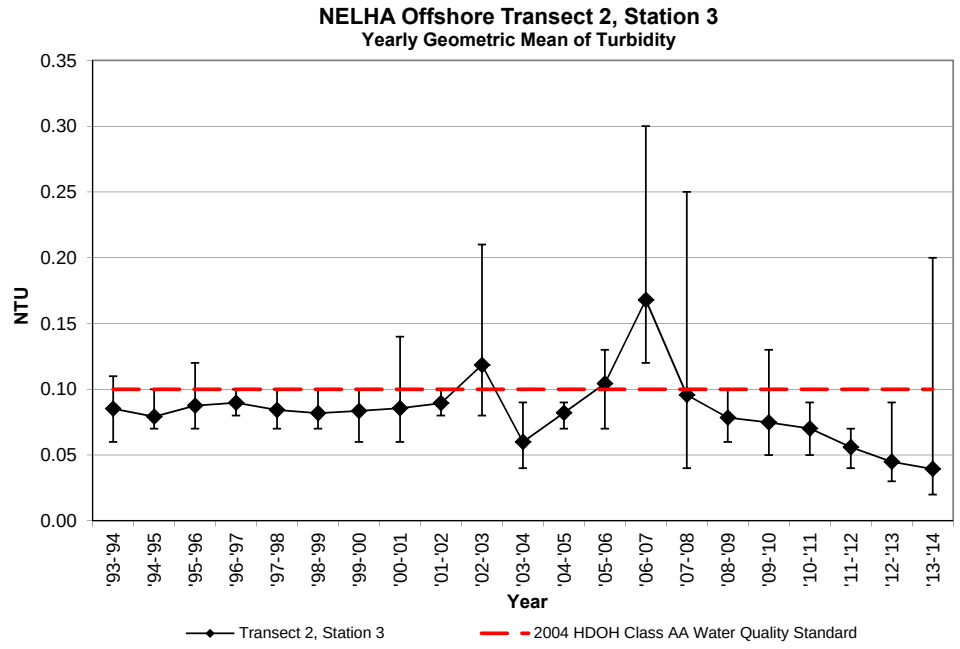

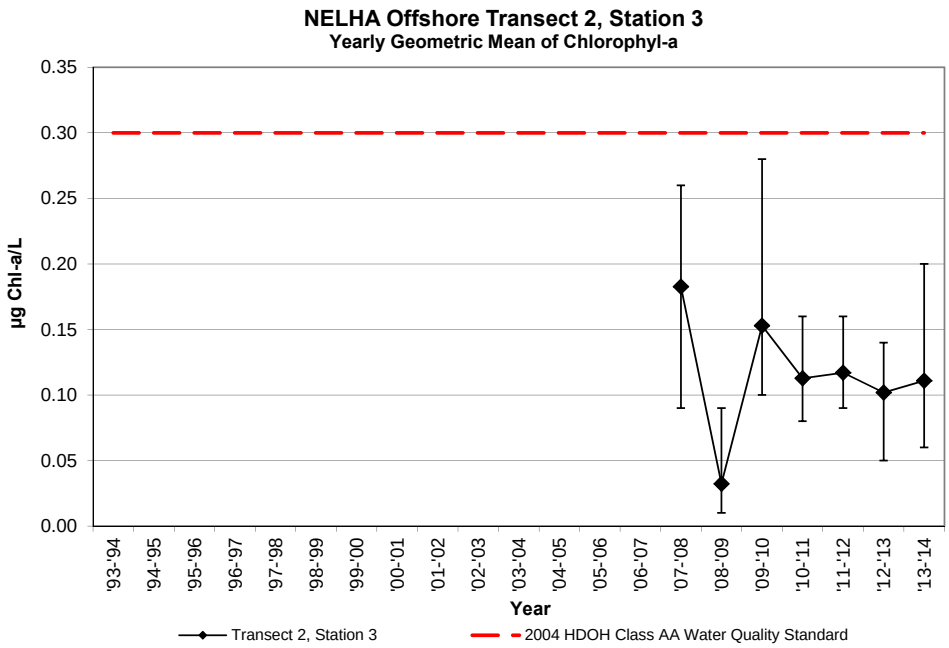

NELHA Water Quality Laboratory
Transect 2, Station 4
July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O2-4S-53m	7/27/93	942	0.11	3.4	0.06	0.8	0.21	2.9	4.4	123					0.10	34.422	26.7			
O2-4S-53m	12/7/93	908	0.09	2.8	0.21	2.9	0.22	3.1	3.6	102					0.08	34.787	25.6			
O2-4S-53m	3/16/94	907	0.17	5.3	0.24	3.4	0.18	2.5	4.7	131					0.08	34.469	24.6			
O2-4S-53m	6/14/94	849	0.12	3.7	0.10	1.4	0.01	0.1	2.7	76					0.10	34.545	25.2			
Geomean	**'93-'94**			**3.7**		**1.8**		**1.3**							**0.09**					
O2-4S-53m	9/8/94	1016	0.09	2.8	0.18	2.5	0.20	2.8	2.8	79					0.08	34.616	27.6			
O2-4S-53m	11/16/94	813	0.14	4.3	0.14	2.0	0.51	7.1	2.6	74					0.07	34.592	26.0			
O2-4S-53m	3/21/95	959	0.19	5.9	0.16	2.2	0.20	2.8	3.2	89					0.10	34.216	25.1			
O2-4S-53m	6/26/95	817	0.11	3.4	0.17	2.4	0.42	5.9	2.1	58					0.06	34.558	26.5			
Geomean	**'94-'95**			**3.9**		**2.3**		***4.3***							**0.08**					
O2-4S-53m	9/25/95	1053	0.10	3.1	0.11	1.5	0.10	1.4	7.0	198					0.09	34.537	27.3			
O2-4S-53m	11/13/95	954	0.11	3.4	0.18	2.5	0.43	6.0	1.6	44					0.07	34.391	26.8			
O2-4S-53m	3/11/96	1045	0.11	3.4	0.21	2.9	0.43	6.0	2.2	62					0.11	34.244	25.3			
O2-4S-53m	5/13/96	950	0.10	3.1	0.02	0.3	0.23	3.2	1.8	50					0.06	34.315	26.8			
Geomean	**'95-'96**			**3.2**		**1.3**		***3.6***							**0.08**					
O2-4S-53m	7/30/96	935	0.11	3.4	1.02	14.3	0.18	2.5	3.7	104					0.08	34.473	27.9			
O2-4S-53m	10/1/96	1024	0.08	2.5	0.14	2.0	0.59	8.3	2.0	56					0.09	34.738	27.8			
O2-4S-53m	1/6/97	1051	0.09	2.8	0.23	3.2	0.24	3.4	3.6	100					0.08	34.664	25.7			
O2-4S-53m	4/21/97	1032	0.12	3.7	0.76	10.6	0.25	3.5	2.8	78					0.09	34.529	26.4			
Geomean	**'96-'97**			**3.1**		***5.6***		***4.0***							**0.08**					
O2-4S-53m	8/18/97	1023	0.12	3.7	0.65	9.1	0.23	3.2	7.3	206					0.10	34.507	26.8			
O2-4S-53m	10/6/97	1053	0.09	2.8	0.08	1.1	0.32	4.5	14.6	410					0.11	34.729	27.5			
O2-4S-53m	3/3/98	1026	0.07	2.2	0.14	2.0	0.19	2.7	3.2	91					0.07	35.007	24.9			
O2-4S-53m	5/4/98	956	0.12	3.7	0.69	9.7	0.13	1.8	7.3	206					0.08	34.917	23.8			
Geomean	**'97-'98**			**3.0**		**3.7**		***2.9***							**0.09**					
O2-4S-53m	7/6/98	1054	0.12	3.7	0.59	8.3	0.07	1.0	5.6	158					0.09	34.943	26.3			
O2-4S-53m	10/5/98	1032	0.08	2.5	0.08	1.1	0.11	1.5	1.4	40					0.08	35.123	27.3			
O2-4S-53m	1/13/99	1042	0.11	3.4	0.56	7.8	0.10	1.4	4.5	126					0.07	35.043	25.0			
O2-4S-53m	4/12/99	1021	0.13	4.0	0.27	3.8	0.08	1.1	4.1	116					0.08	34.686	24.1			
Geomean	**'98-'99**			**3.4**		**4.1**		**1.2**							**0.08**					
O2-4S-53m	7/6/99	1035	0.09	2.8	0.13	1.8	0.11	1.5	3.8	106					0.09	34.950	25.7			
O2-4S-53m	10/4/99	1115	0.12	3.7	0.34	4.8	0.14	2.0	5.1	142					0.08	34.911	26.1			
O2-4S-53m	1/4/00	1059	0.10	3.1	0.32	4.5	0.35	4.9	3.5	98					0.07	35.092	24.8			
O2-4S-53m	4/17/00	1047	0.13	4.0	0.36	5.0	0.15	2.1	3.7	103					0.06	34.611	24.3			
Geomean	**'99-'00**			**3.4**		**3.7**		**2.4**							**0.07**					
O2-4S-53m	7/24/00	1106	0.11	3.4	0.29	4.1	0.09	1.3	3.7	103					0.06	34.881	27.2			
O2-4S-53m	10/30/00	1121	0.13	4.0	0.04	0.6	0.31	4.3	3.8	106					0.06	34.950	27.1			
O2-4S-53m	2/26/01	1111	0.16	5.0	0.37	5.2	0.19	2.7	5.0	140					0.12	34.711	24.9			
O2-4S-53m	5/7/01	1119	0.12	3.7	0.37	5.2	0.33	4.6	3.6	100					0.13	34.845	24.6			
Geomean	**'00-'01**			**4.0**		**2.8**		***2.9***							**0.09**					
O2-4S-53m	8/21/01	1015	0.09	2.8	0.10	1.4	0.02	0.3	2.0	57					0.06	34.807	26.6			
O2-4S-53m	10/8/01	1035	0.13	4.0	0.08	1.1	0.06	0.8	2.3	65					0.06	34.948	27.3			
O2-4S-53m	3/5/02	949	0.15	4.6	0.33	4.6	0.03	0.4	4.8	135					0.13	34.680	24.1			
O2-4S-53m	4/17/02	955	0.16	5.0	0.32	4.5	0.23	3.2	18.9	530					0.08	34.463	25.4			
Geomean	**'01-'02**			**4.0**		**2.4**		**0.8**							**0.08**					

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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O2-4S-53m	7/8/02	1113	0.18	5.6	0.24	3.4	0.15	2.1	3.5	99					0.12	34.643	26.6			
O2-4S-53m	10/9/02	946	0.06	1.9	0.16	2.2	0.12	1.7	2.5	69					0.07	34.944	27.0			
O2-4S-53m	3/12/03	1108	0.10	3.1	0.13	1.8	0.03	0.4	3.5	99					0.07	34.786	25.2			
O2-4S-53m	4/22/03	1110	0.08	2.5	0.28	3.9	0.04	0.6	2.7	77					0.06	35.013	25.1			
Geomean	**'02-'03**			**3.0**		**2.7**		**1.0**							**0.08**					
O2-4S-53m	8/18/03	1230	0.06	1.9	0.08	1.1	0.20	2.8	2.5	70					0.04	34.824	28.2			
O2-4S-53m	10/29/03	1120	0.03	0.9	0.03	0.4	0.10	1.4	2.3	65					0.09	34.839	27.6			
O2-4S-53m	3/11/04	1007	0.12	3.7	0.01	0.1	0.04	0.6	1.7	47					n/a	34.353	25.7			
O2-4S-53m	5/20/04	1037	0.11	3.4	0.01	0.1	0.19	2.7	1.4	38					n/a	33.47	27.0			
Geomean	**'03-'04**			**2.2**		**0.3**		**1.6**							**0.06**					
O2-4S-53m	9/20/04	952	0.09	2.8	0.05	0.7	0.22	3.1	1.9	52					0.09	33.77	27.8			
O2-4S-53m	11/17/04	925	0.10	3.1	0.13	1.8	0.27	3.8	2.1	58					0.07	33.58	26.7			
O2-4S-53m	1/13/05	1047	0.07	2.2	0.19	2.7	0.06	0.8	3.0	85					0.08	34.849	24.8			
O2-4S-53m	4/11/05	1048	0.13	4.0	0.31	4.3	0.24	3.4	2.8	79					0.08	34.575	25.3			
Geomean	**'04-'05**			**2.9**		**2.0**		**2.4**							**0.08**					
O2-4S-53m	7/20/05	1034	0.05	1.5	0.01	0.1	0.13	1.8	1.4	38					0.10	34.743	26.8			
O2-4S-53m	10/11/05	919	0.07	2.2	0.02	0.3	0.19	2.7	2.5	69					0.14	34.904	26.5			
O2-4S-53m	3/13/06	1028	0.09	2.8	0.12	1.7	0.35	4.9	8.8	247					0.09	34.823	24.6			
O2-4S-53m	5/15/06	1002	0.12	3.7	1.27	17.8	0.07	1.0	13.8	388					0.11	34.396	24.8			
Geomean	**'05-'06**			**2.4**		**1.0**		**2.2**							***0.11***					
O2-4S-53m	8/14/06	956	0.13	4.0	0.41	5.7	0.17	2.4	3.3	92					0.15	34.597	26.0			
O2-4S-53m	11/1/06	1006	0.08	2.5	0.21	2.9	0.42	5.9	2.3	65					0.28	34.799	26.9			
O2-4S-53m	2/12/07	1028	0.13	4.0	0.24	3.4	0.43	6.0	2.5	70					0.23	34.569	24.5			
O2-4S-53m	4/9/07	957	0.12	3.7	0.20	2.8	0.25	3.5	3.8	106					0.16	34.680	25.1			
Geomean	**'06-'07**			**3.5**		**3.6**		***4.1***							***0.20***					
T2-100m	9/26/07	1009	0.13	4.0	0.07	1.0	0.07	1.0	12.6	353	0.01	0.4	6.74	94	0.05	34.977	26.9	8.18	6.27	0.08
T2-100m	12/13/07	1131	0.09	2.7	0.06	0.8			11.7	328	0.26	8.1	7.38	103	0.18	34.700	25.8	8.23	6.42	0.25
T2-100m	3/10/08	1022	0.19	6.0	0.38	5.3	0.06	0.8	3.5	98	0.33	10.1	8.65	121	0.17	34.886	25.1	8.27	6.69	0.32
T2-100m	6/5/08	1022	0.12	3.7	0.22	3.1	0.16	2.2	24.2	679	0.29	9.0	10.48	147	0.05	34.821	25.13	8.07	6.55	0.15
Geomean	**'07-'08**			**3.9**		**1.9**		**1.2**				**4.1**		***115***	**0.09**					**0.18**
T2-100m	9/22/08	1127	0.04	1.3	0.05	0.7	0.16	2.3	1.4	40	0.27	8.4	4.60	65	0.08	34.830	26.8	8.05	6.73	0.07
T2-100m	11/17/08	1006	0.16	4.9	0.06	0.8	0.14	1.9	2.1	59	0.34	10.6	5.23	73	0.06	34.978	25.8	8.26	5.82	0.04
T2-100m	2/9/09	1009	0.06	1.8	0.10	1.4	0.12	1.7	1.5	43	0.11	3.3	6.93	97	0.06	35.127	24.8	8.07	6.03	0.01
T2-100m	4/13/09	956	0.23	7.1	0.12	1.7	0.33	4.6	2.9	80	0.43	13.4	5.33	75	0.10	34.989	24.0	8.19	5.99	0.15
Geomean	**'08-'09**			**3.0**		**1.1**		**2.4**				**7.9**		**76**	**0.07**					**0.05**
T2-100m	9/9/09	1007	0.21	6.5	0.16	2.2	0.10	1.4	10.6	298	0.52	16.0	7.10	99	0.06	35.190	26.8	8.20	5.82	0.24
T2-100m	11/23/09	1019	0.03	0.8	0.09	1.2	0.06	0.8	52.2	1466	0.42	13.1	5.60	78	0.06	35.180	25.4	8.25	6.06	0.12
T2-100m	2/23/10	1024	0.15	4.8	0.18	2.5	0.29	4.0	13.5	380	0.36	11.1	7.21	101	0.06	35.070	24.6	8.18	6.03	0.23
T2-100m	5/25/10	1040	0.03	0.9	0.06	0.9	0.11	1.5	4.6	130	0.36	11.3	6.40	90	0.09	34.990	24.9	8.22	6.88	0.08
Geomean	**'09-'10**			**2.2**		**1.6**		**1.6**				***12.7***		**92**	**0.07**					**0.15**
T2-100m	8/10/10	1021	0.05	1.6	0.52	7.3	0.01	0.2	3.9	109	0.52	16.0	7.10	99	0.05	34.89	26.13	8.22	6.34	0.13
T2-100m	11/8/10	1007	0.00	0.1	0.16	2.2	0.14	1.9	7.5	210	0.33	10.3	5.93	83	0.11	35.26	26.45	8.25	6.16	0.09
T2-100m	1/11/11	1023	0.13	4.0	0.27	3.8	0.11	1.5	2.7	75	0.45	13.8	3.93	55	0.08	34.95	24.95	8.23	6.32	0.11
T2-100m	4/26/11	1023	0.09	2.8	0.31	4.3	0.06	0.8	1.7	47	0.43	13.4	3.98	56	0.10	34.98	25.00	8.21	6.42	0.11
Geomean	**'10-'11**			**1.2**		**4.0**		**0.8**				***13.2***		**71**	**0.08**					**0.11**

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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
T2-100m	7/26/11	1050	0.19	5.9	0.36	5.0	0.14	1.9	2.3	64	0.47	14.7	4.08	57	0.06	34.79	25.98	8.25	6.52	0.11
T2-100m	10/18/11	1012	0.01	0.2	0.03	0.4	0.21	3.0	1.4	41	0.29	9.0	3.94	55	0.06	35.06	26.57	8.22	6.84	0.13
T2-100m	1/25/12	1037	0.07	2.2	0.06	0.9	0.08	1.1	2.4	67	0.38	11.8	4.41	62	0.06	34.04	24.63	8.20	6.71	0.03
T2-100m	4/24/12	1103	0.14	4.3	0.31	4.3	0.13	1.8	2.5	70	0.42	13.1	4.13	58	0.11	35.09	24.82	8.25	6.68	0.27
Geomean	**'11-'12**			**1.8**		**1.7**		**1.8**				***12.0***		**58**	**0.07**					**0.10**
T2-100m	7/24/12	1025	0.03	0.9	0.28	3.9	0.19	2.6	2.1	58	0.35	10.8	4.72	66	0.05	35.06	26.28	8.24	6.61	0.14
T2-100m	11/27/12	1011	0.07	2.1	0.42	5.9	0.10	1.4	3.8	106	0.45	13.8	5.06	71	0.03	35.18	25.11	8.20	6.83	0.15
T2-100m	1/23/13	1019	0.06	2.0	0.09	1.3	0.14	1.9	1.2	34	0.45	13.8	5.78	81	0.05	35.12	24.70	8.22	6.30	0.06
T2-100m	4/16/13	1027	0.14	4.2	0.08	1.1	0.18	2.5	0.0	1	0.47	14.5	4.85	68	0.03	35.15	24.92	8.22	6.79	0.05
Geomean	**'12-'13**			**2.0**		**2.4**		**2.0**				***13.1***		**71**	**0.04**					**0.09**
T2-100m	8/1/13	935	0.02	0.6	0.19	2.7	0.03	0.4	5.2	147	0.67	20.7	6.20	87	0.18	35.18	26.13	8.25	6.67	0.13
T2-100m	10/29/13	1005	0.14	4.2	0.26	3.7	0.49	6.9	2.3	65	0.46	14.3	5.91	83	0.08	35.30	27.03	8.21	6.25	0.17
T2-100m	2/4/14	1014	0.10	3.1	0.33	4.6	0.54	7.6	2.4	67	0.41	12.6	5.90	83	0.02	34.94	25.24	8.21	6.38	0.16
T2-100m	5/6/14	1015	0.08	2.4	0.13	1.8	0.22	3.1	2.4	66	0.41	12.8	5.56	78	0.05	34.81	25.99	8.21	6.08	0.15
Geomean	**'13-'14**			**2.1**		**3.0**		***2.8***				***14.8***		**82**	**0.06**					**0.15**

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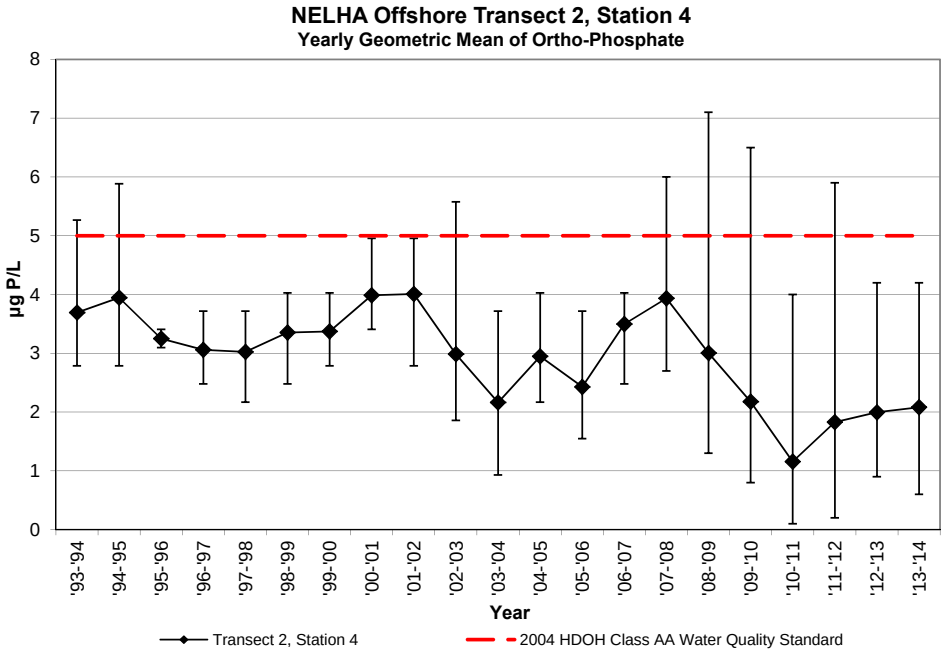

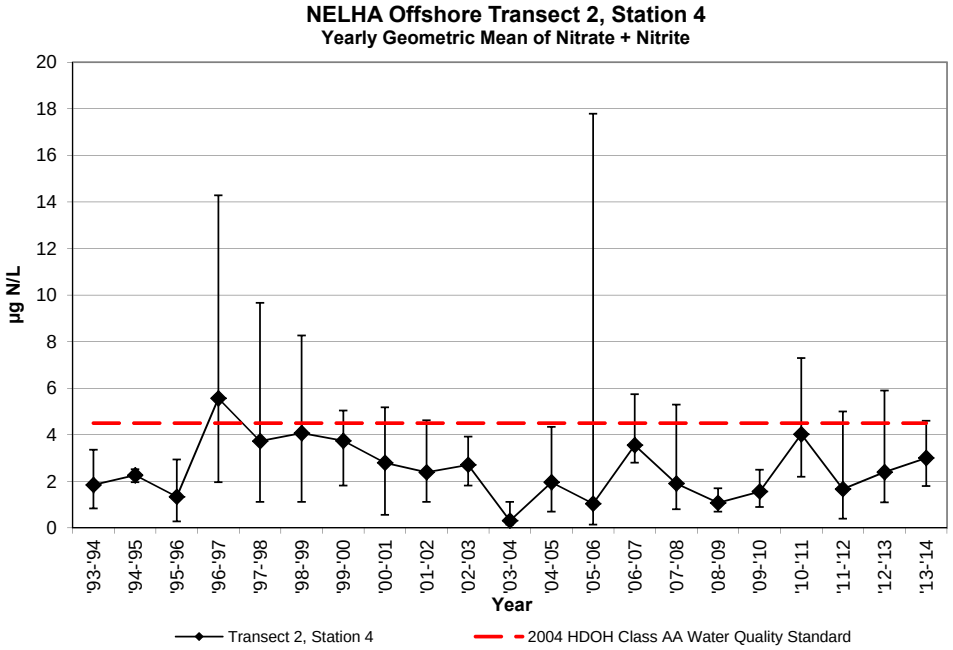

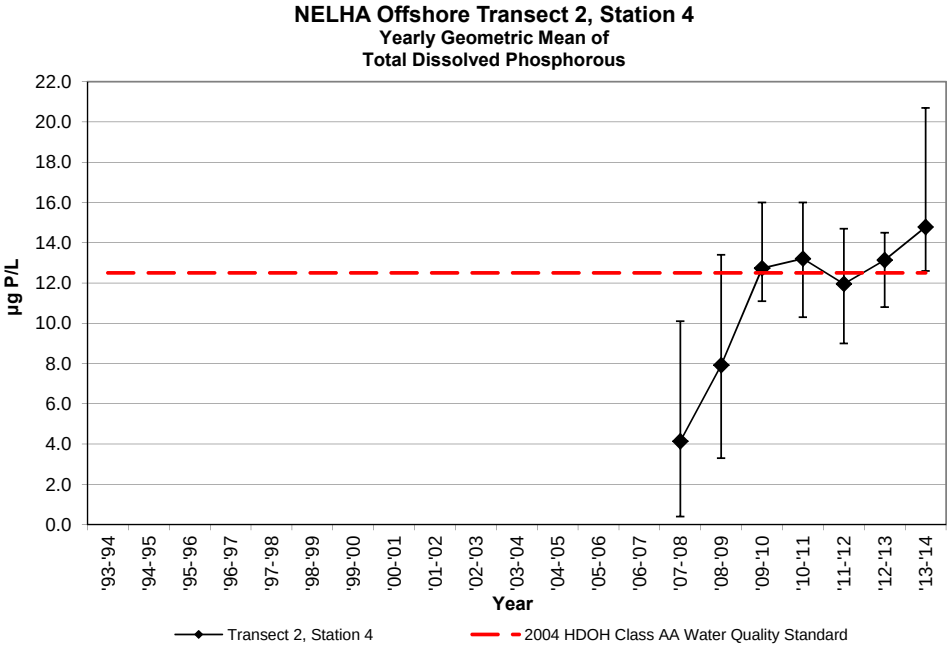

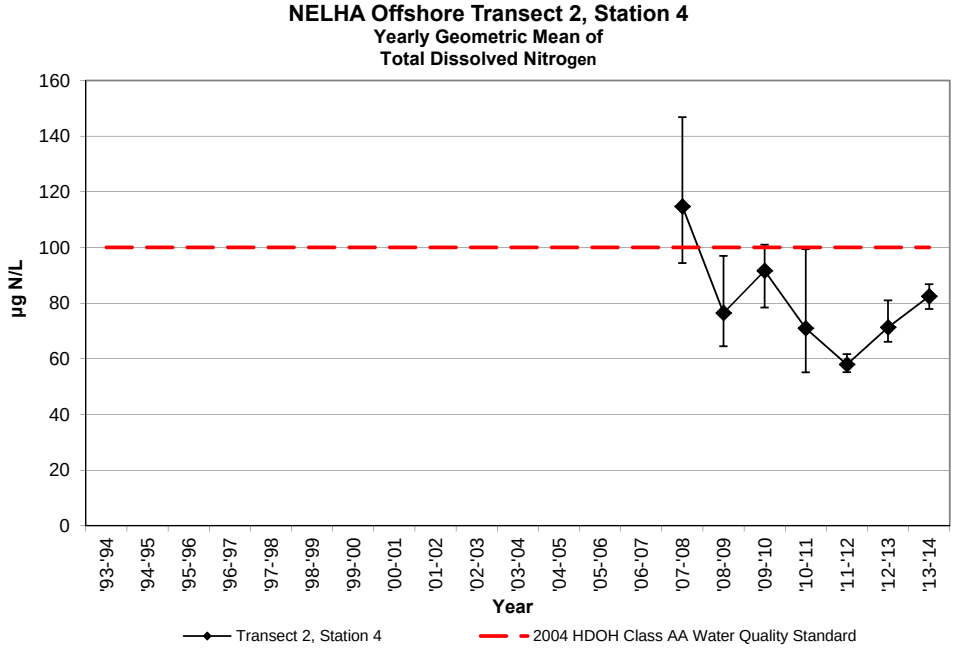

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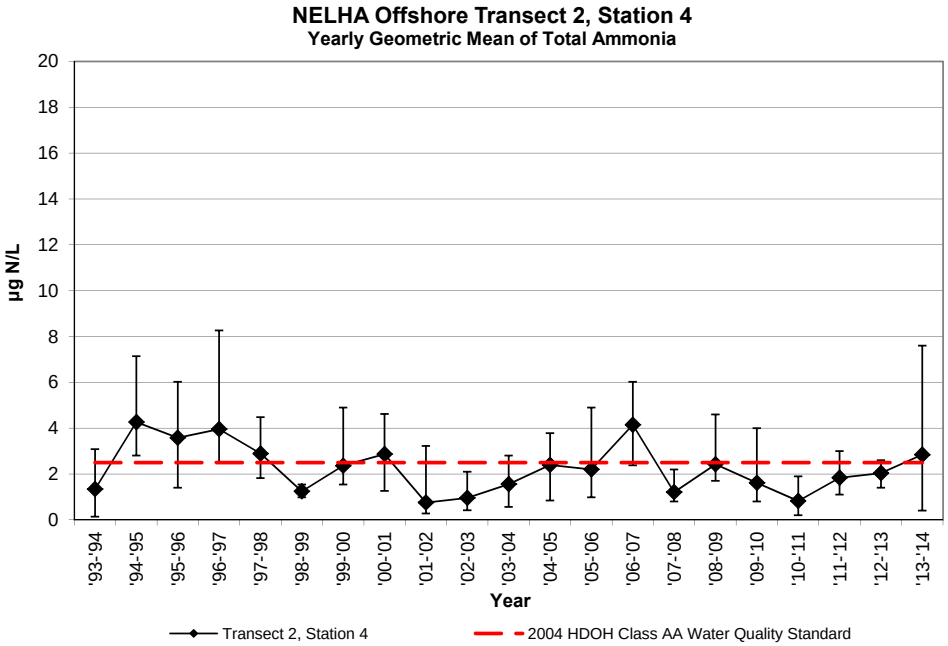

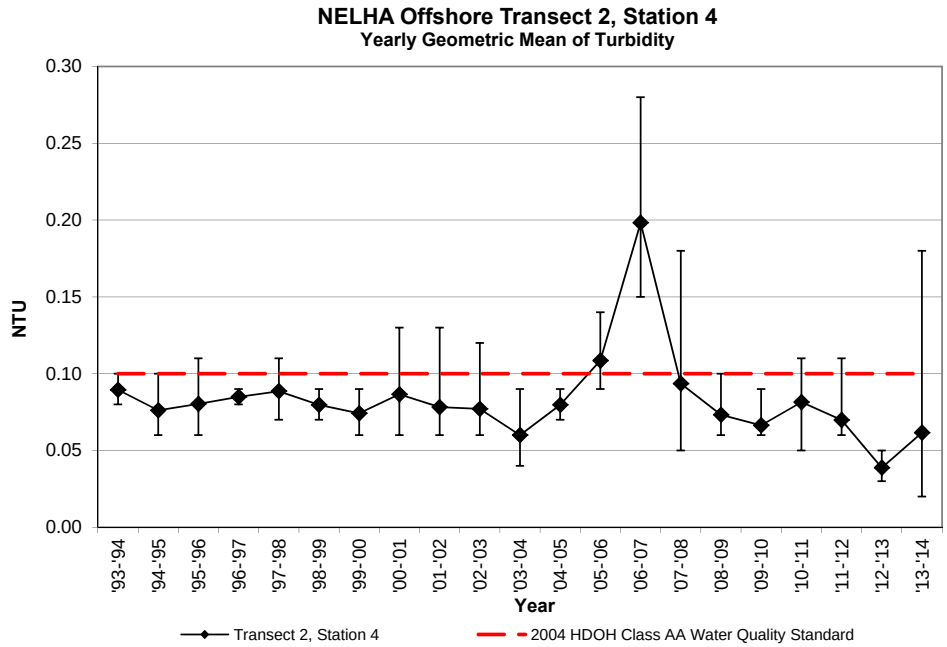

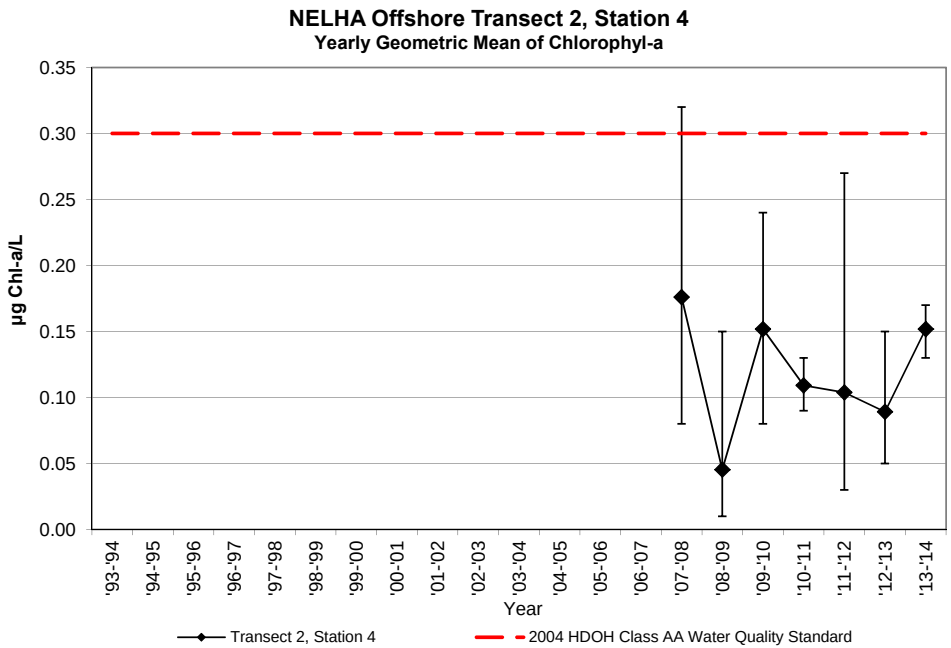

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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O2-5S-69m	7/27/93	933	0.08	2.5	0.06	0.8	0.27	3.8	2.4	67					0.08	34.447	26.7			
O2-5S-69m	12/7/93	858	0.09	2.8	0.13	1.8	0.12	1.7	3.9	108					0.07	34.809	25.6			
O2-5S-69m	3/16/94	858	0.16	5.0	0.19	2.7	0.17	2.4	3.9	109					0.09	34.490	24.6			
O2-5S-69m	6/14/94	842	0.09	2.8	0.16	2.2	0.25	3.5	2.8	78					0.08	34.582	25.2			
Geomean	**'93-'94**			**3.1**		**1.7**		***2.7***							**0.08**					
O2-5S-69m	9/8/94	1012	0.09	2.8	0.16	2.2	0.25	3.5	2.8	78					0.07	34.611	27.6			
O2-5S-69m	11/16/94	809	0.14	4.3	0.17	2.4	0.52	7.3	2.9	81					0.07	34.590	26.0			
O2-5S-69m	3/21/95	950	0.19	5.9	0.02	0.3	0.11	1.5	4.4	123					0.09	34.238	25.1			
O2-5S-69m	6/26/95	815	0.11	3.4	0.16	2.2	0.48	6.7	1.9	53					0.06	34.560	26.5			
Geomean	**'94-'95**			**3.9**		**1.4**		***4.0***							**0.07**					
O2-5S-69m	9/25/95	1102	0.10	3.1	0.15	2.1	0.17	2.4	3.9	108					0.08	34.511	27.2			
O2-5S-69m	11/13/95	949	0.12	3.7	0.18	2.5	0.43	6.0	2.0	56					0.06	34.385	26.8			
O2-5S-69m	3/11/96	1040	0.11	3.4	0.18	2.5	0.41	5.7	2.2	62					0.07	34.254	25.1			
O2-5S-69m	5/13/96	945	0.08	2.5	0.07	1.0	0.23	3.2	1.5	42					0.04	34.323	26.9			
Geomean	**'95-'96**			**3.1**		**1.9**		***4.0***							**0.06**					
O2-5S-69m	7/30/96	930	0.09	2.8	0.51	7.1	0.17	2.4	3.0	85					0.08	34.472	27.9			
O2-5S-69m	10/1/96	1019	0.07	2.2	0.12	1.7	0.61	8.5	1.9	52					0.08	34.724	27.8			
O2-5S-69m	1/6/97	1046	0.09	2.8	0.20	2.8	0.18	2.5	3.1	87					0.12	34.680	25.7			
O2-5S-69m	4/21/97	1027	0.10	3.1	0.72	10.1	0.21	2.9	3.0	85					0.09	34.523	26.3			
Geomean	**'96-'97**			**2.7**		**4.3**		***3.5***							**0.09**					
O2-5S-69m	8/18/97	1018	0.11	3.4	0.61	8.5	0.21	2.9	8.3	234					0.10	34.491	26.9			
O2-5S-69m	10/6/97	1046	0.08	2.5	0.09	1.3	0.37	5.2	4.3	120					0.07	34.723	27.5			
O2-5S-69m	3/3/98	1018	0.07	2.2	0.15	2.1	0.21	2.9	3.5	99					0.08	34.997	24.9			
O2-5S-69m	5/4/98	949	0.13	4.0	0.97	13.6	0.13	1.8	8.8	248					0.10	34.864	23.8			
Geomean	**'97-'98**			**2.9**		**4.2**		***3.0***							**0.09**					
O2-5S-69m	7/6/98	1047	0.13	4.0	0.65	9.1	0.14	2.0	6.4	180					0.09	34.941	26.2			
O2-5S-69m	10/5/98	1022	0.07	2.2	0.01	0.1	0.08	1.1	2.9	83					0.07	35.126	27.5			
O2-5S-69m	1/13/99	1035	0.06	1.9	0.08	1.1	0.01	0.1	2.5	71					0.06	35.097	25.0			
O2-5S-69m	4/12/99	1013	0.13	4.0	0.37	5.2	0.10	1.4	5.2	145					0.07	34.641	24.1			
Geomean	**'98-'99**			**2.8**		**1.6**		**0.8**							**0.07**					
O2-5S-69m	7/6/99	1027	0.09	2.8	0.08	1.1	0.06	0.8	2.5	69					0.11	34.969	25.8			
O2-5S-69m	10/4/99	1106	0.13	4.0	0.31	4.3	0.14	2.0	4.8	134					0.14	34.926	26.0			
O2-5S-69m	1/4/00	1052	0.10	3.1	0.58	8.1	0.35	4.9	3.9	109					0.08	35.079	24.9			
O2-5S-69m	4/17/00	1042	0.14	4.3	0.11	1.5	0.01	0.1	10.3	289					0.05	34.647	24.3			
Geomean	**'99-'00**			**3.5**		**2.8**		**1.0**							**0.09**					
O2-5S-69m	7/24/00	1100	0.10	3.1	0.27	3.8	0.06	0.8	3.1	86					0.07	34.958	27.3			
O2-5S-69m	10/30/00	1110	0.12	3.7	0.03	0.4	0.32	4.5	3.6	100					0.06	34.964	27.0			
O2-5S-69m	2/26/01	1106	0.15	4.6	0.13	1.8	0.20	2.8	6.7	189					0.10	34.731	24.8			
O2-5S-69m	5/7/01	1114	0.13	4.0	0.27	3.8	0.33	4.6	7.9	221					0.09	34.847	24.6			
Geomean	**'00-'01**			**3.8**		**1.8**		***2.6***							**0.08**					
O2-5S-69m	8/21/01	1008	0.11	3.4	0.29	4.1	0.02	0.3	4.0	112					0.10	34.780	26.7			
O2-5S-69m	10/8/01	1030	0.12	3.7	0.09	1.3	0.05	0.7	2.7	74					0.09	34.950	27.4			
O2-5S-69m	3/5/02	944	0.14	4.3	0.20	2.8	0.02	0.3	2.8	80					0.11	34.702	24.1			
O2-5S-69m	4/17/02	951	0.14	4.3	0.04	0.6	0.24	3.4	3.6	101					0.11	34.478	25.4			
Geomean	**'01-'02**			**3.9**		**1.7**		**0.7**							**0.10**					

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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O2-5S-69m	7/8/02	1108	0.14	4.3	0.03	0.4	0.08	1.1	14.3	400					0.06	34.653	26.6			
O2-5S-69m	10/9/02	942	0.05	1.5	0.08	1.1	0.09	1.3	2.1	60					0.09	34.955	27.1			
O2-5S-69m	3/12/03	1101	0.13	4.0	0.26	3.6	0.07	1.0	2.3	65					0.07	34.774	25.2			
O2-5S-69m	4/22/03	1104	0.08	2.5	0.39	5.5	0.04	0.6	2.7	75					0.07	35.016	25.2			
Geomean	**'02-'03**			**2.9**		**1.7**		**0.9**							**0.07**					
O2-5S-69m	8/18/03	1200	0.06	1.9	0.09	1.3	0.20	2.8	2.3	64					0.04	34.834	28.2			
O2-5S-69m	10/29/03	1111	0.04	1.2	0.04	0.6	0.10	1.4	2.6	73					0.09	34.830	27.6			
O2-5S-69m	3/11/04	956	0.12	3.7	0.02	0.3	0.04	0.6	1.6	45					n/a	34.356	25.7			
O2-5S-69m	5/20/04	1045	0.10	3.1	0.01	0.1	0.19	2.7	1.3	37					n/a	33.60	27.0			
Geomean	**'03-'04**			**2.3**		**0.4**		**1.6**							**0.06**					
O2-5S-69m	9/20/04	947	0.08	2.5	0.01	0.1	0.21	2.9	2.2	61					0.07	33.87	27.7			
O2-5S-69m	11/17/04	919	0.08	2.5	0.01	0.1	0.19	2.7	1.8	52					0.07	33.59	26.7			
O2-5S-69m	1/13/05	1041	0.04	1.2	0.10	1.4	0.06	0.8	2.3	63					0.07	34.860	24.6			
O2-5S-69m	4/11/05	1041	0.10	3.1	0.26	3.6	0.20	2.8	3.6	101					0.07	34.487	25.2			
Geomean	**'04-'05**			**2.2**		**0.6**		**2.1**							**0.07**					
O2-5S-69m	7/20/05	1028	0.05	1.5	0.01	0.1	0.16	2.2	1.3	36					0.11	34.742	26.8			
O2-5S-69m	10/11/05	913	0.05	1.5	0.01	0.1	0.19	2.7	3.7	105					0.09	34.950	26.6			
O2-5S-69m	3/13/06	1020	0.09	2.8	0.01	0.1	0.25	3.5	4.3	120					0.08	34.836	24.6			
O2-5S-69m	5/15/06	958	0.26	8.1	0.94	13.2	0.05	0.7	10.6	297					0.15	34.845	24.9			
Geomean	**'05-'06**			**2.7**		**0.4**		**2.0**							**0.10**					
O2-5S-69m	8/14/06	950	0.13	4.0	0.30	4.2	0.22	3.1	2.6	74					0.11	34.464	26.5			
O2-5S-69m	11/1/06	1000	0.08	2.5	0.17	2.4	0.39	5.5	2.1	59					0.27	34.841	27.1			
O2-5S-69m	2/12/07	1021	0.12	3.7	0.09	1.3	0.35	4.9	1.9	54					0.71	34.560	24.5			
O2-5S-69m	4/9/07	951	0.16	5.0	0.19	2.7	0.31	4.3	3.6	101					0.33	34.684	25.3			
Geomean	**'06-'07**			**3.7**		**2.4**		***4.4***							***0.29***					
T2-500m	9/26/07	1022	0.14	4.3	0.07	1.0	0.06	0.8	2.4	69	0.38	11.9	5.0	70	0.06	34.986	26.94	8.20	6.31	0.05
T2-500m	12/13/07	1136	0.10	3.2	0.04	0.6			12.5	350	0.38	11.8	6.1	85	0.11	34.718	25.79	8.23	6.23	0.43
T2-500m	3/10/08	1031	0.18	5.6	0.05	0.7	0.06	0.8	13.1	368	0.46	14.4	8.5	120	0.19	34.921	25.79	8.24	6.58	0.27
T2-500m	6/5/08	1025	0.08	2.6	0.13	1.8	0.16	2.2	18.2	510	0.23	7.2	7.9	110	0.06	34.820	25.15	8.07	6.51	0.17
Geomean	**'07-'08**			**3.8**		**0.9**		**1.1**				**11.0**		**94**	**0.09**					**0.18**
T2-500m	9/22/08	1132	0.03	1.0	0.04	0.5	0.08	1.1	1.5	43	0.27	8.4	4.5	63	0.08	34.860	27.1	8.04	6.33	0.02
T2-500m	11/17/08	1013	0.14	4.4	0.04	0.5	0.14	1.9	1.6	46	0.35	10.7	4.4	61	0.07	34.988	26.1	8.27	5.76	0.02
T2-500m	2/9/09	1019	0.06	1.9	0.10	1.4	0.12	1.7	3.5	99	0.25	7.6	6.9	97	0.06	35.100	24.9	8.06	6.13	0.01
T2-500m	4/13/09	1004	0.20	6.3	0.04	0.6	0.28	3.9	3.3	93	0.44	13.5	4.4	61	0.10	34.997	24.0	8.19	5.96	0.04
Geomean	**'08-'09**			**2.7**		**0.7**		**1.9**				**9.8**		**69**	**0.08**					**0.02**
T2-500m	9/9/09	1016	0.15	4.7	0.07	1.0	0.06	0.9	5.0	141	0.55	17.1	6.7	94	0.06	35.23	26.7	8.19	5.46	0.30
T2-500m	11/23/09	1028	0.03	0.8	0.05	0.7	0.03	0.4	10.0	281	0.37	11.6	4.3	60	0.09	35.22	25.4	8.25	6.21	0.11
T2-500m	2/23/10	1032	0.14	4.4	0.04	0.6	0.34	4.7	12.0	336	0.36	11.1	5.0	70	0.05	35.11	24.6	8.19	6.01	0.32
T2-500m	5/25/10	1047	0.01	0.4	0.03	0.4	0.01	0.2	8.3	234	0.53	16.4	6.7	94	0.08	35.01	25.2	8.22	6.92	0.06
Geomean	**'09-'10**			**1.6**		**0.6**		**0.8**				***13.8***		**78**	**0.07**					**0.16**
T2-500m	8/10/10	1032	0.02	0.5	0.06	0.8	0.05	0.7	1.2	32	0.55	17.1	6.7	94	0.03	34.91	26.3	8.24	6.45	0.04
T2-500m	11/8/10	1015	0.00	0.1	0.04	0.5	0.18	2.5	1.8	50	0.31	9.5	5.0	70	0.11	35.27	26.4	8.25	6.18	0.06
T2-500m	1/11/11	1030	0.11	3.4	0.01	0.1	0.09	1.3	4.0	113	0.42	13.1	3.0	43	0.04	35.01	25.0	8.23	6.38	0.11
T2-500m	4/26/11	1031	0.08	2.6	0.06	0.8	0.15	2.1	20.7	582	0.48	14.8	3.2	45	0.08	34.98	25.1	8.22	6.48	0.12
Geomean	**'10-'11**			**0.8**		**0.4**		**1.5**				***13.3***		**60**	**0.06**					**0.08**

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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
T2-500m	7/26/11	1103	0.18	5.5	0.03	0.4	0.04	0.5	0.5	15	0.46	14.3	3.4	47	0.10	34.86	26.2	8.26	6.44	0.28
T2-500m	10/18/11	1019	0.01	0.2	0.04	0.6	0.12	1.7	2.2	62	0.30	9.4	4.6	64	0.08	35.05	26.6	8.23	6.79	0.10
T2-500m	1/25/12	1045	0.06	2.0	0.04	0.5	0.04	0.5	1.8	52	0.37	11.6	3.9	54	0.05	35.04	24.8	8.21	6.72	0.09
T2-500m	4/24/12	1110	0.13	4.0	0.21	3.0	0.14	2.0	3.3	92	0.41	12.8	3.5	50	0.13	34.14	24.9	8.21	6.65	0.29
Geomean	**'11-'12**			**1.7**		**0.8**		**1.0**				***11.9***		**53**	**0.08**					**0.16**
T2-500m	7/24/12	1032	0.02	0.5	0.21	3.0	0.25	3.5	1.7	49	0.34	10.4	4.9	68	0.09	35.06	26.5	8.25	6.76	0.14
T2-500m	11/27/12	1018	0.06	2.0	0.13	1.8	0.24	3.4	2.3	64	0.56	17.4	5.7	80	0.05	35.21	25.1	8.20	6.88	0.10
T2-500m	1/23/13	1027	0.06	1.9	0.06	0.9	0.21	2.9	1.3	36	0.38	11.8	5.1	71	0.02	35.12	24.7	8.22	6.34	0.18
T2-500m	4/16/13	1034	0.13	4.0	0.10	1.4	0.22	3.1	0.6	18	0.46	14.3	6.2	88	0.07	35.13	24.9	8.21	6.75	0.06
Geomean	**'12-'13**			**1.7**		**1.6**		***3.2***				***13.2***		**77**	**0.05**					**0.11**
T2-500m	8/1/13	943	0.02	0.6	0.11	1.6	0.01	0.2	5.3	149	0.42	13.0	3.9	55	0.06	35.18	26.2	8.25	6.66	0.12
T2-500m	10/29/13	1010	0.13	4.1	0.25	3.5	1.39	19.4	2.9	80	0.47	14.7	6.7	94	0.03	35.27	27.0	8.20	6.32	0.23
T2-500m	2/4/14	1020	0.08	2.5	0.12	1.7	0.58	8.1	2.0	56	0.37	11.6	4.3	60	0.02	34.99	25.2	8.20	6.29	0.17
T2-500m	5/6/14	1023	0.07	2.3	0.01	0.1	0.26	3.6	1.6	45	0.42	12.9	5.3	74	0.06	34.83	26.1	8.22	5.98	0.15
Geomean	**'13-'14**			**1.9**		**1.0**		***3.0***				***13.0***		**69**	**0.04**					**0.16**

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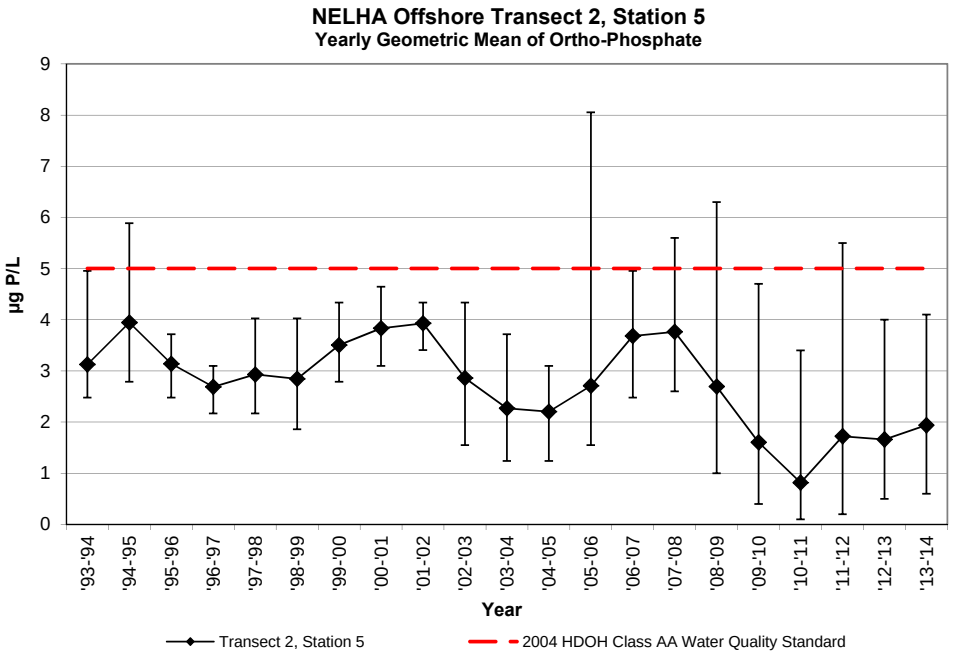

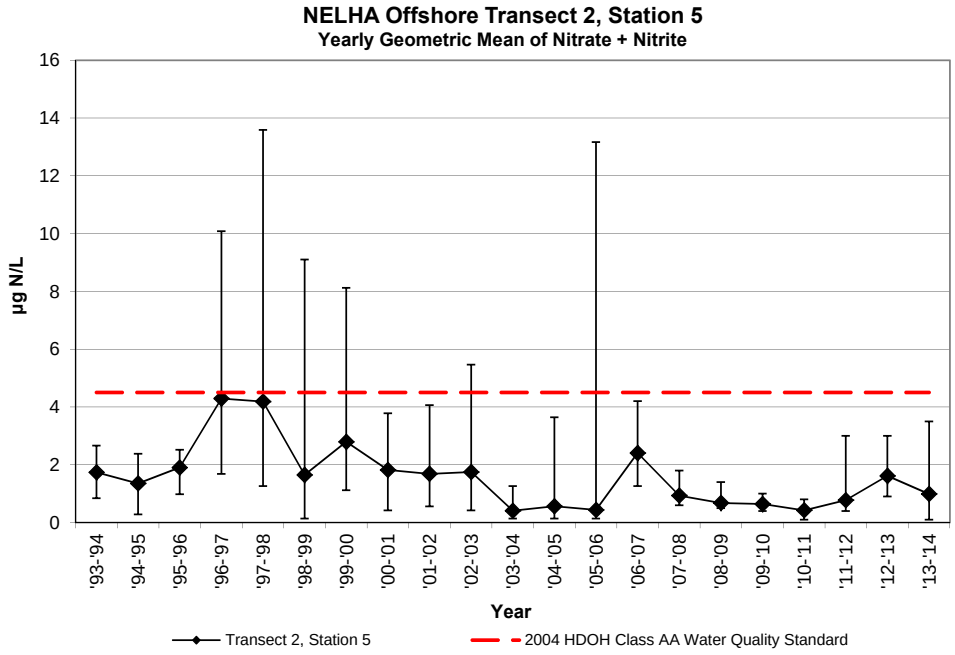

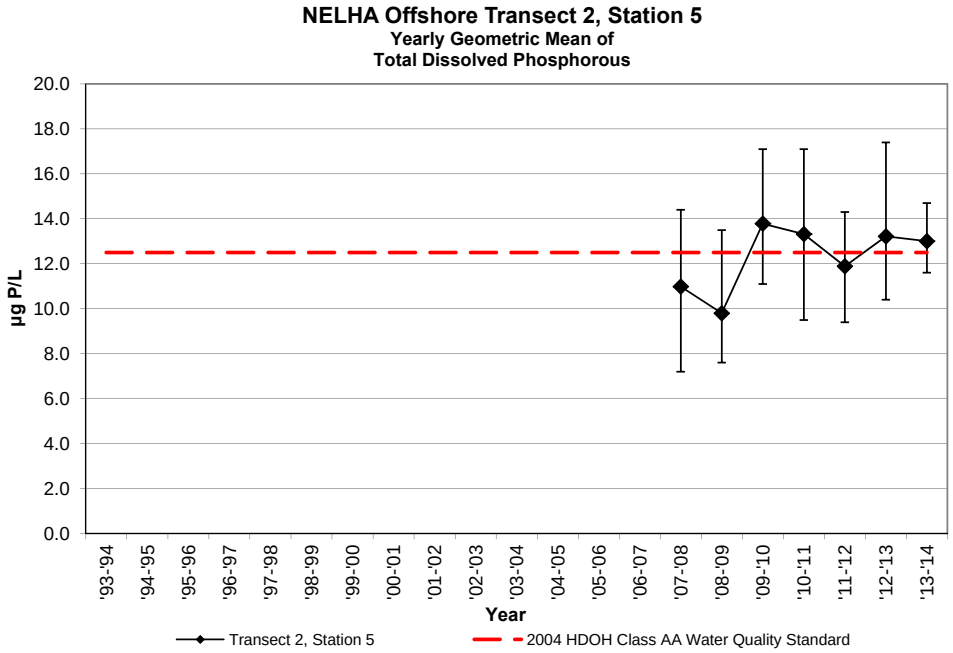

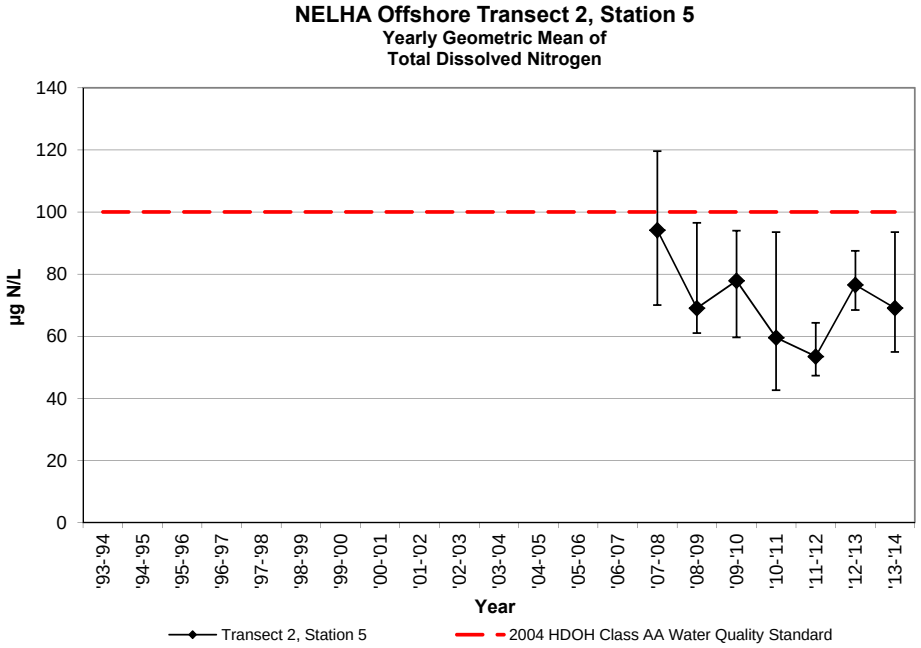

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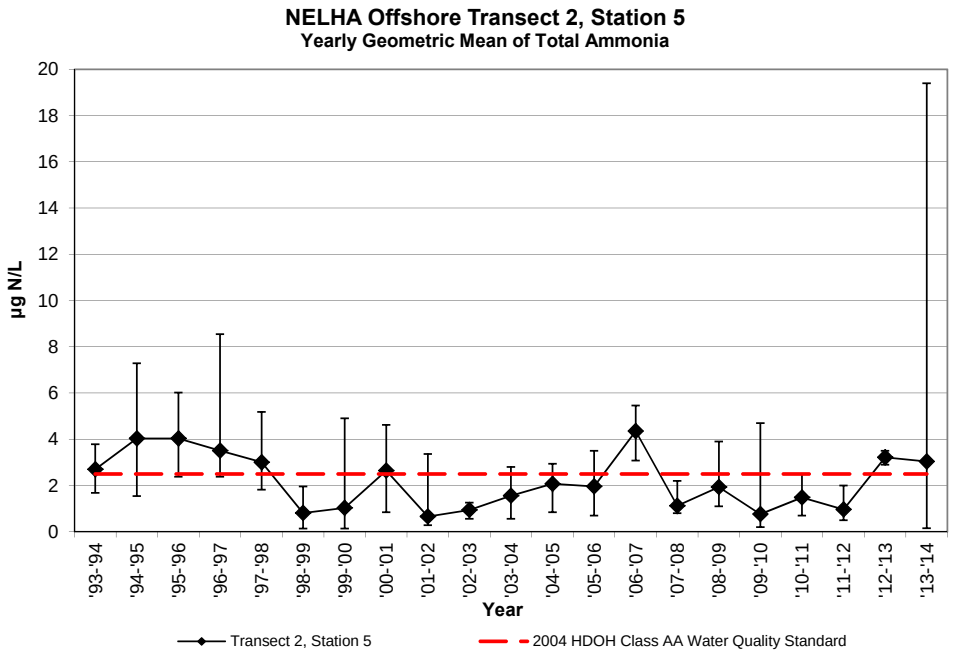

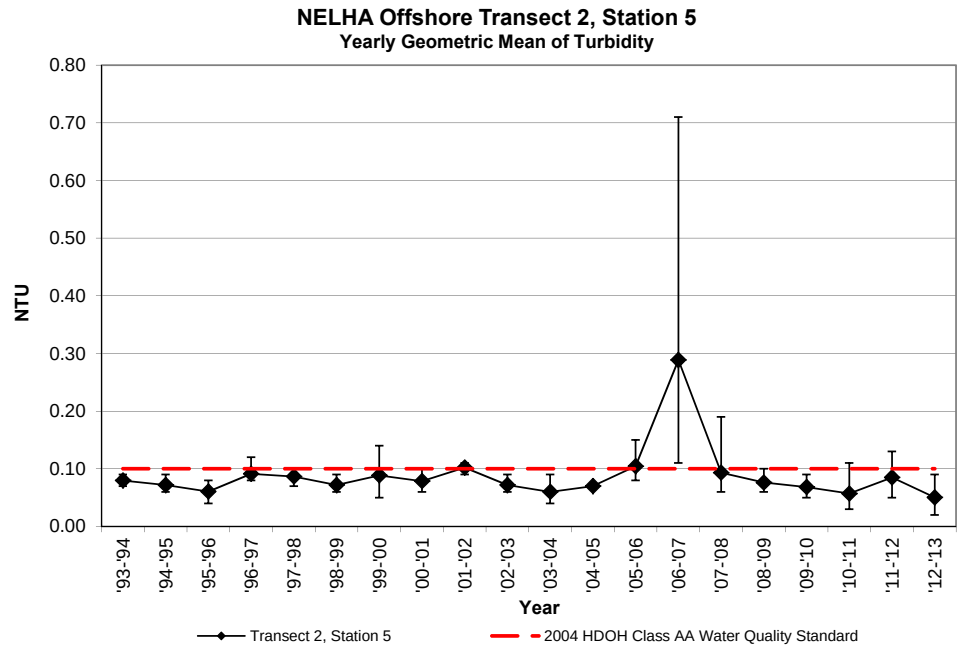

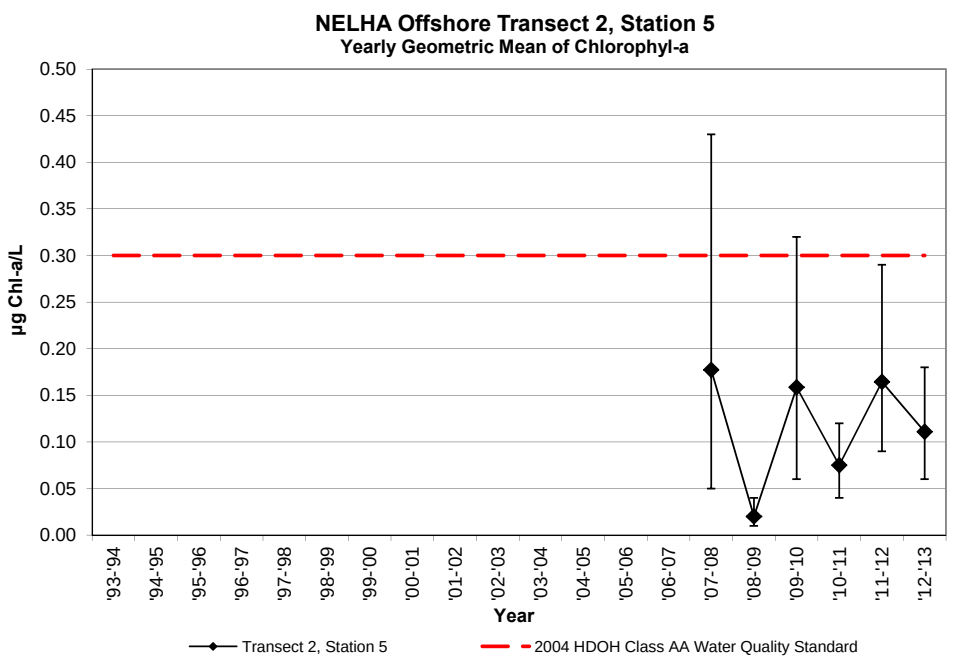

NELHA Water Quality Laboratory

Transect 3

July 2013 - June 2014

SITE ID	DATE	TIME	Tide		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(ft)	(cycle)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT					0.16	**5**	0.32	**4.5**	0.18	**2.5**			0.40	**12.5**	7.1	**100**	**0.10**					**0.30**
T3-1m	8/1/13	952	1.1	Flood	0.04	1.2	0.11	1.5	0.08	1.1	2.3	64	0.44	13.5	5.2	73	0.11	35.25	26.3	8.26	7.02	0.14
T3-1m	10/29/13	1021	1.4	Flood	0.15	4.7	0.50	7.0	0.34	4.7	2.5	72	0.46	14.1	6.2	87	0.06	35.25	27.1	8.22	6.54	0.12
T3-1m	2/4/14	1033	0.6	Ebb	0.10	3.2	0.54	7.6	0.56	7.8	2.1	59	0.38	11.9	4.0	57	0.02	35.10	25.2	8.20	6.56	0.14
T3-1m	5/6/14	1034	0.7	High	0.11	3.5	0.43	6.0	0.28	3.9	3.1	88	0.45	13.9	5.4	76	0.08	34.72	25.9	8.20	6.11	0.16
Geomean	**'13-'14**				0.09	**2.8**	0.33	***4.7***	0.3	***3.5***			0.4	***13.3***	5.2	**72**	**0.06**					**0.14**
T3-10m	8/1/13	956	1.1	Flood	0.05	1.7	0.24	3.3	0.16	2.3	2.4	68	0.37	11.4	5.1	71	0.09	35.26	26.3	8.26	7.03	0.10
T3-10m	10/29/13	1025	1.4	Flood	0.15	4.5	0.59	8.2	0.36	5.0	2.6	72	0.45	14	6.0	85	0.02	35.26	27.1	8.22	6.57	0.15
T3-10m	2/4/14	1037	0.5	Ebb	0.09	2.8	0.65	9.1	0.49	6.9	2.1	58	0.36	11.1	5.1	72	0.02	35.09	25.2	8.20	6.52	0.09
T3-10m	5/6/14	1040	0.7	High	0.10	3.2	0.47	6.6	0.37	5.2	3.2	89	0.50	15.6	7.3	103	0.04	34.74	25.9	8.20	6.28	0.15
Geomean	**'13-'14**				0.09	**2.9**	0.45	***6.3***	0.32	***4.5***			0.42	***12.9***	5.8	**82**	**0.03**					**0.12**
T3-50m	8/1/13	1000	1.1	Flood	0.04	1.2	0.16	2.2	0.12	1.7	2.4	67	0.45	13.9	6.6	92	0.08	35.28	26.3	8.26	6.89	0.19
T3-50m	10/29/13	1029	1.4	Flood	0.13	4.0	0.38	5.3	0.40	5.6	2.5	71	0.45	13.9	5.1	71	0.02	35.25	27.1	8.22	6.43	0.21
T3-50m	2/4/14	1044	0.5	Ebb	0.12	3.6	0.59	8.3	0.49	6.8	2.0	56	0.37	11.5	4.2	58	0.02	35.09	25.2	8.20	6.46	0.25
T3-50m	5/6/14	1049	0.7	High	0.12	3.7	0.56	7.9	0.23	3.2	4.3	121	0.42	13.1	6.3	89	0.08	34.74	25.9	8.19	6.35	0.18
Geomean	**'13-'14**				0.09	**2.8**	0.38	***5.3***	0.27	***3.8***			0.42	***13.1***	5.5	**76**	**0.04**					**0.21**
T3-100m	8/1/13	1006	1.1	Flood	0.05	1.4	0.05	0.7	0.32	4.5	2.0	57	0.38	11.8	5.5	77	0.24	35.22	26.4	8.26	6.80	0.14
T3-100m	10/29/13	1035	1.5	Flood	0.11	3.3	0.36	5.0	0.31	4.4	2.3	65	0.44	13.6	5.3	74	0.02	35.26	27.1	8.20	6.47	0.19
T3-100m	2/4/14	1051	0.5	Ebb	0.09	2.9	0.24	3.3	0.39	5.4	1.9	52	0.37	11.6	4.8	67	0.02	35.09	25.2	8.20	6.48	0.09
T3-100m	5/6/14	1055	0.7	High	0.14	4.2	0.51	7.2	0.18	2.5	4.2	118	0.44	13.7	5.8	81	0.04	34.73	26.0	8.20	6.15	0.20
Geomean	**'13-'14**				0.09	**2.7**	0.22	**3.0**	0.29	***4.0***			0.41	***12.6***	5.3	**75**	**0.04**					**0.15**
T3-500m	8/1/13	1015	1.2	Flood	0.02	0.6	0.08	1.1	0.03	0.4	2.0	57	0.38	11.9	4.96	70	0.13	35.25	26.6	8.26	6.82	0.07
T3-500m	10/29/13	1049	1.5	Flood	0.09	2.7	0.09	1.3	0.37	5.2	1.6	45	0.47	14.6	5.91	83	0.02	35.28	27.2	8.22	6.23	0.17
T3-500m	2/4/14	1101	0.5	Ebb	0.09	2.9	0.06	0.8	0.29	4.1	1.5	42	0.37	11.5	3.74	52	0.02	35.12	25.3	8.20	6.25	0.11
T3-500m	5/6/14	1103	0.7	High	0.12	3.8	0.06	0.8	0.50	7.0	1.1	32	0.42	13.1	6.01	84	0.03	34.85	26.2	8.20	6.06	0.16
Geomean	**'13-'14**				0.07	**2.1**	0.07	**1.0**	0.20	***2.8***			0.41	***12.7***	5.1	**71**	**0.04**					**0.12**

NELHA Water Quality Laboratory
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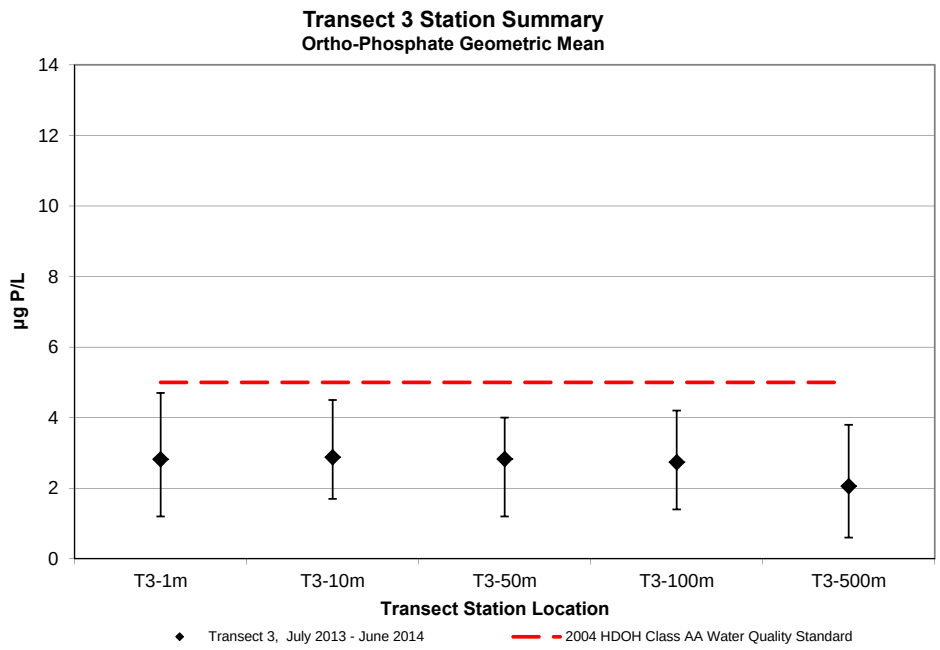

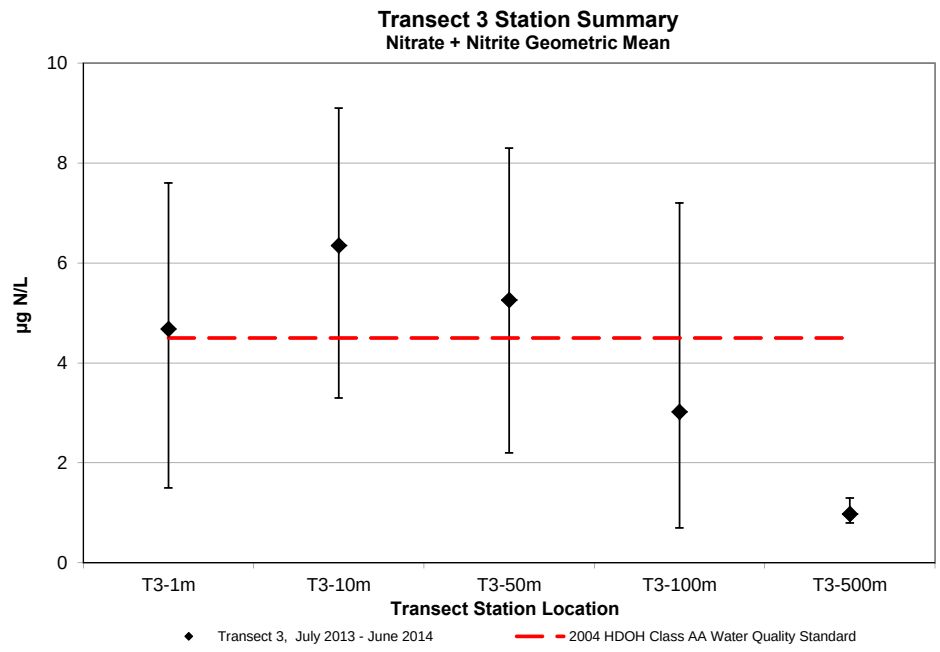

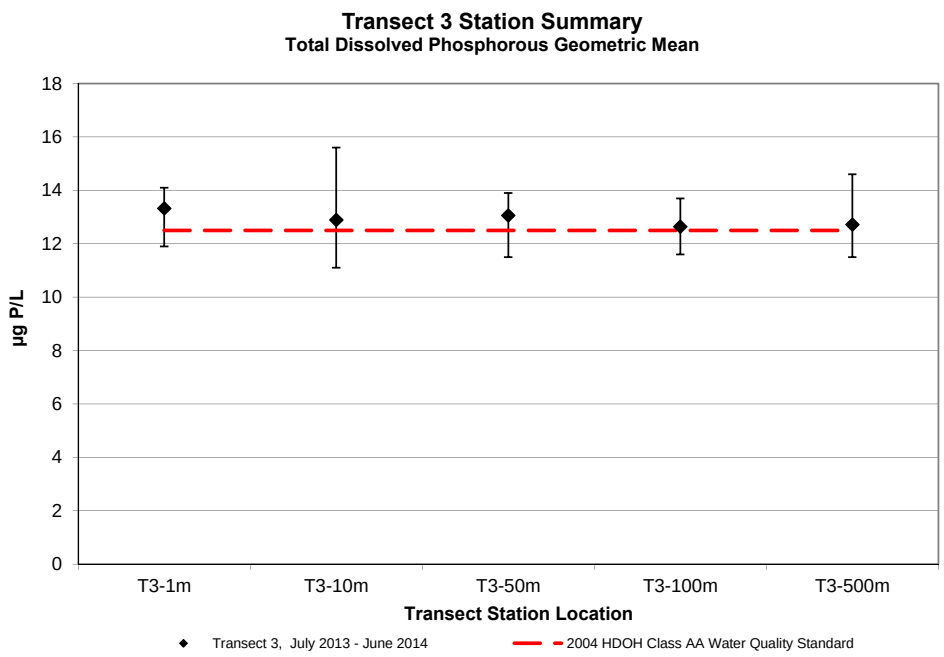

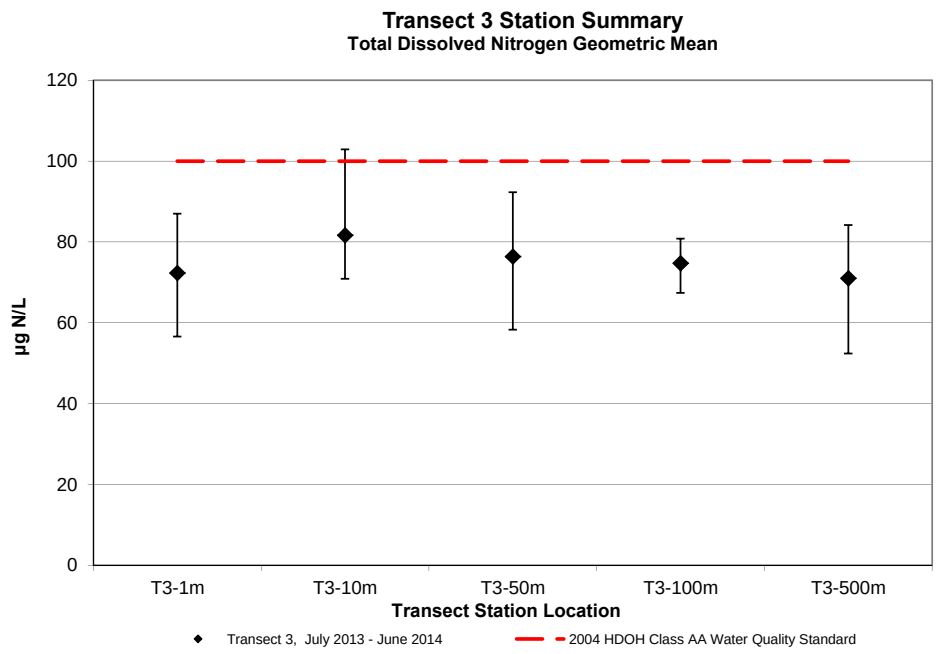

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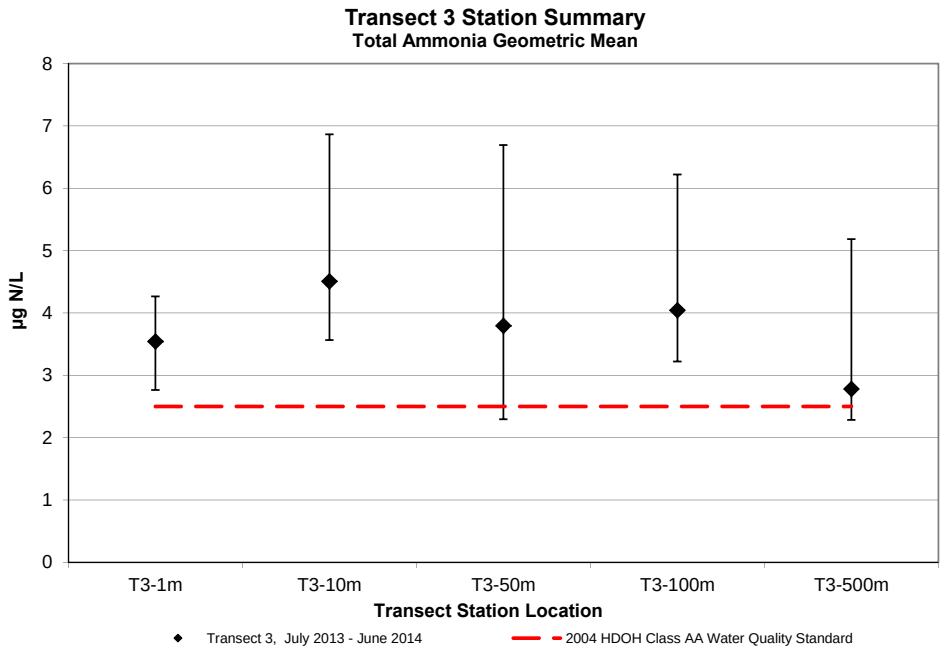
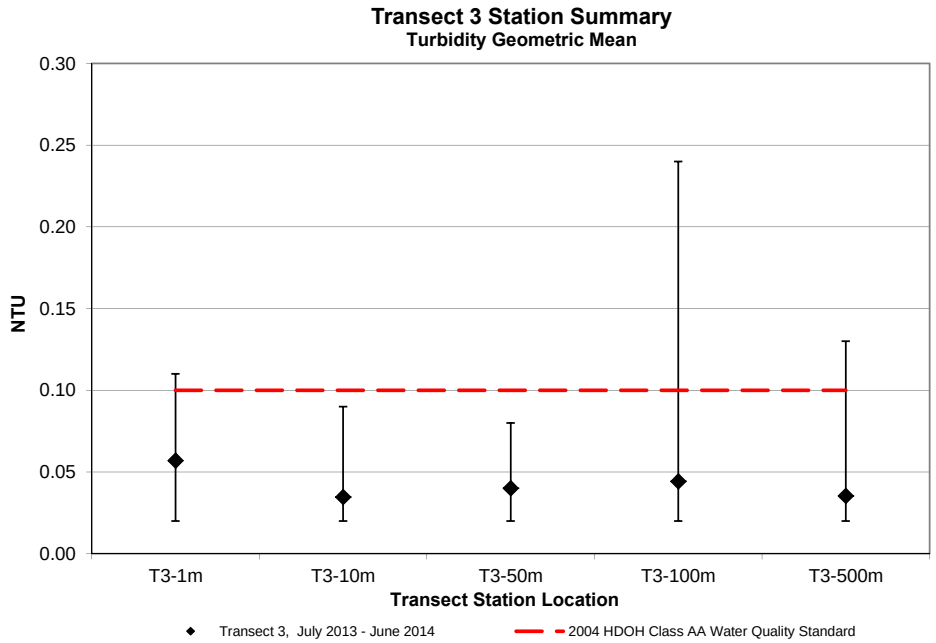
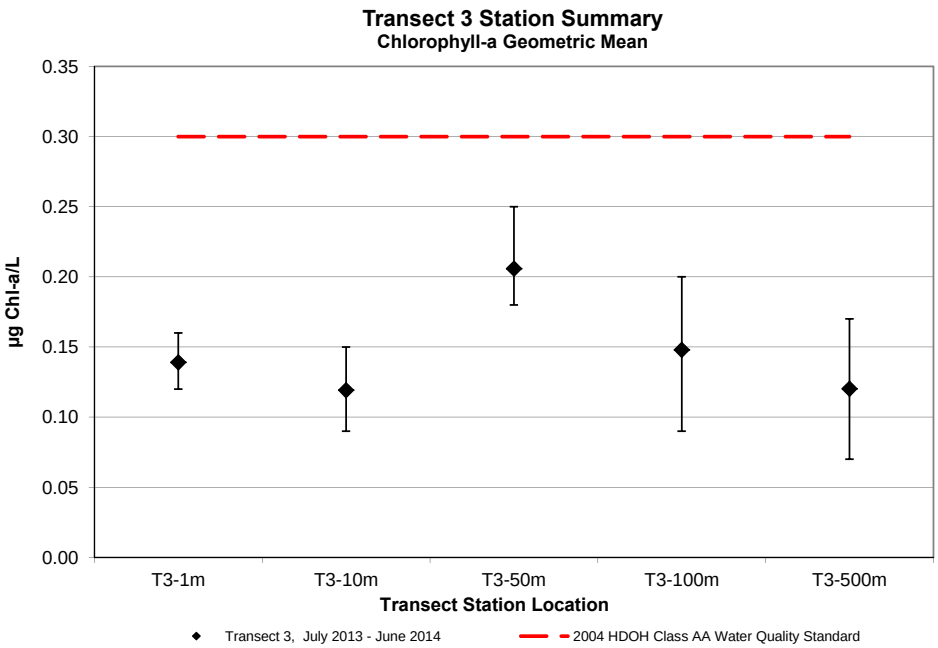






NELHA Water Quality Laboratory

Transect 3, Station 1

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TP		TOC	Turbidity	Salinity	Temp.	pH	DO	Chl a	Fecal Coliform	Enterococci
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg P/L)	(mgC/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)	Bact/100 ml	Bact/100 ml
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**				**0.10**					**0.30**		
O3-1S-8m	8/3/93	1056	0.12	3.7	0.34	4.8	0.43	6.0	3.7	103	0.30	9.3	8.1	113	0.38	11.77	1.00	0.11	34.508	26.9	8.24	7.07	0.10		
O3-1S-8m	12/8/93	1129	0.09	2.8	0.19	2.7	0.17	2.4	2.7	77	0.25	7.7	5.1	71	0.25	7.74	1.18	0.13	34.799	26.1	8.25	7.03	0.08		
O3-1S-8m	3/8/94	1027	0.22	6.8	0.43	6.0	0.25	3.5	3.5	99	0.33	10.2	5.9	82	0.33	10.22	1.13	0.14	34.200	25.2	8.25	7.28	0.01	<1	<1
O3-1S-8m	6/13/94	1020	0.15	4.6	0.37	5.2	0.16	2.2	4.4	122	0.32	9.9	7.4	104	0.32	9.91	1.05	0.18	34.510	25.6	8.23	7.23	0.07	<1	<1
Geomean	**'93-'94**			**4.3**		**4.5**		***3.3***				**9.2**		**91**				***0.14***					**0.05**		
O3-1S-8m	9/8/94	910	0.09	2.8	0.19	2.7	0.27	3.8	2.7	76	0.27	8.4	6.1	85	0.31	9.60	1.12	0.08	34.634	27.6	8.24	6.67	0.06	2	<1
O3-1S-8m	11/15/94	943	0.17	5.3	0.61	8.5	0.59	8.3	5.1	142	0.34	10.5	5.6	78	0.38	11.77	1.01	0.08	34.569	26.0	8.26	7.07	0.08	2	1
O3-1S-8m	3/21/95	841	0.19	5.9	0.14	2.0	0.15	2.1	5.3	147	0.32	9.9	5.5	78	0.32	9.91	1.10	0.09	34.231	25.0	8.22	7.25	0.16	1	1
O3-1S-8m	6/21/95	1001	0.11	3.4	0.09	1.3	0.35	4.9	4.8	136	0.29	9.0	6.8	96	0.29	8.98	1.03	0.06	34.476	26.3	8.23	7.14	0.08	<1	<1
Geomean	**'94-'95**			**4.1**		**2.7**		***4.2***				**9.4**		**84**				**0.08**					**0.09**		
O3-1S-8m	9/25/95	1154	0.19	5.9	0.29	4.1	0.28	3.9	4.0	113	0.30	9.3	8.5	118	0.30	9.29	1.17	0.11	34.522	27.3	8.27	7.04	0.05	1	<1
O3-1S-8m	11/13/95	817	0.15	4.6	0.20	2.8	0.45	6.3	1.7	47	0.31	9.6	5.1	71	0.31	9.60	1.00	0.06	34.391	26.7	8.26	7.00	0.12	<1	2
O3-1S-8m	3/11/96	1223	0.13	4.0	0.31	4.3	0.47	6.6	2.4	66	0.32	9.9	4.7	66	0.32	9.91	1.00	0.09	34.192	25.5	8.24	7.45	0.08	<1	<1
O3-1S-8m	5/13/96	1131	0.11	3.4	0.18	2.5	0.23	3.2	2.9	80	0.31	9.6	4.8	67	0.31	9.60	1.05	0.08	34.298	27.2	8.22	7.18	0.08	<1	<1
Geomean	**'95-'96**			**4.4**		**3.3**		***4.8***				**9.6**		**78**				**0.08**					**0.08**		
O3-1S-8m	7/30/96	949	0.11	3.4	0.47	6.6	0.29	4.1	3.0	84	0.26	8.1	4.5	63	0.26	8.05	0.94	0.13	34.483	28.4	8.24	6.82	0.12	<1	<1
O3-1S-8m	10/1/96	931	0.09	2.8	0.10	1.4	0.60	8.4	33.9	952	0.29	9.0	4.6	65	0.29	8.98	1.12	0.09	34.692	28.1	8.22	6.77	0.08	<1	<1
O3-1S-8m	1/6/97	931	0.13	4.0	0.67	9.4	0.16	2.2	4.0	112	0.35	10.8	5.4	75	0.35	10.84	1.28	0.07	34.654	25.5	8.27	6.97	0.04	<1	<1
O3-1S-8m	4/21/97	914	0.12	3.7	1.78	24.9	0.27	3.8	3.4	96	0.36	11.2	6.6	93	0.37	11.46	1.10	0.10	34.507	26.4	8.27	6.77	0.07	<1	<1
Geomean	**'96-'97**			**3.5**		***6.8***		***4.1***				**9.7**		**73**				**0.10**					**0.07**		
O3-1S-8m	8/18/97	908	0.12	3.7	0.60	8.4	0.21	2.9	3.9	110	0.37	11.5	5.0	70	0.44	13.63	1.10	0.18	34.614	26.9	8.39	6.67	0.15	<1	<1
O3-1S-8m	10/6/97	930	0.12	3.7	0.11	1.5	0.34	4.8	12.1	340	0.40	12.4	4.7	65	0.40	12.39	1.11	0.09	34.703	27.4	8.44	6.72	0.11	<1	<1
O3-1S-8m	3/3/98	931	0.11	3.4	0.43	6.0	0.24	3.4	3.6	102	0.32	9.9	5.2	72	0.32	9.91	0.99	0.07	35.000	24.8	8.21	6.86	0.02	<1	<1
O3-1S-8m	5/4/98	1241	0.12	3.7	0.43	6.0	0.13	1.8	4.0	111	0.41	12.7	5.1	72	0.42	13.01	0.92	0.07	35.030	24.0	8.24	7.18	0.19	<1	<1
Geomean	**'97-'98**			**3.6**		***4.7***		***3.0***				**11.6**		**70**				**0.09**					**0.09**		
O3-1S-8m	7/6/98	947	0.16	5.0	0.65	9.1	0.06	0.8	19.6	549	0.39	12.1	5.3	74	0.41	12.70	1.05	0.10	34.941	26.2	8.21	6.87	0.15	<1	<1
O3-1S-8m	10/5/98	923	0.11	3.4	0.11	1.5	0.09	1.3	11.5	324	0.39	12.1	6.0	84	0.42	13.01	1.14	0.08	35.101	27.0	8.23	7.38	0.08	6	<1
O3-1S-8m	1/13/99	921	0.12	3.7	1.14	16.0	0.26	3.6	4.5	126	0.36	11.2	5.6	79	0.36	11.15	1.16	0.07	35.039	24.8	8.22	6.99	0.09	1	<1
O3-1S-8m	4/13/99	916	0.17	5.3	0.60	8.4	0.12	1.7	6.7	188	0.42	13.0	4.7	67	0.46	14.25	1.01	0.12	34.633	24.2	8.18	7.17	0.13	<1	<1
Geomean	**'98-'99**			**4.3**		***6.6***		**1.6**				**12.1**		**76**				**0.09**					**0.11**		
O3-1S-8m	7/13/99	950	0.14	4.3	0.49	6.9	0.04	0.6	4.0	112	0.39	12.1	6.2	86	0.41	12.70	1.07	0.14	34.916	26.0	8.21	6.91	0.16	<1	<1
O3-1S-8m	10/25/99	934	0.14	4.3	0.62	8.7	0.31	4.3	17.9	504	0.34	10.5	5.0	71	0.40	12.39	1.05	0.09	34.943	26.1	8.25	6.77	0.14	<1	<1
O3-1S-8m	1/4/00	944	0.13	4.0	0.81	11.3	0.35	4.9	4.3	122	0.34	10.5	6.0	84	0.34	10.53	0.98	0.08	35.051	24.8	8.22	6.89	0.05	<1	<1
O3-1S-8m	5/16/00	1008	0.17	5.3	0.41	5.7	0.09	1.3	5.1	144	0.37	11.5	6.5	91	0.36	11.15	0.99	0.10	34.664	25.2	8.25	7.13	0.20	<1	<1
Geomean	**'99-'00**			**4.5**		***7.9***		**2.0**				**11.1**		**83**				**0.10**					**0.12**		
O3-1S-8m	7/24/00	956	0.11	3.4	0.15	2.1	0.06	0.8	3.1	88	0.37	11.5	5.4	76	0.37	11.46	0.98	0.07	34.877	27.2	8.26	6.66	0.14	1	4
O3-1S-8m	10/30/00	1002	0.13	4.0	0.19	2.7	0.31	4.3	6.7	188	0.35	10.8	5.5	77	0.36	11.15	1.07	0.11	35.003	27.0	8.25	6.66	0.17	<1	1
O3-1S-8m	2/26/01	1003	0.13	4.0	0.12	1.7	0.16	2.2	3.7	104	0.39	12.1	5.7	79	0.40	12.39	1.48	0.11	34.719	24.8	8.20	6.73	0.09	<1	2
O3-1S-8m	5/8/01	923	0.14	4.3	0.66	9.2	0.19	2.7	4.3	119	0.33	10.2	5.4	75	0.35	10.84	1.04	0.09	34.793	24.9	8.20	7.06	0.14	<1	4
Geomean	**'00-'01**			**3.9**		**3.1**		**2.2**				**11.1**		**77**				**0.09**					**0.13**		
O3-1S-8m	8/13/01	947	0.12	3.7	0.04	0.6	0.29	4.1	18.1	509	0.30	9.3	5.1	72	0.33	10.22	1.07	0.10	34.898	26.5	8.21	6.90	0.11	<1	<1
O3-1S-8m	10/10/01	933	0.16	5.0	0.05	0.7	0.07	1.0	3.0	85	0.40	12.4	5.1	71	0.41	12.70	1.04	0.08	34.936	27.4	8.21	6.87	0.11	<1	1
O3-1S-8m	3/4/02	1103	0.10	3.1	0.47	6.6	0.02	0.3	5.1	144	0.39	12.1	6.3	88	0.39	12.08	0.98	0.07	34.687	24.1	8.23	6.88	0.13	<1	<1
O3-1S-8m	4/16/02	1117	0.18	5.6	0.46	6.4	0.32	4.5	5.7	161	0.39	12.1	6.2	86	0.39	12.08	0.96	0.08	34.401	25.7	8.20	6.78	0.17	<1	<1
Geomean	**'01-'02**			**4.2**		**2.0**		**1.5**				**11.4**		**79**				**0.08**					**0.13**		

NELHA Water Quality Laboratory

Transect 3, Station 1

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TP		TOC	Turbidity	Salinity	Temp.	pH	DO	Chl a	Fecal Coliform	Enterococci
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg P/L)	(mgC/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)	Bact/100 ml	Bact/100 ml
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**				**0.10**					**0.30**		
O3-1S-8m	7/9/02	1006	0.13	4.0	0.54	7.6	0.15	2.1	4.3	122	0.36	11.2	7.6	106	0.40	12.39	1.09	0.08	34.630	26.6	8.20	6.78	0.18	<1	2
O3-1S-8m	10/7/02	1104	0.10	3.1	0.52	7.3	0.25	3.5	3.5	99	0.32	9.9	5.8	81	0.33	10.22	0.98	0.12	34.915	27.1	8.25	6.96	0.13	<1	<1
O3-1S-8m	3/10/03	1037	0.14	4.3	0.52	7.3	0.04	0.6	3.4	95	0.40	12.4	6.1	85	0.39	12.08	0.91	0.17	34.795	24.8	8.25	7.19	0.11	<1	<1
O3-1S-8m	4/22/03	1012	0.09	2.8	0.25	3.5	0.04	0.6	2.6	72	0.35	10.8	6.4	89	0.34	10.53	0.93	0.07	35.013	25.0	8.26	7.97	0.19	<1	<1
Geomean	**'02-'03**			**3.5**		***6.1***		**1.2**				**11.0**		**90**				**0.10**					**0.15**		
O3-1S-8m	8/19/03	1125	0.11	3.4	0.22	3.1	0.20	2.8	3.0	85	0.35	10.8	6.5	91	0.36	11.15	n/a	0.09	34.858	28.0	8.25	6.77	0.15	<1	1
O3-1S-8m	10/30/03	856	0.10	3.1	0.11	1.5	0.25	3.5	1.7	48	0.39	12.1	6.7	94	0.38	11.77	n/a	0.09	34.817	27.5	8.22	N/A	0.07	<1	<1
O3-1S-8m	3/17/04	1001	0.13	4.0	0.02	0.3	0.23	3.2	1.8	51	0.36	11.2	5.5	77	0.39	12.08	n/a	n/a	34.349	26.0	8.28	6.39	0.10	<1	9
O3-1S-8m	5/20/04	1106	0.14	4.3	0.13	1.8	0.20	2.8	2.3	65	0.38	11.8	5.7	80	0.39	12.08	n/a	n/a	33.50	26.8	8.25	7.12	0.01	<1	<1
Geomean	**'03-'04**			**3.7**		**1.2**		***3.1***				**11.4**		**85**				**0.09**					**0.06**		
O3-1S-8m	9/20/04	1054	0.09	2.8	0.03	0.4	0.24	3.4	2.0	55	0.33	10.2	5.2	73	0.34	10.53	n/a	0.11	33.76	28.1	8.26	6.74	0.15	3	1
O3-1S-8m	11/17/04	1021	0.08	2.5	0.12	1.7	0.29	4.1	1.4	38	0.30	9.3	3.4	48	0.31	9.60	n/a	0.09	33.77	27.2	8.30	6.82	0.10	<1	2
O3-1S-8m	1/13/05	1148	0.08	2.5	0.59	8.3	0.06	0.8	3.6	102	0.28	8.7	4.1	57	0.30	9.29	n/a	0.11	34.823	25.0	8.35	6.24	0.13	<1	<1
O3-1S-8m	4/11/05	1158	0.14	4.3	0.84	11.8	0.29	4.1	3.7	105	0.36	11.2	4.7	66	0.38	11.77	n/a	0.21	34.455	25.2	8.32	7.12	0.14	<1	<1
Geomean	**'04-'05**			**2.9**		**2.9**		***2.6***				**9.8**		**60**				***0.12***					**0.13**		
O3-1S-8m	7/20/05	1144	0.09	2.8	0.30	4.2	0.13	1.8	3.0	84	0.32	9.9	3.3	46	0.34	10.53	n/a	0.16	34.684	26.7	8.25	6.85	0.06	<1	<1
O3-1S-8m	10/11/05	1035	0.05	1.5	0.01	0.1	0.15	2.1	1.7	47	0.31	9.6	3.0	42	0.32	9.91	1.00	0.12	34.859	27.5	8.29	6.67	0.08	<1	<1
O3-1S-8m	3/14/06	900	0.16	5.0	1.01	14.1	0.46	6.4	4.2	118	0.38	11.8	5.9	83	0.41	12.70	n/a	0.12	34.802	24.4	8.24	6.88	0.11	<1	3
O3-1S-8m	5/15/06	1105	0.12	3.7	1.17	16.4	0.27	3.8	4.7	131	0.39	12.1	6.8	95	0.47	14.56	1.06	0.17	34.676	24.9	8.27	6.97	0.41	<1	<1
Geomean	**'05-'06**			**3.0**		**3.4**		***3.1***				**10.8**		**62**				***0.14***					**0.12**		
O3-1S-8m	8/14/06	1105	0.13	4.0	0.28	3.9	0.25	3.5	2.7	77	0.43	13.3	5.2	73	0.45	13.94	1.07	0.10	34.500	26.9	8.25	7.16	0.15	<1	<1
O3-1S-8m	11/1/06	1114	0.09	2.8	0.24	3.4	0.47	6.6	2.1	60	0.35	10.8	6.2	87	0.35	10.84	1.28	1.45	34.812	27.3	8.27	6.78	0.11	<1	<1
O3-1S-8m	2/12/07	1131	0.14	4.3	0.28	3.9	0.41	5.7	2.2	62	0.34	10.5	5.5	77	0.38	11.77	1.17	0.13	34.491	24.7	8.23	7.61	0.12	<1	<1
O3-1S-8m	4/9/07	1108	0.14	4.3	0.26	3.6	0.30	4.2	4.7	132	0.36	11.2	5.1	71	0.39	12.08	0.97	0.49	34.623	25.4	8.22	6.64	0.02	<1	<1
Geomean	**'06-'07**			**3.8**		**3.7**		***4.9***				**11.4**		**77**				***0.31***					**0.08**		
T3-1m	9/26/07	1032	0.15	4.6	0.43	6.0	0.38	5.3	5.8	162	0.37	11.6	5.6	79				0.12	34.961	26.8	8.25	6.63	0.10		
T3-1m	12/13/07	1159	0.11	3.3	0.44	6.2			8.8	247	0.36	11.0	7.1	99				0.16	34.688	25.7	8.30	6.78	0.25		
T3-1m	3/10/08	1048	0.21	6.5	1.34	18.8	0.06	0.8	5.8	162	0.41	12.6	8.7	123				0.43	34.87	24.8	8.17	6.92	0.24		
T3-1m	6/5/08	1054	0.11	3.3	0.27	3.8	0.16	2.2	19.0	533	0.21	6.4	9.8	138				0.06	34.812	25.1	8.18	6.79	0.35		
Geomean	**'07-'08**			**4.2**		***7.2***		**2.1**				**10.1**		***107***				***0.15***					**0.21**		
T3-1m	9/22/08	1143	0.06	2	0.24	3.3	0.31	4.3	1.9	54	0.26	8.1	4.8	67				0.06	34.853	26.9	8.06	6.62	0.04		
T3-1m	11/17/08	1026	0.14	4.2	0.21	3	0.14	1.9	2.5	71	0.29	8.9	4.1	58				0.12	34.955	26.0	8.26	6.25	0.04		
T3-1m	2/9/09	1031	0.19	6	0.99	13.8	0.12	1.7	3.2	91	0.39	12	11.2	157				0.08	35.600	25.0	8.06	6.50	0.06		
T3-1m	4/13/09	1012	0.24	7.5	0.96	13.4	0.31	4.4	3.8	106	0.57	17.6	5.6	78				0.10	34.955	23.9	8.19	6.20	0.07		
Geomean	**'08-'09**			**4.4**		***6.5***		***2.8***				**11.1**		**83**				**0.09**					**0.05**		
T3-1m	9/9/09	1031	0.15	4.7	0.46	6.5	0.12	1.7	6.5	183	0.63	19.5	5.1	72				0.07	35.22	27.1	8.22	5.80	0.27		
T3-1m	11/23/09	1040	0.03	0.9	0.51	7.2	0.09	1.3	46.6	1309	0.37	11.6	5.3	75				0.07	35.23	25.1	8.28	6.60	0.11		
T3-1m	2/23/10	1043	0.16	5.1	0.35	4.9	0.41	5.8	17.5	491	0.33	10.3	6.4	90				0.10	35.02	24.6	8.20	6.36	0.35		
T3-1m	5/25/10	952	0.05	1.7	0.46	6.4	0.29	4.1	6.1	172	0.33	10.3	5.6	78				0.06	34.94	25.0	8.21	6.98	0.05		
Geomean	**'09-'10**			**2.5**		***6.2***		***2.7***				**12.4**		**78**				**0.07**					**0.15**		
T3-1m	8/10/10	1046	0.06	1.9	0.73	10.2	0.12	1.7	2.2	62	0.31	9.7	4.5	63				0.07	35.22	27.10	8.22	5.80	0.27		
T3-1m	11/8/10	1027	0.02	0.7	0.39	5.5	0.29	4.0	3.1	88	0.39	12.1	6.0	84				0.07	35.23	25.10	8.28	6.60	0.11		
T3-1m	1/11/11	1040	0.14	4.4	0.29	4	0.44	6.1	3.1	88	0.42	13.1	4.8	68				0.10	35.02	24.62	8.20	6.36	0.35		
T3-1m	4/26/11	1044	0.11	3.4	0.37	5.2	0.29	4.0	5.6	158	0.46	14.4	3.4	48				0.06	34.94	25.03	8.21	6.98	0.05		
Geomean	**'10-'11**			**2.1**		***5.8***		***3.6***				**12.2**		**64**				**0.07**					**0.15**		

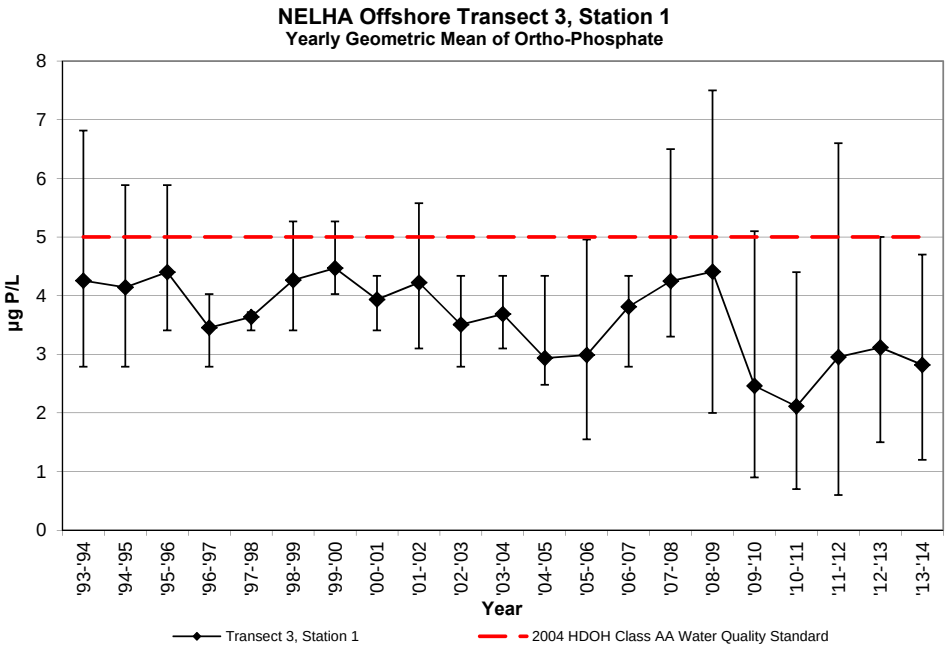
NELHA Water Quality Laboratory

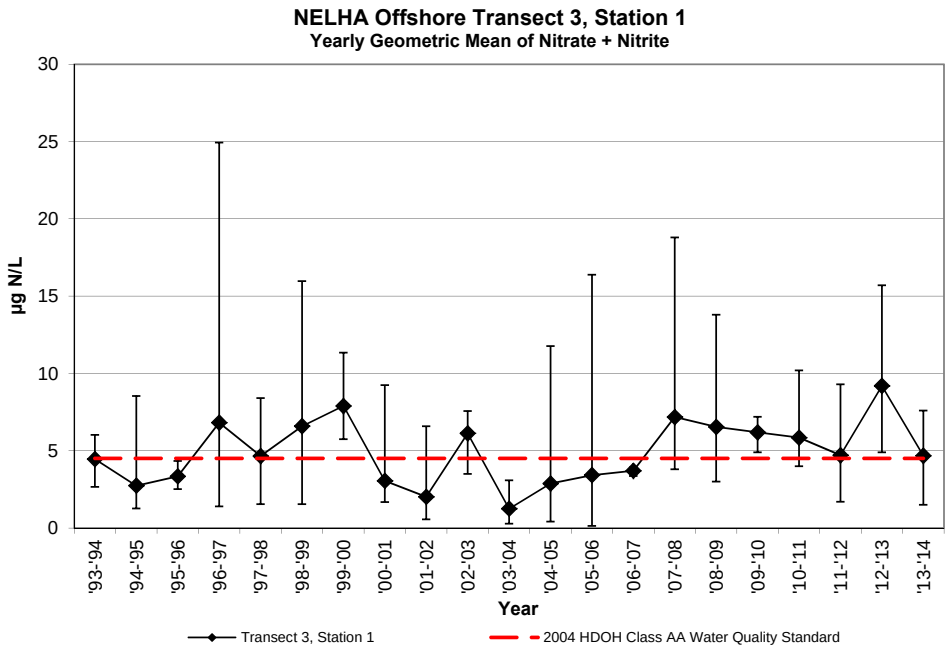
Transect 3, Station 1

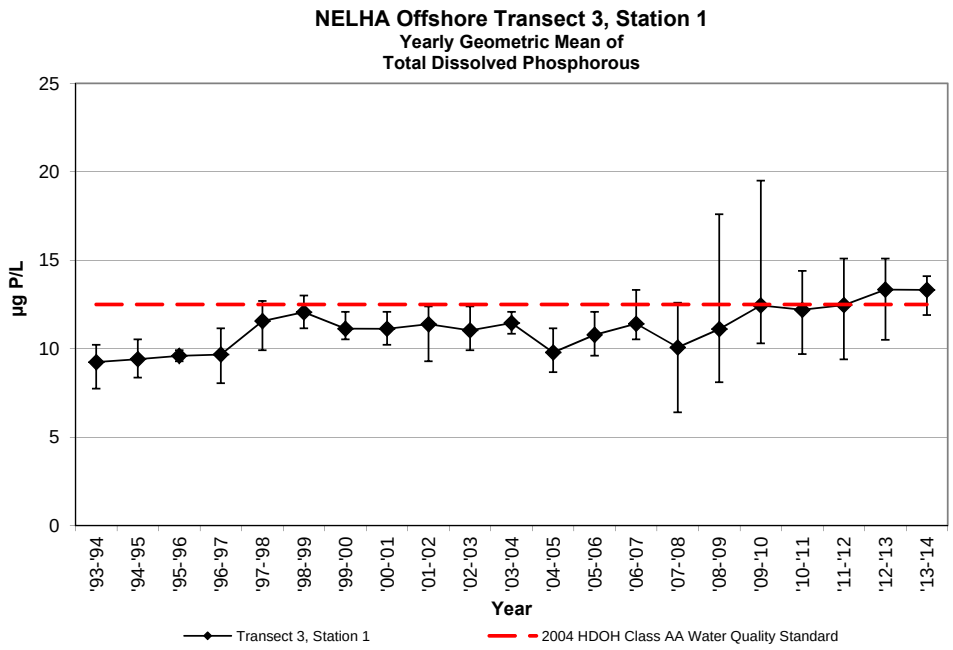
July 1993 - June 2014

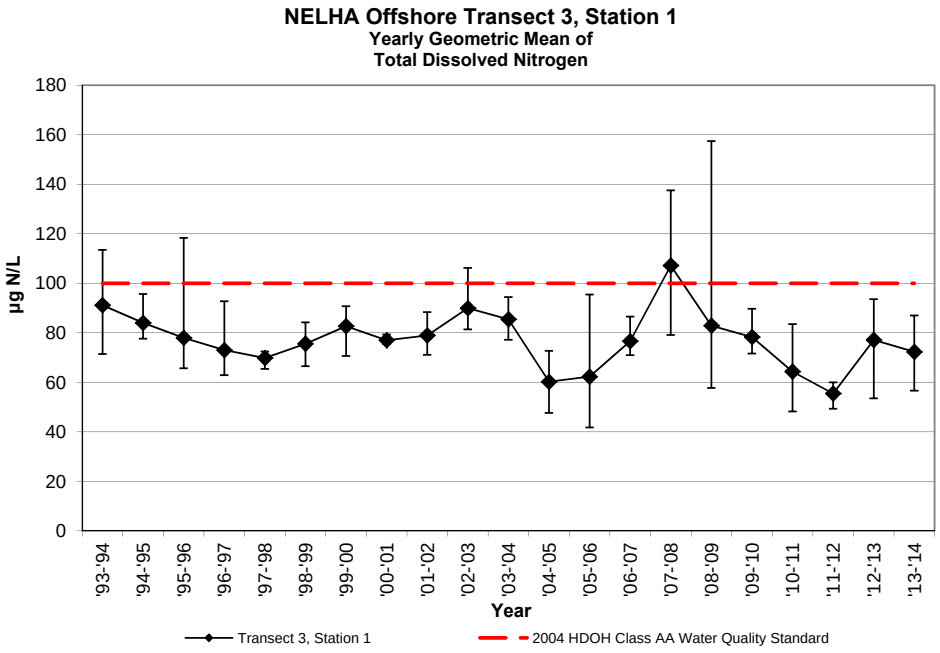
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TP		TOC	Turbidity	Salinity	Temp.	pH	DO	Chl a	Fecal Coliform	Enterococci
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg P/L)	(mgC/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)	Bact/100 ml	Bact/100 ml
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**				**0.10**					**0.30**		
T3-1m	7/26/11	1115	0.21	6.6	0.26	3.7	0.17	2.4	1.5	42	0.49	15.1	3.5	49				0.09	34.82	26.04	8.27	6.75	0.04		
T3-1m	10/18/11	1031	0.02	0.6	0.12	1.7	0.24	3.4	2.4	68	0.30	9.4	4.1	58				0.09	35.06	26.80	8.24	7.09	0.08		
T3-1m	1/25/12	1058	0.13	4	0.66	9.3	0.23	3.2	3.4	96	0.41	12.7	4.3	60				0.09	35.00	24.65	8.21	7.12	0.00		
T3-1m	4/24/12	1125	0.15	4.8	0.60	8.4	0.28	3.9	2.1	59	0.43	13.4	4.0	56				0.08	35.10	24.89	8.23	6.98	0.06		
Geomean	**'11-'12**			**3.0**		***4.7***		***3.2***				**12.5**		**55**				**0.09**					**0.06**		
T3-1m	7/24/12	1041	0.05	1.5	0.35	4.9	0.25	3.5	1.6	45	0.34	10.5	3.8	54				0.06	35.06	26.37	8.24	7.10	0.04		
T3-1m	11/27/12	1026	0.12	3.8	1.12	15.7	0.26	3.6	4.0	113	0.49	15.1	6.3	88				0.04	35.15	25.02	8.20	7.12	0.15		
T3-1m	1/23/13	1037	0.11	3.3	0.66	9.2	0.25	3.5	2.8	80	0.43	13.4	5.7	80				0.06	35.08	24.70	8.20	6.71	0.06		
T3-1m	4/16/13	1045	0.16	5	0.72	10.1	0.41	5.7	2.3	63	0.48	14.9	6.7	94				0.06	35.11	25.00	8.21	7.01	0.04		
Geomean	**'12-'13**			**3.1**		***9.2***		***4.0***				**13.3**		**77**				**0.05**					**0.06**		
T3-1m	10/29/13	952	0.04	1.2	0.11	1.5	0.08	1.1	2.3	64	0.44	13.5	5.2	73				0.11	35.25	26.3	8.26	7.02	0.14		
T3-1m	10/29/13	1021	0.15	4.7	0.50	7.0	0.34	4.7	2.5	72	0.46	14.1	6.2	87				0.06	35.25	27.1	8.22	6.54	0.12		
T3-1m	2/4/14	1033	0.10	3.2	0.54	7.6	0.56	7.8	2.1	59	0.38	11.9	4.0	57				0.02	35.10	25.2	8.20	6.56	0.14		
T3-1m	5/6/14	1034	0.11	3.5	0.43	6.0	0.28	3.9	3.1	88	0.45	13.9	5.4	76				0.08	34.72	25.9	8.20	6.11	0.16		
Geomean	**'13-'14**			**2.8**		***4.7***		***3.5***				***13.3***		**72**				**0.06**					**0.14**		

NELHA Water Quality Laboratory
Transect 3, Station 1
July 1993 - June 2014

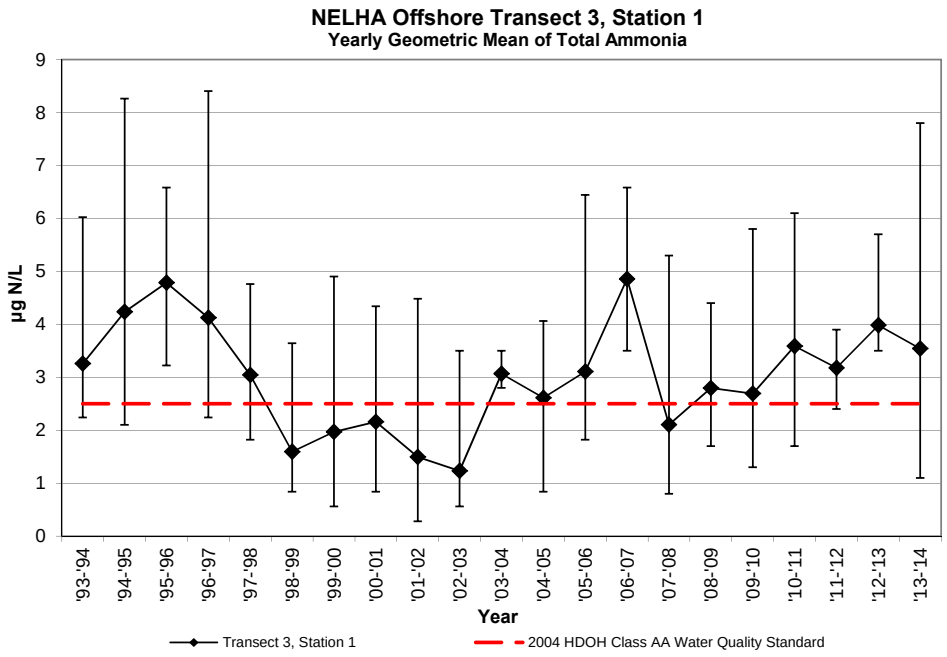


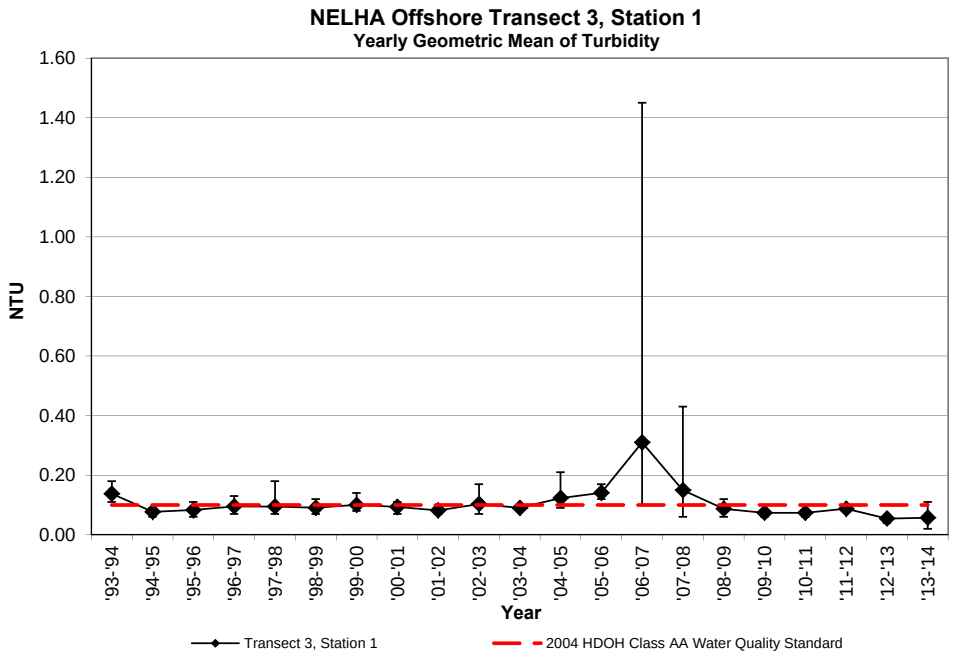


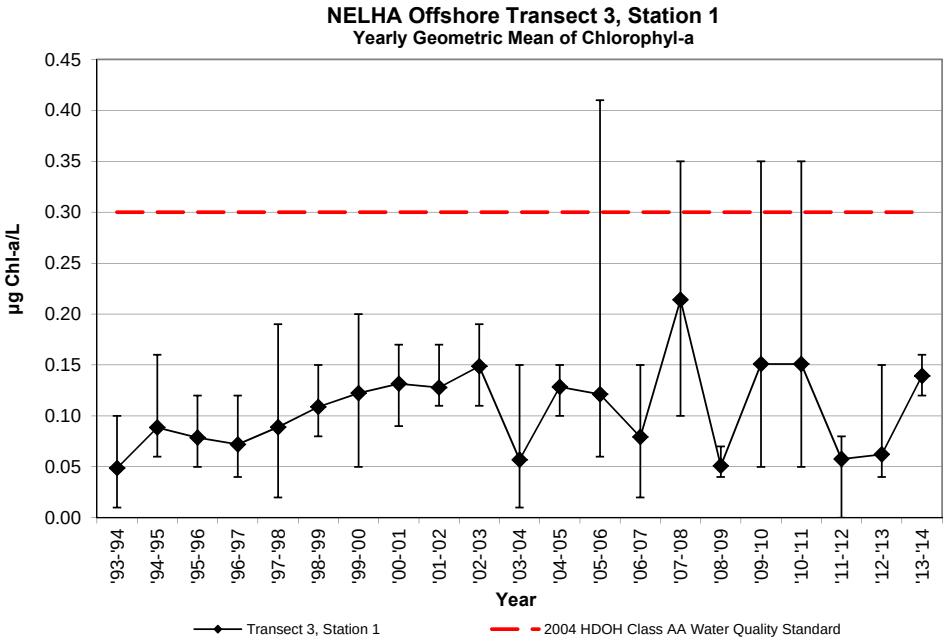




NELHA Water Quality Laboratory
Transect 3, Station 1
July 1993 - June 2014







NELHA Water Quality Laboratory
Transect 3, Station 2
July 1993 - June 2014

SITE ID	DATE M/D/Y	TIME (2400)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	Turbidity (NTU)	Salinity (PSU)	Temp. (˚C)	pH (unit)	DO (ppm)	Chl a (µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O3-2S-23m	8/3/93	1047	0.12	3.7	0.29	4.1	0.39	5.5	3.6	101					0.06	34.502	26.8			
O3-2S-23m	12/8/93	1058	0.09	2.8	0.21	2.9	0.14	2.0	2.7	77					0.07	34.788	25.7			
O3-2S-23m	3/8/94	1020	0.20	6.2	0.40	5.6	0.33	4.6	3.6	100			5.89	82.50	0.09	34.204	25.2			
O3-2S-23m	6/13/94	1012	0.13	4.0	0.29	4.1	0.11	1.5	4.5	127					0.16	34.520	25.7			
Geomean	**'93-'94**			**4.0**		**4.1**		***3.0***							**0.09**					
O3-2S-23m	9/8/94	852	0.09	2.8	0.15	2.1	0.18	2.5	3.5	98					0.09	34.630	27.6			
O3-2S-23m	11/15/94	930	0.17	5.3	0.58	8.1	0.59	8.3	5.1	144					0.11	34.551	26.0			
O3-2S-23m	3/21/95	834	0.19	5.9	0.14	2.0	0.11	1.5	4.2	119					0.09	34.226	25.0			
O3-2S-23m	6/21/95	947	0.11	3.4	0.04	0.6	0.34	4.8	1.7	48					0.06	34.475	26.2			
Geomean	**'94-'95**			**4.1**		**2.1**		***3.5***							**0.09**					
O3-2S-23m	9/25/95	1210	0.12	3.7	0.25	3.5	0.28	3.9	3.5	98					0.12	34.521	27.3			
O3-2S-23m	11/13/95	825	0.15	4.6	0.17	2.4	0.55	7.7	2.2	62					0.06	34.388	26.6			
O3-2S-23m	3/11/96	1219	0.12	3.7	0.29	4.1	0.49	6.9	2.3	64					0.08	34.192	25.5			
O3-2S-23m	5/13/96	1124	0.13	4.0	0.36	5.0	0.23	3.2	3.7	105					0.09	34.289	27.0			
Geomean	**'95-'96**			**4.0**		**3.6**		***5.1***							**0.08**					
O3-2S-23m	7/30/96	1045	0.11	3.4	0.61	8.5	0.31	4.3	4.5	125					0.10	34.434	28.4			
O3-2S-23m	10/1/96	925	0.07	2.2	0.04	0.6	0.62	8.7	2.3	65					0.08	34.689	27.9			
O3-2S-23m	1/6/97	928	0.12	3.7	0.68	9.5	0.16	2.2	4.0	112					0.12	34.655	25.3			
O3-2S-23m	4/21/97	909	0.11	3.4	1.83	25.6	0.28	3.9	3.3	93					0.14	34.530	26.4			
Geomean	**'96-'97**			**3.1**		***5.8***		***4.3***							***0.11***					
O3-2S-23m	8/18/97	903	0.11	3.4	0.46	6.4	0.20	2.8	4.7	133					0.10	34.617	27.0			
O3-2S-23m	10/6/97	927	0.11	3.4	0.03	0.4	0.32	4.5	2.9	81					0.08	34.707	27.4			
O3-2S-23m	3/3/98	926	0.07	2.2	0.15	2.1	0.24	3.4	2.5	71					0.08	35.027	24.9			
O3-2S-23m	5/4/98	1239	0.10	3.1	0.08	1.1	0.10	1.4	30.3	851					0.06	35.078	24.0			
Geomean	**'97-'98**			**3.0**		**1.6**		***2.8***							**0.08**					
O3-2S-23m	7/6/98	941	0.12	3.7	0.55	7.7	0.05	0.7	5.6	157					0.09	34.949	26.1			
O3-2S-23m	10/5/98	916	0.08	2.5	0.06	0.8	0.09	1.3	2.4	69					0.08	35.107	27.2			
O3-2S-23m	1/13/99	916	0.10	3.1	0.68	9.5	0.26	3.6	3.5	99					0.07	35.063	24.8			
O3-2S-23m	4/13/99	911	0.17	5.3	0.71	9.9	0.11	1.5	4.3	121					0.11	34.617	24.2			
Geomean	**'98-'99**			**3.5**		***5.0***		**1.5**							**0.09**					
O3-2S-23m	7/13/99	945	0.14	4.3	0.43	6.0	0.04	0.6	4.1	115					0.08	34.909	26.0			
O3-2S-23m	10/25/99	928	0.13	4.0	0.70	9.8	0.33	4.6	5.1	142					0.11	34.932	26.1			
O3-2S-23m	1/4/00	939	0.11	3.4	0.61	8.5	0.35	4.9	4.6	130					0.08	35.066	24.8			
O3-2S-23m	5/16/00	1005	0.16	5.0	0.41	5.7	0.10	1.4	4.7	133					0.10	34.636	25.2			
Geomean	**'99-'00**			**4.1**		***7.3***		**2.1**							**0.09**					
O3-2S-23m	7/24/00	947	0.10	3.1	0.11	1.5	0.01	0.1	3.0	85					0.06	34.884	27.3			
O3-2S-23m	10/30/00	958	0.12	3.7	0.14	2.0	0.29	4.1	4.9	139					0.08	34.979	27.0			
O3-2S-23m	2/26/01	958	0.15	4.6	0.10	1.4	0.16	2.2	3.1	87					0.07	34.728	24.8			
O3-2S-23m	5/8/01	920	0.14	4.3	0.51	7.1	0.21	2.9	8.4	235					0.07	34.792	24.9			
Geomean	**'00-'01**			**3.9**		**2.3**		**1.4**							**0.07**					
O3-2S-23m	8/13/01	943	0.10	3.1	0.05	0.7	0.29	4.1	2.8	79					0.09	34.892	26.6			
O3-2S-23m	10/10/01	928	0.14	4.3	0.08	1.1	0.04	0.6	3.1	88					0.10	34.935	27.4			
O3-2S-23m	3/4/02	1059	0.10	3.1	0.02	0.3	0.02	0.3	1.7	47					0.08	34.670	24.2			
O3-2S-23m	4/16/02	1112	0.17	5.3	0.43	6.0	0.35	4.9	7.1	199					0.09	34.396	25.7			
Geomean	**'01-'02**			**3.8**		**1.1**		**1.3**							**0.09**					

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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O3-2S-23m	7/9/02	1003	0.13	4.0	0.43	6.0	0.18	2.5	4.1	114					0.07	34.640	26.6			
O3-2S-23m	10/7/02	1059	0.08	2.5	0.30	4.2	0.25	3.5	3.1	88					0.09	34.923	27.1			
O3-2S-23m	3/10/03	1026	0.14	4.3	0.26	3.6	0.03	0.4	3.0	83					0.07	34.808	24.8			
O3-2S-23m	4/22/03	1005	0.08	2.5	0.28	3.9	0.05	0.7	2.5	71					0.17	35.018	25.0			
Geomean	**'02-'03**			**3.2**		**4.4**		**1.3**							**0.09**					
O3-2S-23m	8/19/03	1109	0.07	2.2	0.01	0.1	0.20	2.8	1.5	43					0.08	34.817	28.2			
O3-2S-23m	10/30/03	841	0.09	2.8	0.02	0.3	0.20	2.8	2.0	56					0.16	34.862	27.4			
O3-2S-23m	3/17/04	948	0.13	4.0	0.01	0.1	0.21	2.9	1.4	40					n/a	34.347	26.0			
O3-2S-23m	5/20/04	1112	0.12	3.7	0.03	0.4	0.18	2.5	2.0	56					n/a	33.53	26.8			
Geomean	**'03-'04**			**3.1**		**0.2**		***2.8***							***0.11***					
O3-2S-23m	9/20/04	1047	0.08	2.5	0.03	0.4	0.31	4.3	1.9	53					0.09	33.78	28.1			
O3-2S-23m	11/17/04	1017	0.08	2.5	0.09	1.3	0.19	2.7	1.4	38					0.06	33.73	27.2			
O3-2S-23m	1/13/05	1142	0.04	1.2	0.01	0.1	0.08	1.1	1.8	51					0.06	34.856	24.9			
O3-2S-23m	4/11/05	1152	0.14	4.3	0.86	12.0	0.24	3.4	3.8	106					0.14	34.449	25.3			
Geomean	**'04-'05**			**2.4**		**1.0**		***2.6***							**0.08**					
O3-2S-23m	7/20/05	1137	0.09	2.8	0.25	3.5	0.17	2.4	3.0	84					0.17	34.674	26.7			
O3-2S-23m	10/11/05	1028	0.05	1.5	0.01	0.1	0.17	2.4	1.3	36					0.11	34.847	27.5			
O3-2S-23m	3/14/06	854	0.10	3.1	0.09	1.3	0.30	4.2	1.5	41					0.10	34.760	24.5			
O3-2S-23m	5/15/06	1058	0.19	5.9	0.09	1.3	0.17	2.4	1.8	51					0.13	34.872	24.8			
Geomean	**'05-'06**			**3.0**		**0.9**		***2.7***							***0.12***					
O3-2S-23m	8/14/06	1100	0.12	3.7	0.26	3.6	0.16	2.2	3.1	87					0.11	34.599	26.8			
O3-2S-23m	11/1/06	1105	0.08	2.5	0.16	2.2	0.41	5.7	2.0	56					0.76	34.806	27.4			
O3-2S-23m	2/12/07	1124	0.12	3.7	0.07	1.0	0.37	5.2	1.4	38					0.19	34.487	24.7			
O3-2S-23m	4/9/07	1101	0.12	3.7	0.44	6.2	0.32	4.5	5.3	149					0.16	34.585	25.4			
Geomean	**'06-'07**			**3.4**		**2.7**		***4.2***							***0.22***					
T3-10m	9/26/07	1041	0.16	5.0	0.41	5.7	0.40	5.6	16.0	449	0.39	12.0	5.5	78	0.10	34.974	26.8	8.21	6.47	0.15
T3-10m	12/13/07	1203	0.11	3.5	0.59	8.3			6.5	181	0.37	11.5	5.6	79	0.09	34.658	25.8	8.25	6.70	0.24
T3-10m	3/10/08	1050	0.20	6.1	1.58	22.1	0.06	0.8	9.6	271	0.43	13.2	7.5	106	0.19	34.848	24.8	8.18	6.97	0.29
T3-10m	6/5/08	1055	0.14	4.3	0.38	5.3	0.16	2.2	24.1	676	0.22	6.7	6.5	91	0.05	34.799	25.1	8.17	6.68	0.29
Geomean	**'07-'08**			**4.6**		***8.6***		**2.1**				**10.5**		**87**	**0.10**					**0.23**
T3-10m	9/22/08	1149	0.05	1.4	0.17	2.4	0.15	2.1	1.8	51	0.32	10.0	5.0	70	0.12	34.829	26.7	8.05	6.58	0.06
T3-10m	11/17/08	1029	0.19	5.8	0.20	2.8	0.14	1.9	2.9	82	0.36	11.3	4.7	66	0.08	34.960	25.9	8.27	6.20	0.01
T3-10m	2/9/09	1037	0.14	4.2	1.01	14.2	0.12	1.7	4.5	126	0.33	10.2	10.6	149	0.08	35.059	25.0	8.06	6.39	0.04
T3-10m	4/13/09	1017	0.16	4.9	1.04	14.5	1.72	24.1	3.9	109	0.50	15.4	10.4	146	0.10	34.936	23.8	8.19	6.36	0.11
Geomean	**'08-'09**			**3.6**		***6.1***		***3.6***				**11.5**		**100**	**0.09**					**0.04**
T3-10m	9/9/09	1039	1.41	43.8	0.59	8.2	1.09	15.3	5.5	154	0.54	16.7	5.2	73	0.08	35.25	27.1	8.22	5.55	0.17
T3-10m	11/23/09	1045	0.03	0.8	0.58	8.1	0.29	4.1	9.1	255	0.41	12.8	5.3	75	0.07	35.23	25.1	8.30	6.56	0.13
T3-10m	2/23/10	1047	0.19	5.8	0.39	5.5	0.49	6.8	17.4	489	0.39	12.0	6.4	89	0.08	35.08	24.6	8.18	6.31	0.2
T3-10m	5/25/10	957	0.06	2	0.45	6.3	0.18	2.5	11.1	311	0.30	9.4	4.5	63	0.08	34.95	25.0	8.21	7.00	0.1
Geomean	**'09-'10**			**4.5**		***6.9***		***5.7***				**12.5**		**74**	**0.08**					**0.14**
T3-10m	8/10/10	1050	0.08	2.6	1.10	15.4	0.12	1.7	3.7	104	0.67	20.6	2.2	31	0.09	34.83	26.28	8.24	6.70	0.08
T3-10m	11/8/10	1030	0.02	0.7	0.42	5.9	0.37	5.2	9.8	275	0.37	11.5	5.0	71	0.09	35.31	26.61	8.26	6.49	0.08
T3-10m	1/11/11	1044	0.14	4.3	0.35	4.9	0.12	1.7	25.7	722	0.43	13.4	4.3	61	0.08	34.97	24.97	8.23	6.65	0.11
T3-10m	4/26/11	1048	0.15	4.8	0.35	4.9	0.24	3.4	2.4	67	0.40	12.5	3.2	46	0.08	34.97	24.98	8.21	6.61	0.15
Geomean	**'10-'11**			**2.5**		***6.8***		***2.7***				***14.1***		**49**	**0.08**					**0.10**

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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
T3-10m	7/26/11	1119	0.19	6	0.26	3.6	0.14	2	1.3	38	0.46	14.1	3.6	51	0.06	34.81	26.07	8.28	6.76	0.07
T3-10m	10/18/11	1035	0.03	0.8	0.11	1.5	0.24	3.3	1.9	53	0.27	8.5	3.3	46	0.10	35.06	26.80	8.24	7.06	0.11
T3-10m	1/25/12	1101	0.13	3.9	0.91	12.7	0.14	1.9	3.4	96	0.42	13.0	5.4	75	0.07	34.98	24.64	8.21	7.28	0.11
T3-10m	4/24/12	1131	0.15	4.5	0.61	8.5	0.37	5.2	2.0	55	0.43	13.4	4.6	65	0.11	35.11	24.93	8.22	6.99	0.16
Geomean	**'11-'12**			**3.0**		***4.9***		***2.8***				**12.0**		**58**	**0.08**					**0.11**
T3-10m	7/24/12	1045	0.06	1.9	0.36	5.1	0.25	3.5	1.4	40	0.30	9.4	4.2	59	0.10	35.06	26.36	8.24	6.97	0.10
T3-10m	11/27/12	1029	0.14	4.3	1.28	17.9	0.37	5.2	4.4	125	0.46	14.3	5.7	80	0.03	35.14	25.03	8.21	7.13	0.08
T3-10m	1/23/13	1040	0.10	3.1	0.48	6.7	0.37	5.2	2.4	67	0.49	15.2	7.0	98	0.03	35.08	24.72	8.21	6.69	0.03
T3-10m	4/16/13	1048	0.16	4.9	0.76	10.7	0.16	2.3	2.5	71	0.46	14.4	5.9	83	0.03	35.11	25.01	8.23	6.93	0.15
Geomean	**'12-'13**			**3.3**		***9.0***		***3.8***				***13.1***		**79**	**0.04**					**0.08**
T3-10m	8/1/13	956	0.05	1.7	0.24	3.3	0.16	2.3	2.4	68	0.37	11.4	5.1	71	0.09	35.26	26.3	8.26	7.03	0.10
T3-10m	10/29/13	1025	0.15	4.5	0.59	8.2	0.36	5.0	2.6	72	0.45	14.0	6.0	85	0.02	35.26	27.1	8.22	6.57	0.15
T3-10m	2/4/14	1037	0.09	2.8	0.65	9.1	0.49	6.9	2.1	58	0.36	11.1	5.1	72	0.02	35.09	25.2	8.20	6.52	0.09
T3-10m	5/6/14	1040	0.10	3.2	0.47	6.6	0.37	5.2	3.2	89	0.50	15.6	7.3	103	0.04	34.74	25.9	8.20	6.28	0.15
Geomean	**'13-'14**			**2.9**		***6.3***		***4.5***				***12.9***		**82**	**0.03**					**0.12**

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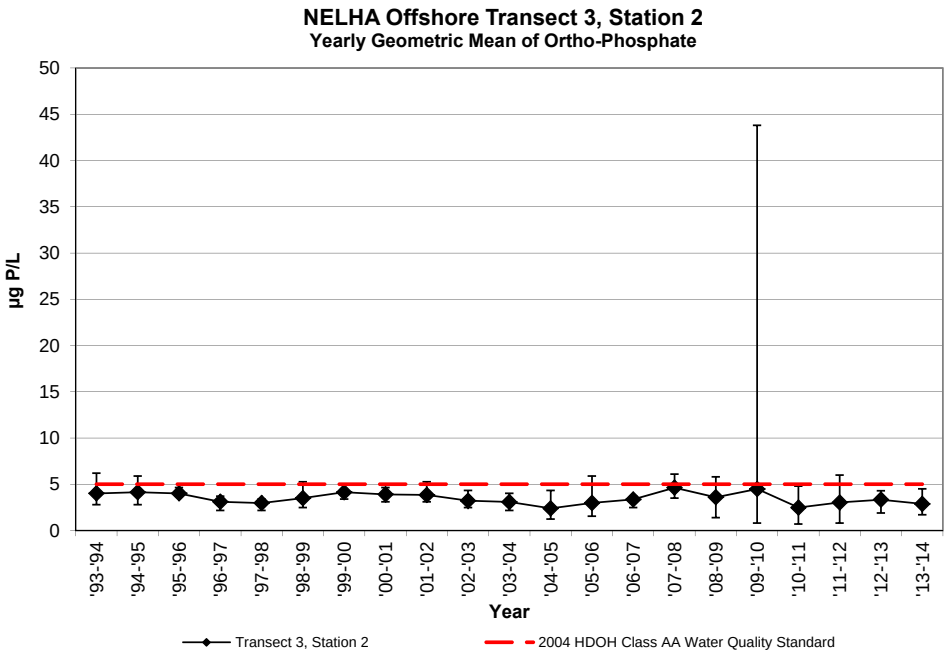

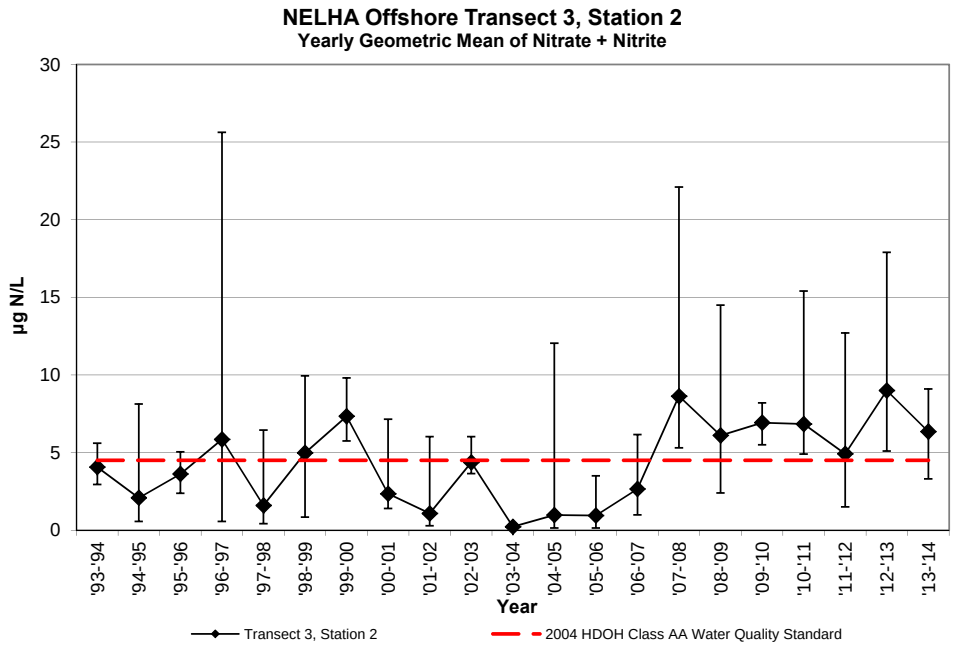

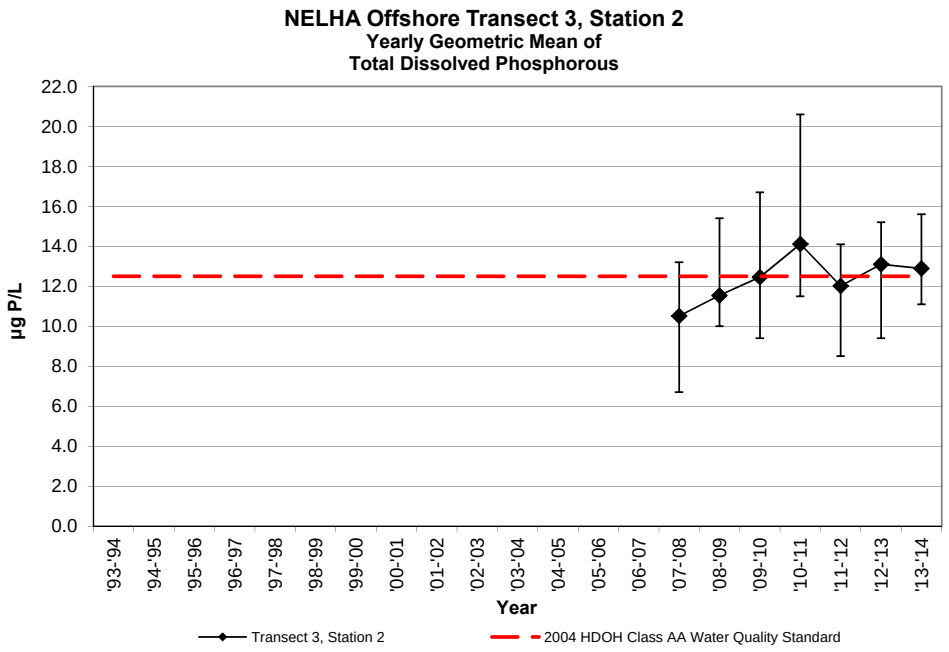

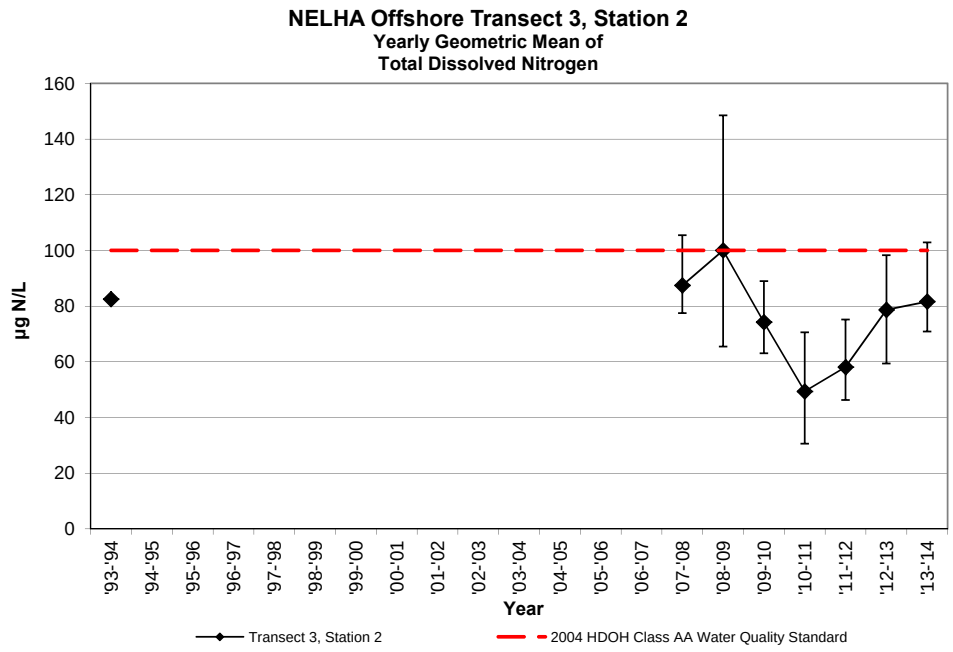

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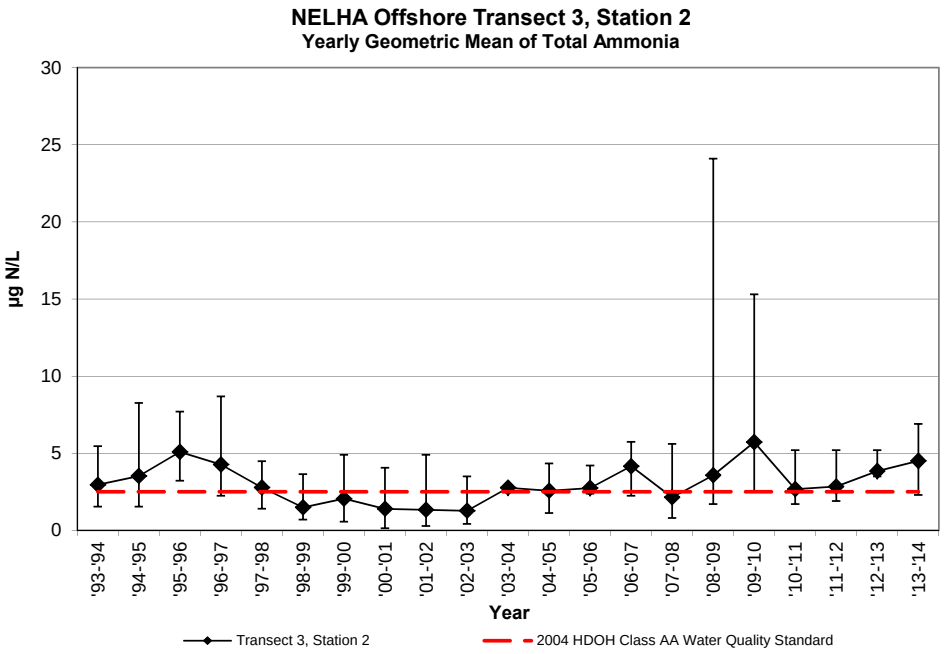

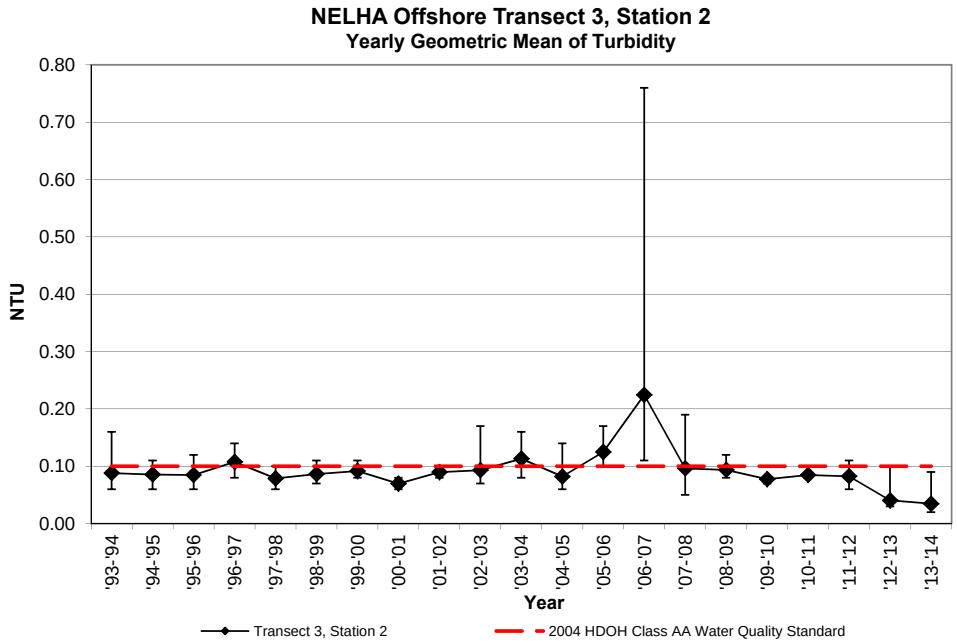

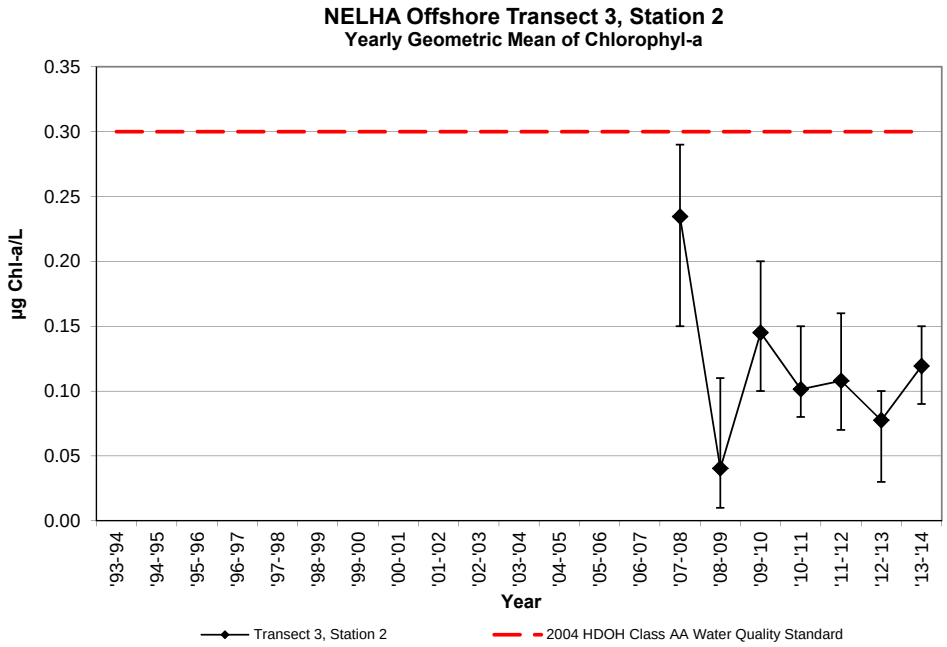

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Transect 3, Station 3

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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O3-3S-38m	8/3/93	1039	0.12	3.7	0.12	1.7	0.35	4.9	2.5	70					0.07	34.472	26.9			
O3-3S-38m	12/8/93	1052	0.10	3.1	0.14	2.0	0.11	1.5	2.8	78					0.10	34.796	25.7			
O3-3S-38m	3/8/94	1015	0.19	5.9	0.31	4.3	0.26	3.6	3.5	98					0.07	34.213	25.1			
O3-3S-38m	6/13/94	1006	0.12	3.7	0.30	4.2	0.06	0.8	5.7	160					0.12	34.527	25.6			
Geomean	**'93-'94**			**4.0**		**2.8**		**2.2**							**0.09**					
O3-3S-38m	9/8/94	850	0.08	2.5	0.09	1.3	0.20	2.8	2.0	55					0.10	34.624	27.6			
O3-3S-38m	11/15/94	927	0.16	5.0	0.41	5.7	0.61	8.5	4.3	122					0.07	34.581	26.0			
O3-3S-38m	3/21/95	823	0.20	6.2	0.12	1.7	0.06	0.8	4.7	132					0.09	34.226	24.9			
O3-3S-38m	6/21/95	945	0.08	2.5	0.07	1.0	0.35	4.9	2.7	77					0.08	34.478	26.3			
Geomean	**'94-'95**			**3.7**		**1.9**		***3.2***							**0.08**					
O3-3S-38m	9/25/95	1220	0.17	5.3	0.29	4.1	0.34	4.8	4.3	120					0.14	34.492	27.3			
O3-3S-38m	11/13/95	835	0.14	4.3	0.14	2.0	0.50	7.0	8.7	245					0.05	34.395	26.7			
O3-3S-38m	3/11/96	1216	0.13	4.0	0.23	3.2	0.41	5.7	2.2	61					0.12	34.202	25.5			
O3-3S-38m	5/13/96	1120	0.10	3.1	0.09	1.3	0.17	2.4	2.7	76					0.12	34.297	27.2			
Geomean	**'95-'96**			**4.1**		**2.4**		***4.6***							**0.10**					
O3-3S-38m	7/30/96	1040	0.11	3.4	0.55	7.7	0.31	4.3	4.1	114					0.10	34.422	28.4			
O3-3S-38m	10/1/96	919	0.07	2.2	0.01	0.1	0.66	9.2	2.2	63					0.11	34.689	27.9			
O3-3S-38m	1/6/97	921	0.12	3.7	0.77	10.8	0.18	2.5	4.3	120					0.07	34.661	25.3			
O3-3S-38m	4/21/97	903	0.11	3.4	1.23	17.2	0.27	3.8	8.6	240					0.09	34.534	26.4			
Geomean	**'96-'97**			**3.1**		**3.8**		***4.4***							**0.09**					
O3-3S-38m	8/18/97	858	0.11	3.4	0.37	5.2	0.19	2.7	4.0	112					0.10	34.620	27.0			
O3-3S-38m	10/6/97	916	0.10	3.1	0.01	0.1	0.27	3.8	2.5	71					0.07	34.708	27.5			
O3-3S-38m	3/3/98	918	0.08	2.5	0.13	1.8	0.27	3.8	5.2	146					0.07	35.028	24.9			
O3-3S-38m	5/4/98	1229	0.09	2.8	0.05	0.7	0.09	1.3	2.8	77					0.07	35.086	24.0			
Geomean	**'97-'98**			**2.9**		**1.0**		***2.6***							**0.08**					
O3-3S-38m	7/6/98	935	0.12	3.7	0.58	8.1	0.06	0.8	5.6	157					0.08	34.944	26.2			
O3-3S-38m	10/5/98	910	0.06	1.9	0.01	0.1	0.04	0.6	1.4	38					0.07	35.117	27.2			
O3-3S-38m	1/13/99	911	0.07	2.2	0.21	2.9	0.26	3.6	2.9	82					0.06	35.089	24.8			
O3-3S-38m	4/13/99	906	0.17	5.3	0.60	8.4	0.11	1.5	4.4	122					0.08	34.617	24.2			
Geomean	**'98-'99**			**3.0**		**2.3**		**1.3**							**0.07**					
O3-3S-38m	7/13/99	937	0.12	3.7	0.31	4.3	0.02	0.3	3.6	101					0.08	34.898	26.0			
O3-3S-38m	10/25/99	922	0.12	3.7	0.56	7.8	0.31	4.3	4.0	112					0.08	34.935	26.1			
O3-3S-38m	1/4/00	932	0.11	3.4	0.54	7.6	0.33	4.6	**3.8**	106					0.08	35.065	24.8			
O3-3S-38m	5/16/00	1002	0.15	4.6	0.26	3.6	0.05	0.7	4.0	111					0.08	34.671	25.3			
Geomean	**'99-'00**			**3.8**		***5.5***		**1.4**							**0.08**					
O3-3S-38m	7/24/00	942	0.11	3.4	0.29	4.1	0.01	0.1	2.7	74					0.07	34.874	27.3			
O3-3S-38m	10/30/00	950	0.12	3.7	0.04	0.6	0.31	4.3	3.5	99					0.08	34.986	27.0			
O3-3S-38m	2/26/01	953	0.16	5.0	0.22	3.1	0.16	2.2	4.2	117					0.07	34.729	24.8			
O3-3S-38m	5/8/01	917	0.13	4.0	0.67	9.4	0.20	2.8	4.1	116					0.07	34.769	24.8			
Geomean	**'00-'01**			**4.0**		**2.8**		**1.4**							**0.07**					
O3-3S-38m	8/13/01	940	0.10	3.1	0.06	0.8	0.29	4.1	3.0	85					0.13	34.885	26.6			
O3-3S-38m	10/10/01	924	0.14	4.3	0.08	1.1	0.01	0.1	5.7	161					0.07	34.930	27.4			
O3-3S-38m	3/4/02	1056	0.14	4.3	0.53	7.4	0.02	0.3	4.5	126					0.11	34.648	24.2			
O3-3S-38m	4/16/02	1107	0.19	5.9	0.47	6.6	0.44	6.2	5.4	151					0.08	34.396	25.8			
Geomean	**'01-'02**			**4.3**		**2.6**		**1.0**							**0.09**					

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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O3-3S-38m	7/9/02	957	0.13	4.0	0.31	4.3	0.14	2.0	4.3	121					0.07	34.635	26.6			
O3-3S-38m	10/7/02	1051	0.08	2.5	0.29	4.1	0.22	3.1	5.4	150					0.11	34.918	27.1			
O3-3S-38m	3/10/03	1021	0.12	3.7	0.10	1.4	0.04	0.6	2.4	67					0.13	34.825	24.8			
O3-3S-38m	4/22/03	1001	0.08	2.5	0.29	4.1	0.06	0.8	2.2	63					0.08	35.011	25.1			
Geomean	**'02-'03**			**3.1**		**3.2**		**1.3**							**0.09**					
O3-3S-38m	8/19/03	1057	0.06	1.9	0.01	0.1	0.20	2.8	1.4	40					0.07	34.874	28.1			
O3-3S-38m	10/30/03	833	0.09	2.8	0.02	0.3	0.20	2.8	1.9	52					0.11	34.816	27.4			
O3-3S-38m	3/17/04	942	0.12	3.7	0.01	0.1	0.20	2.8	3.9	110					n/a	34.356	26.0			
O3-3S-38m	5/20/04	1115	0.12	3.7	0.01	0.1	0.17	2.4	1.7	47					n/a	33.46	26.7			
Geomean	**'03-'04**			**2.9**		**0.2**		***2.7***							**0.09**					
O3-3S-38m	9/20/04	1041	0.07	2.2	0.01	0.1	0.26	3.6	2.0	55					0.08	33.68	28.0			
O3-3S-38m	11/17/04	1013	0.06	1.9	0.01	0.1	0.12	1.7	1.6	44					0.06	33.66	27.2			
O3-3S-38m	1/13/05	1135	0.04	1.2	0.06	0.8	0.14	2.0	1.8	51					0.07	34.870	24.8			
O3-3S-38m	4/11/05	1148	0.13	4.0	0.52	7.3	0.18	2.5	3.7	103					0.12	34.460	25.2			
Geomean	**'04-'05**			**2.1**		**0.6**		**2.3**							**0.08**					
O3-3S-38m	7/20/05	1132	0.09	2.8	0.26	3.6	0.17	2.4	3.4	95					0.14	34.688	26.5			
O3-3S-38m	10/11/05	1022	0.05	1.5	0.01	0.1	0.18	2.5	1.3	36					0.10	34.868	27.4			
O3-3S-38m	3/14/06	846	0.10	3.1	0.07	1.0	0.26	3.6	9.1	256					0.09	34.867	24.4			
O3-3S-38m	5/15/06	1053	0.15	4.6	0.11	1.5	0.13	1.8	1.6	45					0.16	34.756	24.9			
Geomean	**'05-'06**			**2.8**		**0.9**		**2.5**							***0.12***					
O3-3S-38m	8/14/06	1053	0.13	4.0	0.14	2.0	0.24	3.4	3.1	86					0.10	34.593	26.7			
O3-3S-38m	11/1/06	1100	0.09	2.8	0.13	1.8	0.37	5.2	2.0	56					0.36	34.801	27.3			
O3-3S-38m	2/12/07	1119	0.12	3.7	0.08	1.1	0.28	3.9	1.3	37					0.15	34.462	24.7			
O3-3S-38m	4/9/07	1053	0.21	6.5	0.37	5.2	0.27	3.8	4.0	113					0.18	34.622	25.4			
Geomean	**'06-'07**			**4.1**		**2.1**		***4.0***							***0.18***					
T3-50m	9/26/07	1047	0.12	3.7	0.37	5.2	0.44	6.2	4.0	113	0.42	13.0	8.7	121	0.11	34.964	26.8	8.22	6.35	0.07
T3-50m	12/13/07	1206	0.08	2.5	0.28	3.9			8.3	232	0.37	11.6	5.6	78	0.08	34.694	25.9	8.23	6.54	0.25
T3-50m	3/10/08	1053	0.14	4.4	0.76	10.7	0.06	0.8	22.9	644	0.42	13.1	7.1	99	0.50	34.872	24.9	8.17	6.83	0.24
T3-50m	6/5/08	1057	0.14	4.2	0.44	6.1	0.16	2.2	15.6	437	0.32	9.8	10.6	149	0.05	34.797	25.3	8.15	6.68	0.20
Geomean	**'07-'08**			**3.6**		***6.0***		**2.2**				**11.8**		***109***	***0.12***					**0.17**
T3-50m	9/22/08	1154	0.30	9.2	0.11	1.6	0.16	2.2	2.3	64	0.76	23.6	4.0	57	0.16	34.830	26.6	8.04	6.34	0.09
T3-50m	11/17/08	1035	0.16	5.0	0.16	2.2	0.14	1.9	2.4	66	0.37	11.5	6.1	86	0.09	34.968	26.2	8.26	5.75	0.02
T3-50m	2/9/09	1043	0.13	4.0	0.83	11.6	0.12	1.7	3.1	86	0.25	7.8	5.4	76	0.14	35.066	24.9	8.05	6.23	0.07
T3-50m	4/13/09	1021	0.23	7.0	0.29	4	0.25	3.5	2.9	83	0.50	15.4	6.0	84	0.10	34.940	23.9	8.20	6.80	0.07
Geomean	**'08-'09**			***6.0***		**3.6**		**2.2**				***13.4***		**75**	***0.12***					**0.05**
T3-50m	9/9/09	1046	0.16	4.9	0.08	1.1	0.35	4.9	4.6	129	0.53	16.3	5.1	71	0.02	35.24	27.5	8.22	5.46	0.10
T3-50m	11/23/09	1050	0.03	0.8	0.26	3.6	0.11	1.5	11.7	328	0.44	13.5	4.2	59	0.06	35.24	25.3	8.30	6.32	0.08
T3-50m	2/23/10	1056	0.17	5.2	0.20	2.8	0.44	6.1	14.4	404	0.40	12.5	6.3	88	0.16	35.10	24.7	8.17	6.10	0.37
T3-50m	5/25/10	1002	0.06	1.8	0.41	5.8	0.11	1.5	2.8	79	0.29	9.1	4.3	60	0.05	34.97	25.0	8.21	6.96	0.09
Geomean	**'09-'10**			**2.5**		**2.8**		***2.9***				**12.6**		**69**	**0.06**					**0.13**
T3-50m	8/10/10	1055	0.07	2.3	0.99	13.8	0.12	1.7	4.4	125	0.26	8.2	4.1	57	0.07	34.81	26.3	8.24	6.50	0.09
T3-50m	11/8/10	1034	0.04	1.3	0.31	4.4	0.33	4.6	9.6	269	0.39	12.1	4.7	66	0.10	35.35	26.7	8.27	6.24	0.04
T3-50m	1/11/11	1050	0.14	4.2	0.20	2.8	0.19	2.6	3.4	96	0.44	13.6	4.7	66	0.04	34.98	25.0	8.22	6.52	0.15
T3-50m	4/26/11	1053	0.14	4.2	0.31	4.4	0.22	3.1	8.0	226	0.45	14	3.9	55	0.07	34.98	25.0	8.21	6.53	0.08
Geomean	**'10-'11**			**2.7**		***5.2***		***2.8***				**11.7**		**61**	**0.07**					**0.08**

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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
T3-50m	7/26/11	1126	0.20	6.3	0.31	4.3	0.44	6.1	2.0	56	0.47	14.7	4.3	61	0.04	34.80	26.1	8.27	6.62	0.07
T3-50m	10/18/11	1042	0.02	0.6	0.10	1.4	0.16	2.2	2.0	56	0.30	9.2	3.6	50	0.04	35.06	26.8	8.24	7.08	0.07
T3-50m	1/25/12	1110	0.09	2.9	0.26	3.7	0.12	1.7	2.3	66	0.38	11.9	3.6	50	0.09	35.01	24.8	8.21	7.04	0.01
T3-50m	4/24/12	1138	0.16	4.9	0.64	9.0	0.33	4.6	3.2	89	0.42	13.0	4.0	56	0.10	35.05	25.0	8.22	6.93	0.18
Geomean	**'11-'12**			**2.7**		**3.8**		***3.2***				**12.0**		**54**	**0.06**					**0.05**
T3-50m	7/24/12	1051	0.06	1.9	0.29	4.0	0.30	4.2	1.4	40	0.32	9.8	3.9	55	0.07	35.06	26.4	8.24	6.98	0.07
T3-50m	11/27/12	1033	0.09	2.8	0.41	5.8	0.27	3.8	2.2	62	0.38	11.8	4.2	59	0.04	35.20	25.1	8.21	6.91	0.04
T3-50m	1/23/13	1045	0.09	2.8	0.35	4.9	0.24	3.3	2.8	78	0.43	13.4	4.3	60	0.04	35.07	24.8	8.22	6.44	0.04
T3-50m	4/16/13	1053	0.16	5.0	0.74	10.4	0.16	2.2	2.8	80	0.48	14.9	5.9	82	0.08	35.10	25.0	8.20	6.88	0.08
Geomean	**'12-'13**			**2.9**		***5.9***		***3.3***				**12.3**		**63**	**0.05**					**0.05**
T3-50m	8/1/13	1000	0.04	1.2	0.16	2.2	0.12	1.7	2.4	67	0.45	13.9	6.6	92	0.08	35.28	26.3	8.26	6.89	0.19
T3-50m	10/29/13	1029	0.13	4.0	0.38	5.3	0.40	5.6	2.5	71	0.45	13.9	5.1	71	0.02	35.25	27.1	8.22	6.43	0.21
T3-50m	2/4/14	1044	0.12	3.6	0.59	8.3	0.49	6.8	2.0	56	0.37	11.5	4.2	58	0.02	35.09	25.2	8.20	6.46	0.25
T3-50m	5/6/14	1049	0.12	3.7	0.56	7.9	0.23	3.2	4.3	121	0.42	13.1	6.3	89	0.08	34.74	25.9	8.19	6.35	0.18
Geomean	**'13-'14**			**2.8**		**5.3**		***3.8***				***13.1***		**76**	**0.04**					**0.21**

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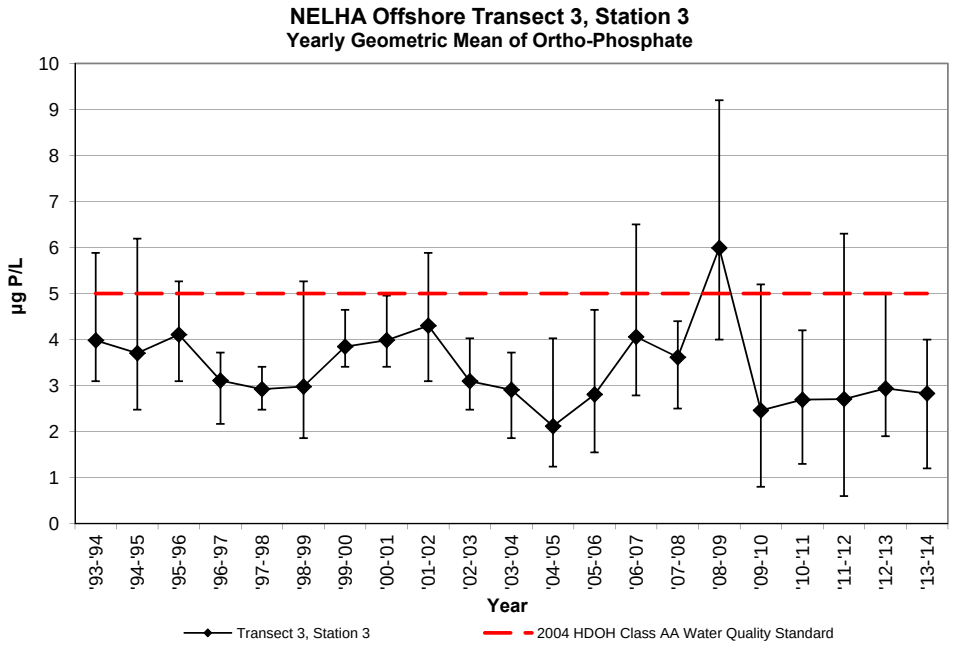

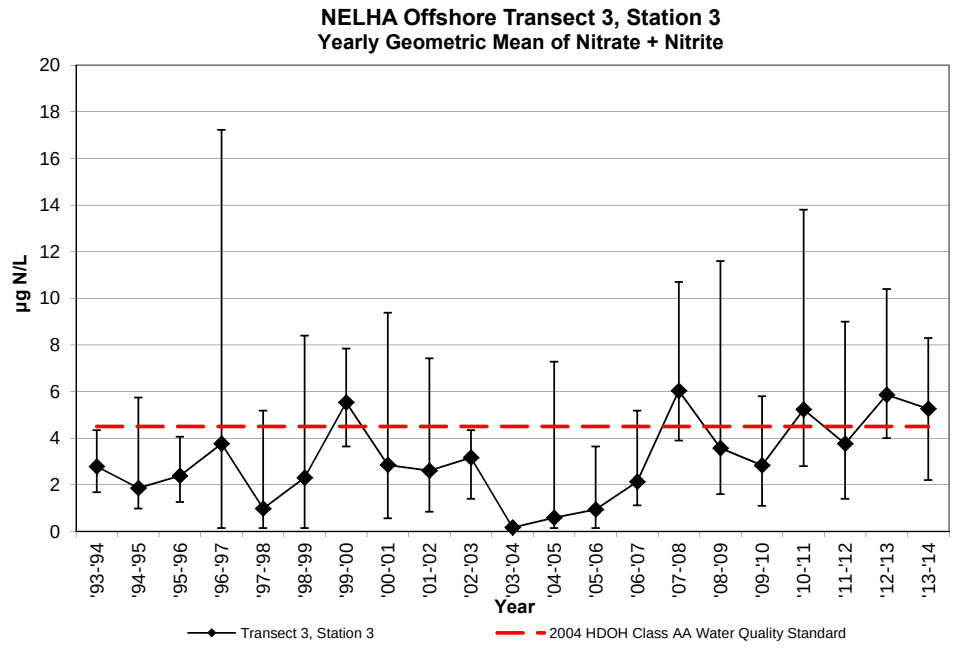

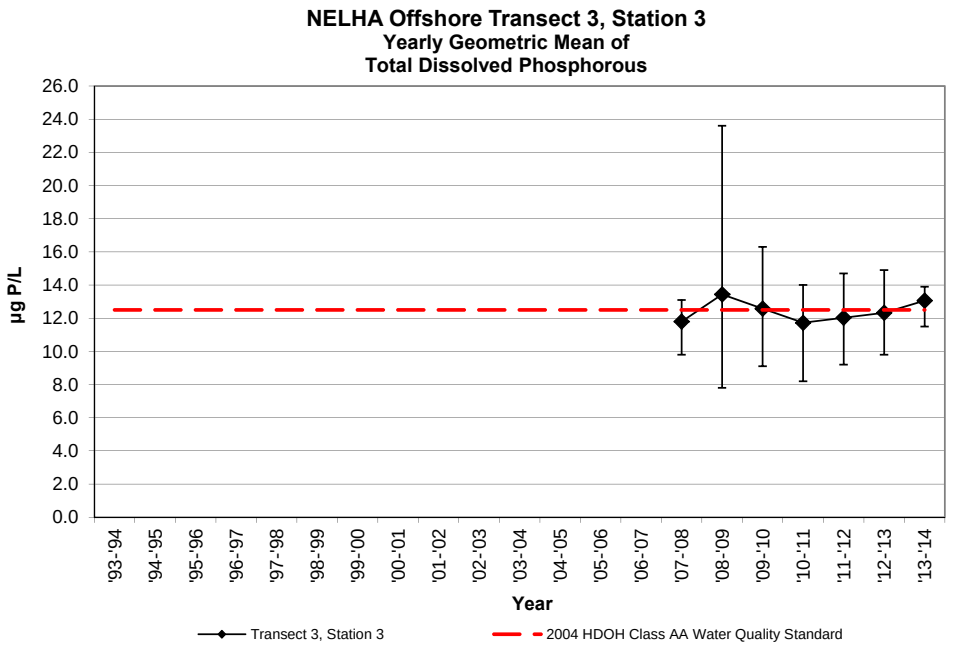

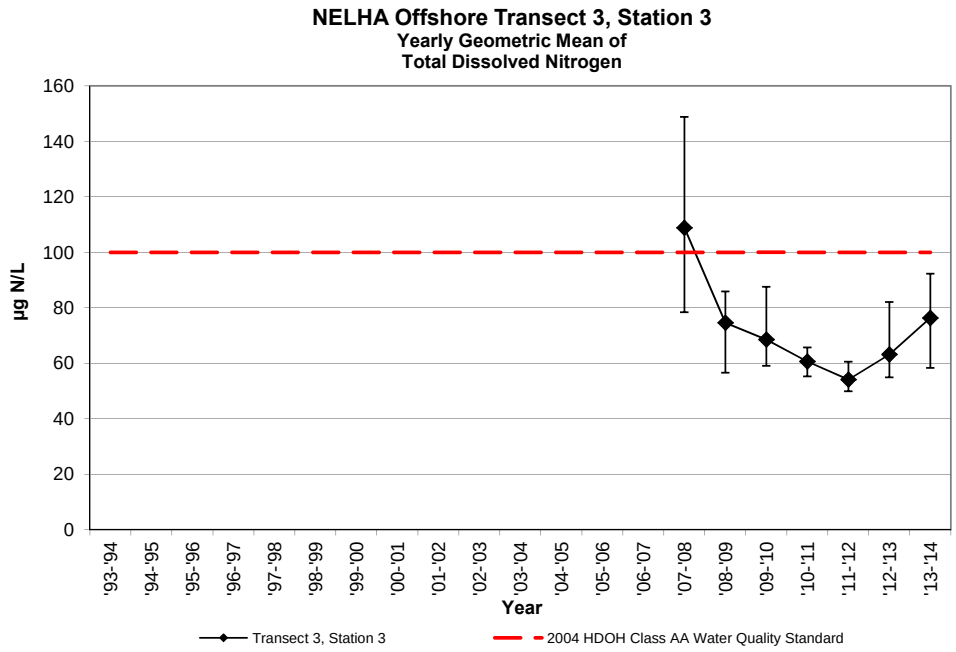

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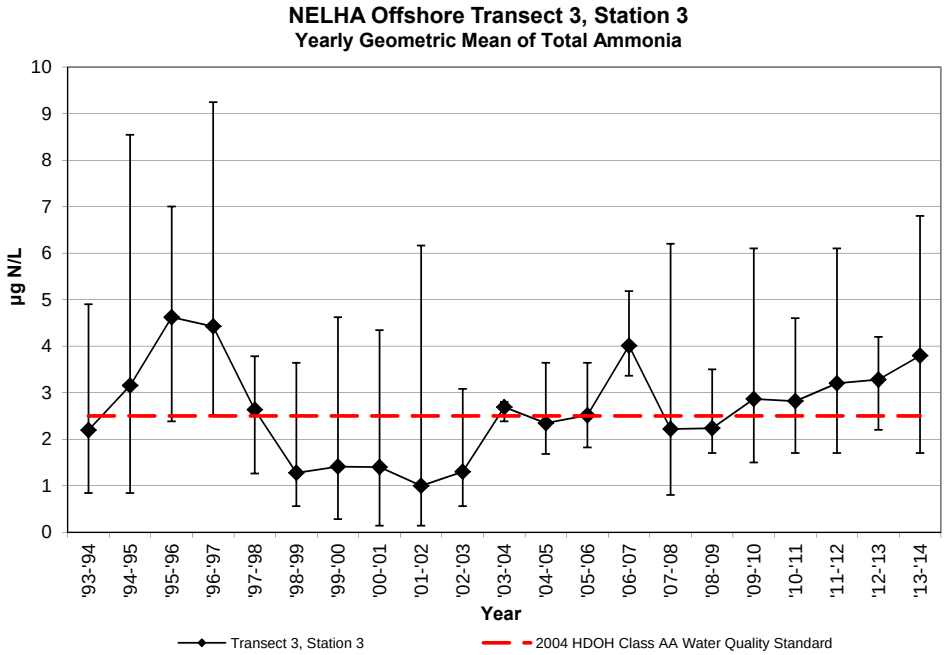

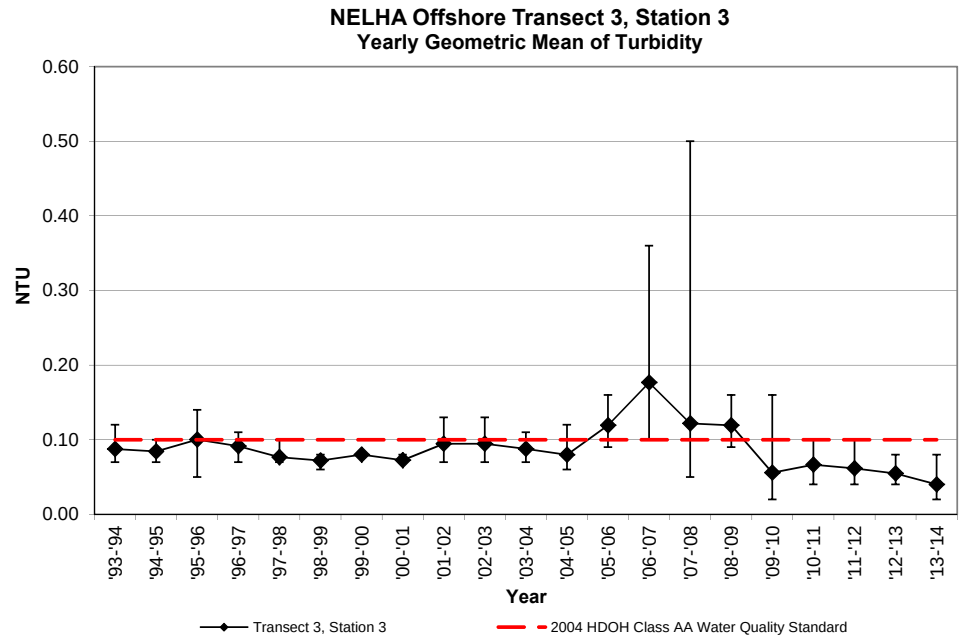

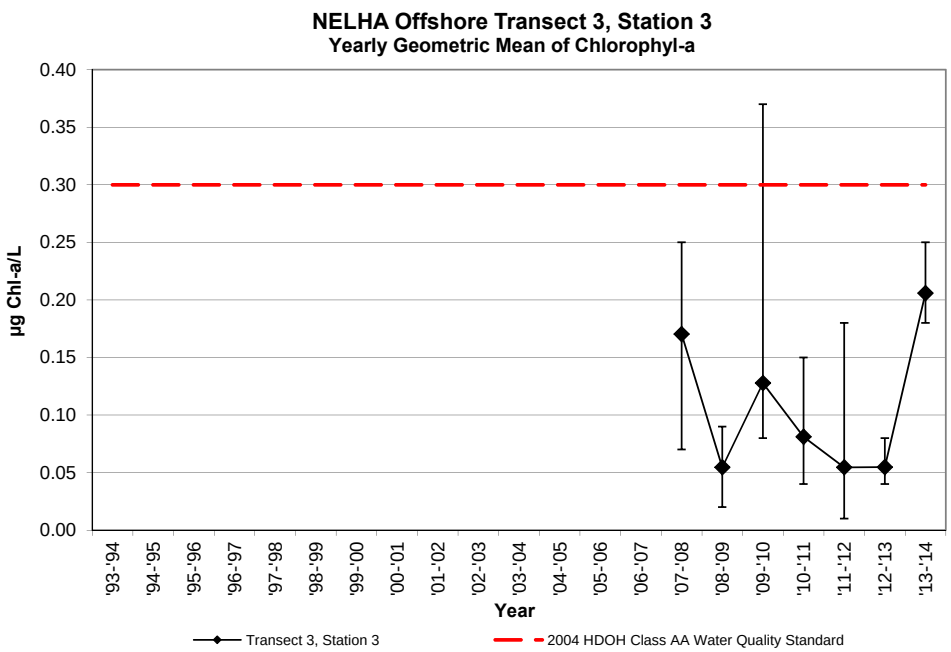

NELHA Water Quality Laboratory
Transect 3, Station 4
July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O3-4S-53m	8/3/93	1028	0.10	3.1	0.21	2.9	0.35	4.9	2.9	82					0.07	34.50	26.8			
O3-4S-53m	12/8/93	1044	0.12	3.7	0.14	2.0	0.11	1.5	4.7	132					0.07	34.79	25.7			
O3-4S-53m	3/8/94	1004	0.21	6.5	0.46	6.4	0.24	3.4	3.4	95					0.08	34.19	25.1			
O3-4S-53m	6/13/94	1000	0.11	3.4	0.13	1.8	0.11	1.5	4.4	124					0.09	34.54	25.6			
Geomean	**'93-'94**			**4.0**		**2.9**		**2.5**							**0.08**					
O3-4S-53m	9/8/94	844	0.07	2.2	0.02	0.3	0.20	2.8	1.8	50					0.06	34.63	27.6			
O3-4S-53m	11/15/94	923	0.16	5.0	0.49	6.9	0.56	7.8	4.6	130					0.08	34.57	26.0			
O3-4S-53m	3/21/95	813	0.18	5.6	0.08	1.1	0.09	1.3	2.7	75					0.09	34.23	25.0			
O3-4S-53m	6/21/95	938	0.09	2.8	0.07	1.0	0.35	4.9	4.0	112					0.07	34.48	26.3			
Geomean	**'94-'95**			**3.6**		**1.2**		***3.4***							**0.07**					
O3-4S-53m	9/25/95	1234	0.12	3.7	0.37	5.2	0.21	2.9	6.0	167					0.18	34.44	27.3			
O3-4S-53m	11/13/95	842	0.14	4.3	0.16	2.2	0.54	7.6	1.8	49					0.07	34.39	26.7			
O3-4S-53m	3/11/96	1210	0.12	3.7	0.22	3.1	0.40	5.6	2.1	59					0.07	34.21	25.5			
O3-4S-53m	5/13/96	1115	0.10	3.1	0.03	0.4	0.14	2.0	2.3	63					0.06	34.31	27.2			
Geomean	**'95-'96**			**3.7**		**2.0**		***4.0***							**0.09**					
O3-4S-53m	7/30/96	1035	0.11	3.4	0.44	6.2	0.29	4.1	4.8	135					0.09	34.42	28.4			
O3-4S-53m	10/1/96	914	0.07	2.2	0.01	0.1	0.62	8.7	2.3	65					0.08	34.69	27.9			
O3-4S-53m	1/6/97	916	0.11	3.4	0.52	7.3	0.17	2.4	3.7	103					0.08	34.68	25.5			
O3-4S-53m	4/21/97	858	0.09	2.8	0.88	12.3	0.20	2.8	2.3	63					0.10	34.57	26.4			
Geomean	**'96-'97**			**2.9**		**3.0**		***3.9***							**0.09**					
O3-4S-53m	8/18/97	854	0.10	3.1	0.27	3.8	0.23	3.2	3.6	100					0.09	34.62	27.0			
O3-4S-53m	10/6/97	911	0.10	3.1	0.02	0.3	0.30	4.2	2.4	68					0.07	34.70	27.4			
O3-4S-53m	3/3/98	912	0.09	2.8	0.10	1.4	0.21	2.9	2.3	64					0.07	35.03	24.8			
O3-4S-53m	5/4/98	1219	0.09	2.8	0.03	0.4	0.11	1.5	3.4	95					0.08	35.08	24.0			
Geomean	**'97-'98**			**2.9**		**0.9**		***2.8***							**0.08**					
O3-4S-53m	7/6/98	928	0.10	3.1	0.39	5.5	0.02	0.3	5.3	149					0.08	34.95	26.2			
O3-4S-53m	10/5/98	905	0.06	1.9	0.01	0.1	0.03	0.4	2.6	74					0.06	35.12	27.3			
O3-4S-53m	1/13/99	907	0.08	2.5	0.13	1.8	0.15	2.1	3.2	89					0.08	35.09	24.9			
O3-4S-53m	4/13/99	902	0.17	5.3	0.40	5.6	0.11	1.5	7.2	203					0.13	34.62	24.2			
Geomean	**'98-'99**			**2.9**		**1.7**		**0.8**							**0.08**					
O3-4S-53m	7/13/99	932	0.12	3.7	0.16	2.2	0.03	0.4	3.1	87					0.09	34.91	26.1			
O3-4S-53m	10/25/99	918	0.12	3.7	0.42	5.9	0.31	4.3	3.5	98					0.13	34.94	26.1			
O3-4S-53m	1/4/00	927	0.10	3.1	0.51	7.1	0.33	4.6	4.4	123					0.08	35.08	24.8			
O3-4S-53m	5/16/00	958	0.12	3.7	0.24	3.4	0.09	1.3	3.2	89					0.06	34.69	25.5			
Geomean	**'99-'00**			**3.6**		**4.2**		**1.8**							**0.09**					
O3-4S-53m	7/24/00	939	0.10	3.1	0.14	2.0	0.01	0.1	3.4	95					0.05	34.87	27.3			
O3-4S-53m	10/30/00	943	0.12	3.7	0.06	0.8	0.38	5.3	3.1	87					0.07	34.99	27.0			
O3-4S-53m	2/26/01	947	0.15	4.6	0.07	1.0	0.14	2.0	3.9	110					0.08	34.73	24.8			
O3-4S-53m	5/8/01	913	0.14	4.3	0.31	4.3	0.21	2.9	9.0	253					0.10	34.78	24.9			
Geomean	**'00-'01**			**3.9**		**1.6**		**1.4**							**0.07**					
O3-4S-53m	8/13/01	935	0.10	3.1	0.01	0.1	0.24	3.4	4.3	121					0.04	34.87	26.7			
O3-4S-53m	10/10/01	918	0.13	4.0	0.09	1.3	0.04	0.6	3.3	93					0.08	34.93	27.4			
O3-4S-53m	3/4/02	1051	0.12	3.7	0.06	0.8	0.02	0.3	1.6	46					0.08	34.65	24.2			
O3-4S-53m	4/16/02	1102	0.15	4.6	0.15	2.1	0.44	6.2	4.5	125					0.07	34.44	25.8			
Geomean	**'01-'02**			**3.8**		**0.7**		**1.3**							**0.07**					

NELHA Water Quality Laboratory
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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O3-4S-53m	7/9/02	953	0.11	3.4	0.40	5.6	0.17	2.4	3.6	100					0.11	34.66	26.5			
O3-4S-53m	10/7/02	1046	0.08	2.5	0.02	0.3	0.18	2.5	3.4	97					0.06	34.94	27.1			
O3-4S-53m	3/10/03	1011	0.10	3.1	0.03	0.4	0.03	0.4	1.9	53					0.07	34.84	24.7			
O3-4S-53m	4/22/03	955	0.08	2.5	0.25	3.5	0.05	0.7	4.4	124					0.06	35.01	25.0			
Geomean	**'02-'03**			**2.8**		**1.2**		**1.2**							**0.07**					
O3-4S-53m	8/19/03	1045	0.05	1.5	0.01	0.1	0.20	2.8	1.5	41					0.08	34.85	28.2			
O3-4S-53m	10/30/03	825	0.09	2.8	0.02	0.3	0.20	2.8	2.8	78					0.12	34.83	27.4			
O3-4S-53m	3/17/04	937	0.12	3.7	0.01	0.1	0.19	2.7	1.3	35					n/a	34.40	26.0			
O3-4S-53m	5/20/04	1119	0.12	3.7	0.01	0.1	0.22	3.1	1.3	36					n/a	33.45	26.9			
Geomean	**'03-'04**			**2.8**		**0.2**		***2.8***							**0.10**					
O3-4S-53m	9/20/04	1034	0.09	2.8	0.01	0.1	0.30	4.2	1.9	53					0.06	33.72	28.1			
O3-4S-53m	11/17/04	1008	0.06	1.9	0.01	0.1	0.14	2.0	1.7	49					0.08	33.66	27.2			
O3-4S-53m	1/13/05	1130	0.06	1.9	0.38	5.3	0.12	1.7	2.7	75					0.08	34.82	25.0			
O3-4S-53m	4/11/05	1138	0.12	3.7	0.05	0.7	0.19	2.7	2.0	56					0.09	34.48	25.2			
Geomean	**'04-'05**			**2.4**		**0.5**		**2.5**							**0.08**					
O3-4S-53m	7/20/05	1126	0.08	2.5	0.15	2.1	0.17	2.4	3.9	109					0.09	34.66	26.5			
O3-4S-53m	10/11/05	1017	0.05	1.5	0.01	0.1	0.18	2.5	1.3	37					0.10	34.89	27.5			
O3-4S-53m	3/14/06	842	0.09	2.8	0.04	0.6	0.28	3.9	3.2	89					0.10	34.88	24.4			
O3-4S-53m	5/15/06	1046	0.07	2.2	0.07	1.0	0.10	1.4	3.4	94					0.08	34.72	24.9			
Geomean	**'05-'06**			**2.2**		**0.6**		**2.4**							**0.09**					
O3-4S-53m	8/14/06	1048	0.12	3.7	0.24	3.4	0.25	3.5	3.4	96					0.13	34.60	26.9			
O3-4S-53m	11/1/06	1053	0.08	2.5	0.20	2.8	0.34	4.8	2.3	63					1.00	34.79	27.4			
O3-4S-53m	2/12/07	1114	0.13	4.0	0.07	1.0	0.35	4.9	1.3	35					0.48	34.44	24.6			
O3-4S-53m	4/9/07	1047	0.12	3.7	0.10	1.4	0.22	3.1	3.2	90					0.18	34.67	25.4			
Geomean	**'06-'07**			**3.4**		**1.9**		***4.0***							**0.33**					
T3-100m	9/26/07	1056	0.13	4.1	0.31	4.4	0.31	4.3	5.9	165	0.37	11.4	6.7	94	0.09	34.94	26.9	8.23	6.42	0.10
T3-100m	12/13/07	1212	0.07	2.2	0.07	1.0			5.2	147	0.36	11.1	5.2	73	0.08	34.73	26.0	8.23	6.34	0.25
T3-100m	3/10/08	1056	0.19	5.8	0.64	9.0	0.06	0.8	3.8	107	0.31	9.6	7.2	101	0.12	34.89	24.9	8.18	6.76	0.26
T3-100m	6/5/08	1101	0.06	2.0	0.13	1.8	0.16	2.2	17.0	479	0.24	7.4	6.1	85	0.06	34.83	25.1	8.14	6.56	0.11
Geomean	**'07-'08**			**3.2**		**2.9**		**2.0**				**9.7**		**87**	**0.08**					**0.16**
T3-100m	9/22/08	1159	0.62	19.1	0.06	0.8	0.10	1.4	1.9	55	1.5	47.7	4.9	68	0.11	34.81	26.7	8.03	6.52	0.07
T3-100m	11/17/08	1040	0.16	4.9	0.06	0.8	0.14	1.9	2.1	59	0.4	12.1	5.8	81	0.08	34.97	26.2	8.27	6.10	0.05
T3-100m	2/9/09	1048	0.10	3.1	0.54	7.6	0.12	1.7	2.2	62	0.2	7.0	5.2	73	0.08	35.09	25.1	8.05	6.27	0.02
T3-100m	4/13/09	1026	0.22	6.7	0.10	1.4	0.26	3.7	2.9	82	0.5	14.6	4.6	65	0.10	34.95	24.0	8.19	6.56	0.02
Geomean	**'08-'09**			***6.6***		**1.6**		**2.0**				***15.6***		**71**	**0.09**					**0.03**
T3-100m	9/9/09	1056	0.21	6.4	0.04	0.5	0.16	2.2	7.4	209	0.6	17.5	5.5	77	0.06	35.20	27.6	8.21	5.48	0.11
T3-100m	11/23/09	1100	0.03	0.8	0.07	1.0	0.14	1.9	28.6	803	0.4	12.6	4.9	69	0.04	35.25	25.4	8.28	6.23	0.17
T3-100m	2/23/10	1100	0.15	4.6	0.04	0.5	0.34	4.8	9.9	277	0.4	12.5	6.2	87	0.15	35.09	24.9	8.17	6.14	0.44
T3-100m	5/25/10	1007	0.05	1.7	0.20	2.8	0.05	0.7	2.0	56	0.3	8.9	4.9	69	0.13	35.00	25.0	8.22	6.94	0.08
Geomean	**'09-'10**			**2.5**		**0.9**		**1.9**				**12.5**		**75**	**0.08**					**0.16**
T3-100m	8/10/10	1100	0.01	0.4	0.07	1.0	0.05	0.7	2.4	66	0.3	8.3	2.6	37	0.09	34.92	26.2	8.24	6.59	0.09
T3-100m	11/8/10	1039	0.02	0.7	0.04	0.6	0.09	1.3	2.8	80	0.5	14.4	4.7	66	0.10	35.38	26.7	8.26	6.30	0.02
T3-100m	1/11/11	1056	0.13	4.0	0.26	3.6	0.02	0.3	7.8	220	0.4	13.4	4.1	57	0.04	34.96	25.0	8.22	6.42	0.07
T3-100m	4/26/11	1059	0.16	5.1	0.24	3.4	0.26	3.7	2.5	71	0.5	15.1	3.6	50	0.08	34.49	25.0	8.21	6.50	0.16
Geomean	**'10-'11**			**1.5**		**1.6**		**1.0**				**12.5**		**51**	**0.07**					**0.07**

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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
															0					
T3-100m	7/26/11	1137	0.22	6.7	0.12	1.7	0.04	0.6	0.9	25	0.5	14.2	2.8	40	0.07	34.80	26.1	8.27	6.62	0.07
T3-100m	10/18/11	1047	0.02	0.7	0.06	0.9	0.14	1.9	1.6	45	0.3	9.8	3.9	55	0.08	35.06	26.8	8.24	7.08	0.07
T3-100m	1/25/12	1117	0.07	2.2	0.04	0.5	0.07	1.0	1.4	41	0.4	12.3	4.4	61	0.09	35.01	24.8	8.21	7.04	0.01
T3-100m	4/24/12	1150	0.10	3.1	0.02	0.3	0.26	3.6	0.6	16	0.4	11.9	2.9	41	0.10	35.05	25.0	8.22	6.93	0.18
Geomean	**'11-'12**			**2.4**		**0.7**		**1.4**				**11.9**		**48**	**0.08**					**0.05**
T3-100m	7/24/12	1055	0.03	0.8	0.11	1.6	0.11	1.6	1.2	33	0.4	11.3	4.8	67	0.06	35.06	26.4	8.25	6.84	0.13
T3-100m	11/27/12	1036	0.08	2.5	0.29	4.1	0.54	7.5	2.4	67	0.6	17.6	4.8	68	0.02	35.21	25.2	8.21	6.83	0.20
T3-100m	1/23/13	1050	0.10	3.0	0.66	9.2	0.36	5.0	4.8	134	0.5	14.0	5.4	75	0.07	35.09	24.7	8.22	6.29	0.07
T3-100m	4/16/13	1058	0.16	4.9	0.56	7.8	0.17	2.4	1.8	51	0.5	14.5	5.9	82	0.02	35.10	25.0	8.21	6.78	0.09
Geomean	**'12-'13**			**2.3**		***4.7***		***3.5***				***14.2***		**73**	**0.04**					**0.11**
T3-100m	8/1/13	1006	0.05	1.4	0.05	0.7	0.32	4.5	2.0	57	0.38	11.8	5.49	77	0.24	35.22	26.42	8.26	6.80	0.14
T3-100m	10/29/13	1035	0.11	3.3	0.36	5.0	0.31	4.4	2.3	65	0.44	13.6	5.31	74	0.02	35.26	27.10	8.20	6.47	0.19
T3-100m	2/4/14	1051	0.09	2.9	0.24	3.3	0.39	5.4	1.9	52	0.37	11.6	4.81	67	0.02	35.09	25.17	8.20	6.48	0.09
T3-100m	5/6/14	1055	0.14	4.2	0.51	7.2	0.18	2.5	4.2	118	0.44	13.7	5.77	81	0.04	34.73	26.00	8.20	6.15	0.20
Geomean	**'13-'14**			**2.7**		**3.0**		***4.0***				***12.6***		**75**	**0.04**					**0.15**

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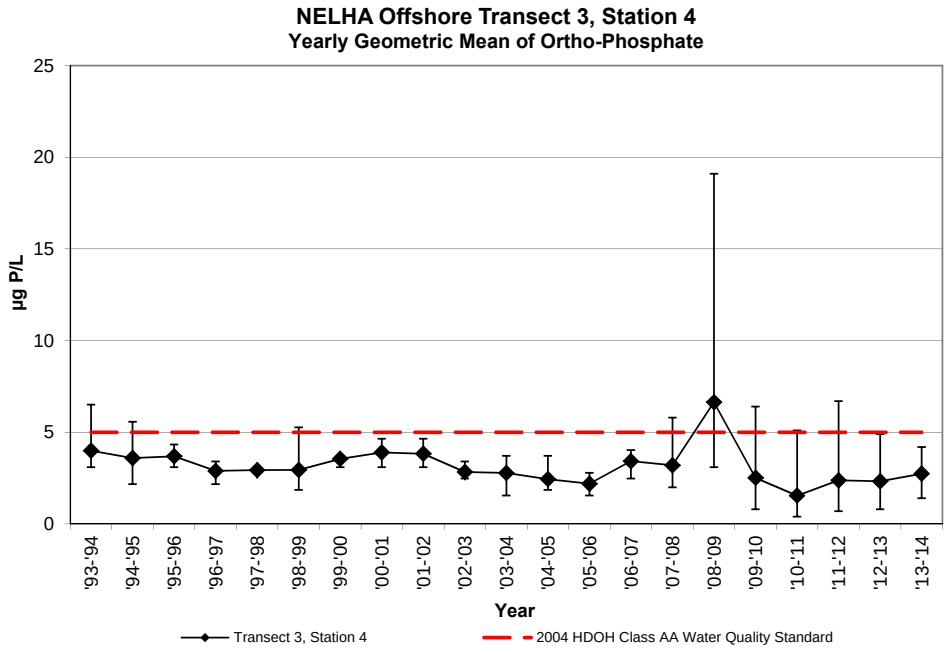

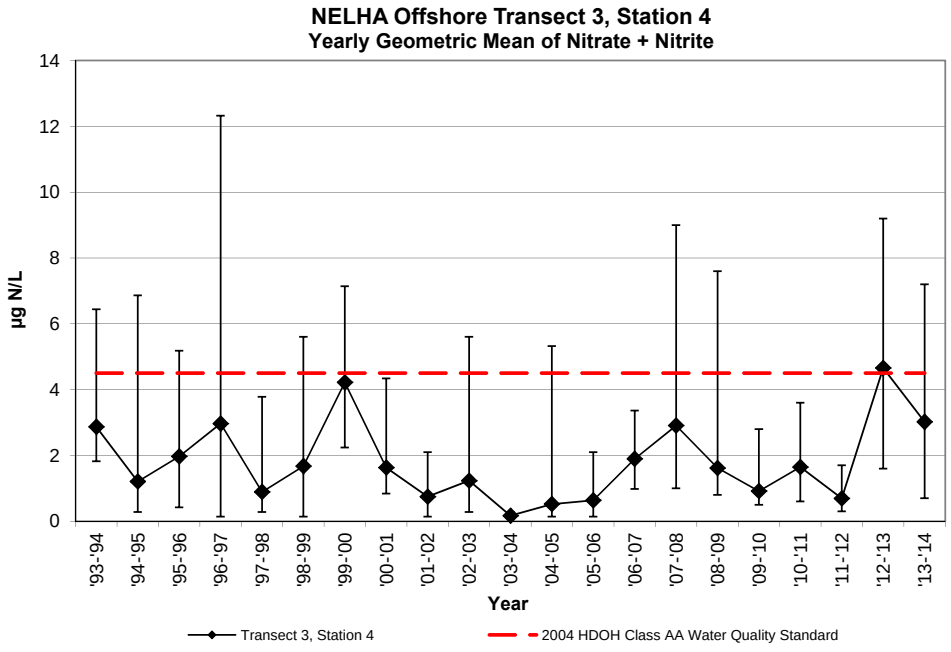

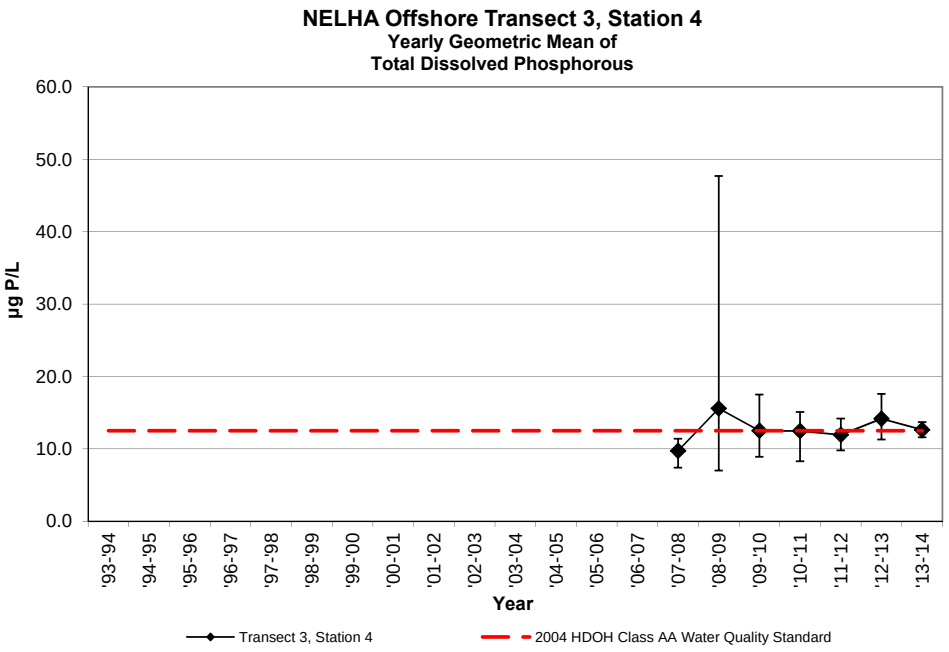

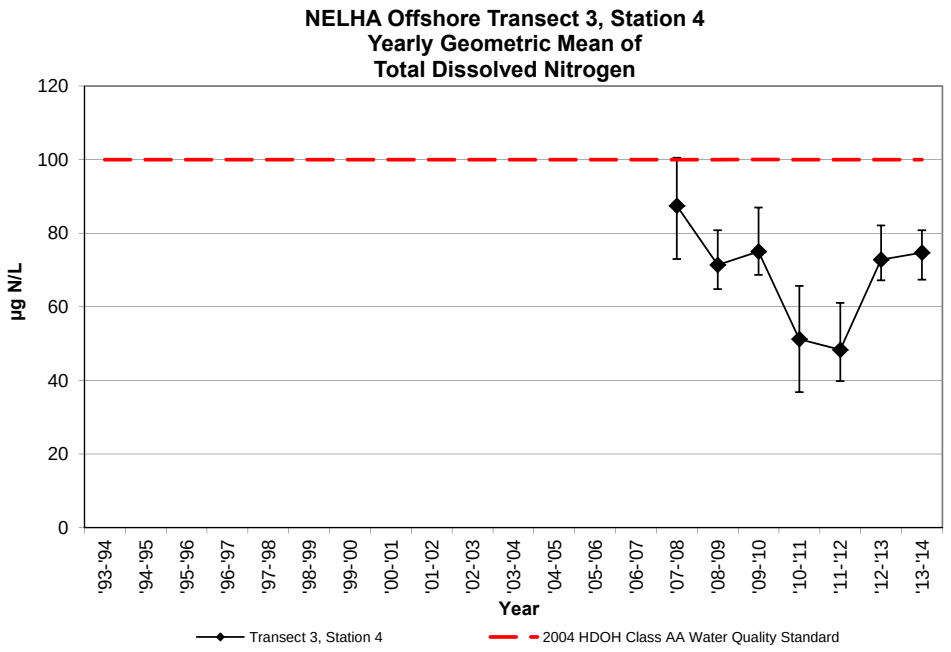

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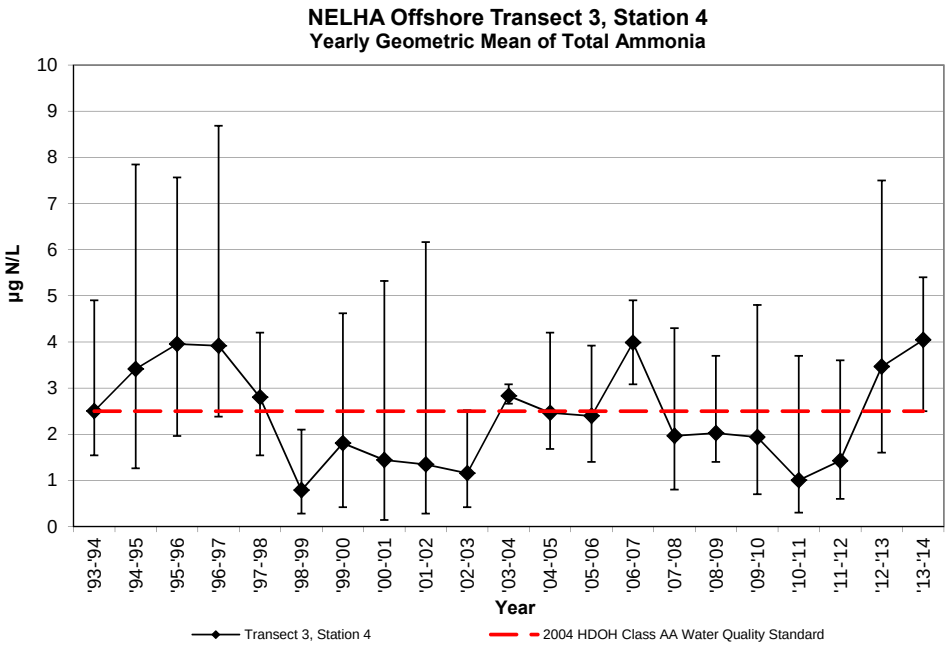
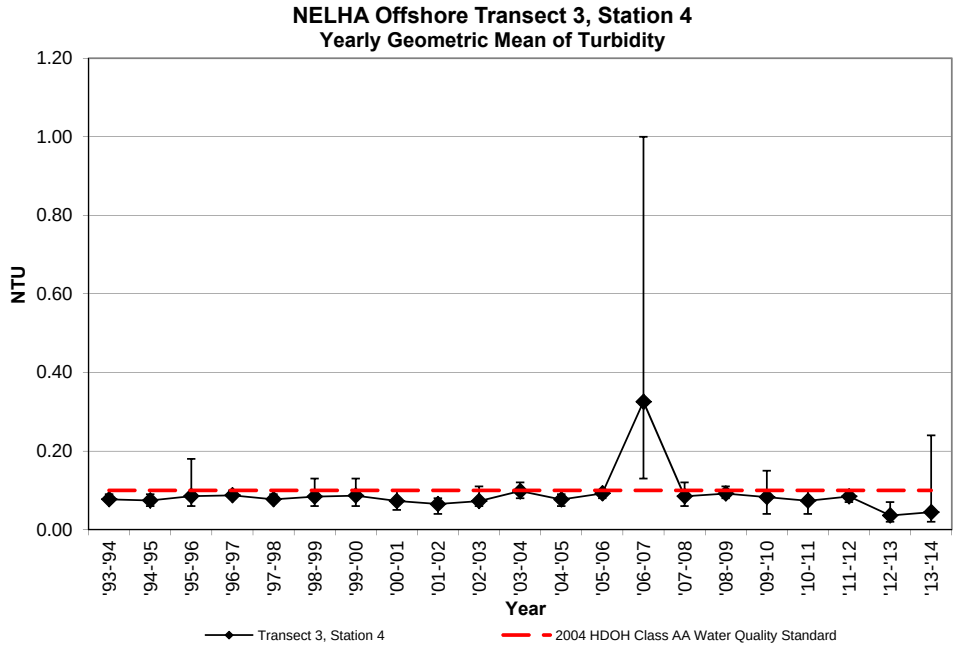
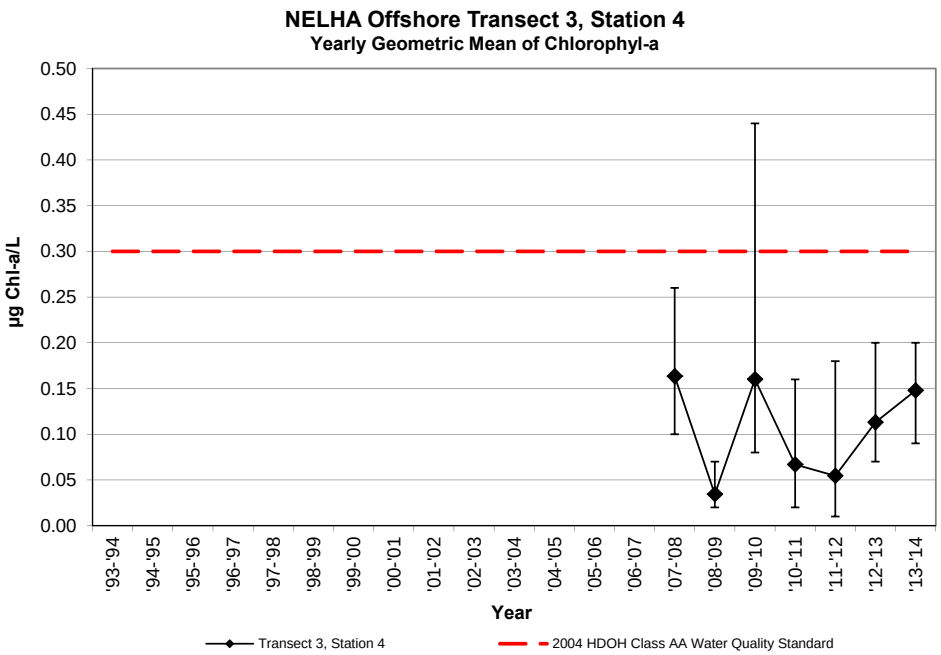
Transect 3, Station 4
July 1993 - June 2014







NELHA Water Quality Laboratory
Transect 3, Station 5
July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O3-5S-69m	8/3/93	1018	0.12	3.7	0.21	2.9	0.39	5.5	3.0	85					0.12	34.507	26.8			
O3-5S-69m	12/8/93	1036	0.12	3.7	0.08	1.1	0.11	1.5	5.1	144					0.06	34.794	25.7			
O3-5S-69m	3/8/94	1009	0.18	5.6	0.22	3.1	0.21	2.9	2.5	71					0.07	34.225	25.2			
O3-5S-69m	6/13/94	953	0.13	4.0	0.19	2.7	0.06	0.8	7.0	198					0.11	34.532	25.6			
Geomean	**'93-'94**			**4.2**		**2.3**		**2.1**							**0.09**					
O3-5S-69m	9/8/94	839	0.07	2.2	0.01	0.1	0.10	1.4	5.9	166					0.07	34.624	27.6			
O3-5S-69m	11/15/94	921	0.16	5.0	0.43	6.0	0.45	6.3	4.3	120					0.08	34.577	26.0			
O3-5S-69m	3/21/95	802	0.18	5.6	0.07	1.0	0.06	0.8	8.7	245					0.10	34.230	24.9			
O3-5S-69m	6/21/95	937	0.08	2.5	0.07	1.0	0.33	4.6	1.5	42					0.06	34.476	26.2			
Geomean	**'94-'95**			**3.5**		**0.9**		**2.4**							**0.08**					
O3-5S-69m	9/25/95	1248	0.11	3.4	0.31	4.3	0.20	2.8	5.6	158					0.11	34.447	27.3			
O3-5S-69m	11/13/95	848	0.14	4.3	0.12	1.7	0.48	6.7	2.7	77					0.07	34.419	26.8			
O3-5S-69m	3/11/96	1205	0.12	3.7	0.21	2.9	0.42	5.9	2.2	61					0.06	34.201	25.6			
O3-5S-69m	5/13/96	1109	0.09	2.8	0.02	0.3	0.14	2.0	2.1	58					0.07	34.310	27.4			
Geomean	**'95-'96**			**3.5**		**1.6**		***3.8***							**0.08**					
O3-5S-69m	7/30/96	1031	0.10	3.1	0.38	5.3	0.23	3.2	5.4	153					0.08	34.388	28.3			
O3-5S-69m	10/1/96	908	0.07	2.2	0.01	0.1	0.58	8.1	2.3	65					0.07	34.684	27.9			
O3-5S-69m	1/6/97	908	0.07	2.2	0.12	1.7	0.11	1.5	2.3	64					0.09	34.721	25.4			
O3-5S-69m	4/21/97	852	0.09	2.8	0.75	10.5	0.17	2.4	3.0	85					0.08	34.535	26.3			
Geomean	**'96-'97**			**2.5**		**1.9**		***3.1***							**0.08**					
O3-5S-69m	8/18/97	848	0.10	3.1	0.27	3.8	0.22	3.1	3.2	90					0.10	34.638	27.0			
O3-5S-69m	10/6/97	903	0.11	3.4	0.01	0.1	0.33	4.6	5.0	140					0.08	34.704	27.4			
O3-5S-69m	3/3/98	907	0.08	2.5	0.06	0.8	0.19	2.7	4.7	132					0.08	35.030	24.9			
O3-5S-69m	5/4/98	905	0.08	2.5	0.09	1.3	0.11	1.5	3.3	91					0.09	35.039	24.1			
Geomean	**'97-'98**			**2.8**		**0.9**		***2.8***							**0.09**					
O3-5S-69m	7/6/98	920	0.09	2.8	0.25	3.5	0.02	0.3	8.5	240					0.10	34.961	26.2			
O3-5S-69m	10/5/98	858	0.07	2.2	0.02	0.3	0.09	1.3	1.3	37					0.07	35.123	27.2			
O3-5S-69m	1/13/99	902	0.07	2.2	0.05	0.7	0.22	3.1	4.2	119					0.06	35.098	25.0			
O3-5S-69m	4/13/99	856	0.16	5.0	0.33	4.6	0.12	1.7	3.7	104					0.07	34.641	24.3			
Geomean	**'98-'99**			**2.8**		**1.3**		**1.2**							**0.07**					
O3-5S-69m	7/13/99	924	0.11	3.4	0.06	0.8	0.06	0.8	4.5	127					0.07	34.907	26.2			
O3-5S-69m	10/25/99	915	0.14	4.3	0.19	2.7	0.31	4.3	21.9	614					0.09	34.950	26.1			
O3-5S-69m	1/4/00	921	0.10	3.1	0.61	8.5	0.35	4.9	3.9	109					0.08	35.063	24.8			
O3-5S-69m	5/16/00	954	0.11	3.4	0.18	2.5	0.09	1.3	2.4	69					0.09	34.704	25.5			
Geomean	**'99-'00**			**3.5**		**2.6**		**2.2**							**0.08**					
O3-5S-69m	7/24/00	927	0.10	3.1	0.16	2.2	0.03	0.4	2.8	79					0.06	34.881	27.3			
O3-5S-69m	10/30/00	936	0.12	3.7	0.08	1.1	0.37	5.2	2.7	76					0.08	34.983	27.0			
O3-5S-69m	2/26/01	942	0.13	4.0	0.04	0.6	0.14	2.0	3.6	102					0.07	34.744	24.8			
O3-5S-69m	5/8/01	907	0.13	4.0	0.15	2.1	0.18	2.5	3.1	87					0.07	34.795	24.8			
Geomean	**'00-'01**			**3.7**		**1.3**		**1.8**							**0.07**					
O3-5S-69m	8/13/01	930	0.09	2.8	0.05	0.7	0.24	3.4	6.4	179					0.09	34.860	26.7			
O3-5S-69m	10/10/01	911	0.11	3.4	0.07	1.0	0.01	0.1	3.0	85					0.06	34.948	27.4			
O3-5S-69m	3/4/02	1046	0.14	4.3	0.03	0.4	0.02	0.3	2.8	77					0.14	34.645	24.2			
O3-5S-69m	4/16/02	1054	0.12	3.7	0.18	2.5	0.20	2.8	4.6	128					0.11	34.464	25.9			
Geomean	**'01-'02**			**3.5**		**0.9**		**0.8**							**0.10**					

NELHA Water Quality Laboratory
Transect 3, Station 5
July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O3-5S-69m	7/9/02	948	0.10	3.1	0.24	3.4	0.11	1.5	4.2	117					0.07	34.626	26.5			
O3-5S-69m	10/7/02	1040	0.08	2.5	0.32	4.5	0.25	3.5	2.0	55					0.06	34.937	27.2			
O3-5S-69m	3/10/03	1000	0.08	2.5	0.03	0.4	0.03	0.4	2.1	58					0.07	34.823	24.7			
O3-5S-69m	4/22/03	949	0.09	2.8	0.06	0.8	0.05	0.7	2.0	57					0.08	35.022	25.0			
Geomean	**'02-'03**			**2.7**		**1.5**		**1.1**							**0.07**					
O3-5S-69m	8/19/03	1032	0.06	1.9	0.01	0.1	0.20	2.8	1.3	36					0.06	34.841	28.2			
O3-5S-69m	10/30/03	820	0.09	2.8	0.02	0.3	0.20	2.8	2.4	67					0.23	34.805	27.5			
O3-5S-69m	3/17/04	932	0.12	3.7	0.03	0.4	0.21	2.9	1.7	47					n/a	34.346	25.8			
O3-5S-69m	5/20/04	1124	0.12	3.7	0.07	1.0	0.21	2.9	1.3	35					n/a	33.40	26.9			
Geomean	**'03-'04**			**2.9**		**0.4**		***2.9***							***0.12***					
O3-5S-69m	9/20/04	1027	0.08	2.5	0.07	1.0	0.34	4.8	1.8	49					0.07	33.73	28.0			
O3-5S-69m	11/17/04	1004	0.06	1.9	0.07	1.0	0.12	1.7	1.6	46					0.08	33.67	27.1			
O3-5S-69m	1/13/05	1123	0.04	1.2	0.26	3.6	0.12	1.7	2.4	67					0.10	34.850	24.9			
O3-5S-69m	4/11/05	1131	0.12	3.7	0.06	0.8	0.20	2.8	2.6	72					0.10	34.471	25.3			
Geomean	**'04-'05**			**2.1**		**1.3**		**2.5**							**0.09**					
O3-5S-69m	7/20/05	1121	0.07	2.2	0.21	2.9	0.15	2.1	4.2	117					0.17	34.648	26.7			
O3-5S-69m	10/11/05	1012	0.05	1.5	0.01	0.1	0.18	2.5	4.2	119					0.18	34.848	27.5			
O3-5S-69m	3/14/06	835	0.09	2.8	0.06	0.8	0.26	3.6	1.4	39					0.09	34.859	24.4			
O3-5S-69m	5/15/06	1040	0.06	1.9	0.07	1.0	0.07	1.0	1.8	51					0.08	34.767	24.8			
Geomean	**'05-'06**			**2.0**		**0.8**		**2.1**							***0.12***					
O3-5S-69m	8/14/06	1041	0.12	3.7	0.21	2.9	0.20	2.8	3.0	84					0.11	34.607	26.9			
O3-5S-69m	11/1/06	1045	0.10	3.1	0.09	1.3	0.47	6.6	2.0	57					0.71	34.817	27.4			
O3-5S-69m	2/12/07	1107	0.12	3.7	0.07	1.0	0.37	5.2	1.2	33					0.33	34.443	24.5			
O3-5S-69m	4/9/07	1040	0.11	3.4	0.07	1.0	0.31	4.3	2.4	66					2.64	34.712	25.1			
Geomean	**'06-'07**			**3.5**		**1.4**		***4.5***							***0.51***					
T3-500m	9/26/07	1008	0.14	4.2	0.07	1.0	0.11	1.6	2.2	62	0.33	10.3	5.2	72	0.05	34.979	26.9	8.20	6.33	0.04
T3-500m	12/13/07	1220	0.07	2.2	0.07	1.0			2.9	81	0.39	12.1	4.8	68	0.12	34.775	26.2	8.20	6.23	0.43
T3-500m	3/10/08	1115	0.15	4.5	0.05	0.7	0.06	0.8	6.9	193	0.38	11.7	5.8	82	0.14	34.930	25.0	8.18	6.56	0.34
T3-500m	6/5/08	1104	0.06	2.0	0.13	1.8	0.16	2.2	10.4	293	0.24	7.3	5.5	77	0.06	34.788	25.6	8.13	6.52	0.11
Geomean	**'07-'08**			**3.0**		**1.1**		**1.4**				**10.2**		**74**	**0.08**					**0.16**
T3-500m	9/22/08	1207	0.09	2.7	0.03	0.4	0.04	0.6	1.5	41	0.37	11.5	4.8	68	0.07	34.865	26.97	8.04	6.29	0.06
T3-500m	11/17/08	1048	0.14	4.4	0.00	0.0	0.14	1.9	1.6	46	0.37	11.5	5.5	77	0.26	34.966	26.36	8.26	6.03	0.03
T3-500m	2/9/09	1059	0.07	2.3	0.10	1.4	0.12	1.7	2.2	62	0.26	8.0	5.8	82	0.08	35.106	24.96	8.06	5.97	0.01
T3-500m	4/13/09	1034	0.20	6.1	0.11	1.6	0.56	7.9	3.2	89	0.49	15.1	5.5	77	0.10	34.971	23.97	8.20	6.51	0.04
Geomean	**'08-'09**			**3.6**		**0.3**		**2.0**				**11.2**		**76**	***0.11***					**0.03**
T3-500m	9/9/09	1100	0.14	4.4	0.03	0.4	0.07	1	5.9	165	0.56	17.4	5.9	82	0.11	35.24	27.65	8.20	5.33	0.19
T3-500m	11/23/09	1109	0.03	0.8	0.09	1.2	0.01	0.1	22.5	632	0.44	13.5	4.8	67	0.06	35.24	25.36	8.28	6.26	0.09
T3-500m	2/23/10	1109	0.14	4.4	0.01	0.1	0.39	5.5	9.7	271	0.39	12.2	6.4	90	0.08	35.08	24.87	8.18	5.94	0.36
T3-500m	5/25/10	1012	0.03	1.0	0.01	0.1	0.14	2	1.4	40	0.26	8.1	4.8	67	0.08	35.04	25.20	8.22	6.85	0.05
Geomean	**'09-'10**			**2.0**		**0.3**		**1.0**				**12.3**		**76**	**0.08**					**0.13**
T3-500m	8/10/10	1106	0.01	0.2	0.01	0.2	0.05	0.7	1.9	52	0.29	9.0	2.9	40	0.04	34.91	26.43	8.25	6.58	0.13
T3-500m	11/23/09	1109	0.02	0.7	0.04	0.6	0.02	0.3	5.3	148	0.36	11.2	4.3	60	0.07	35.39	26.71	8.27	6.24	0.07
T3-500m	2/23/10	1109	0.12	3.7	0.01	0.2	0.03	0.4	2.1	59	0.43	13.2	3.9	55	0.04	35.01	25.07	8.22	6.32	0.11
T3-500m	5/25/10	1012	0.15	4.6	0.03	0.4	0.04	0.5	1.3	36	0.46	14.3	4.4	62	0.09	34.92	24.89	8.21	6.41	0.12
Geomean	**'10-'11**			**1.2**		**0.3**		**0.5**				**11.7**		**54**	**0.06**					**0.10**

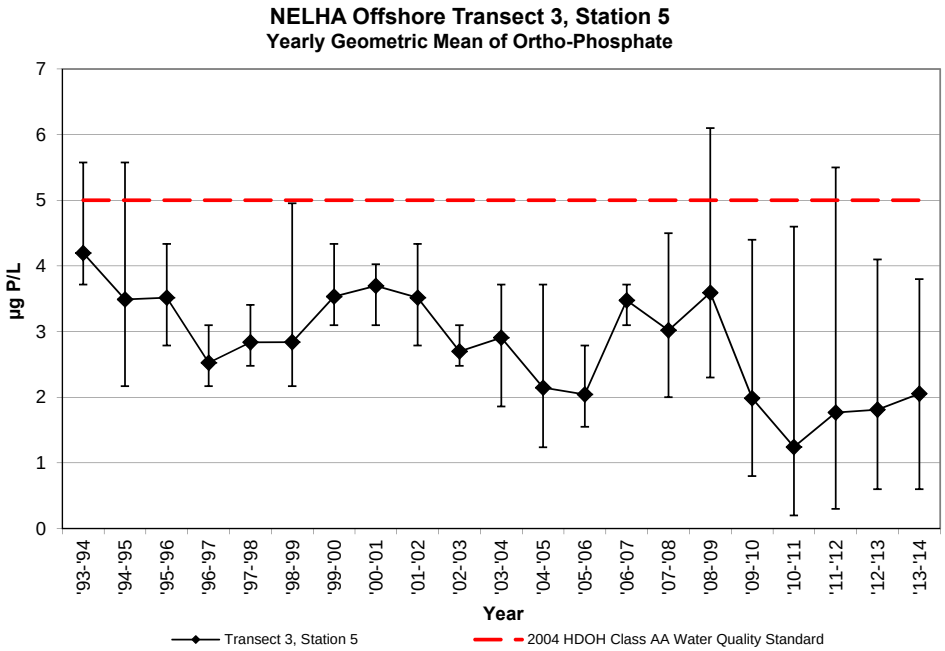
NELHA Water Quality Laboratory

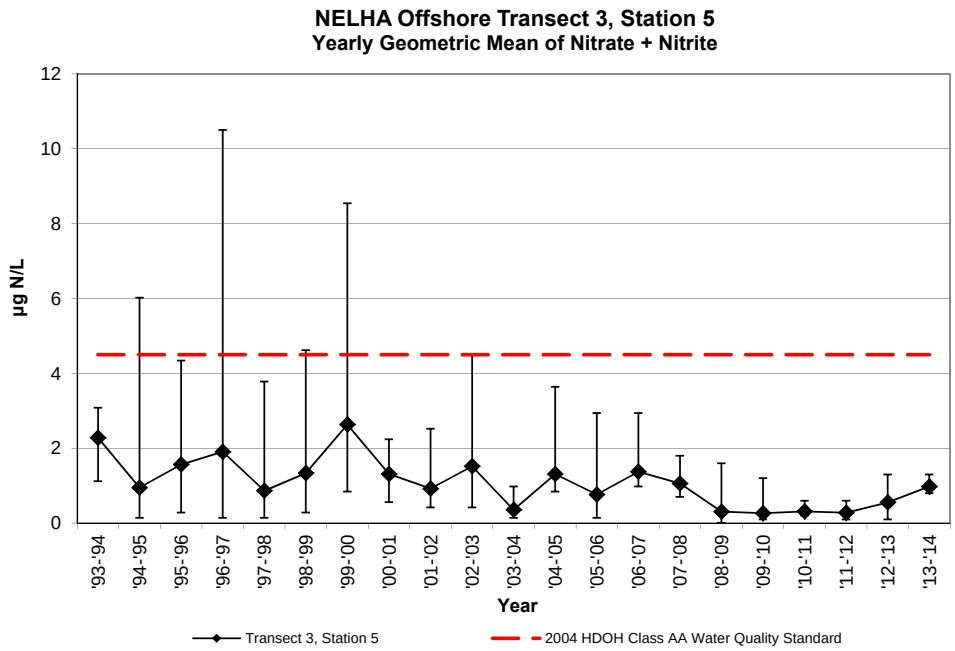
Transect 3, Station 5

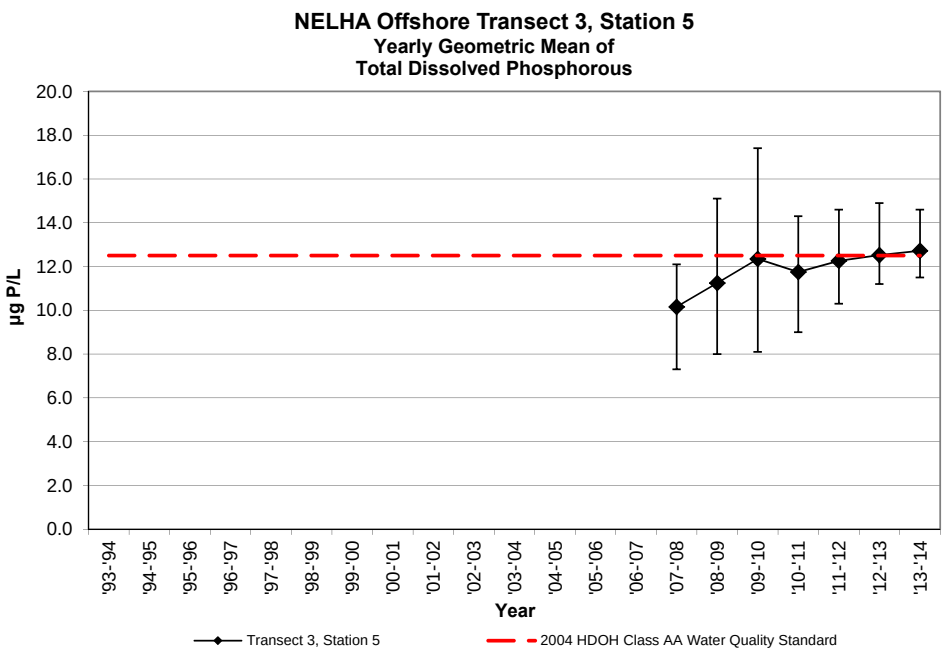
July 1993 - June 2014

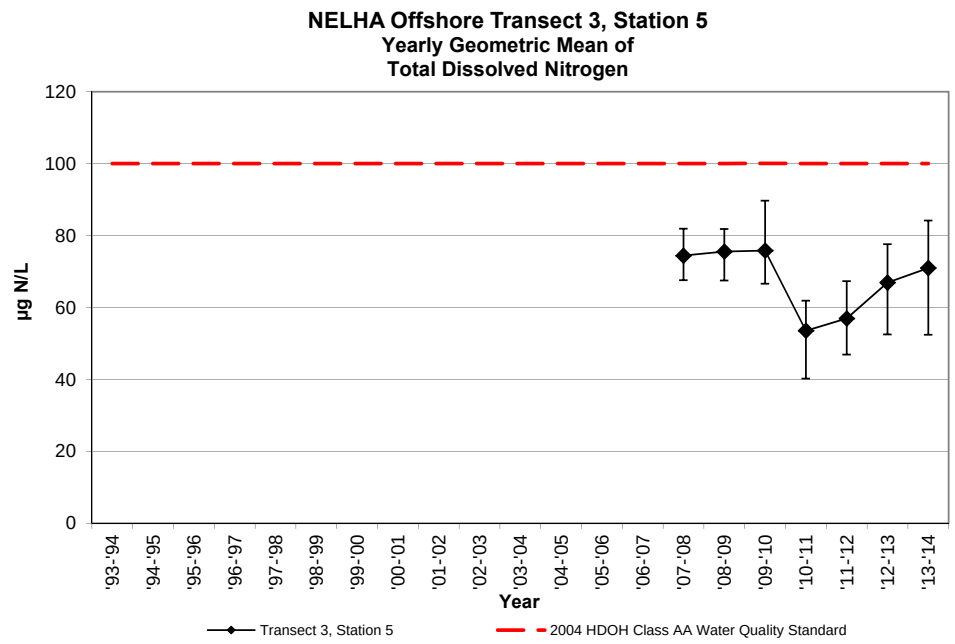
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
T3-500m	7/26/11	1146	0.18	5.5	0.01	0.1	0.02	0.3	0.1	3	0.47	14.6	4.4	62	0.09	34.87	26.27	8.26	6.40	0.04
T3-500m	10/18/11	1055	0.01	0.3	0.04	0.5	0.10	1.4	1.6	46	0.36	11.3	4.8	67	0.07	35.05	26.80	8.23	6.78	0.11
T3-500m	1/25/12	1139	0.05	1.6	0.01	0.2	0.02	0.3	1.4	40	0.33	10.3	3.8	54	0.08	35.09	25.08	8.22	6.81	0.07
T3-500m	4/24/12	1202	0.12	3.7	0.04	0.6	0.23	3.2	0.4	12	0.43	13.3	3.3	47	0.05	35.07	24.97	8.22	6.71	0.07
Geomean	**'11-'12**			**1.8**		**0.3**		**0.8**				**12.3**		**57**	**0.07**					**0.07**
T3-500m	7/24/12	1102	0.02	0.6	0.09	1.2	0.14	1.9	2.2	61	0.37	11.5	3.7	53	0.12	35.02	26.35	8.26	6.86	0.14
T3-500m	11/27/12	1042	0.06	1.9	0.04	0.6	0.26	3.7	1.3	35	0.36	11.2	4.8	67	0.03	35.23	25.51	8.21	6.87	0.18
T3-500m	1/23/13	1059	0.07	2.3	0.01	0.1	0.26	3.6	1.0	27	0.41	12.8	5.2	73	0.08	35.12	24.90	8.23	6.42	0.08
T3-500m	4/16/13	1106	0.13	4.1	0.09	1.3	0.11	1.6	0.4	12	0.48	14.9	5.5	78	0.02	35.12	24.94	8.22	6.86	0.50
Geomean	**'12-'13**			**1.8**		**0.6**		**2.5**				**12.5**		**67**	**0.05**					**0.18**
T3-500m	8/1/13	1015	0.02	0.6	0.08	1.1	0.03	0.4	2.0	57	0.38	11.9	5.0	70	0.13	35.25	26.6	8.26	6.82	0.07
T3-500m	10/29/13	1049	0.09	2.7	0.09	1.3	0.37	5.2	1.6	45	0.47	14.6	5.9	83	0.02	35.28	27.2	8.22	6.23	0.17
T3-500m	2/4/14	1101	0.09	2.9	0.06	0.8	0.29	4.1	1.5	42	0.37	11.5	3.7	52	0.02	35.12	25.3	8.20	6.25	0.11
T3-500m	5/6/14	1103	0.12	3.8	0.06	0.8	0.50	7.0	1.1	32	0.42	13.1	6.0	84	0.03	34.85	26.2	8.20	6.06	0.16
Geomean	**'13-'14**			**2.1**		**1.0**		***2.8***				***12.7***		**71**	**0.04**					**0.12**

NELHA Water Quality Laboratory
Transect 3, Station 5
July 1993 - June 2014

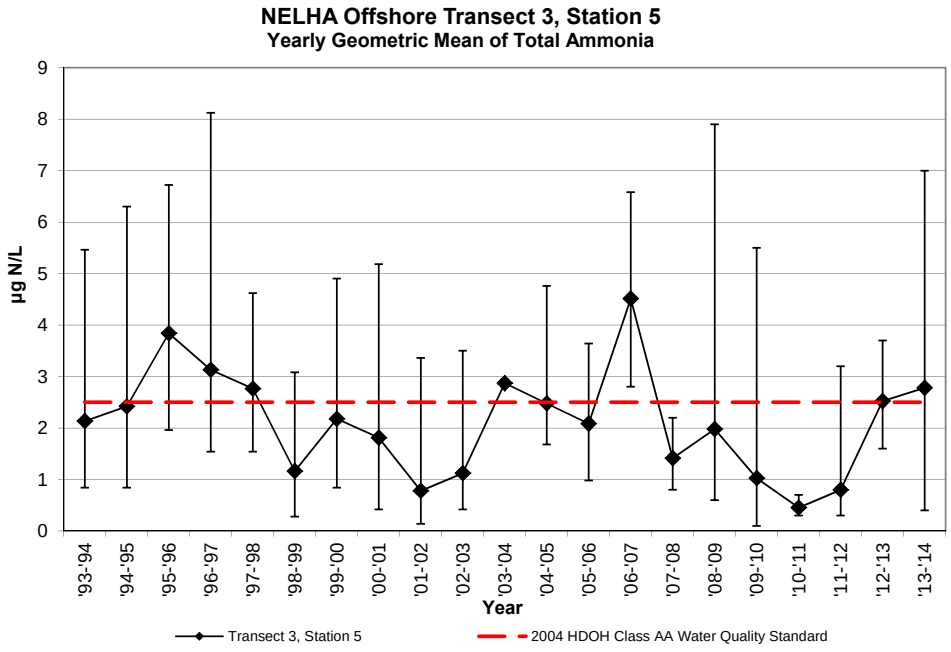


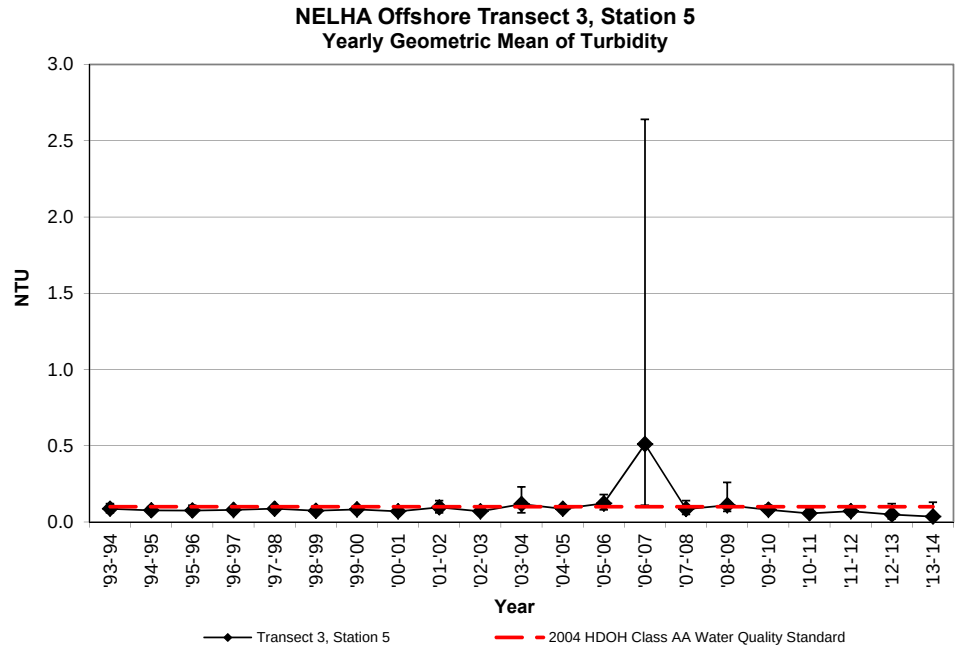


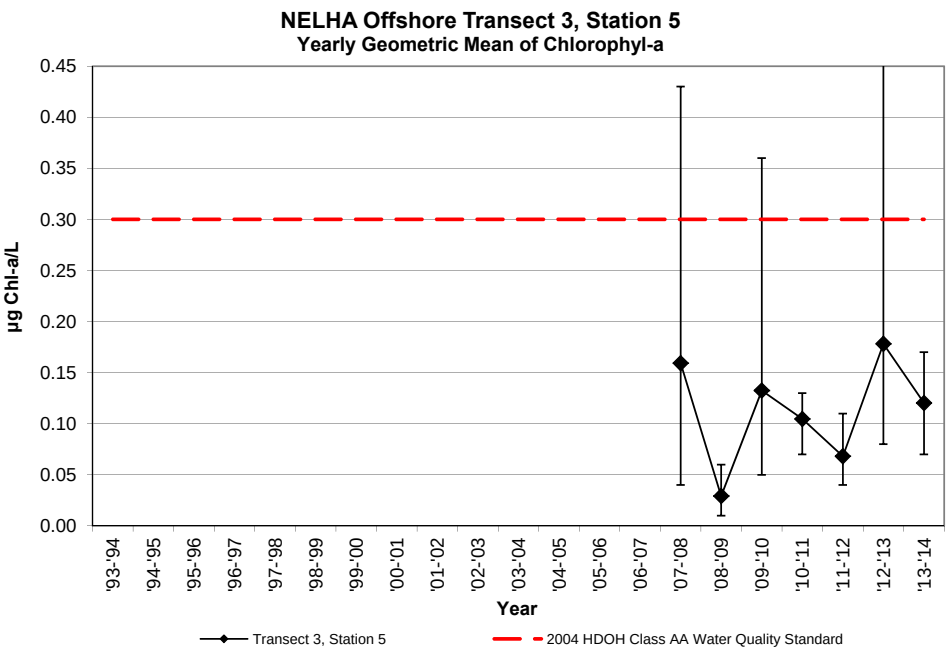




NELHA Water Quality Laboratory
Transect 3, Station 5
July 1993 - June 2014







NELHA Water Quality Laboratory

Transect 4

July 2013 - June 2014

SITE ID	DATE	TIME	Tide		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(ft)	(cycle)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT					0.16	**5**	0.32	**4.5**	0.18	**2.5**			0.40	**12.5**	7.1	**100**	**0.10**					**0.30**
T4-1m	8/6/13	929	0.0	Low	0.10	3.2	0.01	0.2	0.11	1.5	2.8	79	0.38	11.8	7.0	99	0.11	35.11	26.3	8.26	7.09	0.17
T4-1m	10/30/13	909	0.7	Flood	0.15	4.7	0.34	4.8	0.22	3.1	1.7	47	0.47	14.6	6.4	90	0.08	34.92	27.0	8.23	5.81	0.17
T4-1m	2/5/14	928	1.0	Ebb	0.17	5.2	0.34	4.8	0.28	3.9	2.3	64	0.46	14.1	5.6	78	0.02	34.93	25.2	8.21	6.48	0.08
T4-1m	5/7/14	923	0.6	Flood	0.16	5.0	0.49	6.9	0.34	4.7	1.7	47	0.47	14.6	8.8	123	0.11	34.75	25.7	8.20	5.87	0.12
Geomean	**'13-'14**				0.14	**4.4**	0.17	**2.4**	0.2	***3.0***			0.4	***13.7***	6.9	**96**	**0.07**					**0.13**
T4-10m	8/6/13	934	0.0	Low	0.12	3.8	0.02	0.3	0.00	0.1	2.4	67	0.38	11.8	7.4	104	0.10	35.14	26.3	8.26	7.10	0.14
T4-10m	10/30/13	913	0.7	Flood	0.15	4.7	0.33	4.6	0.37	5.2	1.5	43	0.46	14.4	5.9	82	0.02	34.91	27.0	8.23	5.87	0.18
T4-10m	2/5/14	933	1.0	Ebb	0.15	4.7	0.41	5.7	0.34	4.7	2.3	66	0.41	12.6	5.4	76	0.02	34.94	25.2	8.20	6.33	0.15
T4-10m	5/7/14	929	0.6	Flood	0.13	4.0	0.46	6.5	0.20	2.8	1.5	42	0.69	21.5	7.2	101	0.08	34.76	25.7	8.21	5.87	0.14
Geomean	**'13-'14**				0.14	**4.3**	0.19	**2.7**	0.10	**1.4**			0.47	***14.6***	6.4	**90**	**0.04**					**0.15**
T4-50m	8/6/13	940	0.0	Low	0.11	3.4	0.12	1.7	0.14	1.9	2.0	55	0.40	12.5	8.3	116	0.07	35.17	26.3	8.27	6.99	0.11
T4-50m	10/30/13	916	0.7	Flood	0.17	5.3	0.53	7.4	0.24	3.3	2.6	74	0.47	14.7	5.2	72	0.02	34.86	27.0	8.23	5.85	0.10
T4-50m	2/5/14	937	1.0	Ebb	0.14	4.4	0.29	4.0	0.28	3.9	2.5	71	0.50	15.4	4.1	58	0.02	34.92	25.1	8.20	6.24	0.14
T4-50m	5/7/14	933	0.6	Flood	0.12	3.6	0.29	4.1	0.15	2.1	1.6	45	0.56	17.5	7.0	98	0.07	34.79	25.8	8.21	5.67	0.15
Geomean	**'13-'14**				0.13	**4.1**	0.27	**3.8**	0.19	***2.7***			0.48	***14.9***	5.9	**83**	**0.04**					**0.12**
T4-100m	8/6/13	946	0.0	Low	0.11	3.5	0.01	0.1	0.20	2.8	0.5	15	0.36	11.3	5.3	74	0.02	35.21	26.6	8.27	7.01	0.05
T4-100m	10/30/13	921	0.7	Flood	0.14	4.2	0.22	3.1	0.14	2.0	1.8	49	0.43	13.4	5.5	77	0.08	34.90	27.0	8.23	5.80	0.17
T4-100m	2/5/14	941	1.0	Ebb	0.14	4.2	0.23	3.2	0.24	3.3	2.5	70	0.46	14.3	5.4	75	0.02	34.94	25.1	8.20	6.28	0.12
T4-100m	5/7/14	938	0.6	Flood	0.10	3.1	0.06	0.8	0.11	1.5	0.9	27	0.46	14.1	6.3	88	0.10	34.33	26.0	8.21	5.59	0.13
Geomean	**'13-'14**				0.12	**3.7**	0.07	**0.9**	0.16	**2.3**			0.43	***13.2***	5.6	**79**	**0.04**					**0.11**
T4-500m	8/6/13	949	0.0	Low	0.11	3.4	0.01	0.1	0.08	1.2	0.5	14	0.34	10.4	5.50	77	0.05	35.20	26.9	8.27	6.99	0.08
T4-500m	10/30/13	927	0.7	Flood	0.13	4.1	0.06	0.8	0.15	2.1	1.1	31	0.52	16.1	5.90	83	0.02	34.91	27.1	8.23	5.97	0.23
T4-500m	2/5/14	947	0.9	Ebb	0.14	4.2	0.09	1.2	0.59	8.3	1.4	41	0.46	14.3	5.88	82	0.02	34.97	25.2	8.20	6.20	0.13
T4-500m	5/7/14	946	0.7	Flood	0.11	3.3	0.05	0.7	0.21	2.9	1.2	33	0.52	16.0	7.23	101	0.03	34.80	25.9	8.21	5.60	0.11
Geomean	**'13-'14**				0.12	**3.7**	0.04	**0.5**	0.20	***2.8***			0.45	***14.0***	6.1	**85**	**0.03**					**0.13**

NELHA Water Quality Laboratory
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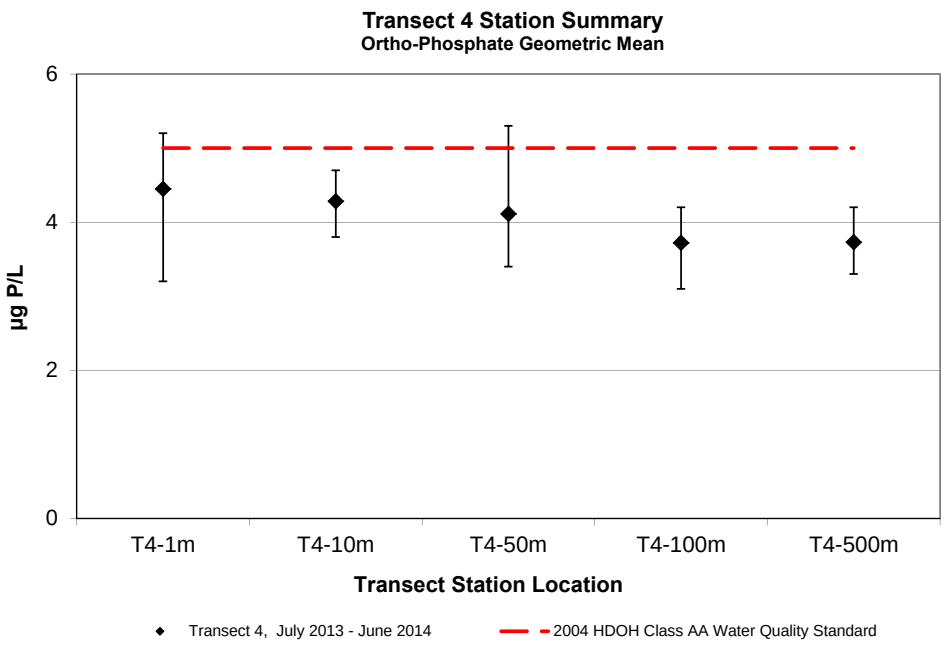
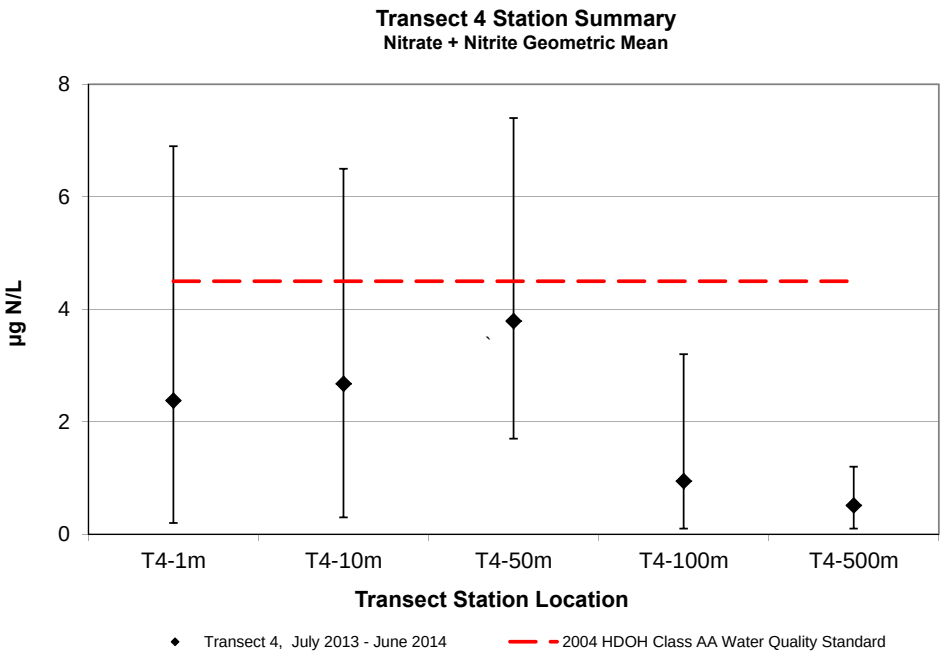
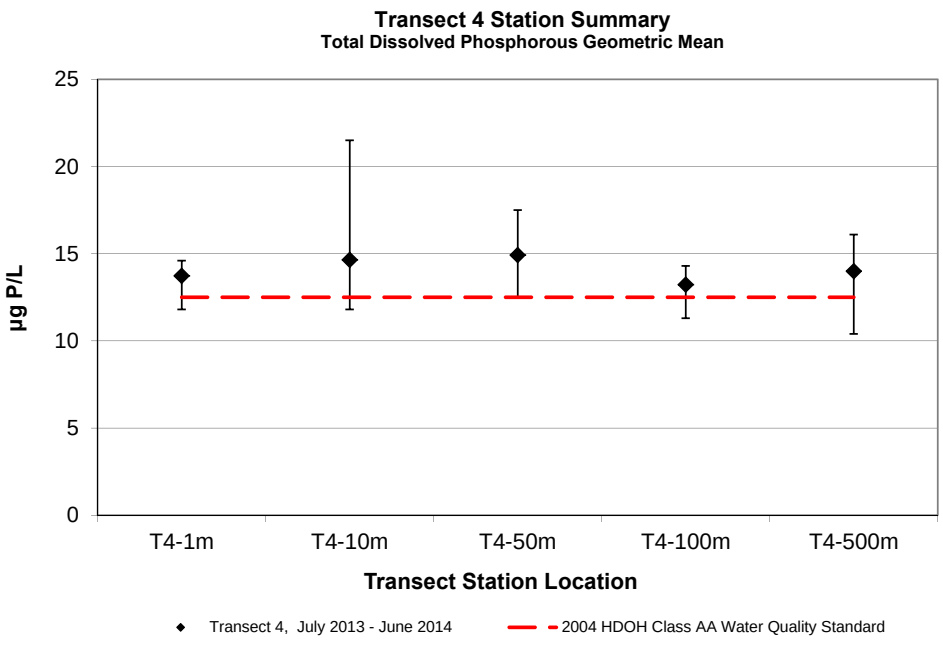
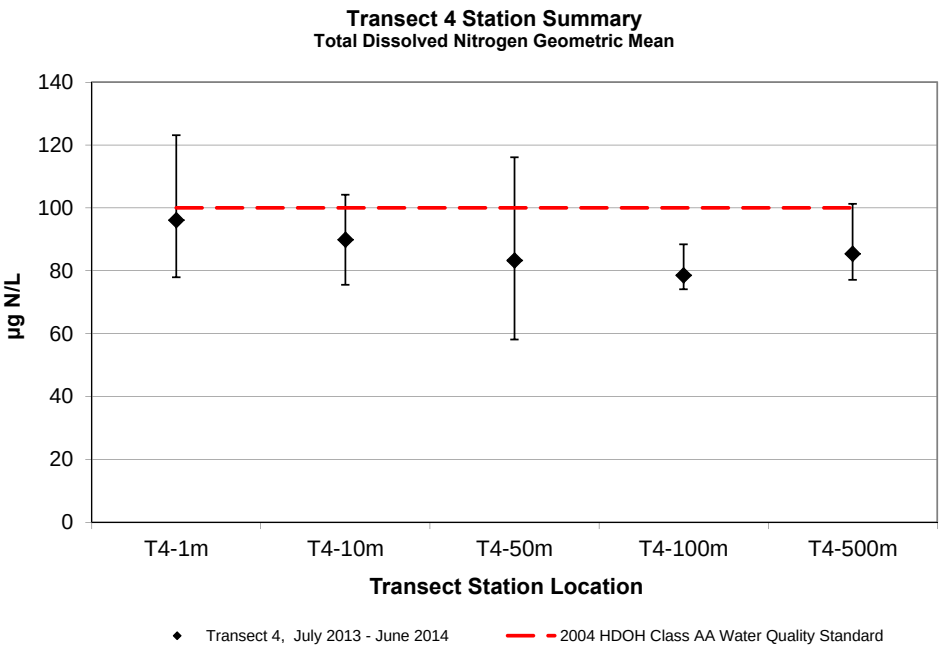
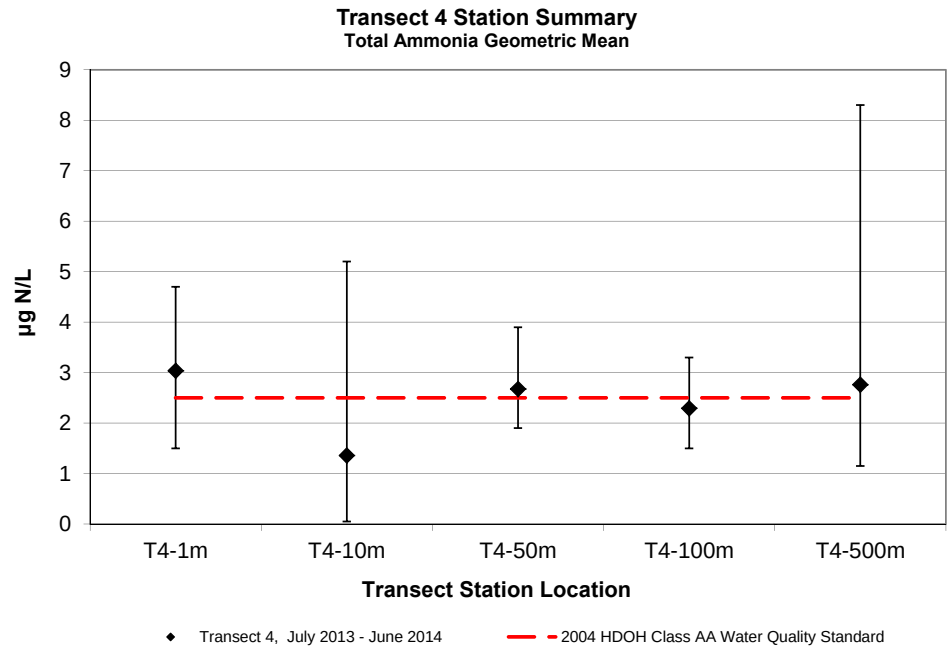


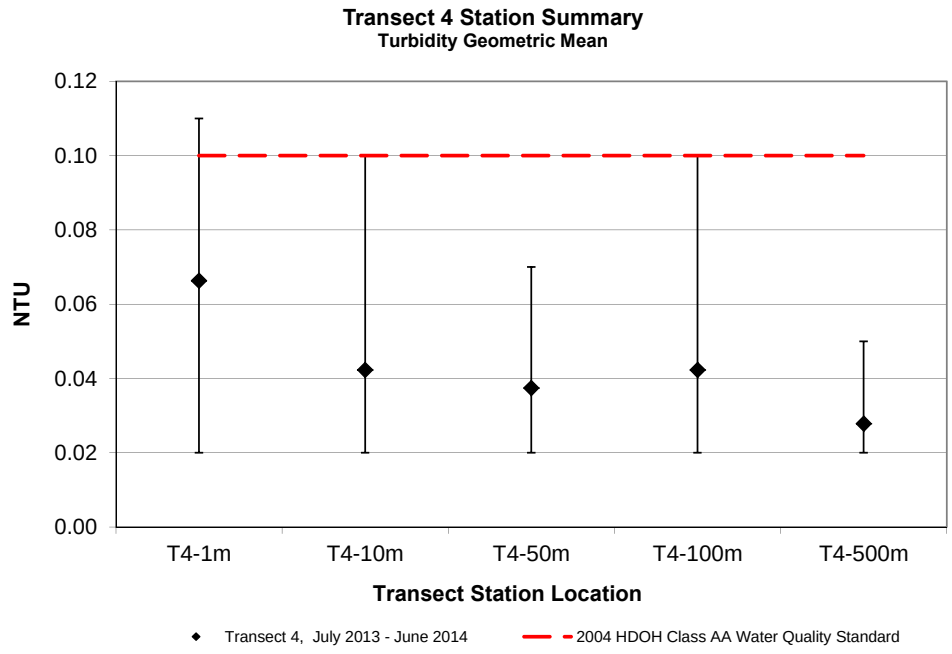


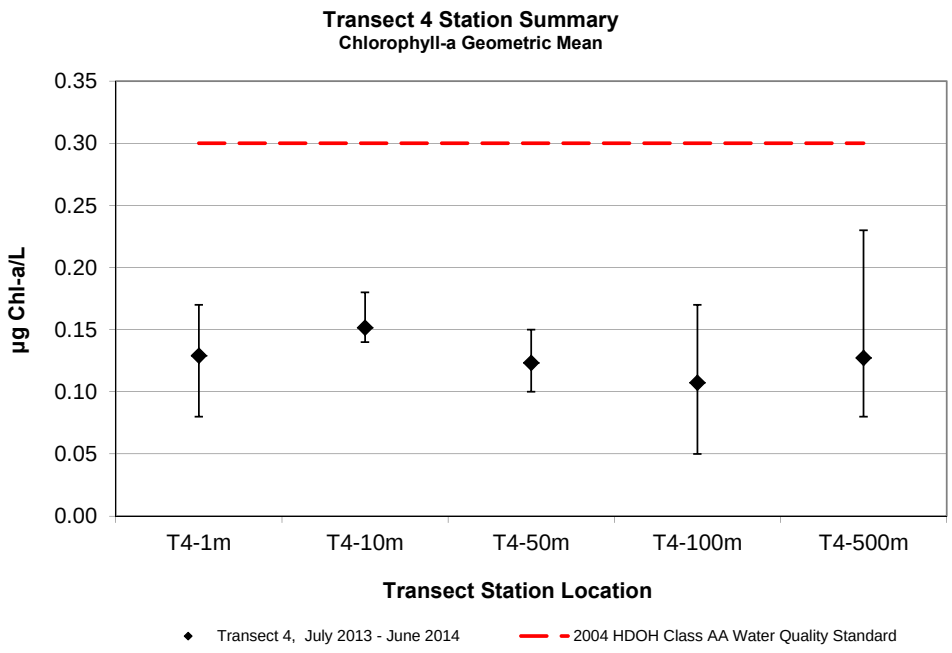




NELHA Water Quality Laboratory
Transect 4
July 2013 - June 2014







NELHA Water Quality Laboratory

Transect 4, Station 1

Julty 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TP		TOC	Turbidity	Salinity	Temp.	pH	DO	Chl a	Fecal Coliform	Enterococci
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg P/L)	(mgC/L)	(NTU)	(PSU)	(°C)	(unit)	(ppm)	(µg/L)	Bact/100 ml	Bact/100 ml
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**				**0.10**					**0.30**		
O4-1S-8m	8/3/93	926	0.12	3.7	0.15	2.1	0.42	5.9	2.6	74	0.30	9.3	7.7	108	0.37	11.5	1.45	0.08	34.456	26.9	8.25	6.94			
O4-1S-8m	12/8/93	928	0.09	2.8	0.12	1.7	0.20	2.8	2.8	78	0.25	7.7	5.6	78	0.25	7.7	1.28	0.07	34.787	25.6	8.26	6.76			
O4-1S-8m	3/8/94	903	0.20	6.2	0.54	7.6	0.26	3.6	4.4	124	0.38	11.8	5.6	78	0.39	12.1	1.26	0.08	34.170	25.2	8.24	7.06	0.08	2	1
O4-1S-8m	6/13/94	908	0.15	4.6	0.45	6.3	0.14	2.0	4.9	138	0.32	9.9	6.8	96	0.32	9.9	1.25	0.12	34.513	25.5	8.22	7.10	0.07	<1	<1
Geomean	**'93-'94**			**4.2**		**3.6**		***3.3***				**9.6**		**89**				**0.09**					**0.07**		
O4-1S-8m	9/15/94	912	0.10	3.1	0.15	2.1	0.09	1.3	3.3	94	0.29	9.0	5.7	80	0.30	9.3	1.17	0.26	34.606	27.6	8.27	6.72	0.04	<1	<1
O4-1S-8m	11/15/94	822	0.17	5.3	0.48	6.7	0.45	6.3	5.4	153	0.36	11.2	5.8	81	0.39	12.1	1.02	0.09	34.542	26.0	8.24	6.83	0.19	3	1
O4-1S-8m	3/22/95	1208	0.21	6.5	0.39	5.5	0.43	6.0	4.9	138	0.34	10.5	5.4	75	0.34	10.5	1.02	0.11	34.154	25.3	8.26	7.34	0.20	<1	<1
O4-1S-8m	6/21/95	831	0.11	3.4	0.16	2.2	0.34	4.8	2.4	68	0.29	9.0	5.9	83	0.29	9.0	1.01	0.07	34.454	26.2	8.21	6.85	0.05	<1	<1
Geomean	**'94-'95**			**4.4**		**3.6**		***3.9***				**9.9**		**80**				***0.12***					**0.09**		
O4-1S-8m	9/28/95	800	0.10	3.1	0.19	2.7	0.33	4.6	3.1	88	0.28	8.7	10.4	146	0.28	8.7	1.31	0.16	34.596	27.2	8.29	6.78	0.08	2	<1
O4-1S-8m	11/14/95	831	0.11	3.4	0.09	1.3	0.60	8.4	2.7	76	0.31	9.6	5.5	77	0.31	9.6	1.24	0.07	34.358	26.7	8.27	6.65	0.03	<1	<1
O4-1S-8m	3/12/96	908	0.17	5.3	0.35	4.9	0.53	7.4	3.4	94	0.32	9.9	5.2	73	0.32	9.9	0.99	0.06	34.164	25.1	8.22	7.03	0.16	<1	<1
O4-1S-8m	5/14/96	847	0.13	4.0	0.57	8.0	0.19	2.7	4.0	111	0.29	9.0	5.4	76	0.32	9.9	0.94	0.09	34.278	27.0	8.21	7.23	0.17	<1	3
Geomean	**'95-'96**			**3.9**		**3.4**		***5.3***				**9.3**		**89**				**0.09**					**0.09**		
O4-1S-8m	7/31/96	930	0.07	2.2	0.07	1.0	0.33	4.6	2.1	59	0.25	7.7	5.1	72	0.25	7.7	1.07	0.07	34.498	27.9	8.26	6.66	0.11	<1	2
O4-1S-8m	10/2/96	858	0.06	1.9	0.07	1.0	0.16	2.2	3.5	97	0.29	9.0	4.4	62	0.29	9.0	1.09	0.09	34.646	28.1	8.22	6.49	0.09	<1	<1
O4-1S-8m	1/7/97	912	0.12	3.7	0.52	7.3	0.25	3.5	3.8	105	0.34	10.5	4.9	68	0.34	10.5	1.04	0.08	34.647	25.3	8.27	7.06	0.01	<1	1
O4-1S-8m	4/28/97	926	0.17	5.3	**0.73**	10.2	0.42	5.9	4.5	125	0.60	18.6	5.6	78	0.75	23.2	1.05	0.10	34.413	26.6	8.27	6.86	0.15	<1	<1
Geomean	**'96-'97**			**3.0**		**2.9**		***3.8***				**10.8**		**70**				**0.08**					**0.06**		
O4-1S-8m	8/19/97	914	0.11	3.4	0.47	6.6	0.24	3.4	4.9	136	0.34	10.5	4.8	68	0.35	10.8	1.05	0.09	34.633	26.9	8.38	7.00	0.11	<1	<1
O4-1S-8m	10/7/97	1157	0.13	4.0	0.20	2.8	0.43	6.0	3.1	88	0.33	10.2	4.7	66	0.33	10.2	1.04	0.12	34.739	27.7	8.45	6.81	0.11	<1	<1
O4-1S-8m	3/4/98	916	0.09	2.8	0.15	2.1	0.18	2.5	3.0	83	0.28	8.7	4.9	68	0.31	9.6	1.01	0.09	35.022	24.9	8.23	6.83	0.04	<1	<1
O4-1S-8m	5/5/98	929	0.09	2.8	0.18	2.5	0.15	2.1	3.5	99	0.35	10.8	5.3	75	0.35	10.8	0.98	0.08	35.048	24.1	8.22	7.01	0.06	<1	<1
Geomean	**'97-'98**			**3.2**		**3.1**		***3.2***				**10.0**		**69**				**0.09**					**0.07**		
O4-1S-8m	7/7/98	946	0.12	3.7	0.41	5.7	0.03	0.4	5.9	166	0.38	11.8	5.3	75	0.40	12.4	1.10	0.10	34.939	26.3	8.21	6.68	0.13	<1	<1
O4-1S-8m	10/6/98	905	0.11	3.4	0.26	3.6	0.06	0.8	2.4	67	0.38	11.8	5.9	82	0.43	13.3	1.07	0.08	35.104	27.1	8.22	7.23	0.13	<1	<1
O4-1S-8m	1/19/99	926	0.07	2.2	0.01	0.1	0.15	2.1	**8.7**	245	0.36	11.2	4.8	67	0.35	10.8	1.14	0.06	35.153	25.1	8.22	6.91	0.16	<1	<1
O4-1S-8m	4/13/99	1014	0.15	4.6	0.36	5.0	0.12	1.7	8.0	224	0.44	13.6	4.5	63	0.41	12.7	1.01	0.09	34.651	24.3	8.21	n/a	0.13	<1	<1
Geomean	**'98-'99**			**3.4**		**2.0**		**1.1**				**12.0**		**71**				**0.08**					**0.14**		
O4-1S-8m	8/16/99	940	0.11	3.4	0.18	2.5	0.42	5.9	1.7	48	0.35	10.8	4.1	58	0.36	11.2	1.09	0.13	34.871	26.1	8.25	7.06	0.15	<1	1
O4-1S-8m	10/25/99	1035	0.13	4.0	0.28	3.9	0.27	3.8	3.9	109	0.37	11.5	5.3	74	0.37	11.5	1.06	0.11	34.928	26.2	8.28	7.02	0.11	<1	1
O4-1S-8m	1/12/00	946	0.10	3.1	0.03	0.4	0.26	3.6	1.9	52	0.30	9.3	5.1	72	0.30	9.3	0.98	0.05	35.132	24.7	8.26	6.84	0.11	<1	<1
O4-1S-8m	5/16/00	918	0.19	5.9	0.52	7.3	0.10	1.4	6.7	187	0.35	10.8	6.1	86	0.37	11.5	0.97	0.16	34.595	25.1	8.24	7.10	0.22	<1	<1
Geomean	**'99-'00**			**4.0**		**2.3**		***3.3***				**10.6**		**72**				**0.10**					**0.14**		
O4-1S-8m	7/25/00	943	0.10	3.1	0.14	2.0	0.34	4.8	4.5	127	0.37	11.5	5.2	73	0.36	11.2	1.04	0.08	34.861	26.8	8.28	6.71	0.12	<1	2
O4-1S-8m	10/31/00	937	0.10	3.1	0.08	1.1	0.27	3.8	12.9	363	0.36	11.2	5.1	71	0.37	11.5	1.11	0.07	34.964	27.0	8.25	6.57	0.10	<1	3
O4-1S-8m	3/6/01	928	0.16	5.0	0.49	6.9	0.08	1.1	3.9	110	0.39	12.1	6.5	91	0.40	12.4	1.12	0.07	34.703	24.8	8.20	6.59	0.10	<1	<1
O4-1S-8m	5/8/01	1022	0.13	4.0	0.35	4.9	0.19	2.7	6.3	177	0.37	11.5	5.1	71	0.37	11.5	1.03	0.09	34.771	25.0	8.21	6.88	0.11	<1	<1
Geomean	**'00-'01**			**3.7**		**2.9**		***2.7***				**11.5**		**76**				**0.08**					**0.11**		
O4-1S-8m	8/13/01	1032	0.10	3.1	0.01	0.1	0.51	7.1	2.6	72	0.34	10.5	5.3	74	0.34	10.5	1.06	0.09	34.893	26.6	8.23	6.77	0.12	<1	<1
O4-1S-8m	10/30/01	943	0.17	5.3	0.52	7.3	0.06	0.8	5.4	152	0.40	12.4	5.7	80	0.42	13.0	1.00	0.09	34.975	26.8	8.21	8.91	0.19	<1	<1
O4-1S-8m	3/4/02	1006	0.11	3.4	0.20	2.8	0.02	0.3	**9.3**	262	0.38	11.8	5.4	76	0.40	12.4	1.00	0.09	34.668	24.1	8.23	6.73	0.14	<1	<1
O4-1S-8m	4/16/02	1004	0.20	6.2	0.49	6.9	0.28	3.9	5.8	162	0.41	12.7	5.9	83	0.41	12.7	0.98	0.13	34.404	25.8	8.19	6.54	0.12	<1	<1
Geomean	**'01-'02**			**4.3**		**2.1**		**1.6**				**11.8**		**78**				**0.10**					**0.14**		

NELHA Water Quality Laboratory

Transect 4, Station 1

Julty 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TP		TOC	Turbidity	Salinity	Temp.	pH	DO	Chl a	Fecal Coliform	Enterococci
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg P/L)	(mgC/L)	(NTU)	(PSU)	(°C)	(unit)	(ppm)	(µg/L)	Bact/100 ml	Bact/100 ml
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**				**0.10**					**0.30**		
O4-1S-8m	7/9/02	1117	0.12	3.7	0.07	1.0	0.15	2.1	2.6	72	0.36	11.2	5.2	73	0.36	11.2	1.08	0.12	34.660	26.8	8.22	6.70	0.09	<1	<1
O4-1S-8m	10/7/02	959	0.11	3.4	0.14	2.0	0.21	2.9	3.1	88	0.32	9.9	5.3	74	0.32	9.9	1.03	0.06	34.945	27.1	8.25	6.74	0.09	<1	1
O4-1S-8m	3/10/03	1138	0.09	2.8	0.23	3.2	0.06	0.8	3.8	106	0.40	12.4	6.3	88	0.37	11.5	0.97	0.06	34.760	24.9	8.26	6.97	0.06	<1	<1
O4-1S-8m	4/22/03	1000	0.09	2.8	0.19	2.7	0.06	0.8	2.9	80	0.31	9.6	4.7	66	0.32	9.9	0.87	0.08	35.046	24.8	8.27	7.87	0.09	<1	<1
Geomean	**'02-'03**			**3.1**		**2.0**		**1.4**				**10.7**		**75**				**0.08**					**0.08**		
O4-1S-8m	8/19/03	1242	0.09	2.8	0.03	0.4	0.20	2.8	4.5	127	0.33	10.2	6.5	91	0.35	10.8	n/a	0.08	34.848	28.3	8.26	6.81	0.14	<1	<1
O4-1S-8m	10/30/03	948	0.10	3.1	0.20	2.8	0.20	2.8	1.6	44	0.38	11.8	6.7	94	0.37	11.5	n/a	0.10	34.827	27.5	8.23	n/a	0.07	<1	<1
O4-1S-8m	3/17/04	1023	0.14	4.3	0.10	1.4	0.15	2.1	2.6	73	0.35	10.8	3.7	51	0.34	10.5	n/a	n/a	34.371	26.0	8.28	6.32	0.14	<1	1
O4-1S-8m	5/24/04	947	0.16	5.0	0.40	5.6	0.12	1.7	3.9	108	0.46	14.2	6.0	83	0.47	14.6	n/a	n/a	33.39	26.7	8.24	6.10	0.01	<1	<1
Geomean	**'03-'04**			**3.7**		**1.7**		**2.3**				**11.7**		**78**				**0.09**					**0.06**		
O4-1S-8m	9/22/04	1022	0.08	2.5	0.01	0.1	0.21	2.9	1.7	46	0.30	9.3	4.3	60	0.30	9.3	n/a	0.08	33.83	27.9	8.24	6.61	0.10	<1	<1
O4-1S-8m	11/29/04	928	0.09	2.8	0.22	3.1	0.22	3.1	3.4	95	0.32	9.9	4.4	61	0.32	9.9	n/a	0.09	33.74	27.0	8.30	9.68	0.07	<1	<1
O4-1S-8m	1/24/05	1004	0.09	2.8	0.52	7.3	0.18	2.5	3.6	100	0.32	9.9	5.2	72	0.31	9.6	n/a	0.11	34.575	25.6	8.31	6.85	0.10	<1	<1
O4-1S-8m	4/13/05	1009	0.14	4.3	0.58	8.1	0.18	2.5	4.4	122	0.37	11.5	5.1	71	0.38	11.8	n/a	0.15	34.371	25.5	8.31	7.05	0.15	<1	<1
Geomean	**'04-'05**			**3.0**		**2.2**		***2.8***				**10.1**		**66**				**0.10**					**0.10**		
O4-1S-8m	7/21/05	923	0.06	1.9	0.14	2.0	0.32	4.5	0.5	15	0.32	9.9	4.8	68	0.32	9.9	n/a	0.09	34.654	27.4	8.26	6.55	0.02	<1	<1
O4-1S-8m	10/13/05	903	0.06	1.9	0.01	0.1	0.20	2.8	1.7	49	0.32	9.9	4.6	64	0.31	9.6	1.11	0.16	34.823	27.1	8.29	6.58	0.11	<1	1
O4-1S-8m	3/14/06	945	0.13	4.0	**0.74**	10.4	0.41	5.7	4.2	118	0.37	11.5	3.6	51	0.36	11.2	n/a	0.11	34.807	24.5	8.27	7.00	0.12	<1	<1
O4-1S-8m	5/17/06	916	0.19	5.9	**0.66**	9.2	0.31	4.3	3.2	91	0.43	13.3	5.5	77	0.46	14.2	1.02	0.17	34.643	24.7	8.27	6.91	0.15	<1	<1
Geomean	**'05-'06**			**3.0**		**2.3**		***4.2***				**11.1**		**64**				***0.13***					**0.08**		
O4-1S-8m	8/16/06	919	0.14	4.3	0.28	3.9	0.27	3.8	2.0	55	0.36	11.2	5.3	75	0.39	12.1	0.96	0.12	34.635	26.8	8.23	7.08	0.09	<1	<1
O4-1S-8m	11/20/06	918	0.14	4.3	0.18	2.5	0.32	4.5	1.8	51	0.37	11.5	5.3	74	0.37	11.5	1.12	0.24	34.810	26.6	8.26	6.88	0.07	<1	<1
O4-1S-8m	2/12/07	1009	0.27	8.4	0.17	2.4	0.56	7.8	1.2	35	0.45	13.9	6.6	93	0.44	13.6	1.40	0.10	34.443	24.8	8.23	6.81	0.13	<1	<1
O4-1S-8m	4/16/07	1006	0.16	5.0	**1.37**	19.2	0.55	7.7	**10.6**	298	0.38	11.8	6.5	91	0.41	12.7	0.88	0.27	34.443	26.0	8.24	6.48	0.03	<1	<1
Geomean	**'06-'07**			***5.3***		***4.6***		***5.7***				**12.0**		**83**				***0.17***					**0.07**		
T4-1m	9/26/07	1138	0.14	4.2	0.27	3.8	0.39	5.5	2.6	74	0.36	11.1	5.2	73				0.1	34.963	26.8	8.10	6.12	0.09		
T4-1m	12/14/07	904	0.09	2.8	0.07	1.0			2.8	79	0.34	10.6	5.2	73				0.07	34.705	25.7	8.25	6.82	0.31		
T4-1m	3/11/08	914	0.14	4.2	0.78	10.9	0.06	0.8	12.4	350	0.24	7.5	6.6	92				0.09	34.853	24.8	8.07	6.65	0.65		
T4-1m	6/9/08	950	0.09	2.9	0.37	5.2	0.16	2.2	10.7	299	0.28	8.7	5.9	83				0.19	34.664	25.1	8.09	6.04	0.30		
Geomean	**'07-'08**			**3.5**		**3.8**		**2.1**				**9.4**		**80**				**0.10**					**0.27**		
T4-1m	9/23/08	1035	0.02	0.5	0.15	2.1	0.37	5.2	1.8	50	0.23	7.2	5.4	76				0.08	34.837	26.7	8.07	6.31	0.07		
T4-1m	12/8/08	937	0.16	5.0	0.28	3.9	0.14	1.9	2.1	59	0.26	8.1	5.4	76				0.13	34.968	26.0	8.29	5.64	0.10		
T4-1m	2/10/09	838	0.21	6.4	1.11	15.5	0.12	1.7	3.8	107	0.04	1.2	8.9	125				0.14	35.065	24.6	8.04	6.29	0.11		
T4-1m	6/30/09	923	0.25	7.8	0.33	4.6	0.81	11.4	4.2	118	0.35	10.8	4.4	61				0.27	34.886	26.8	8.21	5.95	0.15		
Geomean	**'08-'09**			**3.3**		***4.9***		***3.7***				**5.2**		**81**				***0.14***					**0.10**		
T4-1m	9/10/09	904	0.19	5.9	0.16	2.3	0.22	3.1	9.9	279	0.27	8.3	7.6	106				0.08	35.21	27.2	8.21	5.62	0.21		
T4-1m	11/24/09	905	0.03	1.0	0.17	2.4	0.69	9.6	9.6	271	0.24	7.5	6.3	89				0.11	35.25	25.2	8.25	6.50	0.14		
T4-1m	2/24/10	937	0.14	4.3	0.24	3.3	0.36	5.1	2.6	72	0.15	4.6	4.1	58				0.14	35.06	24.7	8.21	6.38	0.16		
T4-1m	5/25/10	915	0.05	1.4	0.36	5.1	0.14	2.0	3.2	90	0.04	1.1	4.3	60				0.06	34.88	25.1	8.23	7.06	0.10		
Geomean	**'09-'10**			**2.4**		**3.1**		***4.2***				**4.2**		**75**				**0.09**					**0.15**		
T4-1m	8/11/10	910	0.02	0.6	0.57	8.0	0.22	3.1	3.8	108	0.36	11.3	4.1	57				0.06	34.90	26.1	8.25	6.71	0.12		
T4-1m	11/9/10	910	0.05	1.7	0.25	3.5	0.10	1.4	4.8	135	0.46	14.4	6.8	95				0.07	34.92	26.3	8.26	6.35	0.05		
T4-1m	1/11/11	1126	0.15	4.8	0.28	3.9	0.20	2.8	2.5	70	0.44	13.7	3.9	55				0.09	35.01	25.0	8.21	6.42	0.08		
T4-1m	4/27/11	920	0.17	5.2	0.34	4.8	0.09	1.3	3.9	109	0.48	14.9	4.0	56				0.10	34.86	24.9	8.20	6.38	0.08		
Geomean	**'10-'11**			**2.2**		***4.8***		**2.0**				***13.5***		**64**				**0.08**					**0.08**		

NELHA Water Quality Laboratory

Transect 4, Station 1

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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TP		TOC	Turbidity	Salinity	Temp.	pH	DO	Chl a	Fecal Coliform	Enterococci
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg P/L)	(mgC/L)	(NTU)	(PSU)	(°C)	(unit)	(ppm)	(µg/L)	Bact/100 ml	Bact/100 ml
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**				**0.10**					**0.30**		
T4-1m	7/27/11	910	0.21	6.6	0.39	5.4	0.41	5.8	2.8	79	0.51	15.9	5.0	70				0.07	34.77	26.0	8.21	6.27	0.12		
T4-1m	10/19/11	942	0.06	1.9	0.16	2.3	0.14	1.9	2.5	72	0.38	11.8	4.6	64				0.05	35.08	26.5	8.24	7.30	0.10		
T4-1m	1/26/12	910	0.11	3.4	0.34	4.7	0.12	1.7	2.9	82	0.37	11.4	4.3	60				0.04	34.98	24.4	8.21	6.77	0.13		
T4-1m	4/25/12	932	0.21	6.5	0.47	6.6	0.46	6.4	2.2	62	0.54	16.6	5.5	77				0.23	34.89	24.8	8.19	6.99	0.10		
Geomean	**'11-'12**			**4.1**		**4.4**		***3.3***				***13.7***		**67**				**0.08**					**0.11**		
T4-1m	7/25/12	921	0.06	2.0	0.29	4.0	0.34	4.8	2.3	64	0.42	13.0	5.4	76				0.06	35.02	26.3	8.23	6.84	0.08		
T4-1m	11/28/12	924	0.12	3.6	0.19	2.6	0.31	4.4	2.0	57	0.45	13.9	5.7	80				0.10	35.20	25.3	8.20	6.82	0.08		
T4-1m	1/24/13	908	0.14	4.4	0.71	9.9	0.14	1.9	3.5	98	0.47	14.5	6.4	90				0.08	35.02	24.7	8.21	6.40	0.09		
T4-1m	4/17/13	1021	0.16	4.9	0.53	7.4	0.26	3.6	2.2	62	0.54	16.6	8.5	119				0.09	35.13	25.1	8.22	6.93	0.17		
Geomean	**'12-'13**			**3.5**		***5.3***		***3.5***				***14.4***		**90**				**0.08**					**0.10**		
T4-1m	8/6/13	929	0.10	3.2	0.01	0.2	0.11	1.5	2.8	79	0.38	11.8	7.0	99				0.11	35.11	26.3	8.26	7.09	0.17		
T4-1m	10/30/13	909	0.15	4.7	0.34	4.8	0.22	3.1	1.7	47	0.47	14.6	6.4	90				0.08	34.92	27.0	8.23	5.81	0.17		
T4-1m	2/5/14	928	0.17	5.2	0.34	4.8	0.28	3.9	2.3	64	0.46	14.1	5.6	78				0.02	34.93	25.2	8.21	6.48	0.08		
T4-1m	5/7/14	923	0.16	5.0	0.49	6.9	0.34	4.7	1.7	47	0.47	14.6	8.8	123				0.11	34.75	25.7	8.20	5.87	0.12		
Geomean	**'13-'14**			**4.4**		**2.4**		***3.0***				***13.7***		**96**				**0.07**					**0.13**		

NELHA Water Quality Laboratory
Transect 4, Station 1
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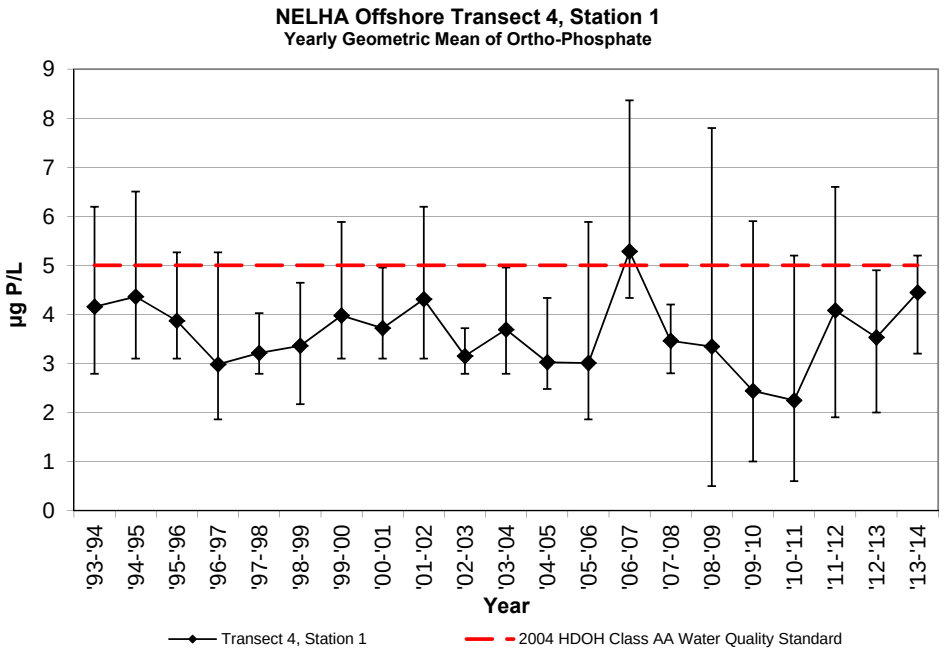

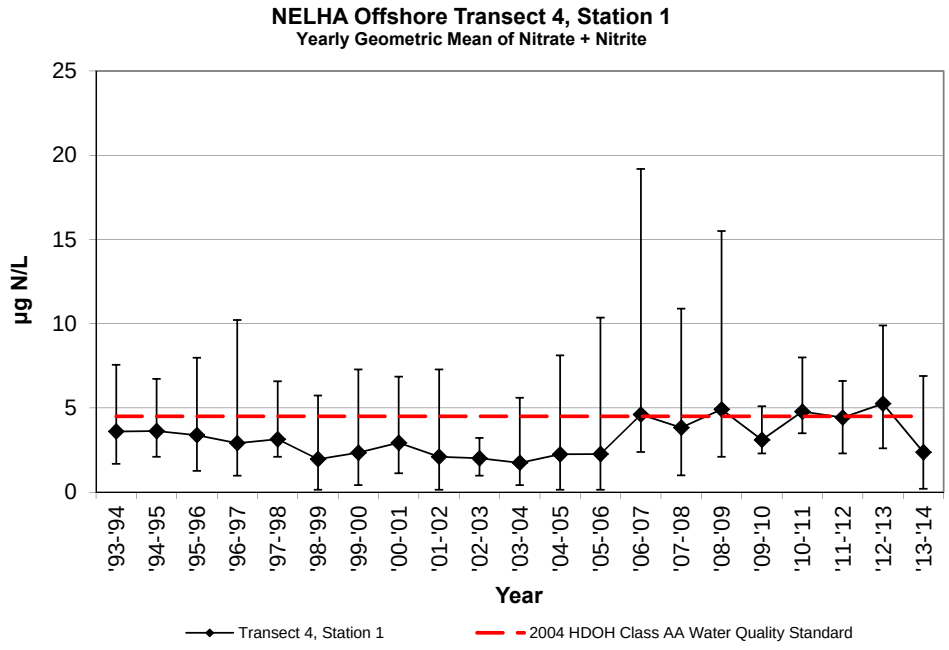

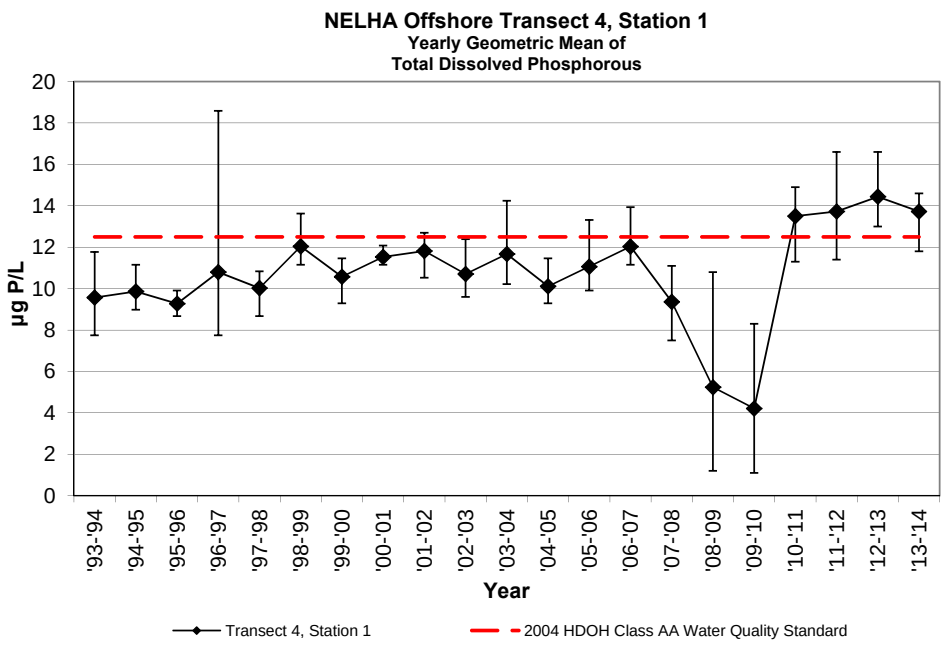

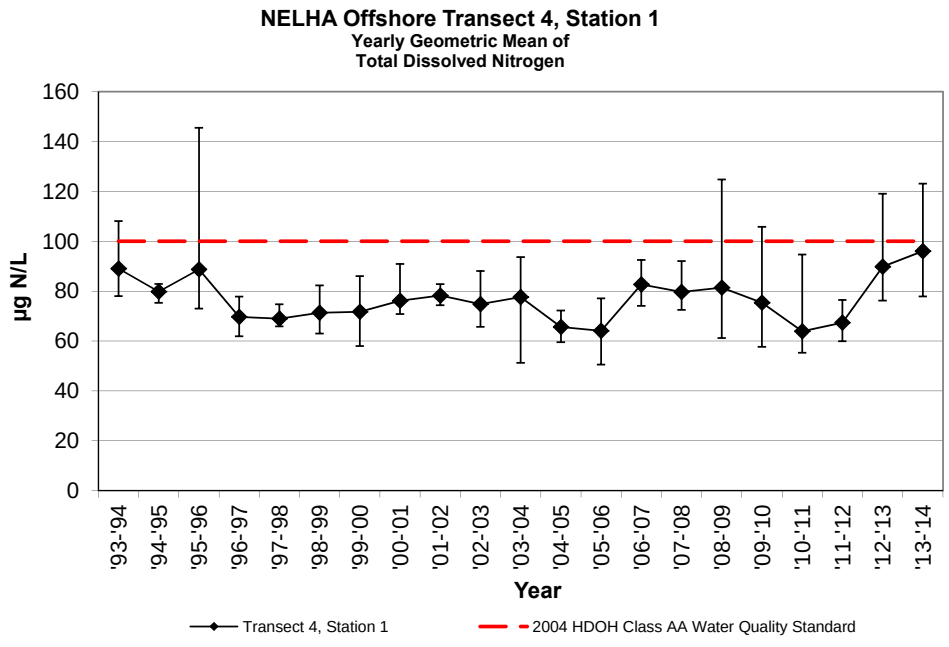

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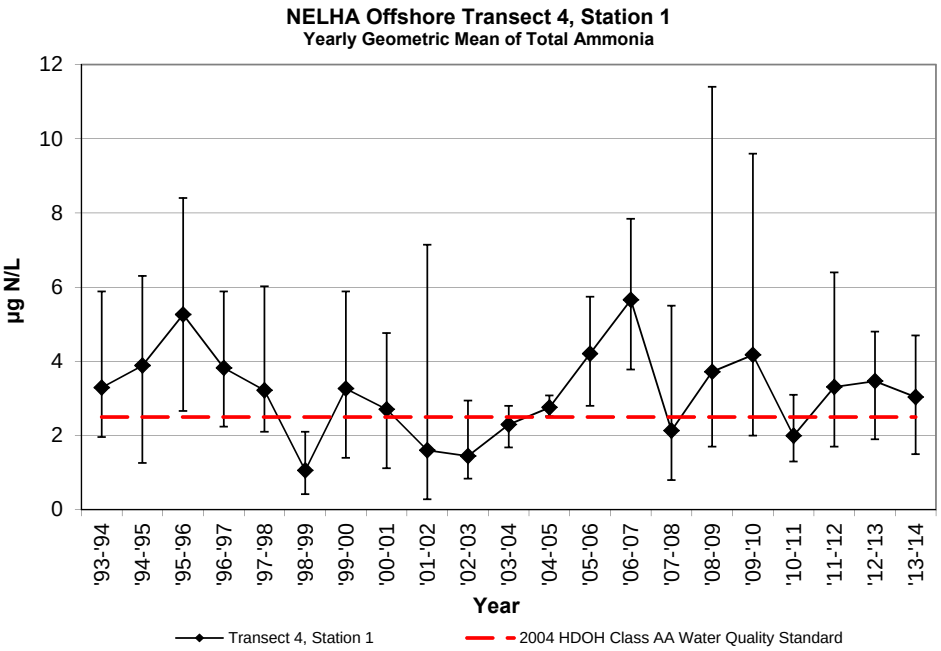
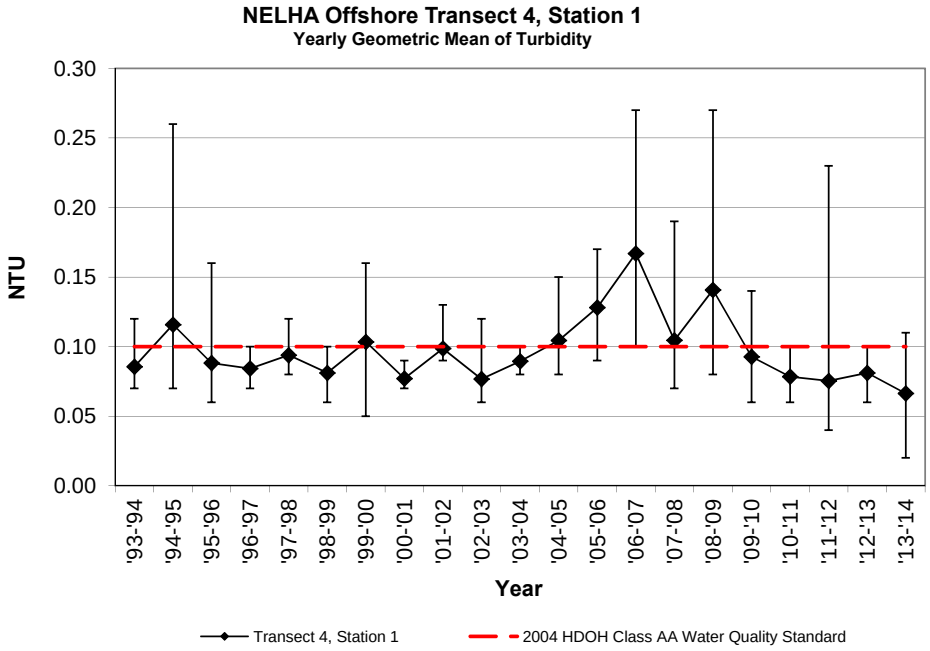
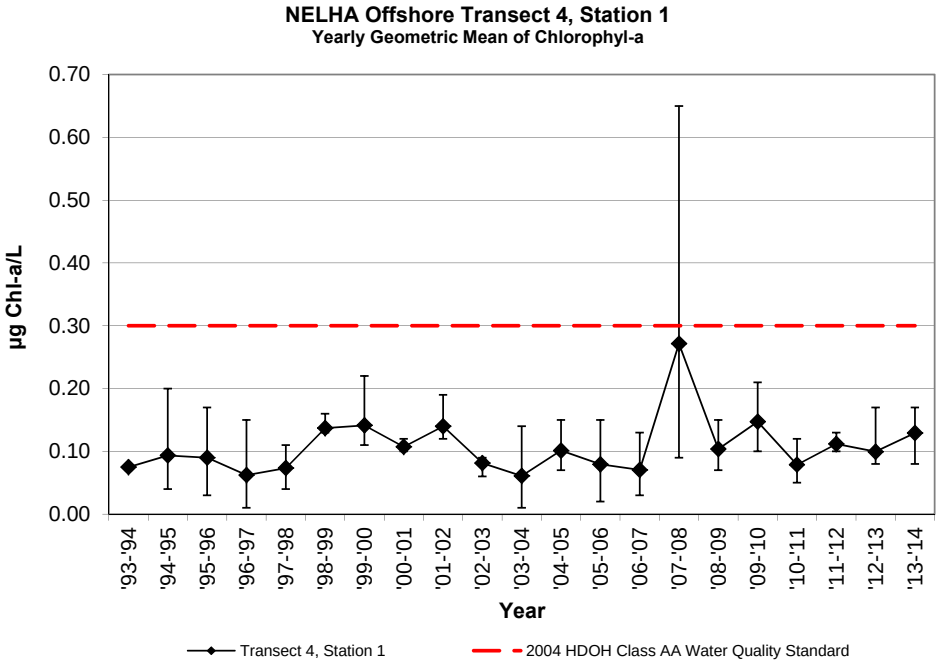
Julty 1993 - June 2014







NELHA Water Quality Laboratory
Transect 4, Station 2
July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O4-2S-23m	8/3/93	917	0.10	3.1	0.08	1.1	0.46	6.4	3.8	105					0.06	34.46	26.8			
O4-2S-23m	12/8/93	921	0.07	2.2	0.12	1.7	0.10	1.4	2.3	65					0.05	34.80	25.7			
O4-2S-23m	3/8/94	856	0.20	6.2	0.38	5.3	0.19	2.7	4.0	111			5.9	82	0.07	34.19	25.1			
O4-2S-23m	6/13/94	900	0.13	4.0	0.19	2.7	0.08	1.1	6.6	185					0.09	34.53	25.5			
Geomean	**'93-'94**			**3.6**		**2.3**		**2.3**							**0.07**					
O4-2S-23m	9/15/94	857	0.08	2.5	0.09	1.3	0.14	2.0	3.2	91					0.11	34.61	27.6			
O4-2S-23m	11/15/94	814	0.15	4.6	0.37	5.2	0.45	6.3	4.7	131					0.07	34.57	26.0			
O4-2S-23m	3/22/95	1159	0.21	6.5	0.45	6.3	0.36	5.0	6.0	167					0.11	34.13	25.3			
O4-2S-23m	6/21/95	826	0.10	3.1	0.13	1.8	0.33	4.6	2.3	64					0.06	34.46	26.2			
Geomean	**'94-'95**			**3.9**		**2.9**		***4.1***							**0.08**					
O4-2S-23m	9/28/95	1000	0.08	2.5	0.06	0.8	0.43	6.0	3.0	83					0.09	34.60	27.4			
O4-2S-23m	11/14/95	825	0.10	3.1	0.06	0.8	0.52	7.3	4.8	135					0.05	34.36	26.7			
O4-2S-23m	3/12/96	905	0.16	5.0	0.29	4.1	0.54	7.6	3.1	87					0.10	34.17	25.1			
O4-2S-23m	5/14/96	840	0.15	4.6	**1.09**	15.3	0.24	3.4	5.5	153					0.09	34.22	27.0			
Geomean	**'95-'96**			**3.6**		**2.6**		***5.8***							**0.08**					
O4-2S-23m	7/31/96	920	0.07	2.2	0.05	0.7	0.35	4.9	3.4	96					0.09	34.50	27.9			
O4-2S-23m	10/2/96	853	0.07	2.2	0.03	0.4	0.15	2.1	2.8	77					0.07	34.65	28.0			
O4-2S-23m	1/7/97	908	0.11	3.4	0.44	6.2	0.22	3.1	4.5	127					0.07	34.66	25.4			
O4-2S-23m	4/28/97	920	0.15	4.6	0.50	7.0	0.46	6.4	5.2	145					0.11	34.40	26.6			
Geomean	**'96-'97**			**2.9**		**1.9**		***3.8***							**0.08**					
O4-2S-23m	8/19/97	909	0.08	2.5	0.44	6.2	0.24	3.4	3.5	99					0.08	34.63	27.0			
O4-2S-23m	10/7/97	1152	0.14	4.3	0.17	2.4	0.44	6.2	3.3	92					0.10	34.73	27.7			
O4-2S-23m	3/4/98	912	0.09	2.8	0.09	1.3	0.23	3.2	3.8	105					0.06	35.01	24.9			
O4-2S-23m	5/5/98	923	0.08	2.5	0.18	2.5	0.14	2.0	3.6	100					0.07	35.03	24.1			
Geomean	**'97-'98**			**2.9**		**2.6**		***3.4***							**0.08**					
O4-2S-23m	7/7/98	940	0.11	3.4	0.30	4.2	0.04	0.6	6.6	186					0.08	34.95	26.3			
O4-2S-23m	10/6/98	859	0.09	2.8	0.05	0.7	0.02	0.3	1.8	50					0.09	35.13	26.8			
O4-2S-23m	1/19/99	919	0.07	2.2	0.01	0.1	0.16	2.2	2.3	65					0.08	35.15	25.1			
O4-2S-23m	4/13/99	1009	0.15	4.6	0.32	4.5	0.10	1.4	5.0	140					0.09	34.65	24.3			
Geomean	**'98-'99**			**3.1**		**1.2**		**0.8**							**0.08**					
O4-2S-23m	8/16/99	938	0.10	3.1	0.18	2.5	0.42	5.9	1.7	48					0.08	34.88	26.1			
O4-2S-23m	10/25/99	1030	0.10	3.1	0.01	0.1	0.21	2.9	2.6	74					0.09	34.97	26.1			
O4-2S-23m	1/12/00	942	0.10	3.1	0.02	0.3	0.27	3.8	1.9	53					0.05	35.14	24.7			
O4-2S-23m	5/16/00	911	0.19	5.9	0.47	6.6	0.10	1.4	8.2	231					0.15	34.59	25.1			
Geomean	**'99-'00**			**3.6**		**0.9**		***3.1***							**0.09**					
O4-2S-23m	7/25/00	938	0.09	2.8	0.10	1.4	0.05	0.7	5.7	161					0.06	34.86	26.8			
O4-2S-23m	10/31/00	934	0.09	2.8	0.07	1.0	0.19	2.7	2.7	75					0.05	34.96	26.9			
O4-2S-23m	3/6/01	925	0.14	4.3	0.15	2.1	0.08	1.1	3.5	99					0.10	34.70	24.8			
O4-2S-23m	5/8/01	1019	0.13	4.0	0.06	0.8	0.15	2.1	4.0	112					0.06	34.75	25.0			
Geomean	**'00-'01**			**3.4**		**1.2**		**1.4**							**0.07**					
O4-2S-23m	8/13/01	1028	0.09	2.8	0.01	0.1	0.29	4.1	5.0	140					0.10	34.87	26.7			
O4-2S-23m	10/30/01	937	0.16	5.0	0.50	7.0	0.03	0.4	3.2	90					0.07	34.99	26.7			
O4-2S-23m	3/4/02	1001	0.11	3.4	0.12	1.7	0.01	0.1	5.7	161					0.09	34.67	24.1			
O4-2S-23m	4/16/02	1001	0.21	6.5	0.38	5.3	0.27	3.8	6.9	195					0.09	34.39	25.6			
Geomean	**'01-'02**			**4.2**		**1.7**		**1.0**							**0.09**					

NELHA Water Quality Laboratory
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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O4-2S-23m	7/9/02	1114	0.11	3.4	0.07	1.0	0.12	1.7	2.6	72					0.10	34.66	26.7			
O4-2S-23m	10/7/02	955	0.11	3.4	0.04	0.6	0.17	2.4	3.5	99					0.05	34.95	27.0			
O4-2S-23m	3/10/03	1123	0.10	3.1	0.09	1.3	0.06	0.8	3.6	100					0.07	34.68	25.1			
O4-2S-23m	4/22/03	956	0.08	2.5	0.04	0.6	0.03	0.4	2.2	62					0.06	35.04	24.9			
Geomean	**'02-'03**			**3.1**		**0.8**		**1.1**							**0.07**					
O4-2S-23m	8/19/03	1227	0.07	2.2	0.01	0.1	0.20	2.8	1.4	40					0.08	34.88	28.2			
O4-2S-23m	10/30/03	933	0.09	2.8	0.10	1.4	0.20	2.8	4.7	132					0.10	34.82	27.5			
O4-2S-23m	3/17/04	1017	0.13	4.0	0.10	1.4	0.19	2.7	1.6	46					n/a	34.33	26.0			
O4-2S-23m	5/24/04	941	0.15	4.6	0.26	3.6	0.06	0.8	3.7	103					n/a	33.44	26.8			
Geomean	**'03-'04**			**3.3**		**1.0**		**2.0**							**0.09**					
O4-2S-23m	9/22/04	1044	0.06	1.9	0.01	0.1	0.23	3.2	1.8	50					0.07	33.77	28.1			
O4-2S-23m	11/29/04	922	0.06	1.9	0.10	1.4	0.14	2.0	1.1	32					0.08	33.70	27.0			
O4-2S-23m	1/24/05	1001	0.11	3.4	0.19	2.7	0.09	1.3	2.4	68					0.08	34.78	25.5			
O4-2S-23m	4/13/05	1002	0.14	4.3	0.55	7.7	0.19	2.7	4.8	135					0.09	34.37	25.4			
Geomean	**'04-'05**			**2.7**		**1.4**		**2.1**							**0.08**					
O4-2S-23m	7/21/05	916	0.05	1.5	0.04	0.6	0.28	3.9	1.5	43					0.06	34.69	27.2			
O4-2S-23m	10/13/05	854	0.06	1.9	0.02	0.3	0.23	3.2	1.6	45					0.11	34.83	27.2			
O4-2S-23m	3/14/06	940	0.09	2.8	0.04	0.6	0.41	5.7	5.8	162					0.07	34.86	24.4			
O4-2S-23m	5/17/06	908	0.13	4.0	0.07	1.0	0.19	2.7	2.1	59					0.11	34.68	24.4			
Geomean	**'05-'06**			**2.4**		**0.5**		***3.7***							**0.08**					
O4-2S-23m	8/16/06	912	0.12	3.7	0.30	4.2	0.16	2.2	2.4	69					0.14	34.63	26.8			
O4-2S-23m	11/20/06	909	0.11	3.4	0.13	1.8	0.24	3.4	1.6	46					0.19	34.81	26.7			
O4-2S-23m	2/12/07	1002	0.12	3.7	0.13	1.8	0.30	4.2	1.3	37					0.22	34.46	24.5			
O4-2S-23m	4/16/07	956	0.15	4.6	**1.00**	14.0	0.30	4.2	**9.4**	264					0.14	34.47	26.0			
Geomean	**'06-'07**			**3.8**		**3.7**		***3.4***							***0.17***					
T4-10m	9/26/07	1147	0.13	4.0	0.61	8.5	0.25	3.5	13.6	383	0.41	12.6	5.86	82	0.10	34.93	26.9	8.24	6.78	0.17
T4-10m	12/14/07	904	0.08	2.4	0.05	0.7			3.4	95	0.31	9.5	6.08	85	0.12	34.72	25.6	8.22	6.70	0.31
T4-10m	3/11/08	914	0.21	6.5	0.55	7.7	0.06	0.8	3.1	86	0.26	7.9	5.01	70	0.11	34.87	24.8	8.08	6.63	0.51
T4-10m	6/9/08	955	0.07	2.2	0.32	4.5	0.16	2.2	7.6	214	0.34	10.4	5.97	84	0.12	34.66	25.1	8.1	5.96	0.26
Geomean	**'07-'08**			**3.4**		**3.8**		**1.8**				**10.0**		**80**	***0.11***					**0.29**
T4-10m	9/23/08	1042	0.03	0.8	0.14	1.9	0.44	6.2	1.7	48	0.31	9.7	4.57	64	0.08	34.84	26.8	8.06	6.21	0.10
T4-10m	12/8/08	949	0.17	5.4	0.32	4.5	0.29	4.0	2.2	62	0.55	17.0	5.19	73	0.08	34.98	26.1	8.30	5.64	0.07
T4-10m	2/10/09	846	0.11	3.4	0.58	8.1	0.12	1.7	2.3	64	0.22	6.8	8.03	113	0.18	35.08	24.7	8.05	5.98	0.08
T4-10m	6/30/09	929	0.27	8.5	0.30	4.2	0.12	1.7	6.1	171	0.39	12.1	5.17	72	0.12	34.88	26.7	8.20	6.13	0.08
Geomean	**'08-'09**			**3.3**		**4.1**		***2.9***				**10.8**		**78**	***0.11***					**0.08**
T4-10m	9/10/09	910	0.10	3.2	0.16	2.2	0.10	1.4	4.7	133	0.44	13.6	5.62	79	0.06	35.18	27.2	8.26	5.88	0.06
T4-10m	11/24/09	908	0.03	0.8	0.16	2.2	0.19	2.7	23.6	662	0.32	9.9	5.79	81	0.05	35.26	25.2	8.26	6.58	0.15
T4-10m	2/24/10	941	0.15	4.5	0.25	3.5	0.37	5.2	3.0	84	0.27	8.5	4.18	59	0.15	35.08	24.7	8.24	5.96	0.27
T4-10m	5/25/10	921	0.04	1.2	0.39	5.4	0.11	1.5	2.9	80	0.14	4.4	6.38	89	0.06	34.89	25.1	8.22	7.10	0.03
Geomean	**'09-'10**			**1.9**		**3.1**		**2.3**				**8.4**		**76**	**0.07**					**0.09**
T4-10m	8/11/10	915	0.05	1.4	0.53	7.4	0.28	3.9	3.0	85	0.32	9.9	3.54	50	0.07	34.92	26.1	8.24	6.72	0.10
T4-10m	11/9/10	914	0.05	1.5	0.25	3.5	0.10	1.4	7.7	217	0.45	14.0	4.98	70	0.09	34.91	26.3	8.27	6.39	0.05
T4-10m	1/11/11	1131	0.15	4.6	0.29	4.1	0.23	3.2	19.2	538	0.43	13.2	3.64	51	0.04	35.01	25.0	8.21	6.41	0.09
T4-10m	4/27/11	924	0.13	4.0	0.36	5.1	0.17	2.4	6.0	169	0.42	13.0	3.61	51	0.11	34.87	24.9	8.20	6.47	0.10
Geomean	**'10-'11**			**2.5**		***4.8***		**2.5**				**12.4**		**55**	**0.07**					**0.08**

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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
T4-10m	7/27/11	915	0.18	5.7	0.36	5.0	0.13	1.8	2.2	62	0.49	15.3	4.53	64	0.10	34.78	26.0	8.21	6.17	0.11
T4-10m	10/19/11	945	0.09	2.9	0.15	2.1	0.10	1.4	1.6	45	0.39	12.0	4.67	65	0.06	35.08	26.5	8.25	7.30	0.10
T4-10m	1/26/12	915	0.09	2.9	0.39	5.5	0.26	3.7	2.4	67	0.34	10.4	3.51	49	0.08	34.99	24.4	8.23	6.78	0.10
T4-10m	4/25/12	934	0.17	5.3	0.46	6.5	0.34	4.8	1.9	53	0.53	16.3	7.29	102	0.12	34.89	24.8	8.19	7.04	0.08
Geomean	**'11-'12**			**4.0**		**4.4**		***2.6***				***13.3***		**68**	**0.09**					**0.10**
T4-10m	7/25/12	924	0.05	1.4	0.26	3.7	0.31	4.3	1.7	47	0.36	11.3	4.37	61	0.05	35.02	26.3	8.23	7.08	0.18
T4-10m	11/28/12	928	0.09	2.9	0.19	2.6	0.16	2.2	1.9	53	0.44	13.5	6.21	87	0.04	35.22	25.3	8.20	6.57	0.03
T4-10m	1/24/13	912	0.12	3.8	0.71	10.0	0.16	2.3	3.2	90	0.47	14.7	5.45	76	0.07	35.02	24.7	8.20	6.27	0.13
T4-10m	4/17/13	1026	0.18	5.5	0.54	7.5	0.26	3.6	2.2	61	0.52	16.0	5.00	70	0.04	35.13	25.1	8.21	6.93	0.18
Geomean	**'12-'13**			**3.0**		***5.2***		***3.0***				***13.8***		**73**	**0.05**					**0.11**
T4-10m	8/6/13	934	0.12	3.8	0.02	0.3	0.00	0.1	2.4	67	0.38	11.8	7.4	104	0.10	35.14	26.3	8.26	7.10	0.14
T4-10m	10/30/13	913	0.15	4.7	0.33	4.6	0.37	5.2	1.5	43	0.46	14.4	5.9	82	0.02	34.91	27.0	8.23	5.87	0.18
T4-10m	2/5/14	933	0.15	4.7	0.41	5.7	0.34	4.7	2.3	66	0.41	12.6	5.4	76	0.02	34.94	25.2	8.20	6.33	0.15
T4-10m	5/7/14	929	0.13	4.0	0.46	6.5	0.20	2.8	1.5	42	0.69	21.5	7.2	101	0.08	34.76	25.7	8.21	5.87	0.14
Geomean	**'13-'14**			**4.3**		**2.7**		**1.4**				***14.6***		**90**	**0.04**					**0.15**

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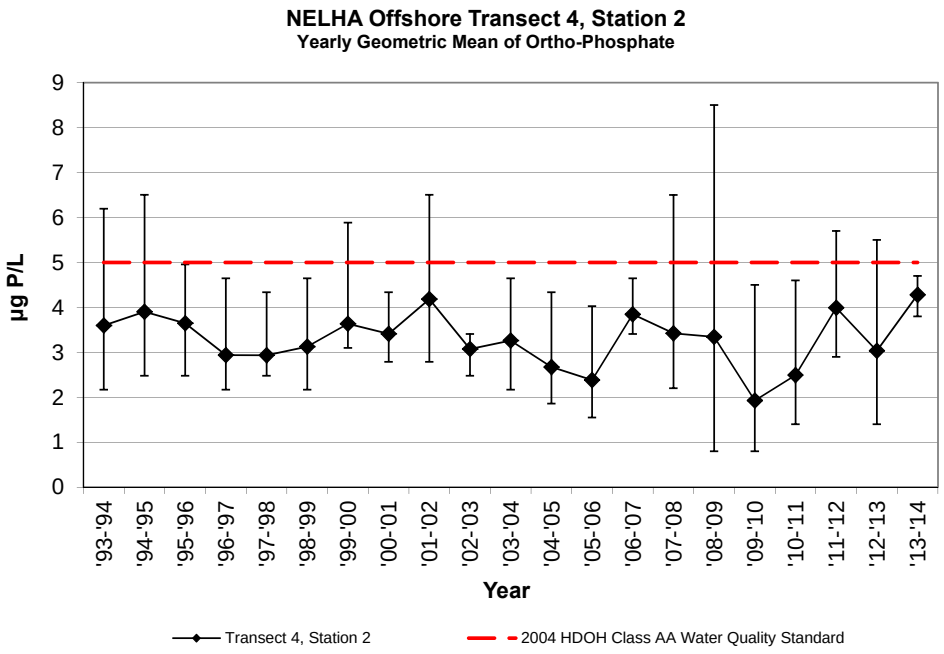

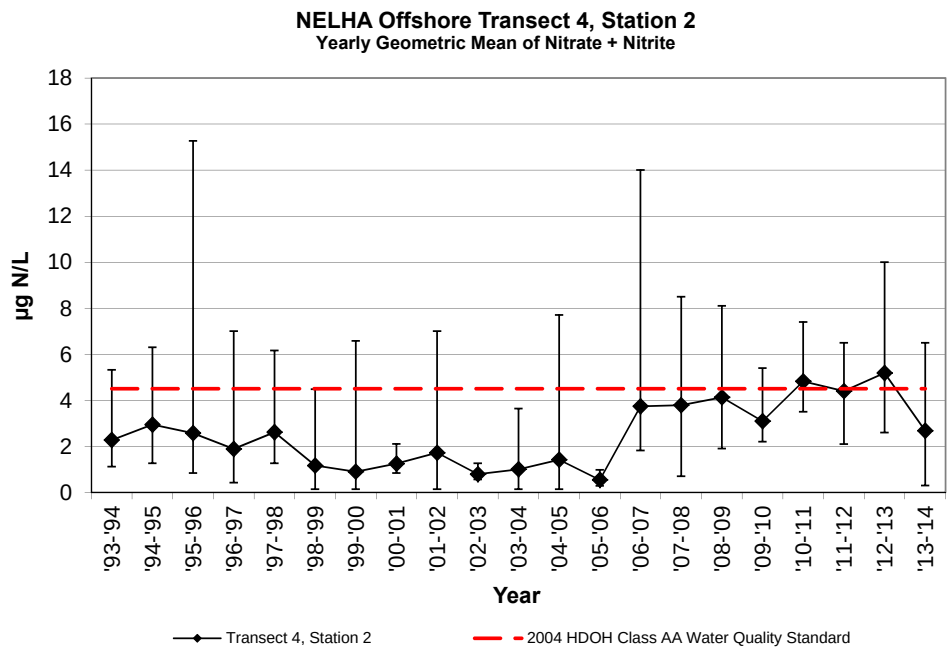

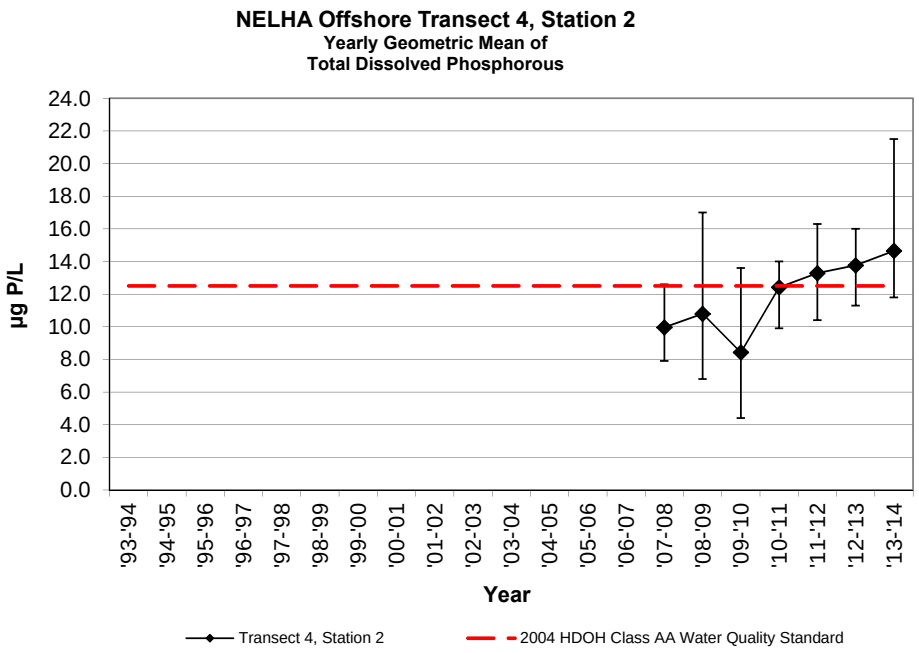

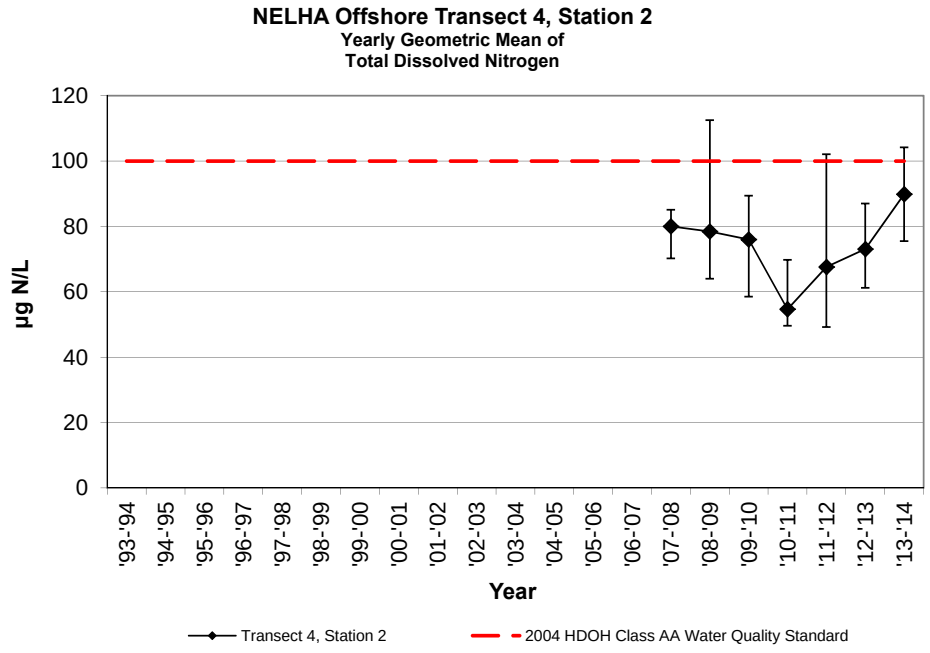

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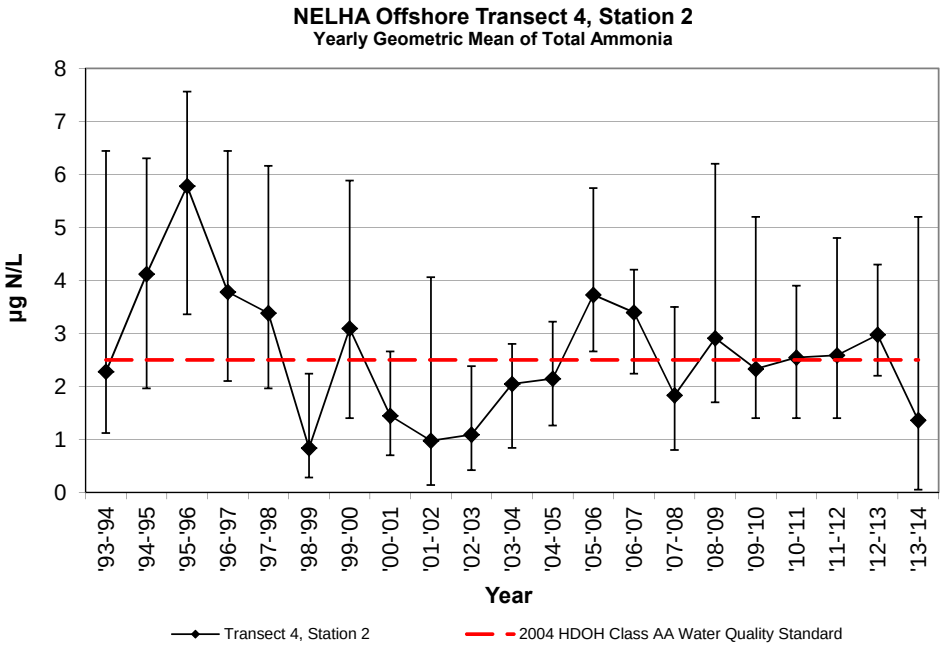
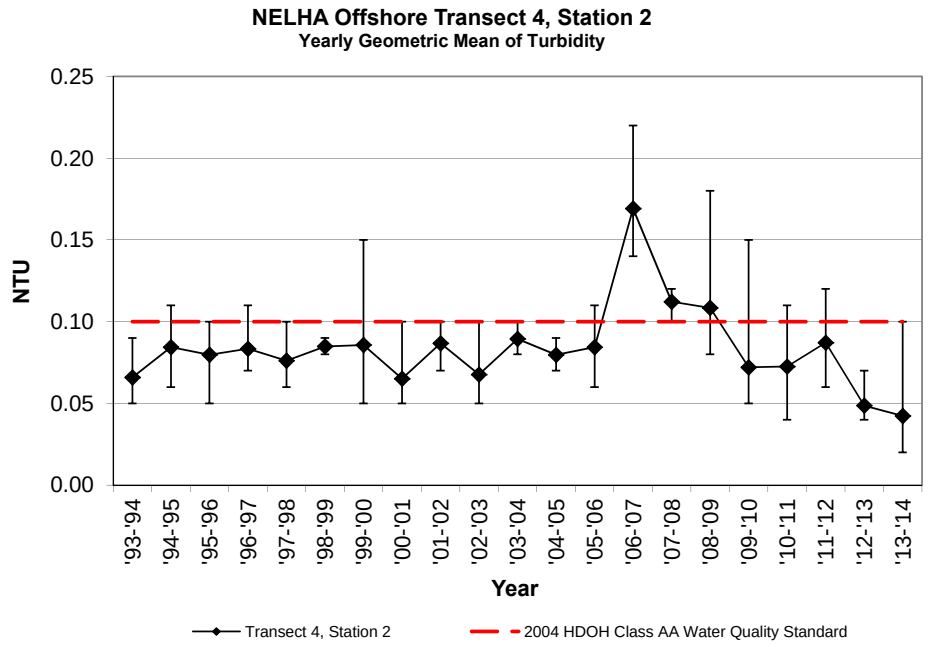
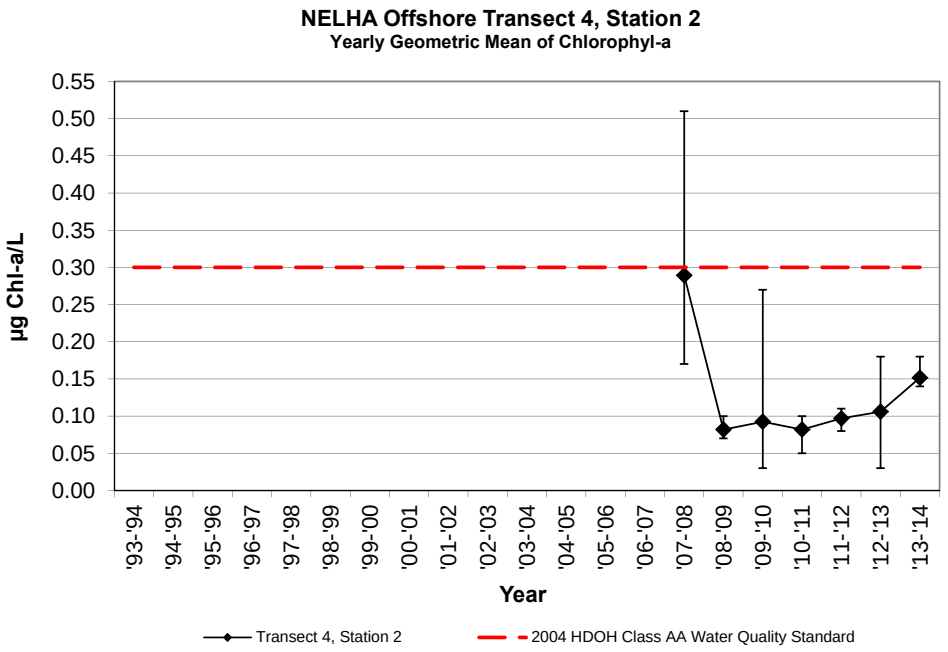
July 1993 - June 2014







NELHA Water Quality Laboratory
Transect 4, Station 3
July 1993 - June 2014

SITE ID	DATE M/D/Y	TIME (2400)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	Turbidity (NTU)	Salinity (PSU)	Temp. (˚C)	pH (unit)	DO (ppm)	Chl a (µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O4-3S-38m	8/3/93	907	0.12	3.7	0.03	0.4	0.43	6.0	3.1	86					0.07	34.45	26.8			
O4-3S-38m	12/8/93	914	0.07	2.2	0.10	1.4	0.09	1.3	2.2	62					0.11	34.80	25.7			
O4-3S-38m	3/8/94	850	0.18	5.6	0.13	1.8	0.12	1.7	2.8	79					0.06	34.22	25.1			
O4-3S-38m	6/13/94	854	0.13	4.0	0.19	2.7	0.11	1.5	6.6	186					0.09	34.53	25.5			
Geomean	**'93-'94**			**3.7**		**1.3**		**2.1**							**0.08**					
O4-3S-38m	9/15/94	851	0.08	2.5	0.06	0.8	0.17	2.4	2.5	70					0.08	34.63	27.6			
O4-3S-38m	11/15/94	812	0.13	4.0	0.20	2.8	0.52	7.3	3.3	94					0.08	34.61	26.0			
O4-3S-38m	3/22/95	1152	0.18	5.6	0.36	5.0	0.35	4.9	6.0	169					0.10	34.13	25.3			
O4-3S-38m	6/21/95	818	0.09	2.8	0.12	1.7	0.33	4.6	2.4	68					0.06	34.46	26.2			
Geomean	**'94-'95**			**3.5**		**2.1**		***4.5***							**0.08**					
O4-3S-38m	9/28/95	1010	0.09	2.8	0.07	1.0	0.52	7.3	2.9	80					0.11	34.60	27.3			
O4-3S-38m	11/14/95	821	0.10	3.1	0.04	0.6	0.52	7.3	3.6	101					0.05	34.36	26.7			
O4-3S-38m	3/12/96	901	0.14	4.3	0.30	4.2	0.52	7.3	3.4	95					0.06	34.17	25.1			
O4-3S-38m	5/14/96	835	0.11	3.4	0.79	11.1	0.33	4.6	4.9	136					0.10	34.25	27.0			
Geomean	**'95-'96**			**3.4**		**2.2**		***6.5***							**0.08**					
O4-3S-38m	7/31/96	910	0.07	2.2	0.04	0.6	0.35	4.9	2.9	80					0.07	34.48	28.0			
O4-3S-38m	10/2/96	848	0.06	1.9	0.02	0.3	0.17	2.4	2.8	77					0.08	34.64	27.9			
O4-3S-38m	1/7/97	903	0.10	3.1	0.31	4.3	0.20	2.8	3.5	98					0.07	34.67	25.4			
O4-3S-38m	4/28/97	915	0.15	4.6	0.24	3.4	0.44	6.2	5.2	146					0.11	34.41	26.7			
Geomean	**'96-'97**			**2.8**		**1.2**		**3.8**							**0.08**					
O4-3S-38m	8/19/97	906	0.08	2.5	0.46	6.4	0.26	3.6	3.5	99					0.09	34.63	27.0			
O4-3S-38m	10/7/97	1144	0.13	4.0	0.21	2.9	0.45	6.3	4.0	111					0.11	34.73	27.8			
O4-3S-38m	3/4/98	907	0.07	2.2	0.05	0.7	0.16	2.2	3.1	86					0.06	35.03	25.0			
O4-3S-38m	5/5/98	918	0.08	2.5	0.13	1.8	0.15	2.1	6.8	192					0.06	35.05	24.1			
Geomean	**'97-'98**			**2.7**		**2.2**		**3.2**							**0.08**					
O4-3S-38m	7/7/98	935	0.11	3.4	0.28	3.9	0.03	0.4	9.9	277					0.07	34.95	26.4			
O4-3S-38m	10/6/98	854	0.08	2.5	0.01	0.1	0.02	0.3	1.6	44					0.07	35.13	26.9			
O4-3S-38m	1/19/99	915	0.07	2.2	0.02	0.3	0.05	0.7	3.1	86					0.06	35.15	25.1			
O4-3S-38m	4/13/99	1004	0.15	4.6	0.44	6.2	0.10	1.4	6.1	172					0.07	34.65	24.3			
Geomean	**'98-'99**			**3.0**		**1.0**		**0.6**							**0.07**					
O4-3S-38m	8/16/99	932	0.11	3.4	0.20	2.8	0.40	5.6	1.7	49					0.18	34.87	26.1			
O4-3S-38m	10/25/99	1026	0.11	3.4	0.02	0.3	0.21	2.9	4.2	117					0.08	34.96	26.1			
O4-3S-38m	1/12/00	937	0.10	3.1	0.03	0.4	0.27	3.8	1.8	51					0.05	35.13	24.7			
O4-3S-38m	5/16/00	907	0.17	5.3	0.33	4.6	0.09	1.3	5.6	156					0.08	34.61	25.1			
Geomean	**'99-'00**			**3.7**		**1.1**		**3.0**							**0.09**					
O4-3S-38m	7/25/00	934	0.09	2.8	0.10	1.4	0.05	0.7	2.7	75					0.06	34.86	26.8			
O4-3S-38m	10/31/00	930	0.10	3.1	0.05	0.7	0.21	2.9	3.0	85					0.05	34.96	26.9			
O4-3S-38m	3/6/01	919	0.18	5.6	0.52	7.3	0.12	1.7	4.1	114					0.12	34.69	24.8			
O4-3S-38m	5/8/01	1016	0.10	3.1	0.08	1.1	0.18	2.5	6.4	178					0.06	34.73	25.0			
Geomean	**'00-'01**			**3.5**		**1.7**		**1.7**							**0.07**					
O4-3S-38m	8/13/01	1024	0.09	2.8	0.01	0.1	0.26	3.6	12.3	345					0.12	34.88	26.5			
O4-3S-38m	10/30/01	932	0.15	4.6	0.39	5.5	0.06	0.8	3.2	90					0.06	34.98	26.7			
O4-3S-38m	3/4/02	956	0.13	4.0	0.13	1.8	0.01	0.1	1.9	53					0.11	34.69	24.2			
O4-3S-38m	4/16/02	954	0.16	5.0	0.52	7.3	0.21	2.9	6.8	192					0.08	34.41	25.5			
Geomean	**'01-'02**			**4.0**		**1.8**		**1.1**							**0.09**					

NELHA Water Quality Laboratory
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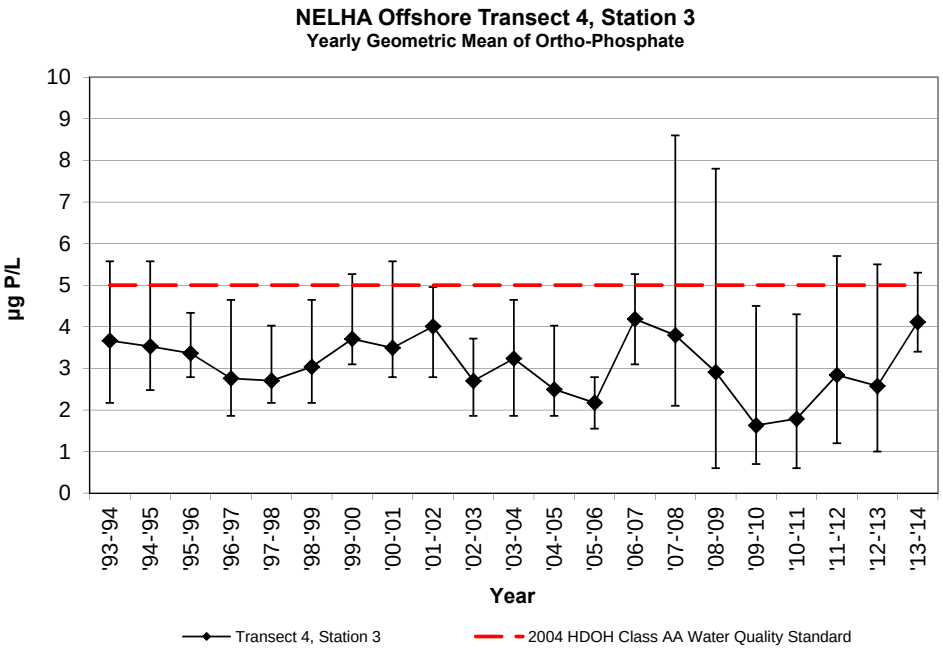
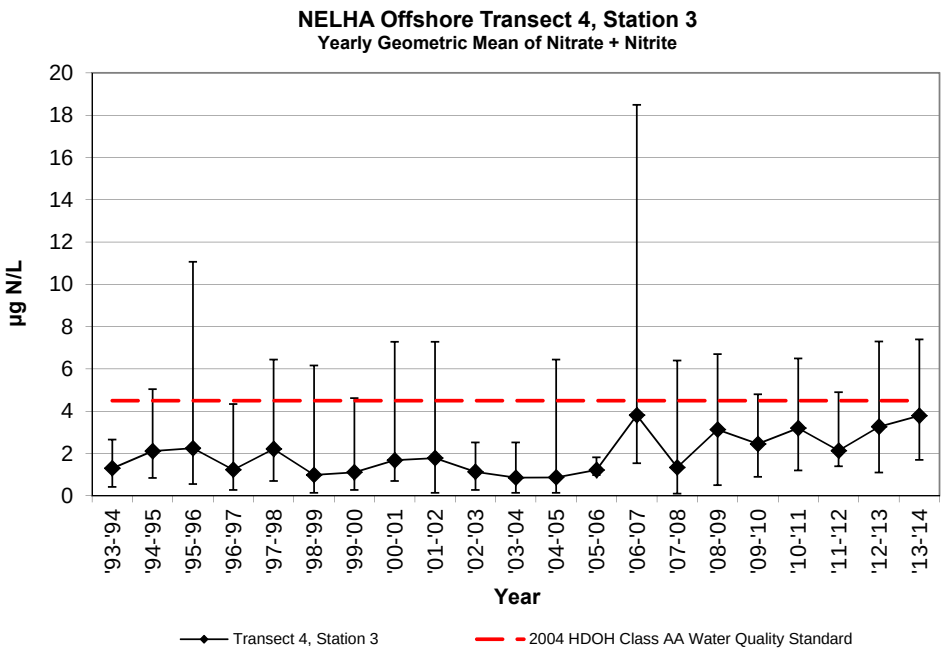
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O4-3S-38m	7/9/02	1109	0.10	3.1	0.07	1.0	0.11	1.5	2.5	71					0.07	34.67	26.8			
O4-3S-38m	10/7/02	949	0.06	1.9	0.02	0.3	0.30	4.2	2.3	63					0.05	34.95	27.0			
O4-3S-38m	3/10/03	1115	0.12	3.7	0.18	2.5	0.04	0.6	3.6	100					0.06	34.77	24.9			
O4-3S-38m	4/22/03	952	0.08	2.5	0.17	2.4	0.06	0.8	2.7	77					0.09	35.02	24.8			
Geomean	**'02-'03**			**2.7**		**1.1**		**1.3**							**0.07**					
O4-3S-38m	8/19/03	1215	0.06	1.9	0.01	0.1	0.20	2.8	1.7	48					0.05	34.84	28.2			
O4-3S-38m	10/30/03	926	0.11	3.4	0.13	1.8	0.30	4.2	2.0	56					0.11	34.82	27.4			
O4-3S-38m	3/17/04	1014	0.12	3.7	0.06	0.8	0.15	2.1	1.5	43					n/a	34.42	26.0			
O4-3S-38m	5/24/04	936	0.15	4.6	0.18	2.5	0.06	0.8	3.5	97					n/a	33.36	26.8			
Geomean	**'03-'04**			**3.2**		**0.9**		**2.1**							**0.07**					
O4-3S-38m	9/22/04	1008	0.06	1.9	0.01	0.1	0.20	2.8	1.5	42					0.11	33.80	27.9			
O4-3S-38m	11/29/04	918	0.06	1.9	0.16	2.2	0.12	1.7	1.2	33					0.05	33.74	26.9			
O4-3S-38m	1/24/05	951	0.09	2.8	0.02	0.3	0.09	1.3	1.8	49					0.10	34.81	25.5			
O4-3S-38m	4/13/05	955	0.13	4.0	0.46	6.4	0.23	3.2	3.5	99					0.11	34.43	25.4			
Geomean	**'04-'05**			**2.5**		**0.9**		**2.1**							**0.09**					
O4-3S-38m	7/21/05	909	0.05	1.5	0.09	1.3	0.28	3.9	1.3	36					0.07	34.73	27.4			
O4-3S-38m	10/13/05	847	0.06	1.9	0.13	1.8	0.18	2.5	2.2	63					0.16	34.88	27.2			
O4-3S-38m	3/14/06	934	0.09	2.8	0.07	1.0	0.29	4.1	7.8	220					0.08	34.86	24.5			
O4-3S-38m	5/17/06	904	0.09	2.8	0.07	1.0	0.20	2.8	1.3	38					0.07	34.66	24.6			
Geomean	**'05-'06**			**2.2**		**1.2**		***3.3***							**0.09**					
O4-3S-38m	8/16/06	906	0.14	4.3	0.27	3.8	0.21	2.9	2.9	83					0.15	34.64	26.8			
O4-3S-38m	11/20/06	901	0.10	3.1	0.11	1.5	0.56	7.8	1.7	47					0.12	34.82	26.7			
O4-3S-38m	2/12/07	954	0.14	4.3	0.14	2.0	0.40	5.6	0.7	21					0.17	34.43	24.5			
O4-3S-38m	4/16/07	951	0.17	5.3	1.32	18.5	0.31	4.3	12.8	359					0.11	34.35	26.1			
Geomean	**'06-'07**			**4.2**		**3.8**		***4.9***							***0.14***					
T4-50m	9/26/07	1155	0.15	4.8	0.30	4.2	0.26	3.7	24.2	681	0.40	12.4	6.84	96	0.10	34.95	26.9	8.20	6.63	0.18
T4-50m	12/14/07	907	0.08	2.4	0.01	0.1			4.8	135	0.36	11.0	5.05	71	0.10	34.74	25.6	8.22	6.70	0.22
T4-50m	3/11/08	919	0.28	8.6	0.46	6.4	0.06	0.8	6.5	182	0.23	7.1	6.34	89	0.12	34.86	24.7	8.08	6.53	0.39
T4-50m	6/9/08	959	0.07	2.1	0.09	1.2	0.16	2.2	13.0	366	0.34	10.6	9.60	134	0.08	34.67	25.2	8.10	5.82	0.13
Geomean	**'07-'08**			**3.8**		**1.3**		**1.9**				**10.1**		**95**	**0.10**					**0.21**
T4-50m	9/23/08	1047	0.02	0.6	0.04	0.5	0.30	4.2	1.3	36	0.36	11.2	5.28	74	0.06	34.83	26.7	8.06	5.92	0.07
T4-50m	12/8/08	955	0.16	5.1	0.34	4.7	0.22	3.1	2.2	63	0.65	20.0	5.75	81	0.07	34.99	26.1	8.30	5.42	0.12
T4-50m	2/10/09	851	0.10	3.0	0.48	6.7	0.12	1.7	2.4	67	0.38	11.7	9.55	134	0.08	35.05	24.7	8.05	5.98	0.04
T4-50m	6/30/09	935	0.25	7.8	0.44	6.1	0.16	2.2	6.9	193	0.43	13.4	4.60	64	0.09	34.89	26.7	8.21	6.04	0.13
Geomean	**'08-'09**			**2.9**		**3.1**		***2.6***				***13.7***		**85**	**0.07**					**0.08**
T4-50m	9/10/09	922	0.09	2.8	0.06	0.9	0.10	1.4	4.8	136	0.42	12.9	5.70	80	0.21	35.21	27.3	8.23	5.90	0.08
T4-50m	11/24/09	913	0.03	0.8	0.19	2.7	0.25	3.5	14.6	411	0.37	11.6	5.54	78	0.05	35.26	25.2	8.25	6.59	0.19
T4-50m	2/24/10	945	0.15	4.5	0.22	3.1	0.34	4.8	3.8	107	0.37	11.6	5.55	78	0.08	35.09	24.6	8.23	5.59	0.24
T4-50m	5/25/10	925	0.02	0.7	0.34	4.8	0.05	0.7	2.6	73	0.24	7.4	5.48	77	0.07	34.93	25.0	8.21	6.94	0.09
Geomean	**'09-'10**			**1.6**		**2.5**		**2.0**				**10.6**		**78**	**0.09**					**0.13**
T4-50m	8/11/10	919	0.02	0.6	0.09	1.2	0.02	0.3	1.8	50	0.29	8.9	2.89	41	0.04	34.96	26.0	8.23	6.67	0.05
T4-50m	11/9/10	917	0.04	1.1	0.20	2.8	0.09	1.3	3.4	96	0.35	10.9	3.57	50	0.11	34.95	26.4	8.27	6.21	0.04
T4-50m	1/11/11	1138	0.14	4.3	0.34	4.8	0.12	1.7	5.1	144	0.42	12.9	3.66	51	0.03	35.02	25.0	8.20	6.46	0.09
T4-50m	4/27/11	928	0.12	3.6	0.46	6.5	0.14	2.0	4.2	117	0.45	13.9	4.35	61	0.09	34.89	24.9	8.21	6.31	0.09
Geomean	**'10-'11**			**1.8**		**3.2**		**1.1**				**11.5**		**50**	**0.06**					**0.06**

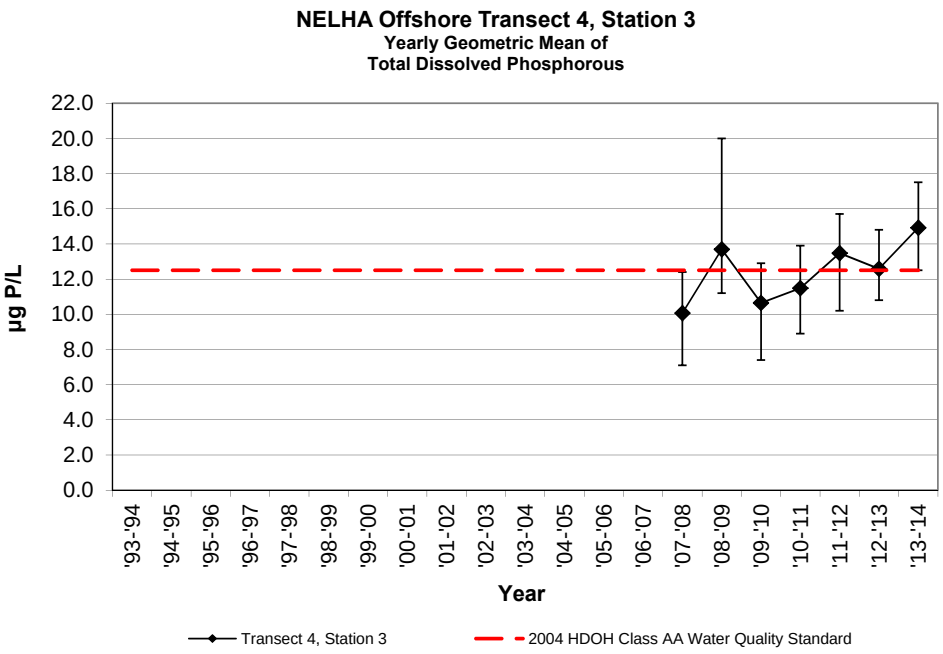
NELHA Water Quality Laboratory
Transect 4, Station 3
July 1993 - June 2014

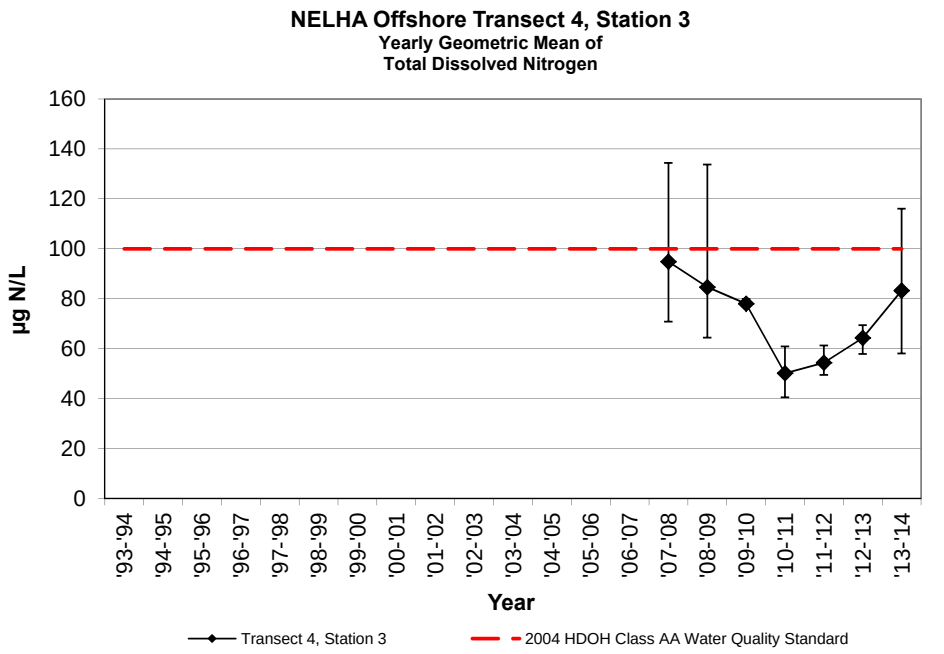
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
T4-50m	7/27/11	921	0.18	5.7	0.35	4.9	0.15	2.1	2.2	63	0.48	14.8	4.03	56.5	0.05	34.78	26.0	8.21	6.10	0.11
T4-50m	10/19/11	948	0.04	1.2	0.10	1.4	0.03	0.4	1.6	46	0.51	15.7	3.64	51.0	0.02	35.09	26.5	8.23	7.02	0.08
T4-50m	1/26/12	919	0.06	1.9	0.11	1.6	0.07	1.0	1.7	48	0.33	10.2	3.53	49.5	0.06	35.04	24.4	8.24	6.60	0.09
T4-50m	4/25/12	935	0.16	5.0	0.14	1.9	0.39	5.4	4.2	119	0.45	13.9	4.38	61.3	0.04	34.88	24.9	8.18	6.76	0.10
Geomean	**'11-'12**			**2.8**		**2.1**		**1.5**				***13.5***		**54**	**0.04**					**0.09**
T4-50m	7/25/13	929	0.03	1.0	0.14	2.0	0.19	2.7	1.4	38	0.36	11.2	4.65	65	0.10	35.08	26.4	8.24	6.75	0.09
T4-50m	11/28/12	932	0.08	2.5	0.08	1.1	0.20	2.8	1.3	37	0.35	10.8	4.13	58	0.04	35.26	25.4	8.20	6.69	0.09
T4-50m	1/24/13	917	0.10	3.2	0.52	7.3	0.15	2.1	2.9	81	0.45	14.0	4.95	69	0.03	35.04	24.7	8.20	6.25	0.10
T4-50m	4/17/13	1031	0.18	5.5	0.51	7.1	0.34	4.8	1.8	51	0.48	14.8	4.66	65	0.04	35.16	25.1	8.20	6.90	0.10
Geomean	**'12-'13**			**2.6**		**3.3**		***3.0***				***12.6***		**64**	**0.05**					**0.09**
T4-50m	8/6/13	940	0.11	3.4	0.12	1.7	0.14	1.9	2.0	55	0.40	12.5	8.3	116	0.07	35.17	26.3	8.27	6.99	0.11
T4-50m	10/30/13	916	0.17	5.3	0.53	7.4	0.24	3.3	2.6	74	0.47	14.7	5.2	72	0.02	34.86	27.0	8.23	5.85	0.10
T4-50m	2/5/14	937	0.14	4.4	0.29	4.0	0.28	3.9	2.5	71	0.50	15.4	4.1	58	0.02	34.92	25.1	8.20	6.24	0.14
T4-50m	5/7/14	933	0.12	3.6	0.29	4.1	0.15	2.1	1.6	45	0.56	17.5	7.0	98	0.07	34.79	25.8	8.21	5.67	0.15
Geomean	**'13-'14**			**4.1**		**3.8**		***2.7***				***14.9***		**83**	**0.04**					**0.12**

NELHA Water Quality Laboratory
Transect 4, Station 3
July 1993 - June 2014

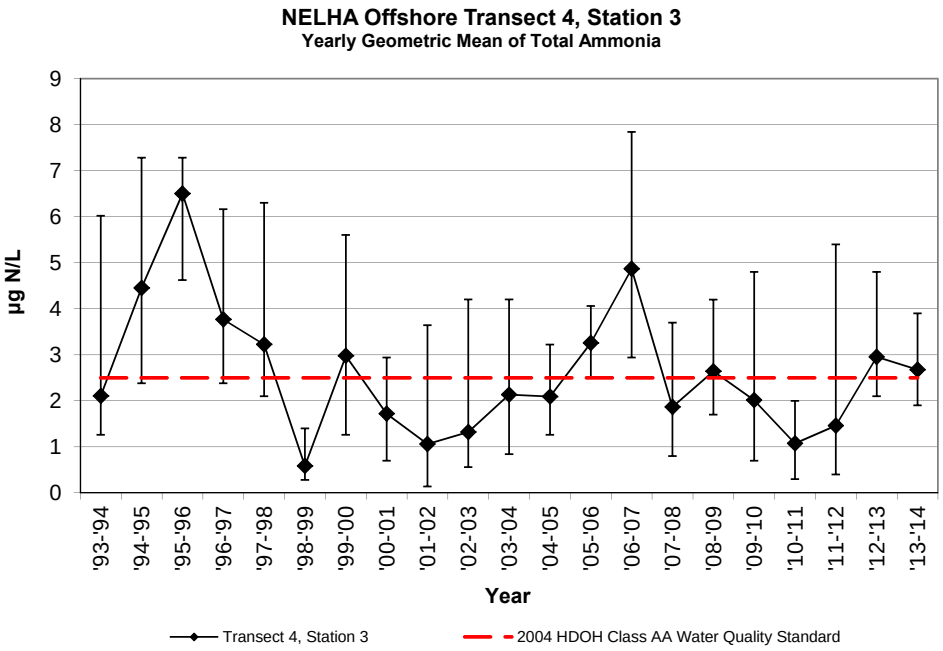


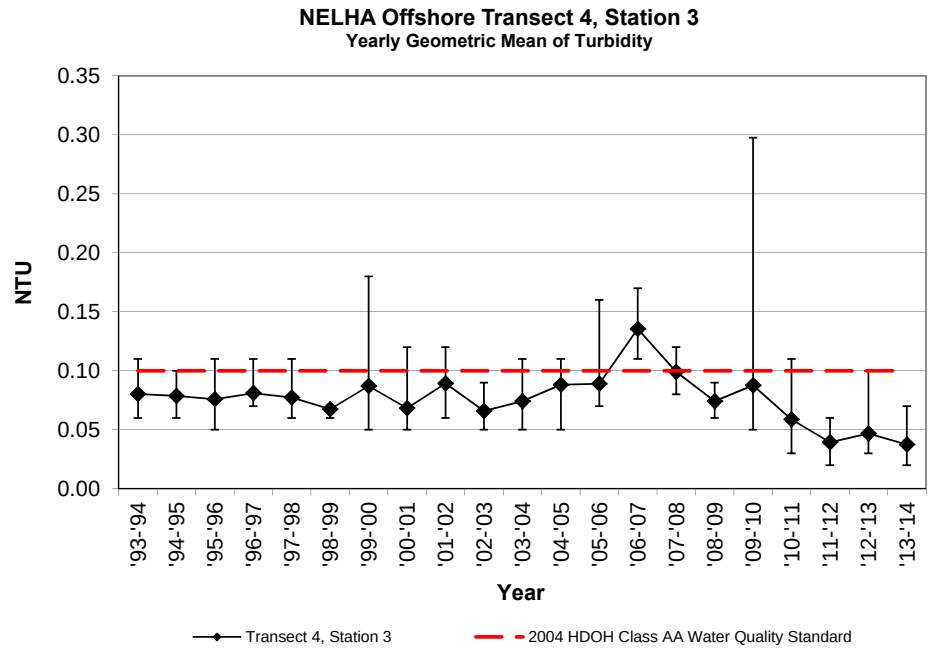


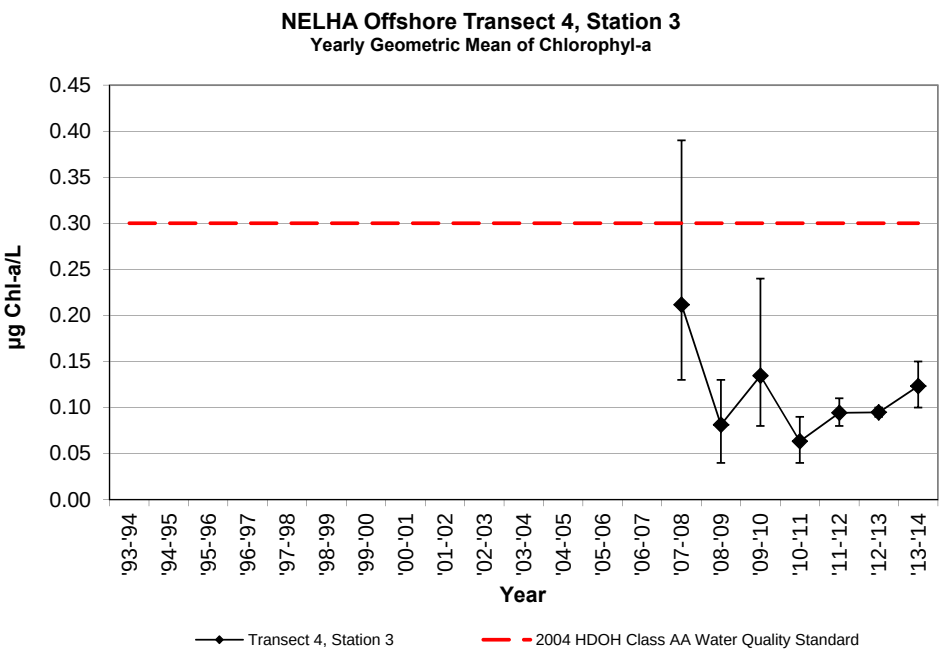




NELHA Water Quality Laboratory
Transect 4, Station 3
July 1993 - June 2014







NELHA Water Quality Laboratory

Transect 4, Station 4

July 1993 - June 2014

SITE ID	DATE M/D/Y	TIME (2400)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	Turbidity (NTU)	Salinity (PSU)	Temp. (˚C)	pH (unit)	DO (ppm)	Chl a (µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O4-4S-53m	8/3/93	854	0.12	3.7	0.02	0.3	0.41	5.7	1.9	54					0.06	34.46	26.8			
O4-4S-53m	12/8/93	905	0.07	2.2	0.09	1.3	0.10	1.4	4.3	120					0.05	34.79	25.7			
O4-4S-53m	3/8/94	843	0.18	5.6	0.18	2.5	0.18	2.5	3.9	108					0.09	34.21	25.1			
O4-4S-53m	6/13/94	848	0.13	4.0	0.19	2.7	0.21	2.9	6.4	181					0.09	34.53	25.5			
Geomean	**'93-'94**			**3.7**		**1.2**		***2.8***							**0.07**					
O4-4S-53m	9/15/94	848	0.07	2.2	0.02	0.3	0.15	2.1	4.7	133					0.07	34.64	27.6			
O4-4S-53m	11/15/94	806	0.14	4.3	0.28	3.9	0.51	7.1	3.9	110					0.08	34.59	26.0			
O4-4S-53m	3/22/95	1145	0.18	5.6	0.36	5.0	0.35	4.9	5.4	151					0.09	34.14	25.3			
O4-4S-53m	6/21/95	811	0.09	2.8	0.13	1.8	0.35	4.9	2.5	70					0.06	34.46	26.2			
Geomean	**'94-'95**			**3.5**		**1.8**		***4.4***							**0.07**					
O4-4S-53m	9/28/95	1017	0.08	2.5	0.07	1.0	0.46	6.4	1.9	54					0.07	34.61	27.3			
O4-4S-53m	11/14/95	817	0.11	3.4	0.11	1.5	0.43	6.0	3.7	103					0.05	34.36	26.7			
O4-4S-53m	3/12/96	854	0.14	4.3	0.27	3.8	0.46	6.4	3.1	88					0.06	34.17	25.0			
O4-4S-53m	5/14/96	830	0.10	3.1	0.80	11.2	0.25	3.5	4.9	138					0.08	34.24	26.9			
Geomean	**'95-'96**			**3.3**		**2.8**		***5.4***							**0.06**					
O4-4S-53m	7/31/96	900	0.07	2.2	0.05	0.7	0.37	5.2	4.0	111					0.07	34.47	28.2			
O4-4S-53m	10/2/96	843	0.06	1.9	0.03	0.4	0.18	2.5	3.2	91					0.08	34.64	27.9			
O4-4S-53m	1/7/97	858	0.08	2.5	0.16	2.2	0.17	2.4	3.5	98					0.08	34.72	25.4			
O4-4S-53m	4/28/97	910	0.13	4.0	0.31	4.3	0.44	6.2	4.0	112					0.13	34.41	26.8			
Geomean	**'96-'97**			**2.5**		**1.3**		***3.7***							**0.09**					
O4-4S-53m	8/19/97	902	0.06	1.9	0.21	2.9	0.20	2.8	2.7	77					0.10	34.66	27.1			
O4-4S-53m	10/7/97	1139	0.13	4.0	0.15	2.1	0.38	5.3	3.9	109					0.11	34.74	27.7			
O4-4S-53m	3/4/98	902	0.08	2.5	0.05	0.7	0.15	2.1	2.7	76					0.06	35.04	24.9			
O4-4S-53m	5/5/98	913	0.08	2.5	0.17	2.4	0.14	2.0	4.1	116					0.06	35.05	24.0			
Geomean	**'97-'98**			**2.6**		**1.8**		***2.8***							**0.08**					
O4-4S-53m	7/7/98	929	0.11	3.4	0.36	5.0	0.01	0.1	5.3	149					0.09	34.95	26.3			
O4-4S-53m	10/6/98	848	0.08	2.5	0.01	0.1	0.02	0.3	1.5	42					0.08	35.13	26.9			
O4-4S-53m	1/19/99	909	0.07	2.2	0.02	0.3	0.03	0.4	2.7	75					0.06	35.15	25.1			
O4-4S-53m	4/13/99	1000	0.15	4.6	0.44	6.2	0.07	1.0	4.3	122					0.08	34.64	24.3			
Geomean	**'98-'99**			**3.0**		**1.1**		**0.4**							**0.08**					
O4-4S-53m	8/16/99	924	0.11	3.4	0.30	4.2	0.40	5.6	1.8	52					0.11	34.88	26.1			
O4-4S-53m	10/25/99	1020	0.09	2.8	0.01	0.1	0.28	3.9	6.0	167					0.08	34.96	26.2			
O4-4S-53m	1/12/00	932	0.12	3.7	0.03	0.4	0.29	4.1	4.2	119					0.04	35.20	24.7			
O4-4S-53m	5/16/00	903	0.15	4.6	0.23	3.2	0.05	0.7	4.0	111					0.05	34.64	25.1			
Geomean	**'99-'00**			**3.6**		**0.9**		***2.8***							**0.06**					
O4-4S-53m	7/25/00	929	0.10	3.1	0.13	1.8	0.05	0.7	2.7	75					0.05	34.86	26.7			
O4-4S-53m	10/31/00	923	0.09	2.8	0.04	0.6	0.24	3.4	3.2	88					0.09	34.96	26.9			
O4-4S-53m	3/6/01	915	0.18	5.6	0.50	7.0	0.04	0.6	4.5	126					0.09	34.70	24.8			
O4-4S-53m	5/8/01	1013	0.11	3.4	0.10	1.4	0.15	2.1	4.2	118					0.11	34.75	24.9			
Geomean	**'00-'01**			**3.6**		**1.8**		**1.3**							**0.08**					
O4-4S-53m	8/13/01	1020	0.08	2.5	0.03	0.4	0.26	3.6	2.8	79					0.09	34.88	26.6			
O4-4S-53m	10/30/01	925	0.11	3.4	0.05	0.7	0.02	0.3	1.7	49					0.06	35.03	26.8			
O4-4S-53m	3/4/02	951	0.13	4.0	0.12	1.7	0.01	0.1	2.6	73					0.11	34.67	24.1			
O4-4S-53m	4/16/02	949	0.16	5.0	0.32	4.5	0.25	3.5	6.1	170					0.12	34.39	25.6			
Geomean	**'01-'02**			**3.6**		**1.2**		**0.8**							**0.09**					

NELHA Water Quality Laboratory

Transect 4, Station 4

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				5		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O4-4S-53m	7/9/02	1103	0.11	3.4	0.01	0.1	0.17	2.4	2.3	64					0.06	34.67	26.7			
O4-4S-53m	10/7/02	945	0.06	1.9	0.02	0.3	0.20	2.8	2.4	68					0.06	34.94	27.0			
O4-4S-53m	3/10/03	1108	1.10	34.1	0.14	2.0	0.04	0.6	2.9	83					0.06	34.76	25.0			
O4-4S-53m	4/22/03	948	0.07	2.2	0.03	0.4	0.03	0.4	3.4	95					0.06	35.04	24.8			
Geomean	**'02-'03**			**4.7**		**0.4**		**1.1**							**0.06**					
O4-4S-53m	8/19/03	1204	0.06	1.9	0.01	0.1	0.20	2.8	1.5	42					0.05	34.84	28.2			
O4-4S-53m	10/30/03	919	0.10	3.1	0.13	1.8	0.24	3.4	1.8	52					0.08	34.82	27.5			
O4-4S-53m	3/17/04	1009	0.12	3.7	0.04	0.6	0.15	2.1	1.8	50					n/d	34.39	26.0			
O4-4S-53m	5/24/04	931	0.15	4.6	0.07	1.0	0.06	0.8	2.7	75					n/d	33.36	26.8			
Geomean	**'03-'04**			**3.2**		**0.6**		**2.0**							**0.06**					
O4-4S-53m	9/22/04	1000	0.07	2.2	0.01	0.1	0.26	3.6	1.4	40					0.08	33.78	27.6			
O4-4S-53m	11/29/04	913	0.06	1.9	0.10	1.4	0.10	1.4	1.1	30					0.05	33.70	26.9			
O4-4S-53m	1/24/05	950	0.08	2.5	0.45	6.3	0.12	1.7	3.0	83					0.11	35.26	25.4			
O4-4S-53m	4/13/05	948	0.13	4.0	0.48	6.7	0.17	2.4	3.0	85					0.11	34.44	25.5			
Geomean	**'04-'05**			**2.5**		**1.7**		**2.1**							**0.08**					
O4-4S-53m	7/21/05	904	0.06	1.9	0.17	2.4	0.28	3.9	3.1	86					0.09	34.69	27.4			
O4-4S-53m	10/13/05	839	0.05	1.5	0.01	0.1	0.18	2.5	2.3	63					0.14	34.90	27.2			
O4-4S-53m	3/14/06	930	0.10	3.1	0.11	1.5	0.33	4.6	6.1	172					0.09	34.85	24.5			
O4-4S-53m	5/17/06	858	0.09	2.8	0.11	1.5	0.05	0.7	1.3	37					0.09	34.68	24.6			
Geomean	**'05-'06**			**2.2**		**0.9**		**2.4**							**0.10**					
O4-4S-53m	8/16/06	901	0.11	3.4	0.27	3.8	0.20	2.8	2.5	71					0.14	34.64	26.8			
O4-4S-53m	11/20/06	854	0.10	3.1	0.13	1.8	0.53	7.4	1.6	45					0.14	34.80	26.7			
O4-4S-53m	2/12/07	947	0.17	5.3	0.15	2.1	0.35	4.9	0.9	26					0.14	34.45	24.5			
O4-4S-53m	4/16/07	944	0.16	5.0	0.40	5.6	0.32	4.5	6.6	186					0.13	34.55	25.9			
Geomean	**'06-'07**			**4.1**		**3.0**		***4.6***							***0.14***					
T4-100m	9/26/07	1211	0.15	4.8	0.14	2.0	0.10	1.4	5.2	147	0.47	14.5	5.8	81	0.08	34.98	26.8	8.21	6.62	0.09
T4-100m	12/14/07	913	0.08	2.4	0.01	0.1			3.7	104	0.30	9.3	7.0	98	0.07	34.73	25.7	8.22	6.59	0.17
T4-100m	3/11/08	922	0.35	10.9	0.33	4.6	0.06	0.8	6.5	182	0.14	4.2	7.3	102	0.08	34.83	24.7	8.08	6.48	0.38
T4-100m	6/9/08	1014	0.07	2.1	0.08	1.1	0.02	0.3	10.4	293	0.24	7.5	6.3	88	0.13	34.70	25.8	8.11	5.70	0.10
Geomean	**'07-'08**			**4.0**		**1.0**		**0.7**				**8.1**		**92**	**0.09**					**0.16**
T4-100m	9/23/08	1052	0.17	5.3	0.00	0.0	0.19	2.6	1.7	47	0.36	11.2	5.1	71	0.08	34.83	26.6	8.06	5.81	0.07
T4-100m	12/8/08	1000	0.15	4.7	0.24	3.4	0.13	1.8	2.6	73	0.40	12.4	5.6	78	0.07	34.97	26.2	8.28	5.15	0.06
T4-100m	2/10/09	856	0.09	2.9	0.29	4.0	0.12	1.7	2.0	56	0.23	7.0	7.6	107	0.15	35.10	24.7	8.05	6.10	0.03
T4-100m	6/30/09	941	0.24	7.3	0.24	3.3	0.12	1.7	4.2	117	0.38	11.9	5.2	72	0.17	34.90	26.7	8.19	5.88	0.10
Geomean	**'08-'09**			**4.8**		**0.8**		**1.9**				**10.4**		**81**	**0.11**					**0.06**
T4-100m	9/10/09	929	0.16	5.0	0.09	1.2	0.03	0.4	13.7	385	0.40	12.5	6.2	87	0.08	35.22	27.4	8.21	5.86	0.18
T4-100m	11/24/09	917	0.03	0.8	0.21	3.0	0.15	2.1	2.1	59	0.36	11.3	5.2	73	0.04	35.27	25.2	8.25	6.47	0.14
T4-100m	2/24/10	949	0.15	4.8	0.22	3.1	0.39	5.5	3.3	92	0.36	11.0	6.8	95	0.06	35.09	24.6	8.23	5.47	0.17
T4-100m	5/25/10	930	0.01	0.2	0.06	0.9	0.51	7.2	1.8	51	0.23	7.2	6.7	94	0.04	34.93	25.0	8.20	6.84	0.08
Geomean	**'09-'10**			**1.4**		**1.8**		**2.4**				**10.3**		**86**	**0.05**					**0.14**
T4-100m	8/11/10	926	0.01	0.4	0.06	0.9	0.01	0.2	1.6	45.6	0.29	9.1	2.8	39.0	0.06	34.97	26.0	8.23	6.56	0.14
T4-100m	11/9/10	923	0.04	1.3	0.11	1.5	0.04	0.5	1.1	30.3	0.43	13.2	3.9	55.1	0.07	34.88	26.0	8.28	6.26	0.01
T4-100m	1/11/11	1147	0.16	5.1	0.51	7.2	0.40	5.6	3.0	85.0	0.43	13.4	3.9	54.5	0.08	35.01	25.0	8.21	6.47	0.11
T4-100m	4/27/11	932	0.13	3.9	0.37	5.2	0.19	2.7	3.4	96.0	0.45	13.9	4.2	59.0	0.08	34.91	24.9	8.22	6.31	0.18
Geomean	**'10-'11**			**1.8**		**2.7**		**1.1**				**12.2**		**51**	**0.07**					**0.07**

NELHA Water Quality Laboratory
Transect 4, Station 4
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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				5		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
T4-100m	7/27/11	926	0.18	5.7	0.29	4.1	0.16	2.2	1.7	48	0.46	14.2	4.8	67.5	0.04	34.79	26.0	8.21	6.12	0.11
T4-100m	10/19/11	953	0.03	1.0	0.06	0.9	0.04	0.6	1.8	50	0.48	14.9	4.6	63.9	0.03	35.10	26.5	8.24	7.07	0.08
T4-100m	1/26/12	923	0.06	1.8	0.14	1.9	0.01	0.1	1.8	50	0.34	10.4	3.9	54.2	0.05	35.03	24.4	8.26	6.65	0.11
T4-100m	4/25/12	938	0.14	4.4	0.08	1.1	0.22	3.1	0.8	23	0.44	13.5	5.0	69.4	0.03	34.88	24.9	8.18	6.77	0.04
Geomean	**'11-'12**			**2.6**		**1.7**		**0.8**				***13.1***		**63**	**0.04**					**0.08**
T4-100m	7/25/13	934	0.03	1.0	0.14	2.0	0.49	6.9	1.4	38	0.37	11.5	5.78	81.0	0.09	35.10	26.4	8.23	6.75	0.08
T4-100m	11/28/12	936	0.09	2.7	0.04	0.5	0.11	1.5	1.0	29	0.48	15.0	6.48	90.8	0.04	35.27	25.3	8.20	6.58	0.09
T4-100m	1/24/13	920	0.05	1.7	0.01	0.2	0.05	0.7	1.2	34	0.46	14.1	3.86	54.1	0.06	35.10	24.8	8.23	6.43	0.05
T4-100m	4/17/13	1037	0.17	5.2	0.31	4.3	0.15	2.1	1.2	32	1.18	36.7	5.49	76.9	0.02	35.17	25.0	8.20	6.56	0.09
Geomean	**'12-'13**			**2.2**		**1.0**		**2.0**				***17.3***		**74**	**0.05**					**0.08**
T4-100m	8/6/13	946	0.11	3.5	0.01	0.1	0.20	2.8	0.5	15	0.36	11.3	5.29	74	0.02	35.21	26.62	8.27	7.01	0.05
T4-100m	10/30/13	921	0.14	4.2	0.22	3.1	0.14	2.0	1.8	49	0.43	13.4	5.50	77	0.08	34.90	26.99	8.23	5.80	0.17
T4-100m	2/5/14	941	0.14	4.2	0.23	3.2	0.24	3.3	2.5	70	0.46	14.3	5.37	75	0.02	34.94	25.14	8.20	6.28	0.12
T4-100m	5/7/14	938	0.10	3.1	0.06	0.8	0.11	1.5	0.9	27	0.46	14.1	6.31	88	0.10	34.33	25.99	8.21	5.59	0.13
Geomean	**'13-'14**			**3.7**		**0.9**		**2.3**				***13.2***		**79**	**0.04**					**0.11**

NELHA Water Quality Laboratory
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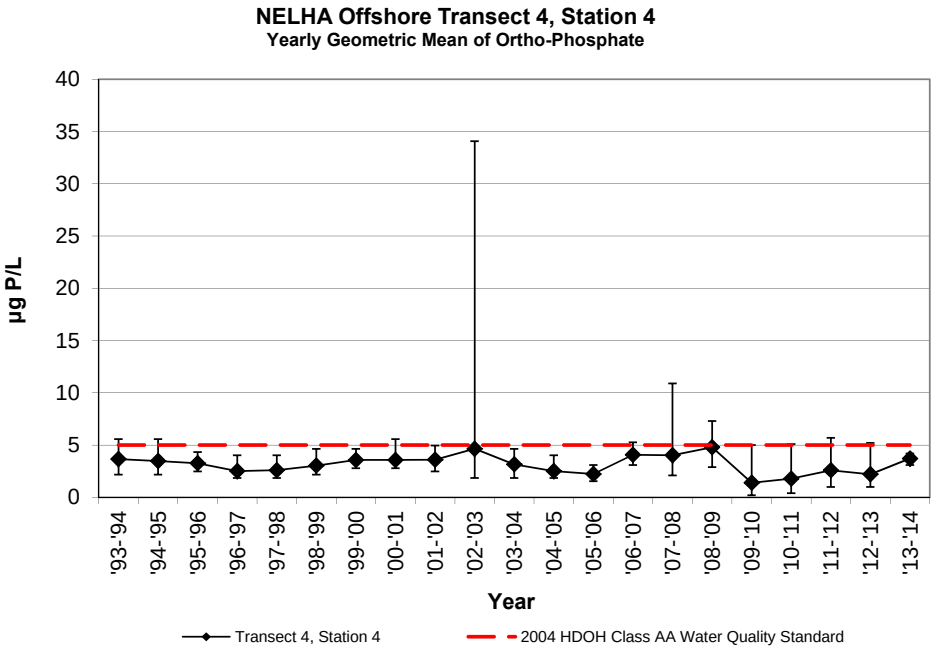
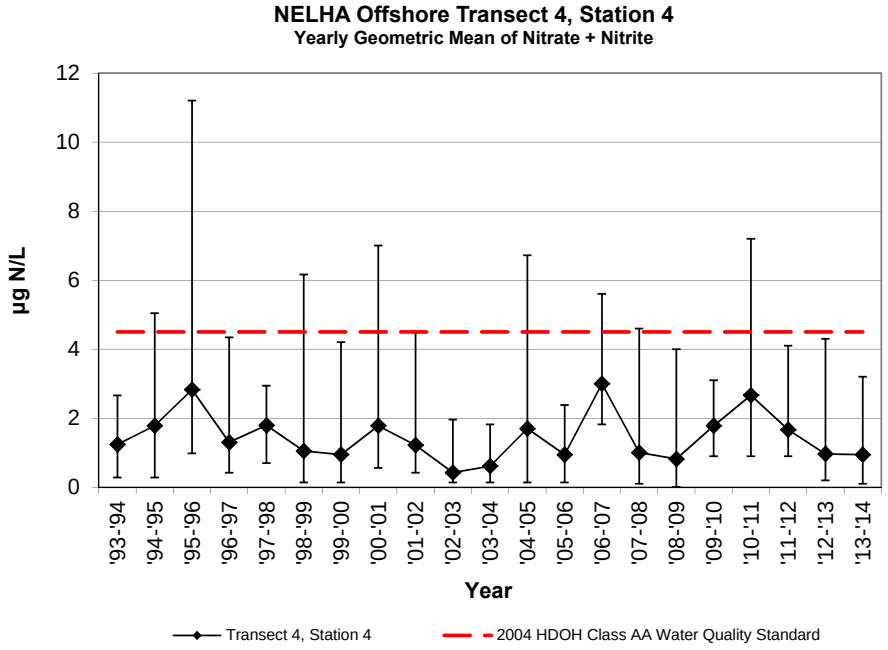
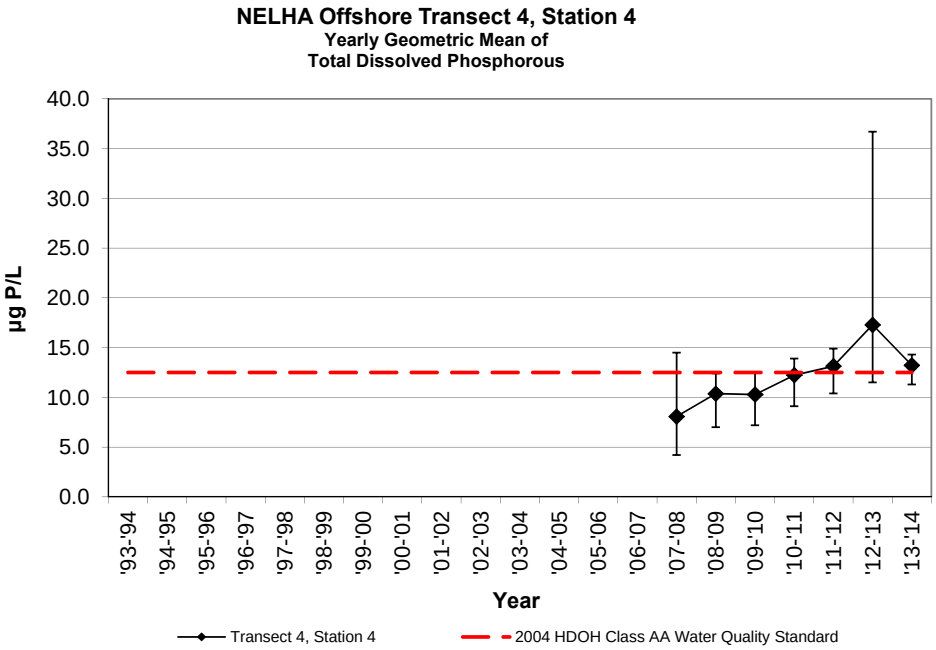
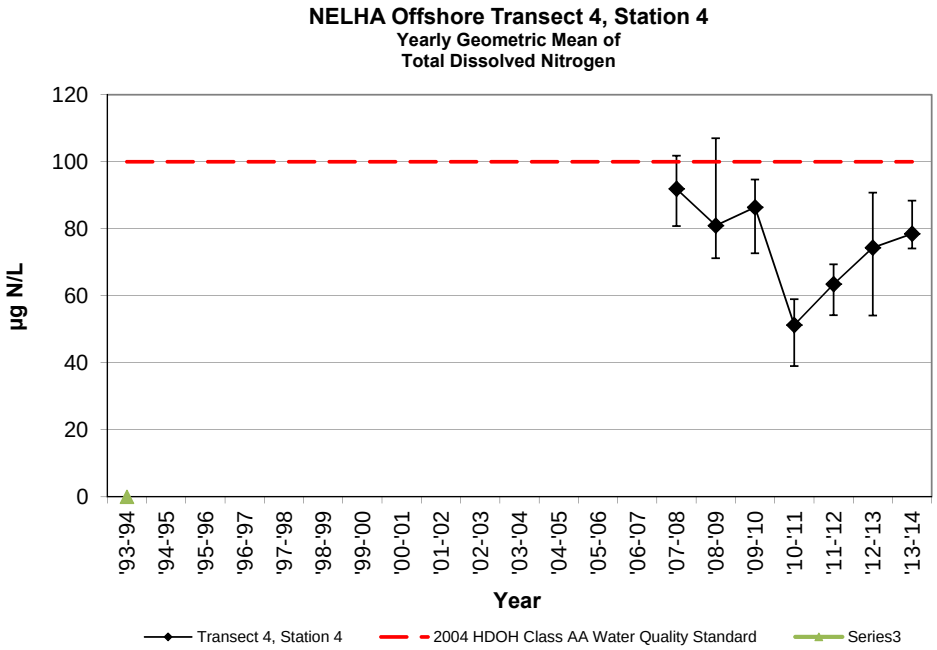
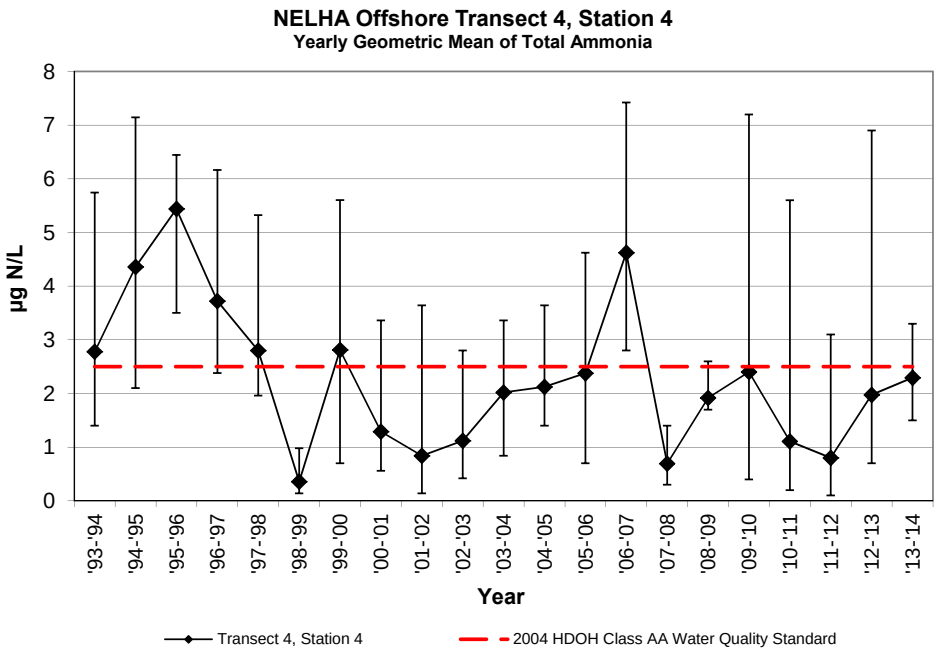


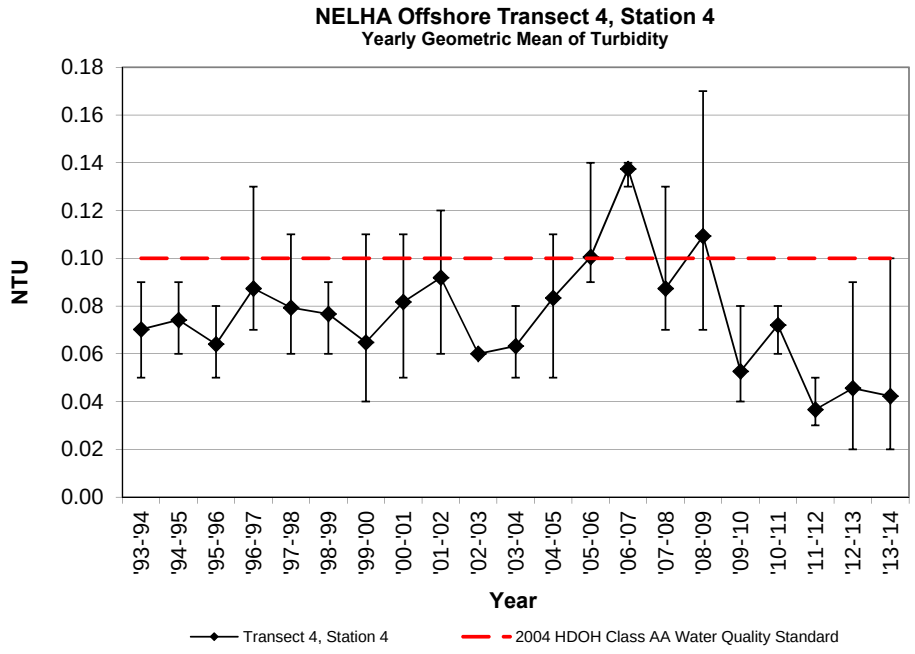


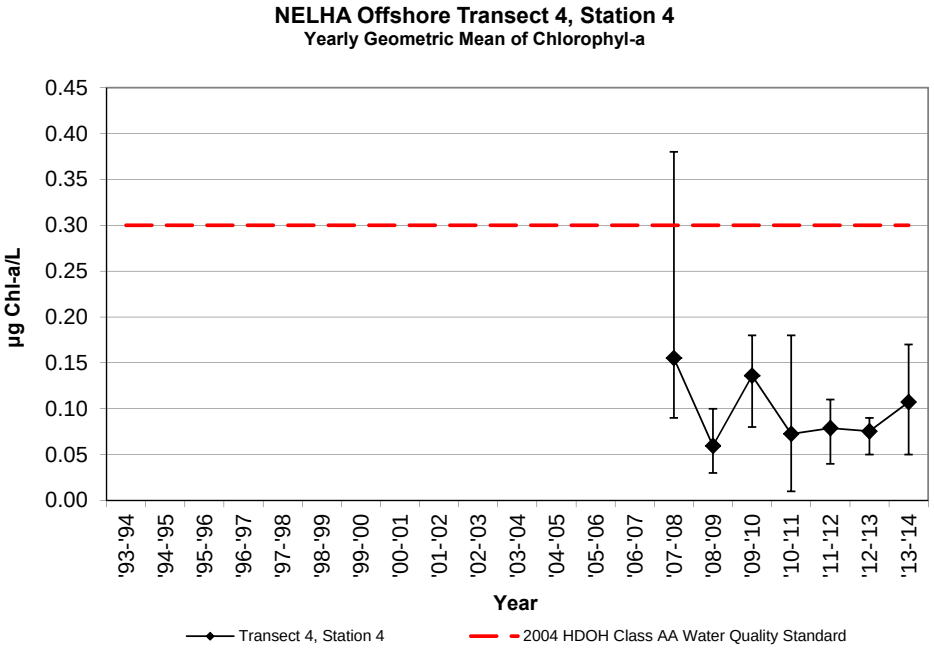




NELHA Water Quality Laboratory
Transect 4, Station 4
July 1993 - June 2014







NELHA Water Quality Laboratory
Transect 4, Station 5
July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O4-5S-69m	8/3/93	842	0.12	3.7	0.05	0.7	0.50	7.0	1.6	44					0.06	34.46	26.8			
O4-5S-69m	12/8/93	856	0.06	1.9	0.09	1.3	0.10	1.4	2.2	61					0.06	34.80	25.7			
O4-5S-69m	3/8/94	836	0.18	5.6	0.21	2.9	0.17	2.4	3.2	90					0.07	34.21	25.1			
O4-5S-69m	6/13/94	839	0.11	3.4	0.03	0.4	0.06	0.8	6.0	169					0.08	34.55	25.5			
Geomean	**'93-'94**			**3.4**		**1.0**		**2.1**							**0.07**					
O4-5S-69m	9/15/94	842	0.07	2.2	0.06	0.8	0.14	2.0	2.5	69					0.08	34.63	27.8			
O4-5S-69m	11/15/94	802	0.14	4.3	0.52	7.3	0.62	8.7	5.2	146					0.08	34.55	26.0			
O4-5S-69m	3/22/95	1138	0.19	5.9	0.38	5.3	0.37	5.2	5.8	162					0.11	34.12	25.3			
O4-5S-69m	6/21/95	810	0.10	3.1	0.15	2.1	0.35	4.9	2.4	66					0.07	34.45	26.2			
Geomean	**'94-'95**			**3.6**		**2.9**		***4.6***							**0.08**					
O4-5S-69m	9/28/95	1026	0.10	3.1	0.07	1.0	0.46	6.4	1.9	53					0.07	34.62	27.4			
O4-5S-69m	11/14/95	811	0.10	3.1	0.06	0.8	0.46	6.4	1.9	53					0.06	34.36	26.7			
O4-5S-69m	3/12/96	850	0.14	4.3	0.22	3.1	0.48	6.7	2.9	81					0.15	34.17	25.0			
O4-5S-69m	5/14/96	824	0.15	4.6	0.51	7.1	0.27	3.8	4.0	113					0.08	34.27	26.9			
Geomean	**'95-'96**			**3.7**		**2.1**		***5.7***							**0.08**					
O4-5S-69m	7/31/96	842	0.08	2.5	0.23	3.2	0.37	5.2	8.0	225					0.08	34.41	27.8			
O4-5S-69m	10/2/96	837	0.05	1.5	0.01	0.1	0.18	2.5	2.8	79					0.08	34.64	27.9			
O4-5S-69m	1/7/97	852	0.08	2.5	0.17	2.4	0.20	2.8	2.7	76					0.09	34.72	25.4			
O4-5S-69m	4/28/97	905	0.17	5.3	0.21	2.9	0.40	5.6	9.1	256					0.12	34.41	26.8			
Geomean	**'96-'97**			**2.7**		**1.3**		***3.8***							**0.09**					
O4-5S-69m	8/19/97	857	0.05	1.5	0.04	0.6	0.20	2.8	2.9	81					0.08	34.66	27.2			
O4-5S-69m	10/7/97	1132	0.12	3.7	0.08	1.1	0.44	6.2	2.9	83					0.11	34.75	27.8			
O4-5S-69m	3/4/98	857	0.08	2.5	0.07	1.0	0.16	2.2	4.2	118					0.06	35.02	25.0			
O4-5S-69m	5/5/98	905	0.09	2.8	0.14	2.0	0.15	2.1	3.2	90					0.08	35.06	24.1			
Geomean	**'97-'98**			**2.5**		**1.0**		***3.0***							**0.08**					
O4-5S-69m	7/7/98	923	0.11	3.4	0.30	4.2	0.01	0.1	6.5	183					0.07	34.96	26.4			
O4-5S-69m	10/6/98	841	0.09	2.8	0.01	0.1	0.01	0.1	1.5	43					0.09	35.12	26.9			
O4-5S-69m	1/19/99	902	0.07	2.2	0.02	0.3	0.05	0.7	2.5	69					0.08	35.13	25.1			
O4-5S-69m	4/13/99	954	0.14	4.3	0.31	4.3	0.10	1.4	5.5	154					0.08	34.63	24.3			
Geomean	**'98-'99**			**3.1**		**0.9**		**0.4**							**0.08**					
O4-5S-69m	8/16/99	915	0.11	3.4	0.18	2.5	0.45	6.3	1.7	49					0.10	34.87	26.1			
O4-5S-69m	10/25/99	1015	0.09	2.8	0.02	0.3	0.28	3.9	5.4	151					0.08	34.96	26.1			
O4-5S-69m	1/12/00	925	0.11	3.4	0.04	0.6	0.27	3.8	2.1	59					0.09	35.13	24.8			
O4-5S-69m	5/16/00	857	0.14	4.3	0.36	5.0	0.05	0.7	5.1	142					0.08	34.63	25.2			
Geomean	**'99-'00**			**3.4**		**1.2**		***2.8***							**0.09**					
O4-5S-69m	7/25/00	925	0.10	3.1	0.09	1.3	0.05	0.7	15.0	421					0.06	34.87	26.7			
O4-5S-69m	10/31/00	917	0.09	2.8	0.03	0.4	0.22	3.1	2.3	64					0.10	34.96	27.0			
O4-5S-69m	3/6/01	909	0.18	5.6	0.42	5.9	0.08	1.1	3.7	104					0.09	34.70	24.8			
O4-5S-69m	5/8/01	1008	0.14	4.3	0.22	3.1	0.13	1.8	4.7	131					0.07	34.75	24.9			
Geomean	**'00-'01**			**3.8**		**1.8**		**1.4**							**0.08**					
O4-5S-69m	8/13/01	1016	0.08	2.5	0.03	0.4	0.32	4.5	7.7	217					0.09	34.88	26.5			
O4-5S-69m	10/30/01	920	0.11	3.4	0.02	0.3	0.03	0.4	1.7	48					0.11	35.03	26.8			
O4-5S-69m	3/4/02	945	0.12	3.7	0.08	1.1	0.01	0.1	3.3	92					0.08	34.67	24.2			
O4-5S-69m	4/16/02	945	0.17	5.3	0.40	5.6	0.27	3.8	9.7	271					0.07	34.38	25.6			
Geomean	**'01-'02**			**3.6**		**0.9**		**1.0**							**0.09**					

NELHA Water Quality Laboratory

Transect 4, Station 5

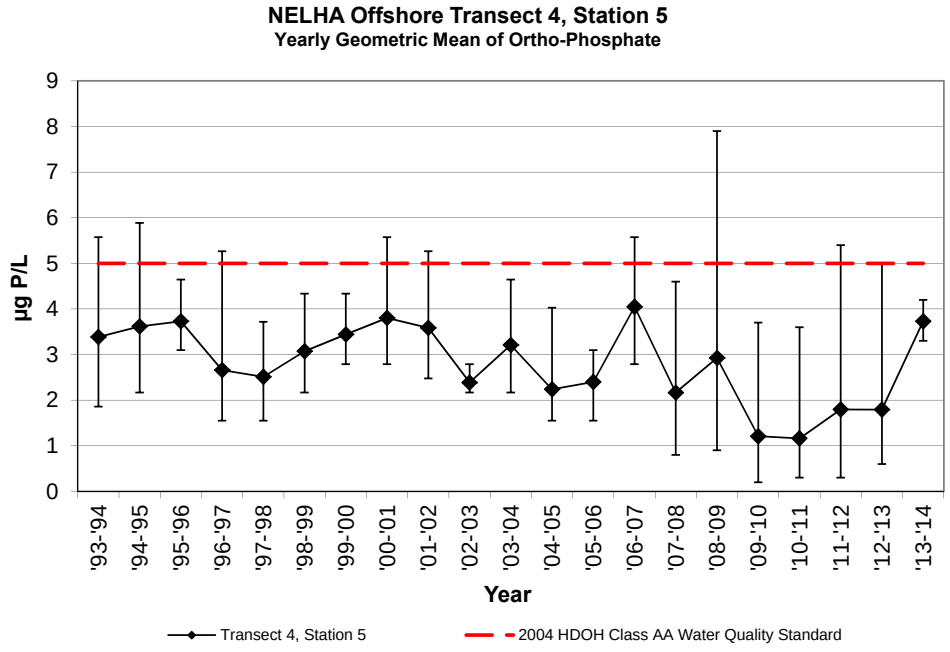
July 1993 - June 2014

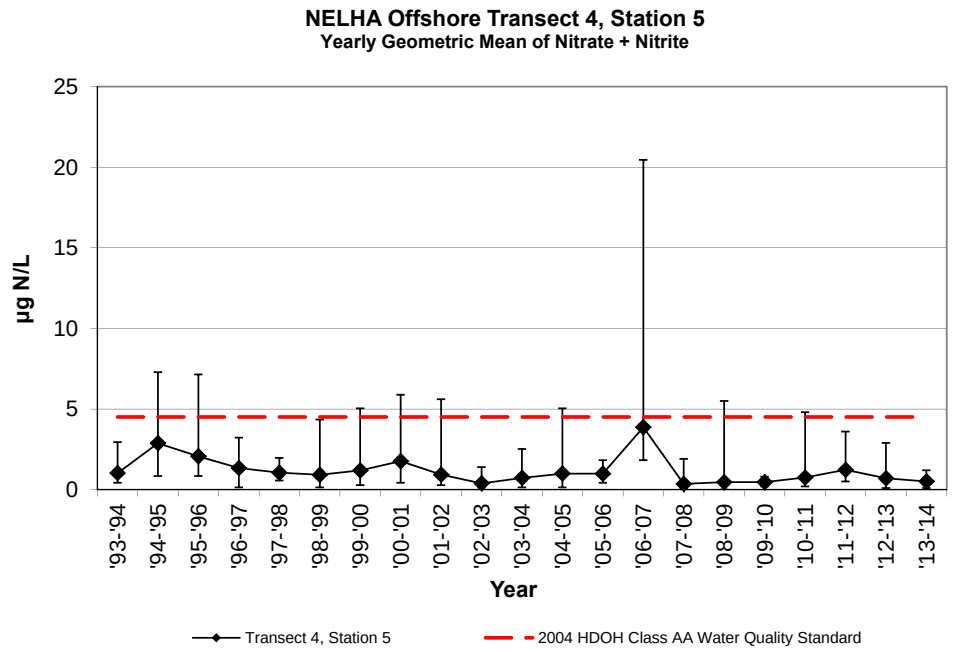
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O4-5S-69m	7/9/02	1058	0.09	2.8	0.01	0.1	0.16	2.2	4.3	119					0.07	34.66	26.7			
O4-5S-69m	10/7/02	940	0.07	2.2	0.02	0.3	0.20	2.8	2.2	60					0.05	34.94	27.0			
O4-5S-69m	3/10/03	1059	0.08	2.5	0.10	1.4	0.03	0.4	3.1	87					0.06	34.79	24.9			
O4-5S-69m	4/22/03	942	0.07	2.2	0.03	0.4	0.05	0.7	3.1	88					0.08	35.02	24.8			
Geomean	**'02-'03**			**2.4**		**0.4**		**1.2**							**0.06**					
O4-5S-69m	8/19/03	1051	0.07	2.2	0.01	0.1	0.20	2.8	1.6	44					0.06	34.84	28.2			
O4-5S-69m	10/30/03	912	0.10	3.1	0.10	1.4	0.20	2.8	1.9	54					0.13	34.82	27.5			
O4-5S-69m	3/17/04	1003	0.11	3.4	0.04	0.6	0.21	2.9	1.4	39					n/a	34.35	26.0			
O4-5S-69m	5/24/04	925	0.15	4.6	0.18	2.5	0.09	1.3	3.2	88					n/a	33.37	26.8			
Geomean	**'03-'04**			**3.2**		**0.7**		**2.3**							**0.09**					
O4-5S-69m	9/22/04	950	0.06	1.9	0.01	0.1	0.26	3.6	1.4	38					0.06	33.80	27.7			
O4-5S-69m	11/29/04	910	0.07	2.2	0.10	1.4	0.12	1.7	1.2	32					0.05	33.79	26.9			
O4-5S-69m	1/24/05	943	0.05	1.5	0.07	1.0	0.14	2.0	2.3	65					0.09	34.85	25.6			
O4-5S-69m	4/13/05	942	0.13	4.0	0.36	5.0	0.17	2.4	2.8	79					0.13	34.44	25.6			
Geomean	**'04-'05**			**2.2**		**1.0**		**2.3**							**0.08**					
O4-5S-69m	7/21/05	858	0.05	1.5	0.03	0.4	0.37	5.2	3.3	92					0.08	34.71	27.4			
O4-5S-69m	10/13/05	830	0.08	2.5	0.13	1.8	0.18	2.5	3.3	92					0.14	34.86	27.4			
O4-5S-69m	3/14/06	922	0.09	2.8	0.07	1.0	0.33	4.6	1.6	45					0.10	34.85	24.5			
O4-5S-69m	5/17/06	851	0.10	3.1	0.09	1.3	0.09	1.3	1.3	36					0.08	34.62	24.8			
Geomean	**'05-'06**			**2.4**		**1.0**		***3.0***							**0.10**					
O4-5S-69m	8/16/06	854	0.09	2.8	0.22	3.1	0.16	2.2	2.8	79					0.17	34.63	26.8			
O4-5S-69m	11/20/06	848	0.10	3.1	0.13	1.8	0.51	7.1	1.6	45					0.09	34.81	26.6			
O4-5S-69m	2/12/07	939	0.18	5.6	0.14	2.0	0.35	4.9	0.7	21					0.12	34.44	24.8			
O4-5S-69m	4/16/07	935	0.18	5.6	1.46	20.4	0.46	6.4	10.4	292					0.20	34.42	26.5			
Geomean	**'06-'07**			**4.0**		**3.9**		***4.7***							***0.14***					
T4-500m	9/26/07	1220	0.15	4.6	0.01	0.1	0.16	2.2	2.3	66	0.01	0.3	5.90	83	0.05	34.98	26.86	8.17	6.26	0.06
T4-500m	12/14/07	818	0.08	2.6	0.01	0.1			2.3	66	0.34	10.6	6.36	89	0.08	34.75	25.75	8.23	6.59	0.09
T4-500m	3/11/08	928	0.03	0.8	0.14	1.9	0.06	0.8	8.3	232	0.07	2.2	6.78	95	0.12	34.87	24.81	8.10	6.54	0.36
T4-500m	6/9/08	1008	0.07	2.3	0.06	0.8	0.74	10.4	6.7	189	0.10	3.1	7.57	106	0.15	34.71	25.77	8.11	5.66	0.17
Geomean	**'07-'08**			**2.2**		**0.4**		***2.6***				**2.2**		**93**	**0.09**					**0.13**
T4-500m	9/23/08	1100	0.03	0.9	0.00	0.0	0.18	2.5	1.1	30	0.16	5.1	4.73	66	0.06	34.83	26.7	8.07	6.07	0.03
T4-500m	12/8/08	1008	0.14	4.3	0.04	0.6	0.09	1.2	1.9	54	0.21	6.6	4.73	66	0.06	34.98	26.2	8.30	5.07	0.04
T4-500m	2/10/09	903	0.08	2.4	0.10	1.4	0.12	1.7	2.0	56	0.24	7.3	6.45	90	0.08	35.10	24.7	8.07	6.08	0.03
T4-500m	6/30/09	951	0.26	7.9	0.39	5.5	0.56	7.9	5.1	144	0.37	11.4	4.43	62	0.05	34.91	26.8	8.20	5.82	0.10
Geomean	**'08-'09**			**2.9**		**0.5**		**2.5**				**7.3**		**70**	**0.06**					**0.04**
T4-500m	9/10/09	942	0.12	4	0.06	0.8	0.69	9.7	47.4	1330	0.37	11.5	5.52	77	0.07	35.24	27.5	8.22	5.56	0.10
T4-500m	11/24/09	924	0.03	1	0.03	0.4	0.11	1.6	2.3	66	0.33	10.2	4.36	61	0.03	35.27	25.2	8.23	6.51	0.11
T4-500m	2/24/10	956	0.12	4	0.01	0.2	0.35	4.9	1.9	54	0.29	8.9	3.41	48	0.05	35.12	24.7	8.20	5.48	0.17
T4-500m	5/25/10	939	0.01	0	0.05	0.7	0.08	1.1	1.5	42	0.28	8.6	5.88	82	0.05	35.01	24.9	8.21	6.62	0.08
Geomean	**'09-'10**			**1.2**		**0.5**		***3.0***				**9.7**		**66**	**0.05**					**0.11**
T4-500m	8/11/10	934	0.02	1	0.02	0.3	0.01	0.1	1.9	53	0.30	9.4	2.72	38	0.05	34.96	26.2	8.23	6.61	0.16
T4-500m	11/9/10	929	0.01	0	0.08	1.1	0.11	1.5	3.1	86	0.38	11.8	2.25	32	0.07	34.98	26.5	8.28	6.31	0.02
T4-500m	1/11/11	1155	0.12	4	0.01	0.2	0.27	3.8	3.5	97	0.41	12.7	2.91	41	0.04	35.04	25.1	8.21	6.34	0.13
T4-500m	4/27/11	940	0.09	3	0.34	4.8	0.11	1.5	4.8	134	0.44	13.7	3.95	55	0.09	34.85	25.0	8.22	6.13	0.14
Geomean	**'10-'11**			**1.2**		**0.8**		**1.0**				**11.8**		**41**	**0.06**					**0.09**

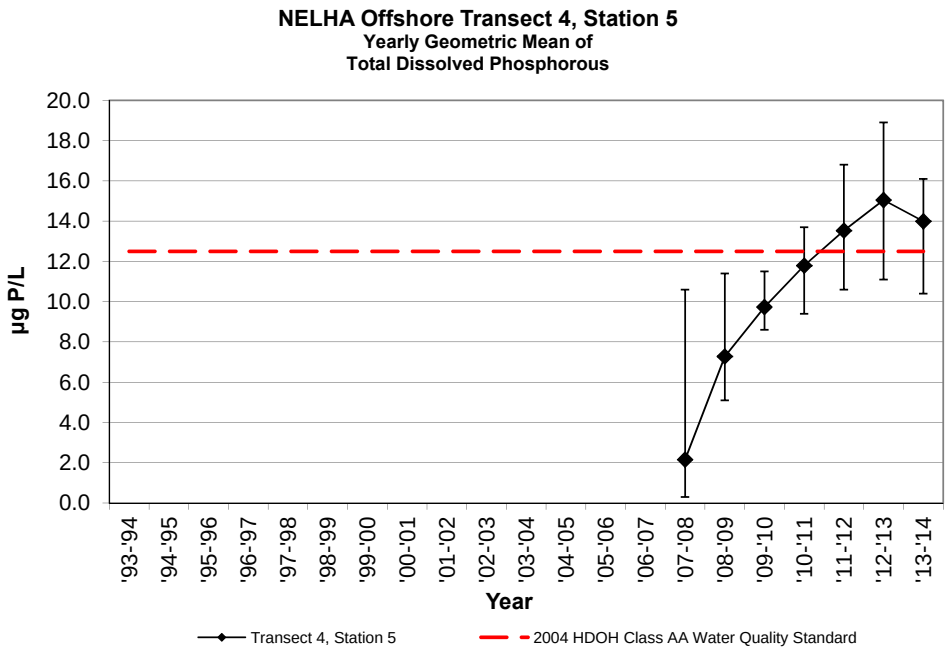
NELHA Water Quality Laboratory
Transect 4, Station 5
July 1993 - June 2014

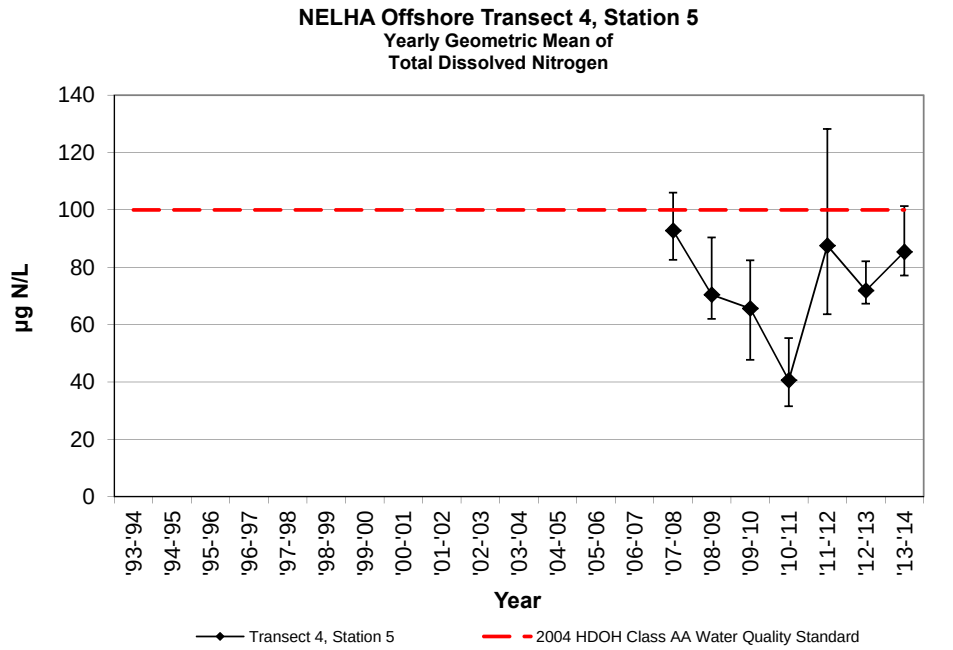
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
T4-500m	7/27/11	936	0.17	5.4	0.26	3.6	0.18	2.5	1.9	52	0.49	15.3	5.9	83.2	0.05	34.80	25.9	8.22	6.23	0.13
T4-500m	10/19/11	1001	0.01	0.3	0.04	0.5	0.04	0.5	2.1	60	0.34	10.6	4.5	63.6	0.08	35.10	26.6	8.25	7.01	0.11
T4-500m	1/26/12	930	0.05	1.4	0.04	0.6	0.02	0.3	1.3	36	0.40	12.3	6.2	86.5	0.02	35.06	24.6	8.25	6.63	0.10
T4-500m	4/25/12	944	0.15	4.6	0.15	2.1	0.26	3.6	1.9	53	0.54	16.8	9.2	128.2	0.11	34.82	24.9	8.19	6.71	0.04
Geomean	**'11-'12**			**1.8**		**1.2**		**1.1**				***13.5***		**88**	**0.05**					**0.09**
T4-500m	7/25/13	941	0.02	0.6	0.21	2.9	0.26	3.7	2.7	75	0.36	11.1	4.9	69.0	0.07	35.06	26.4	8.24	6.78	0.11
T4-500m	11/28/12	943	0.07	2.3	0.03	0.4	0.21	2.9	4.0	114	0.42	13.0	5.9	82.1	0.06	35.29	25.5	8.21	6.79	0.05
T4-500m	1/24/13	929	0.05	1.5	0.01	0.1	0.04	0.5	1.1	30	0.61	18.9	4.8	67.3	0.04	35.10	24.7	8.22	6.33	0.09
T4-500m	4/17/13	1045	0.16	5.0	0.15	2.1	0.20	2.8	0.8	22	0.61	18.8	5.0	69.9	0.02	35.12	25.1	8.20	6.56	0.05
Geomean	**'12-'13**			**1.8**		**0.7**		**2.0**				***15.0***		**72**	**0.04**					**0.07**
T4-500m	8/6/13	949	0.11	3.4	0.01	0.1	0.08	1.2	0.5	14	0.34	10.4	5.5	77	0.05	35.20	26.9	8.27	6.99	0.08
T4-500m	10/30/13	927	0.13	4.1	0.06	0.8	0.15	2.1	1.1	31	0.52	16.1	5.9	83	0.02	34.91	27.1	8.23	5.97	0.23
T4-500m	2/5/14	947	0.14	4.2	0.09	1.2	0.59	8.3	1.4	41	0.46	14.3	5.9	82	0.02	34.97	25.2	8.20	6.20	0.13
T4-500m	5/7/14	946	0.11	3.3	0.05	0.7	0.21	2.9	1.2	33	0.52	16.0	7.2	101	0.03	34.80	25.9	8.21	5.60	0.11
Geomean	**'13-'14**			**3.7**		**0.5**		***2.8***				***14.0***		**85**	**0.03**					**0.13**

NELHA Water Quality Laboratory
Transect 4, Station 5
July 1993 - June 2014

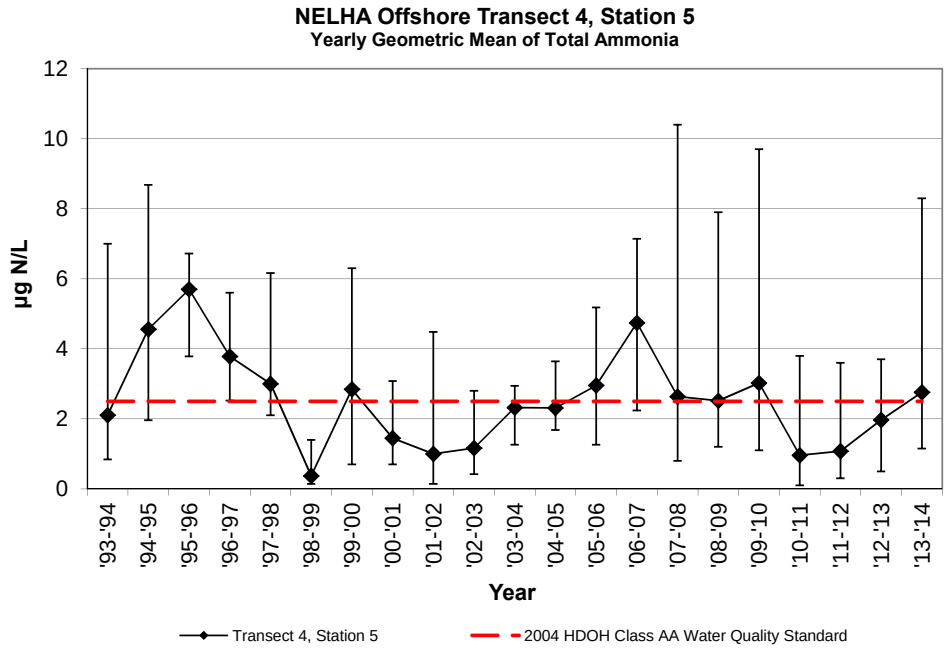


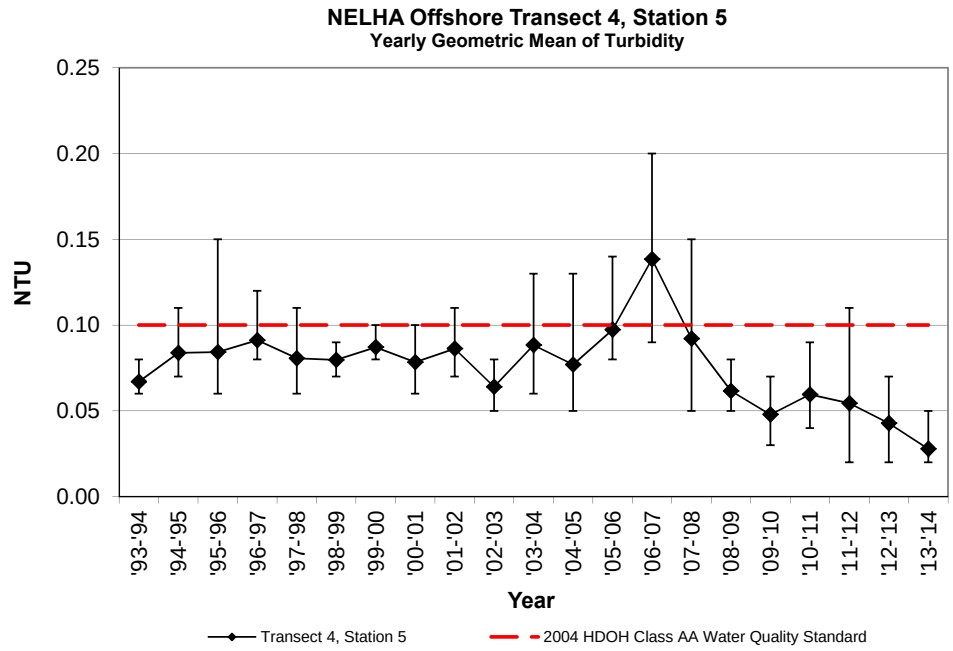


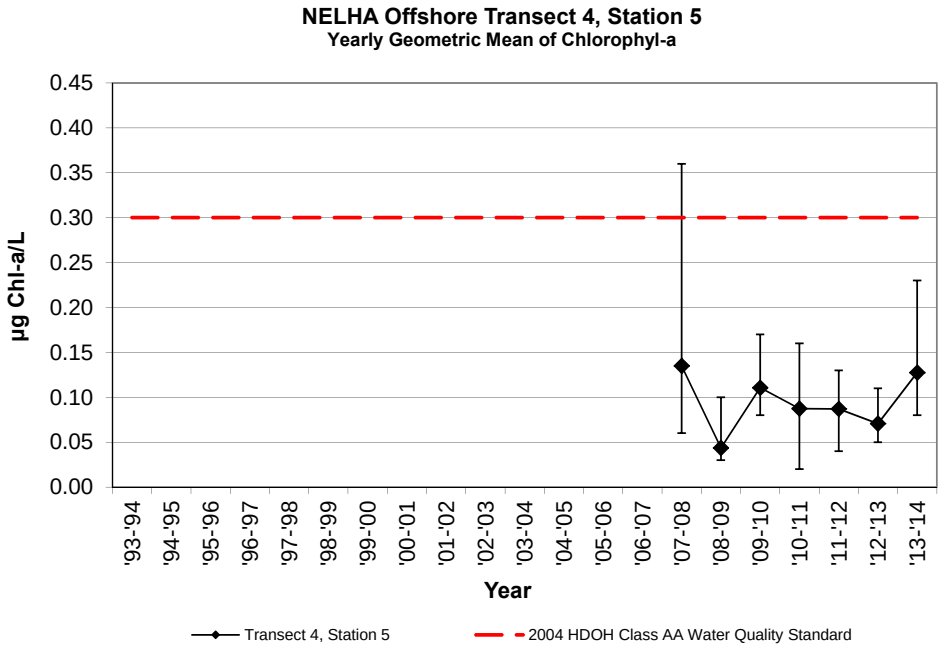




NELHA Water Quality Laboratory
Transect 4, Station 5
July 1993 - June 2014







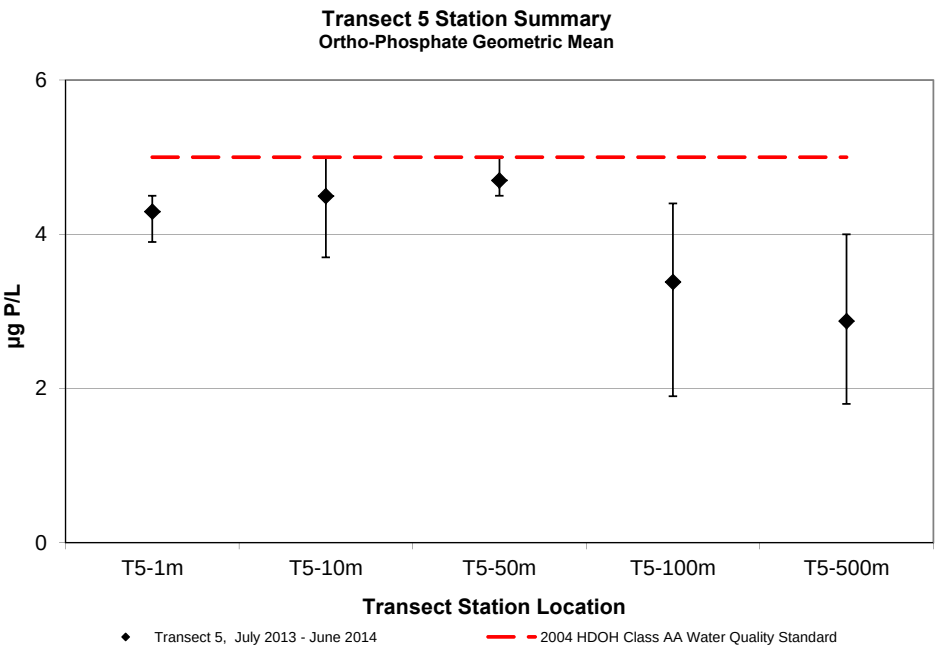
NELHA Water Quality Laboratory

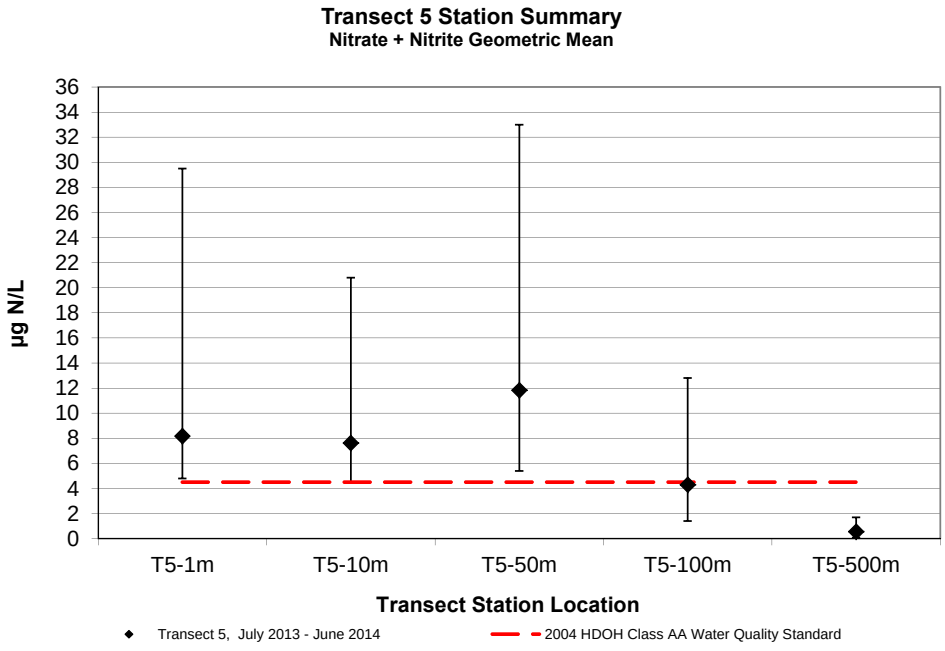
Transect 5

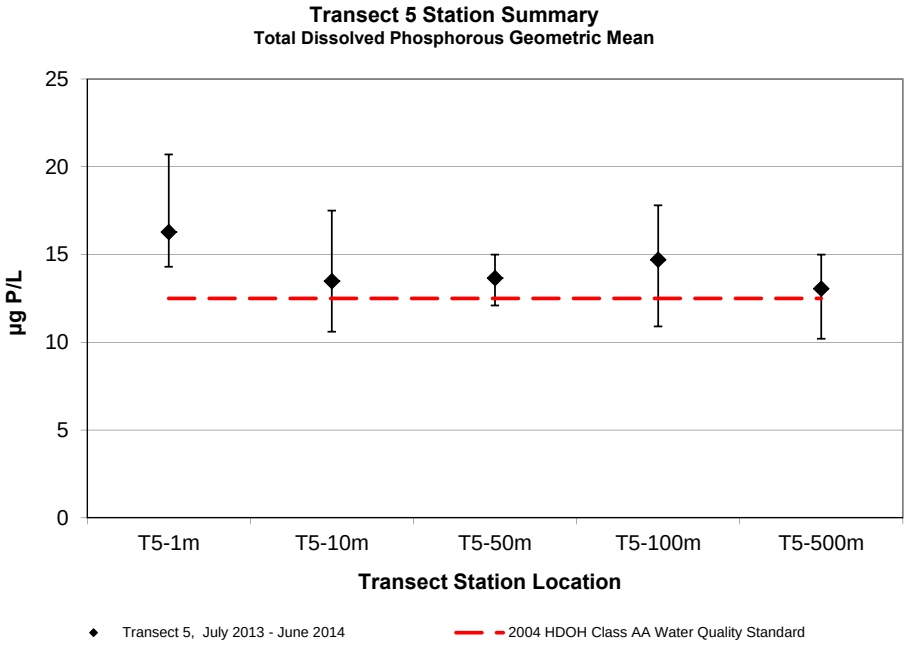
July 2013 - June 2014

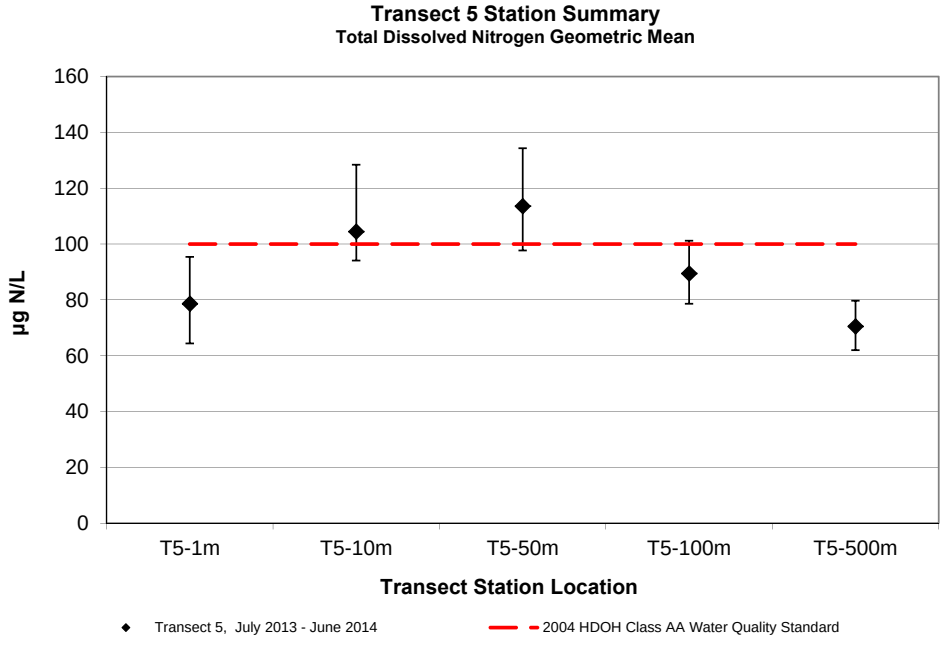
SITE ID	DATE	TIME	Tide		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(ft)	(cycle)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT					0.16	**5**	0.32	**4.5**	0.18	**2.5**			0.40	**12.5**	7.1	**100**	**0.10**					**0.3**
T5-1m	8/6/13	1029	0.2	Flood	0.14	4.4	2.11	29.5	0.36	5.0	14.6	409	0.67	20.7	5.9	82	0.03	34.81	26.3	8.28	7.07	0.08
T5-1m	10/30/13	935	0.8	Flood	0.14	4.4	0.34	4.8	0.19	2.7	2.5	69	0.46	14.3	4.6	64	0.02	34.89	27.0	8.22	6.10	0.11
T5-1m	2/5/14	959	0.6	Ebb	0.15	4.5	0.42	5.9	0.29	4.1	2.9	80	0.50	15.5	5.4	76	0.02	34.95	25.2	8.20	6.38	0.15
T5-1m	5/7/14	953	0.8	Flood	0.13	3.9	0.38	5.3	0.14	1.9	1.4	41	0.49	15.3	6.8	95	0.04	34.79	25.7	8.20	5.65	0.11
Geomean	**'13-'14**				0.14	**4.3**	0.58	***8.2***	0.2	***3.2***			0.5	***16.3***	5.6	**79**	**0.03**					**0.11**
T5-10m	8/6/13	1034	0.2	Flood	0.16	5.0	1.49	20.8	0.37	5.2	10.8	304	0.34	10.6	6.7	94	0.07	34.94	26.3	8.27	7.17	0.08
T5-10m	10/30/13	938	0.8	Flood	0.16	4.9	0.32	4.5	0.24	3.4	2.3	65	0.47	14.6	6.8	95	0.02	34.90	27.0	8.23	6.13	0.12
T5-10m	2/5/14	1003	0.6	Ebb	0.15	4.5	0.42	5.9	0.31	4.3	2.8	77	0.56	17.5	9.2	128	0.02	34.96	25.2	8.22	6.23	0.11
T5-10m	5/7/14	956	0.8	Flood	0.12	3.7	0.44	6.1	0.20	2.8	2.0	57	0.39	12.2	7.4	104	0.08	34.79	25.7	8.20	5.64	0.09
Geomean	**'13-'14**				0.15	**4.5**	0.54	***7.6***	0.27	***3.8***			0.44	***13.5***	7.5	**104**	**0.04**					**0.10**
T5-50m	8/6/13	1038	0.2	Flood	0.15	4.7	2.36	33.0	0.28	3.9	16.8	471	0.39	12.1	7.0	98	0.04	34.76	26.3	8.26	7.07	0.12
T5-50m	10/30/13	943	0.8	Flood	0.16	5.0	0.39	5.4	0.14	1.9	3.5	98	0.47	14.5	7.2	101	0.02	34.87	27.1	8.22	6.15	0.10
T5-50m	2/5/14	1008	0.5	Ebb	0.15	4.5	0.43	6.0	0.29	4.0	3.1	86	0.48	15.0	9.0	126	0.02	34.94	25.2	8.20	6.31	0.13
T5-50m	5/7/14	1003	0.8	Flood	0.15	4.6	1.31	18.3	0.27	3.8	7.8	219	0.43	13.2	9.6	134	0.04	34.57	25.6	8.20	5.42	0.15
Geomean	**'13-'14**				0.15	**4.7**	0.84	***11.8***	0.23	***3.3***			0.44	***13.7***	8.1	**114**	**0.03**					**0.12**
T5-100m	8/6/13	1045	0.2	Flood	0.06	1.9	0.22	3.1	0.06	0.9	2.5	71	0.35	10.9	5.6	79	0.03	35.23	26.6	8.26	6.92	0.11
T5-100m	10/30/13	947	0.8	Flood	0.13	3.9	0.10	1.4	0.12	1.7	1.2	35	0.57	17.6	6.3	88	0.02	34.94	27.1	8.22	6.05	0.06
T5-100m	2/5/14	1014	0.5	Ebb	0.14	4.4	0.44	6.1	0.34	4.8	3.6	100	0.57	17.8	6.5	91	0.02	34.94	25.2	8.20	6.23	0.13
T5-100m	5/7/14	1009	0.8	Flood	0.13	4.0	0.91	12.8	0.15	2.1	6.1	170	0.44	13.7	7.2	101	0.02	34.67	25.7	8.20	5.43	0.18
Geomean	**'13-'14**				0.11	**3.4**	0.31	**4.3**	0.14	**2.0**			0.47	***14.7***	6.4	**89**	**0.02**					**0.11**
T5-500m	8/6/13	1051	0.2	Flood	0.06	1.8	0.00	0.1	0.06	0.9	1.7	48	0.33	10.2	4.43	62	0.02	35.26	26.9	8.22	6.77	0.09
T5-500m	10/30/13	952	0.8	Flood	0.11	3.5	0.04	0.5	0.06	0.8	0.9	26	0.47	14.7	5.69	80	0.03	34.99	27.1	8.22	6.06	0.08
T5-500m	2/5/14	1022	0.5	Ebb	0.13	4.0	0.11	1.6	0.42	5.9	1.8	50	0.48	15.0	4.60	65	0.02	34.96	25.2	8.22	6.20	0.19
T5-500m	5/7/14	1016	0.8	Flood	0.09	2.7	0.12	1.7	0.10	1.4	2.3	65	0.42	12.9	5.52	77	0.04	34.79	26.0	8.20	5.51	0.25
Geomean	**'13-'14**				0.09	**2.9**	0.04	**0.6**	0.11	**1.6**			0.42	***13.1***	5.0	**70**	**0.03**					**0.14**

NELHA Water Quality Laboratory
Transect 5
July 2013 - June 2014









NELHA Water Quality Laboratory
Transect 5
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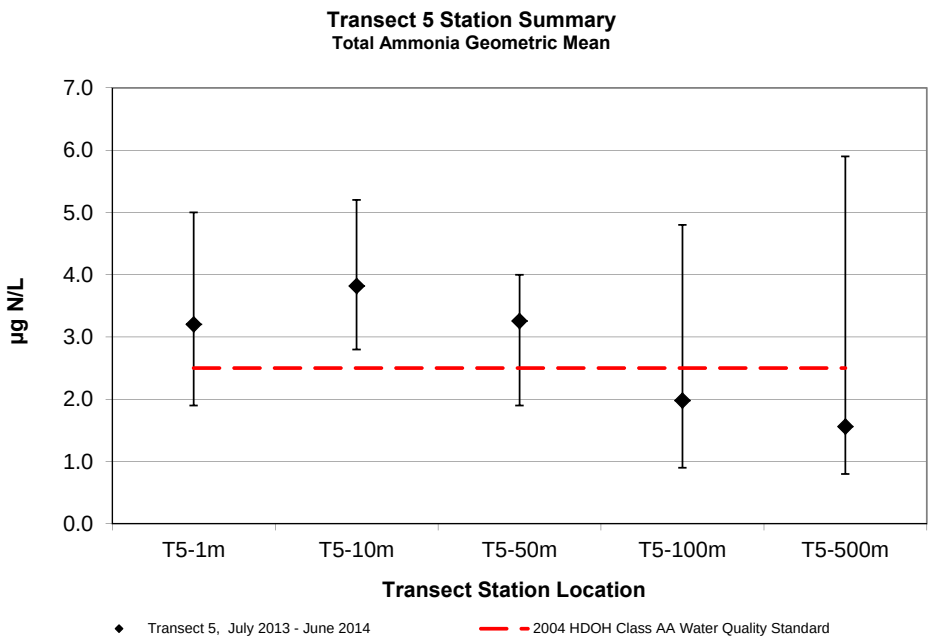
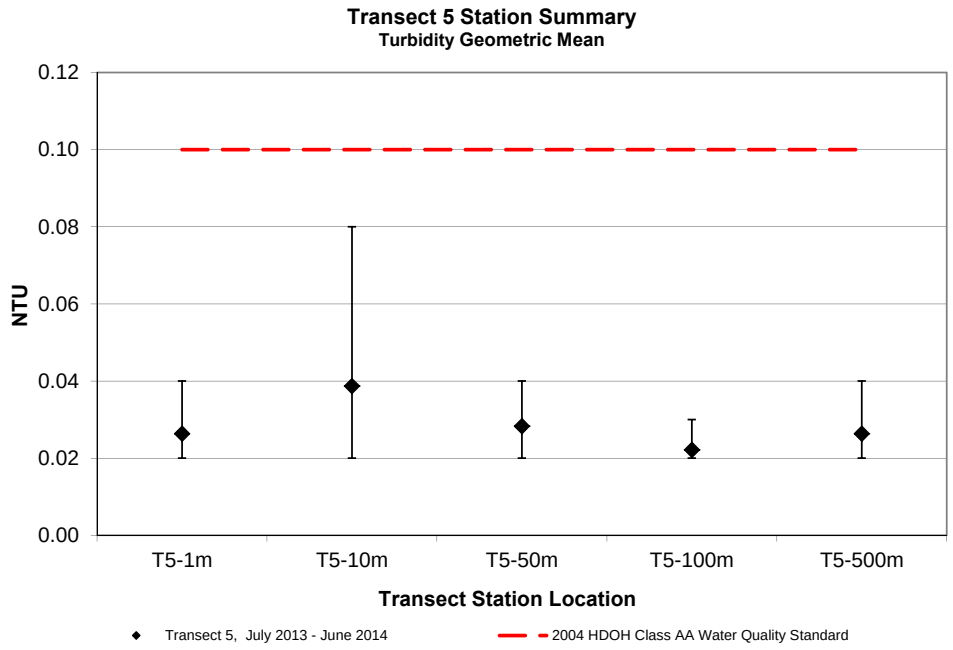
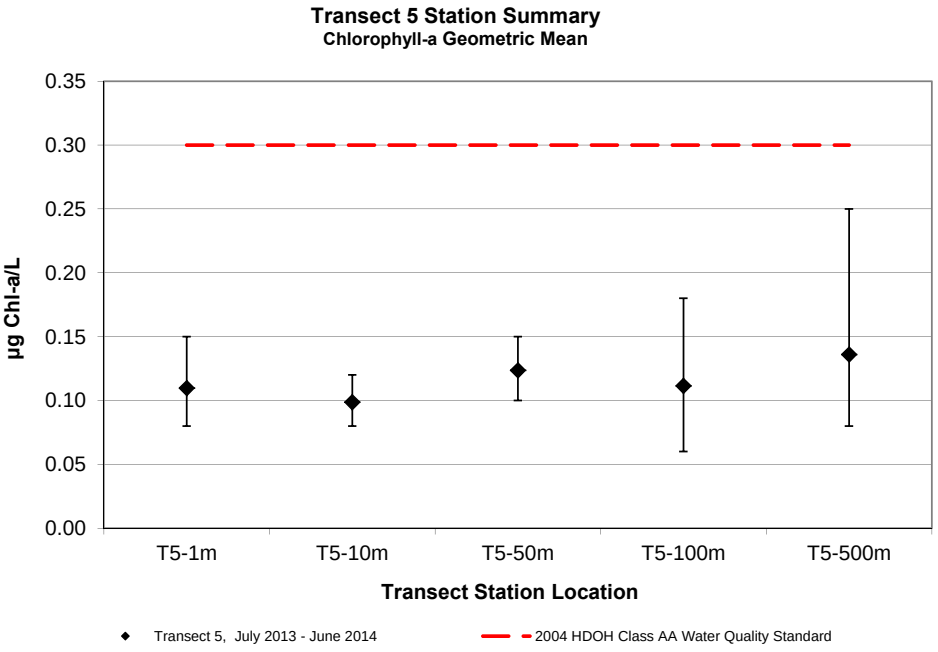






NELHA Water Quality Laboratory

Transect 5, Station 1

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TP		TOC	Turbidity	Salinity	Temp.	pH	DO	Chl a	Fecal Coliform	Enterococci
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg P/L)	(mgC/L)	(NTU)	(o/oo)	(°C)		(ppm)	(µg/L)	Bact/100 ml	Bact/100 ml
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**				**0.10**					**0.3**		
O5-1S-8m	7/26/93	1221	0.18	5.6	0.12	1.7	0.43	6.0	5.2	147	0.21	6.5	8.2	114	0.28	8.7	1.2	0.10	34.42	27.3	8.287	7.15			
O5-1S-8m	12/6/93	1133	0.06	1.9	0.41	5.7	0.03	0.4	3.1	88	0.25	7.7	7.2	101	0.25	7.7	1.2	0.13	34.83	25.7	8.258	7.01			
O5-1S-8m	3/7/94	1039	0.24	7.4	0.86	12.0	0.17	2.4	7.5	211	0.31	9.6	7.2	101	0.31	9.6	1.1	0.08	34.08	25.0	8.230	7.21	0.01	3	<1
O5-1S-8m	6/15/94	1045	0.14	4.3	0.34	4.8	0.08	1.1	4.5	125	0.23	7.1	6.3	88	0.30	9.3	1.1	0.12	34.49	25.9	8.243	7.08	0.15	<1	<1
Geomean	**'93-'94**			**4.3**		***4.9***		**1.6**				**7.7**		***101***				**0.11**					**0.04**		
O5-1S-8m	9/9/94	1005	0.11	3.4	0.54	7.6	0.21	2.9	5.0	140	0.30	9.3	7.1	99	0.31	9.6	1.2	0.11	34.52	27.8	8.235	6.87	0.01	<1	<1
O5-1S-8m	11/14/94	938	0.16	5.0	0.69	9.7	0.52	7.3	7.1	200	0.35	10.8	5.7	80	0.39	12.1	1.0	0.09	34.49	26.1	8.282	7.03	0.09	<1	<1
O5-1S-8m	3/22/95	1031	0.21	6.5	0.34	4.8	0.37	5.2	4.3	120	0.34	10.5	5.2	73	0.34	10.5	1.0	0.09	34.17	25.3	8.245	7.16	0.20	<1	<1
O5-1S-8m	6/20/95	1006	0.11	3.4	0.18	2.5	0.06	0.8	2.3	65	0.29	9.0	5.4	76	0.29	9.0	0.9	0.07	34.45	26.4	8.226	6.96	0.11	<1	<1
Geomean	**'94-'95**			**4.4**		***5.4***		***3.1***				**9.9**		**81**				**0.09**					**0.07**		
O5-1S-8m	9/28/95	948	0.09	2.8	0.05	0.7	0.50	7.0	2.3	65	0.28	8.7	7.2	100	0.28	8.7	1.1	0.14	34.61	27.4	8.303	6.66	0.05	<1	<1
O5-1S-8m	11/14/95	958	0.12	3.7	0.16	2.2	0.46	6.4	2.2	63	0.31	9.6	4.2	60	0.31	9.6	1.0	0.10	34.37	26.8	8.266	6.88	0.01	<1	<1
O5-1S-8m	3/12/96	1033	0.15	4.6	0.31	4.3	0.56	7.8	4.0	113	0.34	10.5	4.5	63	0.34	10.5	1.0	0.07	34.14	25.6	8.221	7.21	0.14	<1	<1
O5-1S-8m	5/14/96	1035	0.12	3.7	0.33	4.6	0.22	3.1	6.0	168	0.30	9.3	6.6	92	0.30	9.3	1.1	0.10	34.23	27.3	8.209	7.15	0.09	1	2
Geomean	**'95-'96**			**3.7**		**2.4**		***5.7***				**9.5**		**77**				**0.10**					**0.05**		
O5-1S-8m	7/31/96	1055	0.10	3.1	0.61	8.5	0.48	6.7	8.2	231	0.27	8.4	4.7	65	0.27	8.4	1.0	0.11	34.30	28.0	8.238	6.53	0.21	<1	<1
O5-1S-8m	10/2/96	1023	0.08	2.5	0.10	1.4	0.28	3.9	2.9	81	0.26	8.1	5.3	74	0.26	8.1	1.1	0.08	34.64	28.1	8.228	6.71	0.22	<1	1
O5-1S-8m	1/7/97	1026	0.12	3.7	0.65	9.1	0.22	3.1	5.6	158	0.29	9.0	5.2	73	0.29	9.0	1.0	0.21	34.57	25.7	8.278	6.99	0.06	<1	<1
O5-1S-8m	4/28/97	1047	0.16	5.0	0.40	5.6	0.43	6.0	5.7	159	1.07	33.1	5.1	71	1.56	48.3	1.0	0.13	34.32	26.7	8.277	6.77	0.04	<1	<1
Geomean	**'96-'97**			**3.4**		***5.0***		***4.7***				**11.9**		**71**				***0.12***					**0.10**		
O5-1S-8m	8/19/97	1032	0.11	3.4	0.59	8.3	0.26	3.6	7.9	223	0.35	10.8	4.5	63	0.35	10.8	1.0	0.11	34.55	27.0	8.384	6.60	0.15	<1	<1
O5-1S-8m	10/7/97	930	0.10	3.1	0.09	1.3	0.36	5.0	4.0	113	0.29	9.0	5.9	82	0.29	9.0	1.1	0.08	34.74	27.5	8.445	6.87	0.16	<1	<1
O5-1S-8m	3/4/98	1036	0.14	4.3	0.69	9.7	0.25	3.5	8.4	237	0.33	10.2	5.5	77	0.34	10.5	1.0	0.08	34.91	25.1	8.223	7.01	0.06	<1	<1
O5-1S-8m	5/5/98	1041	0.13	4.0	0.70	9.8	0.27	3.8	7.6	213	0.36	11.2	5.4	76	0.36	11.2	0.9	0.08	34.91	24.2	8.239	7.24	0.09	<1	<1
Geomean	**'97-'98**			**3.7**		***5.6***		***3.9***				**10.3**		**74**				**0.09**					**0.11**		
O5-1S-8m	7/7/98	1107	0.13	4.0	0.36	5.0	0.07	1.0	6.8	191	0.38	11.8	5.4	75	0.39	12.1	1.0	0.09	34.91	26.3	8.235	6.99	0.17	<1	<1
O5-1S-8m	10/6/98	1016	0.13	4.0	0.40	5.6	0.14	2.0	4.0	113	0.38	11.8	5.6	79	0.40	12.4	1.1	0.10	35.05	27.1	8.224	7.78	0.12	<1	<1
O5-1S-8m	1/19/99	1051	0.11	3.4	0.46	6.4	0.13	1.8	5.2	147	0.35	10.8	4.9	69	0.35	10.8	1.2	0.09	35.03	25.2	8.239	7.16	0.09	<1	<1
O5-1S-8m	4/13/99	1132	0.17	5.3	0.39	5.5	0.16	2.2	5.9	166	0.43	13.3	6.4	90	0.43	13.3	n/a	0.11	34.58	24.5	8.225	7.45	0.16	<1	<1
Geomean	**'98-'99**			**4.1**		***5.6***		**1.7**				**11.9**		**78**				**0.10**					**0.13**		
O5-1S-8m	8/16/99	1104	0.11	3.4	0.05	0.7	0.37	5.2	1.9	52	0.35	10.8	4.3	60	0.35	10.8	1.0	0.08	34.86	26.0	8.263	6.98	0.19	<1	<1
O5-1S-8m	10/25/99	1153	0.17	5.3	0.72	10.1	0.39	5.5	8.1	228	0.37	11.5	5.5	77	0.37	11.5	1.0	0.11	34.80	26.2	8.288	7.12	0.10	<1	<1
O5-1S-8m	1/12/00	1053	0.13	4.0	0.32	4.5	0.36	5.0	4.2	117	0.34	10.5	5.7	80	0.35	10.8	0.9	0.06	35.06	24.9	8.264	7.14	0.06	<1	<1
O5-1S-8m	4/11/00	959	0.12	3.7	0.22	3.1	0.04	0.6	3.6	102	0.31	9.6	5.6	78	0.31	9.6	1.1	0.07	34.83	24.4	8.273	7.17	0.07	<1	1
Geomean	**'99-'00**			**4.0**		**3.1**		***3.0***				**10.6**		**73**				**0.08**					**0.09**		
O5-1S-8m	7/25/00	1107	0.10	3.1	0.07	1.0	0.04	0.6	2.7	75	0.31	9.6	5.0	70	0.34	10.5	0.9	0.07	34.85	26.7	8.282	6.79	0.12	<1	<1
O5-1S-8m	10/31/00	1057	0.12	3.7	0.28	3.9	0.29	4.1	10.1	284	0.38	11.8	5.1	71	0.40	12.4	1.1	0.10	34.91	27.1	8.256	6.78	0.06	<1	<1
O5-1S-8m	3/6/01	1047	0.17	5.3	0.67	9.4	0.10	1.4	4.9	138	0.37	11.5	6.8	96	0.38	11.8	1.2	0.12	34.66	24.9	8.218	6.73	0.16	<1	<1
O5-1S-8m	5/8/01	1137	0.14	4.3	0.56	7.8	0.25	3.5	7.0	195	0.38	11.8	5.3	74	0.40	12.4	1.0	0.07	34.67	24.9	8.224	7.23	0.15	<1	<1
Geomean	**'00-'01**			**4.0**		**4.1**		**1.8**				**11.1**		**77**				**0.09**					**0.11**		
O5-1S-8m	8/13/01	942	0.09	2.8	0.01	0.1	0.20	2.8	2.1	58	0.36	11.2	5.7	79	0.37	11.5	1.1	0.11	34.88	26.6	8.222	6.68	0.11	1	<1
O5-1S-8m	10/10/01	1050	0.18	5.6	0.06	0.8	0.06	0.8	3.2	89	0.40	12.4	5.4	76	0.40	12.4	1.1	0.12	34.93	27.5	8.226	6.95	0.16	<1	<1
O5-1S-8m	3/6/02	1002	0.17	5.3	0.24	3.4	0.06	0.8	5.7	160	0.38	11.8	4.9	69	0.40	12.4	1.0	0.11	34.65	24.2	8.220	6.88	0.19	<1	<1
O5-1S-8m	4/15/02	1007	0.20	6.2	1.03	14.4	0.07	1.0	7.5	211	0.45	13.9	6.3	88	0.46	14.2	1.1	0.08	34.34	25.5	8.210	6.81	0.09	<1	<1
Geomean	**'01-'02**			**4.7**		**1.5**		**1.2**				**12.3**		**78**				**0.10**					**0.13**		

NELHA Water Quality Laboratory

Transect 5, Station 1

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TP		TOC	Turbidity	Salinity	Temp.	pH	DO	Chl a	Fecal Coliform	Enterococci
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg P/L)	(mgC/L)	(NTU)	(o/oo)	(°C)		(ppm)	(µg/L)	Bact/100 ml	Bact/100 ml
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**				**0.10**					**0.3**		
O5-1S-8m	7/10/02	1002	0.21	6.5	0.68	9.5	0.19	2.7	7.2	201	0.39	12.1	6.2	87	0.39	12.1	0.8	0.06	34.55	26.4	8.215	6.90	0.09	<1	<1
O5-1S-8m	10/8/02	1010	0.11	3.4	0.54	7.6	0.12	1.7	8.5	238	0.35	10.8	5.3	74	0.35	10.8	1.0	0.08	34.87	27.0	8.249	9.43	0.07	<1	3
O5-1S-8m	3/11/03	1138	0.11	3.4	0.21	2.9	0.06	0.8	3.7	104	0.34	10.5	5.3	74	0.35	10.8	1.1	0.09	34.69	25.1	8.267	7.09	0.16	<1	<1
O5-1S-8m	4/23/03	1006	0.12	3.7	0.03	0.4	0.03	0.4	4.4	123	0.36	11.2	5.7	80	0.36	11.2	0.9	0.18	34.98	25.1	8.276	7.49	0.11	<1	<1
Geomean	**'02-'03**			**4.1**		**3.1**		**1.1**				**11.1**		**79**				**0.09**					**0.10**		
O5-1S-8m	8/21/03	1010	0.10	3.1	0.01	0.1	0.01	0.1	6.2	174	0.38	11.8	6.5	91	0.38	11.8	n/a	0.07	34.82	28.4	8.268	6.84	0.05	3	<1
O5-1S-8m	11/3/03	938	0.11	3.4	0.02	0.3	0.26	3.6	2.4	67	0.39	12.1	5.9	83	0.40	12.4	n/a	0.09	34.66	27.4	8.234	n/a	0.12	<1	<1
O5-1S-8m	3/18/04	1008	0.11	3.4	0.42	5.9	0.27	3.8	4.4	123	0.40	12.4	5.5	77	0.39	12.1	n/a	n/a	34.33	25.8	8.252	9.86	0.17	<1	<1
O5-1S-8m	5/24/04	1023	0.16	5.0	0.33	4.6	0.12	1.7	6.6	186	0.44	13.6	5.7	80	0.43	13.3	n/a	n/a	33.40	26.8	8.247	7.08	0.01	<1	<1
Geomean	**'03-'04**			**3.7**		**1.0**		**1.3**				**12.4**		**83**				**0.08**					**0.06**		
O5-1S-8m	9/22/04	1058	0.08	2.5	0.01	0.1	0.28	3.9	3.0	85	0.30	9.3	4.8	67	0.32	9.9	n/a	0.08	33.73	27.9	8.263	6.76	0.10	<1	1
O5-1S-8m	11/29/04	1001	0.10	3.1	0.27	3.8	0.13	1.8	2.4	67	0.32	9.9	5.2	73	0.33	10.2	n/a	0.09	33.80	27.1	8.291	6.53	0.06	<1	<1
O5-1S-8m	1/24/05	1040	0.07	2.2	0.27	3.8	0.10	1.4	4.5	125	0.30	9.3	5.6	79	0.29	9.0	n/a	0.08	34.81	25.7	8.325	6.89	0.10	<1	<1
O5-1S-8m	4/13/05	1042	0.13	4.0	0.16	2.2	0.17	2.4	3.2	90	0.39	12.1	5.1	71	0.39	12.1	n/a	0.10	n/a	25.5	8.304	6.96	0.06	<1	<1
Geomean	**'04-'05**			**2.9**		**1.5**		**2.2**				**10.1**		**72**				**0.09**					**0.08**		
O5-1S-8m	7/21/05	958	0.07	2.2	0.51	7.1	0.36	5.0	6.6	184	0.33	10.2	3.9	55	0.34	10.5	n/a	0.21	34.59	27.4	8.263	7.79	0.04	<1	<1
O5-1S-8m	10/13/05	949	0.07	2.2	0.34	4.8	0.21	2.9	4.6	129	0.34	10.5	3.7	52	0.34	10.5	1.0	0.12	34.92	27.3	8.274	6.48	0.07	<1	<1
O5-1S-8m	3/15/06	908	0.10	3.1	0.07	1.0	0.35	4.9	5.1	144	0.34	10.5	5.0	70	0.36	11.2	n/a	0.08	34.82	24.3	8.246	7.89	0.09	<1	<1
O5-1S-8m	5/17/06	949	0.19	5.9	1.32	18.5	0.05	0.7	8.8	247	0.50	15.5	6.0	85	0.51	15.8	1.3	0.17	34.51	24.9	8.254	6.94	0.18	<1	<1
Geomean	**'05-'06**			**3.0**		***5.0***		***2.7***				**11.5**		**64**				***0.14***					**0.08**		
O5-1S-8m	8/16/06	958	0.12	3.7	0.45	6.3	0.34	4.8	2.1	60	0.35	10.8	5.3	74	0.41	12.7	1.0	0.18	34.67	26.8	8.229	7.13	0.08	<1	<1
O5-1S-8m	11/20/06	1000	0.12	3.7	0.35	4.9	0.24	3.4	2.0	55	0.36	11.2	5.4	75	0.37	11.5	1.1	0.12	34.80	26.7	8.268	6.78	0.08	<1	<1
O5-1S-8m	2/12/07	1053	0.15	4.6	0.35	4.9	0.41	5.7	1.9	53	0.39	12.1	6.0	84	0.41	12.7	1.4	0.17	34.40	24?	8.240	6.88	0.09	<1	<1
O5-1S-8m	4/16/07	1041	0.16	5.0	1.35	18.9	0.41	5.7	13.0	365	0.39	12.1	6.3	88	0.43	13.3	0.9	0.19	34.35	26.0	8.249	6.49	0.07		
Geomean	**'06-'07**			**4.2**		***7.3***		***4.8***				**11.5**		**80**				***0.16***					**0.08**		
T5-1m	9/27/07	940	0.13	4.1	0.37	5.2	0.41	5.8	4.8	135	0.51	15.7	6.6	92				0.10	34.98	26.71	8.07	6.18	0.12		
T5-1m	12/14/07	942	0.10	3.1	0.31	4.3			4.8	135	0.35	10.8	6.7	94				0.14	34.72	25.65	8.21	6.72	0.23		
T5-1m	3/11/08	951	0.11	3.3	0.51	7.2	0.06	0.8	5.5	156	0.24	7.3	6.7	94				0.09	34.82	24.76	8.08	6.52	0.32		
T5-1m	6/9/08	1024	0.09	2.7	0.17	2.4	0.16	2.2	13.2	372	0.28	8.6	8.8	124				0.16	35.68	25.01	8.12	5.81	0.13		
Geomean	**'07-'08**			**3.3**		**4.4**		**2.2**				**10.2**		**100**				***0.12***					**0.18**		
T5-1m	9/23/08	1035	0.03	1	0.19	2.7	0.31	4.3	2.28	64.1	0.35	10.9	5.9	82.9				0.08	34.84	26.67	8.07	6.31	0.09		
T5-1m	12/8/08	1017	0.23	7.2	0.15	2.1	0.73	10.2	1.25	35.2	0.03	0.8	6.2	87.2				0.10	35.00	26.15	8.30	6.25	0.05		
T5-1m	2/10/09	911	0.21	6.6	0.71	9.9	0.12	1.7	4.34	121.9	0.37	11.5	7.5	104.9				0.12	35.01	24.72	8.05	6.03	0.06		
T5-1m	6/30/09	1001	0.25	7.8	0.39	5.5	0.67	9.4	4.41	123.8	0.43	13.2	5.6	77.8				0.08	34.91	26.66	8.16	5.82	0.10		
Geomean	**'08-'09**			**4.4**		**4.2**		***5.1***				**6.0**		**87.6**				**0.09**					**0.07**		
T5-1m	9/10/09	956	0.15	4.5	0.20	2.8	0.03	0.4	44.83	1259.1	0.52	16	5.9	82.9				0.05	35.26	27.33	8.23	5.56	0.09		
T5-1m	11/24/09	931	0.02	0.8	0.20	2.8	0.16	2.3	11.97	336.1	0.33	10.3	5.1	71.5				0.03	35.27	25.15	8.26	6.54	0.13		
T5-1m	2/24/10	1009	0.17	5.4	1.04	14.6	0.28	3.9	8.21	230.5	0.29	9.1	6.4	89				0.07	35.09	24.64	8.22	5.50	0.39		
T5-1m	5/25/10	924	0.03	1.0	0.34	4.7	0.20	2.8	3.15	88.4	0.29	9.1	7.4	103.8				0.06	34.73	25.21	8.27	6.72	0.06		
Geomean	**'09-'10**			**2.1**		***4.8***		**1.8**				**10.8**		**86.0**				**0.05**					**0.13**		
T5-1m	8/11/10	943	0.02	0.6	0.57	8	0.22	3.1	3.85	108.1	0.36	11.3	4.1	57.2				0.06	34.94	26.00	8.23	6.69	0.08		
T5-1m	11/9/10	941	0.02	0.8	0.20	2.8	0.16	2.3	11.97	336.1	0.33	10.3	5.1	71.5				0.07	34.91	26.26	8.26	6.42	0.08		
T5-1m	1/11/11	1204	0.15	4.6	0.44	6.2	0.14	1.9	10.86	305	0.44	13.7	3.9	55.3				0.05	35.01	25.06	8.21	6.65	0.09		
T5-1m	4/27/11	948	0.13	4.1	0.66	9.2	0.24	3.3	4.63	130	0.47	14.6	4.3	60.7				0.08	34.82	24.90	8.23	6.47	0.12		
Geomean	**'10-'11**			**1.7**		***6.0***		***2.6***				**12.4**		**60.9**				**0.06**					**0.09**		

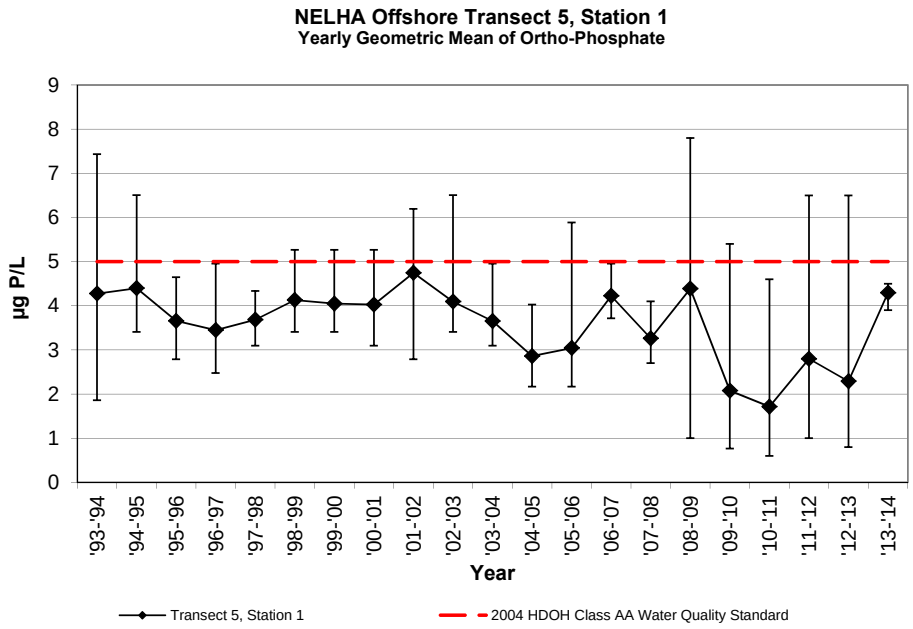
NELHA Water Quality Laboratory

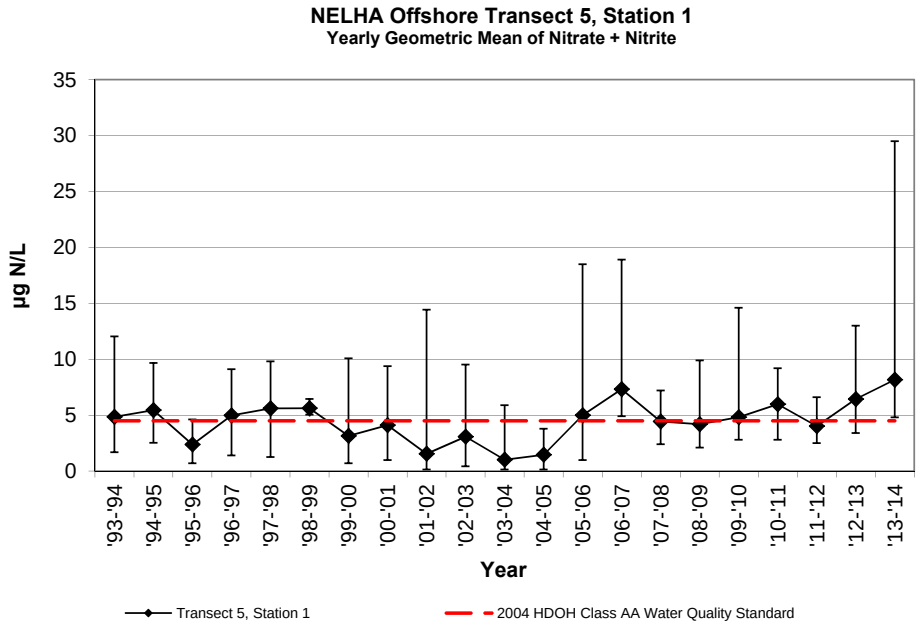
Transect 5, Station 1

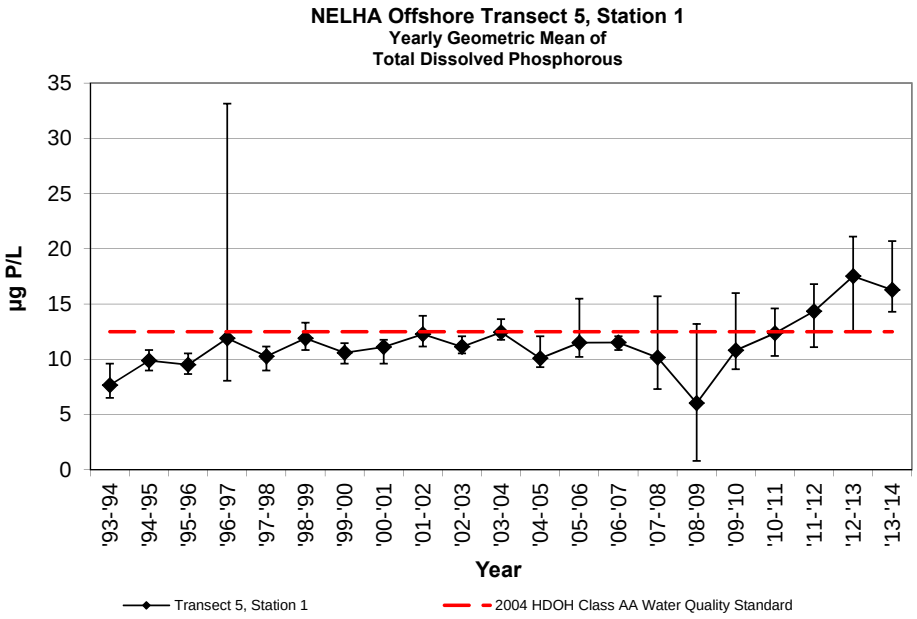
July 1993 - June 2014

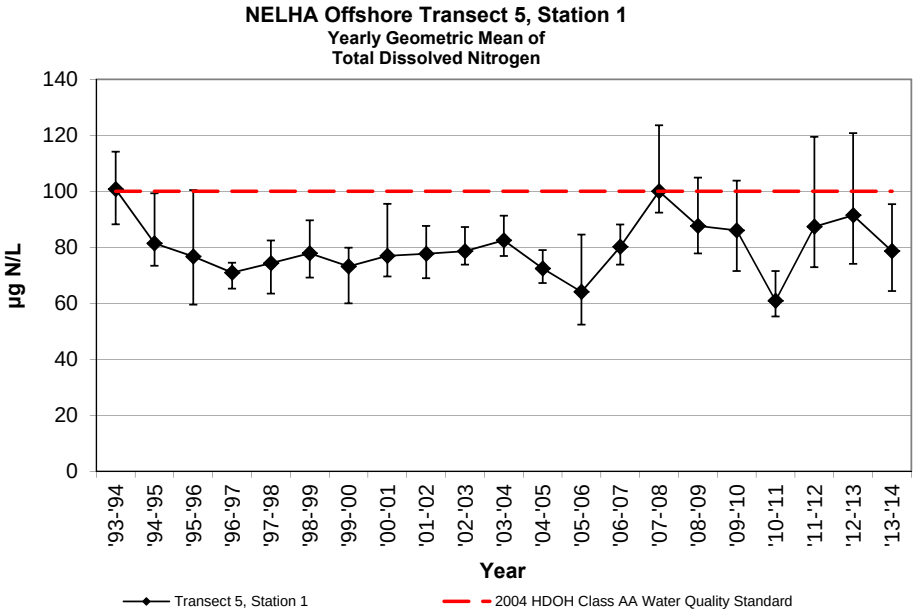
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TP		TOC	Turbidity	Salinity	Temp.	pH	DO	Chl a	Fecal Coliform	Enterococci
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg P/L)	(mgC/L)	(NTU)	(o/oo)	(°C)		(ppm)	(µg/L)	Bact/100 ml	Bact/100 ml
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**				**0.10**					**0.3**		
T5-1m	7/27/11	1031	0.19	5.9	0.40	5.6	0.22	3.1	1.71	48.1	0.54	16.7	5.5	77.3				0.13	34.79	25.98	8.22	6.47	0.08		
T5-1m	10/19/11	1009	0.03	1.0	0.20	2.8	0.13	1.8	1.69	47.5	0.36	11.1	5.2	72.9				0.04	35.12	26.52	8.26	7.26	0.08		
T5-1m	1/26/12	940	0.05	1.6	0.18	2.5	0.01	0.2	2.21	62.2	0.44	13.6	6.2	86.5				0.05	35.01	24.46	8.20	6.74	0.10		
T5-1m	4/25/12	1009	0.21	6.5	0.47	6.6	0.46	6.4	2.22	62.4	0.54	16.8	8.5	119.5				0.05	34.83	24.82	8.20	6.83	0.10		
Geomean	**'11-'12**			**2.8**		**4.0**		**1.6**				***14.3***		**87.4**				**0.06**					**0.09**		
T5-1m	7/25/12	951	0.03	0.8	0.24	3.4	0.26	3.6	1.28	36.0	0.40	12.5	6.3	88.3				0.08	35.12	26.35	8.24	6.88	0.10		
T5-1m	11/28/12	951	0.07	2.2	0.51	7.2	0.18	2.5	3.67	103.0	0.68	21.1	8.6	120.8				0.03	35.18	25.24	8.20	6.68	0.05		
T5-1m	1/24/13	939	0.08	2.4	0.39	5.4	0.19	2.7	2.24	63.0	0.60	18.5	5.3	74.1				0.04	35.06	24.76	8.22	6.36	0.21		
T5-1m	4/17/13	1053	0.21	6.5	0.93	13.0	0.15	2.1	5.32	149.3	0.62	19.3	6.3	88.4				0.05	35.03	25.17	8.21	6.87	0.10		
Geomean	**'12-'13**			**2.3**		***6.4***		***2.7***				***17.5***		**91.4**				**0.05**					**0.10**		
T5-1m	8/6/13	1029	0.14	4.4	2.11	29.5	0.36	5.0	14.6	409	0.67	20.7	5.9	82				0.03	34.81	26.3	8.28	7.07	0.08		
T5-1m	10/30/13	935	0.14	4.4	0.34	4.8	0.19	2.7	2.5	69	0.46	14.3	4.6	64				0.02	34.89	27.0	8.22	6.10	0.11		
T5-1m	2/5/14	959	0.15	4.5	0.42	5.9	0.29	4.1	2.9	80	0.50	15.5	5.4	76				0.02	34.95	25.2	8.20	6.38	0.15		
T5-1m	5/7/14	953	0.13	3.9	0.38	5.3	0.14	1.9	1.4	41	0.49	15.3	6.8	95				0.04	34.79	25.7	8.20	5.65	0.11		
Geomean	**'13-'14**			**4.3**		***8.2***		***3.2***				***16.3***		**79**				**0.03**					**0.11**		

NELHA Water Quality Laboratory
Transect 5, Station 1
July 1993 - June 2014

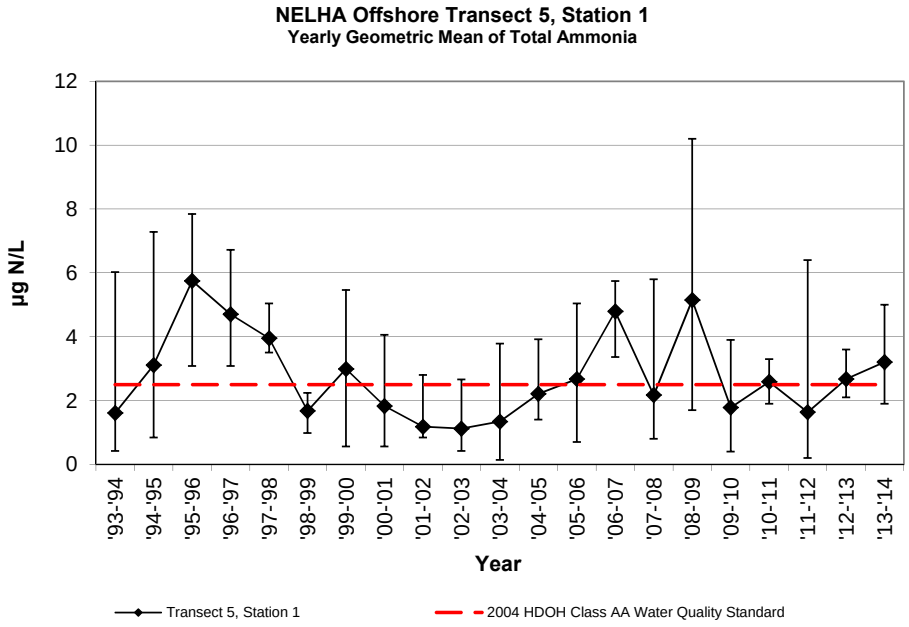


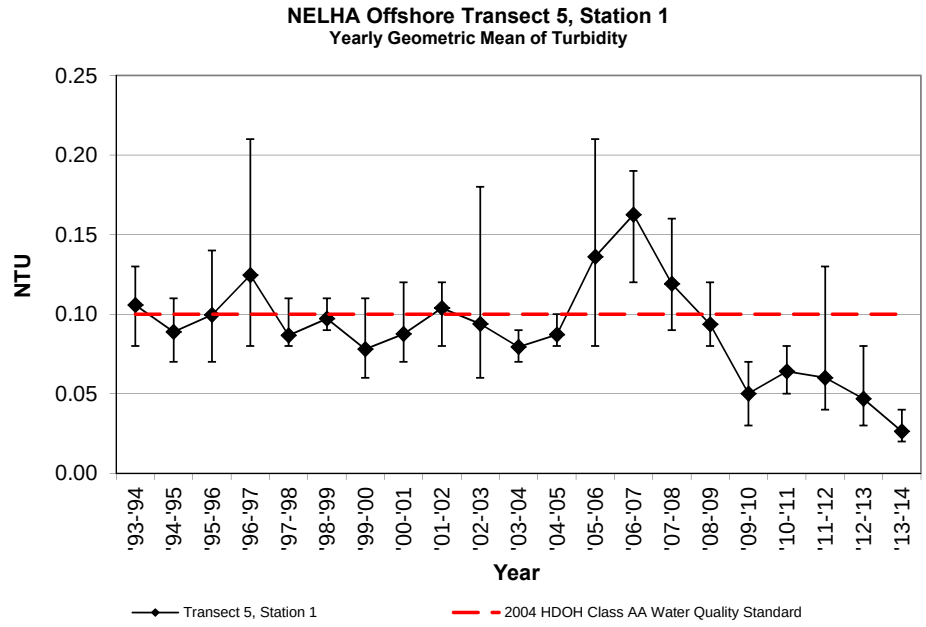


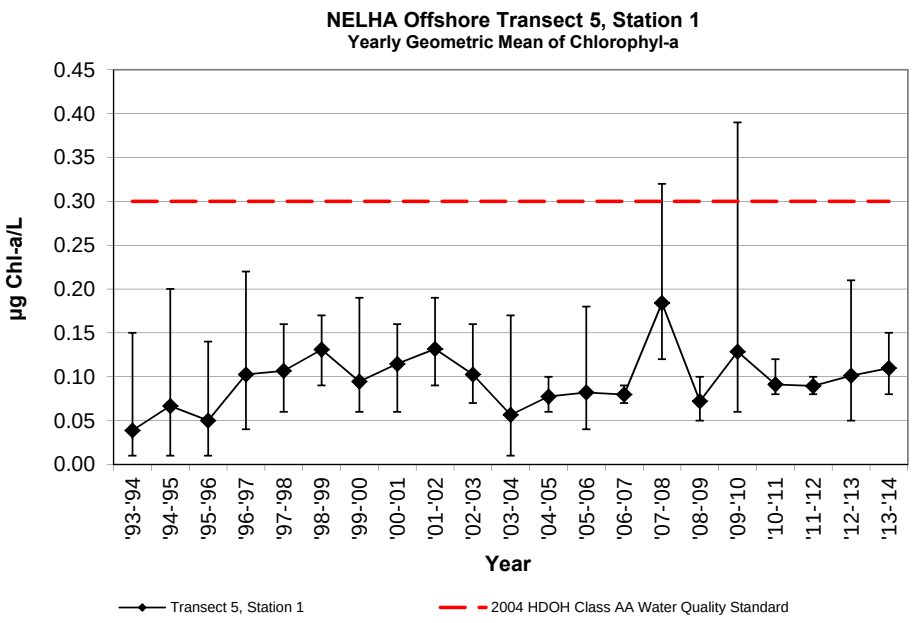




NELHA Water Quality Laboratory
Transect 5, Station 1
July 1993 - June 2014







NELHA Water Quality Laboratory

Transect 5, Station 2

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.1**					**0.3**
O5-2S-23m	7/26/93	950	0.15	4.6	0.15	2.1	0.38	5.3	3.5	99					0.08	34.43	26.8			
O5-2S-23m	12/6/93	1123	0.06	1.9	0.22	3.1	0.06	0.8	2.9	81					0.09	34.88	25.7			
O5-2S-23m	3/7/94	1029	0.24	7.4	0.68	9.5	0.17	2.4	6.2	173			6.43	90.06	0.10	34.13	25.1			
O5-2S-23m	6/15/94	1025	0.22	6.8	0.21	2.9	0.06	0.8	3.4	95					0.11	34.53	25.7			
Geomean	**'93-'94**			**4.6**		**3.7**		**1.7**							**0.09**					
O5-2S-23m	9/9/94	1040	0.10	3.1	0.46	6.4	0.19	2.7	4.4	123					0.13	34.54	27.7			
O5-2S-23m	11/14/94	924	0.16	5.0	0.73	10.2	0.55	7.7	7.4	208					0.12	34.50	26.1			
O5-2S-23m	3/22/95	1012	0.18	5.6	0.33	4.6	0.37	5.2	3.7	105					0.09	34.19	25.2			
O5-2S-23m	6/20/95	1000	0.15	4.6	0.10	1.4	0.14	2.0	3.5	99					0.07	34.46	26.4			
Geomean	**'94-'95**			**4.5**		**4.5**		***3.8***							**0.10**					
O5-2S-23m	9/28/95	813	0.08	2.5	0.07	1.0	0.50	7.0	1.6	46					0.09	34.61	27.2			
O5-2S-23m	11/14/95	951	0.10	3.1	0.08	1.1	0.49	6.9	3.1	86					0.08	34.36	26.8			
O5-2S-23m	3/12/96	1029	0.15	4.6	0.33	4.6	0.56	7.8	4.4	124					0.07	34.14	25.6			
O5-2S-23m	5/14/96	1021	0.12	3.7	0.39	5.5	0.19	2.7	5.7	159					0.10	34.23	27.2			
Geomean	**'95-'96**			**3.4**		**2.3**		***5.6***							**0.08**					
O5-2S-23m	7/31/96	1050	0.09	2.8	0.41	5.7	0.44	6.2	6.6	186					0.09	34.37	28.0			
O5-2S-23m	10/2/96	1019	0.07	2.2	0.03	0.4	0.26	3.6	2.6	72					0.08	34.64	28.1			
O5-2S-23m	1/7/97	1022	0.12	3.7	0.75	10.5	0.23	3.2	6.0	168					0.07	34.56	25.7			
O5-2S-23m	4/28/97	1044	0.15	4.6	0.23	3.2	0.39	5.5	6.3	176					0.10	34.41	26.8			
Geomean	**'96-'97**			**3.2**		**3.0**		***4.5***							**0.08**					
O5-2S-23m	8/19/97	1026	0.11	3.4	0.55	7.7	0.28	3.9	5.9	164					0.10	34.56	27.1			
O5-2S-23m	10/7/97	926	0.09	2.8	0.08	1.1	0.34	4.8	2.4	68					0.10	34.75	27.6			
O5-2S-23m	3/4/98	1030	0.13	4.0	0.58	8.1	0.23	3.2	5.3	150					0.07	34.93	25.0			
O5-2S-23m	5/5/98	1036	0.09	2.8	0.16	2.2	0.22	3.1	3.5	99					0.09	35.06	24.3			
Geomean	**'97-'98**			**3.2**		**3.5**		***3.7***							**0.09**					
O5-2S-23m	7/7/98	1100	0.12	3.7	0.33	4.6	0.07	1.0	6.4	181					0.13	34.91	26.3			
O5-2S-23m	10/6/98	1011	0.10	3.1	0.21	2.9	0.09	1.3	5.7	161					0.08	35.11	27.0			
O5-2S-23m	1/19/99	1046	0.08	2.5	0.23	3.2	0.11	1.5	4.6	128					0.07	35.10	25.3			
O5-2S-23m	4/13/99	1127	0.17	5.3	0.70	9.8	0.13	1.8	9.5	265					0.10	34.48	24.5			
Geomean	**'98-'99**			**3.5**		***4.6***		**1.4**							**0.09**					
O5-2S-23m	8/16/99	1100	0.10	3.1	0.05	0.7	0.51	7.1	2.1	60					0.10	34.84	26.1			
O5-2S-23m	10/25/99	1148	0.14	4.3	0.66	9.2	0.39	5.5	7.6	214					0.10	34.81	26.3			
O5-2S-23m	1/12/00	1047	0.10	3.1	0.04	0.6	0.26	3.6	2.2	61					0.05	35.11	24.9			
O5-2S-23m	4/11/00	955	0.12	3.7	0.13	1.8	0.02	0.3	3.2	90					0.08	34.84	24.4			
Geomean	**'99-'00**			**3.5**		**1.6**		**2.5**							**0.08**					
O5-2S-23m	7/25/00	1102	0.11	3.4	0.15	2.1	0.06	0.8	3.0	85					0.09	34.85	26.7			
O5-2S-23m	10/31/00	1049	0.12	3.7	0.04	0.6	0.27	3.8	2.9	82					0.06	34.95	27.1			
O5-2S-23m	3/6/01	1041	0.14	4.3	0.25	3.5	0.12	1.7	4.3	121					0.09	34.67	24.9			
O5-2S-23m	5/8/01	1134	0.13	4.0	0.47	6.6	0.21	2.9	7.0	195					0.07	34.71	24.9			
Geomean	**'00-'01**			**3.9**		**2.3**		**2.0**							**0.08**					
O5-2S-23m	8/13/01	936	0.09	2.8	0.01	0.1	0.20	2.8	2.1	58					0.15	34.88	26.6			
O5-2S-23m	10/10/01	1044	0.15	4.6	0.09	1.3	0.06	0.8	3.4	95					0.08	34.92	27.5			
O5-2S-23m	3/6/02	956	0.14	4.3	0.18	2.5	0.06	0.8	4.4	124					0.12	34.66	24.2			
O5-2S-23m	4/15/02	1002	0.15	4.6	0.25	3.5	0.06	0.8	4.6	129					0.08	34.44	25.6			
Geomean	**'01-'02**			**4.0**		**1.1**		**1.1**							**0.10**					

NELHA Water Quality Laboratory

Transect 5, Station 2

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.1**					**0.3**
O5-2S-23m	7/10/02	957	0.18	5.6	0.28	3.9	0.15	2.1	4.9	136					0.08	34.62	26.4			
O5-2S-23m	10/8/02	1005	0.06	1.9	0.48	6.7	0.06	0.8	4.0	112					0.10	34.88	27.0			
O5-2S-23m	3/11/03	1132	0.10	3.1	0.13	1.8	0.03	0.4	3.3	92					0.08	34.71	25.3			
O5-2S-23m	4/23/03	1000	0.16	5.0	0.03	0.4	0.03	0.4	3.8	107					0.06	34.99	25.1			
Geomean	**'02-'03**			**3.6**		**2.1**		**0.7**							**0.08**					
O5-2S-23m	8/21/03	956	5.94	184.0	0.09	1.3	0.10	1.4	2.5	70					0.08	34.83	28.3			
O5-2S-23m	11/3/03	929	0.11	3.4	0.01	0.1	0.26	3.6	2.5	71					0.10	34.65	27.2			
O5-2S-23m	3/18/04	1001	0.14	4.3	0.14	2.0	0.26	3.6	2.7	75					n/a	34.37	25.5			
O5-2S-23m	5/24/04	1018	0.15	4.6	0.27	3.8	0.09	1.3	3.9	110					n/a	33.33	26.8			
Geomean	**'03-'04**			***10.6***		**1.1**		**2.2**							**0.09**					
O5-2S-23m	9/22/04	1052	0.07	2.2	0.01	0.1	0.28	3.9	6.7	188					0.08	33.76	27.8			
O5-2S-23m	11/29/04	956	0.08	2.5	0.27	3.8	0.14	2.0	2.0	56					0.07	33.79	27.0			
O5-2S-23m	1/24/05	1035	0.05	1.5	0.01	0.1	0.08	1.1	1.7	47					0.07	34.77	25.6			
O5-2S-23m	4/13/05	1036	0.13	4.0	0.20	2.8	0.20	2.8	3.2	90					0.10	34.42	25.4			
Geomean	**'04-'05**			**2.4**		**0.7**		**2.2**							**0.08**					
O5-2S-23m	7/21/05	953	0.06	1.9	0.31	4.3	0.34	4.8	7.0	197					0.09	34.65	27.4			
O5-2S-23m	10/13/05	942	0.06	1.9	0.28	3.9	0.21	2.9	4.5	127					0.12	34.79	27.2			
O5-2S-23m	3/15/06	901	0.13	4.0	0.24	3.4	0.27	3.8	8.4	236					0.08	34.78	24.4			
O5-2S-23m	5/17/06	942	0.16	5.0	0.86	12.0	0.05	0.7	6.1	171					0.22	34.54	24.8			
Geomean	**'05-'06**			**2.9**		***5.1***		**2.5**							***0.12***					
O5-2S-23m	8/16/06	951	0.11	3.4	0.43	6.0	0.34	4.8	2.5	70					0.25	34.65	26.8			
O5-2S-23m	11/20/06	952	0.10	3.1	0.18	2.5	0.22	3.1	2.0	56					0.08	34.81	26.9			
O5-2S-23m	2/12/07	1046	0.31	9.6	0.16	2.2	0.48	6.7	0.9	25					0.10	34.44	24.5			
O5-2S-23m	4/16/07	1036	0.15	4.6	0.82	11.5	0.39	5.5	10.2	286					0.41	34.44	26.1			
Geomean	**'06-'07**			**4.7**		**4.4**		***4.8***							***0.17***					
T5-10m	9/27/07	920	0.16	5.0	0.29	4.0	0.36	5.1	6.1	173	0.36	11	5.3	74	0.06	34.92	26.8	8.06	6.07	0.20
T5-10m	12/14/07	945	0.06	2.0	0.69	9.7			5.4	151	0.35	10.9	4.8	68	0.10	34.73	25.7	8.21	6.69	0.20
T5-10m	3/11/08	953	0.12	3.6	0.48	6.7	0.06	0.8	19.8	557	0.28	8.7	6.8	96	0.12	34.83	24.8	8.10	6.53	0.37
T5-10m	6/9/08	1028	0.09	2.8	0.17	2.4	0.16	2.2	14.0	392	0.25	7.7	5.2	72	0.07	34.68	25.0	8.12	5.83	0.08
Geomean	**'07-'08**			**3.2**		***5.0***		**2.1**				**9.5**		**77**	**0.08**					**0.19**
T5-10m	9/23/08	1042	0.04	1.3	0.16	2.2	0.28	3.9	2.51	71	0.29	8.9	4.7	66	0.08	34.84	26.82	8.06	6.21	0.03
T5-10m	12/8/08	1022	0.21	6.5	0.35	4.9	1.03	14.4	1.89	53	0.10	3.0	5.9	83	0.05	34.99	26.05	8.30	5.85	0.07
T5-10m	2/10/09	918	0.13	3.9	0.41	5.8	0.56	7.9	3.59	101	0.37	11.6	10.8	152	0.10	35.06	24.82	8.05	6.05	0.05
T5-10m	6/30/09	1005	0.29	8.9	0.41	5.8	0.17	2.4	5.17	145	0.23	7.0	5.3	74	0.11	34.90	26.66	8.17	6.07	0.09
Geomean	**'08-'09**			**4.1**		**4.4**		***5.7***				**6.8**		**89**	**0.08**					**0.06**
T5-10m	9/10/09	1003	0.15	4.5	0.19	2.6	0.92	12.9	43.55	1223	0.26	8.0	4.7	67	0.09	35.27	27.30	8.24	5.71	0.15
T5-10m	11/24/09	937	0.02	0.8	0.16	2.2	0.06	0.9	14.95	420	0.23	7.0	4.3	60	0.04	35.27	25.16	8.25	6.47	0.12
T5-10m	2/24/10	1013	0.18	5.5	1.09	15.2	0.38	5.3	8.41	236	0.38	11.7	5.4	76	0.07	35.09	24.64	8.23	5.51	0.38
T5-10m	5/25/10	928	0.05	1.4	0.43	6.0	0.15	2.1	3.96	111	0.19	5.8	4.4	61	0.05	34.77	25.20	8.28	6.67	0.07
Geomean	**'09-'10**			**2.3**		***4.8***		***3.4***				**7.9**		**66**	**0.06**					**0.15**
T5-10m	8/11/10	942	0.05	1.4	0.53	7.4	0.28	3.9	3.01	85	0.32	9.9	3.5	50	0.07	34.94	26.00	8.23	6.70	0.07
T5-10m	11/9/10	944	0.02	0.8	0.16	2.2	0.06	0.9	14.95	420	0.23	7.0	4.3	60	0.10	34.90	26.23	8.26	6.46	0.09
T5-10m	1/11/11	1208	0.15	4.8	0.41	5.7	0.37	5.2	4.49	126	0.43	13.2	3.6	51	0.03	35.02	25.07	8.21	6.62	0.13
T5-10m	4/27/11	952	0.15	4.6	0.56	7.9	0.30	4.2	4.09	115	0.44	13.5	4.6	64	0.08	34.85	24.90	8.23	6.41	0.11
Geomean	**'10-'11**			**2.2**		***5.2***		***3.0***				**10.5**		**56**	**0.06**					**0.10**

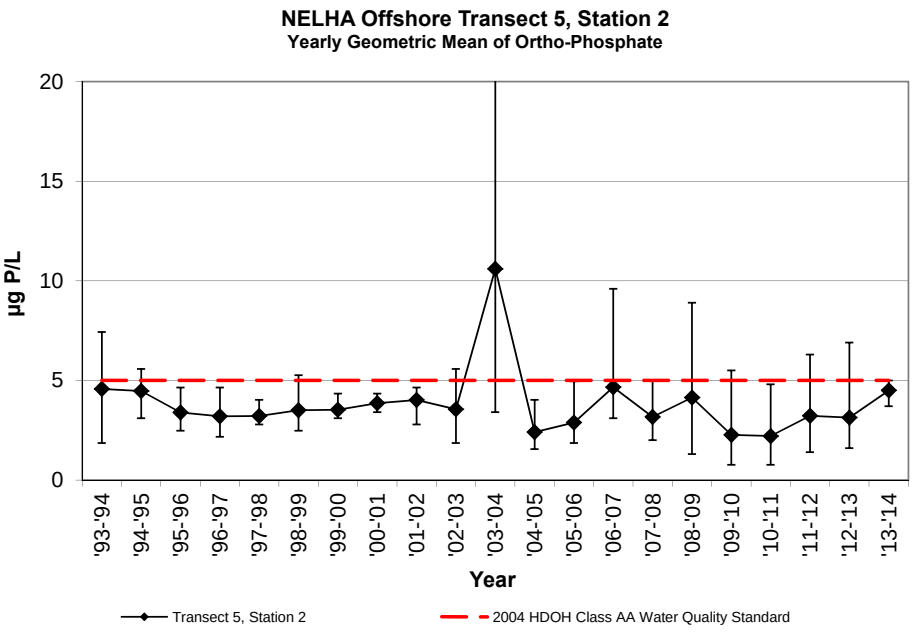
NELHA Water Quality Laboratory

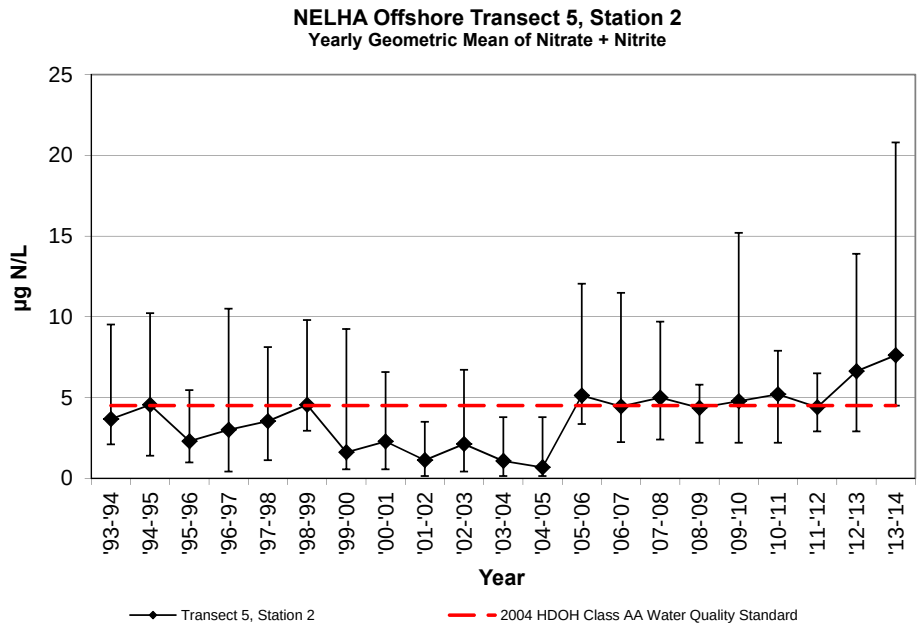
Transect 5, Station 2

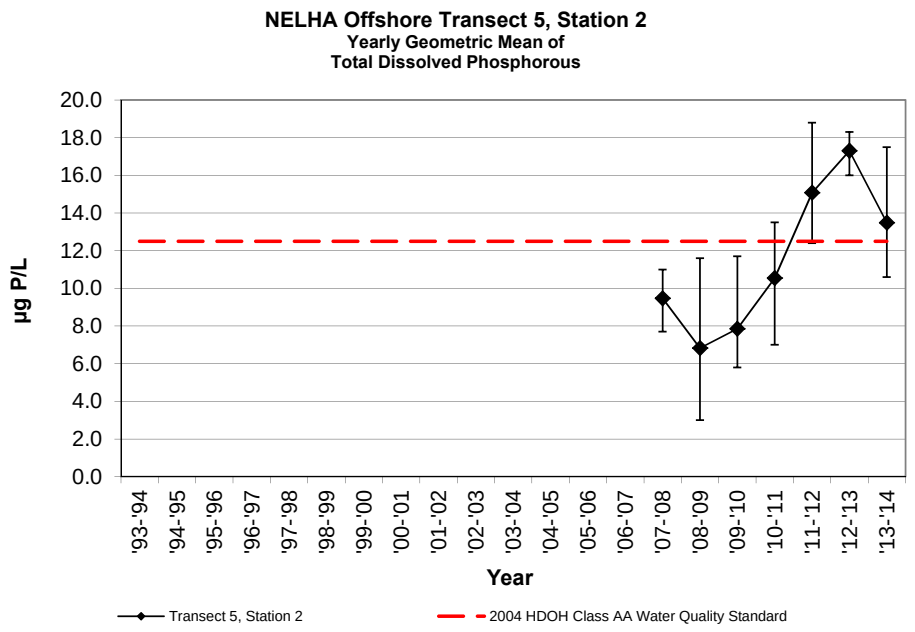
July 1993 - June 2014

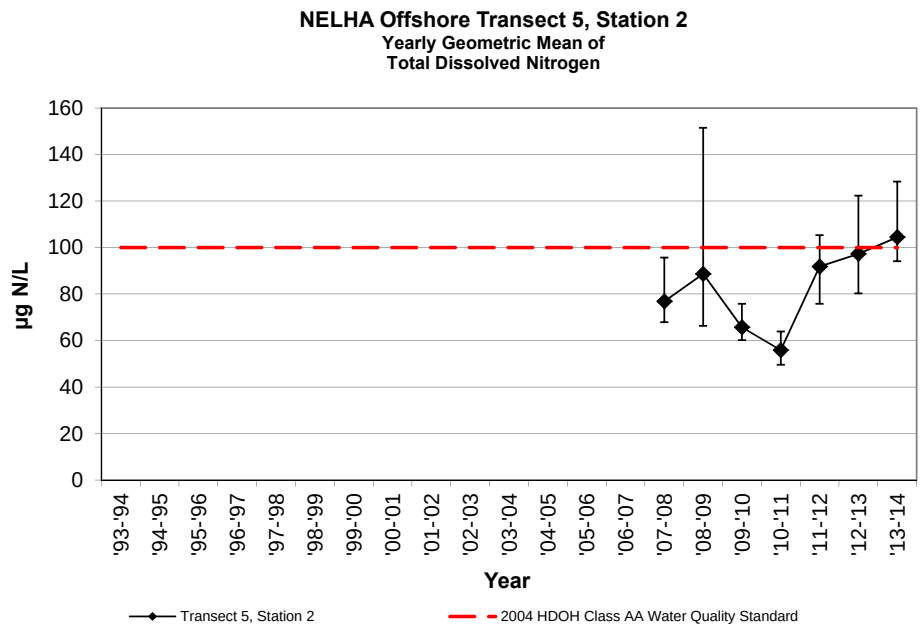
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				5		4.5		2.5				12.5		100	0.1					0.3
T5-10m	7/27/11	1035	0.20	6.3	0.44	6.2	0.32	4.5	2.03	57	0.50	15.4	5.4	76	0.07	34.79	26.02	8.22	6.49	0.07
T5-10m	10/19/11	1012	0.05	1.4	0.21	2.9	0.08	1.1	2.22	62	0.40	12.4	6.7	94	0.08	35.13	26.52	8.26	7.25	0.07
T5-10m	1/26/12	944	0.07	2.3	0.23	3.2	0.11	1.5	2.61	73	0.61	18.8	6.8	95	0.09	35.01	24.46	8.18	6.74	0.12
T5-10m	4/25/12	1011	0.17	5.3	0.46	6.5	0.34	4.8	1.89	53	0.46	14.4	7.5	105	0.06	34.84	24.82	8.20	6.84	0.17
Geomean	**'11-'12**			**3.2**		**4.4**		**2.4**				***15.1***		**92**	**0.07**					**0.10**
T5-10m	7/25/12	954	0.05	1.6	0.21	2.9	0.19	2.7	1.37	38	0.57	17.7	6.3	89	0.23	35.12	26.35	8.24	6.86	0.20
T5-10m	11/28/12	956	0.11	3.5	0.60	8.4	0.20	2.8	3.97	112	0.56	17.3	8.7	122	0.02	35.19	25.24	8.20	6.69	0.12
T5-10m	1/24/13	943	0.08	2.5	0.41	5.7	0.11	1.6	2.53	71	0.52	16.0	5.7	80	0.04	35.06	24.76	8.21	6.37	0.17
T5-10m	4/17/13	1058	0.22	6.9	0.99	13.9	0.45	6.3	5.46	153	0.59	18.3	7.3	103	0.08	35.03	25.16	8.21	6.88	0.12
Geomean	**'12-'13**			**3.1**		***6.6***		***3.0***				***17.3***		**97**	**0.06**					**0.15**
T5-10m	8/6/13	1034	0.16	5.0	1.49	20.8	0.37	5.2	10.8	304	0.34	10.6	6.7	94	0.07	34.94	26.3	8.27	7.17	0.08
T5-10m	10/30/13	938	0.16	4.9	0.32	4.5	0.24	3.4	2.3	65	0.47	14.6	6.8	95	0.02	34.90	27.0	8.23	6.13	0.12
T5-10m	2/5/14	1003	0.15	4.5	0.42	5.9	0.31	4.3	2.8	77	0.56	17.5	9.2	128	0.02	34.96	25.2	8.22	6.23	0.11
T5-10m	5/7/14	956	0.12	3.7	0.44	6.1	0.20	2.8	2.0	57	0.39	12.2	7.4	104	0.08	34.79	25.7	8.20	5.64	0.09
Geomean	**'13-'14**			**4.5**		***7.6***		***3.8***				***13.5***		***104***	**0.04**					**0.10**

NELHA Water Quality Laboratory
Transect 5, Station 2
July 1993 - June 2014

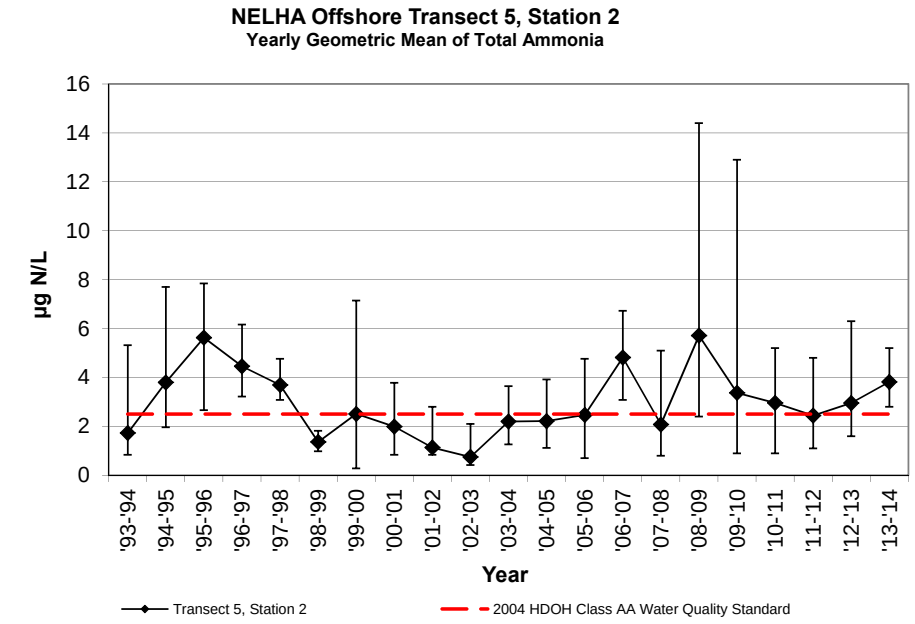


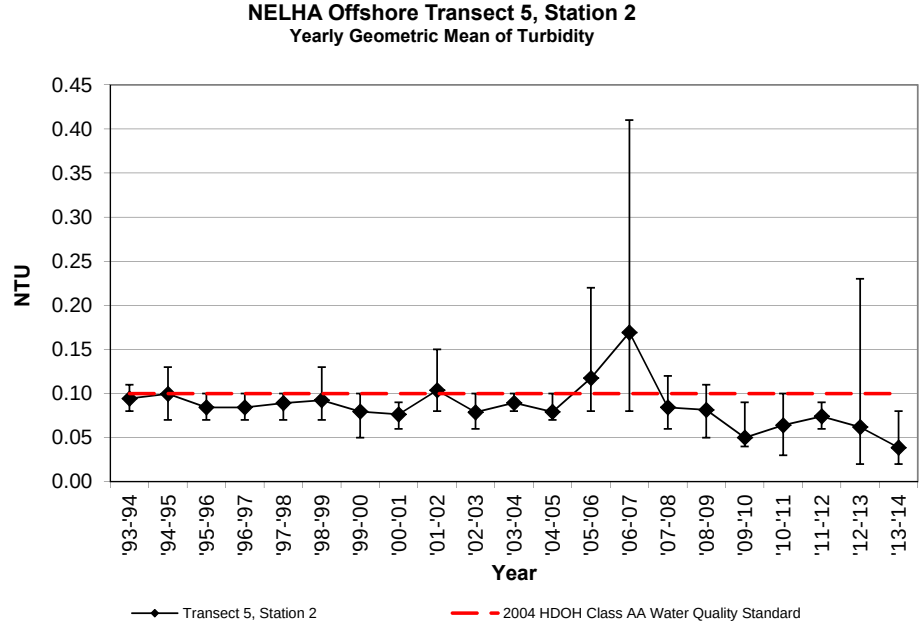


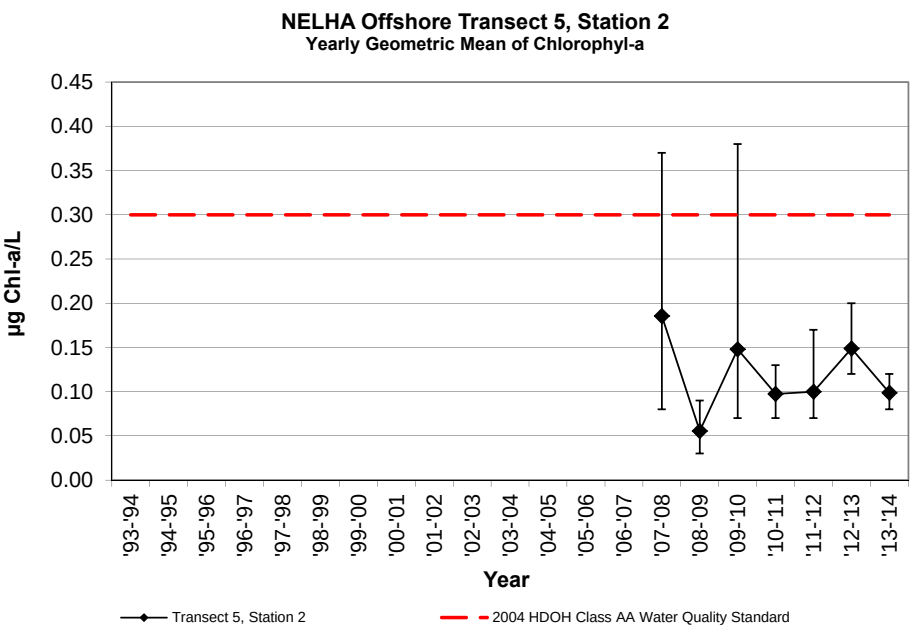




NELHA Water Quality Laboratory
Transect 5, Station 2
July 1993 - June 2014







NELHA Water Quality Laboratory

Transect 5, Station 3

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.1**					**0.3**
O5-3S-38m	7/26/93	1008	0.12	3.7	0.12	1.7	0.38	5.3	2.9	82					0.07	34.427	26.9			
O5-3S-38m	12/6/93	1115	0.06	1.9	0.19	2.7	0.06	0.8	4.5	126					0.07	34.876	25.7			
O5-3S-38m	3/7/94	1023	0.23	7.1	0.70	9.8	0.18	2.5	6.1	171					0.07	34.139	25.1			
O5-3S-38m	6/15/94	1017	0.21	6.5	0.06	0.8	0.08	1.1	2.9	82					0.10	34.554	25.6			
Geomean	**'93-'94**			**4.2**		**2.5**		**1.9**							**0.08**					
O5-3S-38m	9/9/94	1035	0.09	2.8	0.15	2.1	0.15	2.1	2.6	74					0.07	34.596	27.8			
O5-3S-38m	11/14/94	921	0.13	4.0	0.31	4.3	0.55	7.7	4.2	119					0.11	34.604	26.2			
O5-3S-38m	3/22/95	1006	0.18	5.6	0.31	4.3	0.37	5.2	4.9	136					0.11	34.159	25.2			
O5-3S-38m	6/20/95	958	0.11	3.4	0.10	1.4	0.14	2.0	2.1	60					0.08	34.463	26.3			
Geomean	**'94-'95**			**3.8**		**2.7**		***3.6***							**0.09**					
O5-3S-38m	9/28/95	822	0.06	1.9	0.05	0.7	0.49	6.9	1.7	47					0.18	34.605	27.3			
O5-3S-38m	11/14/95	946	0.12	3.7	0.01	0.1	0.51	7.1	2.7	75					0.05	34.353	26.8			
O5-3S-38m	3/12/96	1019	0.16	5.0	0.22	3.1	0.53	7.4	3.5	97					0.05	34.159	25.6			
O5-3S-38m	5/14/96	1016	0.12	3.7	0.34	4.8	0.19	2.7	5.1	144					0.08	34.245	27.2			
Geomean	**'95-'96**			**3.4**		**1.1**		***5.6***							**0.08**					
O5-3S-38m	7/31/96	1045	0.08	2.5	0.45	6.3	0.46	6.4	5.9	166					0.09	34.352	27.9			
O5-3S-38m	10/2/96	1014	0.08	2.5	0.03	0.4	0.28	3.9	3.0	85					0.09	34.634	28.1			
O5-3S-38m	1/7/97	1016	0.12	3.7	1.02	14.3	0.22	3.1	8.2	229					0.08	34.516	25.6			
O5-3S-38m	4/28/97	1039	0.21	6.5	0.79	11.1	0.39	5.5	13.1	368					0.10	34.197	26.8			
Geomean	**'96-'97**			**3.5**		**4.5**		***4.5***							**0.09**					
O5-3S-38m	8/19/97	1022	0.11	3.4	0.67	9.4	0.28	3.9	6.4	181					0.10	34.533	27.0			
O5-3S-38m	10/7/97	919	0.10	3.1	0.07	1.0	0.36	5.0	2.4	68					0.08	34.747	27.5			
O5-3S-38m	3/4/98	1025	0.14	4.3	0.66	9.2	0.21	2.9	6.0	167					0.08	34.915	24.9			
O5-3S-38m	5/5/98	1032	0.08	2.5	0.04	0.6	0.15	2.1	2.9	82					0.07	35.084	24.2			
Geomean	**'97-'98**			**3.3**		**2.6**		***3.3***							**0.08**					
O5-3S-38m	7/7/98	1055	0.12	3.7	0.40	5.6	0.06	0.8	7.7	216					0.09	34.894	26.3			
O5-3S-38m	10/6/98	1005	0.11	3.4	0.23	3.2	0.09	1.3	3.4	95					0.08	35.089	27.0			
O5-3S-38m	1/19/99	1041	0.08	2.5	0.24	3.4	0.03	0.4	4.4	123					0.08	35.086	25.3			
O5-3S-38m	4/13/99	1123	0.16	5.0	0.69	9.7	0.09	1.3	10.0	280					0.07	34.480	24.5			
Geomean	**'98-'99**			**3.5**		***4.9***		**0.9**							**0.08**					
O5-3S-38m	8/16/99	1054	0.12	3.7	0.10	1.4	0.43	6.0	2.2	62					0.13	34.878	26.5			
O5-3S-38m	10/25/99	1143	0.13	4.0	0.39	5.5	0.35	4.9	5.9	165					0.09	34.847	26.4			
O5-3S-38m	1/12/00	1042	0.11	3.4	0.02	0.3	0.31	4.3	2.6	74					0.05	35.126	24.9			
O5-3S-38m	4/11/00	951	0.12	3.7	0.17	2.4	0.07	1.0	4.0	111					0.06	34.822	24.5			
Geomean	**'99-'00**			**3.7**		**1.5**		***3.3***							**0.08**					
O5-3S-38m	7/25/00	1058	0.10	3.1	0.18	2.5	0.03	0.4	3.2	90					0.06	34.848	26.7			
O5-3S-38m	10/31/00	1045	0.09	2.8	0.02	0.3	0.25	3.5	2.2	61					0.04	34.975	27.1			
O5-3S-38m	3/6/01	1037	0.16	5.0	0.47	6.6	0.12	1.7	5.4	151					0.09	34.655	24.9			
O5-3S-38m	5/8/01	1130	0.10	3.1	0.28	3.9	0.22	3.1	4.9	138					0.08	34.732	24.9			
Geomean	**'00-'01**			**3.4**		**2.1**		**1.7**							**0.06**					
O5-3S-38m	8/13/01	931	0.10	3.1	0.04	0.6	0.15	2.1	2.2	62					0.10	34.862	26.7			
O5-3S-38m	10/10/01	1038	0.16	5.0	0.11	1.5	0.04	0.6	3.5	98					0.11	34.921	27.5			
O5-3S-38m	3/6/02	952	0.15	4.6	0.09	1.3	0.06	0.8	4.5	127					0.09	34.676	24.2			
O5-3S-38m	4/15/02	957	0.16	5.0	0.30	4.2	0.07	1.0	4.4	124					0.07	34.440	25.6			
Geomean	**'01-'02**			**4.3**		**1.5**		**1.0**							**0.09**					

NELHA Water Quality Laboratory

Transect 5, Station 3

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.1**					**0.3**
O5-3S-38m	7/10/02	954	0.19	5.9	0.13	1.8	0.11	1.5	4.1	116					0.06	34.639	26.5			
O5-3S-38m	10/8/02	1000	0.08	2.5	0.43	6.0	0.12	1.7	3.8	107					0.07	34.876	27.0			
O5-3S-38m	3/11/03	1126	0.08	2.5	0.03	0.4	0.03	0.4	3.3	93					0.08	34.704	25.2			
O5-3S-38m	4/23/03	956	0.08	2.5	0.03	0.4	0.03	0.4	2.5	71					0.07	34.999	25.0			
Geomean	**'02-'03**			**3.1**		**1.2**		**0.8**							**0.07**					
O5-3S-38m	8/21/03	947	0.08	2.5	0.01	0.1	0.10	1.4	2.1	58					0.06	34.842	28.3			
O5-3S-38m	11/3/03	922	0.12	3.7	0.01	0.1	0.17	2.4	4.0	111					0.12	34.651	27.4			
O5-3S-38m	3/18/04	951	0.13	4.0	0.21	2.9	0.59	8.3	2.9	81					n/a	34.376	25.8			
O5-3S-38m	5/24/04	1013	0.14	4.3	0.28	3.9	0.09	1.3	3.8	106					n/a	33.30	26.9			
Geomean	**'03-'04**			**3.6**		**0.7**		**2.4**							**0.08**					
O5-3S-38m	9/22/04	1047	0.07	2.2	0.01	0.1	0.26	3.6	1.5	43					0.08	33.73	27.7			
O5-3S-38m	11/29/04	951	0.09	2.8	0.26	3.6	0.16	2.2	2.2	62					0.09	33.79	27.0			
O5-3S-38m	1/24/05	1030	0.09	2.8	0.29	4.1	0.12	1.7	4.2	117					0.10	34.772	25.7			
O5-3S-38m	4/13/05	1031	0.14	4.3	0.31	4.3	0.20	2.8	4.3	120					0.12	34.408	25.4			
Geomean	**'04-'05**			**2.9**		**1.7**		**2.5**							**0.10**					
O5-3S-38m	7/21/05	947	0.06	1.9	0.43	6.0	0.36	5.0	5.4	152					0.09	34.635	27.4			
O5-3S-38m	10/13/05	935	0.06	1.9	0.28	3.9	0.20	2.8	5.3	149					0.12	34.830	27.3			
O5-3S-38m	3/15/06	855	0.09	2.8	0.07	1.0	0.27	3.8	4.6	128					0.08	34.829	24.5			
O5-3S-38m	5/17/06	938	0.13	4.0	0.54	7.6	0.05	0.7	5.6	158					0.14	34.576	24.7			
Geomean	**'05-'06**			**2.5**		**3.6**		**2.5**							**0.10**					
O5-3S-38m	8/16/06	946	0.11	3.4	0.28	3.9	0.38	5.3	2.6	74					0.13	34.640	26.8			
O5-3S-38m	11/20/06	946	0.10	3.1	0.18	2.5	0.18	2.5	2.0	57					0.10	34.802	26.7			
O5-3S-38m	2/12/07	1039	0.14	4.3	0.13	1.8	0.35	4.9	1.1	30					0.52	34.425	24.5			
O5-3S-38m	4/16/07	1030	0.12	3.7	0.07	1.0	0.29	4.1	3.9	109					0.13	34.654	26.5			
Geomean	**'06-'07**			**3.6**		**2.0**		***4.0***							***0.17***					
T5-50m	9/27/07	911	0.17	5.3	0.31	4.4	0.25	3.5	5.2	147	0.37	11.4	6.6	93	0.08	34.915	26.7	8.06	6.06	0.09
T5-50m	12/14/07	948	0.08	2.4	0.01	0.1			6.4	181	0.35	10.9	5.4	76	0.11	34.749	25.7	8.24	6.52	0.17
T5-50m	3/11/08	957	0.08	2.5	0.38	5.3	0.06	0.8	18.8	528	0.23	7.2	6.0	84	0.12	34.836	24.8	8.10	6.87	0.35
T5-50m	6/9/08	1032	0.14	4.2	0.48	6.7	0.16	2.2	18.2	511	0.29	8.9	6.4	90	0.12	34.591	25.2	8.12	5.78	0.19
Geomean	**'07-'08**			**3.4**		**2.0**		**1.8**				**9.4**		**85**	***0.11***					**0.18**
T5-50m	9/23/08	1047	0.03	1.0	0.11	1.6	0.38	5.3	2.5	69.5	0.35	10.8	4.1	58	0.06	34.834	26.7	8.06	5.92	0.09
T5-50m	12/8/08	1028	0.17	5.2	0.25	3.5	0.34	4.8	1.7	49.1	0.45	14.0	5.5	77	0.07	34.975	26.1	8.30	5.22	0.09
T5-50m	2/10/09	921	0.11	3.4	0.41	5.8	0.12	1.7	2.9	80.2	0.34	10.6	7.9	111	0.08	35.044	24.8	8.05	6.03	0.04
T5-50m	2/10/09	1013	0.27	8.5	0.46	6.4	0.41	5.7	5.4	151.8	0.30	9.3	6.0	84	0.10	34.904	26.7	8.21	5.93	0.15
Geomean	**'08-'09**			**3.5**		**3.8**		***4.0***				**11.0**		**80.4**	**0.08**					**0.08**
T5-50m	9/10/09	1013	0.13	4.0	0.16	2.2	1.50	21.0	34.4	966.0	0.69	21.4	7.3	103	0.07	35.24	27.3	8.21	5.92	0.28
T5-50m	11/24/09	943	0.02	0.8	0.19	2.6	0.74	10.3	5.6	157.8	0.37	11.5	4.0	57	0.03	35.26	25.2	8.24	6.46	0.12
T5-50m	2/24/10	1016	0.16	5.1	1.02	14.3	0.36	5.0	9.2	259.2	0.46	14.1	8.7	122	0.09	35.12	24.7	8.23	5.46	0.58
T5-50m	2/24/10	933	0.02	0.7	0.06	0.8	0.28	3.9	2.9	82.4	0.23	7.1	3.6	50	0.04	34.79	25.2	8.25	6.64	0.06
Geomean	**'09-'10**			**1.8**		**2.8**		***8.1***				**12.5**		**77.0**	**0.05**					**0.18**
T5-50m	8/11/10	950	0.02	0.6	0.09	1.2	0.02	0.3	1.8	49.6	0.29	8.9	2.9	40.5	0.05	34.93	26.1	8.24	6.83	0.13
T5-50m	11/9/10	948	0.02	0.8	0.19	2.6	0.74	10.3	5.6	157.8	0.37	11.5	4.0	56.7	0.10	34.91	26.3	8.29	6.36	0.05
T5-50m	1/11/11	1216	0.15	4.5	0.41	5.7	0.16	2.3	6.3	177.0	0.42	12.9	3.7	51.2	0.05	35.01	25.1	8.20	6.54	0.09
T5-50m	4/27/11	956	0.14	4.2	0.36	5.1	0.27	3.8	6.0	169.0	0.45	13.8	4.0	56.5	0.08	34.87	24.9	8.23	6.37	0.12
Geomean	**'10-'11**			**1.7**		**3.1**		**2.3**				**11.6**		**50.8**	**0.07**					**0.09**
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)

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DOH LIMIT				5		4.5		2.5				12.5		100	0.1					0.3
T5-50m	7/27/11	1039	0.19	5.8	0.48	6.7	0.18	2.5	3.1	86.6	0.50	15.4	5.0	69.7	0.05	34.75	26.1	8.22	6.40	0.08
T5-50m	10/19/11	1019	0.04	1.1	0.16	2.3	0.08	1.1	2.4	66.6	0.37	11.4	4.9	68.0	0.06	35.11	26.5	8.27	7.20	0.07
T5-50m	1/26/12	947	0.07	2.2	0.25	3.5	0.04	0.6	3.5	98.2	0.37	11.6	3.8	52.7	0.08	34.99	24.4	8.18	6.66	0.14
T5-50m	4/25/12	1014	0.16	5.0	0.14	1.9	0.39	5.4	4.2	118.7	0.52	16.2	11.1	155.8	0.07	34.81	24.9	8.20	6.77	0.04
Geomean	**'11-'12**			**2.9**		**3.2**		**1.7**				***13.5***		**79.0**	**0.06**					**0.07**
T5-50m	7/25/12	1000	0.03	1.0	0.21	2.9	0.21	3.0	1.5	43.1	0.46	14.4	5.6	78.6	0.04	35.10	26.4	8.24	6.81	0.04
T5-50m	11/28/12	1001	0.11	3.3	0.41	5.7	0.22	3.1	3.3	92.7	0.43	13.3	6.2	86.9	0.03	35.19	25.3	8.20	6.77	0.08
T5-50m	1/24/13	949	0.09	2.8	0.42	5.9	0.16	2.2	3.0	84.0	0.49	15.2	5.9	83.3	0.02	35.05	24.8	8.22	6.44	0.27
T5-50m	4/17/13	1104	0.21	6.4	1.09	15.3	0.34	4.7	6.1	171.5	0.50	15.5	6.3	88.4	0.02	35.01	25.1	8.20	6.57	0.10
Geomean	**'12-'13**			**2.8**		***6.2***		***3.1***				***14.6***		**84.2**	**0.03**					**0.10**
T5-50m	8/6/13	1038	0.15	4.7	2.36	33.0	0.28	3.9	16.8	471	0.39	12.1	7.0	98	0.04	34.76	26.3	8.26	7.07	0.12
T5-50m	10/30/13	943	0.16	5.0	0.39	5.4	0.14	1.9	3.5	98	0.47	14.5	7.2	101	0.02	34.87	27.1	8.22	6.15	0.10
T5-50m	2/5/14	1008	0.15	4.5	0.43	6.0	0.29	4.0	3.1	86	0.48	15.0	9.0	126	0.02	34.94	25.2	8.20	6.31	0.13
T5-50m	5/7/14	1003	0.15	4.6	1.31	18.3	0.27	3.8	7.8	219	0.43	13.2	9.6	134	0.04	34.57	25.6	8.20	5.42	0.15
Geomean	**'13-'14**			**4.7**		***11.8***		***3.3***				***13.7***		***114***	**0.03**					**0.12**

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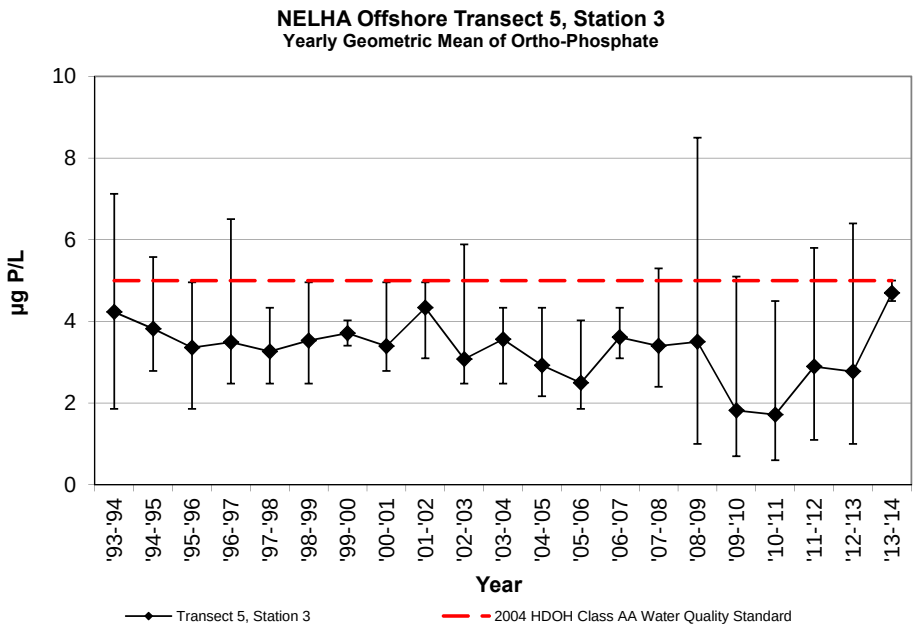

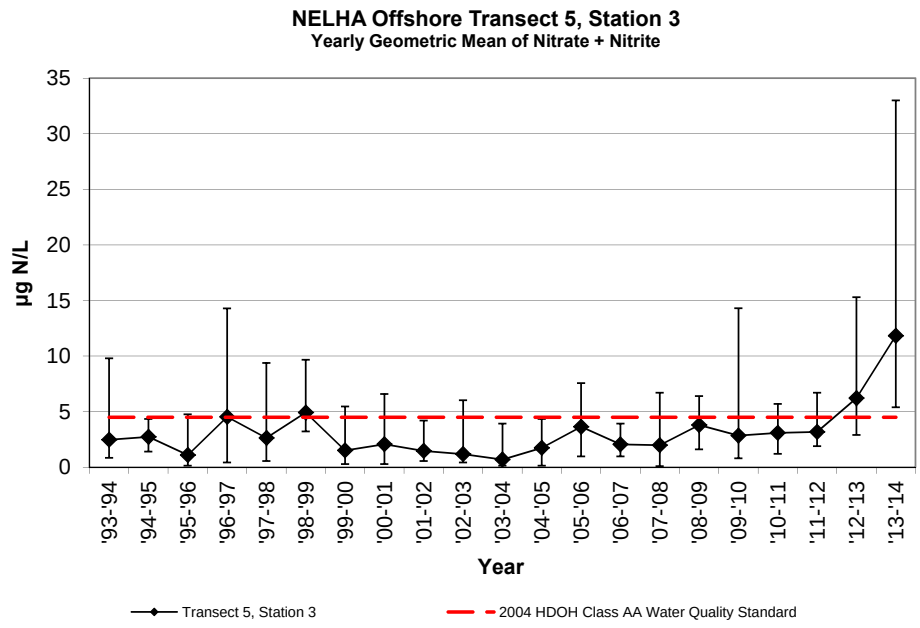

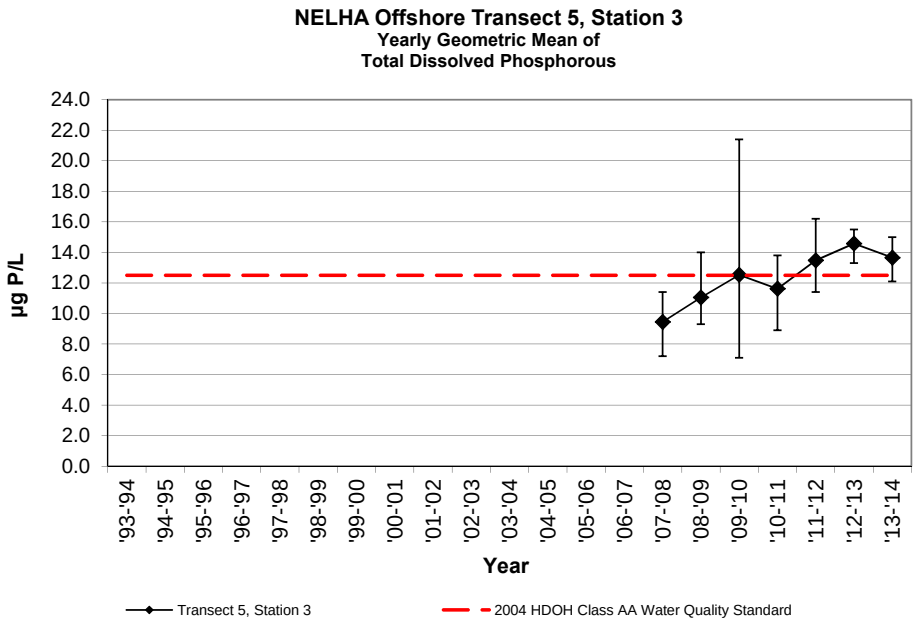

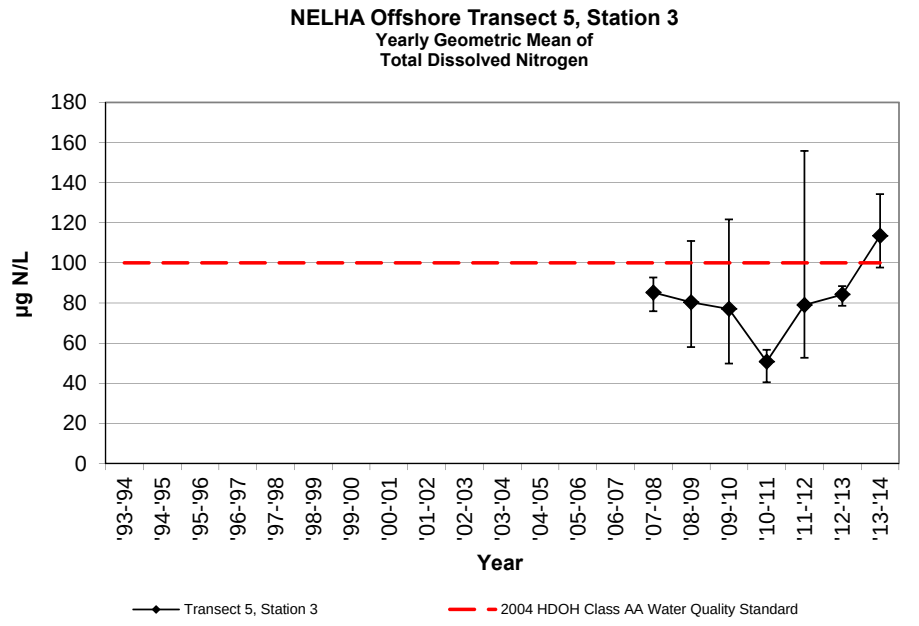

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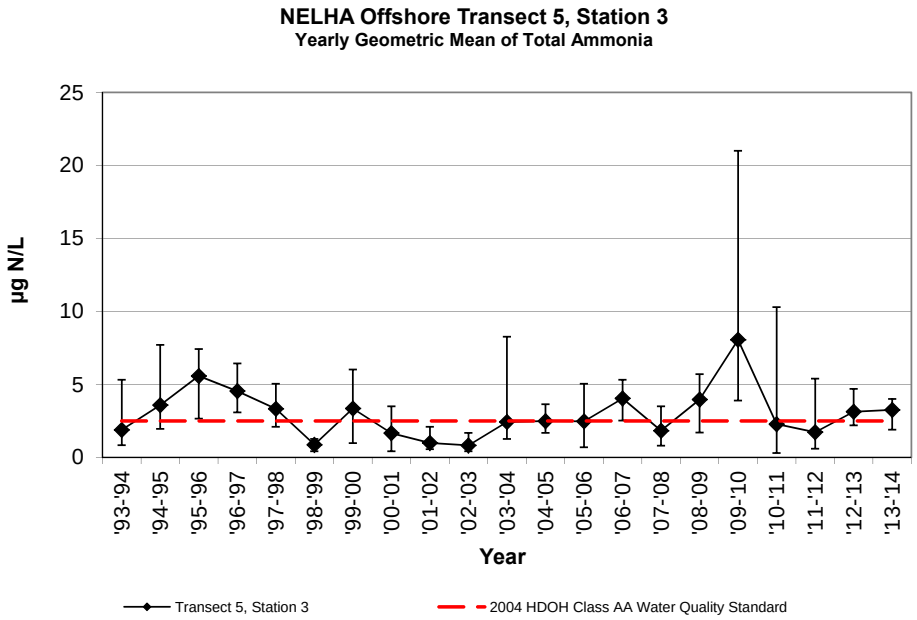

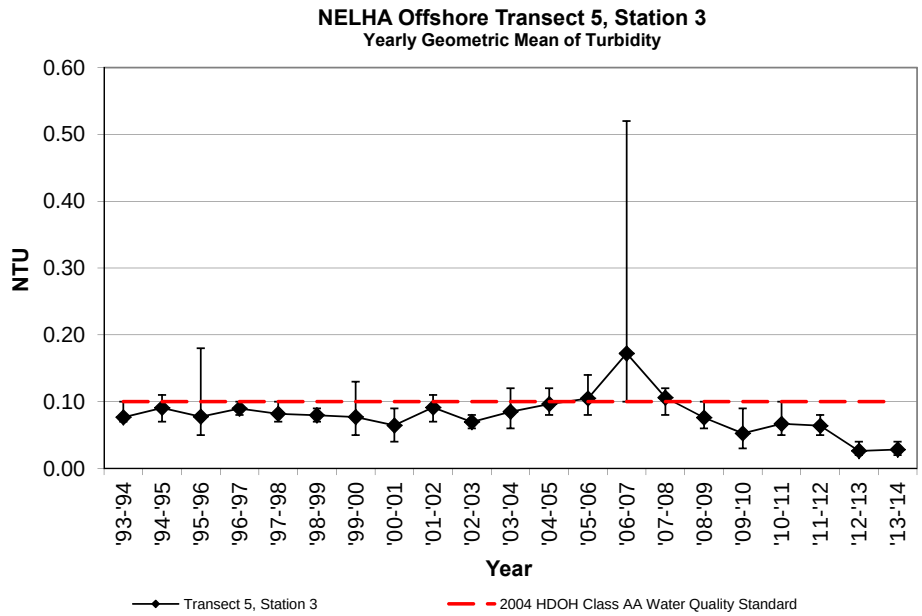

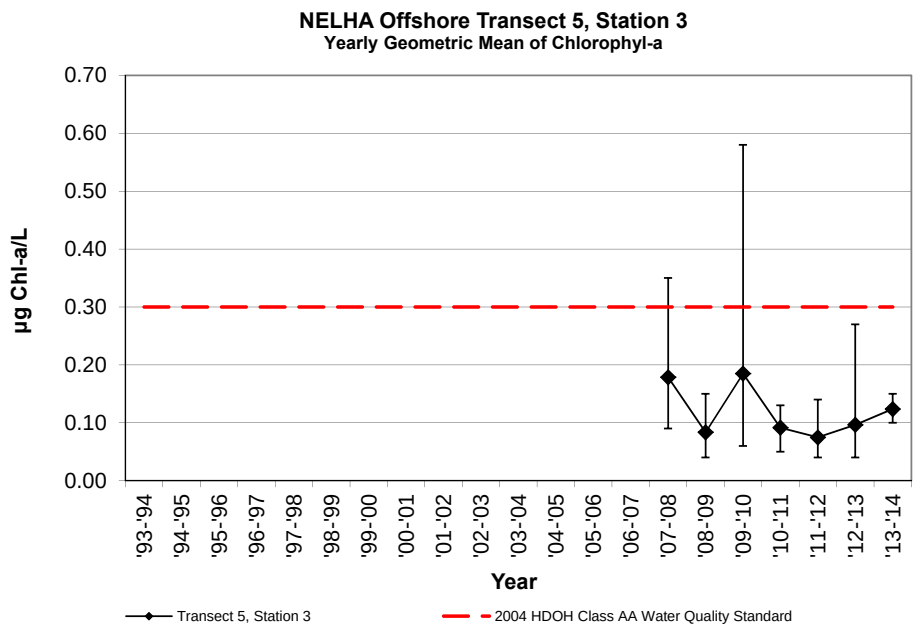

NELHA Water Quality Laboratory

Transect 5, Station 4

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(°C)		(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.1**					**0.3**
O5-4S-53m	7/26/93	1020	0.11	3.4	0.13	1.8	0.38	5.3	3.3	93					0.08	34.42	26.8			
O5-4S-53m	12/6/93	1106	0.09	2.8	0.21	2.9	0.05	0.7	2.3	64					0.09	34.87	25.7			
O5-4S-53m	3/7/94	1017	0.23	7.1	0.59	8.3	0.26	3.6	5.1	142					0.07	34.16	25.1			
O5-4S-53m	6/15/94	1014	0.20	6.2	0.03	0.4	0.12	1.7	3.2	90					0.11	34.56	25.9			
Geomean 93/	**'93-'94**			**4.5**		**2.1**		**2.2**							**0.09**					
O5-4S-53m	9/9/94	1033	0.08	2.5	0.05	0.7	0.15	2.1	3.0	85					0.07	34.61	27.8			
O5-4S-53m	11/14/94	919	0.13	4.0	0.35	4.9	0.59	8.3	5.4	151					0.09	34.56	26.2			
O5-4S-53m	3/22/95	959	0.16	5.0	0.12	1.7	0.35	4.9	2.7	75					0.08	34.21	25.3			
O5-4S-53m	6/20/95	950	0.12	3.7	0.16	2.2	0.12	1.7	2.2	62					0.07	34.45	26.3			
Geomean	**'94-'95**			**3.7**		**1.9**		***3.5***							**0.08**					
O5-4S-53m	9/28/95	831	0.06	1.9	0.07	1.0	0.49	6.9	1.6	45					0.08	34.61	27.2			
O5-4S-53m	11/14/95	941	0.09	2.8	0.07	1.0	0.49	6.9	1.4	40					0.07	34.35	26.8			
O5-4S-53m	3/12/96	1014	0.15	4.6	0.23	3.2	0.56	7.8	4.3	119					0.08	34.15	25.6			
O5-4S-53m	5/14/96	1012	0.10	3.1	0.27	3.8	0.16	2.2	4.7	131					0.08	34.26	27.2			
Geomean	**'95-'96**			**2.9**		**1.8**		***5.4***							**0.08**					
O5-4S-53m	7/31/96	1042	0.09	2.8	0.71	9.9	0.50	7.0	8.5	239					0.12	34.26	27.8			
O5-4S-53m	10/2/96	1010	0.09	2.8	0.04	0.6	0.33	4.6	3.4	95					0.09	34.63	28.1			
O5-4S-53m	1/7/97	1011	0.13	4.0	1.20	16.8	0.22	3.1	8.3	232					0.12	34.50	25.6			
O5-4S-53m	4/28/97	1033	0.18	5.6	0.84	11.8	0.39	5.5	9.7	271					0.14	34.20	26.7			
Geomean	**'96-'97**			**3.6**		***5.8***		***4.8***							**0.12**					
O5-4S-53m	8/19/97	1017	0.12	3.7	0.83	11.6	0.29	4.1	7.4	209					0.11	34.51	27.0			
O5-4S-53m	10/7/97	916	0.11	3.4	0.09	1.3	0.33	4.6	2.6	73					0.09	34.74	27.6			
O5-4S-53m	3/4/98	1018	0.14	4.3	0.78	10.9	0.23	3.2	12.7	358					0.08	34.89	25.0			
O5-4S-53m	5/5/98	1026	0.07	2.2	0.05	0.7	0.22	3.1	2.4	68					0.06	35.09	24.2			
Geomean	**'97-'98**			**3.3**		**3.3**		***3.7***							**0.08**					
O5-4S-53m	7/7/98	1051	0.12	3.7	0.49	6.9	0.02	0.3	12.0	336					0.12	34.86	26.3			
O5-4S-53m	10/6/98	1000	0.11	3.4	0.29	4.1	0.11	1.5	4.0	113					0.10	35.09	27.1			
O5-4S-53m	1/19/99	1035	0.08	2.5	0.17	2.4	0.05	0.7	3.9	110					0.08	35.10	25.4			
O5-4S-53m	4/13/99	1117	0.16	5.0	0.64	9.0	0.07	1.0	8.8	248					0.08	34.49	24.5			
Geomean	**'98-'99**			**3.5**		***4.9***		**0.7**							**0.09**					
O5-4S-53m	8/16/99	1050	0.13	4.0	0.21	2.9	0.42	5.9	3.1	87					0.15	34.83	26.4			
O5-4S-53m	10/25/99	1138	0.13	4.0	0.45	6.3	0.35	4.9	21.5	605					0.08	34.83	26.4			
O5-4S-53m	1/12/00	1038	0.11	3.4	0.01	0.1	0.29	4.1	7.3	206					0.07	35.13	25.0			
O5-4S-53m	4/11/00	946	0.11	3.4	0.14	2.0	0.08	1.1	3.8	108					0.06	34.83	24.5			
Geomean	**'99-'00**			**3.7**		**1.5**		***3.4***							**0.08**					
O5-4S-53m	7/25/00	1054	0.11	3.4	0.15	2.1	0.05	0.7	3.6	101					0.07	34.85	26.8			
O5-4S-53m	10/31/00	1040	0.09	2.8	0.03	0.4	0.22	3.1	4.7	131					0.05	34.97	27.1			
O5-4S-53m	3/6/01	1029	0.15	4.6	0.39	5.5	0.12	1.7	4.5	127					0.08	34.67	24.9			
O5-4S-53m	5/8/01	1125	0.10	3.1	0.33	4.6	0.25	3.5	6.0	169					0.07	34.70	25.0			
Geomean	**'00-'01**			**3.4**		**2.2**		**1.9**							**0.07**					
O5-4S-53m	8/13/01	923	0.10	3.1	0.03	0.4	0.17	2.4	2.4	68					0.10	34.86	26.6			
O5-4S-53m	10/10/01	1034	0.17	5.3	0.14	2.0	0.04	0.6	3.5	98					0.14	34.92	27.5			
O5-4S-53m	3/6/02	948	0.14	4.3	0.18	2.5	0.06	0.8	6.4	179					0.12	34.67	24.2			
O5-4S-53m	4/15/02	952	0.13	4.0	0.43	6.0	0.05	0.7	4.4	124					0.07	34.43	25.6			
Geomean	**'01-'02**			**4.1**		**1.9**		**0.9**							**0.10**					

NELHA Water Quality Laboratory

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SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.1**					**0.3**
O5-4S-53m	7/10/02	949	0.18	5.6	0.03	0.4	0.09	1.3	2.3	64					0.10	34.70	26.6			
O5-4S-53m	10/8/02	956	0.06	1.9	0.45	6.3	0.12	1.7	4.1	114					0.07	34.87	27.1			
O5-4S-53m	3/11/03	1120	0.06	1.9	0.07	1.0	0.03	0.4	3.1	87					0.10	34.71	25.2			
O5-4S-53m	4/23/03	951	0.08	2.5	0.03	0.4	0.03	0.4	0.9	26					0.07	35.04	25.0			
Geomean	**'02-'03**			**2.6**		**1.0**		**0.8**							**0.08**					
O5-4S-53m	8/21/03	939	0.07	2.2	0.01	0.1	0.10	1.4	1.9	54					0.08	34.84	28.2			
O5-4S-53m	11/3/03	922	0.12	3.7	0.01	0.1	0.10	1.4	2.2	63					0.10	34.63	29.3			
O5-4S-53m	3/18/04	940	0.13	4.0	0.14	2.0	0.27	3.8	2.8	78					n/a	34.38	25.7			
O5-4S-53m	5/24/04	1009	0.17	5.3	0.30	4.2	0.14	2.0	4.1	116					n/a	33.36	26.8			
Geomean	**'03-'04**			**3.6**		**0.6**		**2.0**							**0.09**					
O5-4S-53m	9/22/04	1043	0.07	2.2	0.01	0.1	0.28	3.9	3.0	83					0.06	33.76	27.5			
O5-4S-53m	11/29/04	947	0.10	3.1	0.26	3.6	0.16	2.2	2.1	59					0.08	33.74	27.1			
O5-4S-53m	1/24/05	1024	0.09	2.8	0.51	7.1	0.13	1.8	5.7	159					0.08	34.84	25.6			
O5-4S-53m	4/13/05	1027	0.12	3.7	0.16	2.2	0.18	2.5	2.8	79					0.09	34.44	23.5			
Geomean	**'04-'05**			**2.9**		**1.7**		**2.5**							**0.08**					
O5-4S-53m	7/21/05	942	0.05	1.5	0.24	3.4	0.36	5.0	3.8	107					0.11	34.66	27.4			
O5-4S-53m	10/13/05	927	0.05	1.5	0.09	1.3	0.16	2.2	2.4	67					0.11	34.86	27.3			
O5-4S-53m	3/15/06	839	0.08	2.5	0.07	1.0	0.27	3.8	3.0	85					0.12	34.85	24.3			
O5-4S-53m	5/17/06	932	0.13	4.0	0.85	11.9	0.05	0.7	7.8	220					0.08	34.50	24.7			
Geomean	**'05-'06**			**2.2**		**2.7**		**2.3**							**0.10**					
O5-4S-53m	8/16/06	942	0.11	3.4	0.28	3.9	0.31	4.3	3.1	86					0.11	34.62	26.8			
O5-4S-53m	11/20/06	939	0.10	3.1	0.20	2.8	0.23	3.2	2.1	60					0.14	34.80	26.6			
O5-4S-53m	2/12/07	1031	0.13	4.0	0.16	2.2	0.49	6.9	0.8	21					0.13	34.44	24.5			
O5-4S-53m	4/16/07	1024	0.15	4.6	1.09	15.3	0.50	7.0	11.0	309					0.18	34.41	26.0			
Geomean	**'06-'07**			**3.7**		**4.4**		***5.1***							***0.14***					
T5-100m	9/27/07	900	0.16	5.0	0.26	3.6	0.19	2.6	15.1	424	0.16	5.0	6.0	84	0.08	34.92	26.8	8.06	6.04	0.14
T5-100m	12/14/07	950	0.07	2.3	0.01	0.1			3.0	85	0.16	5.1	5.3	74	0.09	34.88	25.7	8.23	6.48	0.15
T5-100m	3/11/08	1001	0.12	3.6	0.79	11.1	0.06	0.8	13.7	386	0.10	3.1	6.4	90	0.11	34.70	24.8	8.09	6.71	0.36
T5-100m	6/9/08	1035	0.09	2.8	0.20	2.8	0.16	2.2	17.9	502	0.28	8.8	5.1	72	0.14	34.64	25.3	8.11	5.62	0.23
Geomean	**'07-'08**			**3.3**		**1.8**		**1.7**				**5.1**		**80**	**0.10**					**0.20**
T5-100m	9/23/08	1052	0.04	1.2	0.07	1.0	0.33	4.6	2.29	64	0.34	10.5	5.23	73	0.08	34.83	26.6	8.06	5.81	0.06
T5-100m	12/8/08	1036	0.15	4.8	0.26	3.7	0.27	3.8	1.80	51	0.33	10.2	4.98	70	0.05	34.98	26.0	8.30	5.10	0.08
T5-100m	2/10/09	927	0.16	5.0	0.10	1.4	0.12	1.7	1.68	47	0.36	11.3	10.67	150	0.07	35.13	24.7	8.07	6.01	0.02
T5-100m	6/30/09	1020	0.25	7.7	0.33	4.6	0.12	1.7	7.02	197	0.43	13.4	5.80	81	0.05	34.91	26.7	8.20	5.67	0.07
Geomean	**'08-'09**			**3.9**		**2.2**		***2.7***				**11.3**		**89**	**0.06**					**0.05**
T5-100m	9/10/09	1022	0.11	3.4	0.07	1.0	0.13	1.8	4.25	119	0.50	15.5	5.30	74	0.06	35.24	27.4	8.21	5.56	0.29
T5-100m	11/24/09	948	0.02	0.8	0.19	2.6	0.11	1.6	8.92	250	0.33	10.3	4.25	60	0.04	35.27	25.2	8.24	6.51	0.10
T5-100m	2/24/10	1021	0.18	5.6	0.82	11.5	0.30	4.2	7.20	202	0.45	13.9	8.38	117	0.11	35.11	24.7	8.22	5.44	0.49
T5-100m	5/25/10	938	0.02	0.7	0.06	0.9	0.51	7.2	1.82	51	0.24	7.3	5.25	74	0.06	34.80	25.2	8.27	6.67	0.02
Geomean	**'09-'10**			**1.8**		**2.3**		***3.1***				**11.3**		**79**	**0.06**					**0.13**
T5-100m	8/11/10	955	0.01	0.4	0.06	0.9	0.01	0.2	1.62	46	0.29	9.1	2.78	39	0.05	34.97	26.0	8.23	6.70	0.13
T5-100m	11/9/10	952	0.02	0.8	0.19	2.6	0.11	1.6	8.92	250	0.33	10.3	4.25	60	0.09	34.95	26.5	8.29	6.25	0.03
T5-100m	1/11/11	1225	0.18	5.6	1.45	20.3	0.29	4.0	10.18	286	0.43	13.4	3.89	55	0.04	34.66	25.1	8.18	6.57	0.08
T5-100m	4/27/11	1001	0.15	4.8	0.46	6.5	0.25	3.5	6.23	175	0.51	15.8	4.03	57	0.09	34.86	25.1	8.22	6.23	0.10
Geomean	**'10-'11**			**1.7**		**4.2**		**1.5**				**11.9**		**52**	**0.06**					**0.07**

NELHA Water Quality Laboratory

Transect 5, Station 4

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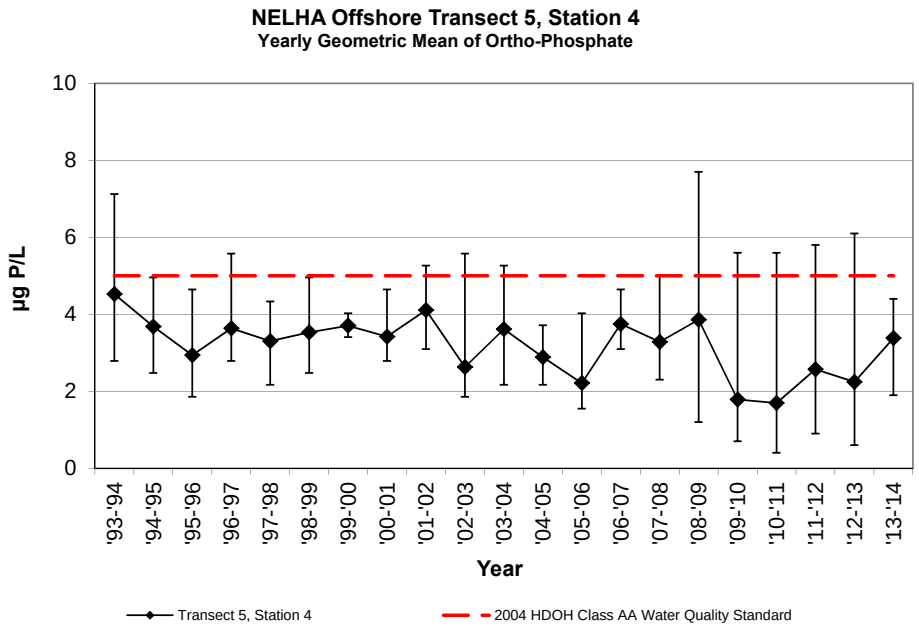
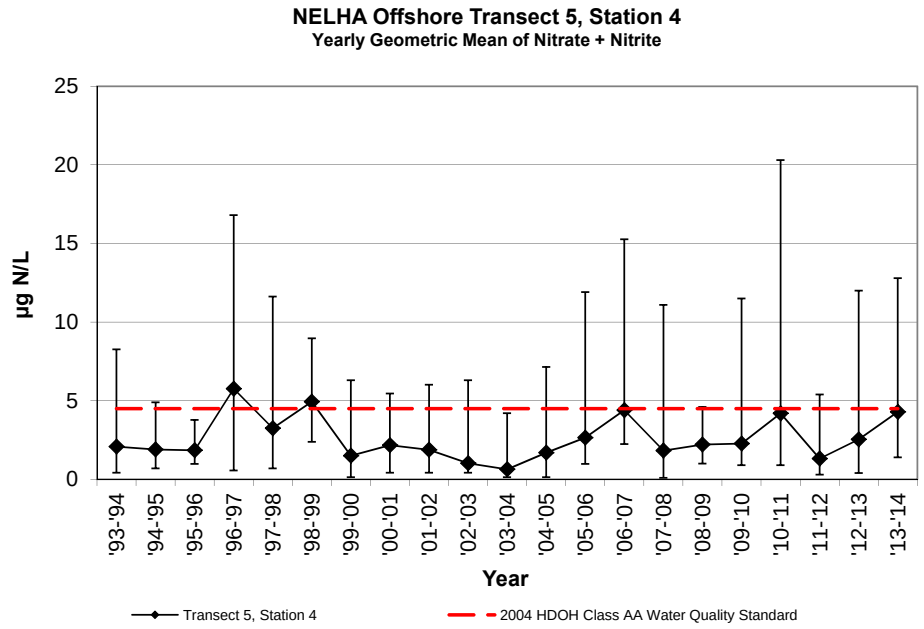
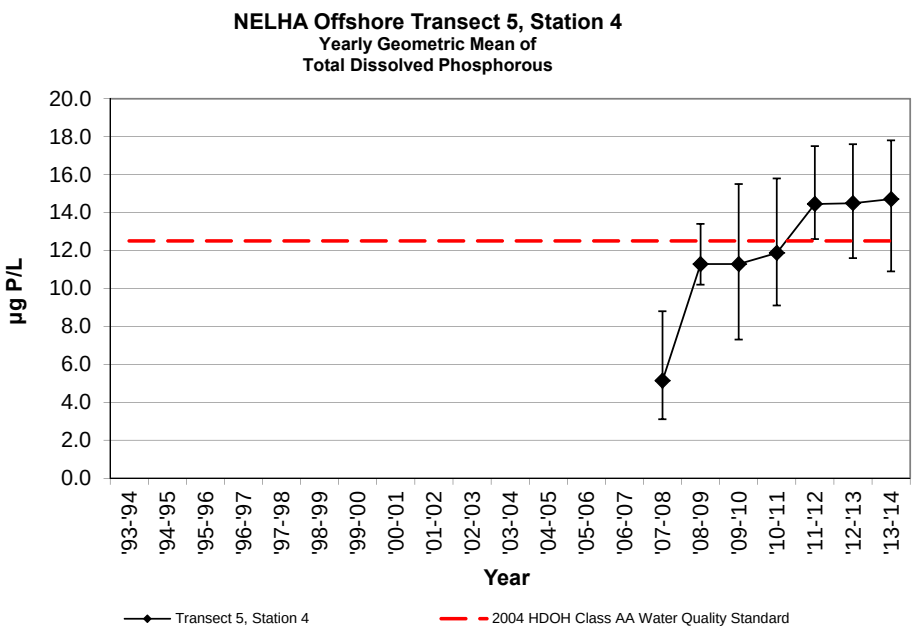
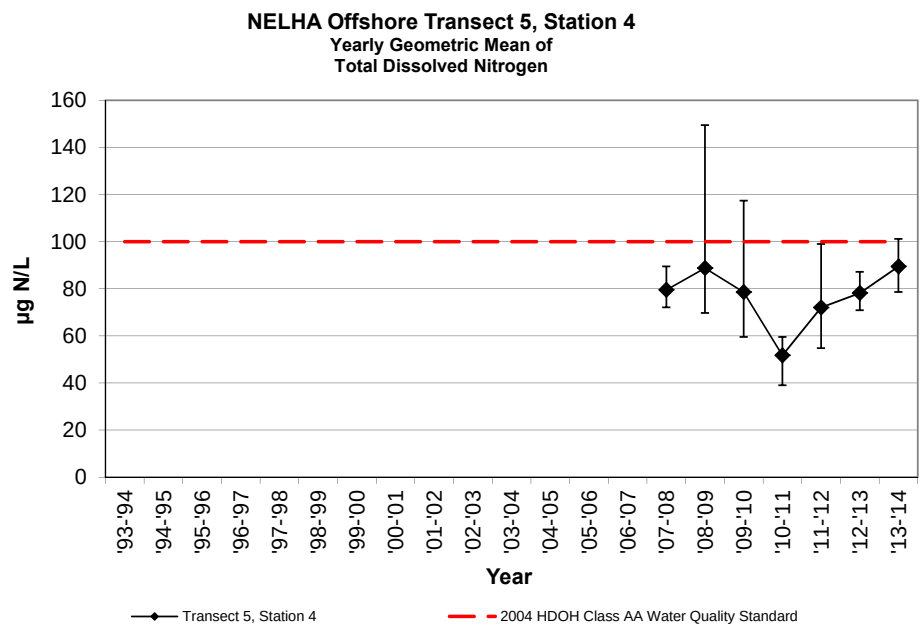
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				5		4.5		2.5				12.5		100	0.1					0.3
T5-100m	7/27/11	1045	0.19	5.8	0.39	5.4	0.15	2.1	3.39	95	0.49	15.1	3.91	55	0.10	34.76	26.1	8.22	6.33	0.09
T5-100m	10/19/11	1024	0.03	0.9	0.02	0.3	0.01	0.1	2.69	76	0.42	13.1	5.15	72	0.08	35.12	26.4	8.26	7.04	0.09
T5-100m	1/26/12	951	0.06	1.9	0.12	1.7	0.06	0.8	2.42	68	0.41	12.6	4.90	69	0.06	35.02	24.5	8.19	6.56	0.07
T5-100m	4/25/12	1017	0.14	4.4	0.08	1.1	0.22	3.1	0.80	23	0.56	17.5	7.07	99	0.05	34.85	24.9	8.19	6.64	0.06
Geomean	**'11-'12**			**2.6**		**1.3**		**0.8**				***14.5***		**72**	**0.07**					**0.08**
T5-100m	7/25/12	1005	0.02	0.6	0.09	1.2	0.12	1.7	2.01	56	0.48	14.9	6.03	84	0.12	35.02	26.4	8.24	6.83	0.14
T5-100m	11/28/12	1006	0.07	2.3	0.03	0.4	0.16	2.3	1.40	39	0.37	11.6	5.06	71	0.05	35.29	25.4	8.21	6.78	0.19
T5-100m	1/24/13	954	0.10	3.0	0.51	7.2	0.04	0.6	4.13	116	0.47	14.5	5.10	72	0.03	35.00	24.8	8.20	6.25	0.16
T5-100m	4/17/13	1108	0.20	6.1	0.86	12.0	0.27	3.8	4.86	137	0.57	17.6	6.23	87	0.02	35.04	25.2	8.20	6.43	0.05
Geomean	**'12-'13**			**2.2**		**2.5**		**1.7**				***14.5***		**78**	**0.04**					**0.12**
T5-100m	8/6/13	1045	0.06	1.9	0.22	3.1	0.06	0.9	2.5	71	0.35	10.9	5.61	79	0.03	35.23	26.62	8.26	6.92	0.11
T5-100m	10/30/13	947	0.13	3.9	0.10	1.4	0.12	1.7	1.2	35	0.57	17.6	6.31	88	0.02	34.94	27.12	8.22	6.05	0.06
T5-100m	2/5/14	1014	0.14	4.4	0.44	6.1	0.34	4.8	3.6	100	0.57	17.8	6.50	91	0.02	34.94	25.23	8.20	6.23	0.13
T5-100m	5/7/14	1009	0.13	4.0	0.91	12.8	0.15	2.1	6.1	170	0.44	13.7	7.23	101	0.02	34.67	25.65	8.20	5.43	0.18
Geomean	**'13-'14**			**3.4**		**4.3**		**2.0**				***14.7***		**89**	**0.02**					**0.11**

NELHA Water Quality Laboratory
Transect 5, Station 4
July 1993 - June 2014









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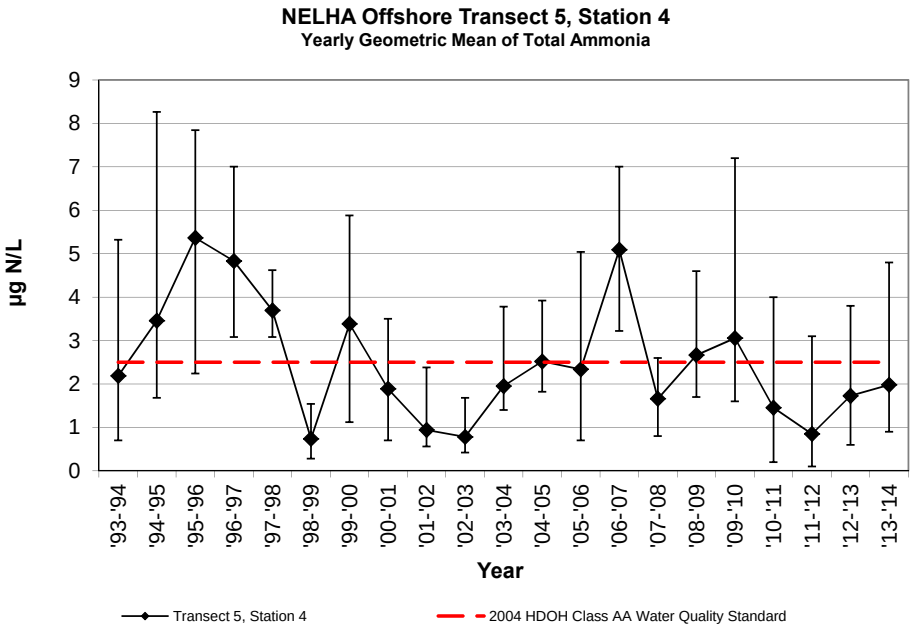
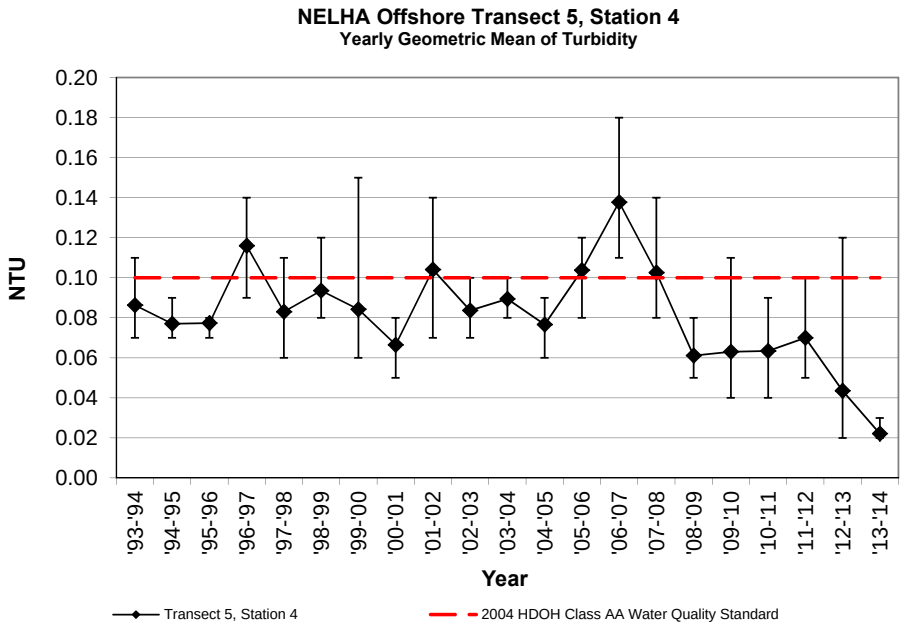
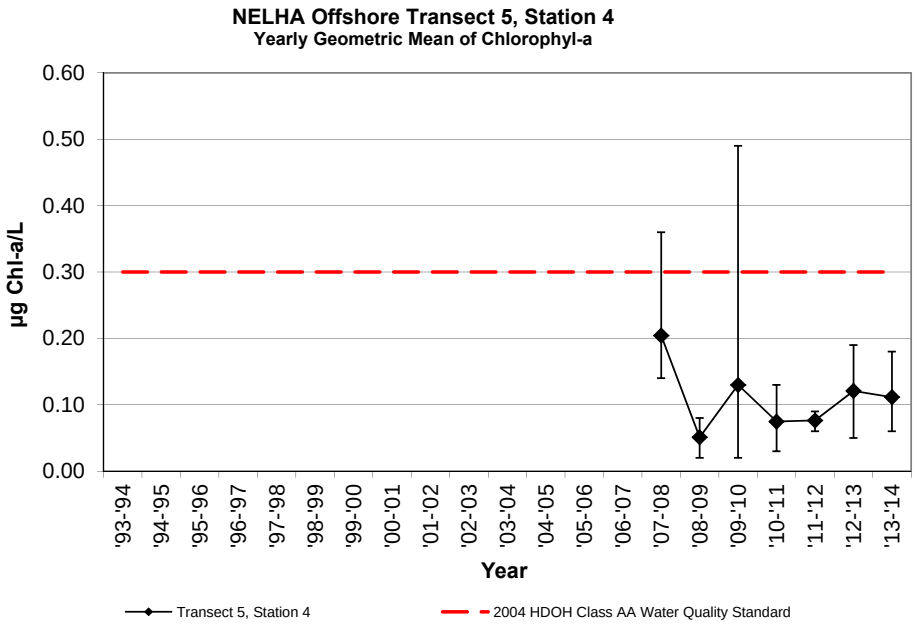
Transect 5, Station 4
July 1993 - June 2014







NELHA Water Quality Laboratory

Transect 5, Station 5

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				5		4.5		2.5				12.5		100	0.1					0.3
O5-5S-69m	7/26/93	1031	0.11	3.4	0.13	1.8	0.45	6.3	3.2	90					0.08	34.418	26.9			
O5-5S-69m	12/6/93	1057	0.09	2.8	0.17	2.4	0.05	0.7	2.0	57					0.07	34.871	25.7			
O5-5S-69m	3/7/94	1010	0.20	6.2	0.19	2.7	0.26	3.6	2.5	70					0.07	34.275	25.0			
O5-5S-69m	6/15/94	1011	0.20	6.2	0.06	0.8	0.05	0.7	2.1	59					0.13	34.562	25.7			
Geomean	**'93-'94**			**4.4**		**1.8**		**1.8**							**0.08**					
O5-5S-69m	9/9/94	1023	0.07	2.2	0.06	0.8	0.15	2.1	2.4	66					0.07	34.606	27.8			
O5-5S-69m	11/14/94	915	0.14	4.3	0.24	3.4	0.59	8.3	3.8	106					0.07	34.596	26.1			
O5-5S-69m	3/22/95	957	0.16	5.0	0.13	1.8	0.35	4.9	3.2	89					0.08	34.211	25.2			
O5-5S-69m	6/20/95	947	0.12	3.7	0.11	1.5	0.09	1.3	2.2	62					0.07	34.464	26.3			
Geomean	**'94-'95**			**3.6**		**1.7**		***3.2***							**0.07**					
O5-5S-69m	9/28/95	841	0.06	1.9	0.07	1.0	0.42	5.9	2.0	56					0.16	34.606	27.2			
O5-5S-69m	11/14/95	936	0.09	2.8	0.07	1.0	0.45	6.3	1.9	53					0.04	34.350	26.9			
O5-5S-69m	3/12/96	1009	0.15	4.6	0.26	3.6	0.58	8.1	4.0	112					0.05	34.140	25.5			
O5-5S-69m	5/14/96	1006	0.13	4.1	0.09	1.3	0.16	2.2	2.6	74					0.07	34.317	27.3			
Geomean	**'95-'96**			**3.1**		**1.4**		***5.1***							**0.07**					
O5-5S-69m	7/31/96	1038	0.08	2.5	0.75	10.5	0.50	7.0	9.5	268					0.10	34.238	27.9			
O5-5S-69m	10/2/96	1005	0.08	2.5	0.06	0.8	0.32	4.5	3.2	89					0.11	34.633	28.1			
O5-5S-69m	1/7/97	1006	0.12	3.7	0.82	11.5	0.22	3.1	7.3	206					0.09	34.570	25.5			
O5-5S-69m	4/28/97	1027	0.20	6.2	0.80	11.2	0.43	6.0	12.3	346					0.12	34.202	26.6			
Geomean	**'96-'97**			**3.4**		***5.8***		***4.9***							**0.10**					
O5-5S-69m	8/19/97	1010	0.12	3.7	0.48	6.7	0.28	3.9	11.0	309					0.12	34.577	27.0			
O5-5S-69m	10/7/97	911	0.10	3.1	0.03	0.4	0.31	4.3	4.0	113					0.10	34.746	27.6			
O5-5S-69m	3/4/98	1010	0.12	3.7	0.63	8.8	0.23	3.2	6.5	183					0.09	34.914	25.0			
O5-5S-69m	5/5/98	1019	0.07	2.2	0.02	0.3	0.19	2.7	2.8	78					0.08	35.095	24.3			
Geomean	**'97-'98**			**3.1**		**1.6**		***3.5***							**0.10**					
O5-5S-69m	7/7/98	1045	0.12	3.7	0.69	9.7	0.01	0.1	18.0	506					0.11	34.791	26.3			
O5-5S-69m	10/6/98	955	0.12	3.7	0.45	6.3	0.06	0.8	5.1	142					0.08	35.041	27.0			
O5-5S-69m	1/19/99	1030	0.07	2.2	0.01	0.1	0.05	0.7	4.4	123					0.07	35.141	25.3			
O5-5S-69m	4/13/99	1111	0.16	5.0	0.58	8.1	0.08	1.1	8.4	237					0.08	34.514	24.5			
Geomean	**'98-'99**			**3.5**		**2.9**		**0.6**							**0.08**					
O5-5S-69m	8/16/99	1042	0.12	3.7	0.14	2.0	0.46	6.4	5.7	159					0.09	34.852	26.5			
O5-5S-69m	10/25/99	1134	0.10	3.1	0.29	4.1	0.35	4.9	5.8	163					0.08	34.864	26.4			
O5-5S-69m	1/12/00	1029	0.12	3.7	0.02	0.3	0.31	4.3	9.9	277					0.05	35.117	24.9			
O5-5S-69m	4/11/00	941	0.12	3.7	0.17	2.4	0.06	0.8	4.3	121					0.07	34.821	24.5			
Geomean	**'99-'00**			**3.6**		**1.5**		***3.3***							**0.07**					
O5-5S-69m	7/25/00	1048	0.10	3.1	0.15	2.1	0.05	0.7	3.7	103					0.07	34.853	26.7			
O5-5S-69m	10/31/00	1034	0.09	2.8	0.02	0.3	0.25	3.5	2.3	63					0.09	34.957	27.2			
O5-5S-69m	3/6/01	1022	0.15	4.6	0.31	4.3	0.10	1.4	4.7	131					0.08	34.692	24.9			
O5-5S-69m	5/8/01	1122	0.11	3.4	0.41	5.7	0.25	3.5	7.2	202					0.09	34.672	25.0			
Geomean	**'00-'01**			**3.4**		**2.0**		**1.9**							**0.08**					
O5-5S-69m	8/13/01	918	0.11	3.4	0.10	1.4	0.20	2.8	3.7	105					0.16	34.828	26.6			
O5-5S-69m	10/10/01	1027	0.13	4.0	0.04	0.6	0.01	0.1	3.8	107					0.06	34.948	27.6			
O5-5S-69m	3/6/02	944	0.14	4.3	0.17	2.4	0.06	0.8	4.6	128					0.05	34.657	24.2			
O5-5S-69m	4/15/02	945	0.14	4.3	0.29	4.1	0.03	0.4	5.8	162					0.07	34.438	25.5			
Geomean	**'01-'02**			**4.0**		**1.7**		**0.6**							**0.08**					

NELHA Water Quality Laboratory

Transect 5, Station 5

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				5		4.5		2.5				12.5		100	0.1					0.3
O5-5S-69m	7/10/02	942	0.16	5.0	0.03	0.4	0.12	1.7	2.0	55					0.06	34.698	26.5			
O5-5S-69m	10/8/02	949	0.06	1.9	0.15	2.1	0.09	1.3	2.1	58					0.08	34.936	27.1			
O5-5S-69m	3/11/03	1111	0.07	2.2	0.03	0.4	0.03	0.4	2.4	69					0.08	34.699	25.3			
O5-5S-69m	4/23/03	946	0.09	2.8	0.03	0.4	0.03	0.4	2.9	81					0.09	35.027	25.1			
Geomean	**'02-'03**			**2.7**		**0.6**		**0.8**							**0.08**					
O5-5S-69m	8/21/03	931	0.09	2.8	0.01	0.1	0.10	1.4	2.0	57					0.08	34.830	28.3			
O5-5S-69m	11/3/03	900	0.12	3.7	0.01	0.1	0.05	0.7	2.3	65					0.10	34.602	27.1			
O5-5S-69m	3/18/04	928	0.10	3.1	0.14	2.0	0.27	3.8	1.8	50					n/a	34.413	25.8			
O5-5S-69m	5/24/04	1004	0.15	4.6	0.42	5.9	0.20	2.8	5.7	159					n/a	n/a	26.8			
Geomean	**'03-'04**			**3.5**		**0.7**		**1.8**							**0.09**					
O5-5S-69m	9/22/04	1038	0.07	2.2	0.01	0.1	0.28	3.9	1.7	48					0.08	33.730	27.5			
O5-5S-69m	11/29/04	943	0.08	2.5	0.18	2.5	0.16	2.2	1.6	45					0.04	33.750	27.1			
O5-5S-69m	1/24/05	1018	0.10	3.1	0.45	6.3	0.16	2.2	5.5	153					0.10	34.717	25.6			
O5-5S-69m	4/13/05	1021	0.12	3.7	0.11	1.5	0.13	1.8	7.2	202					0.10	34.449	25.4			
Geomean	**'04-'05**			**2.8**		**1.4**		**2.4**							**0.08**					
O5-5S-69m	7/21/05	936	0.06	1.9	0.50	7.0	0.35	4.9	5.7	160					0.13	34.586	27.3			
O5-5S-69m	10/13/05	921	0.05	1.5	0.11	1.5	0.18	2.5	5.2	147					0.11	34.842	27.1			
O5-5S-69m	3/15/06	843	0.09	2.8	0.07	1.0	0.35	4.9	1.7	48					0.07	34.861	24.5			
O5-5S-69m	5/17/06	927	0.13	4.0	0.69	9.7	0.05	0.7	8.0	225					0.10	34.579	24.7			
Geomean	**'05-'06**			**2.4**		**3.2**		***2.6***							**0.10**					
O5-5S-69m	8/16/06	938	0.11	3.4	0.34	4.8	0.27	3.8	3.1	86					0.08	34.624	26.8			
O5-5S-69m	11/20/06	933	0.11	3.4	0.19	2.7	0.33	4.6	2.0	56					0.12	34.764	26.7			
O5-5S-69m	2/12/07	1022	0.16	5.0	0.12	1.7	0.36	5.0	0.5	15					0.19	34.439	24.6			
O5-5S-69m	4/16/07	1017	0.13	4.0	0.58	8.1	0.37	5.2	7.4	208					0.12	34.543	26.0			
Geomean	**'06-'07**			**3.9**		**3.6**		***4.6***							***0.12***					
T5-500m	9/27/07	848	0.12	3.6	0.01	0.1	0.13	1.8	9.8	275	0.24	7.5	3.9	54	0.11	34.874	26.6	8.09	6.30	0.06
T5-500m	12/14/07	1000	0.10	3.1	0.01	0.1			2.5	70	0.38	11.9	6.7	94	0.16	34.741	25.8	8.24	6.58	0.10
T5-500m	3/11/08	1008	0.09	2.8	0.07	1.0	0.06	0.8	15.6	439	0.24	7.4	6.5	91	0.10	34.888	24.9	8.11	6.66	0.18
T5-500m	6/9/08	1044	0.07	2.3	0.05	0.7	0.16	2.2	14.2	400	0.21	6.6	5.1	72	0.18	34.454	25.9	8.11	5.59	0.23
Geomean	**'07-'08**			**2.9**		**0.3**		**1.5**				**8.1**		**76**	***0.13***					**0.13**
T5-500m	9/23/08	1100	0.03	0.9	0.00	0.0	2.44	34.2	1.5	42	0.29	9.1	6.8	95	0.06	34.833	26.7	8.07	6.07	0.13
T5-500m	12/8/08	1042	0.14	4.2	0.04	0.6	0.19	2.6	1.7	49	0.30	9.2	6.6	92	0.05	35.000	26.3	8.31	5.65	0.02
T5-500m	2/10/09	936	0.09	2.8	0.15	2.1	0.12	1.7	1.7	48	0.23	7.1	4.8	67	0.09	35.089	25.0	8.06	6.08	0.02
T5-500m	6/30/09	1028	0.24	7.5	0.23	3.2	0.12	1.7	5.1	144	0.52	16.1	6.0	84	0.08	34.897	26.8	8.20	5.70	0.07
Geomean	**'08-'09**			**3.0**		**0.4**		***4.0***				**9.9**		**84**	**0.07**					**0.04**
T5-500m	9/10/09	1032	0.16	4.9	0.16	2.2	0.21	2.9	12.2	344	0.70	21.8	5.7	80	0.12	35.25	27.5	8.20	5.31	0.29
T5-500m	11/24/09	955	0.02	0.8	0.01	0.2	0.03	0.4	7.3	205	0.37	11.6	4.1	57	0.05	35.27	25.2	8.23	6.43	0.13
T5-500m	2/24/10	1028	0.14	4.3	1.10	15.4	0.32	4.5	10.0	280	0.42	12.9	6.8	95	0.07	35.15	24.6	8.22	5.50	0.34
T5-500m	5/25/10	946	0.02	0.7	0.03	0.4	0.37	5.2	1.6	44	0.29	9.1	5.8	82	0.04	34.82	25.3	8.28	6.67	0.06
Geomean	**'09-'10**			**1.8**		**1.3**		**2.3**				***13.1***		**77**	**0.06**					**0.17**
T5-500m	8/11/10	1003	0.02	0.6	0.02	0.3	0.01	0.1	1.9	53	0.30	9.4	2.7	38	0.04	34.98	26.1	8.24	6.61	0.09
T5-500m	11/9/10	1001	0.02	0.8	0.01	0.2	0.03	0.4	7.3	205	0.37	11.6	4.1	57	0.08	34.94	26.5	8.29	6.20	0.08
T5-500m	1/11/11	1234	0.11	3.5	0.06	0.8	0.11	1.6	0.8	23	0.41	12.7	2.9	41	0.09	35.06	25.0	8.19	6.40	0.07
T5-500m	4/27/11	1007	0.12	3.8	0.29	4.0	0.26	3.7	4.1	116	0.46	14.3	3.6	50	0.06	34.87	25.0	8.22	6.16	0.18
Geomean	**'10-'11**			**1.6**		**0.7**		**0.7**				**11.9**		**46**	**0.06**					**0.10**

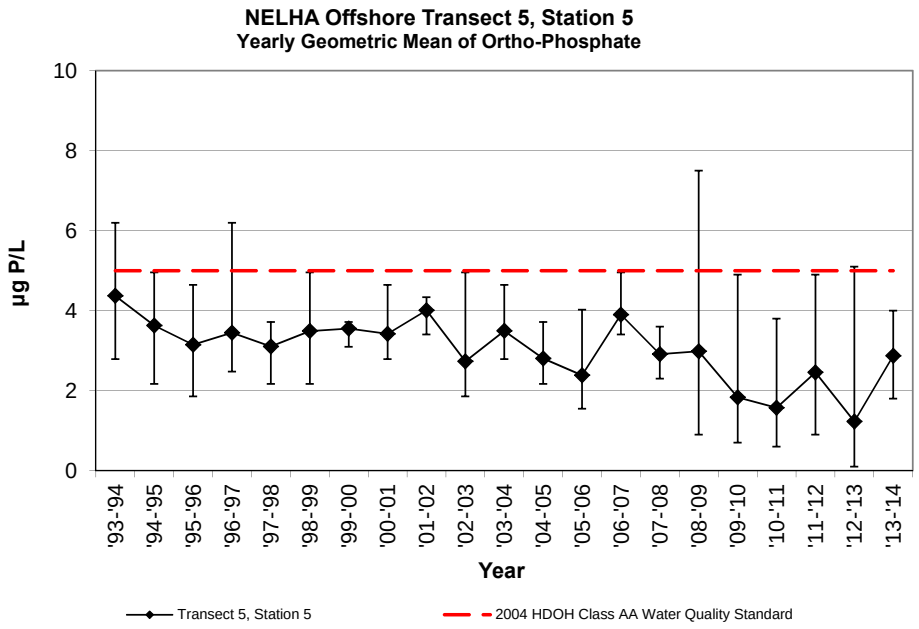
NELHA Water Quality Laboratory

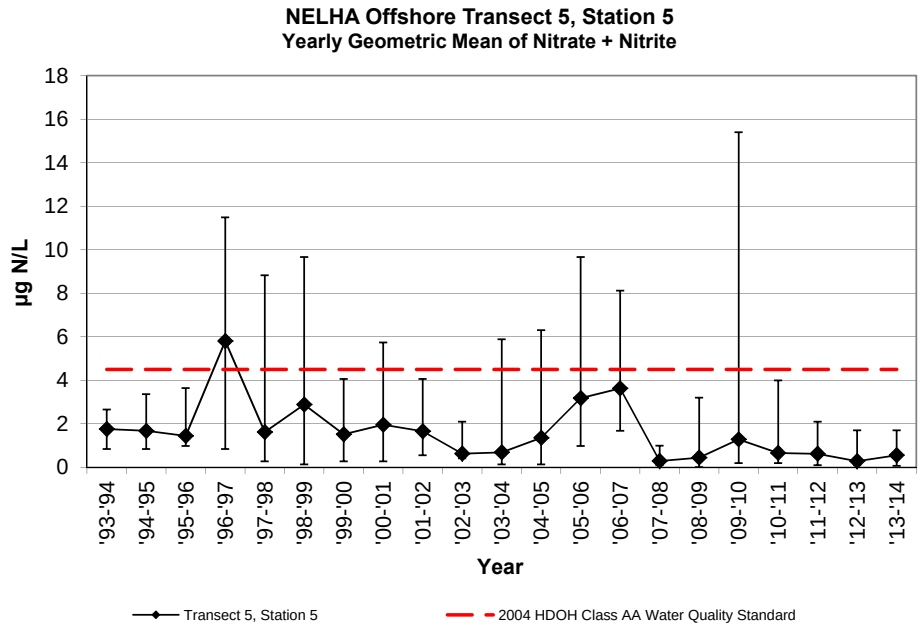
Transect 5, Station 5

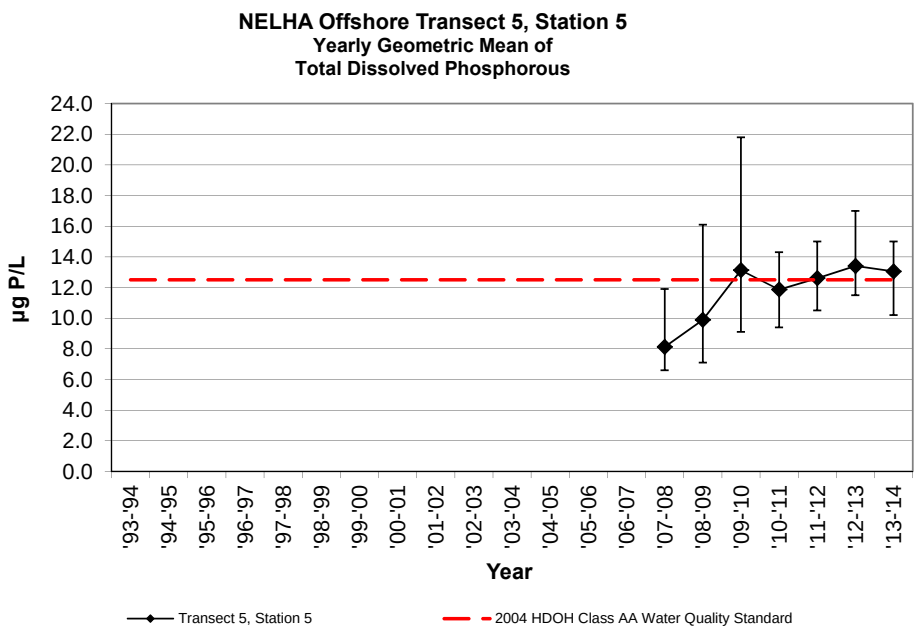
July 1993 - June 2014

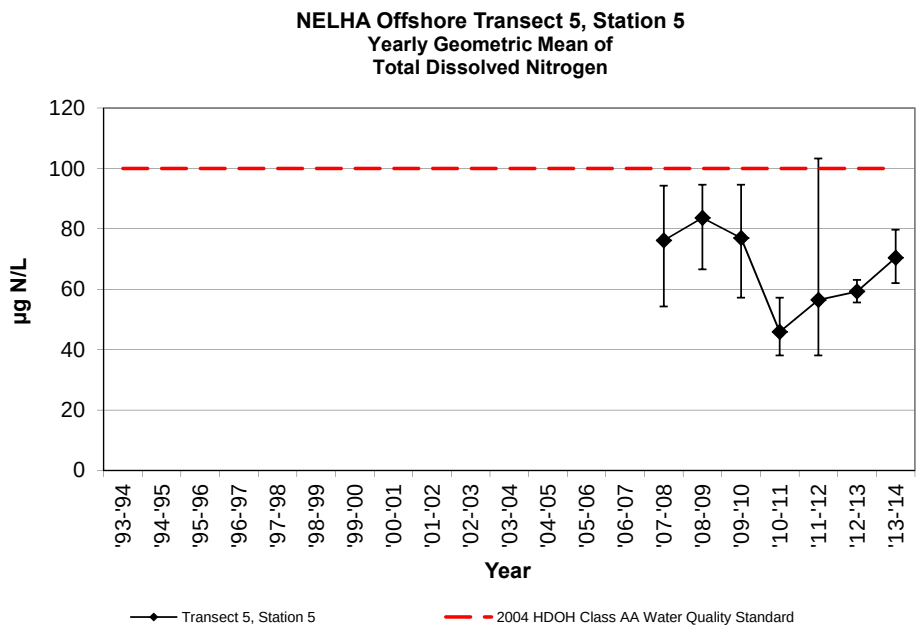
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				5		4.5		2.5				12.5		100	0.1					0.3
T5-500m	7/27/11	1052	0.16	4.9	0.04	0.6	0.06	0.9	0.4	10	0.47	14.7	2.7	38	0.03	34.84	26.1	8.23	6.32	0.20
T5-500m	10/19/11	1032	0.03	0.9	0.09	1.2	0.04	0.5	3.5	99	0.35	10.9	3.7	52	0.05	35.10	26.7	8.26	7.05	0.19
T5-500m	1/26/12	958	0.06	1.8	0.01	0.1	0.01	0.2	1.4	39	0.34	10.5	3.5	49	0.07	35.05	24.5	8.20	6.63	0.09
T5-500m	4/25/12	1021	0.15	4.6	0.15	2.1	0.26	3.6	1.9	53	0.48	15.0	7.4	103	0.04	34.84	24.9	8.20	6.72	0.08
Geomean	**'11-'12**			**2.5**		**0.6**		**0.8**				***12.6***		**56**	**0.05**					**0.13**
T5-500m	7/25/12	1014	0.00	0.1	0.01	0.1	0.16	2.2	1.5	43	0.37	11.5	4.0	56	0.09	35.01	26.5	8.24	6.84	0.25
T5-500m	11/28/12	1012	0.08	2.5	0.03	0.4	0.11	1.6	1.2	32	0.43	13.2	4.5	63	0.04	35.28	25.5	8.21	6.62	0.08
T5-500m	1/24/13	1002	0.06	1.8	0.01	0.1	0.02	0.3	1.2	34	0.40	12.5	4.3	61	0.04	35.11	24.8	8.23	6.30	0.09
T5-500m	4/17/13	1117	0.16	5.1	0.12	1.7	0.21	3.0	0.9	24	0.55	17.0	4.1	58	0.05	35.14	25.3	8.21	6.50	0.04
Geomean	**'12-'13**			**1.2**		**0.3**		**1.3**				***13.4***		**59**	**0.05**					**0.09**
T5-500m	8/6/13	1051	0.06	1.8	0.00	0.1	0.06	0.9	1.7	48	0.33	10.2	4.4	62	0.02	35.26	26.9	8.22	6.77	0.09
T5-500m	10/30/13	952	0.11	3.5	0.04	0.5	0.06	0.8	0.9	26	0.47	14.7	5.7	80	0.03	34.99	27.1	8.22	6.06	0.08
T5-500m	2/5/14	1022	0.13	4.0	0.11	1.6	0.42	5.9	1.8	50	0.48	15.0	4.6	65	0.02	34.96	25.2	8.22	6.20	0.19
T5-500m	5/7/14	1016	0.09	2.7	0.12	1.7	0.10	1.4	2.3	65	0.42	12.9	5.5	77	0.04	34.79	26.0	8.20	5.51	0.25
Geomean	**'13-'14**			**2.9**		**0.6**		***1.6***				***13.1***		**70**	**0.03**					**0.14**

NELHA Water Quality Laboratory
Transect 5, Station 5
July 1993 - June 2014

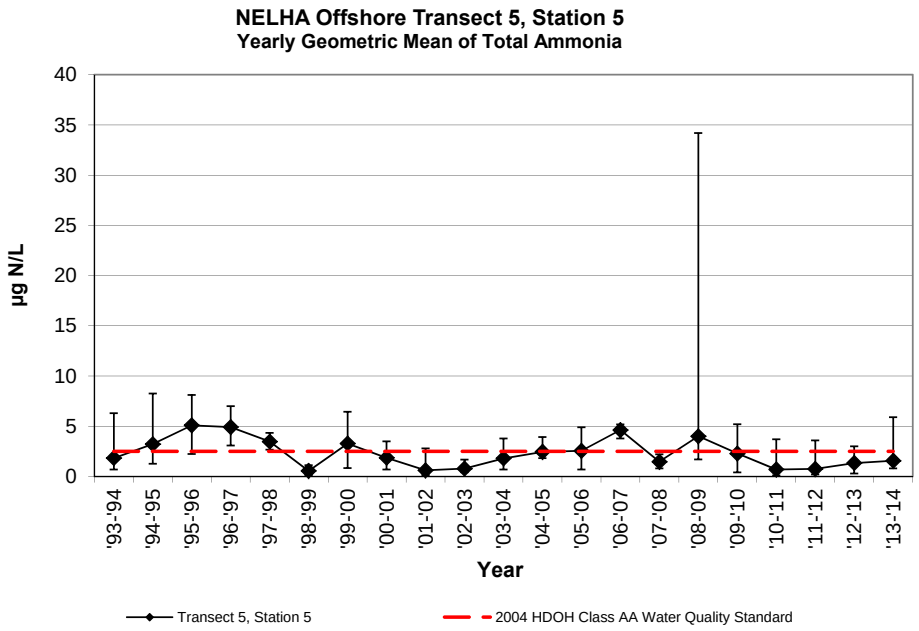


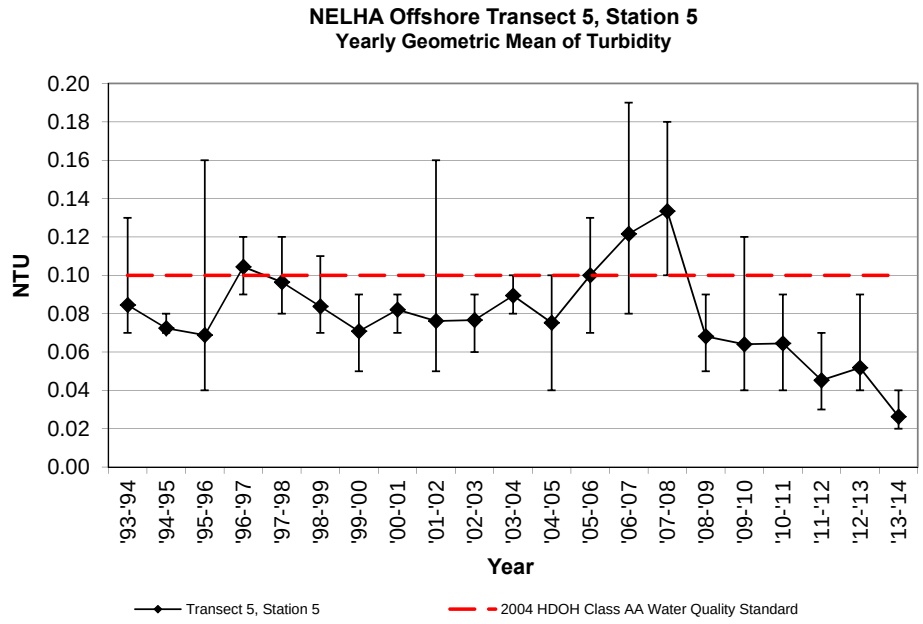


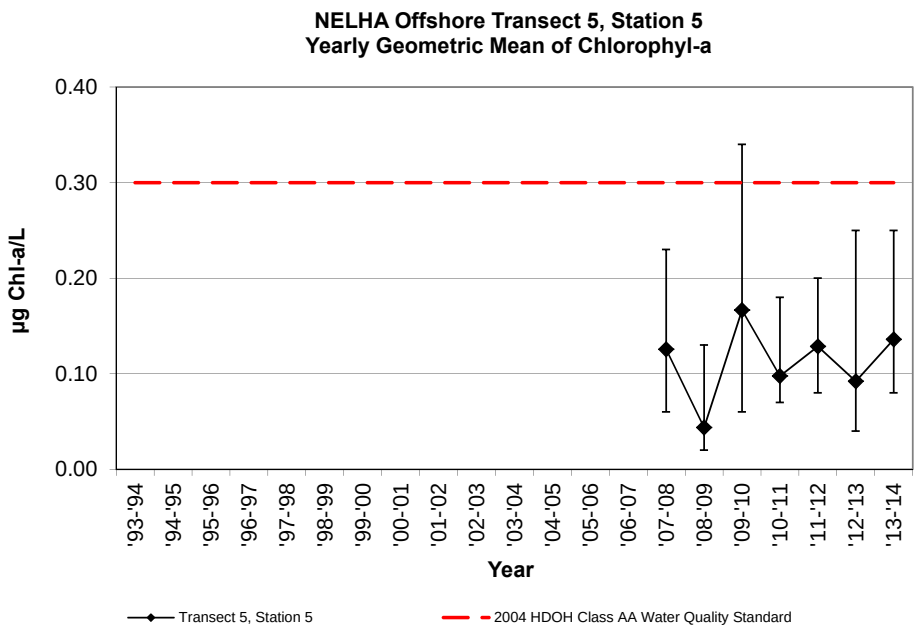




NELHA Water Quality Laboratory
Transect 5, Station 5
July 1993 - June 2014







NELHA Water Quality Laboratory

Transect 6

July 2013 - June 2014

SITE ID	DATE	TIME	Tide		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(ft)	(cycle)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(°C)		(ppm)	(µg/L)
DOH LIMIT					0.16	**5**	0.32	**4.5**	0.18	**2.5**			0.40	**12.5**	7.1	**100**	**0.10**					**0.30**
T6-1m	8/6/13	1100	0.2	Flood	0.14	4.3	1.94	27.2	0.39	5.5	10.3	288	0.67	20.7	5.9	82	0.07	34.97	26.2	8.22	7.49	0.20
T6-1m	10/30/13	1005	1.0	Flood	0.15	4.6	0.41	5.7	0.14	1.9	2.8	80	0.49	15.2	6.4	89	0.02	34.90	27.0	8.22	5.97	0.14
T6-1m	2/5/14	1032	0.6	Ebb	0.16	5.1	0.60	8.4	0.47	6.6	3.3	93	0.44	13.6	4.3	61	0.02	34.97	25.2	8.20	6.58	0.04
T6-1m	5/7/14	1026	0.7	Flood	0.11	3.5	0.41	5.7	0.31	4.4	2.5	69	0.45	14.0	6.3	88	0.02	34.76	25.7	8.20	5.65	0.12
Geomean	**'13-'14**				0.14	**4.3**	0.66	***9.3***	0.3	***4.2***			0.5	***15.6***	5.7	**79**	**0.03**					**0.11**
T6-10m	8/6/13	1102	0.2	Flood	0.14	4.2	1.72	24.1	0.38	5.3	10.2	288	0.34	10.6	6.7	94	0.08	34.83	26.2	8.20	7.50	0.12
T6-10m	10/30/13	1009	1.0	Flood	0.15	4.6	0.47	6.6	0.25	3.5	3.0	84	0.43	13.4	5.2	72	0.03	34.89	27.0	8.22	5.92	0.08
T6-10m	2/5/14	1036	0.6	Ebb	0.14	4.3	0.49	6.8	0.47	6.6	2.8	79	0.42	13.0	5.3	74	0.02	34.99	25.2	8.20	6.55	0.16
T6-10m	5/7/14	1029	0.7	Flood	0.14	4.2	0.41	5.7	0.32	4.5	2.4	67	0.40	12.5	6.3	88	0.04	34.78	25.7	8.20	5.57	0.11
Geomean	**'13-'14**				0.14	**4.3**	0.63	***8.9***	0.35	***4.8***			0.40	**12.3**	5.8	**82**	**0.04**					**0.11**
T6-50m	8/6/13	1107	0.3	Flood	0.15	4.7	1.91	26.8	0.43	6.0	11.9	333	0.39	12.1	7.0	98	0.02	34.90	26.2	8.21	7.41	0.14
T6-50m	10/30/13	1014	1.0	Flood	0.15	4.8	0.47	6.6	0.21	2.9	3.2	89	0.56	17.2	6.2	87	0.03	34.89	27.0	8.22	5.81	0.15
T6-50m	2/5/14	1039	0.6	Ebb	0.15	4.5	0.34	4.7	0.33	4.6	2.4	68	0.43	13.4	4.2	59	0.02	35.00	25.2	8.20	6.56	0.13
T6-50m	5/7/14	1034	0.7	Flood	0.13	4.0	0.50	7.0	0.30	4.2	6.2	173	0.42	12.9	5.4	76	0.08	34.72	25.8	8.20	5.57	0.13
Geomean	**'13-'14**				0.14	**4.5**	0.62	***8.7***	0.31	***4.3***			0.44	***13.8***	5.6	**79**	**0.03**					**0.14**
T6-100m	8/6/13	1111	0.3	Flood	0.11	3.3	1.27	17.8	0.28	3.9	7.8	218	0.35	10.9	5.6	79	0.02	34.94	26.4	8.21	7.05	0.14
T6-100m	10/30/13	1019	1.0	Flood	0.15	4.6	0.41	5.8	0.20	2.8	3.4	94	0.51	15.8	6.2	87	0.02	34.89	27.0	8.22	5.94	0.13
T6-100m	2/5/14	1043	0.6	Ebb	0.14	4.4	0.25	3.5	0.35	4.9	2.3	63	0.46	14.1	4.6	65	0.02	35.00	25.2	8.21	6.36	0.13
T6-100m	5/7/14	1039	0.7	Flood	0.13	4.0	0.41	5.7	0.06	0.9	3.4	96	0.43	13.3	5.4	76	0.13	34.71	25.7	8.18	5.45	0.14
Geomean	**'13-'14**				0.13	**4.0**	0.48	***6.7***	0.19	***2.6***			0.43	***13.4***	5.4	**76**	**0.03**					**0.13**
T6-500m	8/6/13	1118	0.4	Flood	0.06	1.8	0.02	0.3	0.16	2.3	2.1	59	0.33	10.2	4.43	62	0.02	35.24	26.8	8.20	6.85	0.10
T6-500m	10/30/13	1027	1.0	Flood	0.13	4.1	0.17	2.4	0.06	0.8	2.0	57	0.53	16.4	5.33	75	0.02	34.90	27.1	8.22	5.84	0.11
T6-500m	2/5/14	1051	0.6	Ebb	0.13	4.0	0.14	2.0	0.21	3.0	2.4	68	0.46	14.3	3.71	52	0.02	34.94	25.2	8.21	6.27	0.20
T6-500m	5/7/14	1049	0.7	Flood	0.13	3.9	0.31	4.4	0.11	1.5	2.8	78	0.45	13.9	5.38	75	0.06	34.75	25.8	8.20	5.36	0.15
Geomean	**'13-'14**				0.11	**3.3**	0.11	**1.6**	0.12	**1.7**			0.44	***13.5***	4.7	**65**	**0.03**					**0.13**

NELHA Water Quality Laboratory
Transect 6
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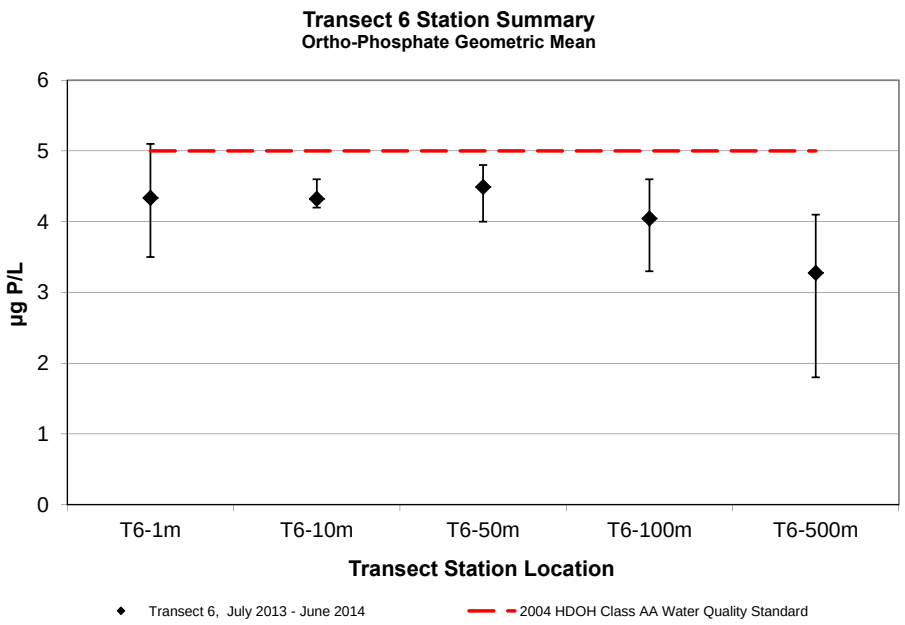
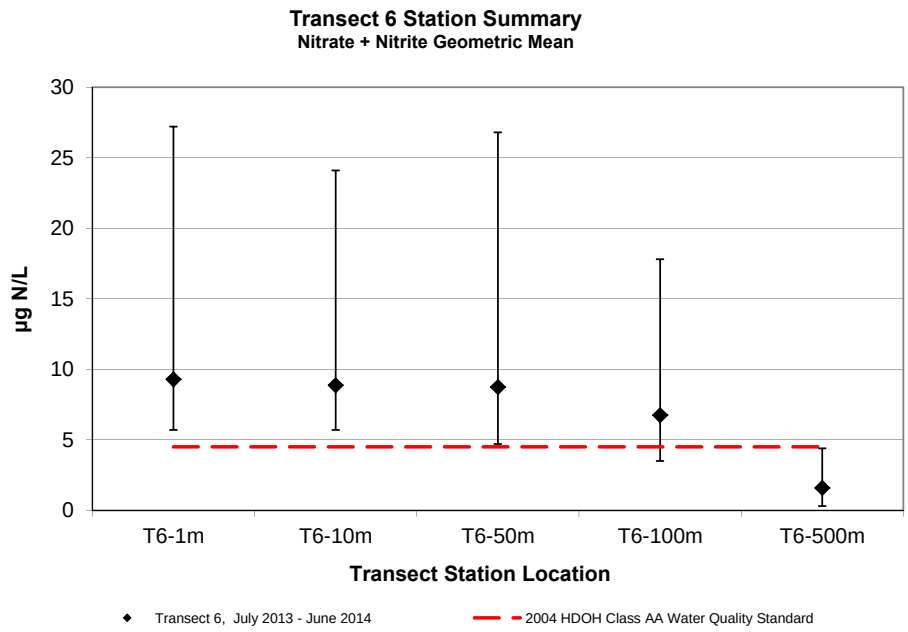
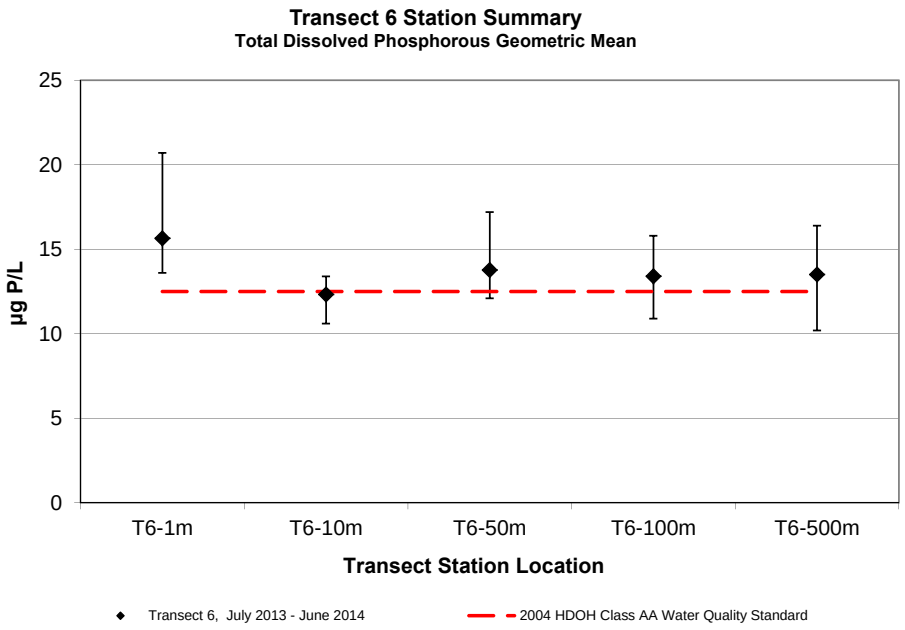
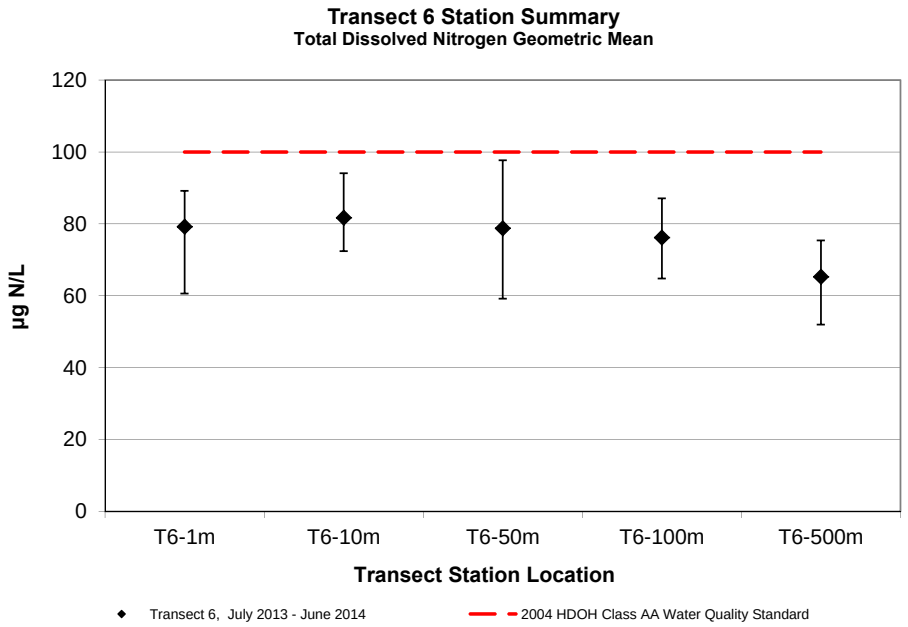
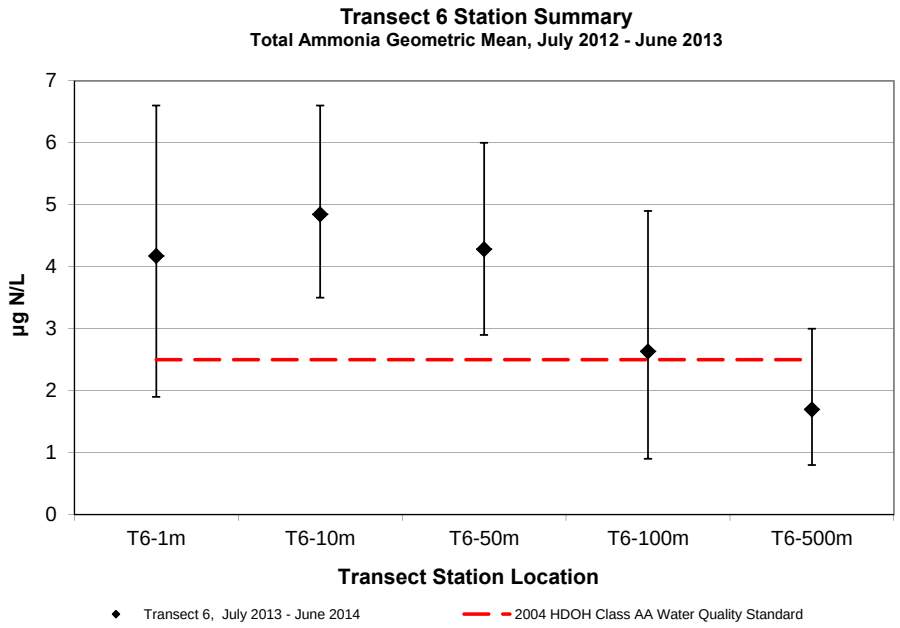


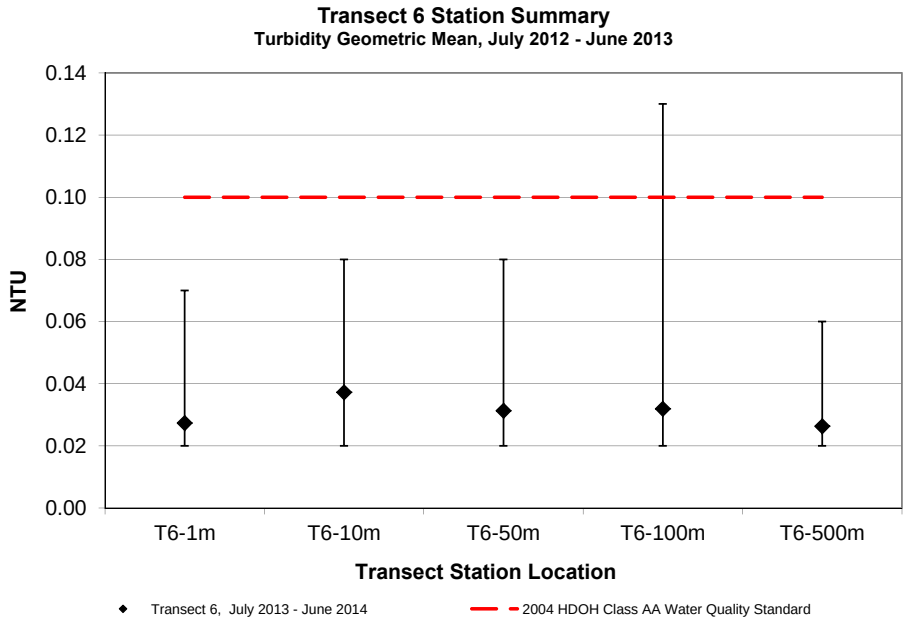


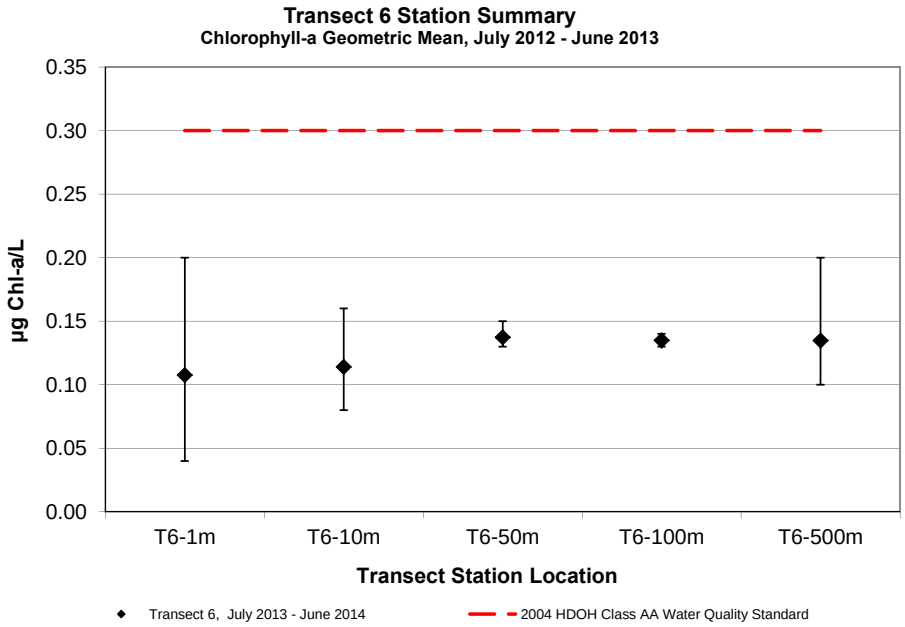




NELHA Water Quality Laboratory
Transect 6
July 2013 - June 2014







NELHA Water Quality Laboratory

Transect 6, Station 1

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TP		TOC	Turbidity	Salinity	Temp.	pH	DO	Chl a	Fecal Coliform	Enterococci
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg P/L)	(mgC/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)	Bact/100 ml	Bact/100 ml
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**				**0.10**					**0.30**		
O6-1S-8m	7/26/93	926	0.18	5.6	0.12	1.7	0.45	6.3	3.3	92	0.28	8.7	7.3	102	0.29	8.98	1.26	0.11	34.436	26.8	8.26	6.85	0.06		
O6-1S-8m	12/6/93	950	0.09	2.8	0.32	4.5	0.09	1.3	4.0	111	0.27	8.4	6.4	90	0.27	8.36	1.16	0.09	34.791	25.8	8.25	6.83	0.11		
O6-1S-8m	3/7/94	915	0.24	7.4	1.03	14.4	0.18	2.5	12.6	353	0.30	9.3	6.2	86	0.30	9.29	1.18	0.10	33.936	24.8	8.22	6.94	0.02	3	<1
O6-1S-8m	6/15/94	919	0.22	6.8	2.24	31.4	0.54	7.6	4.7	131	0.22	6.9	8.2	115	0.29	8.98	1.12	0.10	34.480	25.7	8.22	6.86	0.08	<1	<1
Geomean	**'93-'94**			***5.3***		***7.6***		***3.5***				**8.3**		**98**				**0.10**					**0.06**		
O6-1S-8m	9/9/94	1012	0.09	2.8	0.32	4.5	0.21	2.9	5.5	155	0.30	9.3	6.9	96	0.32	9.91	1.13	0.08	34.487	27.6	8.23	6.58	0.11	<1	<1
O6-1S-8m	11/14/94	818	0.14	4.3	0.69	9.7	0.50	7.0	8.6	240	0.34	10.5	5.5	77	0.38	11.77	1.00	0.11	34.485	26.0	8.26	6.58	0.06	<1	<1
O6-1S-8m	3/22/95	854	0.19	5.9	0.30	4.2	0.35	4.9	4.5	126	0.33	10.2	5.8	82	0.34	10.53	1.06	0.08	34.170	25.1	8.25	7.03	0.17	<1	<1
O6-1S-8m	6/20/95	837	0.13	4.0	0.36	5.0	0.09	1.3	4.3	122	0.27	8.4	6.3	88	0.28	8.67	0.96	0.06	34.379	26.2	8.21	6.66	0.34	<1	<1
Geomean	**'94-'95**			**4.1**		***5.5***		***3.4***				**9.6**		**85**				**0.08**					**0.14**		
O6-1S-8m	9/26/95	922	0.14	4.3	0.45	6.3	0.47	6.6	7.7	217	0.31	9.6	5.4	75	0.31	9.60	0.89	0.25	34.386	27.0	8.23	6.66	0.14	1	4
O6-1S-8m	11/14/95	1114	0.12	3.7	0.42	5.9	0.55	7.7	6.1	171	0.31	9.6	5.4	76	0.31	9.60	1.11	0.10	34.218	26.9	8.28	6.79	0.08	<1	<1
O6-1S-8m	3/12/96	1137	0.14	4.3	0.16	2.2	0.48	6.7	3.7	105	0.34	10.5	4.8	68	0.34	10.53	1.09	0.06	34.144	25.5	8.23	7.06	0.05	<1	<1
O6-1S-8m	5/14/96	1130	0.13	4.0	0.41	5.7	0.22	3.1	7.7	215	0.30	9.3	4.6	64	0.30	9.29	1.11	0.06	34.155	27.4	8.21	7.07	0.09	<1	<1
Geomean	**'95-'96**			**4.1**		***4.7***		***5.7***				**9.7**		**71**				**0.10**					**0.08**		
O6-1S-8m	7/31/96	1200	0.15	4.6	2.05	28.7	0.53	7.4	27.0	757	0.29	9.0	4.3	60	0.29	8.98	0.80	0.14	33.614	27.9	8.27	6.84	0.08	<1	<1
O6-1S-8m	10/2/96	1131	0.11	3.4	1.11	15.5	0.50	7.0	15.5	435	0.28	8.7	5.5	76	0.28	8.67	1.01	0.13	34.171	28.4	8.24	6.75	0.16	<1	<1
O6-1S-8m	1/7/97	1138	0.09	2.8	0.40	5.6	0.25	3.5	6.4	181	0.27	8.4	5.2	72	0.27	8.36	1.33	0.11	34.557	25.7	8.29	6.97	0.01	<1	<1
O6-1S-8m	4/28/97	1155	0.12	3.7	0.27	3.8	0.43	6.0	5.7	161	0.79	24.5	5.0	70	0.79	24.47	1.10	0.11	34.474	26.4	8.29	6.76	0.01	<1	<1
Geomean	**'96-'97**			**3.6**		***9.9***		***5.8***				**11.2**		**69**				***0.12***					**0.03**		
O6-1S-8m	8/19/97	1138	0.08	2.5	0.22	3.1	0.18	2.5	6.2	173	0.36	11.2	4.9	68	0.38	11.77	1.09	0.10	34.536	27.2	8.40	6.44	0.19	<1	<1
O6-1S-8m	10/7/97	1044	0.11	3.4	0.09	1.3	0.33	4.6	3.7	104	0.30	9.3	4.7	66	0.30	9.29	1.09	0.08	34.722	27.6	8.45	6.52	0.08	<1	<1
O6-1S-8m	3/4/98	1213	0.14	4.3	0.84	11.8	0.25	3.5	11.3	318	0.31	9.6	5.4	76	0.31	9.60	0.97	0.08	34.769	25.0	8.24	6.96	0.01	<1	<1
O6-1S-8m	5/5/98	1205	0.14	4.3	1.20	16.8	0.36	5.0	17.7	497	0.41	12.7	8.7	122	0.42	13.01	1.11	0.10	34.537	24.4	8.28	7.62	0.08	<1	<1
Geomean	**'97-'98**			**3.5**		***5.3***		***3.8***				**10.6**		**80**				**0.09**					**0.06**		
O6-1S-8m	7/7/98	1225	0.12	3.7	0.53	7.4	0.08	1.1	10.2	286	0.38	11.8	6.8	95	0.41	12.70	1.15	0.11	34.807	26.3	8.24	7.08	0.17	<1	<1
O6-1S-8m	10/6/98	1131	0.12	3.7	0.60	8.4	0.09	1.3	9.7	273	0.39	12.1	6.9	97	0.39	12.08	1.10	0.08	34.944	27.2	8.22	7.24	0.07	<1	<1
O6-1S-8m	1/19/99	1207	0.15	4.6	1.44	20.2	0.08	1.1	22.2	623	0.41	12.7	5.4	76	0.46	14.25	1.09	0.09	34.645	25.1	8.21	6.93	0.17	<1	<1
O6-1S-8m	4/12/99	1213	0.13	4.0	0.23	3.2	0.11	1.5	8.1	228	0.38	11.8	4.7	66	0.39	12.08	1.07	0.08	34.637	24.3	8.23	7.31	0.26	<1	<1
Geomean	**'98-'99**			**4.0**		***8.0***		**1.2**				**12.1**		**82**				**0.09**					**0.15**		
O6-1S-8m	7/6/99	1244	0.11	3.4	0.23	3.2	0.07	1.0	5.5	154	0.30	9.3	5.9	82	0.34	10.53	1.02	0.12	34.831	25.7	8.22	7.89	0.12	<1	<1
O6-1S-8m	10/4/99	1301	0.14	4.3	0.19	2.7	0.09	1.3	3.1	87	0.35	10.8	4.9	69	0.35	10.84	1.02	0.11	34.941	26.3	8.28	7.10	0.12	<1	<1
O6-1S-8m	1/12/00	1208	0.17	5.3	1.62	22.7	0.41	5.7	27.2	764	0.36	11.2	6.9	97	0.38	11.77	0.88	0.05	34.575	24.7	8.25	6.80	0.09	<1	<1
O6-1S-8m	4/11/00	1104	0.14	4.3	0.83	11.6	0.08	1.1	12.4	348	0.28	8.7	6.6	92	0.28	8.67	1.10	0.07	34.592	24.4	8.27	7.08	0.05	<1	<1
Geomean	**'99-'00**			**4.3**		***6.9***		**1.7**				**9.9**		**84**				**0.08**					**0.09**		
O6-1S-8m	7/25/00	1221	0.11	3.4	0.40	5.6	0.15	2.1	8.3	234	0.34	10.5	5.9	82	0.34	10.53	0.97	0.19	34.672	26.7	8.31	7.16	0.25	<1	1
O6-1S-8m	10/31/00	1209	0.16	5.0	0.80	11.2	0.26	3.6	16.9	475	0.39	12.1	5.3	75	0.39	12.08	1.10	0.16	34.650	26.8	8.24	6.69	0.08	<1	<1
O6-1S-8m	3/6/01	1156	0.17	5.3	0.33	4.6	0.10	1.4	6.2	173	0.37	11.5	5.4	75	0.37	11.46	1.11	0.14	34.623	24.9	8.22	6.70	0.07	<1	<1
O6-1S-8m	5/7/01	1254	0.16	5.0	1.53	21.4	0.36	5.0	17.5	490	0.38	11.8	6.1	85	0.40	12.39	1.00	0.13	34.388	24.7	8.22	7.32	0.14	<1	<1
Geomean	**'00-'01**			**4.6**		***8.9***		***2.7***				**11.4**		**79**				***0.15***					**0.12**		
O6-1S-8m	8/14/01	1100	0.13	4.0	0.07	1.0	0.31	4.3	4.0	111	0.38	11.8	5.1	71	0.38	11.77	1.06	0.13	34.806	26.8	8.24	7.01	0.17	<1	<1
O6-1S-8m	10/30/01	1109	0.15	4.6	0.82	11.5	0.03	0.4	7.3	206	0.42	13.0	5.6	78	0.44	13.63	1.02	0.08	34.851	26.8	8.22	6.88	0.14	<1	<1
O6-1S-8m	3/6/02	1112	0.12	3.7	0.45	6.3	0.02	0.3	13.0	364	0.42	13.0	6.6	92	0.50	15.49	0.97	0.08	34.383	24.1	8.23	6.93	0.16	<1	<1
O6-1S-8m	4/15/02	1133	0.19	5.9	2.33	32.6	0.03	0.4	14.8	416	0.40	12.4	7.0	99	0.40	12.39	0.98	0.07	34.105	25.5	8.23	6.80	0.13	<1	<1
Geomean	**'01-'02**			**4.5**		***6.9***		**0.7**				**12.5**		**84**				**0.09**					**0.15**		

NELHA Water Quality Laboratory

Transect 6, Station 1

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TP		TOC	Turbidity	Salinity	Temp.	pH	DO	Chl a	Fecal Coliform	Enterococci
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg P/L)	(mgC/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)	Bact/100 ml	Bact/100 ml
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**				**0.10**					**0.30**		
O6-1S-8m	7/10/02	1122	0.12	3.7	2.32	32.5	0.17	2.4	14.4	404	0.38	11.8	7.8	109	0.39	12.08	0.87	0.08	34.311	26.2	8.22	7.19	0.07	<1	<1
O6-1S-8m	10/8/02	1115	0.15	4.6	2.25	31.5	0.04	0.6	12.1	341	0.38	11.8	6.8	96	0.39	12.08	0.96	0.11	34.644	27.0	8.24	6.87	0.07	<1	1
O6-1S-8m	3/12/03	1018	0.12	3.7	0.45	6.3	0.03	0.4	13.0	364	0.47	14.6	5.9	82	0.50	15.49	1.08	0.07	34.652	25.0	8.26	7.05	0.10	<1	2
O6-1S-8m	4/23/03	1120	0.19	5.9	2.33	32.6	0.03	0.4	14.8	416	0.40	12.4	6.8	95	0.40	12.39	0.98	0.09	34.564	24.9	8.29	7.59	0.12	<1	<1
Geomean	**'02-'03**			**4.4**		***21.4***		**0.7**				***12.6***		**95**				**0.09**					**0.09**		
O6-1S-8m	8/21/03	1110	0.10	3.1	0.11	1.5	0.10	1.4	5.1	143	0.36	11.2	6.6	93	0.38	11.77	n/a	0.09	34.758	28.5	8.27	6.70	0.03	<1	<1
O6-1S-8m	11/3/03	952	0.13	4.0	0.09	1.3	0.17	2.4	4.5	128	0.38	11.8	7.0	98	0.45	13.94	n/a	0.16	34.661	27.3	8.24	n/a	0.18	<1	<1
O6-1S-8m	3/18/04	1053	0.20	6.2	0.10	1.4	0.33	4.6	14.8	415	0.49	15.2	5.7	79	0.56	17.35	n/a	n/a	34.017	25.4	8.24	6.90	0.21	<1	<1
O6-1S-8m	5/24/04	1104	0.17	5.3	0.50	7.0	0.20	2.8	10.4	291	0.47	14.6	6.3	88	0.46	14.25	n/a	n/a	33.26	26.8	8.23	7.00	0.01	<1	<1
Geomean	**'03-'04**			**4.5**		**2.1**		***2.6***				***13.0***		**89**				***0.12***					**0.06**		
O6-1S-8m	9/22/04	1138	0.09	2.8	0.02	0.3	0.31	4.3	2.4	67	0.29	9.0	4.0	56	0.31	9.60	n/a	0.08	24.90	n/a	8.28	6.95	0.13	<1	<1
O6-1S-8m	11/29/04	1046	0.09	2.8	0.41	5.7	0.14	2.0	4.5	127	0.32	9.9	4.3	60	0.31	9.60	n/a	0.07	33.69	27.1	8.30	9.79	0.05	<1	<1
O6-1S-8m	1/24/05	1124	0.07	2.2	0.19	2.7	0.14	2.0	4.8	134	0.30	9.3	4.7	66	0.30	9.29	n/a	0.07	34.770	25.5	8.33	6.87	0.07	<1	<1
O6-1S-8m	4/13/05	1130	0.13	4.0	0.42	5.9	0.16	2.2	6.4	178	0.39	12.1	4.5	63	0.40	12.39	n/a	0.10	34.350	25.4	8.30	6.82	0.08	1	1
Geomean	**'04-'05**			**2.9**		**2.2**		**2.5**				**10.0**		**61**				**0.08**					**0.08**		
O6-1S-8m	7/21/05	1107	0.06	1.9	0.33	4.6	0.44	6.2	4.8	135	0.31	9.6	4.0	56	0.34	10.53	n/a	0.12	34.678	27.4	8.27	6.67	0.02	<1	<1
O6-1S-8m	10/13/05	1035	0.05	1.5	0.03	0.4	0.17	2.4	1.7	47	0.37	11.5	4.6	64	0.35	10.84	1.00	0.10	34.923	27.4	8.30	6.76	0.06	<1	<1
O6-1S-8m	3/15/06	1005	0.36	11.2	1.77	24.8	0.33	4.6	13.8	388	0.48	14.9	5.2	73	0.48	14.87	n/a	0.08	34.513	24.3	8.25	7.06	0.11	<1	1
O6-1S-8m	5/17/06	1045	0.17	5.3	1.78	24.9	0.05	0.7	13.1	368	0.52	16.1	6.3	88	0.52	16.11	0.98	0.14	34.322	24.8	8.28	7.14	0.07	<1	<1
Geomean	**'05-'06**			**3.6**		***5.9***		***2.6***				***12.7***		**69**				***0.11***					**0.06**		
O6-1S-8m	8/16/06	1051	0.12	3.7	0.34	4.8	0.36	5.0	2.9	82	0.36	11.2	5.2	72	0.41	12.70	0.94	0.16	34.589	26.8	8.24	9.17	0.09	<1	<1
O6-1S-8m	11/20/06	1047	0.17	5.3	1.49	20.9	0.52	7.3	11.0	309	0.39	12.1	5.5	77	0.41	12.70	1.08	0.34	34.478	26.6	8.27	6.85	0.15	1	<1
O6-1S-8m	2/12/07	1147	0.19	5.9	1.65	23.1	0.48	6.7	11.6	326	0.45	13.9	6.2	86	0.43	13.32	1.38	0.20	34.084	24.6	8.25	7.16	0.12	<1	<1
O6-1S-8m	4/16/07	1130	0.28	8.7	4.19	58.7	0.60	8.4	33.5	941	0.52	16.1	8.8	123	0.53	16.42	0.89	0.28	33.611	25.5	8.31	7.40	0.12	<1	<1
Geomean	**'06-'07**			***5.6***		***19.2***		***6.7***				***13.2***		**88**				***0.23***					**0.12**		
T6-1m	9/27/07	1027	0.17	5.3	0.73	10.2	0.01	0.1	7.7	217	0.32	9.9	5.4	76				0.16	34.725	26.6	8.08	6.56	0.08		
T6-1m	12/14/07	1025	0.08	2.6	0.44	6.1	0.00		4.8	134	0.31	9.7	9.1	127				0.07	34.625	25.6	8.19	6.72	0.34		
T6-1m	3/11/08	1033	0.12	3.8	1.10	15.4	0.06	0.8	8.4	237	0.16	5.0	7.1	100				0.14	34.78	24.7	8.11	6.53	0.35		
T6-1m	6/9/08	1055	0.10	3.2	0.44	6.2	0.16	2.2	19.8	557	0.26	8.2	5.4	76				0.10	34.578	25.1	8.11	5.77	0.21		
Geomean	**'07-'08**			**3.6**		***8.8***		**0.6**				**7.9**		**93**				***0.11***					**0.21**		
T6-1m	9/23/08	1151	0.02	0.5	0.37	5.2	0.51	7.1	3.0	84	0.30	9.3	5.1	72				0.10	34.787	26.96	8.09	6.50	0.13		
T6-1m	12/8/08	1017	0.18	5.5	0.42	5.9	1.20	16.8	3.9	109	0.37	11.5	5.3	74				0.08	34.900	25.97	8.32	5.76	0.04		
T6-1m	2/10/09	949	0.17	5.3	2.61	36.6	0.18	2.5	15.4	432	0.22	6.9	7.0	98				0.17	34.814	24.62	8.06	6.04	0.05		
T6-1m	6/30/09	1041	0.25	7.8	0.57	8	0.28	3.9	5.8	162	0.43	13.3	4.7	67				0.09	34.828	26.71	8.21	6.15	0.08		
Geomean	**'08-'09**			**3.3**		***9.7***		***5.8***				**10.0**		**77**				***0.11***					**0.07**		
T6-1m	9/10/09	1045	0.10	3.1	0.39	5.5	0.71	9.9	11.6	327	0.52	16	5.7	80				0.08	35.17	27.50	8.21	5.74	0.25		
T6-1m	11/24/09	1009	0.02	0.8	0.35	4.9	0.07	1	30.8	864	0.29	9.1	5.0	70				0.06	35.20	25.12	8.24	6.48	0.10		
T6-1m	2/24/10	1043	0.15	4.5	0.31	4.4	0.39	5.5	3.4	95	0.36	11	7.4	104				0.08	34.78	24.55	8.22	5.57	0.20		
T6-1m	5/26/10	959	0.02	0.6	0.40	5.6	0.35	4.9	4.4	124	0.21	6.6	7.2	102				0.04	34.73	25.05	8.28	6.85	0.09		
Geomean	**'09-'10**			**1.6**		***5.1***		***4.0***				**10.1**		**88**				**0.06**					**0.15**		
T6-1m	8/11/10	1018	0.07	2.3	1.09	15.2	0.21	2.9	9.1	255	0.36	11.3	4.1	57				0.05	34.75	25.93	8.22	6.77	0.11		
T6-1m	11/9/10	1014	0.05	1.4	0.37	5.2	0.21	3.0	7.2	203	0.42	13	5.9	83				0.12	34.90	26.37	8.28	6.21	0.08		
T6-1m	1/11/11	1242	0.18	5.6	2.11	29.5	0.11	1.5	14.6	409	0.44	13.5	3.9	55				0.06	34.82	24.80	8.25	6.48	0.15		
T6-1m	4/27/11	1016	0.15	4.7	0.46	6.5	0.15	2.1	8.0	225	0.46	14.2	3.4	48				0.06	34.82	24.82	8.23	6.39	0.19		
Geomean	**'10-'11**			**3.0**		***11.1***		**2.3**				***13.0***		**59**				**0.07**					**0.13**		

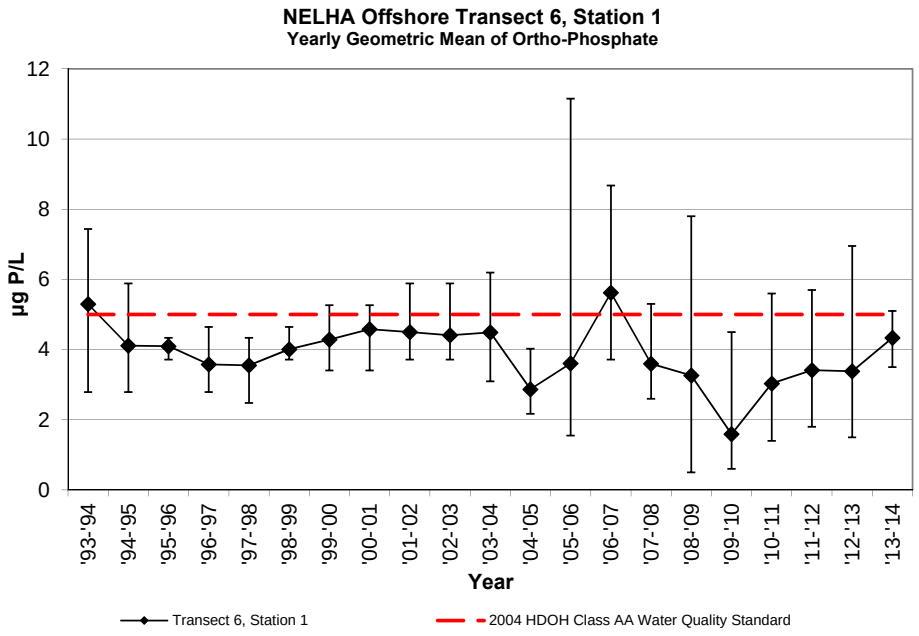
NELHA Water Quality Laboratory

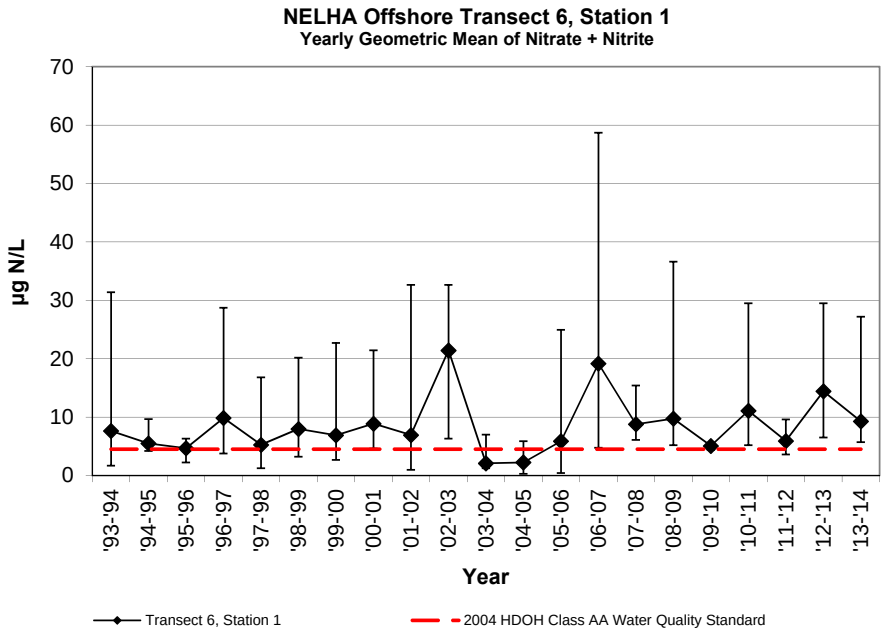
Transect 6, Station 1

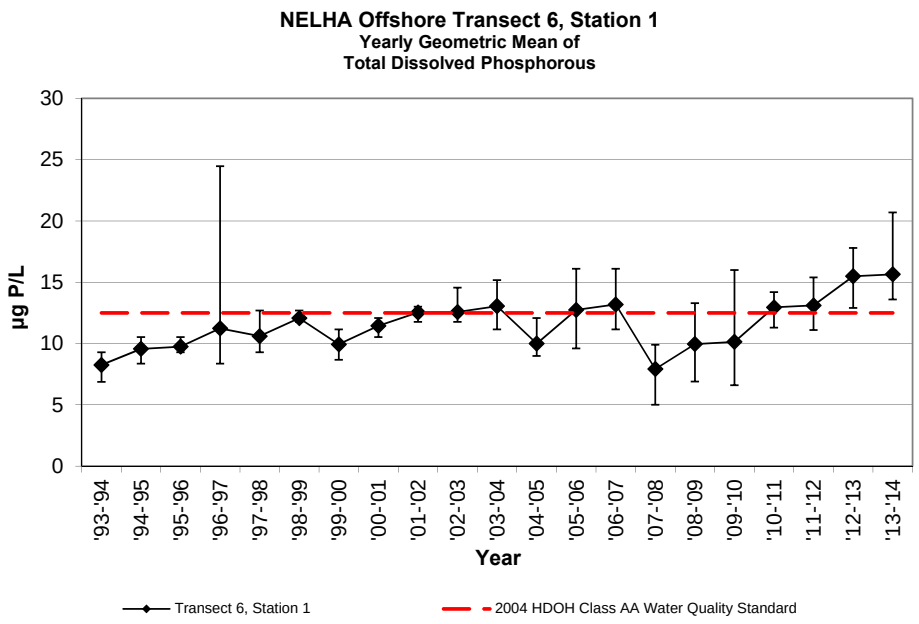
July 1993 - June 2014

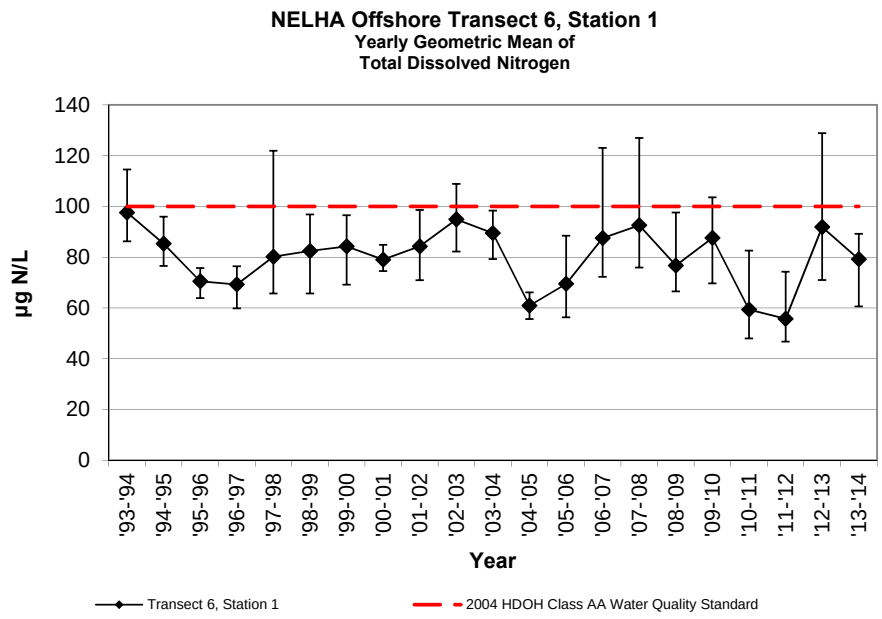
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TP		TOC	Turbidity	Salinity	Temp.	pH	DO	Chl a	Fecal Coliform	Enterococci
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg P/L)	(mgC/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)	Bact/100 ml	Bact/100 ml
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**				**0.10**					**0.30**		
T6-1m	7/27/11	1101	0.18	5.7	0.26	3.6	0.13	1.8	2.04	57.3	0.50	15.4	3.3	46.7				0.05	34.77	25.97	8.23	6.65	0.11		
T5-1m	10/19/11	1043	0.06	1.8	0.34	4.8	0.15	2.1	3.27	91.7	0.37	11.6	4.0	55.6				0.05	35.10	26.55	8.27	7.16	0.11		
T5-1m	1/26/12	1007	0.08	2.6	0.53	7.4	0.01	0.1	5.60	157.2	0.36	11.1	3.6	50.0				0.07	34.91	24.43	8.20	6.67	0.11		
T5-1m	4/25/12	1028	0.16	5.1	0.69	9.6	0.36	5.1	6.25	175.6	0.48	14.9	5.3	74.3				0.06	34.76	24.88	8.20	6.88	0.14		
Geomean	**'11-'12**			**3.4**		***5.9***		**1.2**				***13.1***		**56**				**0.06**					**0.12**		
T6-1m	7/25/12	1027	0.05	1.5	0.46	6.5	0.41	5.8	3.55	99.8	0.42	12.9	5.1	71.0				0.09	34.99	26.45	8.27	7.65	0.10		
T5-1m	11/28/12	1025	0.11	3.4	1.10	15.4	0.27	3.8	6.08	170.7	0.54	16.6	6.8	95.6				0.05	35.08	25.13	8.20	6.70	0.15		
T5-1m	1/24/13	1012	0.12	3.7	1.05	14.7	0.11	1.6	5.70	160.0	0.49	15.1	5.8	81.4				0.03	34.95	24.72	8.23	6.51	0.10		
T5-1m	4/24/13	936	0.22	7.0	2.11	29.5	0.14	2.0	6.25	175.6	0.57	17.8	9.2	128.9				0.07	34.87	24.84	8.21	6.73	0.12		
Geomean	**'12-'13**			**3.4**		***14.4***		***2.9***				***15.5***		**92**				**0.06**					**0.12**		
T6-1m	8/6/13	1100	0.14	4.3	1.94	27.2	0.39	5.5	10.3	288	0.67	20.7	5.9	82				0.07	34.97	26.2	8.22	7.49	0.20		
T5-1m	10/30/13	1005	0.15	4.6	0.41	5.7	0.14	1.9	2.8	80	0.49	15.2	6.4	89				0.02	34.90	27.0	8.22	5.97	0.14		
T5-1m	2/5/14	1032	0.16	5.1	0.60	8.4	0.47	6.6	3.3	93	0.44	13.6	4.3	61				0.02	34.97	25.2	8.20	6.58	0.04		
T5-1m	5/7/14	1026	0.11	3.5	0.41	5.7	0.31	4.4	2.5	69	0.45	14.0	6.3	88				0.02	34.76	25.7	8.20	5.65	0.12		
Geomean	**'13-'14**			**4.3**		***9.3***		***4.2***				***15.6***		**79**				**0.03**					**0.11**		

NELHA Water Quality Laboratory
Transect 6, Station 1
July 1993 - June 2014

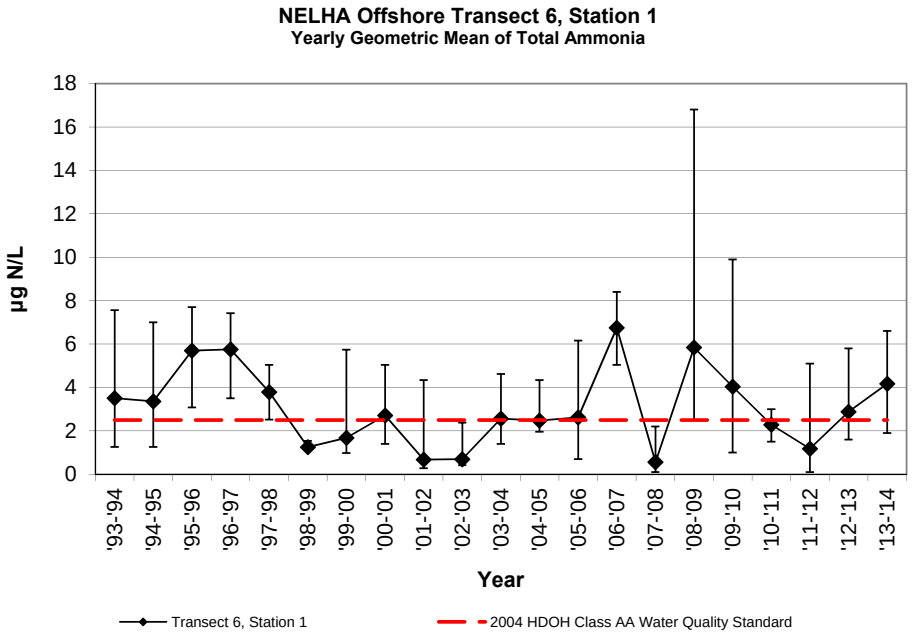


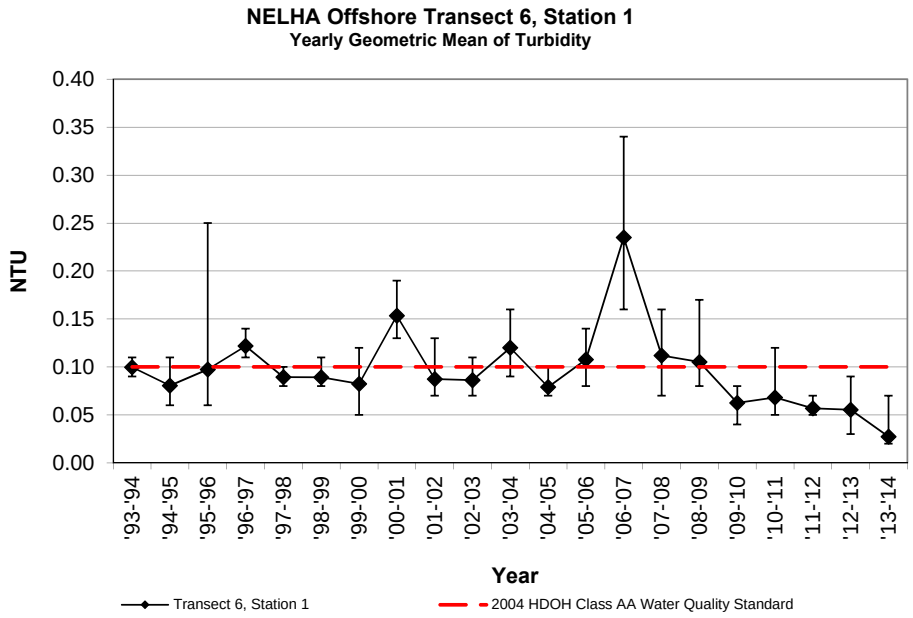


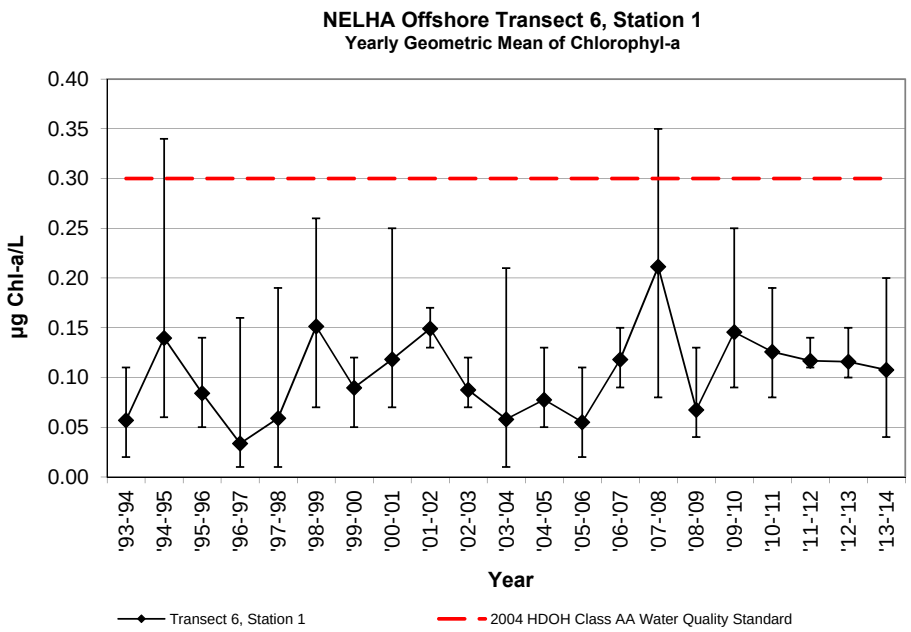




NELHA Water Quality Laboratory
Transect 6, Station 1
July 1993 - June 2014







NELHA Water Qualtiy Laboratory

Transect 6, Station 2

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O6-2S-23m	7/26/93	1152	0.13	4.0	0.15	2.1	0.40	5.6	3.4	96					0.07	34.430	27.0			
O6-2S-23m	12/6/93	935	0.08	2.5	0.28	3.9	0.09	1.3	3.2	90					0.11	34.795	25.8			
O6-2S-23m	3/7/94	904	0.22	6.8	0.45	6.3	0.17	2.4	6.1	171					0.08	34.156	24.9			
O6-2S-23m	6/15/94	904	0.22	6.8	0.38	5.3	0.12	1.7	4.0	111					0.11	34.499	25.6			
Geomean	**'93-'94**			**4.6**		**4.1**		**2.3**							**0.09**					
O6-2S-23m	9/9/94	853	0.08	2.5	0.27	3.8	0.21	2.9	4.9	138					0.13	34.488	27.6			
O6-2S-23m	11/14/94	807	0.15	4.6	0.66	9.2	0.61	8.5	8.8	246					0.08	34.461	26.0			
O6-2S-23m	3/22/95	836	0.16	5.0	0.18	2.5	0.35	4.9	4.0	112					0.08	34.179	25.1			
O6-2S-23m	6/20/95	830	0.12	3.7	0.23	3.2	0.12	1.7	3.6	101					0.08	34.399	26.2			
Geomean	**'94-'95**			**3.8**		**4.1**		***3.8***							**0.09**					
O6-2S-23m	9/26/95	933	0.14	4.3	0.63	8.8	0.53	7.4	9.7	273					0.17	34.310	27.0			
O6-2S-23m	11/14/95	1108	0.11	3.4	0.29	4.1	0.49	6.9	4.3	121					0.11	34.271	26.9			
O6-2S-23m	3/12/96	1132	0.15	4.6	0.18	2.5	0.50	7.0	3.8	107					0.08	34.145	25.4			
O6-2S-23m	5/14/96	1126	0.12	3.7	0.27	3.8	0.19	2.7	6.9	194					0.11	34.212	27.4			
Geomean	**'95-'96**			**4.0**		**4.3**		***5.6***							***0.11***					
O6-2S-23m	7/31/96	1155	0.15	4.6	2.11	29.6	0.53	7.4	26.2	736					0.14	33.604	27.8			
O6-2S-23m	10/2/96	1127	0.09	2.8	0.81	11.3	0.45	6.3	11.9	333					0.13	34.319	28.4			
O6-2S-23m	1/7/97	1134	0.08	2.5	0.09	1.3	0.23	3.2	3.7	103					0.08	34.670	25.7			
O6-2S-23m	4/28/97	1153	0.12	3.7	0.31	4.3	0.45	6.3	5.7	161					0.10	34.328	26.5			
Geomean	**'96-'97**			**3.3**		***6.5***		***5.6***							***0.11***					
O6-2S-23m	8/19/97	1132	0.09	2.8	0.38	5.3	0.22	3.1	7.9	220					0.15	34.471	27.1			
O6-2S-23m	10/7/97	1037	0.11	3.4	0.13	1.8	0.37	5.2	4.1	114					0.10	34.678	27.6			
O6-2S-23m	3/4/98	1209	0.12	3.7	0.76	10.6	0.25	3.5	15.9	446					0.09	34.729	25.1			
O6-2S-23m	5/5/98	1158	0.14	4.3	1.24	17.4	0.29	4.1	18.3	514					0.14	34.528	24.4			
Geomean	**'97-'98**			**3.5**		***6.5***		***3.9***							***0.12***					
O6-2S-23m	7/7/98	1217	0.14	4.3	0.87	12.2	0.07	1.0	13.2	371					0.09	34.698	26.3			
O6-2S-23m	10/6/98	1126	0.10	3.1	0.42	5.9	0.10	1.4	5.1	143					0.08	34.989	27.1			
O6-2S-23m	1/19/99	1202	0.11	3.4	0.77	10.8	0.18	2.5	12.5	351					0.10	34.874	25.1			
O6-2S-23m	4/12/99	1208	0.12	3.7	0.20	2.8	0.11	1.5	4.5	126					0.08	34.631	24.2			
Geomean	**'98-'99**			**3.6**		***6.8***		**1.5**							**0.09**					
O6-2S-23m	7/6/99	1235	0.10	3.1	0.28	3.9	0.05	0.7	7.6	212					0.14	34.802	25.7			
O6-2S-23m	10/4/99	1255	0.12	3.7	0.26	3.6	0.13	1.8	3.3	92					0.14	34.956	26.3			
O6-2S-23m	1/12/00	1203	0.16	5.0	1.37	19.2	0.41	5.7	20.6	579					0.15	34.518	24.8			
O6-2S-23m	4/11/00	1100	0.11	3.4	0.51	7.1	0.06	0.8	9.1	255					0.07	34.658	24.4			
Geomean	**'99-'00**			**3.7**		***6.7***		**1.6**							***0.12***					
O6-2S-23m	7/25/00	1219	0.11	3.4	0.33	4.6	0.10	1.4	7.2	201					0.14	34.716	26.7			
O6-2S-23m	10/31/00	1205	0.13	4.0	0.42	5.9	0.08	1.1	10.1	285					0.13	34.736	26.9			
O6-2S-23m	3/6/01	1150	0.17	5.3	0.26	3.6	0.12	1.7	6.2	174					0.14	34.621	24.9			
O6-2S-23m	5/7/01	1250	0.16	5.0	1.53	21.4	0.38	5.3	17.7	498					0.16	34.373	24.7			
Geomean	**'00-'01**			**4.3**		***6.8***		**1.9**							***0.14***					
O6-2S-23m	8/14/01	1055	0.12	3.7	0.14	2.0	0.31	4.3	3.9	109					0.19	34.814	26.8			
O6-2S-23m	10/30/01	1106	0.13	4.0	0.47	6.6	0.03	0.4	4.7	133					0.10	34.911	26.7			
O6-2S-23m	3/6/02	1109	0.27	8.4	3.13	43.8	0.08	1.1	51.3	1441					0.08	33.836	24.3			
O6-2S-23m	4/15/02	1128	0.17	5.3	2.05	28.7	0.07	1.0	12.4	348					0.08	34.168	25.5			
Geomean	**'01-'02**			***5.1***		***11.3***		**1.2**							***0.11***					

NELHA Water Qualtiy Laboratory

Transect 6, Station 2

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O6-2S-23m	7/10/02	1117	0.09	2.8	1.73	24.2	0.18	2.5	12.6	355					0.11	34.368	26.2			
O6-2S-23m	10/8/02	1110	0.10	3.1	1.91	26.8	0.06	0.8	13.0	364					0.08	34.594	27.1			
O6-2S-23m	3/12/03	1010	0.11	3.4	0.38	5.3	0.03	0.4	5.4	151					0.09	34.646	25.0			
O6-2S-23m	4/23/03	1117	0.15	4.6	1.17	16.4	0.03	0.4	11.3	318					0.12	34.705	24.9			
Geomean	**'02-'03**			**3.4**		***15.4***		**0.8**							**0.10**					
O6-2S-23m	8/21/03	1054	0.09	2.8	0.06	0.8	0.10	1.4	4.5	126					0.08	34.770	28.5			
O6-2S-23m	11/3/03	1035	0.12	3.7	0.13	1.8	0.26	3.6	5.0	140					0.10	34.628	27.5			
O6-2S-23m	3/18/04	1046	0.18	5.6	1.54	21.6	0.35	4.9	13.7	384					n/a	34.031	25.4			
O6-2S-23m	5/24/04	1058	0.14	4.3	0.12	1.7	0.20	2.8	5.2	147					n/a	33.32	26.7			
Geomean	**'03-'04**			**4.0**		**2.7**		***2.9***							**0.09**					
O6-2S-23m	9/22/04	1133	0.08	2.5	0.01	0.1	0.27	3.8	2.4	67					0.09	30.76	27.9			
O6-2S-23m	11/29/04	1040	0.09	2.8	0.35	4.9	0.13	1.8	4.5	127					0.07	33.62	27.0			
O6-2S-23m	1/24/05	1117	0.10	3.1	0.64	9.0	0.12	1.7	8.3	232					0.07	34.730	25.5			
O6-2S-23m	4/13/05	1124	0.20	6.2	0.43	6.0	0.18	2.5	9.2	258					0.12	34.457	25.1			
Geomean	**'04-'05**			**3.4**		**2.5**		**2.3**							**0.09**					
O6-2S-23m	7/21/05	1058	0.08	2.5	0.41	5.7	0.45	6.3	8.7	243					0.13	34.767	27.4			
O6-2S-23m	10/13/05	1031	0.06	1.9	0.12	1.7	0.16	2.2	3.5	98					0.11	34.864	27.4			
O6-2S-23m	3/15/06	958	0.10	3.1	0.60	8.4	0.40	5.6	8.0	224					0.10	34.649	24.3			
O6-2S-23m	5/17/06	1038	0.17	5.3	1.98	27.7	0.07	1.0	16.6	466					0.13	34.191	24.9			
Geomean	**'05-'06**			**2.9**		***6.9***		***3.0***							***0.12***					
O6-2S-23m	8/16/06	1047	0.11	3.4	0.35	4.9	0.35	4.9	3.1	87					0.14	34.518	26.8			
O6-2S-23m	11/20/06	1040	0.19	5.9	1.83	25.6	0.52	7.3	15.4	433					0.16	34.352	26.6			
O6-2S-23m	2/12/07	1141	0.27	8.4	2.01	28.2	0.55	7.7	13.2	371					0.24	34.015	24.6			
O6-2S-23m	4/16/07	1121	0.21	6.5	2.26	31.7	0.47	6.6	16.4	461					0.17	34.225	26.5			
Geomean	**'06-'07**			***5.7***		***18.3***		***6.5***							***0.17***					
T6-10m	9/27/07	1020	0.17	5.2	0.64	9.0	0.15	2.1	4.9	138	0.33	10.1	5.69	80	0.13	34.707	26.7	8.10	6.37	0.07
T6-10m	12/14/07	1028	0.12	3.6	0.44	6.1	0.00		4.9	138	0.38	11.9	5.89	83	0.10	34.566	25.6	8.18	6.70	0.31
T6-10m	3/11/08	1035	0.13	4.0	1.23	17.2	0.06	0.8	21.3	598	0.29	9.1	7.64	107	0.09	34.680	24.7	8.10	6.57	0.29
T6-10m	6/9/08	1102	0.09	2.9	0.35	4.9	0.16	2.2	17.4	489	0.25	7.8	4.68	66	0.08	34.553	25.1	8.12	5.80	0.13
Geomean	**'07-'08**			**3.8**		***8.2***		**1.5**				**9.6**		**82**	**0.10**					**0.17**
T6-10m	9/23/08	1157	0.03	1.0	0.43	6.0	0.47	6.6	3.5	98.2	0.34	10.4	5.84	81.8	0.08	34.755	26.85	8.10	6.43	0.11
T6-10m	12/8/08	1022	0.16	5.0	0.36	5.1	0.34	4.7	3.8	105.6	0.27	8.3	4.88	68.4	0.06	34.899	26.09	8.31	5.71	0.04
T6-10m	2/10/09	954	0.15	4.8	1.76	24.7	0.18	2.5	12.3	344.2	0.32	9.8	11.92	166.9	0.15	34.724	24.79	8.05	6.11	0.07
T6-10m	6/30/09	1045	0.27	8.3	0.41	5.8	0.12	1.7	4.6	128.6	0.47	14.6	5.15	72.1	0.34	34.862	26.72	8.20	6.28	0.12
Geomean	**'08-'09**			**3.8**		***8.1***		***3.4***				**10.5**		**91**	***0.13***					**0.08**
T6-10m	9/10/09	1054	0.16	5.1	0.41	5.7	0.24	3.4	7.0	196.9	0.57	17.6	6.08	85.2	0.11	35.26	27.24	8.22	5.70	0.30
T6-10m	11/24/09	1013	0.02	0.8	0.30	4.2	0.10	1.4	5.2	145.3	0.27	8.5	4.85	67.9	0.04	35.20	25.13	8.25	6.51	0.12
T6-10m	2/24/10	1047	0.14	4.3	0.27	3.8	0.32	4.5	3.6	102.1	0.12	3.7	8.67	121.4	0.07	34.78	24.56	8.22	5.61	0.11
T6-10m	5/26/10	1004	0.02	0.7	0.39	5.4	0.28	3.9	13.1	367.2	0.19	6.0	4.38	61.3	0.05	34.73	25.06	8.28	6.88	0.07
Geomean	**'09-'10**			**1.9**		***4.7***		***3.0***				**7.6**		**81**	**0.06**					**0.13**
T6-10m	8/11/10	1022	0.05	1.7	0.67	9.4	0.20	2.8	8.6	241.2	0.32	9.9	3.54	49.6	0.09	34.84	26.01	8.23	9.92	0.11
T6-10m	11/9/10	1018	0.05	1.5	0.36	5.0	0.26	3.6	3.4	96.0	0.37	11.6	5.03	70.5	0.09	34.88	26.40	8.28	6.20	0.06
T6-10m	1/11/11	1245	0.13	4.1	0.61	8.5	0.20	2.8	11.2	314.0	0.42	12.9	3.65	51.1	0.03	34.91	25.01	8.25	6.51	0.09
T6-10m	4/27/11	1020	0.15	4.6	0.44	6.1	0.20	2.8	9.8	275.0	0.43	13.4	3.58	50.1	0.07	34.79	24.84	8.23	6.44	0.19
Geomean	**'10-'11**			**2.6**		***7.0***		***3.0***				**11.9**		**55**	**0.06**					**0.10**

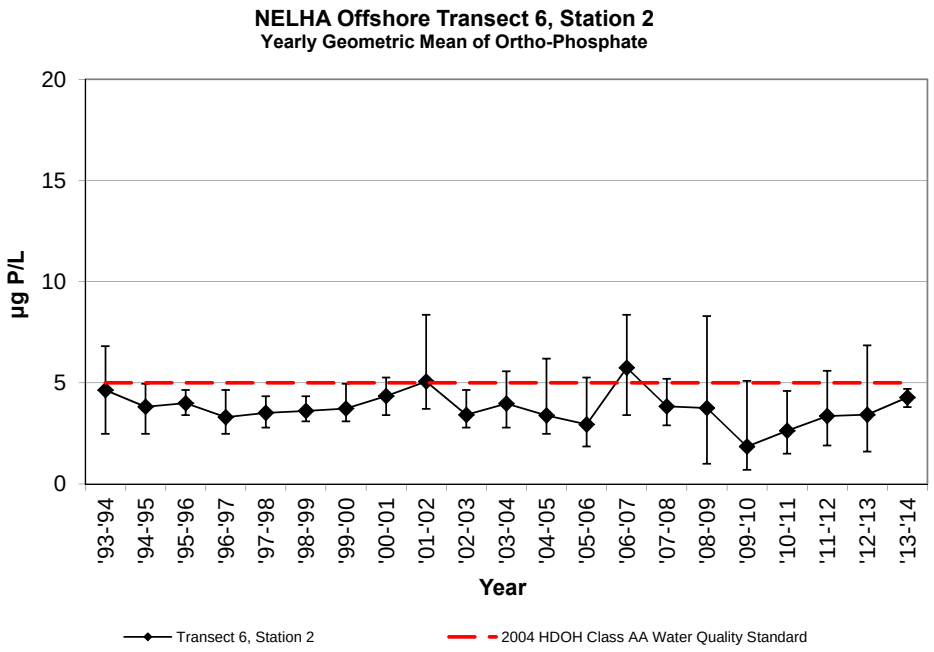
NELHA Water Qualtiy Laboratory

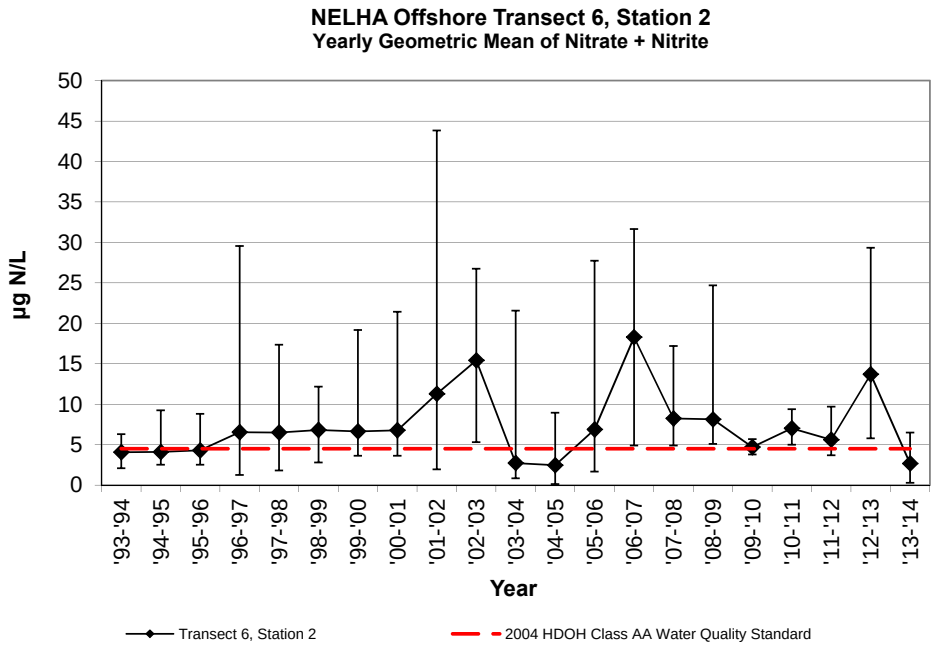
Transect 6, Station 2

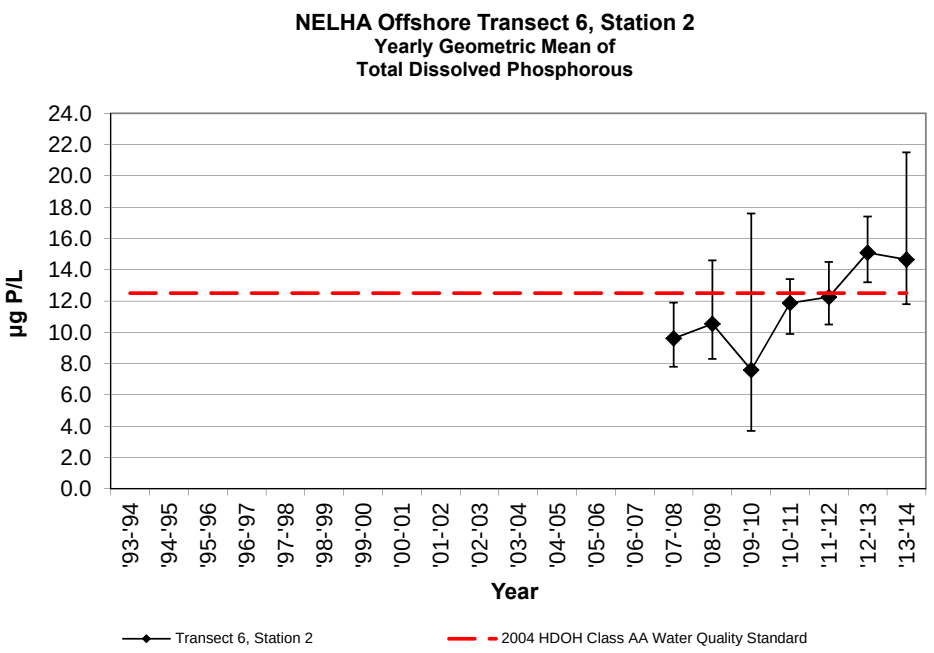
July 1993 - June 2014

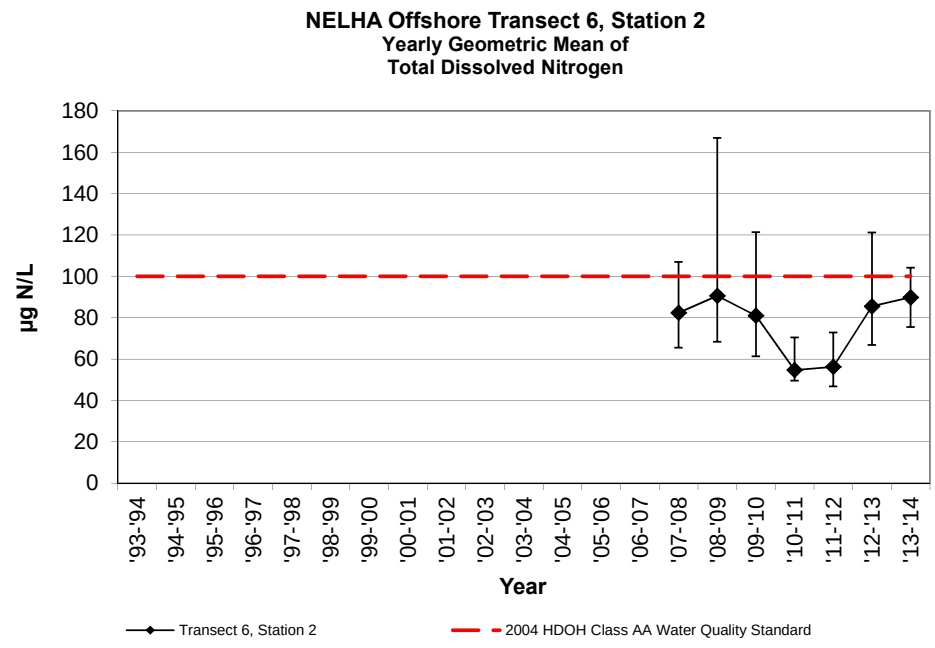
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
T6-10m	7/27/11	1105	0.18	5.6	0.26	3.7	0.09	1.3	2.12	60	0.47	14.5	3.3	47	0.10	34.77	25.99	8.23	6.59	0.11
T6-10m	10/19/11	1047	0.06	1.9	0.34	4.8	0.15	2.1	3.16	89	0.34	10.5	3.9	55	0.08	35.08	26.54	8.25	7.11	0.12
T6-10m	1/26/12	1011	0.08	2.4	0.41	5.8	0.09	1.3	4.68	132	0.34	10.5	3.8	54	0.03	34.94	24.44	8.20	6.76	0.12
T6-10m	4/25/12	1030	0.16	5.0	0.69	9.7	0.27	3.8	6.90	194	0.46	14.1	5.2	73	0.09	34.77	24.87	8.19	6.79	0.06
Geomean	**'11-'12**			**3.4**		***5.6***		**1.9**				**12.3**		**56**	**0.07**					**0.10**
T6-10m	7/25/12	1030	0.05	1.6	0.41	5.8	0.41	5.8	3.50	98	0.56	17.4	8.7	121	0.12	35.01	26.49	8.27	7.53	0.15
T6-10m	11/28/12	1030	0.11	3.4	1.00	14.0	0.23	3.2	5.73	161	0.43	13.2	4.8	67	0.05	35.12	25.14	8.20	6.75	0.19
T6-10m	1/24/13	1015	0.12	3.7	1.06	14.8	0.14	1.9	5.73	161	0.44	13.7	5.1	71	0.02	34.98	24.72	8.22	6.40	0.09
T6-10m	4/24/13	940	0.22	6.9	2.10	29.4	0.16	2.3	6.90	194	0.53	16.5	6.6	93	0.04	34.91	24.89	8.21	6.73	0.12
Geomean	'12-'13			**3.4**		***13.7***		***3.0***				***15.1***		**86**	**0.05**					**0.13**
T6-10m	8/6/13	934	0.12	3.8	0.02	0.3	0.00	0.1	2.4	67	0.38	11.8	7.4	104	0.10	35.14	26.3	8.26	7.10	0.14
T6-10m	10/30/13	913	0.15	4.7	0.33	4.6	0.37	5.2	1.5	43	0.46	14.4	5.9	82	0.02	34.91	27.0	8.23	5.87	0.18
T6-10m	2/5/14	933	0.15	4.7	0.41	5.7	0.34	4.7	2.3	66	0.41	12.6	5.4	76	0.02	34.94	25.2	8.20	6.33	0.15
T6-10m	5/7/14	929	0.13	4.0	0.46	6.5	0.20	2.8	1.5	42	0.69	21.5	7.2	101	0.08	34.76	25.7	8.21	5.87	0.14
Geomean	**'13-'14**			**4.3**		**2.7**		**1.4**				***14.6***		**90**	**0.04**					**0.15**

NELHA Water Qualtiy Laboratory
Transect 6, Station 2
July 1993 - June 2014

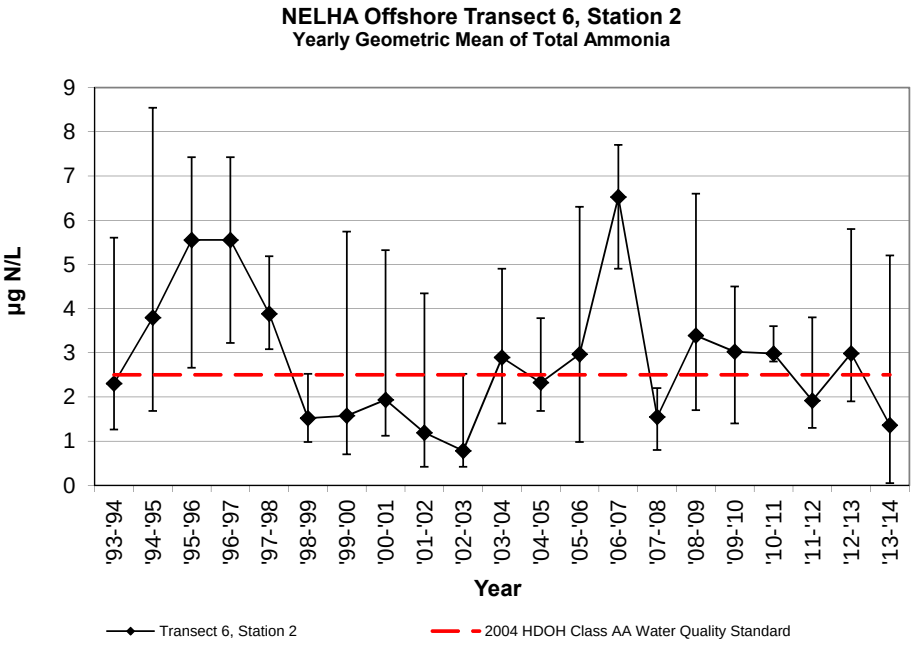


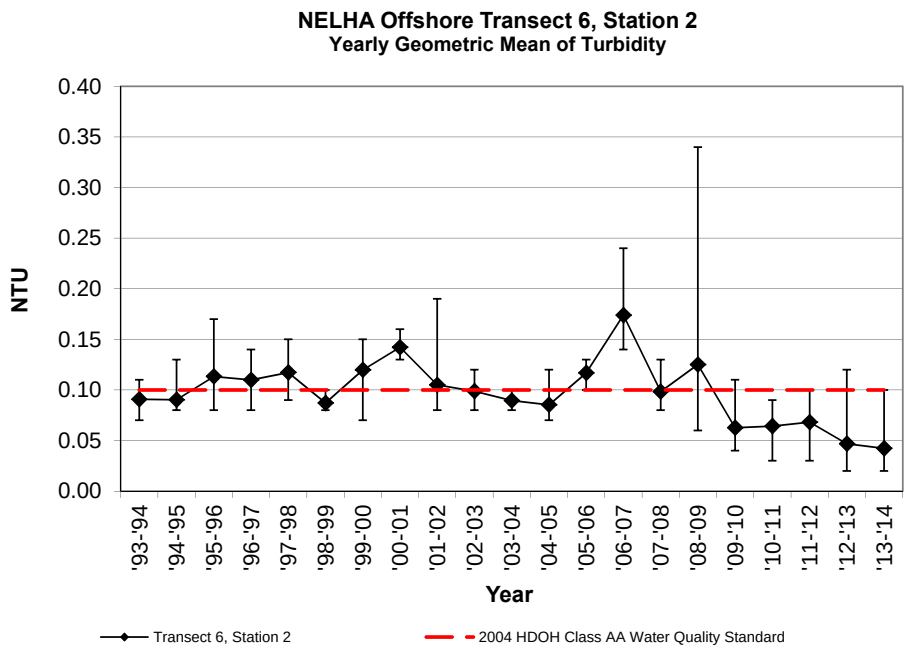


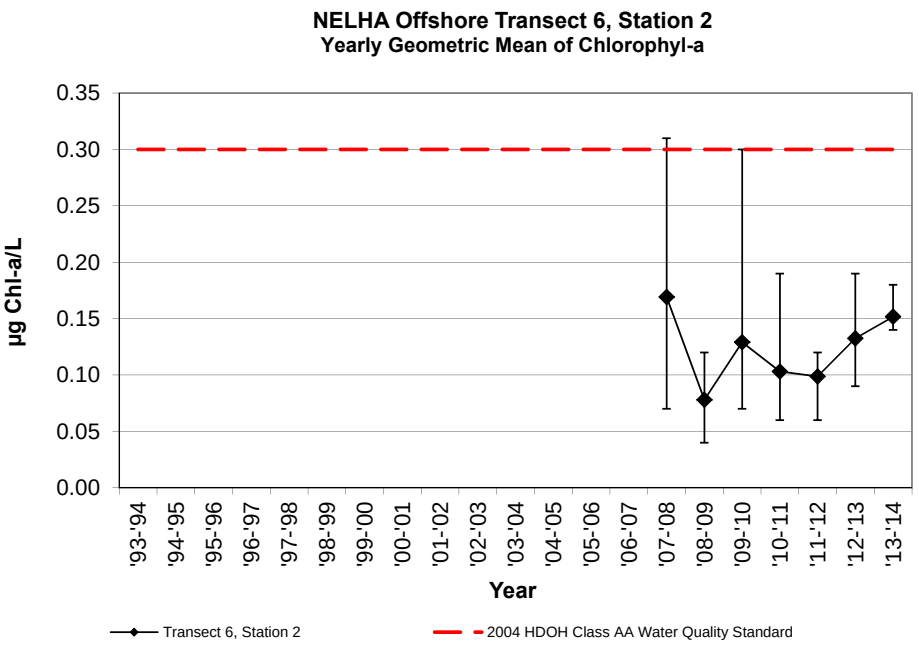




NELHA Water Qualtiy Laboratory
Transect 6, Station 2
July 1993 - June 2014







NELHA Water Quality Laboratory
Transect 6, Station 3
July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(°C)		(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O6-3S-38m	7/26/93	1141	0.11	3.4	0.11	1.5	0.33	4.6	2.3	65					0.06	34.432	27.0			
O6-3S-38m	12/6/93	926	0.07	2.2	0.44	6.2	0.13	1.8	4.0	112					0.09	34.763	25.7			
O6-3S-38m	3/7/94	856	0.22	6.8	0.80	11.2	0.22	3.1	10.3	288					0.09	34.014	24.9			
O6-3S-38m	6/15/94	901	0.21	6.5	0.25	3.5	0.12	1.7	4.0	112					0.09	34.481	25.6			
Geomean	**'93-'94**			**4.3**		**4.4**		***2.6***							**0.08**					
O6-3S-38m	9/9/94	849	0.08	2.5	0.33	4.6	0.18	2.5	5.7	160					0.11	34.476	27.5			
O6-3S-38m	11/14/94	803	0.15	4.6	0.67	9.4	0.55	7.7	8.9	251					0.09	34.446	26.0			
O6-3S-38m	3/22/95	828	0.16	5.0	0.26	3.6	0.32	4.5	4.9	139					0.09	34.143	25.1			
O6-3S-38m	6/20/95	828	0.12	3.7	0.23	3.2	0.14	2.0	3.8	106					0.07	34.398	26.2			
Geomean	**'94-'95**			**3.8**		***4.7***		***3.6***							**0.09**					
O6-3S-38m	9/26/95	941	0.13	4.0	0.78	10.9	0.47	6.6	12.0	338					0.13	34.221	27.0			
O6-3S-38m	11/14/95	1103	0.12	3.7	0.32	4.5	0.58	8.1	4.8	133					0.09	34.256	26.9			
O6-3S-38m	3/12/96	1127	0.14	4.3	0.19	2.7	0.50	7.0	3.8	107					0.06	34.135	25.5			
O6-3S-38m	5/14/96	1121	0.13	4.0	0.37	5.2	0.22	3.1	7.7	217					0.08	34.161	27.4			
Geomean	**'95-'96**			**4.0**		***5.1***		***5.8***							**0.09**					
O6-3S-38m	7/31/96	1150	0.13	4.0	1.61	22.6	0.51	7.1	21.2	596					0.10	33.799	27.7			
O6-3S-38m	10/2/96	1123	0.08	2.5	0.58	8.1	0.43	6.0	9.2	259					0.15	34.400	28.4			
O6-3S-38m	1/7/97	1128	0.08	2.5	0.10	1.4	0.23	3.2	4.3	120					0.10	34.670	25.7			
O6-3S-38m	4/28/97	1150	0.23	7.1	0.58	8.1	0.49	6.9	16.0	449					0.11	34.218	26.4			
Geomean	**'96-'97**			**3.6**		***6.8***		***5.6***							***0.11***					
O6-3S-38m	8/19/97	1128	0.08	2.5	0.45	6.3	0.21	2.9	9.0	252					0.12	34.427	27.0			
O6-3S-38m	10/7/97	1032	0.11	3.4	0.11	1.5	0.38	5.3	5.8	163					0.10	34.673	27.6			
O6-3S-38m	3/4/98	1203	0.12	3.7	0.67	9.4	0.25	3.5	10.3	289					0.13	34.746	25.2			
O6-3S-38m	5/5/98	1154	0.12	3.7	0.84	11.8	0.31	4.3	12.8	359					0.09	34.734	24.3			
Geomean	**'97-'98**			**3.3**		***5.7***		***3.9***							***0.11***					
O6-3S-38m	7/7/98	1211	0.14	4.3	1.08	15.1	0.02	0.3	16.0	450					0.10	34.628	26.3			
O6-3S-38m	10/6/98	1120	0.13	4.0	0.88	12.3	0.11	1.5	11.3	317					0.08	34.819	27.2			
O6-3S-38m	1/19/99	1157	0.10	3.1	0.76	10.6	0.08	1.1	11.2	315					0.10	34.867	25.1			
O6-3S-38m	4/12/99	1203	0.12	3.7	0.15	2.1	0.14	2.0	4.4	125					0.07	34.634	24.2			
Geomean	**'98-'99**			**3.8**		***8.0***		**1.0**							**0.09**					
O6-3S-38m	7/6/99	1229	0.10	3.1	0.28	3.9	0.05	0.7	7.3	206					0.12	34.827	25.7			
O6-3S-38m	10/4/99	1250	0.12	3.7	0.25	3.5	0.11	1.5	3.9	108					0.10	34.927	26.4			
O6-3S-38m	1/12/00	1157	0.16	5.0	1.63	22.8	0.46	6.4	28.9	810					0.08	34.351	24.9			
O6-3S-38m	4/11/00	1055	0.11	3.4	0.58	8.1	0.06	0.8	13.6	382					0.10	34.625	24.5			
Geomean	**'99-'00**			**3.7**		***7.1***		**1.6**							**0.10**					
O6-3S-38m	7/25/00	1215	0.11	3.4	0.19	2.7	0.05	0.7	10.4	293					0.08	34.775	26.7			
O6-3S-38m	10/31/00	1159	0.13	4.0	0.45	6.3	0.28	3.9	10.6	298					0.08	34.721	27.0			
O6-3S-38m	3/6/01	1145	0.18	5.6	0.24	3.4	0.06	0.8	5.6	158					0.07	34.674	24.8			
O6-3S-38m	5/7/01	1246	0.17	5.3	1.58	22.1	0.33	4.6	19.1	537					0.12	34.367	24.7			
Geomean	**'00-'01**			**4.5**		***5.9***		**1.8**							**0.09**					
O6-3S-38m	8/14/01	1050	0.12	3.7	0.15	2.1	0.32	4.5	3.8	107					0.14	34.811	26.7			
O6-3S-38m	10/30/01	1100	0.14	4.3	0.60	8.4	0.02	0.3	5.5	155					0.07	34.888	26.7			
O6-3S-38m	3/6/02	1106	0.24	7.4	2.85	39.9	0.08	1.1	20.8	584					0.12	34.060	24.2			
O6-3S-38m	4/15/02	1123	0.18	5.6	1.93	27.0	0.04	0.6	12.3	345					0.09	34.167	25.6			
Geomean	**'01-'02**			***5.1***		***11.7***		**0.9**							**0.10**					

NELHA Water Quality Laboratory
Transect 6, Station 3
July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O6-3S-38m	7/10/02	1112	0.11	3.4	2.00	28.0	0.18	2.5	14.3	401					0.10	34.304	26.2			
O6-3S-38m	10/8/02	1106	0.14	4.3	1.81	25.4	0.06	0.8	13.8	386					0.09	34.547	27.0			
O6-3S-38m	3/12/03	1004	0.14	4.3	0.70	9.8	0.03	0.4	8.7	245					0.10	34.527	25.0			
O6-3S-38m	4/23/03	1114	0.14	4.3	0.93	13.0	0.03	0.4	10.5	294					0.08	34.709	24.9			
Geomean	**'02-'03**			**4.1**		***17.4***		**0.8**							**0.09**					
O6-3S-38m	8/21/03	1045	0.08	2.5	0.03	0.4	0.10	1.4	4.1	115					0.07	34.770	28.4			
O6-3S-38m	11/3/03	1029	0.13	4.0	0.17	2.4	0.23	3.2	6.0	169					0.12	34.597	27.4			
O6-3S-38m	3/18/04	1040	0.18	5.6	1.12	15.7	0.37	5.2	11.8	331					n/a	34.075	25.5			
O6-3S-38m	5/24/04	1053	0.17	5.3	0.24	3.4	0.16	2.2	4.7	131					n/a	33.25	26.8			
Geomean	**'03-'04**			**4.1**		**2.7**		***2.7***							**0.09**					
O6-3S-38m	9/22/04	1128	0.08	2.5	0.01	0.1	0.36	5.0	2.5	69					0.09	33.66	27.8			
O6-3S-38m	11/29/04	1036	0.08	2.5	0.29	4.1	0.11	1.5	3.8	106					0.07	33.64	26.9			
O6-3S-38m	1/24/05	1112	0.10	3.1	0.74	10.4	0.18	2.5	9.4	264					0.09	34.587	25.7			
O6-3S-38m	4/13/05	1119	0.14	4.3	0.28	3.9	0.13	1.8	5.8	161					0.09	34.381	25.0			
Geomean	**'04-'05**			**3.0**		**2.2**		**2.4**							**0.08**					
O6-3S-38m	7/21/05	1053	0.06	1.9	0.32	4.5	0.35	4.9	12.8	358					0.12	34.631	27.4			
O6-3S-38m	10/13/05	1026	0.06	1.9	0.11	1.5	0.20	2.8	3.6	101					0.11	34.928	27.4			
O6-3S-38m	3/15/06	952	0.11	3.4	0.74	10.4	0.38	5.3	9.2	258					0.08	34.630	24.3			
O6-3S-38m	5/17/06	1035	0.09	2.8	0.07	1.0	0.05	0.7	2.0	56					0.13	34.672	24.9			
Geomean	**'05-'06**			**2.4**		**2.9**		***2.7***							***0.11***					
O6-3S-38m	8/16/06	1042	0.11	3.4	0.36	5.0	0.36	5.0	3.0	85					0.14	34.596	26.8			
O6-3S-38m	11/20/06	1035	0.26	8.1	2.56	35.9	0.56	7.8	20.7	581					0.22	34.150	26.6			
O6-3S-38m	2/12/07	1136	0.21	6.5	2.14	30.0	0.65	9.1	14.3	402					0.34	33.991	24.5			
O6-3S-38m	4/16/07	1117	0.21	6.5	2.52	35.3	0.41	5.7	20.9	587					0.20	34.335	26.7			
Geomean	**'06-'07**			***5.8***		***20.9***		***6.7***							***0.21***					
T6-50m	9/27/07	1010	0.16	5.1	0.38	5.3	0.03	0.4	8.4	235	0.33	10.1	7.1	100	0.10	34.785	26.66	8.10	6.39	0.11
T6-50m	12/14/07	1031	0.12	3.7	1.02	14.3	0.00		9.2	259	0.42	13.1	5.9	83	0.08	34.398	25.66	8.18	6.96	0.30
T6-50m	3/11/08	1037	0.12	3.7	0.79	11.0	0.06	0.8	13.0	366	0.27	8.4	6.9	96	0.11	34.720	24.72	8.10	6.59	0.29
T6-50m	6/9/08	1104	0.11	3.3	0.48	6.7	0.16	2.2	19.9	559	0.27	8.4	5.8	81	0.15	34.559	25.15	8.12	5.79	0.20
Geomean	**'07-'08**			**3.9**		***8.6***		**0.9**				**9.8**		**90**	***0.11***					**0.21**
T6-50m	9/23/08	1204	0.03	0.8	0.19	2.6	0.37	5.2	2.3	64	0.29	9.1	4.8	68	0.07	34.786	26.88	8.08	6.40	0.15
T6-50m	12/8/08	1028	0.18	5.6	0.95	13.3	0.44	6.1	8.2	231	0.32	9.9	6.6	92	0.12	34.671	26.15	8.31	5.46	0.07
T6-50m	2/10/09	958	0.09	2.9	0.76	10.7	0.18	2.5	6.8	191	0.26	8.0	8.3	116	0.08	34.847	24.74	8.06	6.10	0.07
T6-50m	6/30/09	1050	0.23	7.2	0.44	6.1	0.44	6.2	5.0	142	0.46	14.1	4.3	60	0.24	34.785	26.75	8.22	6.36	0.11
Geomean	**'08-'09**			**3.1**		***6.9***		***4.7***				**10.0**		**81**	***0.11***					**0.09**
T6-50m	9/10/09	1102	0.13	3.9	0.46	6.5	0.30	4.2	6.7	189	0.58	18.0	6.3	88	0.10	35.02	27.38	8.20	5.70	0.17
T6-50m	11/24/09	1020	0.02	0.8	0.39	5.4	0.14	1.9	25.6	719	0.28	8.7	5.2	73	0.04	35.18	25.12	8.26	6.61	0.13
T6-50m	2/24/10	1050	0.12	3.8	0.09	1.2	0.36	5.0	7.4	208	0.28	8.8	7.6	107	0.08	34.78	24.62	8.23	5.61	0.27
T6-50m	5/26/10	1011	0.02	0.6	0.33	4.6	0.16	2.2	4.8	134	0.27	8.4	6.4	90	0.10	34.73	25.06	8.28	6.91	0.09
Geomean	**'09-'10**			**1.6**		**3.7**		***3.1***				**10.4**		**88**	**0.08**					**0.15**
T6-50m	8/11/10	1027	0.05	1.5	0.58	8.1	0.05	0.7	5.1	142	0.29	8.9	2.9	41	0.05	34.92	25.98	8.22	6.64	0.10
T6-50m	11/9/10	1022	0.05	1.7	0.51	7.1	0.16	2.3	10.0	281	0.40	12.4	4.8	67	0.09	34.85	26.38	8.29	6.26	0.04
T6-50m	1/11/11	1249	0.15	4.8	0.87	12.2	0.15	2.1	17.3	486	0.51	15.7	4.5	64	0.04	34.96	25.00	8.25	6.49	0.11
T6-50m	4/27/11	1023	0.16	5.1	0.56	7.9	0.19	2.7	22.6	635	0.43	13.3	3.9	54	0.09	34.77	24.84	8.23	6.48	0.17
Geomean	**'10-'11**			**2.8**		***8.6***		**1.7**				**12.3**		**55**	**0.06**					**0.09**

NELHA Water Quality Laboratory
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July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
T6-50m	7/27/11	1109	0.19	5.8	0.26	3.6	0.10	1.4	2.7	74.9	0.48	14.9	4.0	56.4	0.07	34.76	26.1	8.23	6.42	0.10
T6-50m	10/19/11	1051	0.06	1.8	0.30	4.2	0.28	3.9	3.1	87.8	0.36	11.2	4.1	57.9	0.04	35.08	26.5	8.26	7.12	0.14
T6-50m	1/26/12	1016	0.08	2.6	0.56	7.8	0.15	2.1	5.8	163.3	0.36	11.2	3.4	47.6	0.07	34.90	24.4	8.20	6.69	0.14
T6-50m	4/25/12	1032	0.18	5.6	0.94	13.2	0.35	4.9	9.5	267.2	0.43	13.4	3.9	55.0	0.07	34.65	24.8	8.20	6.94	0.08
Geomean	**'11-'12**			**3.5**		***6.3***		***2.7***				***12.6***		**54.1**	**0.06**					**0.11**
T6-50m	7/25/12	1041	0.03	0.8	0.23	3.2	0.21	2.9	2.4	68.0	0.42	12.9	4.7	66.5	0.16	35.06	26.5	8.24	6.74	0.20
T6-50m	11/28/12	1034	0.15	4.8	2.23	31.3	0.28	3.9	13.5	380.4	0.46	14.4	6.2	86.3	0.02	34.79	25.1	8.20	6.85	0.22
T6-50m	1/24/13	1020	0.10	3.2	0.65	9.1	0.15	2.1	5.0	141.0	0.45	13.8	5.0	69.6	0.02	34.97	24.8	8.23	6.48	0.07
T6-50m	4/24/13	946	0.22	6.7	1.87	26.2	0.16	2.3	9.5	267.2	0.55	17.0	5.6	78.8	0.03	34.92	24.9	8.22	6.73	0.10
Geomean	**'12-'13**			**3.0**		***12.4***		***2.7***				***14.4***		**74.9**	**0.04**					**0.13**
T6-50m	8/6/13	1107	0.15	4.7	1.91	26.8	0.43	6.0	11.9	333	0.39	12.1	7.0	98	0.02	34.90	26.2	8.21	7.41	0.14
T6-50m	10/30/13	1014	0.15	4.8	0.47	6.6	0.21	2.9	3.2	89	0.56	17.2	6.2	87	0.03	34.89	27.0	8.22	5.81	0.15
T6-50m	2/5/14	1039	0.15	4.5	0.34	4.7	0.33	4.6	2.4	68	0.43	13.4	4.2	59	0.02	35.00	25.2	8.20	6.56	0.13
T6-50m	5/7/14	1034	0.13	4.0	0.50	7.0	0.30	4.2	6.2	173	0.42	12.9	5.4	76	0.08	34.72	25.8	8.20	5.57	0.13
Geomean	**'13-'14**			**4.5**		***8.7***		***4.3***				***13.8***		**79**	**0.03**					**0.14**

NELHA Water Quality Laboratory
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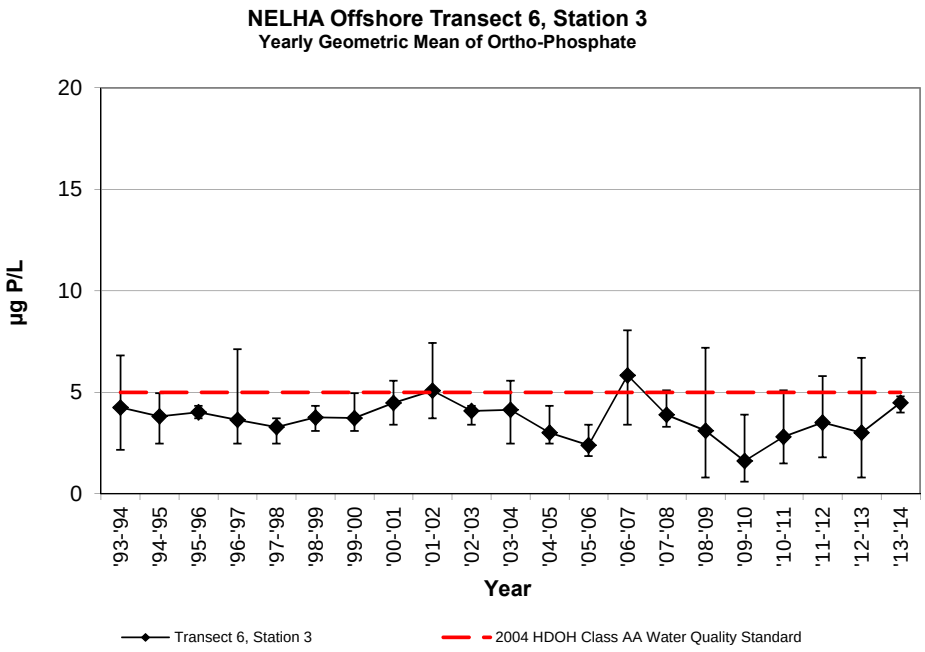
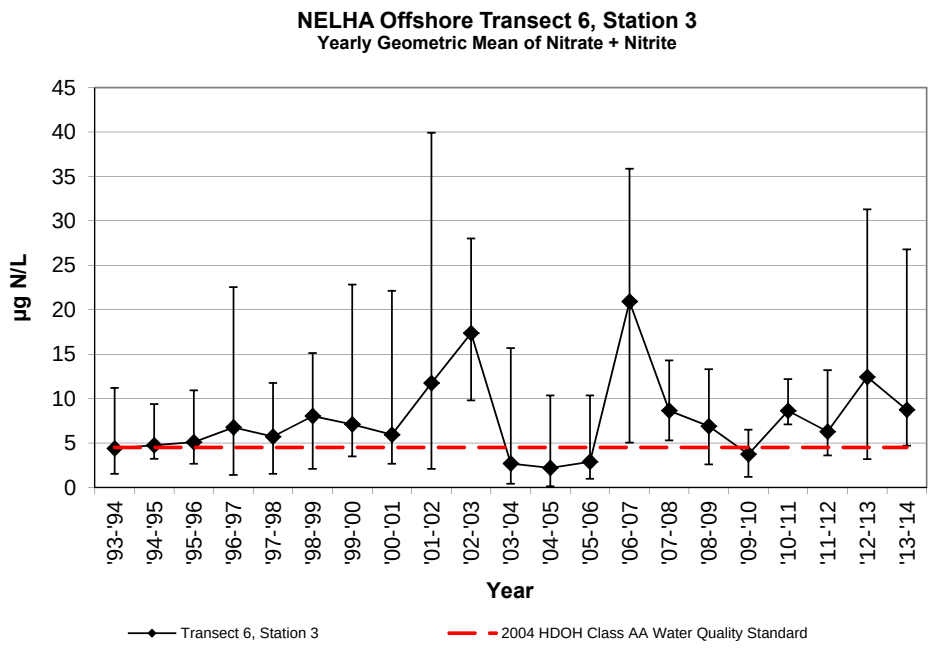
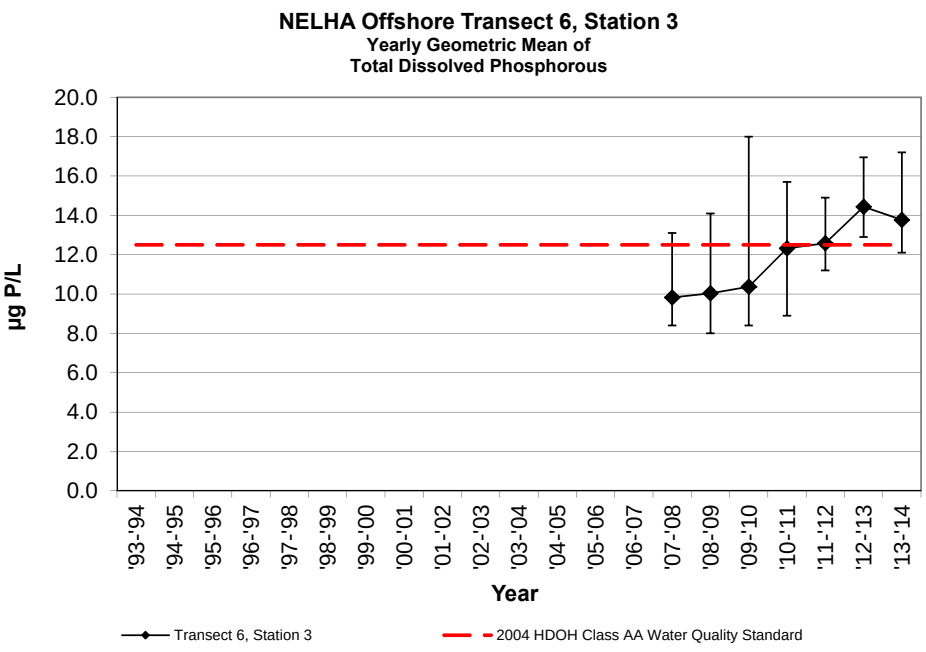
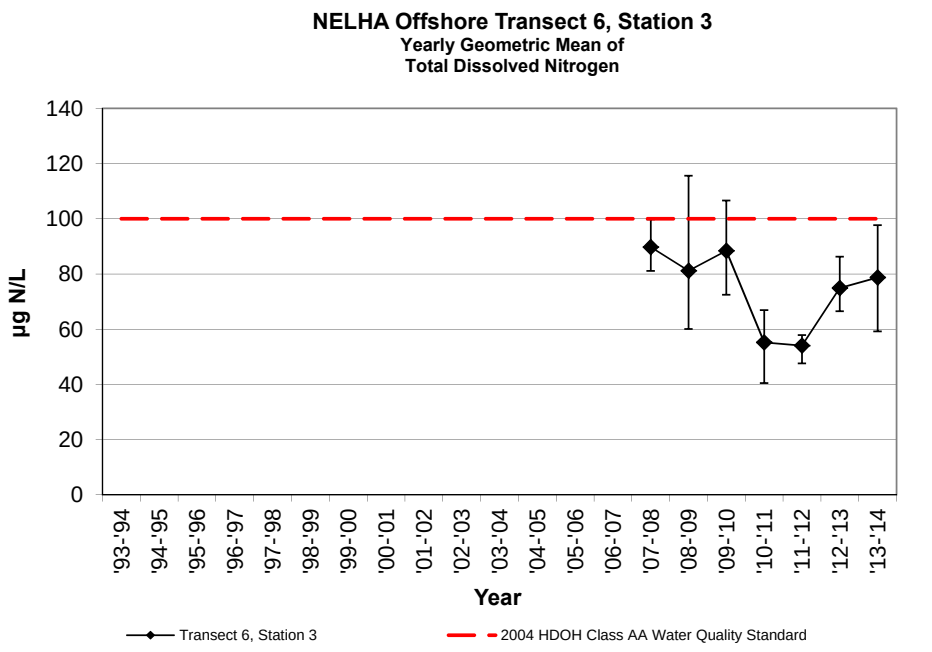
July 1993 - June 2014









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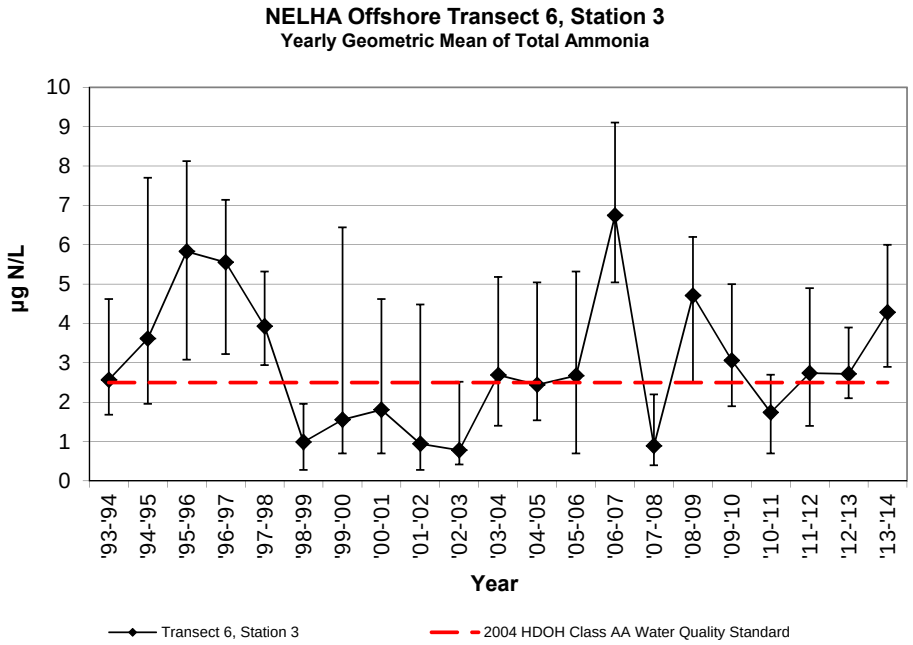
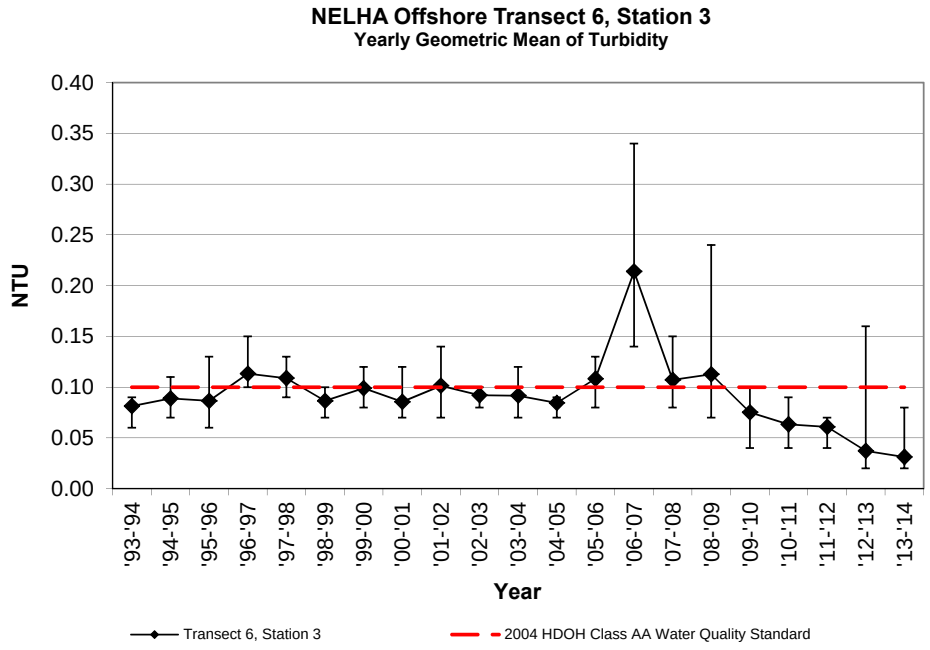
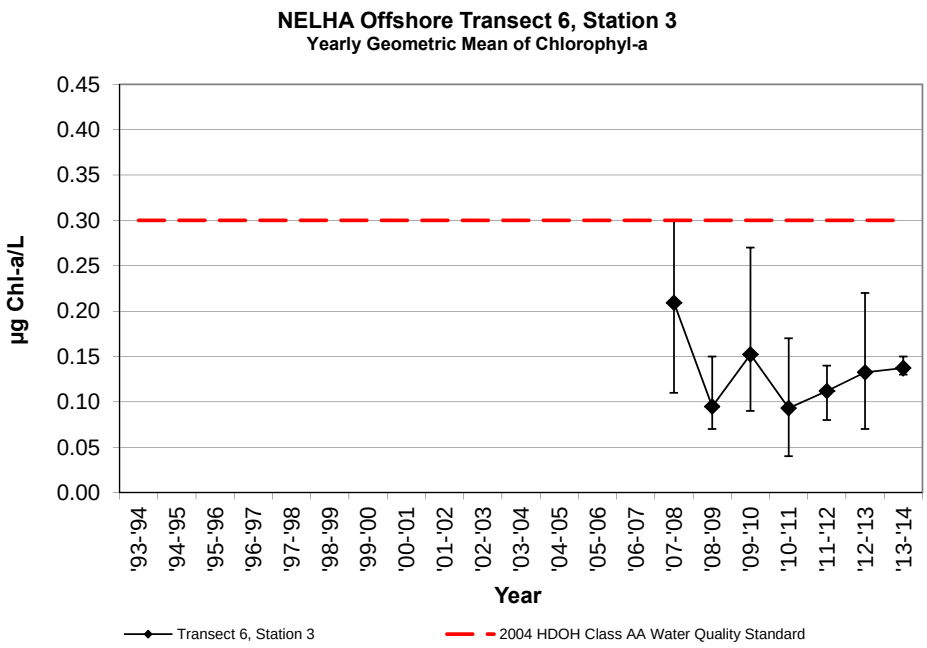
July 1993 - June 2014







NELHA Water Quality Laboratory
Transect 6, Station 4
July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O6-4S-53m	7/26/93	1130	0.09	2.8	0.12	1.7	0.42	5.9	2.1	58					0.07	34.440	27.0			
O6-4S-53m	12/6/93	917	0.06	1.9	0.53	7.4	0.09	1.3	4.2	118					0.09	34.755	25.7			
O6-4S-53m	3/7/94	849	0.22	6.8	0.91	12.7	0.18	2.5	11.4	320					0.08	33.964	24.9			
O6-4S-53m	6/15/94	857	0.22	6.8	0.27	3.8	0.40	5.6	4.2	117					0.13	34.497	25.6			
Geomean	**'93-'94**			**3.9**		***5.0***		***3.2***							**0.09**					
O6-4S-53m	9/9/94	847	0.06	1.9	0.01	0.1	0.10	1.4	2.5	70					0.07	34.580	27.6			
O6-4S-53m	11/14/94	759	0.14	4.3	0.48	6.7	0.55	7.7	6.7	188					0.11	34.521	26.0			
O6-4S-53m	3/22/95	830	0.17	5.3	0.29	4.1	0.34	4.8	5.5	154					0.11	34.128	25.1			
O6-4S-53m	6/20/95	820	0.12	3.7	0.24	3.4	0.10	1.4	3.8	106					0.07	34.389	26.2			
Geomean	**'94-'95**			**3.5**		**1.9**		***2.9***							**0.09**					
O6-4S-53m	9/26/95	953	0.14	4.3	0.58	8.1	0.56	7.8	10.0	281					0.17	34.295	27.0			
O6-4S-53m	11/14/95	1058	0.11	3.4	0.30	4.2	0.52	7.3	4.5	125					0.09	34.315	26.8			
O6-4S-53m	3/12/96	1121	0.14	4.3	0.27	3.8	0.52	7.3	4.9	138					0.06	34.095	25.5			
O6-4S-53m	5/14/96	1117	0.10	3.1	0.14	2.0	0.16	2.2	4.1	114					0.08	34.273	27.5			
Geomean	**'95-'96**			**3.8**		**4.0**		***5.5***							**0.09**					
O6-4S-53m	7/31/96	1146	0.13	4.0	1.73	24.2	0.53	7.4	23.1	649					0.12	33.745	27.8			
O6-4S-53m	10/2/96	1119	0.08	2.5	0.06	0.8	0.46	6.4	10.6	299					0.13	34.343	28.4			
O6-4S-53m	1/7/97	1124	0.09	2.8	0.59	8.3	0.24	3.4	9.5	267					0.09	34.486	25.6			
O6-4S-53m	4/28/97	1141	0.17	5.3	0.56	7.8	0.53	7.4	9.3	260					0.09	34.227	26.5			
Geomean	**'96-'97**			**3.5**		***6.0***		***5.9***							***0.11***					
O6-4S-53m	8/19/97	1123	0.12	3.7	0.53	7.4	0.24	3.4	10.9	306					0.12	34.387	27.0			
O6-4S-53m	10/7/97	1025	0.11	3.4	0.19	2.7	0.37	5.2	7.1	199					0.10	34.654	27.6			
O6-4S-53m	3/4/98	1157	0.14	4.3	1.65	23.1	0.36	5.0	26.3	739					0.10	34.160	25.2			
O6-4S-53m	5/5/98	1148	0.14	4.3	1.38	19.3	0.31	4.3	17.6	495					0.12	34.579	24.4			
Geomean	**'97-'98**			**3.9**		***9.7***		***4.4***							***0.11***					
O6-4S-53m	7/7/98	1204	0.14	4.3	0.95	13.3	0.04	0.6	14.3	402					0.11	34.647	26.3			
O6-4S-53m	10/6/98	1113	0.12	3.7	0.85	11.9	0.13	1.8	10.0	282					0.08	34.817	27.1			
O6-4S-53m	1/19/99	1152	0.08	2.5	0.52	7.3	0.13	1.8	8.4	237					0.07	34.946	25.2			
O6-4S-53m	4/12/99	1156	0.12	3.7	0.18	2.5	0.14	2.0	5.1	144					0.09	34.620	24.2			
Geomean	**'98-'99**			**3.5**		***7.3***		**1.4**							**0.09**					
O6-4S-53m	7/6/99	1222	0.09	2.8	0.28	3.9	0.08	1.1	6.0	170					0.12	34.811	25.7			
O6-4S-53m	10/4/99	1242	0.11	3.4	0.26	3.6	0.06	0.8	4.4	124					0.09	34.923	26.4			
O6-4S-53m	1/12/00	1149	0.15	4.6	1.53	21.4	0.42	5.9	25.9	726					0.07	34.375	24.8			
O6-4S-53m	4/11/00	1049	0.12	3.7	0.72	10.1	0.04	0.6	11.1	311					0.05	34.560	24.5			
Geomean	**'99-'00**			**3.6**		***7.5***		**1.3**							**0.08**					
O6-4S-53m	7/25/00	1209	0.11	3.4	0.21	2.9	0.07	1.0	5.8	164					0.07	34.763	26.7			
O6-4S-53m	10/31/00	1153	0.12	3.7	0.39	5.5	0.27	3.8	9.3	260					0.11	34.773	26.9			
O6-4S-53m	3/6/01	1140	0.17	5.3	0.20	2.8	0.10	1.4	5.6	157					0.12	34.678	24.8			
O6-4S-53m	5/7/01	1241	0.17	5.3	1.50	21.0	0.35	4.9	23.5	660					0.09	34.363	24.8			
Geomean	**'00-'01**			**4.3**		***5.5***		**2.2**							**0.10**					
O6-4S-53m	8/14/01	1044	0.12	3.7	0.14	2.0	0.29	4.1	3.6	100					0.10	34.814	26.7			
O6-4S-53m	10/30/01	1056	0.15	4.6	0.74	10.4	0.05	0.7	7.1	199					0.08	34.833	26.8			
O6-4S-53m	3/6/02	1102	0.25	7.7	3.10	43.4	0.08	1.1	23.3	654					0.09	34.958	24.2			
O6-4S-53m	4/15/02	1117	0.12	3.7	1.85	25.9	0.06	0.8	12.3	346					0.09	34.173	25.6			
Geomean	**'01-'02**			**4.7**		***12.3***		**1.3**							**0.09**					

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Transect 6, Station 4

July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O6-4S-53m	7/10/02	1106	0.07	2.2	2.10	29.4	0.20	2.8	14.0	393					0.07	34.319	26.2			
O6-4S-53m	10/8/02	1102	0.14	4.3	1.76	24.7	0.09	1.3	11.8	331					0.10	34.617	27.1			
O6-4S-53m	3/12/03	959	0.14	4.3	0.80	11.2	0.03	0.4	10.5	295					0.09	34.472	24.9			
O6-4S-53m	4/23/03	1110	0.15	4.6	1.32	18.5	0.03	0.4	14.6	409					0.09	35.561	25.0			
Geomean	**'02-'03**			**3.7**		***19.7***		**0.9**							**0.09**					
O6-4S-53m	8/21/03	1038	0.09	2.8	0.03	0.4	0.10	1.4	3.8	106					0.05	34.779	28.4			
O6-4S-53m	11/3/03	1016	0.10	3.1	0.01	0.1	0.17	2.4	2.4	67					0.08	34.647	27.3			
O6-4S-53m	3/18/04	1033	0.12	3.7	0.52	7.3	0.38	5.3	6.8	190					n/a	34.195	25.7			
O6-4S-53m	5/24/04	1041	0.16	5.0	0.50	7.0	0.23	3.2	5.5	154					n/a	33.35	26.8			
Geomean	**'03-'04**			**3.6**		**1.3**		***2.7***							**0.06**					
O6-4S-53m	9/22/04	1123	0.07	2.2	0.01	0.1	0.27	3.8	2.3	64					0.08	33.68	27.8			
O6-4S-53m	11/29/04	1031	0.09	2.8	0.38	5.3	0.17	2.4	4.6	129					0.04	33.69	26.9			
O6-4S-53m	1/24/05	1108	0.06	1.9	0.01	0.1	0.14	2.0	2.1	59					0.07	34.341	25.7			
O6-4S-53m	4/13/05	1112	0.14	4.3	0.34	4.8	0.16	2.2	6.2	175					0.08	34.844	25.0			
Geomean	**'04-'05**			**2.6**		**0.8**		**2.5**							**0.07**					
O6-4S-53m	7/21/05	1049	0.06	1.9	0.18	2.5	0.38	5.3	4.6	130					0.09	34.664	27.4			
O6-4S-53m	10/13/05	1021	0.06	1.9	0.05	0.7	0.20	2.8	2.8	77					0.10	34.901	27.4			
O6-4S-53m	3/15/06	945	0.11	3.4	0.63	8.8	0.33	4.6	11.1	313					0.08	34.655	24.4			
O6-4S-53m	5/17/06	1030	0.10	3.1	0.08	1.1	0.05	0.7	1.5	43					0.11	34.665	24.8			
Geomean	**'05-'06**			**2.5**		**2.0**		***2.6***							**0.09**					
O6-4S-53m	8/16/06	1032	0.12	3.7	0.49	6.9	0.33	4.6	3.9	109					0.09	34.585	26.8			
O6-4S-53m	11/20/06	1030	0.18	5.6	1.28	17.9	0.63	8.8	11.7	329					0.41	34.480	26.7			
O6-4S-53m	2/12/07	1130	0.19	5.9	2.03	28.4	0.42	5.9	15.8	444					0.18	33.994	24.9			
O6-4S-53m	4/16/07	1112	0.14	4.3	0.63	8.8	0.39	5.5	9.6	269					0.19	34.453	26.5			
Geomean	**'06-'07**			**4.8**		***13.3***		***6.0***							***0.19***					
T6-100m	9/27/07	1000	0.14	4.4	0.01	0.1	0.13	1.8	9.4	263	0.33	10.2	6.2	87	0.15	34.797	26.70	8.09	6.31	0.08
T6-100m	12/14/07	1033	0.13	4.0	0.89	12.5	0.00		9.1	255	0.39	12.1	7.8	109	0.11	34.470	25.65	8.16	6.84	0.22
T6-100m	3/11/08	1041	0.12	3.7	0.54	7.6	0.06	0.8	17.1	481	0.24	7.5	6.0	84	0.11	34.723	24.75	8.11	6.56	0.32
T6-100m	6/9/08	1109	0.09	2.8	0.07	1.0	0.16	2.2	14.6	410	0.29	9.1	6.7	93	0.12	34.570	25.22	8.11	5.75	0.22
Geomean	**'07-'08**			**3.7**		**1.8**		**1.5**				**9.6**		**93**	***0.12***					**0.19**
T6-100m	9/23/08	1219	0.03	0.8	0.14	2.0	0.31	4.3	2.2	63	0.35	11	5.4	75	0.06	34.787	26.75	8.07	6.05	0.12
T6-100m	12/8/08	1042	0.16	5.0	0.58	8.1	0.30	4.2	5.3	149	0.35	11	5.8	81	0.08	34.690	26.31	8.30	5.63	0.04
T6-100m	2/10/09	1009	0.09	2.8	0.55	7.7	0.18	2.5	5.7	159	0.24	7	8.7	122	0.09	34.908	24.76	8.06	5.87	0.04
T6-100m	6/30/09	1102	0.29	9.0	1.44	20.1	0.63	8.8	13.6	381	0.49	15	5.3	75	0.10	34.516	26.65	8.18	6.28	0.16
Geomean	**'08-'09**			**3.2**		***7.1***		***4.5***				**10.7**		**86**	**0.08**					**0.07**
T6-100m	9/10/09	1108	0.18	5.7	0.60	8.4	0.52	7.3	8.5	239	0.60	19	6.7	94	0.09	35.11	27.31	8.19	5.77	0.32
T6-100m	11/24/09	1027	0.02	0.8	0.45	6.3	0.16	2.3	16.4	461	0.31	10	5.5	77	0.06	35.13	25.12	8.24	6.59	0.18
T6-100m	2/24/10	1054	0.12	3.7	0.16	2.2	0.38	5.3	2.6	73	0.32	10	7.3	103	0.07	34.83	24.63	8.22	5.56	0.27
T6-100m	5/26/10	1016	0.01	0.4	0.13	1.8	0.19	2.7	4.5	128	0.23	7	4.6	65	0.06	34.77	25.05	8.28	6.65	0.09
Geomean	**'09-'10**			**1.6**		**3.8**		***3.9***				**10.6**		**83**	**0.07**					**0.19**
T6-100m	8/11/10	1032	0.08	2.6	1.26	17.7	0.30	4.2	12.1	339	0.29	9	2.8	39	0.05	34.68	25.96	8.21	6.46	0.08
T6-100m	11/9/10	1028	0.05	1.5	0.49	6.8	0.11	1.5	4.9	138	0.45	14	5.3	74	0.09	34.84	26.43	8.29	6.28	0.07
T6-100m	1/11/11	1255	0.15	4.7	0.58	8.1	0.21	2.9	6.5	183	0.45	14	3.9	55	0.04	34.87	25.09	8.25	6.52	0.13
T6-100m	4/27/11	1027	0.15	4.7	0.26	3.6	0.11	1.5	4.6	129	0.40	13	3.8	53	0.08	34.83	24.94	8.22	6.30	0.14
Geomean	**'10-'11**			**3.0**		***7.7***		**2.3**				**12.2**		**54**	**0.06**					**0.10**

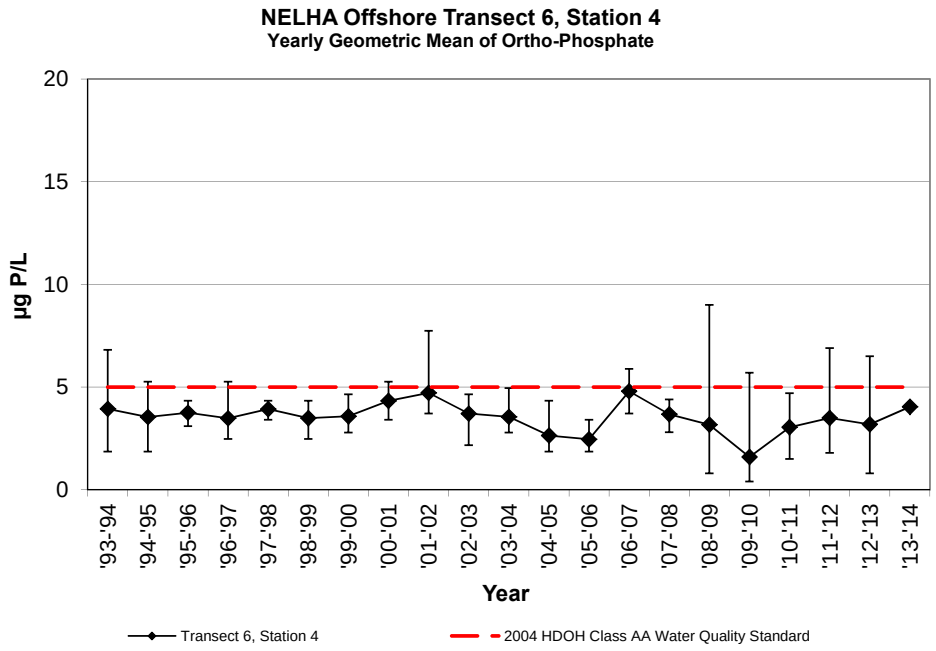
NELHA Water Quality Laboratory

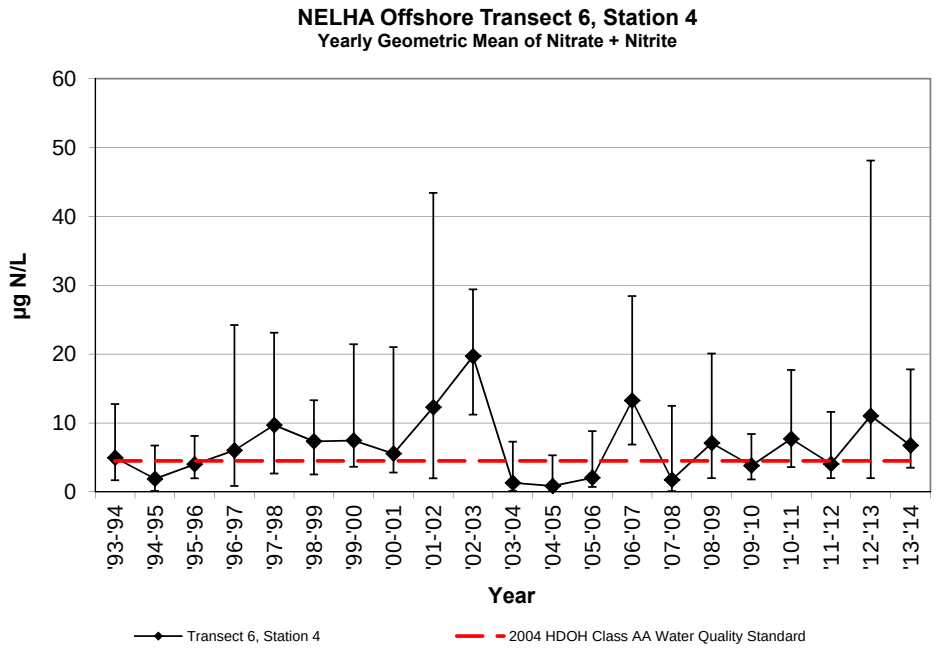
Transect 6, Station 4

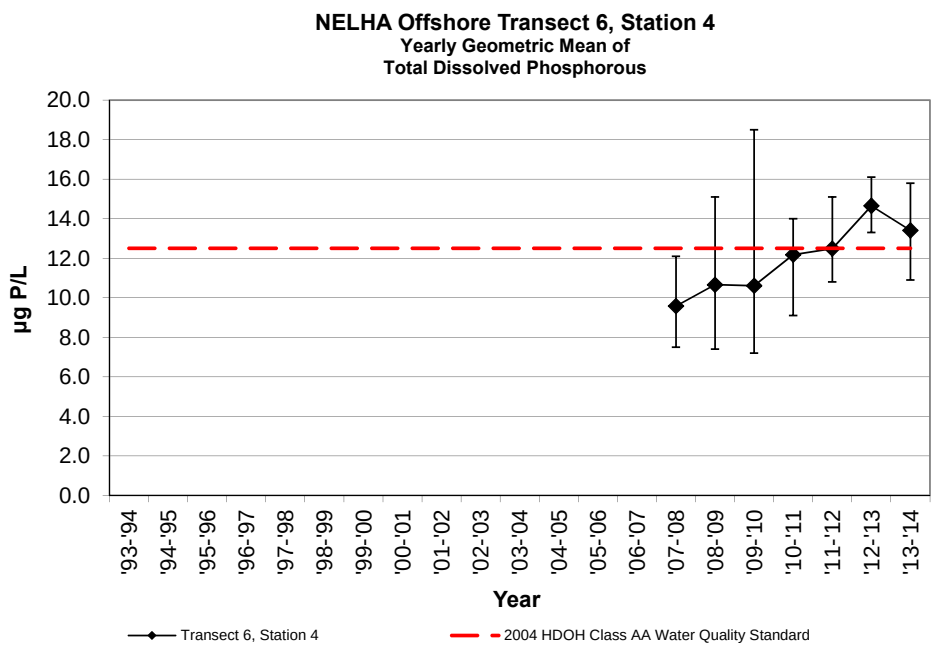
July 1993 - June 2014

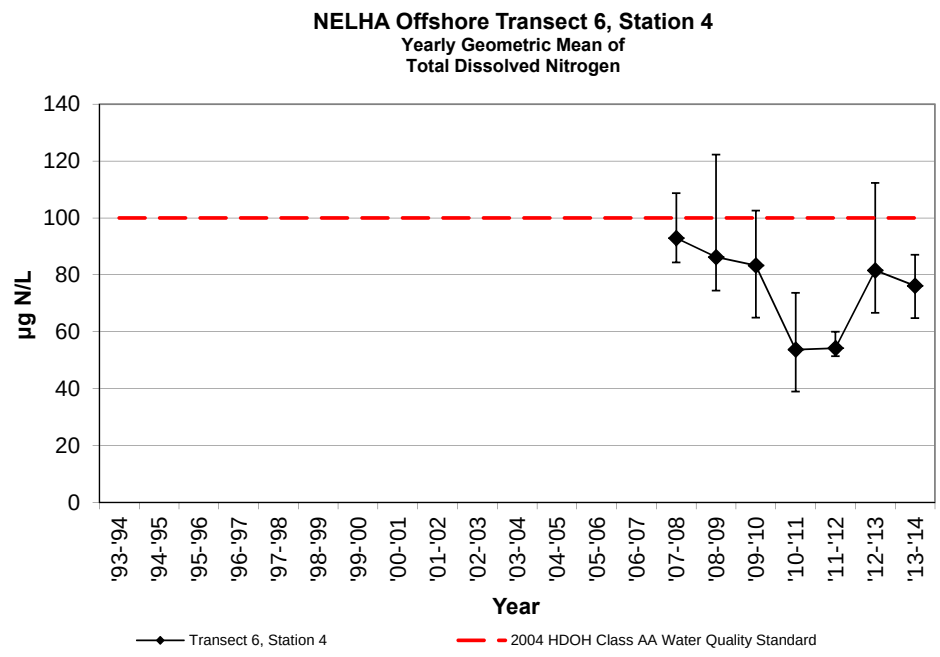
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
T6-100m	7/27/11	1114	0.19	6.0	0.24	3.3	0.06	0.9	2.94	83	0.49	15.1	3.75	53	0.09	34.76	26.2	8.22	6.37	0.13
T6-100m	10/19/11	1056	0.06	1.8	0.25	3.5	0.08	1.1	3.87	109	0.36	11.2	3.67	51	0.07	35.09	26.6	8.25	6.86	0.13
T6-100m	1/26/12	1022	0.06	2.0	0.14	2.0	0.11	1.5	3.01	84	0.35	10.8	3.82	54	0.04	34.98	24.5	8.21	6.68	0.13
T6-100m	4/25/12	1035	0.22	6.9	0.83	11.6	0.42	5.9	9.46	266	0.43	13.3	4.28	60	0.07	34.68	24.8	8.20	6.81	0.17
Geomean	**'11-'12**			**3.5**		**4.0**		**1.7**				**12.5**		**54**	**0.06**					**0.14**
T6-100m	7/25/12	1045	0.03	0.8	0.14	2.0	0.33	4.6	2.50	70	0.43	13.3	4.88	68	0.07	35.05	26.4	8.23	6.82	0.26
T6-100m	11/28/12	1039	0.21	6.5	3.43	48.1	0.39	5.5	20.54	577	0.52	16.1	8.02	112	0.03	34.63	25.0	8.20	6.45	0.09
T6-100m	1/24/13	1027	0.12	3.6	0.96	13.4	0.16	2.3	7.37	207	0.46	14.2	6.19	87	0.04	34.91	24.8	8.22	6.43	0.12
T6-100m	4/24/13	951	0.18	5.5	0.82	11.6	0.12	1.7	9.46	266	0.49	15.2	4.76	67	0.03	34.95	25.0	8.21	6.70	0.11
Geomean	**'12-'13**			**3.2**		***11.0***		***3.1***				***14.7***		**82**	**0.04**					**0.13**
T6-100m	8/6/13	1111	0.11	3.3	1.27	17.8	0.28	3.9	7.8	218	0.35	10.9	5.61	79	0.02	34.94	26.38	8.21	7.05	0.14
T6-100m	10/30/13	1019	0.15	4.6	0.41	5.8	0.20	2.8	3.4	94	0.51	15.8	6.22	87	0.02	34.89	27.03	8.22	5.94	0.13
T6-100m	2/5/14	1043	0.14	4.4	0.25	3.5	0.35	4.9	2.3	63	0.46	14.1	4.63	65	0.02	35.00	25.20	8.21	6.36	0.13
T6-100m	5/7/14	1039	0.13	4.0	0.41	5.7	0.06	0.9	3.4	96	0.43	13.3	5.42	76	0.13	34.71	25.73	8.18	5.45	0.14
Geomean	**'13-'14**			**4.0**		**6.7**		**2.6**				***13.4***		**76**	**0.03**					**0.13**

NELHA Water Quality Laboratory
Transect 6, Station 4
July 1993 - June 2014

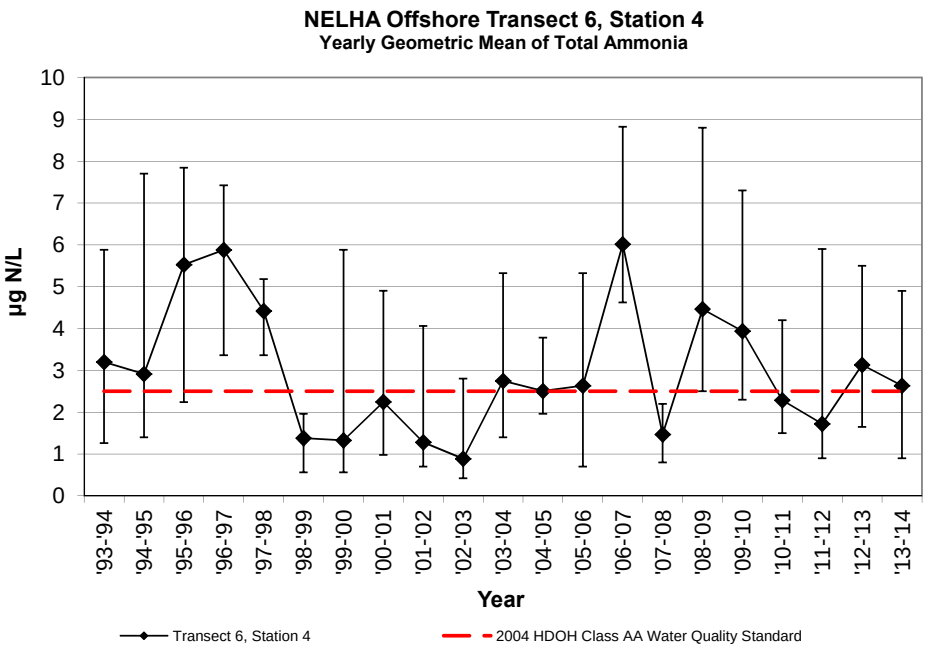


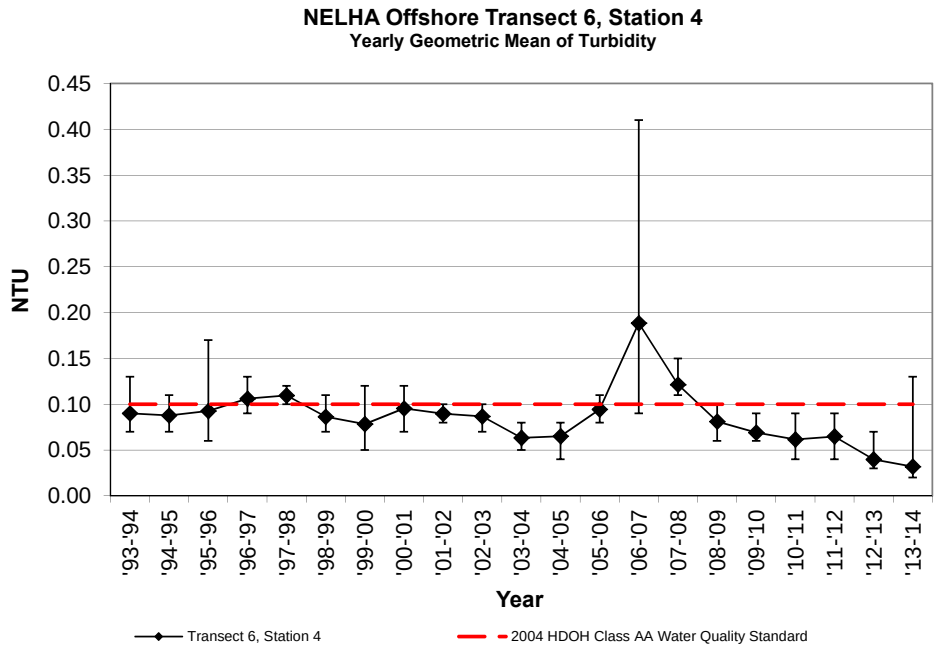


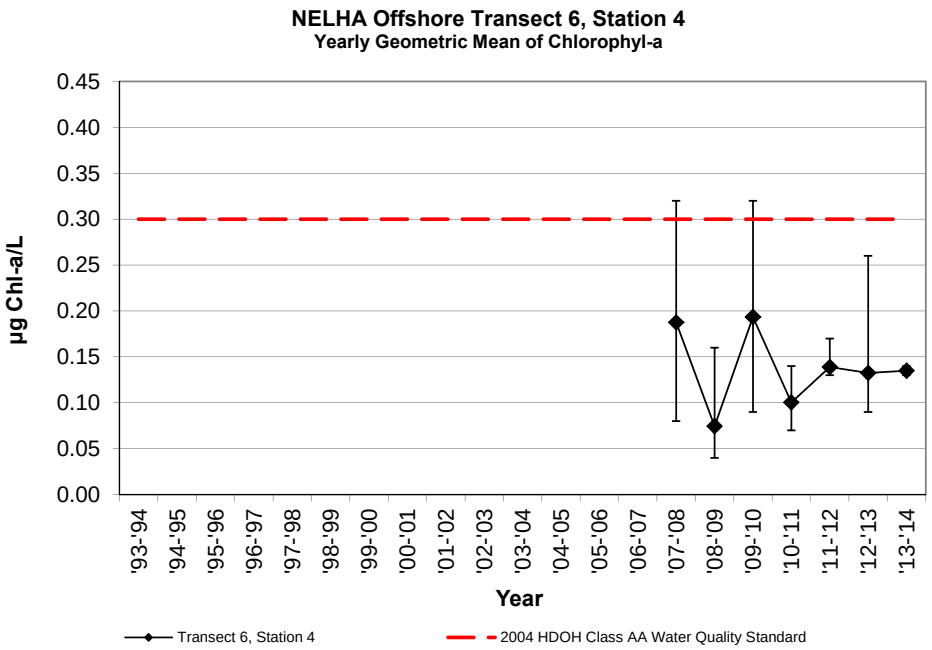




NELHA Water Quality Laboratory
Transect 6, Station 4
July 1993 - June 2014







NELHA Water Quality Laboratory
Transect 6, Station 5
July 1993 - June 2014

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O6-5S-69m	7/26/93	1119	0.08	2.5	0.14	2.0	0.39	5.5	2.1	60					0.08	34.431	26.9			
O6-5S-69m	12/6/93	907	0.06	1.9	0.51	7.1	0.06	0.8	3.9	109					0.08	34.772	25.7			
O6-5S-69m	3/7/94	840	0.22	6.8	0.84	11.8	0.18	2.5	10.6	298					0.08	33.989	24.9			
O6-5S-69m	6/15/94	853	0.20	6.2	0.21	2.9	0.12	1.7	4.1	116					0.10	34.476	25.6			
Geomean	**'93-'94**			**3.7**		***4.7***		**2.1**							**0.08**					
O6-5S-69m	9/9/94	842	0.07	2.2	0.03	0.4	0.04	0.6	2.6	72					0.09	34.598	27.6			
O6-5S-69m	11/14/94	755	0.15	4.6	0.61	8.5	0.55	7.7	8.3	232					0.09	34.473	26.0			
O6-5S-69m	3/22/95	814	0.17	5.3	0.24	3.4	0.34	4.8	4.8	135					0.11	34.152	25.0			
O6-5S-69m	6/20/95	815	0.14	4.3	0.40	5.6	0.09	1.3	5.4	151					0.06	34.342	26.2			
Geomean	**'94-'95**			**3.9**		**2.9**		**2.3**							**0.09**					
O6-5S-69m	9/26/95	1002	0.12	3.7	0.40	5.6	0.47	6.6	9.6	269					0.11	34.363	27.0			
O6-5S-69m	11/14/95	1054	0.12	3.7	0.37	5.2	0.60	8.4	5.3	148					0.12	34.233	26.8			
O6-5S-69m	3/12/96	1115	0.18	5.6	0.21	2.9	0.58	8.1	4.0	113					0.06	34.129	25.5			
O6-5S-69m	5/14/96	1113	0.09	2.8	0.02	0.3	0.11	1.5	2.3	65					0.05	34.317	27.5			
Geomean	**'95-'96**			**3.8**		**2.2**		***5.1***							**0.08**					
O6-5S-69m	7/31/96	1143	0.14	4.3	1.83	25.6	0.55	7.7	24.9	698					0.12	33.672	27.7			
O6-5S-69m	10/2/96	1115	0.09	2.8	0.72	10.1	0.50	7.0	11.1	313					0.15	34.317	28.4			
O6-5S-69m	1/7/97	1120	0.09	2.8	0.55	7.7	0.25	3.5	7.5	210					0.11	34.547	25.6			
O6-5S-69m	4/28/97	1136	0.17	5.3	0.59	8.3	0.55	7.7	8.8	248					0.09	34.222	26.6			
Geomean	**'96-'97**			**3.6**		***11.3***		***6.2***							***0.12***					
O6-5S-69m	8/19/97	1117	0.12	3.7	0.63	8.8	0.24	3.4	11.0	308					0.11	34.358	27.0			
O6-5S-69m	10/7/97	1016	0.10	3.1	0.11	1.5	0.37	5.2	4.4	125					0.13	34.709	27.6			
O6-5S-69m	3/4/98	1149	0.10	3.1	0.47	6.6	0.24	3.4	8.0	226					0.14	34.849	25.2			
O6-5S-69m	5/5/98	1141	0.14	4.3	1.47	20.6	0.31	4.3	16.6	466					0.08	34.647	24.5			
Geomean	**'97-'98**			**3.5**		***6.6***		***4.0***							***0.11***					
O6-5S-69m	7/7/98	1154	0.14	4.3	1.00	14.0	0.07	1.0	13.8	388					0.12	34.664	26.2			
O6-5S-69m	10/6/98	1106	0.13	4.0	0.02	0.3	0.13	1.8	13.6	381					0.09	34.838	27.3			
O6-5S-69m	1/19/99	1143	0.09	2.8	0.67	9.4	0.08	1.1	10.2	285					0.13	34.894	25.0			
O6-5S-69m	4/12/99	1145	0.12	3.7	0.20	2.8	0.14	2.0	6.1	172					0.09	34.614	24.2			
Geomean	**'98-'99**			**3.7**		**3.2**		**1.4**							***0.11***					
O6-5S-69m	7/6/99	1213	0.09	2.8	0.26	3.6	0.08	1.1	5.0	139					0.08	34.854	25.8			
O6-5S-69m	10/4/99	1234	0.10	3.1	0.28	3.9	0.06	0.8	4.1	115					0.11	34.921	26.4			
O6-5S-69m	1/12/00	1140	0.14	4.3	0.96	13.4	0.40	5.6	13.9	389					0.07	34.680	24.9			
O6-5S-69m	4/11/00	1042	0.10	3.1	0.22	3.1	0.06	0.8	6.5	184					0.07	34.726	24.6			
Geomean	**'99-'00**			**3.3**		***4.9***		**1.5**							**0.08**					
O6-5S-69m	7/25/00	1205	0.10	3.1	0.17	2.4	0.05	0.7	5.0	140					0.07	34.789	26.7			
O6-5S-69m	10/31/00	1148	0.12	3.7	0.54	7.6	0.30	4.2	12.9	362					0.12	34.701	27.0			
O6-5S-69m	3/6/01	1134	0.15	4.6	0.18	2.5	0.10	1.4	4.2	117					0.07	34.684	24.8			
O6-5S-69m	5/7/01	1236	0.20	6.2	1.94	27.2	0.35	4.9	30.1	845					0.09	34.257	24.8			
Geomean	**'00-'01**			**4.3**		***5.9***		**2.1**							**0.09**					
O6-5S-69m	8/14/01	1038	0.12	3.7	0.10	1.4	0.25	3.5	3.0	85					0.14	34.852	26.8			
O6-5S-69m	10/30/01	1050	0.14	4.3	0.70	9.8	0.03	0.4	8.1	227					0.08	34.801	26.8			
O6-5S-69m	3/6/02	1057	0.21	6.5	3.43	48.0	0.08	1.1	17.1	480					0.13	34.231	24.3			
O6-5S-69m	4/15/02	1111	0.16	5.0	2.64	37.0	0.04	0.6	18.8	529					0.08	34.516	25.6			
Geomean	**'01-'02**			**4.8**		***12.5***		**1.0**							**0.10**					

NELHA Water Quality Laboratory

Transect 6, Station 5

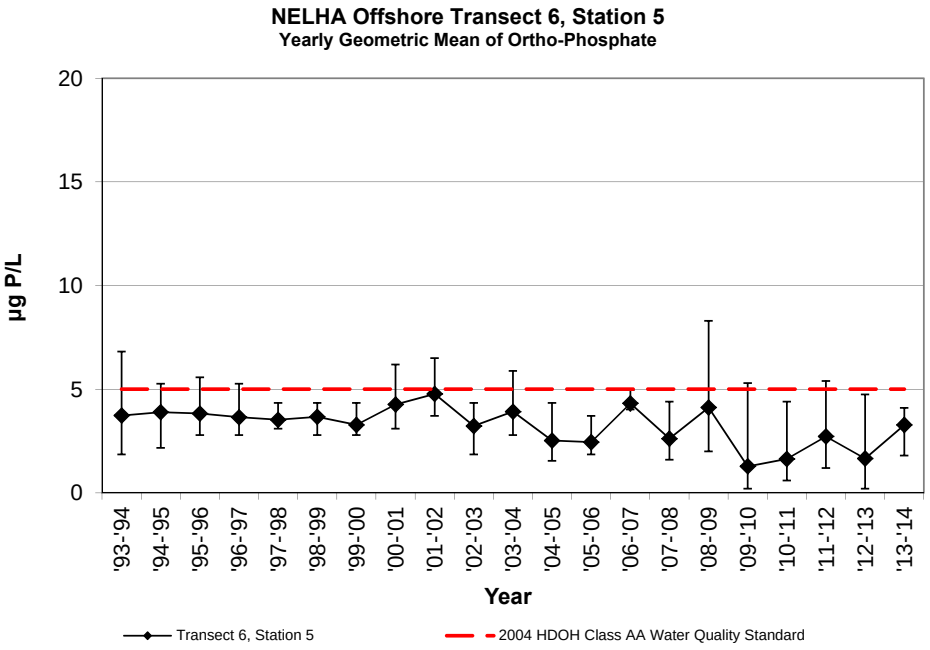
July 1993 - June 2014

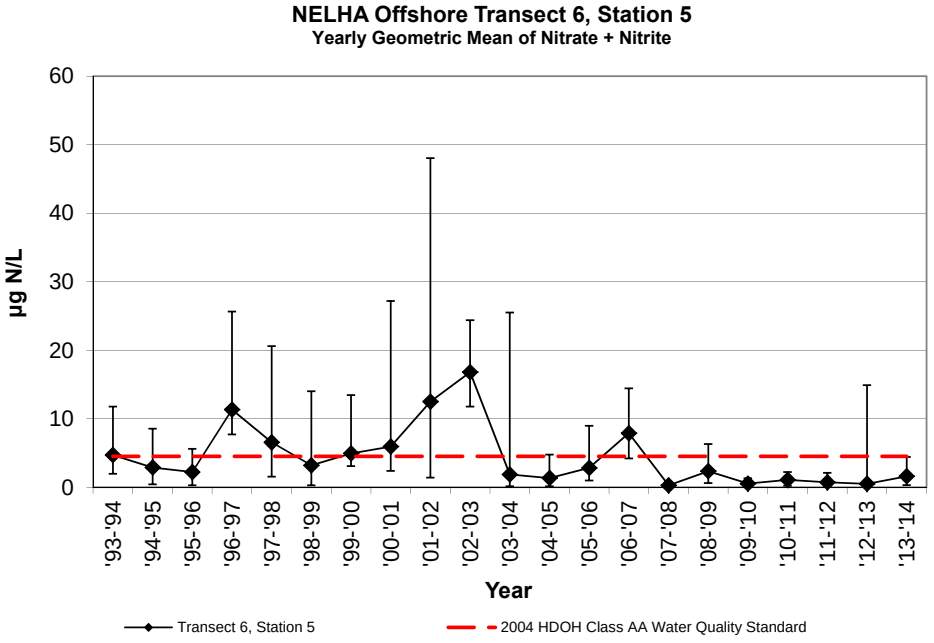
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
O6-5S-69m	7/10/02	1101	0.06	1.9	1.74	24.4	0.20	2.8	12.2	342					0.07	34.379	26.2			
O6-5S-69m	10/8/02	1056	0.10	3.1	1.01	14.1	0.09	1.3	6.9	194					0.11	34.774	27.0			
O6-5S-69m	3/12/03	953	0.14	4.3	0.84	11.8	0.03	0.4	10.6	298					0.09	34.480	25.0			
O6-5S-69m	4/23/03	1105	0.14	4.3	1.40	19.6	0.03	0.4	13.9	391					0.10	34.578	24.9			
Geomean	**'02-'03**			**3.2**		***16.8***		**0.9**							**0.09**					
O6-5S-69m	8/21/03	1030	0.09	2.8	0.04	0.6	0.10	1.4	4.3	122					0.07	34.748	28.3			
O6-5S-69m	11/3/03	1000	0.10	3.1	0.01	0.1	0.14	2.0	2.5	71					0.08	34.651	26.8			
O6-5S-69m	3/18/04	1027	0.19	5.9	1.82	25.5	0.37	5.2	17.3	485					n/a	34.859	25.8			
O6-5S-69m	5/24/04	1043	0.15	4.6	0.42	5.9	0.23	3.2	5.8	163					n/a	33.31	26.8			
Geomean	**'03-'04**			**3.9**		**1.9**		***2.6***							**0.07**					
O6-5S-69m	9/22/04	1119	0.07	2.2	0.07	1.0	0.31	4.3	5.1	144					0.05	33.69	27.7			
O6-5S-69m	11/29/04	1026	0.09	2.8	0.34	4.8	0.17	2.4	4.6	129					0.05	33.63	27.0			
O6-5S-69m	1/24/05	1102	0.05	1.5	0.01	0.1	0.16	2.2	2.4	67					0.08	34.834	25.7			
O6-5S-69m	4/13/05	1108	0.14	4.3	0.34	4.8	0.16	2.2	8.6	242					0.07	34.333	25.0			
Geomean	**'04-'05**			**2.5**		**1.3**		***2.7***							**0.06**					
O6-5S-69m	7/21/05	1041	0.06	1.9	0.26	3.6	0.39	5.5	6.0	169					0.08	34.364	27.4			
O6-5S-69m	10/13/05	1015	0.06	1.9	0.14	2.0	0.20	2.8	3.6	101					0.11	34.817	27.5			
O6-5S-69m	3/15/06	939	0.12	3.7	0.64	9.0	0.40	5.6	8.6	242					0.09	34.659	24.5			
O6-5S-69m	5/17/06	1023	0.09	2.8	0.07	1.0	0.17	2.4	3.0	84					0.07	34.662	24.7			
Geomean	**'05-'06**			**2.4**		**2.8**		***3.8***							**0.09**					
O6-5S-69m	8/16/06	1028	0.13	4.0	0.50	7.0	0.37	5.2	4.4	123					0.14	34.580	26.8			
O6-5S-69m	11/20/06	1023	0.14	4.3	0.65	9.1	0.52	7.3	6.8	192					0.12	34.660	26.7			
O6-5S-69m	2/12/07	1122	0.13	4.0	0.30	4.2	0.38	5.3	2.1	60					0.33	34.407	24.8			
O6-5S-69m	4/16/07	1105	0.16	5.0	1.03	14.4	0.41	5.7	12.9	362					0.13	34.021	26.5			
Geomean	**'06-'07**			**4.3**		***7.9***		***5.8***							***0.16***					
T6-500m	9/27/07	945	0.14	4.4	0.01	0.1	0.13	1.8	5.4	151	0.35	10.8	7.8	110	0.15	34.905	26.69	8.08	6.28	0.06
T6-500m	12/14/07	1038	0.09	2.9	0.01	0.1	0.00		2.0	55	0.35	10.8	6.2	87	0.08	34.727	25.69	8.16	6.52	0.12
T6-500m	3/11/08	1048	0.07	2.3	0.05	0.7	0.06	0.8	3.4	97	0.18	5.5	6.5	91	0.19	34.909	24.84	8.12	6.62	0.23
T6-500m	6/9/08	1114	0.05	1.6	0.05	0.7	0.16	2.2	14.8	416	0.23	7.2	8.9	124	0.09	34.710	25.78	8.11	5.58	0.33
Geomean	**'07-'08**			**2.6**		**0.3**		**1.5**				**8.2**		***102***	***0.12***					**0.15**
T6-500m	9/23/08	1219	0.11	3.4	0.04	0.6	0.28	3.9	2.3	66	0.47	14.6	4.5	63	0.06	34.802	26.84	8.07	5.75	0.15
T6-500m	12/8/08	1042	0.16	5.1	0.40	5.6	0.33	4.6	4.2	119	0.34	10.6	5.6	78	0.07	34.889	26.37	8.29	5.59	0.02
T6-500m	2/10/09	1009	0.06	2	0.10	1.4	0.18	2.5	1.3	37	0.48	14.9	7.9	110	0.06	35.107	24.74	8.06	5.97	0.03
T6-500m	6/30/09	1102	0.27	8.3	0.45	6.3	0.12	1.7	6.2	173	0.49	15.3	4.8	67	0.14	34.917	26.98	8.20	5.92	0.09
Geomean	**'08-'09**			**4.1**		**2.3**		***3.0***				***13.7***		**78**	**0.08**					**0.05**
T6-500m	9/10/09	1123	0.17	5.3	0.09	1.3	0.56	7.8	5.0	139	0.54	16.8	5.3	74	0.06	35.21	27.35	8.18	5.22	0.32
T6-500m	11/24/09	1035	0.02	0.8	0.02	0.3	0.12	1.7	4.8	136	0.34	10.4	4.7	65	0.03	35.27	25.24	8.25	6.38	0.12
T6-500m	2/24/10	1104	0.11	3.3	0.03	0.4	0.40	5.6	2.2	62	0.43	13.2	6.9	97	0.11	34.68	24.64	8.20	5.44	0.24
T6-500m	5/26/10	1025	0.01	0.2	0.04	0.5	0.15	2.1	2.5	70	0.19	6	4.2	60	0.05	34.85	25.06	8.27	6.71	0.09
Geomean	**'09-'10**			**1.3**		**0.5**		***3.5***				**10.8**		**73**	**0.06**					**0.17**
T6-500m	8/11/10	1042	0.02	0.6	0.16	2.2	0.07	1	2.7	75	0.30	9.4	2.7	38	0.04	34.99	26.1	8.22	6.55	0.15
T6-500m	11/9/10	1037	0.03	0.8	0.13	1.8	0.15	2.1	2.5	71	0.38	11.9	4.1	57	0.08	34.94	26.5	8.29	6.13	0.03
T6-500m	1/11/11	1302	0.11	3.4	0.01	0.2	0.09	1.3	4.1	114	0.42	13.1	3.0	43	0.08	35.03	25.13	8.25	6.39	0.05
T6-500m	4/27/11	1034	0.14	4.4	0.12	1.7	0.06	0.8	6.1	171	0.41	12.7	4.0	56	0.11	34.87	24.89	8.22	6.22	0.2
Geomean	**'10-'11**			**1.6**		**1.1**		**1.2**				**11.7**		**48**	**0.07**					**0.08**

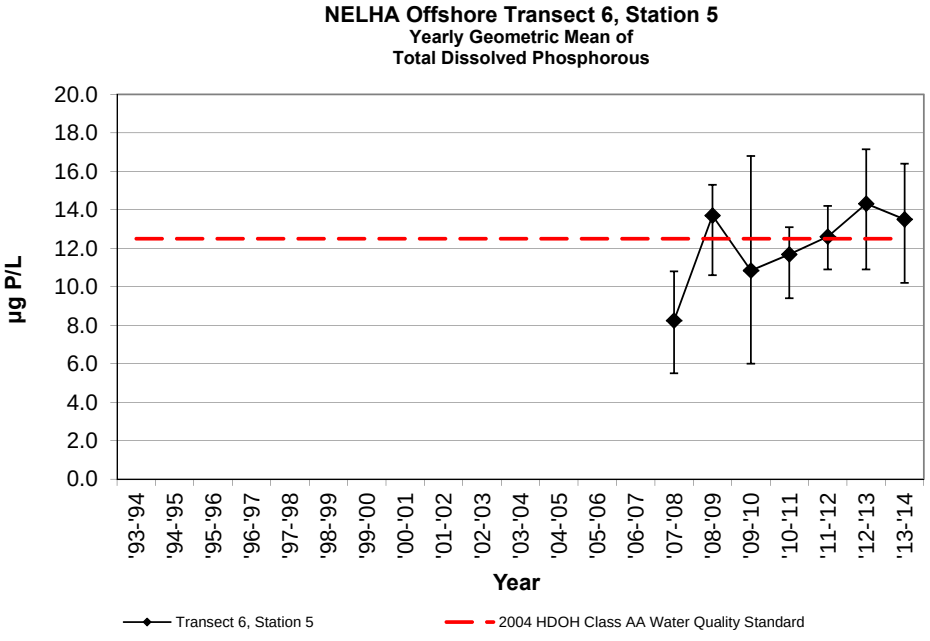
NELHA Water Quality Laboratory
Transect 6, Station 5
July 1993 - June 2014

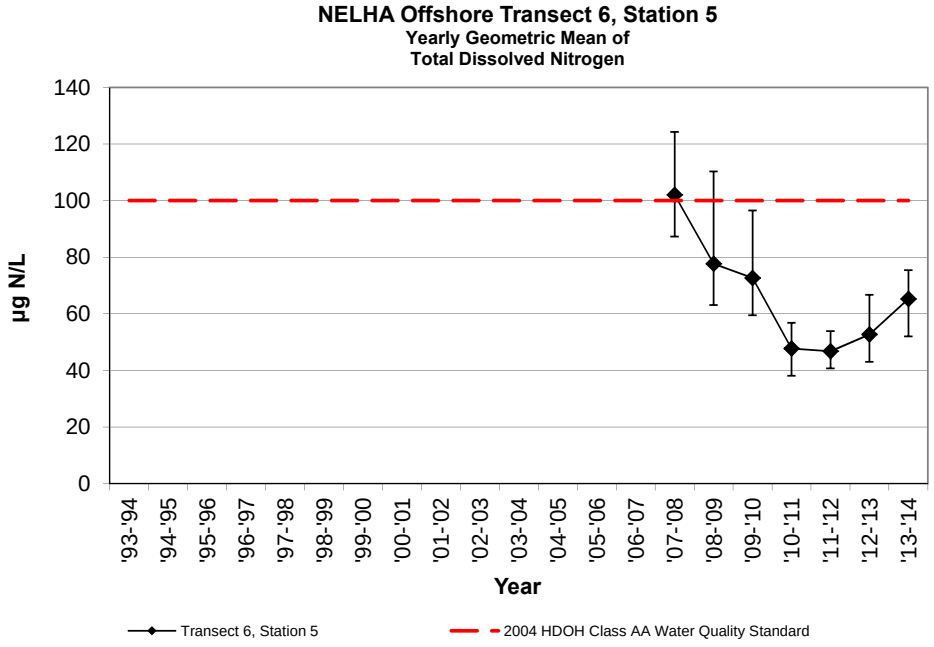
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	Temp.	pH	DO	Chl a
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(o/oo)	(˚C)		(ppm)	(µg/L)
DOH LIMIT				**5**		**4.5**		**2.5**				**12.5**		**100**	**0.10**					**0.30**
T6-500m	7/27/11	1120	0.17	5.3	0.02	0.2	0.05	0.7	0.2	5	0.46	14.2	2.9	41	0.03	34.86	26.3	8.23	6.36	0.09
T6-500m	10/19/11	1104	0.04	1.2	0.06	0.9	0.05	0.7	2.9	82	0.39	12.0	3.5	49	0.05	35.09	26.7	8.26	6.98	0.15
T6-500m	1/26/12	1030	0.05	1.6	0.04	0.6	0.06	0.8	1.1	31	0.35	10.9	3.2	45	0.09	35.06	24.5	8.22	6.66	0.15
T6-500m	4/25/12	1042	0.17	5.4	0.15	2.1	0.36	5.1	3.2	89	0.44	13.6	3.8	54	0.10	34.91	24.9	8.19	6.69	0.04
Geomean	**'11-'12**			**2.7**		**0.7**		**1.2**				***12.6***		**47**	**0.06**					**0.09**
T6-500m	7/25/12	1049	0.01	0.2	0.03	0.4	0.34	4.7	1.5	41	0.35	10.9	3.1	43	0.06	35.11	26.5	8.24	7.21	0.16
T6-500m	11/28/12	1041	0.12	3.6	1.06	14.9	0.31	4.4	7.4	209	0.55	16.9	4.8	67	0.03	34.96	25.2	8.20	6.59	0.15
T6-500m	1/24/13	1035	0.07	2.2	0.01	0.1	0.04	0.6	1.1	30	0.43	13.3	3.8	53	0.05	35.13	24.9	8.23	6.30	0.05
T6-500m	4/24/13	1000	0.15	4.8	0.01	0.1	0.13	1.9	3.2	89	0.55	17.2	3.6	51	0.03	35.15	25.2	8.22	6.80	0.05
Geomean	**'12-'13**			**1.7**		**0.5**		**2.2**				***14.3***		**53**	**0.04**					**0.09**
T6-500m	8/6/13	1118	0.06	1.8	0.02	0.3	0.16	2.3	2.1	59	0.33	10.2	4.4	62	0.02	35.24	26.8	8.20	6.85	0.10
T6-500m	10/30/13	1027	0.13	4.1	0.17	2.4	0.06	0.8	2.0	57	0.53	16.4	5.3	75	0.02	34.90	27.1	8.22	5.84	0.11
T6-500m	2/5/14	1051	0.13	4.0	0.14	2.0	0.21	3.0	2.4	68	0.46	14.3	3.7	52	0.02	34.94	25.2	8.21	6.27	0.20
T6-500m	5/7/14	1049	0.13	3.9	0.31	4.4	0.11	1.5	2.8	78	0.45	13.9	5.4	75	0.06	34.75	25.8	8.20	5.36	0.15
Geomean	**'13-'14**			**3.3**		**1.6**		***1.7***				***13.5***		**65**	**0.03**					**0.13**

NELHA Water Quality Laboratory
Transect 6, Station 5
July 1993 - June 2014

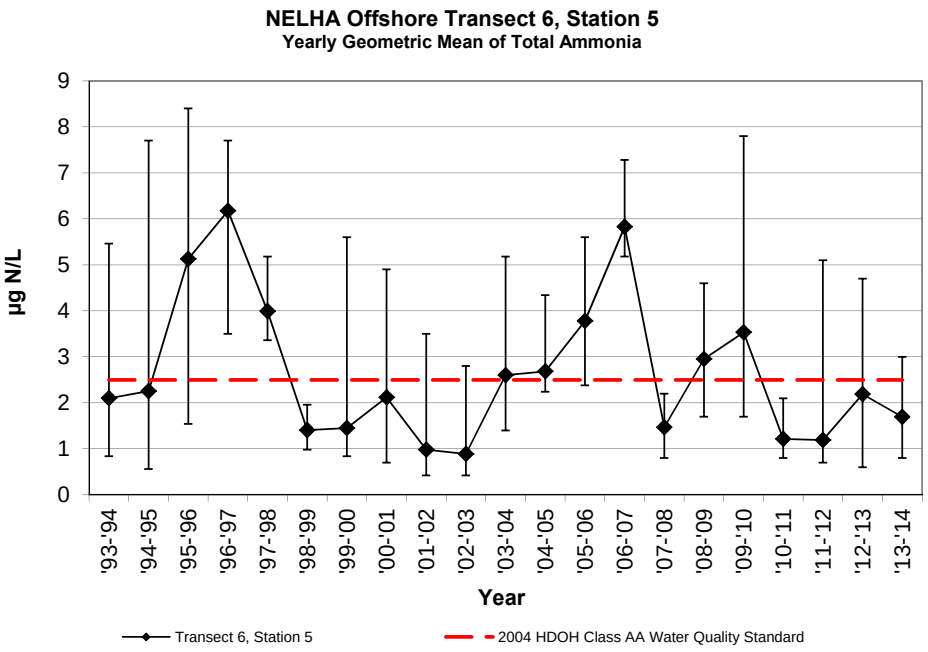


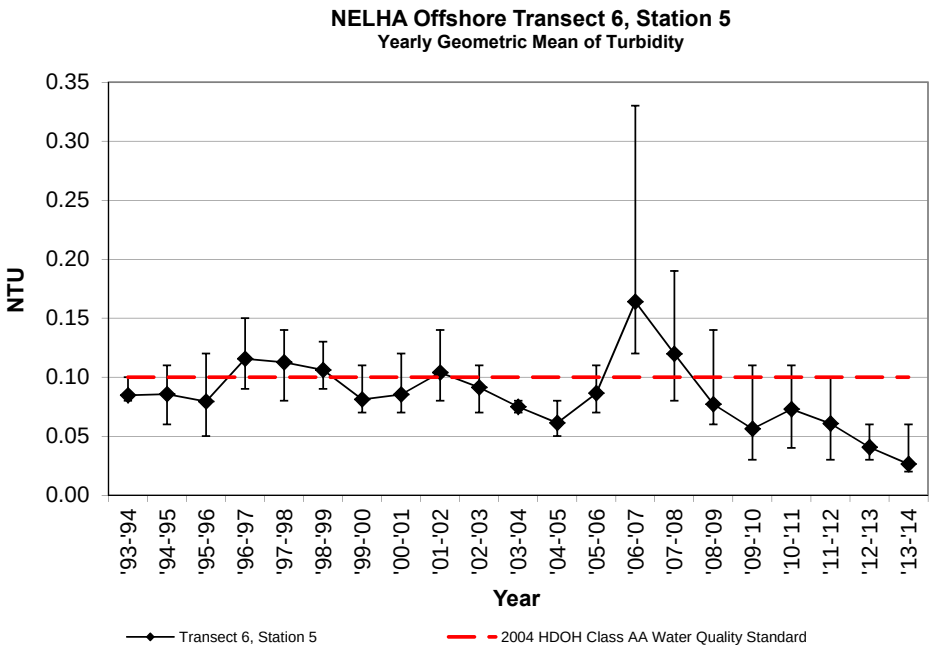


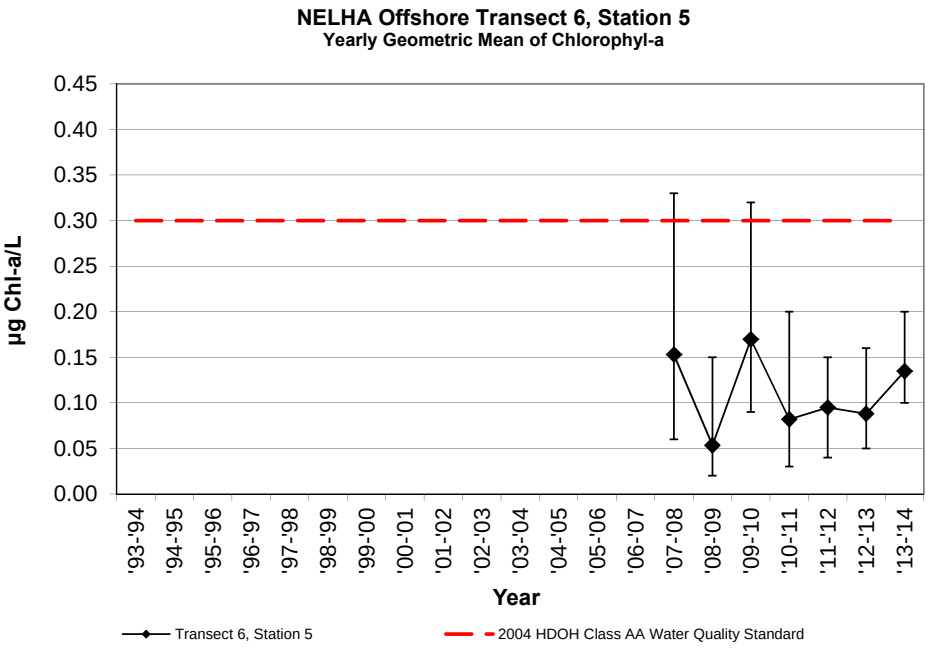




NELHA Water Quality Laboratory
Transect 6, Station 5
July 1993 - June 2014





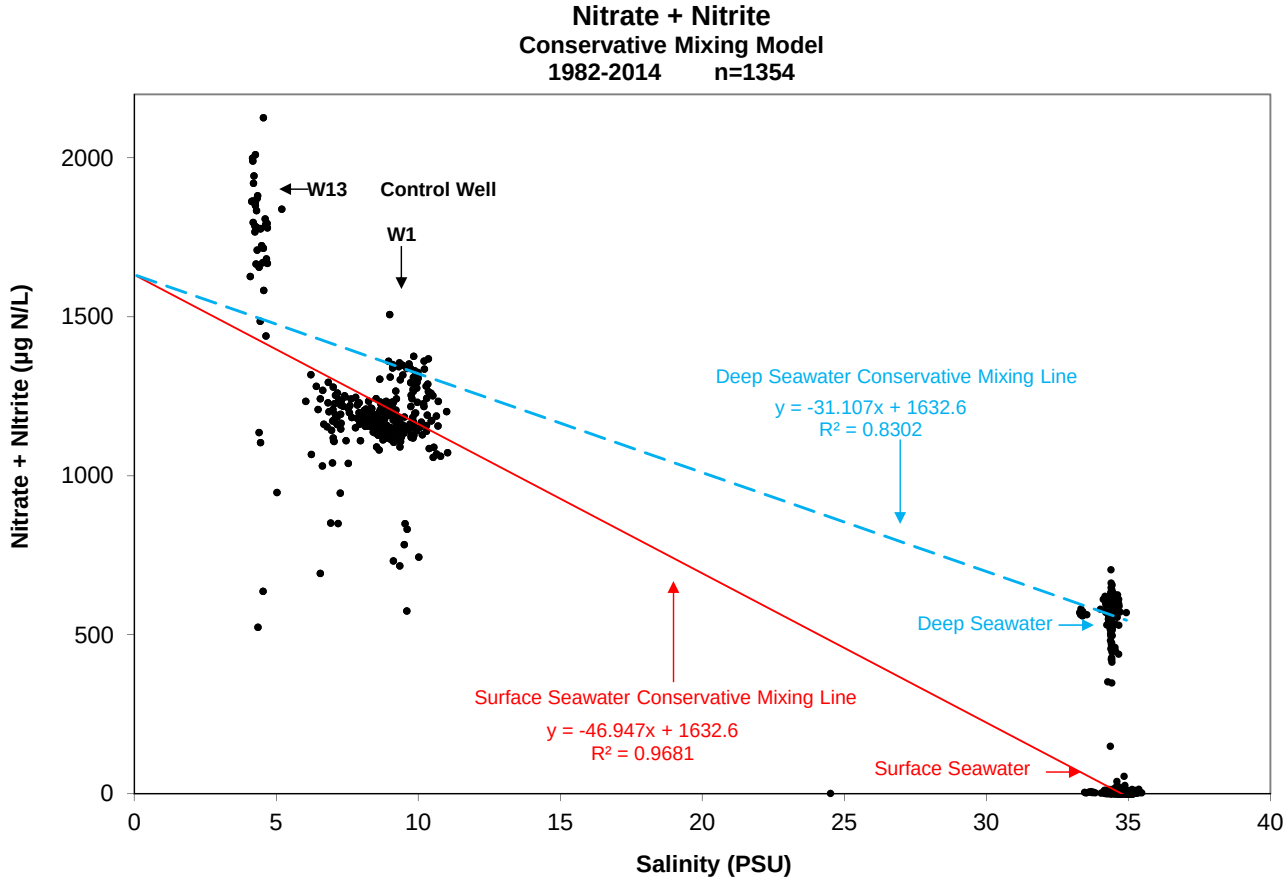


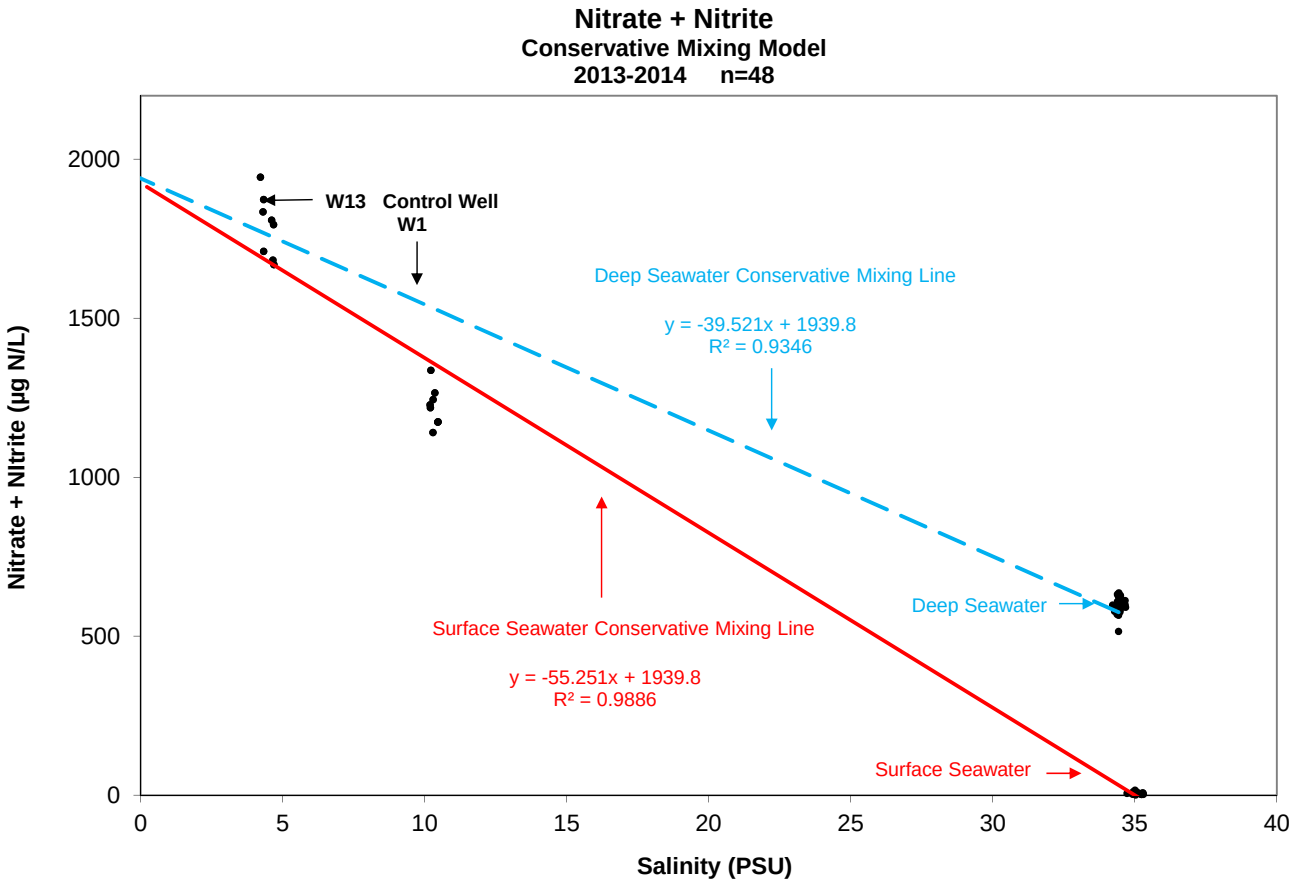
APPENDIX B - NELHA Groundwater Data Tables and Graphs

Conservative Mixing Model …...……... Appendix B-MPM-1
Well 1 ……...……..... Appendix B-1-1
Well 2 ……...…….. Appendix B-2-1
Well 2A ……...…… Appendix B-2A-1
Well 2B …… Appendix B-2B-1
Well 3 ……...……. Appendix B-3-1
Well 3A ……...…….Appendix B-3A-1
Well 3B …… Appendix B-3B-1
Well 4 ……...……. Appendix B-4-1
Well 4A ……...…… Appendix B-4A-1
Well 5 ……...…….. Appendix B-5-1
Well 5A ……...…….Appendix B-5A-1
Well 5B …… Appendix B-5B-7
Well 6 ……...…….. Appendix B-6-1
Well 6A ……...…… Appendix B-6A-1
Well 6B …… Appendix B-6B-1
Well 7 ……...…….. Appendix B-7-1
Well 7A ……...…….Appendix B-7A-1
Well 7B …… Appendix B-7B-1
Well 8 ……...…….. Appendix B-8-1
Well 8A ……...…… Appendix B-8A-1
Well 8B …… Appendix B-8B-1
Well 9 ……...…….. Appendix B-9-1
Well 9A ……...…….Appendix B-9A-1
Well 9B …… Appendix B-9B-7
Well 10 ……...…….. Appendix B-10-1
Well 10A ……...…… Appendix B-10A-1
Well 10B …… Appendix B-10B-1
Well 11 ……...…… Appendix B-11-1
Well 11A ……...…… Appendix B-11A-1
Well 11B …… Appendix B-11B-1
Well 12 ……...…….. Appendix B-12-1
Well 12A ……...…… Appendix B-12A-1
Well 12B …… Appendix B-12B-1
Well 13 ……...…….. Appendix B-13-1
Seawater Return Trench 4 ……..……. Appendix B-SRT4-1
Seawater Return Trench 5 ……... Appendix B-SRT5-1
Anchialine Pond A1 ……...…….……..…...Appendix B-A1-1
Anchialine Pond A2 ……...…….…....…... Appendix B-A2-1
Anchialine Pond A3……...…….…....…... Appendix B-A3-1
Coastal Site C24 ……...……...……..…..... Appendix B-C24-1

Conservative Mixing Model

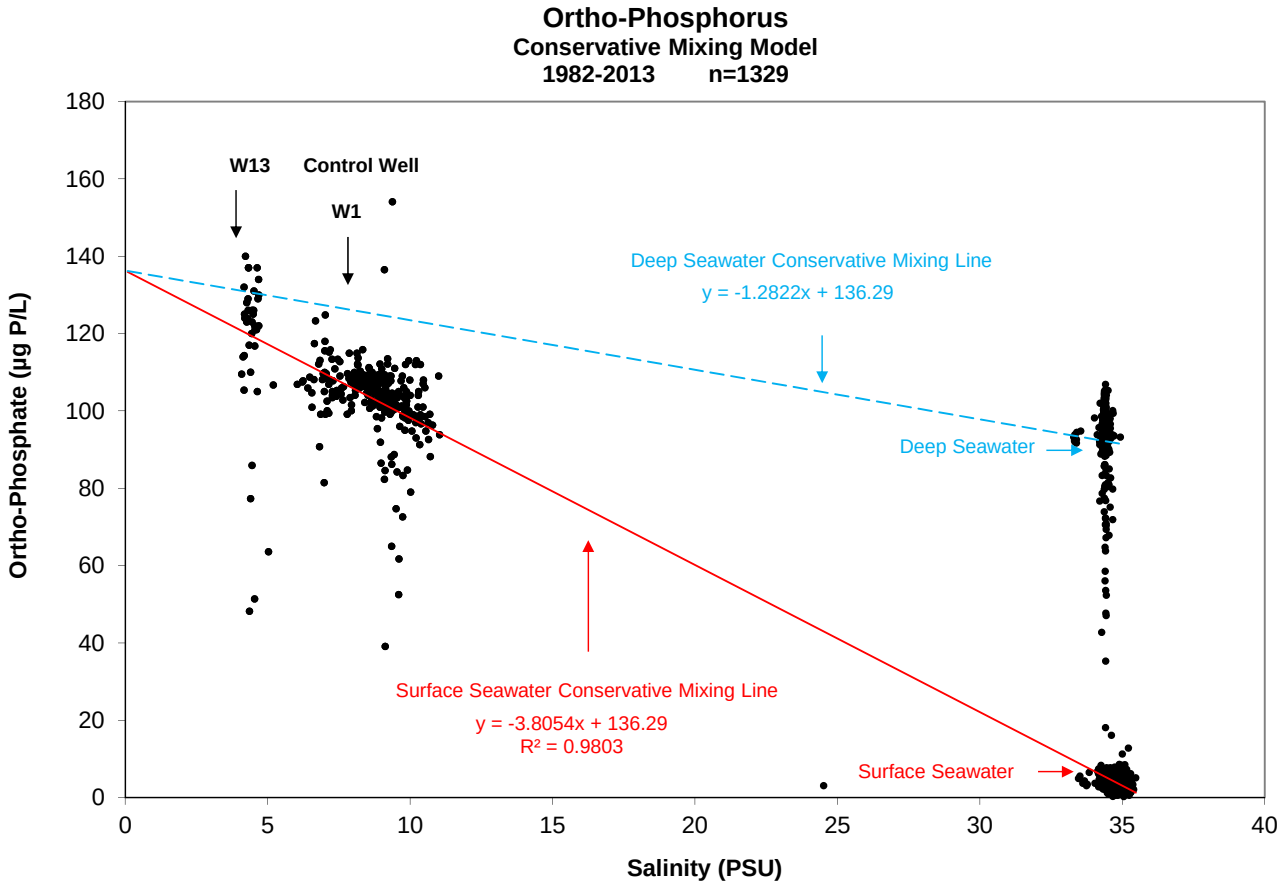
Control Well to Surface and Deep Seawater
Nitrate + Nitrite, Ortho-Phosphate, and Silicate

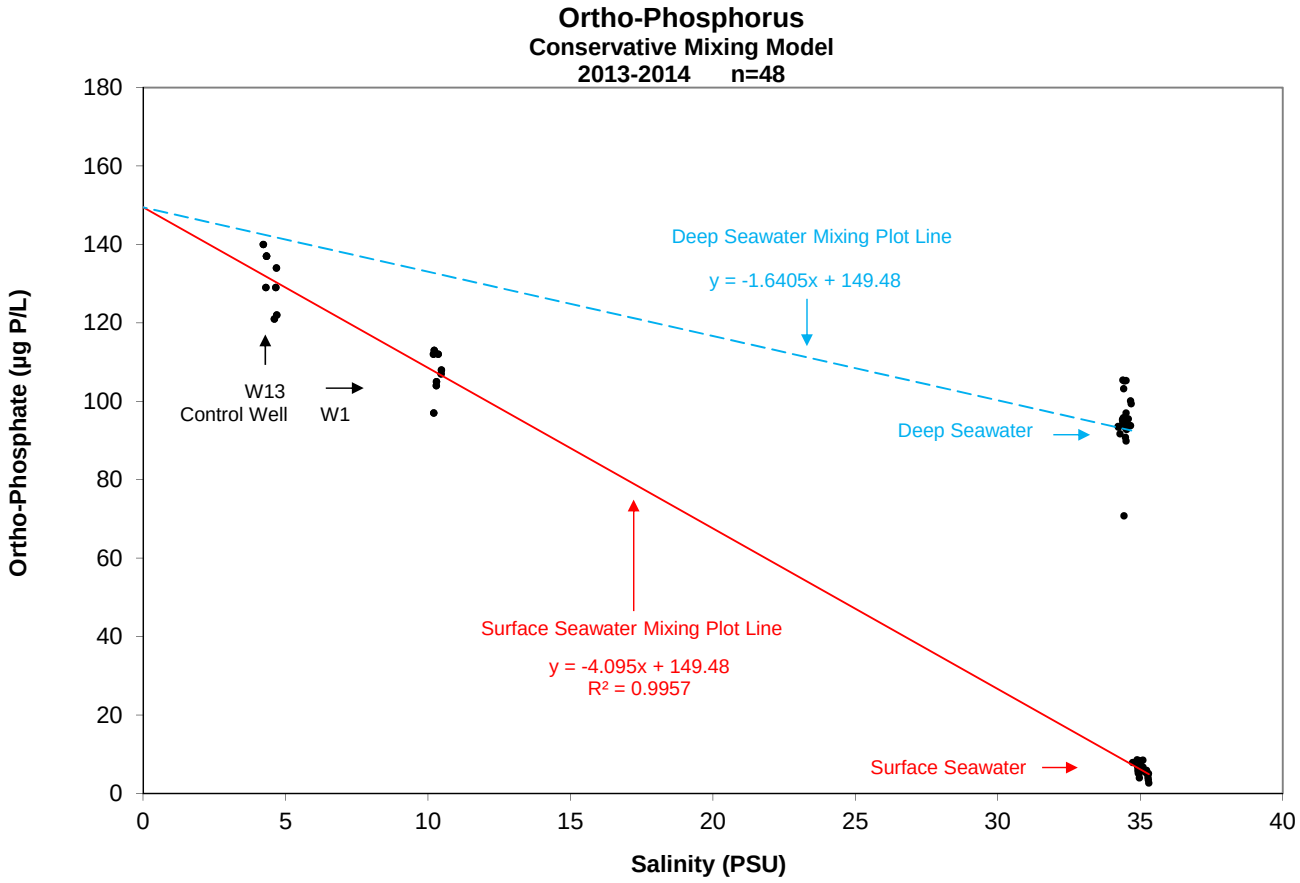




Conservative Mixing Model

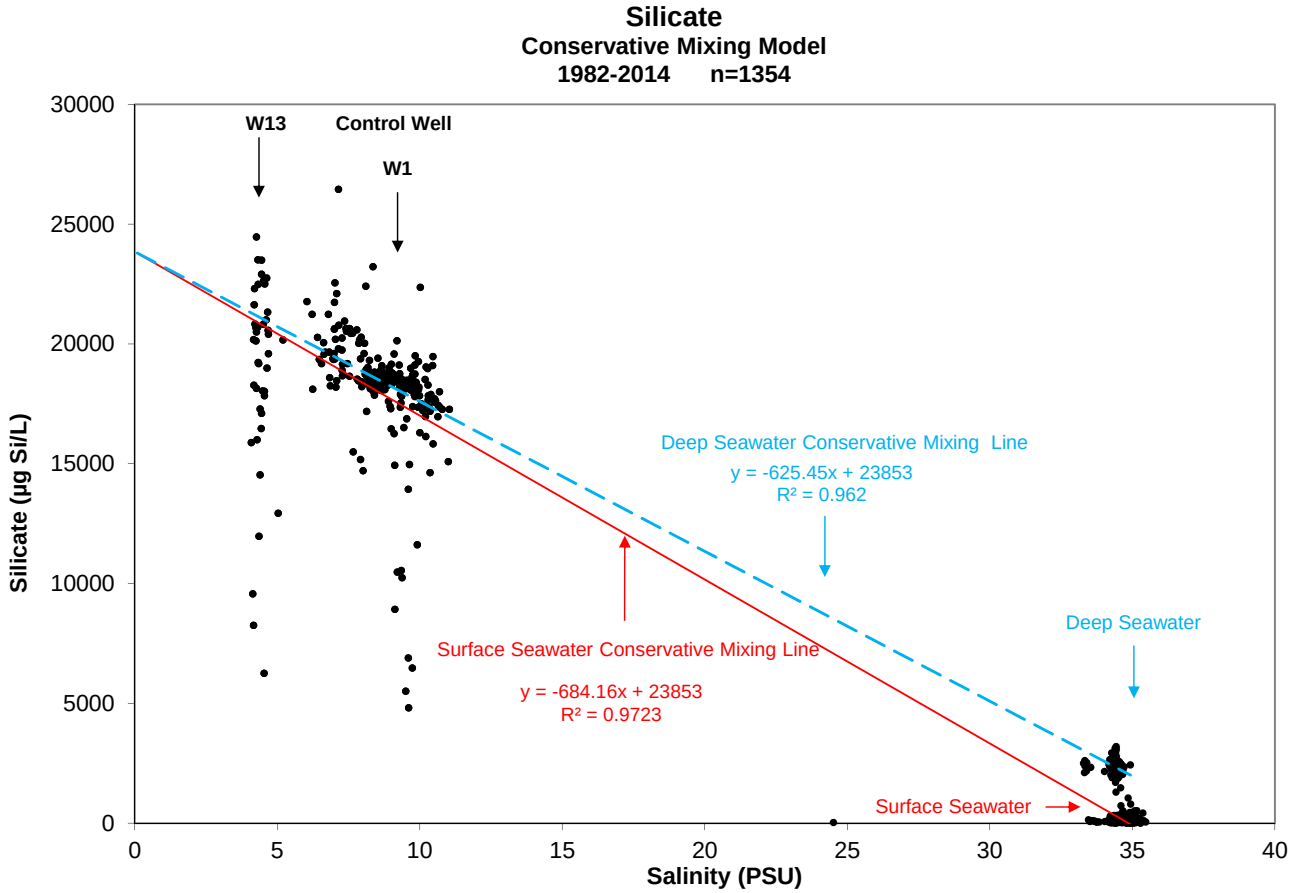
Control Well to Surface and Deep Seawater
Nitrate + Nitrite, Ortho-Phosphate, and Silicate

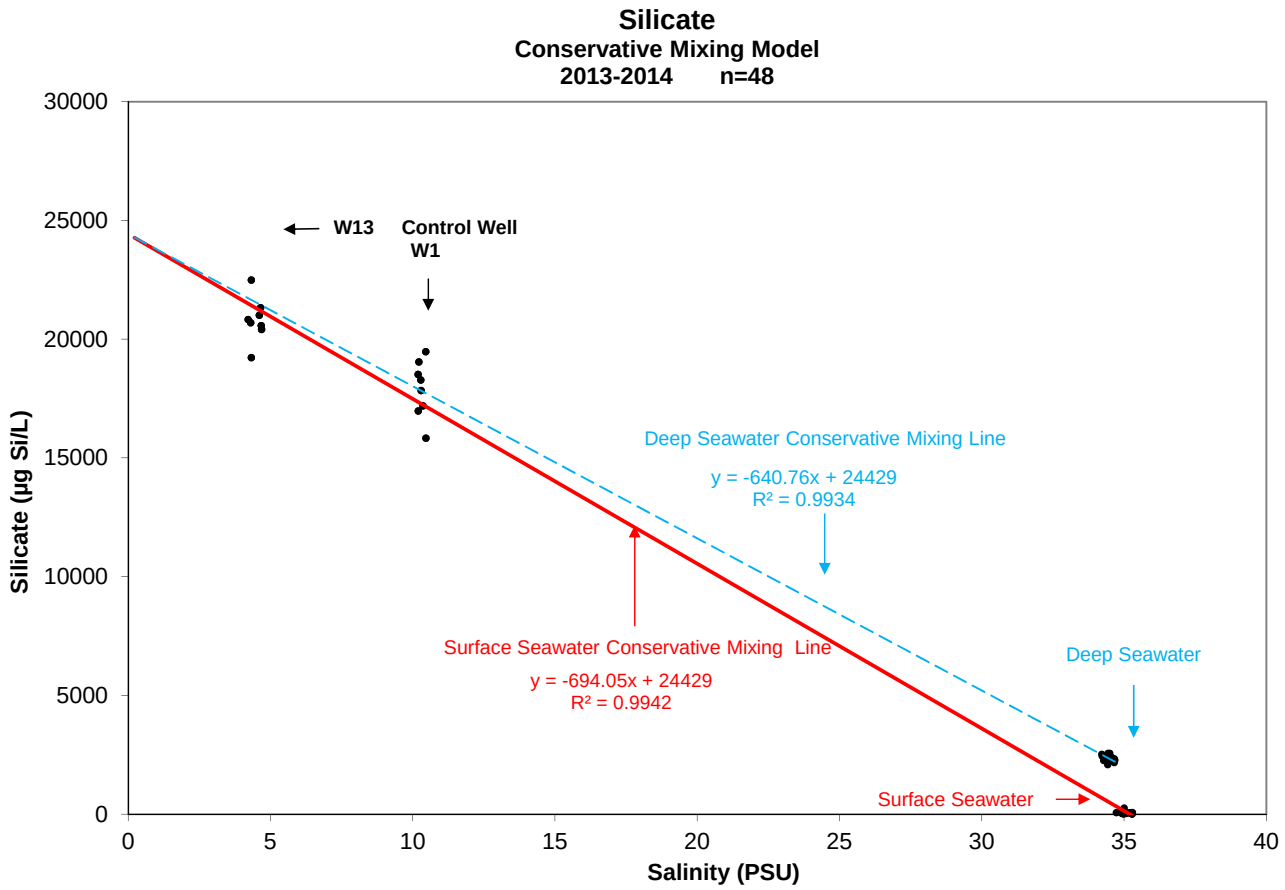




Conservative Mixing Model

Control Well to Surface and Deep Seawater
Nitrate + Nitrite, Ortho-Phosphate, and Silicate





NELHA Water Quality Laboratory

Well 1 Data Table

July 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W1	-36.58	7/3/89					3.74	116	88.6	1241	0.19	2.7								20.9	7.89	7.200	7.89		NA	NA
W1	-36.58	8/11/89	923				3.49	108	60.8	852	0.06	0.8								19.9	7.82	6.920	7.27		<1	NA
W1	-36.58	8/16/89	1115				3.26	101	49.5	693	0.06	0.8								19.8	7.80	6.555	6.52		<1	NA
W1	-36.58	8/23/89	1335				3.49	108	60.7	850	0.06	0.8								20.0	7.85	7.181	6.54		<1	NA
W1	-36.58	8/30/89	1430				3.66	113	67.5	945	0.06	0.8								20.1	7.81	7.261	7.90		<1	NA
W1	-36.58	8/30/89	1430				3.72	115	67.5	945	0.06	0.8											NA		NA	NA
W1	-36.58	10/31/89	840				3.72	115	90.0	1261	0.06	0.8	740	20783	3.88	120	97.2	1361	0.45	20.0	7.75	7.156	7.83		<1	NA
W1	-36.58	11/16/89	705				3.71	115	87.3	1223	0.00	0.0	713	20025	3.81	118	94.5	1324	1.05	20.1	7.70	7.862	7.70		<1	NA
W1	-36.58	12/13/89	930				3.81	118	91.3	1279	0.05	0.7	735	20643	3.92	121	91.8	1286	0.76	19.6	7.76	7.013	8.13		<1	NA
W1	-36.58	1/10/90	1142				3.62	112	82.4	1154	0.01	0.1	756	21233	3.17	98	85.6	1199	0.62	20.5	7.91	6.792	7.77		<1	NA
W1	-36.58	2/14/90	850				3.73	116	79.9	1119	0.09	1.3	774	21738	3.95	122	80.8	1132	0.81	19.9	7.82	7.008	7.96		<1	NA
W1	-36.58	3/6/90	1110				3.42	106	91.5	1282	0.03	0.4	722	20278	3.64	113	93.0	1303	0.59	20.0	7.93	6.412	7.86		<1	NA
W1	-36.58	4/2/90	1315				3.45	107	88.1	1234	0.44	6.2	775	21766	3.62	112	94.9	1329	0.60	20.8	8.03	6.041	7.67		<1	NA
W1	-36.58	5/16/90	1446				3.51	109	86.3	1209	0.00	0.0	689	19351	3.56	110	91.9	1288	0.60	19.5	7.92	6.476	7.64		<1	NA
W1	-36.58	6/6/90	1447				3.66	113	79.3	1111	0.17	2.4	683	19182	3.63	112	84.1	1178	0.57	20.0	7.96	7.462	7.54		<1	NA
W1	-36.58	7/12/90	1412				3.98	123	83.0	1163	0.02	0.3	700	19660	4.10	127	88.1	1234	0.67	20.3	7.95	6.680	7.52		<1	NA
W1	-36.58	8/7/90	1351				3.20	99	83.9	1175	0.11	1.5	690	19379	3.58	111	84.2	1180	0.57	20.4	7.95	7.026	7.58		<1	NA
W1	-36.58	9/6/90	1157				3.04	94	84.7	1186	0.00	0.0			3.67	114	86.0	1205	0.35	20.4	7.93	6.835	7.58		<1	NA
W1	-36.58	10/3/90	1205				3.54	110	81.6	1143	0.00	0.0	690	19379	3.62	112	81.7	1145	1.21	20.4	7.95	6.950	7.53		<1	NA
W1	-36.58	10/31/90	1400				3.36	104	81.9	1147	0.19	2.7	673	18902	3.48	108	83.9	1175	1.01	20.4	7.94	7.276	7.53		<1	NA
W1	-36.58	12/7/90	1123				3.37	104	83.2	1165	0.08	1.1	682	19154	3.59	111	87.8	1230	0.65	20.3	7.94	7.289	7.39		<1	NA
W1	-36.58	1/10/91	1020				3.79	117	90.6	1269	0.28	3.9	697	19576	3.93	122	90.8	1272	1.12	21.5	7.96	6.640	7.42		<1	NA
W1	-36.58	2/6/91	712				3.48	108	76.2	1067	0.13	1.8	645	18115	3.53	109	76.5	1072	0.71	19.9	7.96	6.242	7.54		<1	NA
W1	-36.58	3/6/91	1050				3.47	107	94.1	1318	0.04	0.6	756	21233	3.51	109	94.8	1328	0.91	20.4	7.96	6.222	8.02		<1	NA
W1	-36.58	4/2/91	903				3.38	105	88.7	1242	0.35	4.9	683	19182	3.40	105	89.7	1256	2.13	20.1	7.94	6.552	7.61		<1	NA
W1	-36.58	5/21/91	1102				3.50	108	79.1	1108	0.00	0.0	719	20193	3.60	112	49.6	695	0.56	20.0	7.92	7.038	7.28		<1	NA
W1	-36.58	6/25/91	1027				3.49	108	73.6	1031	0.00	0.0	714	20053	3.55	110	76.8	1076	0.46	20.3	7.94	6.626	7.75		<1	<1
W1	-36.58	7/23/91	1117				2.63	81	74.3	1041	0.00	0.0	689	19351	2.76	85	81.2	1137	0.65	17.6	7.93	6.984	7.75		<1	<1
W1	-36.58	8/22/91	1028				2.93	91	87.8	1230	0.00	0.0	700	19660	3.33	103	93.6	1311	0.60	20.2	7.94	6.823	7.85		<1	<1
W1	-36.58	9/23/91	1112				3.65	113	92.4	1294	0.15	2.1	662	18593	3.73	116	94.9	1329	0.64	20.6	7.91	6.837	7.80		<1	<1
W1	-36.58	10/22/91	919				3.21	99	82.9	1161	0.00	0.0	942	26457	3.25	101	87.5	1226	0.49	20.0	7.91	7.148	7.63		<1	<1
W1	-36.58	11/20/91	1118				4.03	125	79.3	1111	0.00	0.0	803	22553	4.17	129	82.7	1158	1.41	20.2	7.91	7.021	7.76		<1	<1
W1	-36.58	12/10/91	1109				3.34	103	85.2	1193	0.00	0.0	703	19744	3.43	106	88.8	1244	0.66	20.3	7.92	7.268	7.69		<1	<1
W1	-36.58	1/28/92	1055				3.45	107	84.6	1185	0.00	0.0	705	19800	3.55	110	86.1	1206	1.55	20.5	7.94	7.148	7.81		<1	<1
W1	-36.58	2/18/92	1038				3.20	99	85.8	1202	0.13	1.8	650	18256	3.31	103	92.2	1291	0.52	20.4	7.92	6.859	7.78		<1	62
W1	-36.58	3/17/92	1107				3.39	105	83.7	1172	0.00	0.0	698	19604	3.42	106	88.5	1240	0.90	20.1	7.94	6.990	7.85		<1	<1
W1	-36.58	4/7/92	1103				3.31	103	85.1	1192	0.00	0.0	787	22103	3.38	105	87.0	1219	0.63	20.2	7.93	7.087	8.24		<1	<1
W1	-36.58	5/5/92	1101				3.55	110	86.3	1209	0.00	0.0	734	20615	3.58	111	91.0	1275	0.88	20.1	7.92	7.002	7.79		<1	<1
W1	-36.58	6/22/92	1037				3.20	99	82.2	1151	0.00	0.0	733	20587	3.26	101	83.1	1164	0.73	20.0	7.89	7.793	7.64		<1	<1
W1	-36.58	7/28/92	1013				3.54	110	87.6	1227	0.20	2.8	648	18199	3.55	110	89.0	1246	0.67	20.4	7.90	7.055	7.84		<1	<1
W1	-36.58	8/25/92	1057				3.52	109	74.2	1039	0.00	0.0	735	20643	3.53	109	86.6	1214	0.55	20.3	7.91	7.538	7.63		<1	<1
W1	-36.58	9/21/92	1015				3.23	100	83.0	1162	0.15	2.1	656	18435	3.32	103	89.6	1255	0.63	20.3	7.92	7.936	7.53		<1	<1
W1	-36.58	10/26/92	1028				3.58	111	87.0	1219	0.00	0.0	746	20952	3.60	112	89.5	1253	0.61	20.3	7.91	7.361	7.61		<1	<1
W1	-36.58	11/16/92	1047				3.36	104	84.9	1189	0.03	0.4	713	20025	3.36	104	90.0	1260	0.81	20.1	7.92	8.064	7.53		<1	<1
W1	-36.58	12/7/92	1033				3.39	105	87.3	1223	0.00	0.0	721	20250	3.54	110	89.6	1256	0.68	20.1	7.93	7.271	7.73		<1	<1
W1	-36.58	1/25/93	1031				3.42	106	87.2	1221	0.01	0.1	730	20508	3.31	103	92.6	1296	0.66	20.2	7.94	7.595	7.56		<1	<1
W1	-36.58	2/22/93	1003				3.37	104	85.6	1198	0.03	0.4	728	20441	3.38	105	93.2	1306	0.53	20.1	7.95	7.581	7.62		<1	<1
W1	-36.58	3/15/93	959				3.28	102	85.0	1190	0.00	0.0	722	20283	3.23	100	86.8	1216	0.59	19.7	7.95	7.943	7.56		<1	<1
W1	-36.58	4/26/93	1002				3.32	103	88.7	1242	0.00	0.0	728	20446	3.36	104	91.7	1285	0.54	20.1	7.94	7.638	7.64		<1	<1
W1	-36.58	5/24/93	1019				3.35	104	89.4	1252	0.00	0.0	735	20643	3.35	104	88.7	1242	0.49	20.1	7.93	7.412	7.68		<1	<1
W1	-36.58	6/21/93	1023				3.40	105	89.1	1248	0.12	1.7	731	20531	3.50	108	93.6	1312	0.47	20.0	7.93	7.425	7.71		<1	<1

NELHA Water Quality Laboratory

Well 1 Data Table

July 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W1	-36.58	8/30/93	1115				3.34	103	87.8	1230	0.00	0.0	718	20165	3.35	104	99.6	1395	0.65	20.5	7.90	7.890	7.66		<1	<1
W1	-36.58	10/25/93	1008				3.46	107	83.9	1175	0.10	1.4	674	18930	3.55	110	85.2	1194	0.58	20.1	7.92	8.115	7.52		<1	<1
W1	-36.58	3/1/94	929				3.56	110	88.1	1235	0.11	1.5	654	18368	3.56	110	109	1524	0.63	20.1	7.90	8.253	7.08		<1	<1
W1	-36.58	6/20/94	954				3.40	105	85.2	1193	0.08	1.1	667	18740	3.41	106	99.0	1387	0.62	20.1	7.90	8.085	7.48		<1	<1
W1	-36.58	8/22/94	805				3.50	108	86.1	1206	0.06	0.8	798	22412	3.56	110	96.5	1352	0.62	20.2	7.90	8.104	7.55		<1	<1
W1	-36.58	10/24/94	1041				3.38	105	81.1	1135	0.04	0.6	657	18438	3.39	105	82.7	1158	0.47	20.2	7.91	8.485	7.40		<1	<1
W1	-36.58	1/23/95	1116				3.38	105	82.8	1159	0.09	1.3	643	18070	3.45	107	86.1	1205	0.44	20.6	7.89	8.482	7.34		<1	<1
W1	-36.58	2/13/95	1101				3.49	108	84.9	1190	0.21	2.9	646	18129	3.49	108	91.5	1281	0.50	20.1	7.92	8.262	7.40		<1	<1
W1	-36.58	3/13/95	1145				3.53	109	84.0	1177	0.04	0.6	827	23227	3.57	111	86.1	1206	0.51	20.3	7.92	8.361	7.42		<1	<1
W1	-36.58	4/24/95	1033				3.49	108	84.1	1179	0.11	1.5	688	19312	3.50	108	86.6	1213	0.48	20.1	7.91	8.237	7.43		<1	<1
W1	-36.58	5/8/95	1132				3.49	108	83.6	1171	0.14	2.0	651	18292	3.50	108	90.3	1265	0.54	20.4	7.89	8.324	7.41		<1	<1
W1	-36.58	6/19/95	1112				3.53	109	85.1	1191	0.16	2.2	663	18621	3.53	109	88.4	1238	0.54	20.3	7.87	8.547	7.43		<1	<1
W1	-36.58	7/24/95	1039				3.44	107	85.4	1196	0.15	2.1	671	18851	3.55	110	87.9	1231	0.76	20.3	7.89	8.213	6.98		<1	<1
W1	-36.58	8/21/95	1126				3.42	106	82.6	1157	0.23	3.2	653	18326	3.45	107	86.4	1210	0.46	20.3	7.93	8.528	7.21		<1	<1
W1	-36.58	9/11/95	1002				3.42	106	84.6	1185	0.20	2.8	659	18506	3.47	107	88.3	1236	0.57	20.5	7.90	8.170	7.38		<1	<1
W1	-36.58	10/16/95	1034				3.37	104	79.5	1113	0.20	2.8	653	18348	3.46	107	81.1	1136	0.67	20.7	7.92	8.760	broken		<1	<1
W1	-36.58	11/6/95	1035				3.46	107	85.2	1193	0.18	2.5	677	19017	3.52	109	91.0	1274	0.61	20.3	7.94	8.178	7.27		<1	<1
W1	-36.58	12/4/95	1028				3.44	107	84.3	1181	0.01	0.1	665	18674	3.45	107	86.3	1209	0.68	20.1	7.91	8.259	7.27		1	3
W1	-36.58	1/29/96	1111				3.43	106	81.2	1138	0.13	1.8	663	18618	3.51	109	85.4	1196	0.85	21.0	7.91	8.420	7.43		<1	<1
W1	-36.58	2/26/96	1138				3.43	106	82.6	1156	0.13	1.8	648	18204	3.51	109	85.3	1194	0.60	21.8	7.89	8.514	7.33		<1	<1
W1	-36.58	3/5/96	1037				3.52	109	85.2	1193	0.14	2.0	664	18642	3.53	109	88.7	1242	0.66	20.5	7.90	8.164	7.49		1556	1248
W1	-36.58	4/1/96	1111				3.46	107	83.8	1174	0.22	3.1	652	18299	3.47	107	86.8	1216	0.70	20.8	7.87	8.212	7.50		<1	<1
W1	-36.58	5/8/96	1123				3.46	107	82.4	1154	0.05	0.7	652	18322	3.47	107	85.9	1204	0.53	20.8	7.86	8.360	7.32		3	19
W1	-36.58	6/17/96	1038				3.55	110	85.2	1194	0.33	4.6	698	19600	3.62	112	88.4	1238	0.51	20.4	7.89	8.045	7.43		<1	<1
W1	-36.58	7/16/96	1045				3.47	107	85.6	1199	0.13	1.8	690	19383	3.59	111	88.3	1237	0.57	20.5	7.90	7.919	7.40		<1	<1
W1	-36.58	8/5/96	1128				3.50	108	82.9	1162	0.19	2.7	644	18090	3.52	109	87.0	1218	0.50	21.0	7.88	8.689	7.27		1	<1
W1	-36.58	9/3/96	1049				3.41	106	81.8	1146	0.17	2.4	671	18839	3.52	109	85.5	1198	0.45	21.1	7.88	8.666	7.29		<1	<1
W1	-36.58	10/8/96	1209				3.50	108	83.6	1171	0.11	1.5	636	17866	3.65	113	88.9	1246	0.58	20.7	7.92	8.410	7.36		<1	136
W1	-36.58	11/4/96	1115				3.44	107	83.1	1164	0.18	2.5	670	18826	3.48	108	86.3	1209	0.56	21.0	7.86	8.642	7.34		<1	<1
W1	-36.58	12/16/96	1050				3.45	107	82.7	1159	0.20	2.8	654	18358	3.49	108	86.2	1207	0.59	20.4	7.89	8.874	7.24		<1	<1
W1	-36.58	1/13/97	1131				3.64	113	87	1212	0.02	0.3	664	18652	3.83	119	89.4	1252	0.62	20.9	7.91	7.533	7.73		<1	<1
W1	-36.58	2/11/97	1136				3.23	100	89	1253	0.21	2.9	658	18469	3.24	100	92.5	1296	0.59	21.1	7.91	7.088	7.86		<1	<1
W1	-36.58	3/11/97	1108				3.48	108	88	1235	0.04	0.6	665	18671	3.5*	0	90.3	1265	0.56	20.4	7.93	7.290	7.77		<1	<1
W1	-36.58	4/22/97	1118				3.43	106	85	1184	0.20	2.8	552	15495	3.46	107	94.8	1328	0.56	20.6	7.92	7.664	7.24		<1	<1
W1	-36.58	5/27/97	1023				3.52	109	88	1230	0.09	1.3	540	15175	3.61	112	95.3	1335	0.51	19.9	7.92	7.923	7.44		<1	<1
W1	-36.58	6/16/97	1042				3.45	107	84	1175	0.19	2.7	524	14708	3.49	108	93.7	1313	0.55	19.6	7.97	8.009	7.40		<1	<1
W1	-36.58	7/16/97	952				3.50	108	84	1181	0.30	4.2	657	18461	3.62	112	91.2	1277	0.52	19.8	7.92	7.854	7.45		<1	<1
W1	-36.58	8/25/97	1050				3.42	106	78	1091	0.07	1.0	691	19404	3.44	107	80.9	1133	0.53	19.1	7.98	8.535	7.14		<1	<1
W1	-36.58	9/22/97	1131				3.30	102	77	1081	0.07	1.0	657	18461	3.34	103	78.5	1100	0.51	20.3	8.03	8.625	7.12		<1	<1
W1	-36.58	10/15/97	1008				3.54	110	89	1247	0.07	1.0	660	18531	3.69	114	100	1402	0.51	20.0	8.03	7.801	7.32		<1	<1
W1	-36.58	11/3/97	953				3.45	107	86.5	1212	0.12	1.7	642	18034	3.56	110	96.2	1347	0.49	20.0	8.00	8.365	7.29		<1	<1
W1	-36.58	12/15/97	1110				3.48	108	79.3	1111	0.11	1.5	649	18219	3.68	114	84.0	1177	0.58	20.3	8.04	7.966	7.48		<1	<1
W1	-36.58	1/6/98	930				3.49	108	83.4	1168	0.01	0.1	658	18475	3.77	117	88.9	1245	0.62	19.8	8.04	8.321	7.45		<1	<1
W1	-36.58	2/2/98	1127				3.42	106	82.6	1157	0.04	0.6	658	18491	3.59	111	85.9	1203	0.59	20.1	8.02	8.231	7.41		<1	<1
W1	-36.58	3/9/98	1121				3.67	114	83.4	1168	0.33	4.6	660	18539	3.69	114	85.3	1195	0.60	20.1	7.89	8.174	7.40		<1	<1
W1	-36.58	4/13/98	955				3.62	112	84	1172	0.23	3.2	662	18604	3.68	114	86.6	1212	0.61	19.9	7.90	8.158	7.46		<1	<1
W1	-36.58	5/11/98	1048				3.71	115	83	1156	0.03	0.4	612	17188	3.86	120	84.8	1188	0.58	20.0	7.89	8.135	7.41		<1	<1
W1	-36.58	6/1/98	1038				3.55	110	86.2	1208	0.18	2.5	661	18569	3.61	112	89.8	1258	0.55	20.1	7.89	8.667	7.32		<1	<1

NELHA Water Quality Laboratory

Well 1 Data Table

July 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W1	-36.58	7/13/98	1039				3.58	111	82	1151	0.04	0.6	660	18545	3.78	117	86	1207	0.55	20.3	7.87	8.571	7.22		<1	<1
W1	-36.58	8/10/98	1055				3.74	116	86.6	1213	0.06	0.8	660	18522	3.80	118	90.5	1268	0.54	20.0	7.86	8.335	7.53		7	<1
W1	-36.58	9/14/98	1052				3.62	112	79.9	1119	0.11	1.5	656	18435	3.67	114	81	1138	0.53	20.2	7.86	8.941	7.28		<1	<1
W1	-36.58	10/12/98	950				3.53	109	81.2	1137	0.05	0.7	654	18379	3.66	113	86	1198	0.57	20.5	7.90	8.885	7.66		<1	<1
W1	-36.58	11/2/98	1017				3.61	112	86.4	1210	0.06	0.8	670	18823	3.73	116	89.3	1251	0.65	20.1	7.89	8.167	7.41		<1	<1
W1	-36.58	12/15/98	1056				3.59	111	82.5	1156	0.15	2.1	665	18677	3.63	112	84.2	1180	0.60	20.1	7.89	8.556	7.30		<1	<1
W1	-36.58	1/11/99	1025				3.39	105	82	1151	0.31	4.3	658	18477	3.34	103	86	1200	0.62	20.1	7.87	8.758	7.27		<1	<1
W1	-36.58	2/2/99	1028				3.41	106	84	1178	0.13	1.8	658	18489	3.51	109	92	1286	0.65	19.9	7.88	8.643	7.32		<1	2
W1	-36.58	3/1/99	1033				3.43	106	80.5	1128	0.01	0.1	659	18517	3.55	110	83.3	1167	0.53	20.2	7.87	8.592	7.99		<1	<1
W1	-36.58	4/5/99	1025				3.44	107	82.7	1158	0.11	1.5	660	18525	3.52	109	85.5	1198	0.58	20.0	7.87	8.752	7.30		<1	<1
W1	-36.58	5/3/99	1049				3.45	107	84.1	1178	0.17	2.4	662	18590	3.56	110	91.7	1284	0.55	20.2	7.86	8.581	7.29		<1	<1
W1	-36.58	6/1/99	1020				3.43	106	84.1	1178	0.24	3.4	661	18556	3.56	110	87.7	1228	0.57	20.2	7.87	8.550	7.33		<1	<1
W1	-36.58	7/14/99	1038				3.49	108	82.6	1157	0.08	1.1	656	18418	3.52	109	86.3	1209	0.55	20.0	7.87	8.478	7.33		<1	<1
W1	-36.58	8/23/99	1048				3.42	106	79.8	1118	0.14	2.0	656	18416	3.61	112	80.8	1132	0.53	20.1	7.90	8.825	7.16		<1	<1
W1	-36.58	9/7/99	1042				3.51	109	88.1	1234	0.05	0.7	651	18272	3.60	112	99.9	1399	0.56	20.2	7.91	8.872	7.20		<1	<1
W1	-36.58	10/5/99	1024				3.48	108	83.9	1175	0.09	1.3	654	18362	3.52	109	85.4	1196	0.51	20.0	7.92	8.726	7.23		<1	<1
W1	-36.58	11/1/99	1056				3.37	104	79.6	1115	0.10	1.4	634	17817	3.43	106	83.5	1170	0.53	20.1	7.91	9.363	7.10		<1	<1
W1	-36.58	12/14/99	1047				3.48	108	85.5	1198	0.06	0.8	653	18326	3.55	110	87.1	1220	0.51	20.0	7.89	9.021	6.84		<1	<1
W1	-36.58	1/10/00	1106				3.47	107	80.9	1133	0.13	1.8	655	18382	3.51	109	85.7	1200	0.52	20.0	7.89	8.776	7.13		<1	<1
W1	-36.58	2/7/00	1107				3.50	108	83.4	1168	0.13	1.8	644	18095	3.56	110	87.0	1219	0.53	20.1	7.92	8.773	7.07		<1	<1
W1	-36.58	3/21/00	1106				3.25	101	83.0	1163	0.11	1.5	664	18660	3.09	96	86.1	1206	0.60	20.2	7.91	8.581	7.19		<1	1
W1	-36.58	4/10/00	1140				3.40	105	82.7	1158	0.04	0.6	660	18522	3.24	100	88.9	1245	0.59	19.8	7.92	8.903	7.03		<1	<1
W1	-36.58	5/15/00	1049				3.34	103	82.5	1156	0.25	3.5	627	17607	3.35	104	88.6	1241	0.58	20.4	7.91	8.901	7.26		35	<1
W1	-36.58	6/5/00	1052				3.36	104	83.6	1171	0.09	1.3	647	18183	3.36	104	90.0	1261	0.57	20.4	7.91	8.523	7.29		<1	<1
W1	-36.58	7/26/00	1115				3.35	104	79.4	1112	0.09	1.3	650	18267	3.38	105	79.9	1119	0.72	20.2	7.92	9.293	7.01		<1	<1
W1	-36.58	8/29/00	1025				3.43	106	83.4	1168	0.05	0.7	655	18382	3.48	108	85.4	1196	0.49	20.6	7.87	8.655	7.19		<1	<1
W1	-36.58	9/5/00	1041				3.31	103	80.1	1122	0.10	1.4	654	18365	3.40	105	80.4	1126	0.50	21.1	7.87	9.407	6.92		<1	5
W1	-36.58	10/24/00	1055				3.50	108	80.8	1132	0.18	2.5	676	18997	3.74	116	83.0	1163	0.53	20.2	7.88	8.918	6.89		<1	<1
W1	-36.58	11/13/00	1036				3.08	95	81.0	1134	0.20	2.8	658	18483	3.22	100	88.8	1244	0.51	20.3	7.87	8.854	6.90		<1	<1
W1	-36.58	12/18/00	1028				3.36	104	83.1	1164	0.21	2.9	656	18410	3.44	107	90.3	1264	0.69	20.3	7.89	9.248	6.81		<1	<1
W1	-36.58	1/22/01	1044				3.30	102	85.0	1191	0.10	1.4	660	18525	3.54	110	86.3	1209	0.67	20.0	7.86	8.827	6.75		<1	<1
W1	-36.58	2/5/01	1056				3.28	102	82.0	1149	0.10	1.4	660	18548	3.54	110	84.8	1188	0.67	20.1	7.89	8.950	6.74		<1	<1
W1	-36.58	3/5/01	1050				3.36	104	87.8	1230	0.10	1.4	653	18351	3.56	110	89.6	1255	0.58	20.1	7.85	9.012	6.74		<1	<1
W1	-36.58	4/17/01	1037				3.49	108	82.0	1149	0.05	0.7	668	18747	3.54	110	86.7	1214	0.60	20.5	7.85	8.974	7.32		<1	<1
W1	-36.58	5/15/01	1019				3.34	103	85.0	1191	0.14	2.0	657	18455	3.34	103	88.9	1245	0.53	20.1	7.86	8.986	7.28		<1	<1
W1	-36.58	6/12/01	1057				3.38	105	82.2	1151	0.07	1.0	654	18374	3.44	107	86.0	1204	0.52	20.0	7.88	9.045	7.25		<1	<1
W1	-36.58	7/23/01	1033				3.27	101	87.4	1225	0.09	1.3	669	18800	3.30	102	91.7	1284	0.61	20.3	7.86	8.692	8.20		<1	<1
W1	-36.58	8/8/01	1022				3.36	104	86.1	1206	0.07	1.0	682	19154	3.36	104	88.1	1235	0.53	20.0	7.85	9.003	7.16		<1	<1
W1	-36.58	9/17/01	924				3.40	105	88.0	1232	0.07	1.0	680	19093	3.50	108	90.5	1267	0.58	20.5	7.87	8.668	7.39		<1	1
W1	-36.58	10/22/01	930				3.48	108	81.7	1144	0.09	1.3	644	18079	3.48	108	80.9	1133	0.59	20.0	7.87	9.685	6.99		<1	<1
W1	-36.58	11/5/01	948				3.26	101	81.9	1147	0.06	0.8	649	18222	3.44	107	93.2	1306	0.54	19.9	7.85	9.607	7.00		<1	<1
W1	-36.58	12/12/01	930				3.26	101	87.1	1220	0.36	5.0	669	18800	3.35	104	97.6	1367	0.56	21.8	7.87	8.940	7.27		<1	<1
W1	-36.58	1/7/02	914				3.48	108	81.7	1144	0.08	1.1	681	19121	3.56	110	83.0	1163	0.48	20.0	7.87	9.280	6.75		<1	<1
W1	-36.58	2/19/02	940				3.52	109	83.1	1163	0.08	1.1	663	18621	3.68	114	86.1	1206	0.41	19.8	7.86	9.287	6.72		<1	<1
W1	-36.58	3/18/02	921				3.46	107	80.7	1130	0.13	1.8	658	18477	3.62	112	83.3	1166	0.43	20.0	7.89	9.226	6.78		<1	<1
W1	-36.58	4/8/02	953				3.58	111	85.6	1199	0.08	1.1	656	18433	3.74	116	88.9	1245	0.48	20.0	7.68	9.002	6.75		<1	<1
W1	-36.58	5/29/02	935				3.36	104	85.9	1204	0.09	1.3	653	18326	3.42	106	87.4	1224	0.57	20.0	7.89	8.888	7.24		<1	<1
W1	-36.58	6/17/02	1110				3.52	109	80.5	1128	0.17	2.4	637	17890	3.64	113	84.9	1190	0.42	20.0	7.87	9.332	7.11		<1	<1

NELHA Water Quality Laboratory

Well 1 Data Table

July 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W1	-36.58	7/15/02	11:12				3.48	108	84.5	1184	0.07	1.0	637	17902	3.55	110	85.5	1198	0.57	20.0	7.93	9.326	7.12		<1	<1
W1	-36.58	8/20/02	11:00				3.42	106	78.9	1105	0.09	1.3	658	18472	3.60	112	78.6	1101	0.49	20.1	7.89	9.141	7.31		<1	<1
W1	-36.58	9/23/02	11:37				3.38	105	87.5	1225	0.15	2.1	657	18455	3.58	111	75.7	1061	0.43	20.7	7.90	8.966	7.35		<1	<1
W1	-36.58	10/14/02	10:50				3.27	101	83.0	1163	0.08	1.1	651	18272	3.44	107	71.9	1006	0.42	20.3	7.94	9.711	7.12		<1	<1
W1	-36.58	11/4/02	10:58				3.49	108	87.9	1232	0.02	0.3	658	18491	3.58	111	78.9	1105	0.44	20.2	7.92	9.085	7.32		<1	<1
W1	-36.58	12/17/02	11:30				3.26	101	81.8	1146	0.16	2.2	659	18503	3.47	107	76.4	1071	0.42	21.0	7.92	9.176	7.18		<1	<1
W1	-36.58	1/29/03	10:37				3.38	105	86.7	1215	0.48	6.7	656	18424	3.45	107	93.5	1310	0.62	20.3	7.90	9.023	7.31		<1	<1
W1	-36.58	2/10/03	10:25				3.20	99	82.5	1156	0.13	1.8	668	18761	3.43	106	87.4	1224	0.51	20.1	7.90	9.295	7.12		<1	<1
W1	-36.58	3/19/03	11:10				3.46	107	79.5	1114	0.11	1.5	668	18770	3.69	114	87.5	1226	0.56	20.1	7.97	9.048	7.21		<1	<1
W1	-36.58	4/28/03	10:45				3.53	109	86.4	1210	0.17	2.4	659	18506	3.54	110	91.2	1277	0.45	20.6	7.97	9.105	7.28		<1	<1
W1	-36.58	5/12/03	10:26				3.50	108	85.3	1195	0.19	2.7	717	20137	3.57	111	92.0	1289	0.42	20.4	7.99	9.198	7.30		<1	<1
W1	-36.58	6/3/03	10:57				3.53	109	85.6	1199	0.51	7.1	656	18430	3.75	116	90.0	1260	0.41	20.3	7.86	8.995	7.26		<1	<1
W1	-36.58	7/29/03	11:14				3.41	106	87.9	1231	0.16	2.2	663	18607	3.55	110	97.7	1369		20.4	7.95	8.791	7.51		<1	1
W1	-36.58	8/26/03	11:00				3.32	103	86.1	1206	0.52	7.3	654	18362	3.44	107	95.7	1340		21.3	7.86	8.950	7.14		<1	<1
W1	-36.58	9/15/03	11:03				3.46	107	88.7	1242	0.30	4.2	658	18466	3.77	117	91.6	1283		20.9	7.85	9.235	7.31		<1	<1
W1	-36.58	10/6/03	10:59				3.62	112	80.8	1131	0.54	7.6	662	18593	3.70	115	86.6	1214		20.4	7.88	9.211	NA		<1	<1
W1	-36.58	10/28/03	11:41				3.38	105	86.2	1207	0.30	4.2	664	18635	3.54	110	99.6	1395		19.8	7.86	9.217	NA		<1	<1
W1	-36.58	11/14/03	14:33																	20.7			7.38			
W1	-36.58	12/15/03	10:43				3.35	104	80.4	1127	0.90	12.6	666	18708	3.42	106	81.9	1147		20.4	7.87	9.751	7.07		<1	<1
W1	-36.58	1/26/04	11:14				3.22	100	84.0	1177	0.20	2.8	661	18553	3.34	103	85.6	1199		20.1	7.94	9.340	7.02		<1	1
W1	-36.58	2/5/04	10:48				3.36	104	93.6	1310	0.17	2.4	669	18800	3.52	109	104	1450		20.6	7.88	9.017	7.20		<1	<1
W1	-36.58	3/2/04	10:20				3.46	107	86.6	1214	**1.04**	14.6	668	18772	3.54	110	92.1	1290		20.4	7.92	8.770	6.89		<1	<1
W1	-36.58	4/22/04	9:00				3.42	106	88.7	1243	0.13	1.8	661	18559	3.48	108	94.4	1322		20.5	7.91	8.521	7.44		<1	5
W1	-36.58	5/18/04	8:37				3.30	102	85.3	1195	0.14	2.0	670	18829	3.37	104	88.0	1233		20.6	7.91	8.41	8.73		<1	<1
W1	-36.58	6/8/04	8:40				3.40	105	85.7	1201	**2.45**	34.3	674	18924	3.47	107	92.0	1289		20.3	7.86	8.64	7.38		<1	TNTC
W1	-36.58	7/19/04	9:36				3.32	103	93.1	1304	0.16	2.2	643	18062	3.30	102	**128**	1790		20.3	7.85	8.65	7.34		<1	TNTC
W1	-36.58	8/25/04	8:54				3.18	98	84.1	1178	0.16	2.2	667	18725	3.35	104	90.5	1268		20.4	7.86	8.82	7.21		<1	<1
W1	-36.58	9/28/04	8:46				3.22	100	87.9	1232	0.18	2.5	660	18522	3.36	104	100	1406		20.4	7.86	9.11	9.38		<1	<1
W1	-36.58	10/5/04	9:07				3.22	100	80.5	1127	0.18	2.5	643	18059	3.42	106	84.5	1183		20.4	7.88	9.85	6.80		<1	<1
W1	-36.58	11/9/04	9:56				3.30	102	81.4	1141	0.09	1.3	648	18205	3.46	107	86.2	1208		20.6	7.87	9.30	7.13		<1	<1
W1	-36.58	12/6/04	10:30				3.18	98	80.0	1121	0.20	2.8	645	18124	3.28	102	84.4	1182		20.9	7.88	9.75	6.94		<1	<1
W1	-36.58	1/10/05	9:59				3.34	103	81.8	1146	0.10	1.4	658	18486	3.42	106	84.4	1182		20.8	7.91	9.556	7.01		<1	<1
W1	-36.58	2/9/05	9:59				3.32	103	87.8	1230	0.13	1.8	657	18449	3.41	106	107	1497		20.7	7.91	9.114	7.13		<1	<1
W1	-36.58	3/15/05	10:24				3.28	102	84.7	1186	0.23	3.2	659	18500	3.48	108	90.3	1265	0.37	20.9	7.91	9.148	7.19		<1	<1
W1	-36.58	4/19/05	9:38				3.32	103	81.0	1134	0.16	2.2	658	18477	3.36	104	85.7	1200		21.2	7.93	9.105	7.23		<1	<1
W1	-36.58	5/23/05	10:23				3.30	102	87.6	1227	0.10	1.4	662	18579	3.36	104	91.9	1287		20.6	7.89	9.098	8.10		<1	<1
W1	-36.58	6/15/05	9:27				3.28	102	84.6	1185	0.14	2.0	646	18135	3.58	111	94.1	1318		20.5	7.85	9.517	7.03		<1	<1
W1	-36.58	7/18/05	9:55				3.32	103	82.1	1150	0.18	2.5	665	18682	3.50	108	84.4	1182	0.56	20.6	7.86	9.184	7.10		1	3
W1	-36.58	8/9/05	10:06				3.24	100	81.8	1145	0.26	3.6	647	18157	3.36	104	84.8	1188	0.38	21.0	7.91	9.435	7.01		1	3
W1	-36.58	9/20/05	9:55				3.28	102	81.0	1134	0.14	2.0	656	18413	3.44	107	81.4	1140	0.59	20.8	7.88	9.499	7.11		<1	76
W1	-36.58	10/17/05	9:53				3.34	103	82.8	1160	0.20	2.8	656	18421	3.54	110	87.7	1228		20.7	7.88	9.461	7.12		169	<1
W1	-36.58	11/7/05	9:23				3.12	97	77.5	1086	0.02	0.3	637	17890	3.36	104	82.2	1152		20.2	7.87	10.387	6.83		3	<1
W1	-36.58	12/21/05	8:52				3.18	98	75.6	1058	0.16	2.2	625	17562	3.38	105	78.6	1101	0.57	20.4	7.89	10.528	6.78		<1	1
W1	-36.58	1/23/06	9:52				3.28	102	82.3	1153	0.08	1.1	655	18399	3.42	106	83.6	1170		20.9	7.87	9.869	6.98		<1	<1
W1	-36.58	2/14/06	9:48				3.31	103	85.4	1196	0.18	2.5	651	18275	3.34	103	87.7	1229	0.48	20.6	7.85	9.878	6.97		<1	<1
W1	-36.58	3/20/06	10:31				3.33	103	79.9	1119	0.11	1.5	654	18368	3.43	106	84.7	1186	1.09	20.4	7.92	9.821	6.98		<1	<1
W1	-36.58	4/25/06	10:54				3.22	100	83.6	1171	0.14	2.0	634	17806	3.33	103	76.2	1068	0.45	21.3	7.95	9.827	6.83		<1	<1
W1	-36.58	5/22/06	10:10				3.15	98	81.5	1142	0.58	8.1	618	17357	3.59	111	73.9	1034	0.42	20.5	7.91	9.939	6.81		<1	<1
W1	-36.58	6/26/06	10:19				3.06	95	82.3	1153	0.22	3.1	623	17497	3.31	103	77.3	1083	0.44	20.8	7.92	10.065	6.81		<1	<1

NELHA Water Quality Laboratory

Well 1 Data Table

July 1989 - December 2014

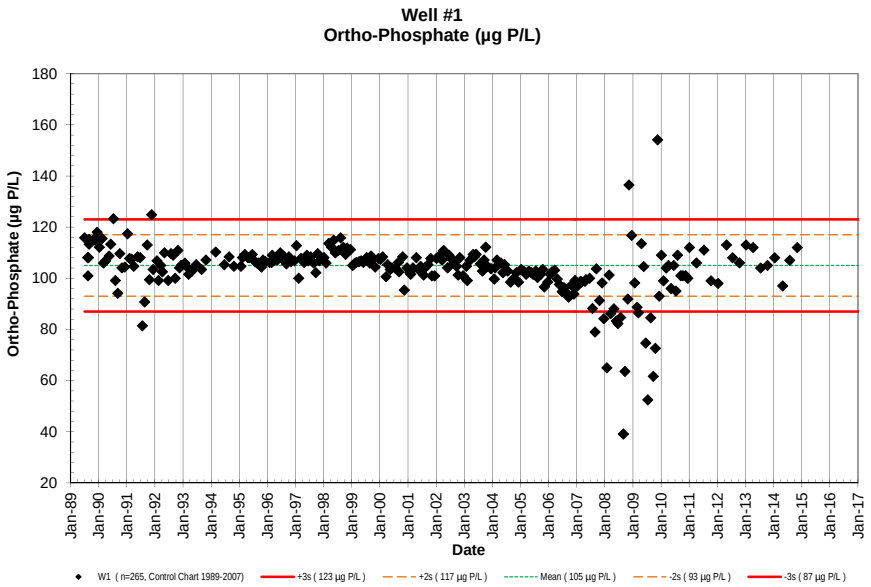
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W1	-36.58	7/20/06	10:29				3.11	96	75.8	1062	0.16	2.2	615	17273	3.33	103	74.3	1040	0.42	21.2	7.87	10.789	7.07		<1	1
W1	-36.58	8/7/06	10:45				3.06	95	77.8	1090	0.06	0.8	628	17638	3.20	99	70.8	991	0.45	20.7	7.90	10.551	7.14		<1	<1
W1	-36.58	9/18/06	10:10				2.99	93	76.3	1069	0.21	2.9	621	17441	3.26	101	68.8	963	0.40	20.9	7.89	10.649	6.96		<1	<1
W1	-36.58	10/23/06	10:50				3.14	97	82.7	1158	0.18	2.5	629	17666	3.24	100	64.4	902	0.40	21.4	7.87	10.294	7.08		<1	<1
W1	-36.58	11/27/06	9:55				3.03	94	76.6	1073	0.31	4.3	615	17273	3.15	98	65.2	913	0.38	20.5	7.88	11.038	6.72		<1	1
W1	-36.58	12/11/06	11:29				3.20	99	82.6	1157	0.20	2.8	641	18003	3.28	102	74.9	1050	0.43	20.5	7.88	10.695	6.78		1	1
W1	-36.58	1/8/07	10:17				3.13	97	84.8	1188	0.30	4.2	604	16964	3.25	101	77.4	1085	0.39	20.2	7.95	10.639	6.83		1684	860
W1	-36.58	2/20/07	10:42				3.19	99	80.6	1129	0.32	4.5	619	17385	3.36	104	89.6	1255	0.47	20.7	7.89	10.146	6.98		1	<1
W1	-36.58	3/5/07	10:20				3.18	98	87.9	1231	0.25	3.5	648	18199	3.35	104	92.9	1301	0.47	21.4	7.93	9.971	7.00		<1	<1
W1	-36.58	4/18/07	10:45				3.19	99	92.3	1293	0.3	4.2	647	18171	3.33	103	77.4	1085	0.40	21.1	7.91	9.737	6.79		1	1
W1	-36.58	5/1/07	10:33				3.21	99	84.5	1184	0.22	3.1	637	17890	3.40	105	78.7	1103	0.42	20.7	7.90	9.808	6.76		<1	<1
W1	-36.58	6/18/07	10:24				3.23	100	91.0	1275	0.18	2.5	655	18396	3.40	105	77.1	1081	0.38	21.0	7.94	9.854	7.26		<1	<1
W1	-36.58	7/26/07	14:42	-30.78	0.64	High	2.85	88	88.1	1234	0.01	0.1	618	17348	3.03	94	87.1	1220		20.3	7.80	10.71	6.25			
W1	-36.58	8/28/07	12:22		0.21	Flood	2.55	79	53.1	744	0.59	8.2	796	22365	2.63	82	54.5	763		20.4	7.86	10.02	6.54			
W1	-36.58	9/13/07	10:16		0.15	Ebb	3.35	104	90.4	1266	0.16	2.2	667	18745	3.31	103	90.8	1271		20.2	7.72	9.83	7.40			
W1	-36.58	10/24/07	15:24	-31.58	0.46	Ebb	2.95	91	92.0	1289	0.92	12.9	614	17249	2.99	93	89.3	1250		20.1	7.78	10.34	6.41			
W1	-36.58	11/26/07	10:46		0.30	Ebb	3.17	98	93.5	1309	0.91	12.8	681	19118	2.74	85	100.7	1410		20.2	7.87	9.83	6.51			
W1	-36.58	12/20/07	13:11		0.24	Ebb	2.72	84	60.7	850	0.20	2.8	601	16878						20.0	7.99	9.54	6.58			
W1	-36.58	1/28/08	11:25	-30.78	0.18	Ebb	2.10	65	51.2	717	0.54	7.6	376	10548						20.3	7.78	9.35	6.22			
W1	-36.58	2/27/08	9:37		0.15	Ebb	3.27	101	95.9	1343	0.11	1.6	618	17358						20.1	7.79	9.32	6.90			
W1	-36.58	3/18/08	11:27	-29.93	0.06	Flood	2.78	86	77.9	1091	0.56	7.9	651	18295						20.6	7.79	9.36	5.71			
W1	-36.58	4/28/08	10:27	-31.39	0.15	Flood	2.84	88	96.8	1355	0.19	2.6	625	17541						20.6	7.81	9.34	6.64			
W1	-36.58	5/30/08	11:24		0.24	Flood	2.69	83	89.5	1254	0.21	2.9	619	17384						20.7	7.81	9.75	6.35			
W1	-36.58	6/20/08	10:04		-0.06	Low	2.66	82	96.4	1350	0.68	9.5	697	19579						25.4	7.67	9.10	6.10			
W1	-36.58	7/25/08	10:53	-30.78	0.55	High	2.73	85	85.5	1198	0.63	8.8	414	11616						20.2	7.87	9.91	6.08			
W1	-36.58	8/30/08	9:00		0.00	Low	1.26	39	52.3	733	0.71	9.9	318	8922						20.7	7.81	9.13	7.86			
W1	-36.58	9/19/08	1022	-30.92	0.37	Ebb	2.05	64	67.6	947	1.05	14.7	461	12937						24.1	7.88	5.03	8.12	0.50		
W1	-36.58	10/27/08	1136	-31.35	0.24	Flood	2.97	92	97.1	1361	0.49	6.9	619	17390						22.1	7.54	8.96	7.80	0.41		
W1	-36.58	11/10/08	946	-31.26	0.18	Flood	4.41	137	95.6	1339	0.11	1.5	579	16260						23.3	7.90	9.10	6.74	0.19		
W1	-36.58	12/15/08	908	-31.01	0.43	Ebb	3.77	117	151.8	2126	0.06	0.8	642	18025						24.1	8.08	4.55	8.29			
W1	-36.58	1/23/09	1025	-31.35	0.08	Low	3.17	98	107.6	1507	0.54	7.6	586	16456						22.8	7.93	9.00	6.64	0.17		
W1	-36.58	2/23/09	1254	-31.36	0.15	Flood	2.86	89	96.3	1348	0.23	3.2	588	16513						21.3	7.79	9.44	7.09	0.23		
W1	-36.58	3/13/09	1118	-31.43	-0.03	Ebb	2.79	87	81.3	1139	0.13	1.8	616	17301						21.6	7.82	8.98	7.04	0.25		
W1	-36.58	4/20/09	1021	-31.36	0.15	Flood	3.66	114	90.4	1266	0.41	5.7	373	10480						21.8	7.78	9.21	7.07			
W1	-36.58	5/21/09	955	-31.44	0.08	Flood	3.38	105	93.0	1302	0.16	2.2	643	18057						23.7	8.32	9.37	6.56	0.21		
W1	-36.58	6/16/09	934	-31.26	0.30	Flood	2.41	75	56.0	784	0.74	10.4	196	5510						23.8	7.34	9.51	6.64	0.13		
W1	-36.58	7/13/09	1106	-31.29	0.37	Ebb	1.69	53	41.1	575	0.32	4.5	246	6897						23.0	7.9	9.6	6.90	0.06		
W1	-36.58	8/20/09	1020	-31.40	0.03	Low	2.73	85	83.9	1176	0.06	0.8	532	14936						23.7	7.92	9.12	6.58	0.13		
W1	-36.58	9/21/09	1019	-31.22	0.30	Ebb	1.99	62	59.4	832	0.19	2.7	171	4812						24.0	8.66	9.61	6.58	0.06		
W1	-36.58	10/19/09	958	-31.12	0.37	Ebb	2.34	73	87.0	1218	1.97	27.6	231	6476						21.1	8.71	9.74	6.85	0.02		
W1	-36.58	11/16/09	935	-31.31	0.18	Ebb	4.98	154	79.1	1108	0.96	13.4	365	10247						21.4	7.80	9.38	6.89	0.02		
W1	-36.58	12/7/09	947	-31.14	0.55	Ebb	3.00	93	97.2	1361	0.45	6.3	574	16134						21.1	7.88	10.21	6.28	0.07		
W1	-36.58	1/5/10	924	-31.10	0.43	Ebb	3.52	109	85.8	1202	1.93	27.0	537	15090						21.1	7.80	11.00	6.34	0.05		
W1	-36.58	2/1/10	909	-31.07	0.24	Ebb	3.20	99	97.7	1368	0.50	7.0	521	14630						21.0	7.91	10.36	6.82	0.27		
W1	-36.58	3/9/10	830	-31.38	0.09	Low	3.36	104	93.3	1307	0.14	2.0	580	16294						21.1	7.81	10.00	6.42	0.30		
W1	-36.58	4/6/10	802	-31.42	0.24	Low	3.39	105	95.5	1338	0.29	4.0	496	13936						21.9	7.88	9.60	6.93	0.12		
W1	-36.58	5/11/10	818	-31.49	-0.03	Low	3.10	96	82.5	1155	2.28	32.0	533	14970						21.1	7.99	9.64	6.98	0.13		
W1	-36.58	6/15/10	859	-31.38	0.12	Ebb	3.39	105	95.0	1331	0.79	11.0	653	18337						21.9	7.88	9.87	6.74	0.11		

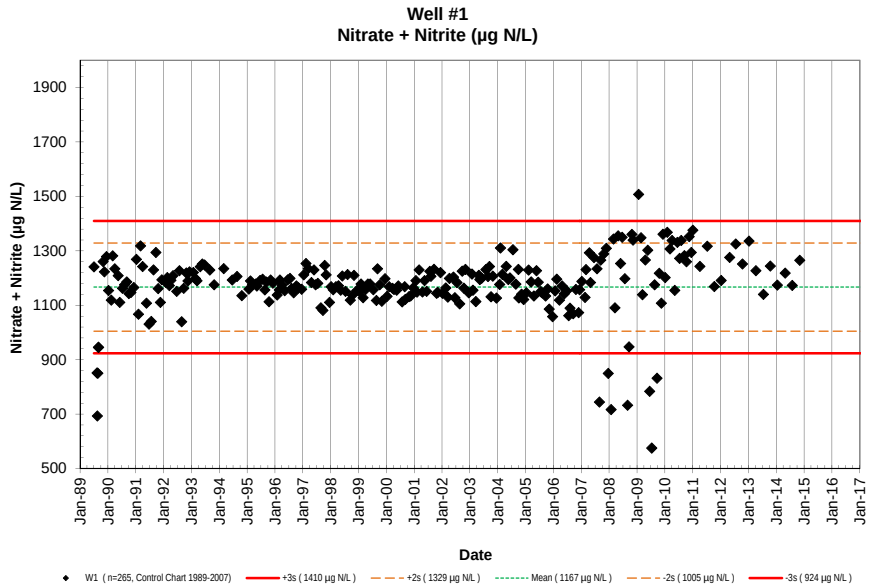
NELHA Water Quality Laboratory

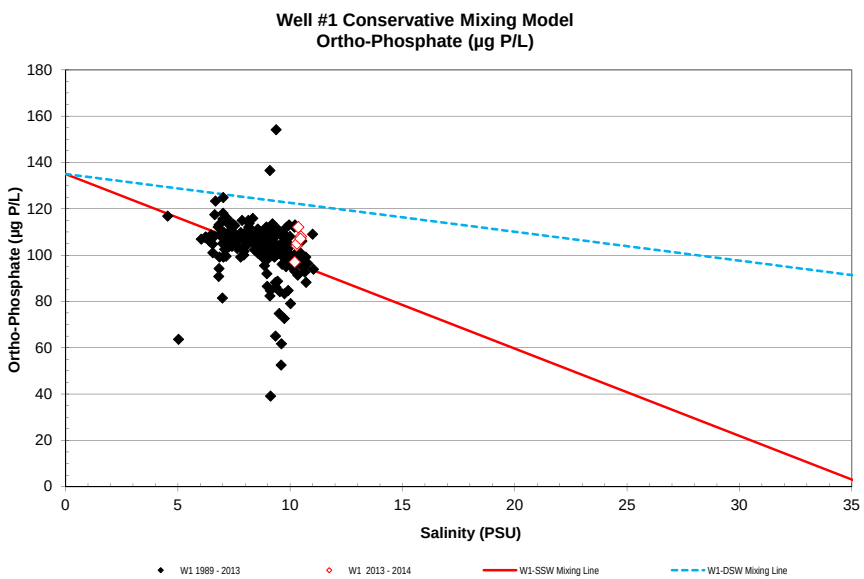
Well 1 Data Table

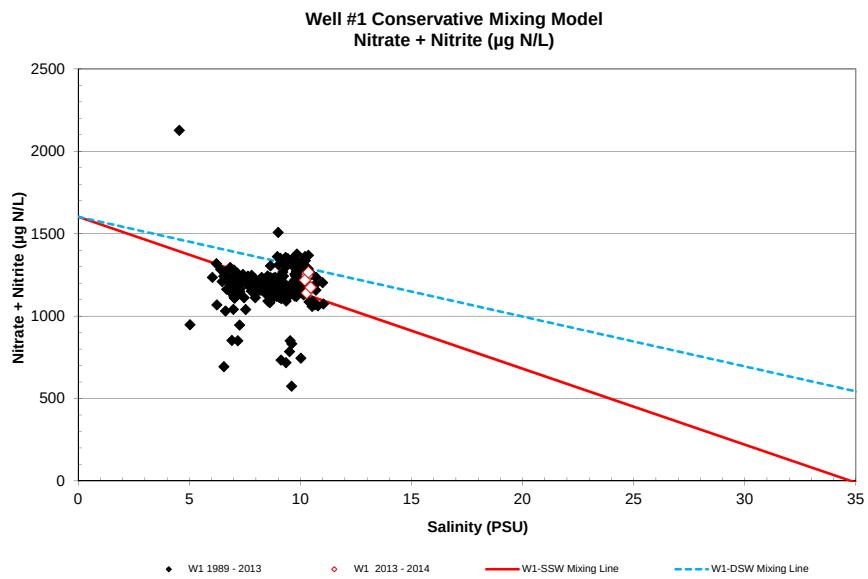
July 1989 - December 2014

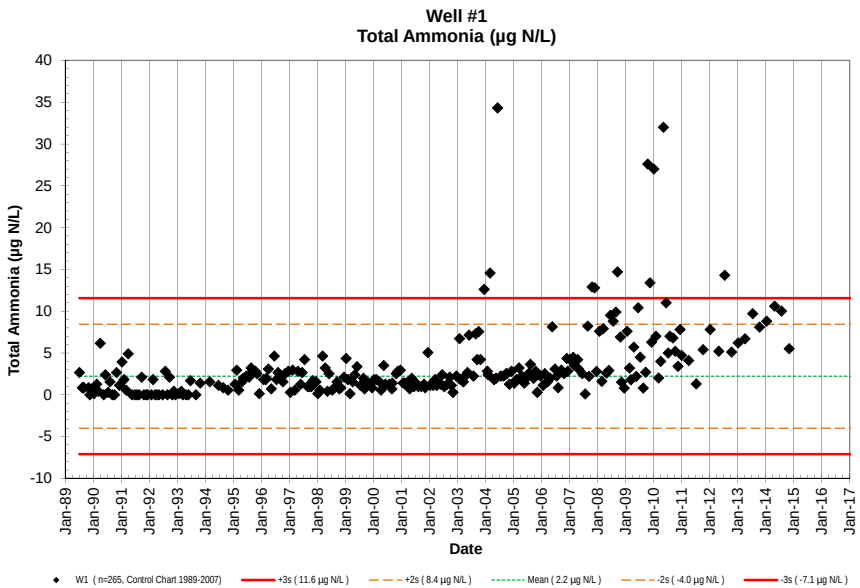
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W1	-36.58	7/13/10	832	-31.30	0.12	Ebb	3.07	95	90.8	1272	0.36	5.0	641	17994						22.0	7.91	9.82	6.46	0.11		
W1	-36.58	8/3/10	829	-31.22	0.37	Flood	3.52	109	95.5	1338	0.50	7.0	663	18614						22.2	7.91	9.73	6.66	0.19		
W1	-36.58	9/14/10	826	-31.14	0.55	Flood	3.26	101	91.5	1282	0.49	6.8	676	18972						22.1	7.87	10.28	6.80	0.08		
W1	-36.58	10/12/10	817	-30.99	0.67	High	3.26	101	90.0	1260	0.37	5.2	680	19099						22.1	7.89	10.45	6.37	0.08		
W1	-36.58	11/16/10	808	-31.19	0.21	Low	3.26	101	96.5	1352	0.24	3.4	676	18986						21.9	7.89	9.68	6.78	0.07		
W1	-36.58	12/14/10	828	-31.18	0.30	Flood	3.23	100	92.4	1294	0.56	7.8	645	18102						21.8	7.89	9.96	6.77	0.04		
W1	-36.58	1/4/11	830	-31.07	0.30	Ebb	3.62	112	98.2	1376	0.34	4.7	694	19504						21.8	7.87	9.84	6.69	0.03		
W1	-36.58	4/5/11	822	-31.28	0.06	Ebb	3.42	106	88.7	1243	0.29	4.1	656	18420						22.1	7.82	9.78	5.99	0.10		
W1	-36.58	7/12/11	824	-31.53	-0.06	Flood	3.58	111	94.0	1317	0.09	1.3	658	18477						21.8	7.84	9.46	6.60	0.05		
W1	-36.58	10/11/11	842	-31.18	0.18	Ebb	3.20	99	83.5	1169	0.39	5.4	613	17218						22.1	7.79	10.11	6.88	0.18		
W1	-36.58	1/10/12	843	-31.13	0.37	Ebb	3.16	98	85.0	1191	0.56	7.8	619	17376						21.6	7.76	10.32	6.33	0.09		
W1	-36.58	5/1/12	839	-31.35	0.03	Flood	3.65	113	91.1	1276	0.37	5.2	686	19266						21.9	7.79	9.95	6.60	0.10		
W1	-36.58	7/18/12	823	-31.38	0.03	Ebb	3.49	108	94.6	1325	1.02	14.3	635	17842						21.5	7.84	9.99	6.87	0.11		
W1	-36.58	10/16/12	853	-31.11	0.34	Ebb	3.42	106	89.4	1252	0.36	5.1	631	17710						21.6	7.82	10.52	6.51	0.05		
W1	-36.58	1/8/13	912	-31.27	0.05	Low	3.65	113	95.4	1336	0.44	6.2	678	19043						21.5	7.90	10.22	6.66	0.33		
W1	-36.58	4/9/13	843	-31.38	-0.06	Low	3.62	112	87.6	1227	0.48	6.7	659	18517						21.3	7.88	10.19	6.85	0.02		
W1	-36.58	7/17/13	912	-31.38	0.40	Flood	3.36	104	81.4	1140	0.69	9.7	651	18284						21.3	7.81	10.29	6.50	0.08		
W1	-36.58	10/15/13	844	-31.33	0.15	Flood	3.39	105	88.8	1244	0.58	8.1	635	17840						21.5	7.82	10.30	6.88	0.12		
W1	-36.58	1/15/14	823	-31.06	0.30	Ebb	3.49	108	83.8	1174	0.63	8.8	564	15829						20.7	7.90	10.47	6.73	0.02		
W1	-36.58	4/29/14	940	-31.43	-0.06	Low	3.13	97	87.0	1218	0.76	10.6	604	16974						21.5	7.91	10.20	7.28	0.09		
W1	-36.58	7/29/14	912	-31.29	0.18	Ebb	3.45	107	83.7	1173	0.71	10.0	693	19472						21.3	7.88	10.46	6.93	0.13		
W1	-36.58	11/5/14	913	-31.15	0.09	Low	3.62	112	90.3	1265	0.39	5.5	612	17189						24.1	7.79	10.36	6.09	0.43		
W1	-36.58	1/1/15																								
W1	-36.58	4/1/15																								

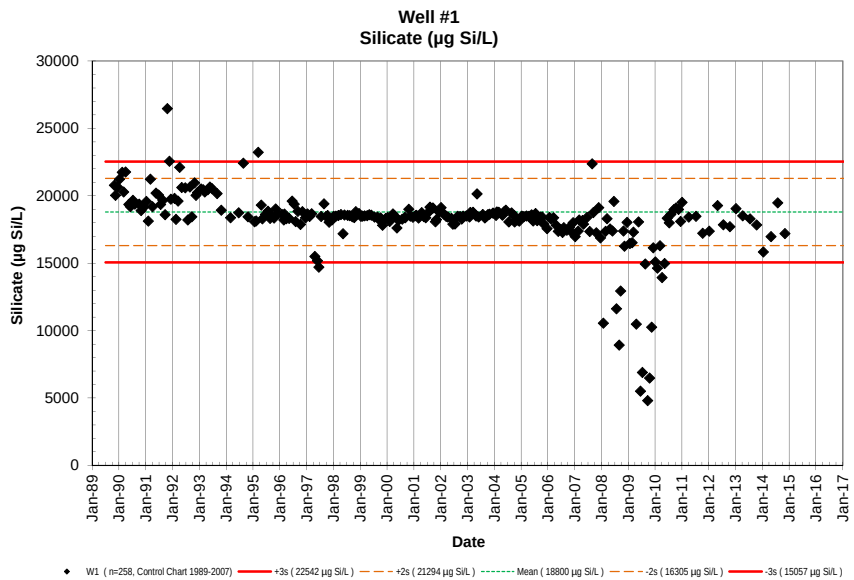

Well #1
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W1 (n=265, Control Chart 1989-2007)
+3s (123 µg P/L)
+2s (117 µg P/L)
Mean (105 µg P/L)
-2s (93 µg P/L)
-3s (87 µg P/L)

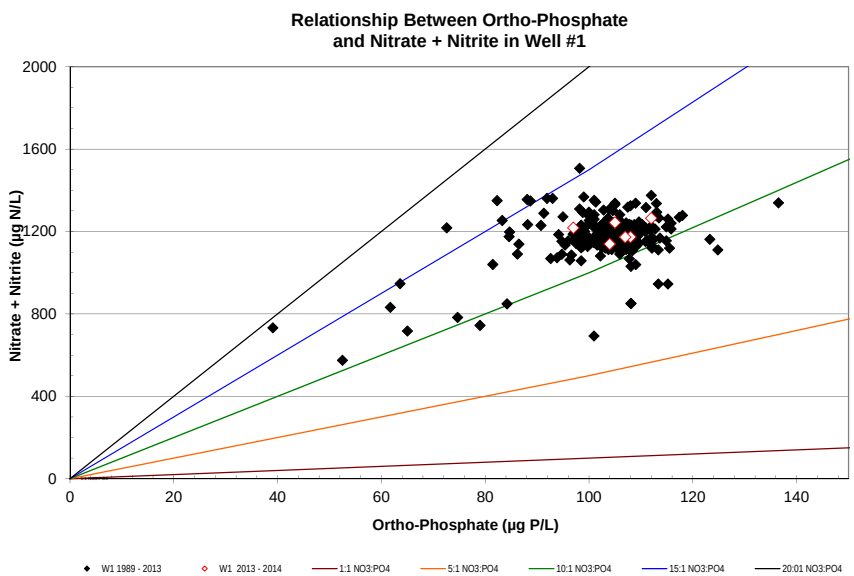

Well #1
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W1 (n=265, Control Chart 1989-2007)
+3s (1410 µg N/L)
+2s (1329 µg N/L)
Mean (1167 µg N/L)
-2s (1005 µg N/L)
-3s (924 µg N/L)

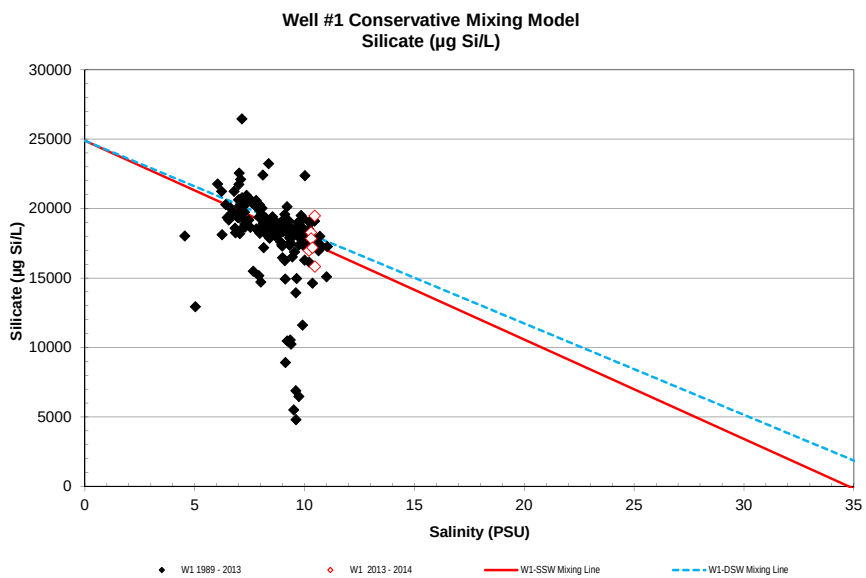

Well #1 Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W1 1989 - 2013
W1 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

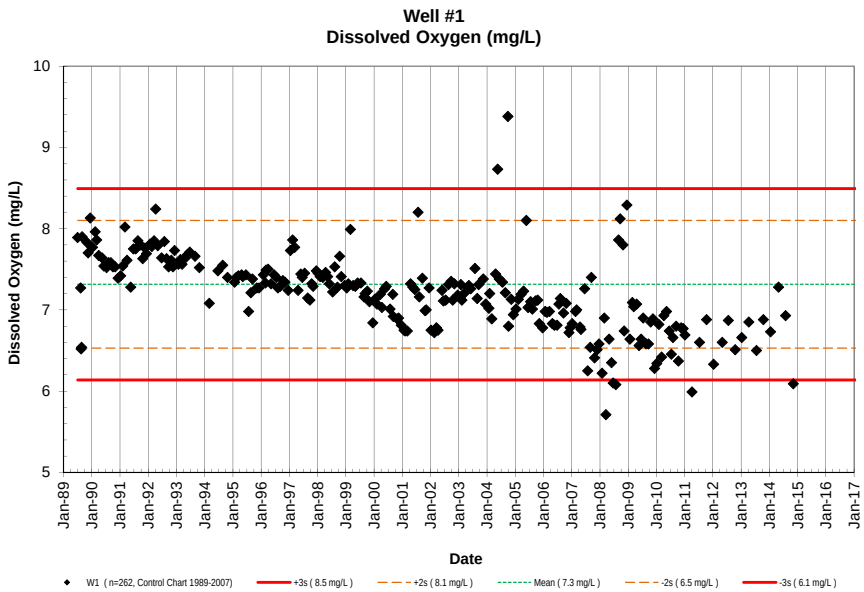

Well #1 Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W1 1989 - 2013
W1 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

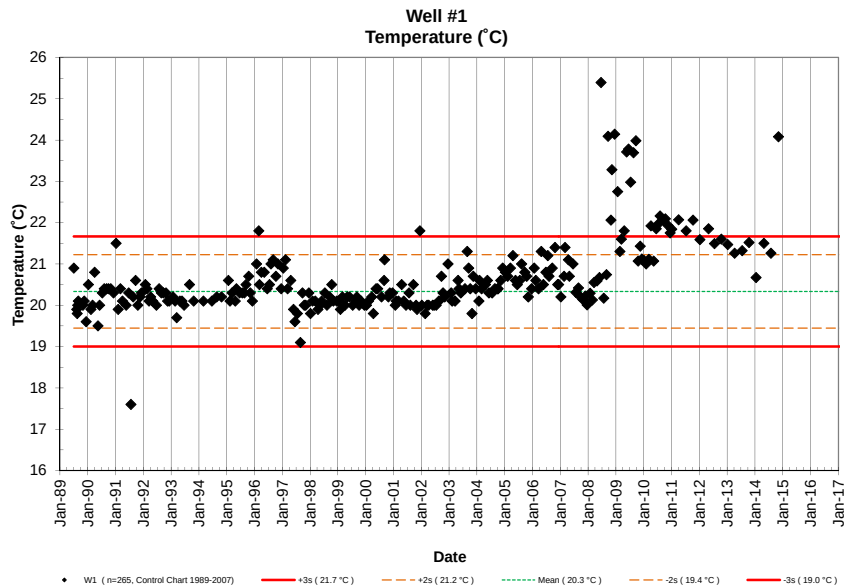

Well #1
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W1 (n=265, Control Chart 1989-2007)
+3s (11.6 µg N/L)
+2s (8.4 µg N/L)
Mean (2.2 µg N/L)
-2s (-4.0 µg N/L)
-3s (-7.1 µg N/L)

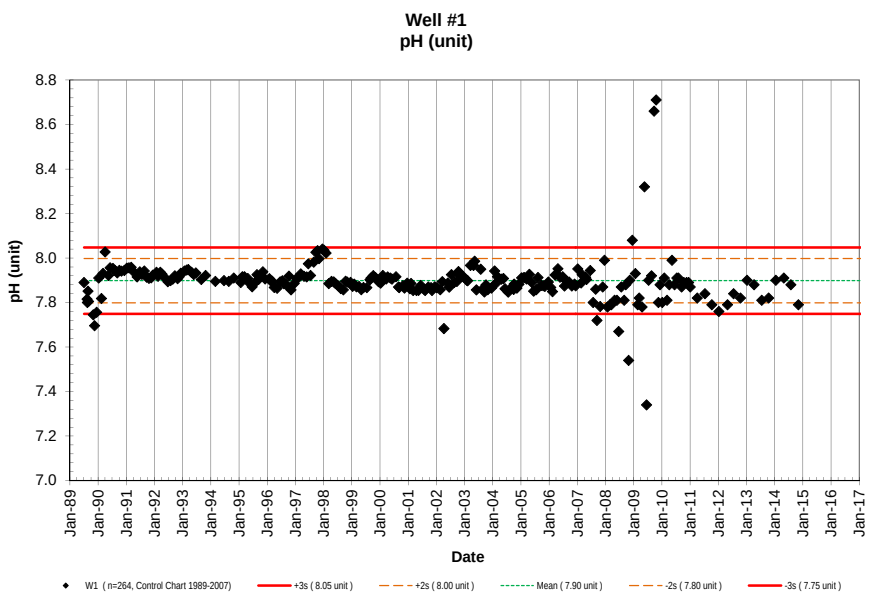

Well #1
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W1 (n=258, Control Chart 1989-2007)
+3s (22542 µg Si/L)
+2s (21294 µg Si/L)
Mean (18800 µg Si/L)
-2s (16305 µg Si/L)
-3s (15057 µg Si/L)

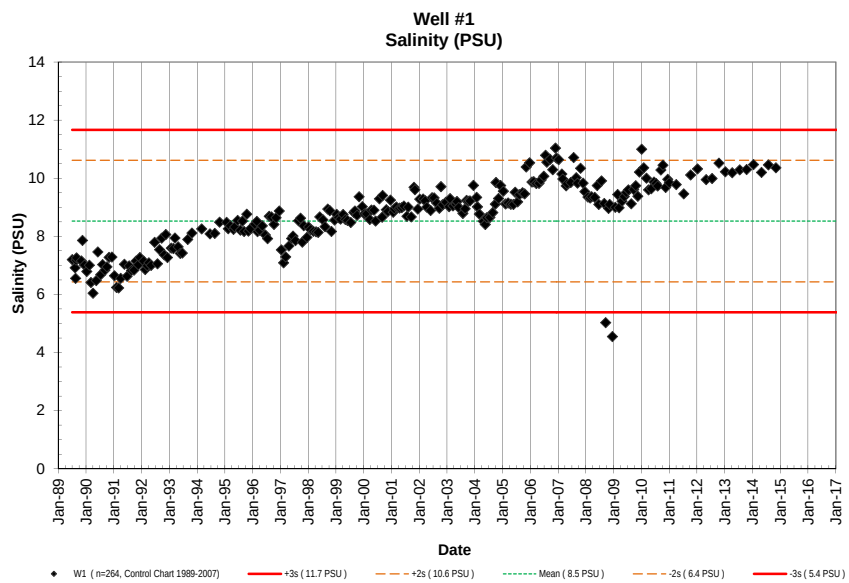

Relationship Between Ortho-Phosphate
and Nitrate + Nitrite in Well #1
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W1 1989 - 2013
W1 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

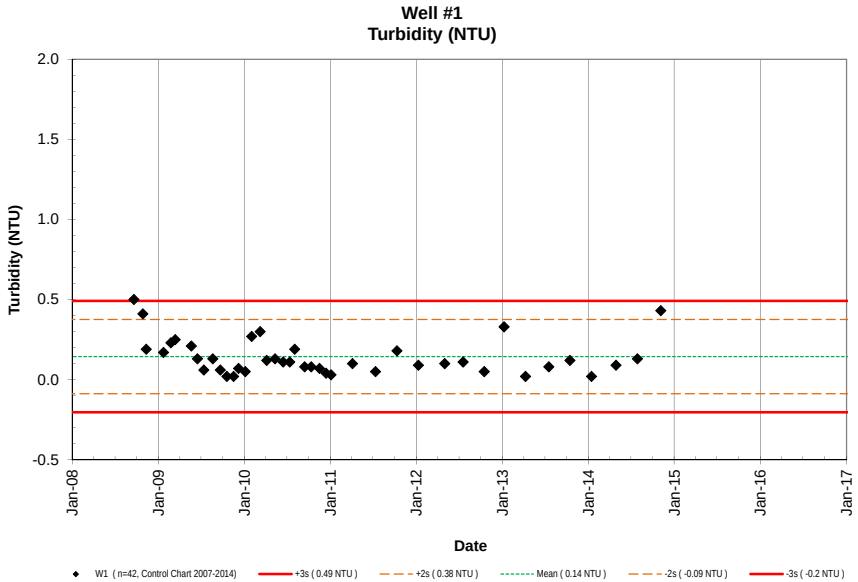

Well #1 Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W1 1989 - 2013
W1 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

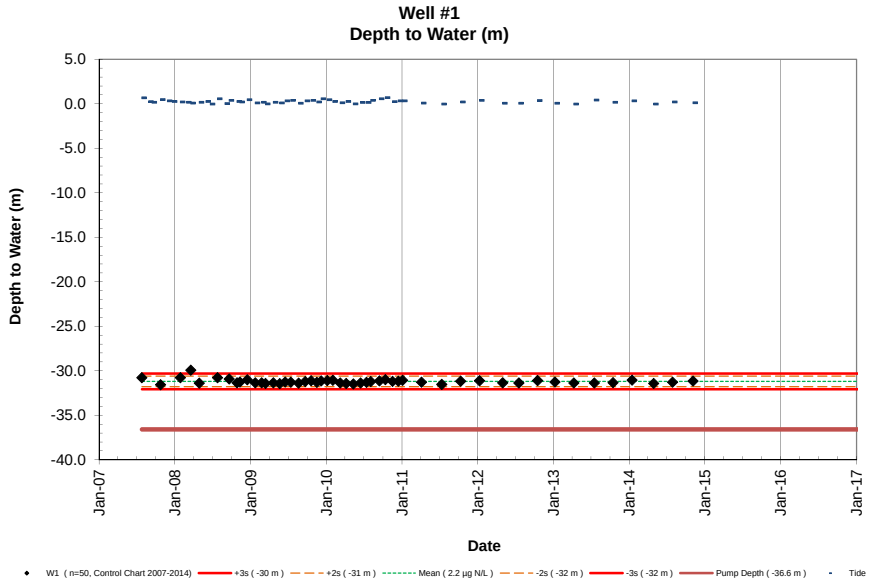

Well #1
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W1 (n=262, Control Chart 1989-2007)
+3s (8.5 mg/L)
+2s (8.1 mg/L)
Mean (7.3 mg/L)
-2s (6.5 mg/L)
-3s (6.1 mg/L)


Well #1
Temperature (˚C)
Temperature (˚C)
Date
W1 (n=265, Control Chart 1989-2007)
+3s (21.7 °C)
+2s (21.2 °C)
Mean (20.3 °C)
-2s (19.4 °C)
-3s (19.0 °C)


Well #1
pH (unit)
pH (unit)
Date
W1 (n=264, Control Chart 1989-2007)
+3s (8.05 unit)
+2s (8.00 unit)
Mean (7.90 unit)
-2s (7.80 unit)
-3s (7.75 unit)


Well #1
Salinity (PSU)
Salinity (PSU)
Date
W1 (n=264, Control Chart 1989-2007)
+3s (11.7 PSU)
+2s (10.6 PSU)
Mean (8.5 PSU)
-2s (6.4 PSU)
-3s (5.4 PSU)


Well #1
Turbidity (NTU)
Turbidity (NTU)
2.0
1.5
1.0
0.5
0.0
-0.5
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W1 (n=42, Control Chart 2007-2014)
+3s (0.49 NTU)
+2s (0.38 NTU)
Mean (0.14 NTU)
-2s (-0.09 NTU)
-3s (-0.2 NTU)


Well #1
Depth to Water (m)
Depth to Water (m)
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W1 (n=50, Control Chart 2007-2014)
+3s (-30 m)
+2s (-31 m)
Mean (2.2 µg N/L)
-2s (-32 m)
-3s (-32 m)
Pump Depth (-36.6 m)
Tide

NELHA Water Quality Laboratory

Well 2 Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W2	-13.11	6/28/89					0.95	29.4	35.4	496	0.38	5.3								18.4	7.73	26.36	4.47		NA	NA
W2	-13.11	8/11/89	1020				1.16	35.9	22.3	312	0.31	4.3								18.5	7.70	27.26	4.19		<1	NA
W2	-13.11	8/16/89	935				1.28	39.6	23.9	335	0.52	7.3								18.5	7.68	27.28	4.27		<1	NA
W2	-13.11	8/23/89	917				1.34	41.5	25.7	360	0.52	7.3								17.9	7.70	27.65	4.39		<1	NA
W2	-13.11	8/30/89	935				1.19	36.9	23.9	335	0.31	4.3								18.2	7.70	27.38	4.07		<1	NA
W2	-13.11	8/30/89	935				1.19	36.9	23.9	335	0.31	4.3													NA	NA
W2	-13.11	10/31/89	915				1.20	37.2	22.7	318	0.19	2.7	308	8650	1.46	45	27	376	0.44	18.2	7.73	27.59	4.20		<1	NA
W2	-13.11	11/16/89	750				1.29	40.0	27.5	385	0.00	0.0	315	8847	1.50	46	28	392	0.57	18.7	7.90	26.95	5.02		<1	NA
W2	-13.11	12/13/89	1016				1.16	35.9	26.5	371	0.04	0.6	286	8032	1.40	43	27	371	0.45	18.4	7.74	28.31	6.36		<1	NA
W2	-13.11	1/11/90	802				0.93	28.8	23.9	335	0.06	0.8	300	8426	1.07	33	25	350	0.44	18.4	7.72	27.89	4.30		<1	NA
W2	-13.11	2/14/90	940				1.24	38.4	25.6	359	0.03	0.4	270	7583	1.53	47	27	377	0.54	18.5	7.70	27.49	4.03		<1	NA
W2	-13.11	3/6/90	1316				0.61	18.9	14.2	199	0.22	3.1	278	7808	1.51	47	26	360	0.42	18.5	7.84	28.23	3.90		<1	NA
W2	-13.11	4/4/90	1100				1.18	36.5	24.7	346	0.00	0.0	326	9156	1.32	41	24	342	0.60	18.5	7.89	27.92	4.04		<1	NA
W2	-13.11	5/17/90	1351				1.14	35.3	22.5	315	0.08	1.1	268	7527	1.38	43	23	328	0.43	18.8	7.83	28.72	4.03		<1	NA
W2	-13.11	6/16/90	1305				1.26	39.0	23.2	325	0.08	1.1	277	7780	1.45	45	25	345	0.46	18.9	7.92	28.31	3.85		<1	NA
W2	-13.11	7/17/90	1340				1.33	41.2	23.7	332	0.02	0.3	296	8313	1.87	58	27	371	0.34	18.9	7.90	27.74	3.93		<1	NA
W2	-13.11	8/8/90	1327				0.97	30.0	24.7	346	0.20	2.8	283	7948	1.51	47	25	352	0.81	18.9	7.88	28.09	3.83		<1	NA
W2	-13.11	9/5/90	1340				1.49	46.2	23.6	330	0.12	1.7			1.49	46	24	341	0.38	18.9	7.90	28.12	3.83		<1	NA
W2	-13.11	10/4/90	1340				1.22	37.8	23.0	323	0.03	0.4	293	8229	1.61	50	23	329	1.15	18.9	7.89	27.83	3.85		<1	NA
W2	-13.11	11/1/90	1355				1.09	33.8	25.2	354	0.09	1.3	288	8089	1.56	48	26	366	0.39	18.9	7.89	27.67	3.80		<1	NA
W2	-13.11	12/10/90	1357				1.03	31.9	25.1	351	0.00	0.0	270	7580	1.34	42	25	353	0.23	19.0	7.89	28.55	3.69		<1	NA
W2	-13.11	1/9/91	1000				1.01	31.3	27.0	378	0.00	0.0	285	8004	1.08	33	28	387	0.29	17.2	7.94	27.61	3.83		10	NA
W2	-13.11	2/6/91	957				0.77	23.8	23.8	333	0.00	0.0	255	7162	1.06	33	25	353	0.51	18.8	7.90	27.87	3.73		<1	NA
W2	-13.11	3/6/91	1020				0.96	29.7	24.6	345	0.08	1.1	289	8117	1.08	33	26	367	0.58	18.6	7.91	27.60	3.78		<1	NA
W2	-13.11	4/3/91	1005				0.88	27.3	29.1	408	0.00	0.0	263	7386	1.07	33	31	434	0.46	18.8	7.90	28.57	3.72		<1	NA
W2	-13.11	5/22/91	1026				0.95	29.4	12.7	178	0.09	1.3	343	9633	1.02	32	13	183	0.24	18.7	7.90	27.16	3.83		<1	NA
W2	-13.11	6/26/91	1031				0.78	24.2	23.2	325	0.32	4.5	290	8145	1.10	34	24	335	0.39	18.8	7.90	28.27	3.74		<1	<1
W2	-13.11	7/24/91	1101				1.04	32.2	22.2	311	0.28	3.9	292	8201	1.08	33	23	324	0.31	18.7	7.90	27.94	3.78		<1	<1
W2	-13.11	8/23/91	1024				0.88	27.3	21.2	297	0.46	6.4	307	8622	1.07	33	25	346	0.33	18.7	7.87	27.66	3.79		<1	<1
W2	-13.11	9/24/91	957				0.84	26.0	20.8	291	0.80	11.2	273	7667	0.91	28	23	318	0.33	18.7	7.86	28.92	3.72		<1	<1
W2	-13.11	10/23/91	1016				1.43	44.3	23.4	328	0.00	0.0	379	10644	2.88	89	25	345	0.43	18.7	7.98	28.23	3.71		<1	<1
W2	-13.11	11/20/91	958				1.39	43.1	25.1	352	0.10	1.4	341	9577	1.45	45	27	381	0.39	18.7	7.87	27.18	3.89		<1	<1
W2	-13.11	12/11/91	1100				1.25	38.7	25.9	363	0.00	0.0	311	8735	1.51	47	28	389	0.37	18.7	7.91	27.01	3.85		<1	<1
W2	-13.11	1/29/92	1058				1.00	31.0	26.7	374	0.00	0.0	314	8819	1.05	33	28	394	1.12	18.6	7.91	26.47	3.94		<1	<1
W2	-13.11	2/19/92	1119				0.94	29.1	31.4	440	0.00	0.0	277	7780	1.15	36	40	553	0.30	18.7	7.91	27.66	3.78		<1	<1
W2	-13.11	3/17/92	1033				0.93	28.8	25.8	361	0.00	0.0	111	3117	0.99	31	28	394	0.41	18.6	7.90	27.36	3.85		<1	<1
W2	-13.11	4/8/92	1030				0.93	28.8	24.3	340	0.28	3.9	285	8004	1.06	33	27	374	0.43	18.8	7.89	27.83	3.83		<1	<1
W2	-13.11	5/6/92	1105				0.91	28.2	23.7	332	0.25	3.5	313	8791	1.01	31	26	360	1.04	18.7	7.89	27.64	3.84		<1	<1
W2	-13.11	6/23/92	1041				1.03	31.9	25.2	353	0.80	11.2	325	9128	1.11	34	28	395	0.62	18.8	7.89	27.18	3.94		<1	<1
W2	-13.11	7/29/92	1037				0.93	28.8	24.5	343	ND	0.0	303	8510	1.02	32	26	368	0.45	18.9	7.87	27.53	3.86		<1	<1
W2	-13.11	8/25/92	1023				1.14	35.3	24.2	339	0.16	2.2	312	8763	1.14	35	27	373	0.78	18.8	7.86	27.97	3.79		<1	<1
W2	-13.11	9/22/92	1103				1.08	33.5	20.9	293	0.10	1.4	345	9689	1.24	38	19	260	0.31	18.8	7.89	27.07	3.85		<1	<1
W2	-13.11	10/27/92	1049				1.19	36.9	28.8	403	0.21	2.9	352	9886	1.26	39	32	444	0.68	18.8	7.90	25.98	4.00		<1	<1
W2	-13.11	11/17/92	1112				1.06	32.8	28.8	403	0.31	4.3	338	9479	1.19	37	31	435	0.54	18.6	7.91	26.07	3.99		<1	<1
W2	-13.11	12/8/92	1013				0.97	30.0	25.8	361	0.35	4.9	325	9122	1.09	34	29	407	0.47	18.6	7.91	26.94	3.91		<1	<1
W2	-13.11	1/26/93	1031				0.98	30.4	24.9	348	0.20	2.8	308	8639	1.07	33	26	369	0.37	18.7	7.92	27.85	3.82		<1	<1
W2	-13.11	2/23/93	1018				0.98	30.4	25.3	355	0.15	2.1	328	9215	1.03	32	29	410	0.28	18.6	7.93	27.40	3.83		<1	1
W2	-13.11	3/16/93	1010				1.01	31.3	24.9	349	0.19	2.7	327	9173	1.15	36	26	366	0.46	18.6	7.92	27.67	3.88		<1	<1
W2	-13.11	4/27/93	1007				0.97	30.0	25.1	352	0.33	4.6	349	9802	1.07	33	27	371	0.29	18.7	7.91	27.46	3.86		<1	<1
W2	-13.11	5/25/93	1001				0.97	30.0	23.9	335	0.32	4.5	324	9100	1.00	31	25	353	0.22	18.7	7.90	27.88	3.83		<1	<1
W2	-13.11	6/28/93	1027				0.96	29.7	25.8	361	0.16	2.2	339	9521	1.12	35	28	391	0.25	18.7	7.90	27.07	3.93		<1	<1
W2	-13.11	8/31/93	929				1.07	33.1	24.4	341	0.06	0.8	333	9352	1.08	33	28	389	0.31	18.8	7.89	27.50	3.90		<1	<1
W2	-13.11	10/26/93	916				1.01	31.3	25.3	354	0.27	3.8	318	8931	1.05	33	26	371	0.33	18.7	7.90	27.36	3.89		<1	<1
W2	-13.11	3/1/94	857				1.12	34.7	23.7	333	0.21	2.9	272	7639	1.16	36	31	428	0.41	18.7	7.88	27.84	3.66		<1	<1
W2	-13.11	6/21/94	953				1.07	33.1	23.5	329	0.09	1.3	265	7432	1.16	36	27	379	0.39	18.7	7.89	28.18	3.80		<1	<1

NELHA Water Quality Laboratory

Well 2 Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W2	-13.11	8/23/94	1024				1.17	36.2	28.0	392	0.09	1.3	321	9015	1.20	37	31	429	0.35	18.9	7.89	26.20	4.03		<1	<1
W2	-13.11	10/25/94	1043				1.11	34.4	24.6	344	0.74	10.4	274	7690	1.13	35	27	378	0.28	18.8	7.92	27.37	3.94		1	<1
W2	-13.11	1/24/95	1039				1.06	32.8	22.8	319	0.00	0.0	263	7378	1.11	34	24	335	0.25	18.6	7.91	28.08	3.79		<1	14
W2	-13.11	2/14/95	1016				1.04	32.2	24.0	336	0.15	2.1	272	7636	1.09	34	24	338	0.21	18.8	7.92	27.97	3.81		<1	<1
W2	-13.11	3/14/95	1106				1.08	33.5	24.2	339	0.14	2.0	269	7541	1.19	37	25	346	0.24	18.8	7.90	27.38	3.88		<1	<1
W2	-13.11	4/26/95	1056				1.09	33.8	24.6	344	0.15	2.1	275	7715	1.24	38	26	363	0.32	18.9	7.89	27.26	3.90		<1	<1
W2	-13.11	5/8/95	1058				1.10	34.1	23.2	324	0.30	4.2	273	7679	1.14	35	25	355	0.33	18.9	7.86	27.62	3.85		<1	<1
W2	-13.11	6/27/95	1035				1.06	32.8	23.8	333	0.42	5.9	278	7797	1.12	35	25	352	0.30	18.9	7.91	27.54	3.91		<1	<1
W2	-13.11	7/25/95	1047				1.00	31.0	23.7	332	0.06	0.8	270	7569	1.05	33	25	350	0.36	18.9	7.89	27.74	3.76		<1	<1
W2	-13.11	8/22/95	1140				1.07	33.1	23.7	332	0.18	2.5	277	7780	1.11	34	25	351	0.24	19.1	7.88	27.55	3.80		<1	<1
W2	-13.11	9/11/95	1108				0.99	30.7	23.1	323	0.26	3.6	269	7563	0.99	31	25	343	0.26	18.8	7.91	27.69	3.83		<1	<1
W2	-13.11	10/16/95	1126				1.00	31.0	22.1	309	0.37	5.2	264	7420	1.06	33	23	323	0.45	18.9	7.93	28.39	3.69		<1	<1
W2	-13.11	11/6/95	1133				1.09	33.8	23.1	324	0.23	3.2	281	7878	1.13	35	25	350	0.35	18.9	7.93	27.81	3.76		<1	<1
W2	-13.11	12/4/95	1118				1.03	31.9	23.3	326	0.15	2.1	267	7502	1.18	37	24	342	0.40	18.9	7.90	27.85	3.71		<1	<1
W2	-13.11	1/29/96	1138				1.04	32.2	23.0	323	0.01	0.1	269	7561	1.09	34	25	356	0.40	19.1	7.90	27.85	3.80		<1	<1
W2	-13.11	2/26/96	1229				1.03	31.9	23.0	322	0.26	3.6	293	8221	1.11	34	24	338	0.33	19.5	7.89	27.86	3.86		<1	<1
W2	-13.11	3/5/96	1125				1.05	32.5	32.5	456	0.25	3.5	272	7644	1.12	35	25	350	0.35	19.0	7.88	27.67	3.88		3	3
W2	-13.11	4/1/96	1157				1.08	33.5	23.3	327	0.59	8.3	292	8187	1.13	35	25	347	0.38	19.7	7.88	27.75	3.85		<1	<1
W2	-13.11	5/8/96	1208				1.08	33.5	22.4	314	0.15	2.1	266	7484	1.10	34	24	336	0.21	19.4	7.86	28.18	3.80		<1	<1
W2	-13.11	6/17/96	1123				1.10	34.1	24.8	348	0.19	2.7	304	8530	1.20	37	27	372	0.26	19.3	7.89	26.95	3.82		<1	<1
W2	-13.11	7/16/96	1133				1.07	33.1	25.4	355	0.34	4.8	291	8166	1.20	37	27	378	0.29	19.3	7.89	26.79	3.85		<1	<1
W2	-13.11	8/5/96	1212				1.12	34.7	26.0	364	0.43	6.0	291	8184	1.19	37	29	399	0.35	19.5	7.90	26.57	3.92		<1	<1
W2	-13.11	9/3/96	1136				1.08	33.5	25.1	351	0.45	6.3	311	8747	1.12	35	27	377	0.31	19.5	7.89	26.93	3.86		<1	<1
W2	-13.11	10/8/96	1143				1.09	33.8	24.7	346	0.21	2.9	302	8475	1.16	36	27	378	0.30	19.2	7.88	27.05	3.89		3	1
W2	-13.11	11/4/96	1201				1.03	31.9	24.3	340	0.27	3.8	283	7944	1.05	33	26	365	0.35	19.4	7.87	27.29	3.94		<1	<1
W2	-13.11	12/16/96	1136				1.11	34.4	23.9	334	0.34	4.8	320	8978	1.14	35	26	365	0.32	19.3	7.90	27.22	3.90		<1	<1
W2	-13.11	1/13/97	1216				1.11	34.4	18	257	0.14	2.0	255	7170	1.26	39	22	303	0.57	19.8	7.97	28.77	4.78		<1	<1
W2	-13.11	2/11/97	1224				1.03	31.9	25	346	0.18	2.5	290	8153	0.96	30	27	373	0.40	19.6	7.92	26.93	3.97		<1	<1
W2	-13.11	3/11/97	1155				0.95	29.4	24	329	0.19	2.7	280	7861	1.00	31	25	346	0.35	19.3	7.93	27.55	3.85		<1	<1
W2	-13.11	4/22/97	1206				1.03	31.9	22	314	0.39	5.5	270	7577	1.11	34	25	347	0.35	19.3	7.91	28.05	3.64		<1	1
W2	-13.11	5/27/97	1058				1.03	31.9	24	334	0.04	0.6	279	7839	1.13	35	28	391	0.31	18.2	7.94	27.49	3.85		24	1104
W2	-13.11	6/16/97	1110				1.05	32.5	23	324	0.45	6.3	280	7870	1.13	35	25	354	0.33	18.5	7.95	27.42	3.85		<1	267
W2	-13.11	7/16/97	1022				1.08	33.5	25	343	0.16	2.2	272	7628	1.16	36	26	361	0.48	18.9	7.95	27.21	3.87		<1	6
W2	-13.11	8/25/97	1118				1.09	33.8	26	363	0.26	3.6	306	8597	1.20	37	27	375	0.33	19.1	8.04	26.62	3.84		<1	<1
W2	-13.11	9/22/97	1057				1.09	33.8	23	325	0.24	3.4	263	7398	1.19	37	24	333	0.32	19.3	8.07	27.81	3.74		<1	1
W2	-13.11	10/15/97	1034				1.06	32.8	24	332	0.15	2.1	268	7538	1.17	36	25	353	0.30	18.8	8.07	27.61	3.74		<1	1
W2	-13.11	11/3/97	1022				1.05	32.5	22.9	321	0.17	2.4	256	7187	1.17	36	25	346	0.27	19.0	8.04	28.03	3.82		<1	1576
W2	-13.11	12/15/97	1039				1.01	31.3	23.0	322	0.19	2.7	266	7457	1.12	35	25	346	0.35	18.9	8.07	27.82	3.87		35	11
W2	-13.11	1/6/98	957				1.12	34.7	23.9	335	0.02	0.3	279	7844	1.25	39	26	364	0.40	18.9	8.07	27.52	3.90		<1	<1
W2	-13.11	2/2/98	1055				1.04	32.2	23.5	329	0.04	0.6	276	7738	1.14	35	26	363	0.40	19.0	8.06	27.38	3.80		<1	<1
W2	-13.11	3/9/98	1052				1.10	34.1	22.1	310	0.02	0.3	268	7538	1.14	35	24	333	0.34	18.9	7.88	28.34	3.80		<1	<1
W2	-13.11	4/13/98	1022				1.07	33.1	22	311	0.21	2.9	266	7479	1.13	35	24	342	0.34	18.9	7.89	28.22	3.82		<1	<1
W2	-13.11	5/11/98	1119				1.11	34.4	21	295	0.07	1.0	247	6929	1.21	37	22	310	0.39	19.0	7.89	28.88	3.74		<1	<1
W2	-13.11	6/1/98	1107				1.03	31.9	21.1	296	0.14	2.0	252	7076	1.14	35	23	315	0.26	19.3	7.88	28.93	3.79		<1	<1
W2	-13.11	7/13/98	1107				1.13	35.0	22	304	0.03	0.4	261	7328	1.22	38	23	323	0.32	18.9	7.88	28.44	3.77		<1	<1
W2	-13.11	8/10/98	1122				1.07	33.1	21.3	298	0.11	1.5	256	7179	1.17	36	23	315	0.37	18.9	7.85	28.61	3.81		<1	<1
W2	-13.11	9/14/98	1128				1.24	38.4	24.2	338	0.16	2.2	291	8159	1.38	43	26	363	0.36	18.9	7.87	27.21	3.96		<1	<1
W2	-13.11	10/12/98	1016				1.16	35.9	25.9	363	0.05	0.7	321	9013	1.27	39	28	388	0.32	19.3	7.88	26.37	4.34		2	120
W2	-13.11	11/2/98	1042				1.04	32.2	23.5	329	0.05	0.7	272	7628	1.16	36	25	347	0.44	19.3	7.89	27.54	3.94		<1	9
W2	-13.11	12/15/98	1026				1.07	33.1	21.8	305	0.07	1.0	267	7485	1.14	35	25	344	0.40	18.9	7.87	28.75	3.77		<1	6
W2	-13.11	1/11/99	1051				1.03	31.9	20	286	0.18	2.5	259	7260	1.13	35	22	308	0.38	19.0	7.88	28.47	3.88		<1	3
W2	-13.11	2/2/99	1055				0.97	30.0	21	292	0.08	1.1	257	7207	1.05	33	23	317	0.40	18.9	7.87	28.80	3.82		<1	<1
W2	-13.11	3/1/99	1107				0.96	29.7	19.7	276	0.04	0.6	249	6993	1.04	32	23	318	0.32	19.2	7.86	29.23	4.12		<1	<1
W2	-13.11	4/5/99	1052				1.07	33.1	22.4	314	0.05	0.7	271	7600	1.14	35	25	346	0.35	19.1	7.88	28.05	3.89		<1	<1
W2	-13.11	5/3/99	1117				0.96	29.7	20.8	291	0.16	2.2	262	7353	1.10	34	23	317	0.32	18.1	7.85	28.96	3.85		<1	<1
W2	-13.11	6/1/99	1046				1.10	34.1	22.1	310	0.40	5.6	288	8097	1.18	37	24	338	0.33	19.1	7.86	28.14	3.78		<1	<1

NELHA Water Quality Laboratory

Well 2 Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W2	-13.11	7/14/99	1105				1.00	31.0	20.1	282	0.04	0.6	262	7353	1.10	34	22	308	0.29	19.2	7.86	28.84	3.74		<1	<1
W2	-13.11	8/23/99	1114				1.03	31.9	20.8	291	0.16	2.2	273	7667	1.16	36	25	354	0.27	19.3	7.91	28.37	3.81		<1	<1
W2	-13.11	9/7/99	1115				1.31	40.6	25.4	356	0.09	1.3	288	8100	1.42	44	30	419	0.31	19.2	7.93	27.93	3.93		<1	<1
W2	-13.11	10/5/99	1052				1.06	32.8	23.2	325	0.01	0.1	266	7471	1.13	35	25	343	0.26	19.0	7.92	26.92	3.79		<1	<1
W2	-13.11	11/1/99	1124				1.06	32.8	22.2	311	0.08	1.1	265	7451	1.16	36	24	342	0.30	18.9	7.93	28.34	3.73		<1	94
W2	-13.11	12/14/99	1117				1.04	32.2	22.7	318	0.13	1.8	266	7474	1.14	35	26	366	0.30	19.0	7.87	28.00	3.67		<1	<1
W2	-13.11	1/10/00	1135				1.04	32.2	20.5	287	0.13	1.8	256	7181	1.07	33	28	388	0.34	19.0	7.88	28.82	3.73		<1	<1
W2	-13.11	2/7/00	1134				0.98	30.4	20.1	282	0.17	2.4	243	6814	1.05	33	21	297	0.28	19.0	7.92	29.36	3.68		<1	<1
W2	-13.11	3/21/00	1134				0.90	27.9	20.6	289	0.14	2.0	259	7283	0.99	31	23	326	0.31	19.1	7.91	28.67	3.68		<1	<1
W2	-13.11	4/10/00	1215				0.97	30.0	20.1	282	0.02	0.3	250	7013	1.06	33	22	312	0.31	19.1	7.91	29.13	3.65		<1	<1
W2	-13.11	5/15/00	1116				1.03	31.9	22.4	314	0.17	2.4	269	7541	1.04	32	25	352	0.29	19.0	7.92	28.10	3.79		<1	<1
W2	-13.11	6/5/00	1119				1.00	31.0	20.4	286	0.04	0.6	273	7670	1.00	31	23	317	0.31	19.0	7.91	28.20	3.80		<1	<1
W2	-13.11	7/26/00	1145				0.98	30.4	20.0	280	0.03	0.4	258	7254	0.95	29	23	321	0.24	19.0	7.92	28.93	3.72		<1	<1
W2	-13.11	8/29/00	1055				1.08	33.5	22.0	308	0.07	1.0	254	7128	1.15	36	23	321	0.32	19.3	7.87	28.42	3.77		<1	<1
W2	-13.11	9/5/00	1109				1.11	34.4	23.6	331	0.06	0.8	272	7645	1.21	37	25	343	0.34	19.1	7.88	27.79	3.78		<1	<1
W2	-13.11	10/24/00	1122				1.02	31.6	17.5	245	0.20	2.8	248	6954	1.20	37	23	328	0.52	20.8	8.02	28.83	4.47		<1	<1
W2	-13.11	11/13/00	1102				0.90	27.9	21.8	305	0.27	3.8	254	7142	0.95	29	30	414	0.34	20.6	7.92	28.75	3.65		<1	<1
W2	-13.11	12/18/00	1054				1.07	33.1	21.9	307	0.21	2.9	271	7617	1.15	36	24	342	0.38	19.2	7.90	28.66	3.61		<1	<1
W2	-13.11	1/22/01	1118				1.12	34.7	23.8	333	0.18	2.5	278	7813	1.28	40	24	343	0.44	19.1	7.88	27.91	3.58		<1	<1
W2	-13.11	2/5/01	1123				0.94	29.1	22.3	312	0.21	2.9	276	7746	1.04	32	26	366	0.40	18.9	7.89	28.42	3.53		<1	<1
W2	-13.11	3/5/01	1115				1.02	31.6	31.4	440	0.07	1.0	259	7280	1.18	37	40	564	0.35	19.1	7.86	28.69	3.74		<1	<1
W2	-13.11	4/17/01	1105				1.22	37.8	49.2	689	0.02	0.3	271	7606	1.26	39	56	784	0.41	18.9	7.85	28.44	4.07		<1	<1
W2	-13.11	5/15/01	1045				1.38	42.7	89.7	1256	0.16	2.2	260	7311	1.34	42	92	1293	0.52	19.0	7.83	28.44	4.32		<1	<1
W2	-13.11	6/12/01	1134				1.66	51.4	102	1429	0.04	0.6	261	7325	1.68	52	106	1478	0.59	19.1	7.83	28.18	4.55		<1	<1
W2	-13.11	7/25/01	916				2.25	69.7	107	1500	0.03	0.4	268	7535	2.22	69	112	1573	0.65	18.9	7.81	27.71	7.40		<1	5
W2	-13.11	8/20/01	906				2.82	87.3	121	1695	0.09	1.3	259	7269	2.82	87	128	1796	0.73	18.7	7.78	27.89	5.13		<1	<1
W2	-13.11	9/19/01	1028				2.62	81.2	112	1572	0.05	0.7	258	7240	2.90	90	120	1677	0.73	18.8	7.80	27.66	5.38		<1	<1
W2	-13.11	10/24/01	1020				3.31	102.5	118	1654	0.01	0.1	252	7080	3.42	106	135	1885	0.83	18.4	7.76	27.54	5.33		TNTC	<1
W2	-13.11	11/7/01	1055				3.12	96.6	126	1765	0.02	0.3	253	7117	3.12	97	175	2450	0.81	18.3	7.77	27.63	5.33		14	<1
W2	-13.11	12/19/01	1036				3.28	101.6	137	1925	0.19	2.7	234	6572	3.12	97	209	2927	0.78	18.2	7.77	28.10	5.33		<1	<1
W2	-13.11	1/9/02	1026				3.57	110.6	126	1766	0.19	2.7	258	7249	3.44	107	130	1822	0.76	17.9	7.74	27.75	5.50		<1	<1
W2	-13.11	2/25/02	1105				3.10	96.0	98.9	1385	0.05	0.7	238	6687	3.14	97	115	1614	0.68	17.9	7.82	28.27	6.03		<1	<1
W2	-13.11	3/20/02	1044				3.02	93.5	98.1	1374	0.10	1.4	232	6521	3.12	97	103	1437	0.62	17.6	7.78	28.36	6.09		<1	<1
W2	-13.11	4/10/02	1117				2.98	92.3	90.0	1260	0.10	1.4	226	6333	3.14	97	94	1312	0.69	17.7	7.78	28.25	6.13		<1	<1
W2	-13.11	5/22/02	933				3.18	98.5	103	1441	0.16	2.2	233	6555	3.18	98	108	1517	1.03	17.3	7.81	28.12	6.36		<1	<1
W2	-13.11	6/19/02	953				3.66	113.4	124	1742	0.19	2.7	242	6791	3.78	117	138	1937	0.75	17.2	7.78	27.64	6.28		<1	<1
W2	-13.11	7/22/02	942				3.42	105.9	127	1783	0.07	1.0	226	6359	3.60	112	137	1918	0.77	17.5	7.80	28.29	6.27		<1	<1
W2	-13.11	8/21/02	953				3.84	118.9	123	1716	0.19	2.7	232	6519	4.00	124	133	1856	0.72	17.1	7.77	27.98	6.23		<1	1
W2	-13.11	9/25/02	1138				3.60	111.5	112	1566	0.24	3.4	238	6679	3.76	116	109	1524	0.65	17.2	7.77	27.98	6.28		27	<1
W2	-13.11	10/15/02	924				3.98	123.3	124	1735	0.13	1.8	230	6446	4.13	128	133	1861	0.77	17.1	7.80	27.99	6.26		<1	<1
W2	-13.11	11/17/02	1118				4.23	131.0	118	1653	0.10	1.4	237	6667	4.50	139	116	1619	0.63	17.1	7.80	27.86	6.15		<1	72
W2	-13.11	12/18/02	1146				3.96	122.7	115	1614	0.05	0.7	230	6462	4.25	132	89	1245	0.74	17.3	7.74	27.84	6.28		<1	<1
W2	-13.11	1/29/03	1037				3.96	122.7	105	1474	<0.1	0.0	232	6516	4.12	128	125	1751	0.72	20.3	7.90	27.68	6.50		<1	<1
W2	-13.11	2/10/03	1058				4.03	124.8	99.3	1391	0.15	2.1	236	6634	4.30	133	114	1597	0.69	16.9	7.76	29.70	6.60		<1	<1
W2	-13.11	3/20/03	1020				3.72	115.2	89.3	1251	0.04	0.6	228	6415	3.85	119	108	1510	0.69	17.4	7.75	28.22	6.39		<1	<1
W2	-13.11	4/30/03	1117				3.65	113.1	95.0	1330	0.15	2.1	222	6229	3.87	120	103	1443	0.70	17.1	7.77	34.44	6.30		<1	1
W2	-13.11	5/14/03	1027				3.77	116.8	89.0	1246	0.09	1.3	227	6373	3.87	120	95	1328	0.61	17.3	7.81	28.16	6.12		<1	133
W2	-13.11	6/4/03	1115				3.54	109.6	88.7	1242	0.01	0.1	222	6241	3.74	116	102	1423	0.64	17.6	7.69	28.38	6.08		<1	<1

NELHA Water Quality Laboratory

Well 2 Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W2	-13.11	7/30/03	1044				3.51	108.7	83.4	1169	0.02	0.3	224	6291	3.67	114	90	1259		19.3	7.91	28.34	6.16		<1	<1
W2	-13.11	8/28/03	1025				3.50	108.4	87.4	1224	0.02	0.3	224	6297	3.72	115	115	1604		18.1	7.74	28.09	6.01		<1	311
W2	-13.11	9/16/03	1101				3.92	121.4	91.8	1286	0.38	5.3	246	6903	3.96	123	100	1406		17.8	7.75	27.25	5.84		<1	TNTC
W2	-13.11	10/8/03	1101				3.64	112.7	77.5	1086	0.30	4.2	231	6496	3.74	116	95	1331		17.8	7.75	27.94	NA		<1	TNTC
W2	-13.11	11/5/03	1102				3.64	112.7	87.1	1220	0.40	5.6	240	6732	3.82	118	94	1312		17.6	7.75	27.70			<1	8
W2	-13.11	11/14/03	1452																	17.8			5.65			
W2	-13.11	12/22/03	1003				3.74	115.8	79.0	1106	<0.10	0.0	235	6586	3.97	123	83	1165		17.8	7.73	28.06	5.61		<1	<1
W2	-13.11	1/26/04	1043				3.78	117.1	86.4	1210	0.10	1.4	234	6575	4.02	125	93	1305		17.6	7.71	27.88	5.55		<1	<1
W2	-13.11	2/11/04	1030				3.72	115.2	72.0	1009	0.13	1.8	226	6336	3.94	122	80	1114	1.27	17.8	7.70	28.06	5.57		<1	<1
W2	-13.11	3/16/04	1302				3.76	116.5	61.7	865	0.22	3.1	239	6718	4.06	126	72	1010		18.7	7.73	27.67	4.94		<1	<1
W2	-13.11	4/20/04	1104				3.58	110.9	64.6	905	0.02	0.3	230	6457	3.80	118	70	979		17.8	7.71	27.60	5.34		<1	1
W2	-13.11	5/11/04	1010				3.26	101.0	53.5	749	0.25	3.5	326	9156	3.32	103	59	831		18.5	7.90	27.05	5.65		<1	<1
W2	-13.11	6/2/04	1104				3.40	105.3	52.7	739	0.18	2.5	231	6496	3.52	109	54	752		18.1	7.71	26.83	5.29		<1	<1
W2	-13.11	7/14/04	1113				3.34	103.5	57.3	803	0.18	2.5	237	6651	3.64	113	70	982		18.7	7.71	26.93	5.48		<1	<1
W2	-13.11	8/23/04	1108				3.28	101.6	52.2	731	0.35	4.9	240	6741	3.70	115	58	815		18.6	7.73	26.85	5.41		<1	<1
W2	-13.11	9/27/04	950				3.38	104.7	52.5	735	0.17	2.4	249	6988	3.56	110	65	903		18.7	7.71	26.82	5.35		<1	<1
W2	-13.11	10/5/04	951				3.44	106.5	53.1	743	0.17	2.4	246	6920	3.62	112	59	824		18.5	7.74	26.52	5.45		<1	<1
W2	-13.11	11/9/04	1032				3.28	101.6	58.2	815	0.15	2.1	226	6345	3.54	110	62	875		NA	7.68	27.14	5.66		<1	<1
W2	-13.11	12/6/04	1105				3.50	108.4	62.2	871	0.13	1.8	235	6586	3.66	113	69	966		18.8	7.74	26.72	5.72		<1	<1
W2	-13.11	1/10/05	1032				3.48	107.8	61.5	862	0.07	1.0	221	6196	3.56	110	65	917		19.0	7.75	28.28	5.81		<1	<1
W2	-13.11	2/9/05	1029				3.42	105.9	58.8	824	0.08	1.1	220	6176	3.60	112	73	1023		18.9	7.76	28.21	5.90		<1	<1
W2	-13.11	3/15/05	1055				3.22	99.7	50.7	710	0.22	3.1	219	6148	3.48	108	63	879	0.57	18.9	7.77	28.01	5.82		<1	<1
W2	-13.11	4/19/05	1007				3.20	99.1	52.0	729	0.15	2.1	218	6109	3.44	107	54	753		19.0	7.76	28.17	5.88		<1	<1
W2	-13.11	5/23/05	1053				3.16	97.9	59.9	838	0.18	2.5	218	6123	3.40	105	58	815		19.3	7.71	28.47	6.04		<1	<1
W2	-13.11	6/13/05	915				3.32	102.8	60.8	852	0.10	1.4	216	6052	3.50	108	65	910		19.1	7.73	28.24	5.81		<1	<1
W2	-13.11	7/18/05	1025				3.28	101.6	50.1	702	0.06	0.8	224	6300	3.70	115	55	773	0.61	19.1	7.72	28.02	5.58		<1	<1
W2	-13.11	8/9/05	1035				3.14	97.3	52.9	741	0.16	2.2	217	6097	3.36	104	57	794	0.53	19.1	7.75	28.17	5.70		<1	<1
W2	-13.11	9/20/05	1023				3.24	100.4	58.2	815	0.23	3.2	218	6131	3.44	107	63	886	0.73	19.0	7.73	28.15	5.81		<1	<1
W2	-13.11	10/17/05	1023				3.38	104.7	59.1	828	0.14	2.0	219	6151	3.66	113	63	881		18.9	7.72	28.29	5.80		<1	<1
W2	-13.11	11/7/05	952				3.50	108.4	73.7	1033	0.02	0.3	218	6134	3.70	115	76	1070		18.6	7.73	28.42	6.04		<1	<1
W2	-13.11	12/21/05	921				3.62	112.1	62.5	875	0.2	2.8	223	6249	3.80	118	67	937	0.83	18.5	7.75	27.92	5.82		<1	<1
W2	-13.11	1/23/06	1023				3.54	109.6	57.7	808	0.25	3.5	220	6179	3.70	115	60	835		18.6	7.70	28.36	5.9		<1	<1
W2	-13.11	2/14/06	1038				3.54	109.6	53.3	747	0.27	3.8	219	6151	3.74	116	55	769	0.57	18.4	7.72	28.36	5.88		<1	<1
W2	-13.11	3/20/06	941				3.38	104.7	50.1	702	0.30	4.2	214	6010	3.56	110	53	742	0.58	18.5	7.74	28.77	5.65		<1	<1
W2	-13.11	4/25/06	1010				3.30	102.2	49.2	689	0.11	1.5	203	5701	3.42	106	45	625	0.55	18.6	7.75	28.77	5.59		<1	<1
W2	-13.11	5/22/06	1040				3.22	99.7	52.3	733	0.21	2.9	200	5617	3.64	113	48	676	0.60	18.9	7.74	28.87	5.66		<1	<1
W2	-13.11	6/26/06	1053				3.01	93.2	50.8	712	0.12	1.7	206	5786	3.19	99	51	708	0.57	18.6	7.77	28.64	5.41		<1	<1
W2	-13.11	7/20/06	1058				3.16	97.9	56.0	784	0.24	3.4	210	5898	3.48	108	49	691	0.54	18.7	7.77	28.68	5.99		912	>5,000
W2	-13.11	7/27/06															46	643	0.63			28.87	5.95		1	5372
W2	-13.11	8/7/06	1115				3.02	93.5	57.6	807	0.25	3.5	210	5898	3.37	104	58	809	0.64	19.4	7.80	28.49	6.78		20	1140
W2	-13.11	9/18/06	1038				2.97	92.0	55.9	783	0.28	3.9	212	5954	3.32	103	62	873	0.62	19.1	7.77	28.45	5.57		<1	2
W2	-13.11	10/23/06	1015				2.83	87.7	52.0	728	0.32	4.5	209	5870	3.00	93	51	713	0.58	18.6	7.75	28.18	5.75		<1	<1
W2	-13.11	11/27/06	1034				3.10	96.0	66.4	930	0.17	2.4	215	6038	3.23	100	53	746	0.56	18.4	7.78	28.26	5.65		<1	<1
W2	-13.11	12/11/06	1056				3.12	96.6	68.8	964	0.28	3.9	215	6038	3.31	103	54	752	0.60	18.3	7.78	28.20	5.84		<1	<1
W2	-13.11	1/8/07	1146				3.12	96.6	63.2	885	0.27	3.8	202	5673	3.32	103	60	836	0.54	18.7	7.78	28.304	5.85		<1	<1
W2	-13.11	2/20/07	1115				3.35	103.8	70.8	992	0.32	4.5	196	5505	3.53	109	78	1091	0.62	18.1	7.86	28.408	6.04		<1	<1
W2	-13.11	3/5/07	1113				3.20	99.1	68.1	954	0.35	4.9	209	5870	3.35	104	72	1005	0.59	18.2	7.82	28.445	5.73		<1	<1
W2	-13.11	4/18/07	1112				3.25	100.7	62.5	875	0.2	2.8	210	5898	3.30	102	58	816	0.53	18.6	7.85	28.582	5.55		<1	<1
W2	-13.11	5/1/07	1101				3.25	100.7	62.2	871	0.3	4.2	209	5870	3.37	104	59	831	0.55	18.3	7.84	28.485	5.56		<1	<1
W2	-13.11	6/18/07	1055				3.23	98.0	61.2	857	0.18	2.5	215	6038					0.47	18.6	7.87	28.413	5.75		<1	<1

NELHA Water Quality Laboratory

Well 2 Data Table

June 1989 - December 2014

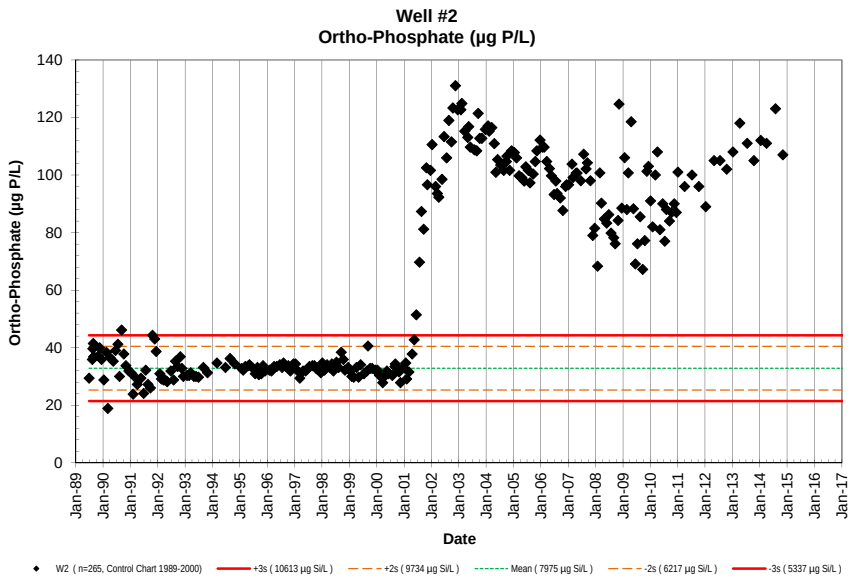
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W2	-13.11	7/26/07	1339	-1.68	0.61	Flood	3.46	107	70.2	983	1.91	26.7	237	6649	3.55	110	69	972		17.9	7.72	28.35	5.34			
W2	-13.11	8/28/07	1140	-1.95	0.08	Flood	3.30	102	62.5	876	0.01	0.1	191	5371	3.19	98.80	63	888		18.0	7.72	28.29	5.40			
W2	-13.11	9/13/07	1108	-1.88	0.15	Low	3.36	104	59.0	827	0.01	0.2	208	5845	3.56	110.30	64	901		18.2	7.83	28.34	5.42			
W2	-13.11	10/24/07	1439	-1.88	0.46	High	3.16	98	61.2	857	0.16	2.3	208	5849	3.16	97.94	60	838		18.2	7.83	28.11	5.42			
W2	-13.11	11/26/07	1139	-2.03	0.15	Ebb	2.55	79	68.2	955	0.01	0.1	210	5910	2.96	91.75	74	1030		18.5	7.77	28.47	5.05			
W2	-13.11	12/20/07	1232	-1.88	0.23	High	2.63	82	46.5	651	0.61	8.6	176	4939						18.1	7.85	28.23	5.05			
W2	-13.11	1/28/08	1314	-1.83	0.06	Ebb	2.21	68	26.1	365	0.25	3.5	167	4676						18.4	7.62	28.70	4.74			
W2	-13.11	2/27/08	1107	-1.80	0.09	Ebb	3.25	101	62.0	869	0.60	8.4	198	5564						18.0	7.63	28.37	5.33			
W2	-13.11	3/20/08	1131	-2.03	0.00	Low	2.91	90	59.4	832	0.06	0.8	131	3673						18.0	7.71	28.54	5.14			
W2	-13.11	4/28/08	1125	-1.98	0.18	High	2.73	85	57.5	805	0.19	2.6	198	5568						18.3	7.66	28.28	4.98			
W2	-13.11	5/30/08	1225	-1.55	0.49	Flood	2.69	83	51.2	718	0.21	2.9	203	5714						18.2	7.67	28.26	5.28			
W2	-13.11	6/26/08	1032	-1.62	0.43	High	2.78	86	54.4	762	0.29	4.0	239	6721						18.5	7.70	28.19	5.57	0.40		
W2	-13.11	7/25/08	1212	-1.62	0.52	Ebb	2.58	80	47.1	660	0.20	2.8	176	4951						17.9	7.62	28.25	5.50			
W2	-13.11	8/30/08	953		0.03	Low	2.52	78	52.5	735	0.13	1.8	205	5753						17.9	7.66	28.64	6.05			
W2	-13.11	9/19/08	926	-1.63	0.58	Ebb	2.46	76	46.0	644	0.33	4.6	143	4008						21.2	7.53	28.26	6.31	0.10		
W2	-13.11	10/27/08	1220	-1.90	0.27	Flood	2.72	84	52.4	734	0.34	4.8	199	5576						19.4	7.47	28.02	3.17	0.21		
W2	-13.11	11/10/08	1034	-1.91	0.24	Flood	4.02	125	54.0	757	0.16	2.2	203	5697						19.7	7.67	28.06	5.70	0.49		
W2	-13.11	12/15/08	1002	-1.90	0.43	Ebb	2.86	89	65.4	917	0.41	5.7	200	5612						19.9	7.91	27.68	6.48			
W2	-13.11	1/23/09	1339	-2.04	0.15	High	3.42	106	65.2	913	0.00	0.0	184	5160						20.0	7.86	28.30	5.74	0.55		
W2	-13.11	2/23/09	1444	-1.94	0.24	Flood	2.84	88	22.2	310	0.15	2.1	67	1883						19.1	7.83	26.56	6.08	0.09		
W2	-13.11	3/13/09	1455	-2.06	0.24	Flood	3.25	101	63.9	896	0.13	1.8	189	5310						19.3	7.77	28.64	5.82	0.05		
W2	-13.11	4/20/09	1209	-2.11	0.30	Flood	3.83	119	56.5	791	1.26	17.6	157	4422						19.1	7.70	29.09	5.73	0.63		
W2	-13.11	5/21/09	1442	-1.83	0.61	High	2.85	88	48.2	676	0.55	7.7	210	5905						17.8	7.84	28.73	5.16	0.13		
W2	-13.11	6/16/09	1113	-1.90	0.40	Flood	2.23	69	38.0	533	0.77	10.8	154	4322						17.9	7.51	27.65	5.00	0.04		
W2	-13.11	7/13/09	1519	-2.15	0.21	Flood	2.46	76	38.7	543	0.32	4.5	118	3311						17.9	7.70	28.83	4.79	0.06		
W2	-13.11	8/18/09	1419	-1.66	0.70	Flood	2.76	86	50.1	702	0.58	8.1	176	4936						18.2	7.20	27.52	5.02	0.06		
W2	-13.11	9/21/09	1418	-2.20	0.18	Flood	2.17	67	33.5	470	0.58	8.1	106	2976						18.6	8.24	28.75	4.69	0.07		
W2	-13.11	10/19/09	1209	-2.19	0.12	Low	2.49	77	48.8	684	0.53	7.4	83	2339						18.7	7.94	29.03	4.81	0.04		
W2	-13.11	11/16/09	1357	-2.26	0.18	Flood	3.27	101	51.8	726	0.90	12.6	194	5439						18.5	7.73	29.43	4.98	0.04		
W2	-13.11	12/7/09	1313	-2.20	0.18	Ebb	3.33	103	59.9	839	1.10	15.4	195	5469						19.0	7.78	29.17	5.01	0.08		
W2	-13.11	1/5/10	1038	-1.94	0.30	Ebb	2.94	91	52.5	736	1.50	21.0	206	5792						18.8	7.75	28.10	4.88	0.10		
W2	-13.11	2/1/10	1107	-2.14	0.00	Ebb	2.65	82	59.5	833	0.79	11	199	5577						18.6	7.83	27.79	4.86	0.24		
W2	-13.11	3/9/10	1057	-2.23	0.12	Flood	3.23	100	60.6	849	0.36	5	215	6033						18.0	7.75	28.69	5.04	0.19		
W2	-13.11	4/6/10	953	-2.28	0.15	Flood	3.49	108	55.3	775	0.93	13	213	5980						19.2	7.79	28.78	5.46	0.04		
W2	-13.11	5/11/10	1033	-2.28	0.09	Flood	2.62	81	45.7	640	0.93	13	196	5503						19.5	7.88	28.49	4.74	0.24		
W2	-13.11	6/15/10	1127	-2.35	0.06	Low	2.91	90	51.4	720	0.36	5	225	6318						17.9	7.76	28.61	4.60	0.13		
W2	-13.11	7/13/10	1043	-2.32	0.00	Low	2.49	77	60.5	848	0.21	3	212	5945						17.8	7.73	28.83	4.70	0.12		
W2	-13.11	8/3/10	1037	-1.86	0.52	Flood	2.84	88	64.3	900	0.21	3	226	6351						17.7	7.80	28.45	4.88	0.07		
W2	-13.11	9/14/10	1039	-1.75	0.58	Ebb	2.71	84	69.4	972	0.22	3.1	224	6295						17.6	7.81	28.45	5.61	0.08		
W2	-13.11	10/12/10	1034	-1.78	0.55	Ebb	2.81	87	66.7	934	0.11	1.6	236	6640						17.7	7.83	28.27	5.33	0.11		
W2	-13.11	11/16/10	949	-1.97	0.27	Flood	2.91	90	68.4	958	0.10	1.4	231	6483						17.7	7.84	28.05	5.30	0.10		
W2	-13.11	12/14/10	1030	-1.94	0.37	High	2.81	87	71.6	1003	0.25	3.5	220	6181						17.7	7.84	28.10	5.14	0.05		
W2	-13.11	1/4/11	1019	-2.16	0.06	Ebb	3.26	101	80.3	1125	0.89	12.4	223	6274						17.7	7.84	28.36	5.36	0.04		
W2	-13.11	4/5/11	1108	-2.28	-0.06	Low	3.10	96	69.1	968	0.15	2.1	211	5921						17.4	7.76	28.47	4.77	0.13		
W2	-13.11	7/12/11	1036	-2.27	0.18	Flood	3.23	100	76.7	1074	0.11	1.5	199	5595						16.9	7.88	28.69	5.49	0.02		
W2	-13.11	10/11/11	1051	-2.16	0.12	Low	3.10	96	68.7	962	0.24	3.4	202	5671						17.1	7.89	28.96	4.87	0.11		
W2	-13.11	1/10/12	1048	-2.21	0.06	Ebb	2.87	89	77.2	1081	0.18	2.5	189	5320						17.1	7.87	29.08	5.55	0.05		
W2	-13.11	5/1/12	1046	-2.03	0.34	Flood	3.39	105	75.0	1051	0.14	1.9	212	5947						17.1	7.88	28.94	4.99	0.06		
W2	-13.11	7/18/12	1006	-2.18	0.00	Flood	3.39	105	86.8	1216	0.34	4.8	202	5680						16.8	7.98	29.09	5.93	0.05		
W2	-13.11	10/16/12	1047	-2.11	0.09	Ebb	3.29	102	82.4	1154	0.18	2.5	203	5712						16.8	7.94	28.78	5.95	0.10		
W2	-13.11	1/8/13	1111	-2.12	0.15	Flood	3.49	108	76.8	1076	0.21	3	239	6710						16.8	7.89	28.73	6.23	0.04		
W2	-13.11	4/9/13	1054	-2.31	-0.03	Flood	3.81	118	87.0	1218	0.19	2.7	191	5351						16.6	7.94	29.05	6.25	0.15		

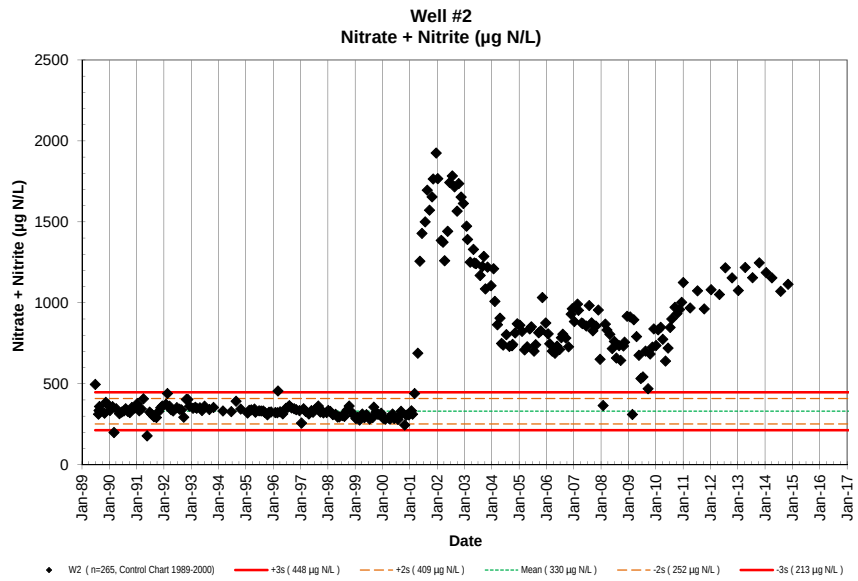
NELHA Water Quality Laboratory

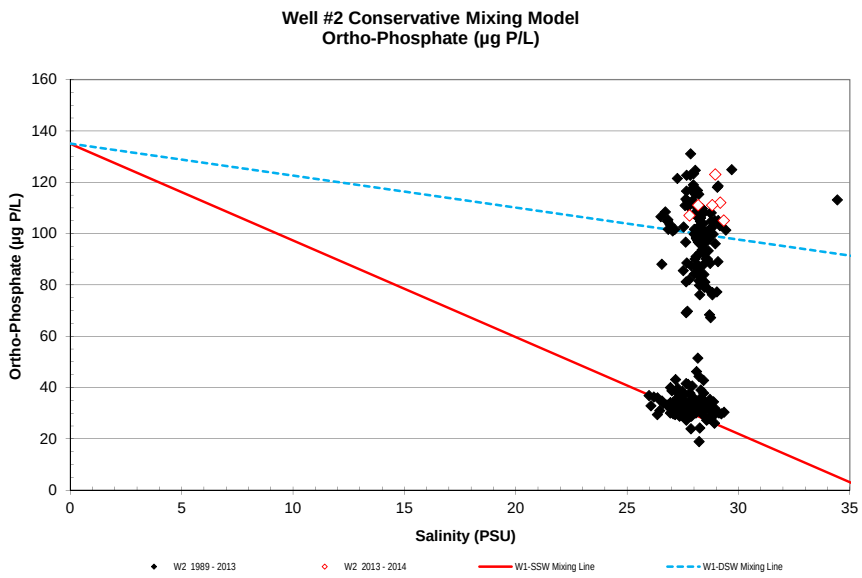
Well 2 Data Table

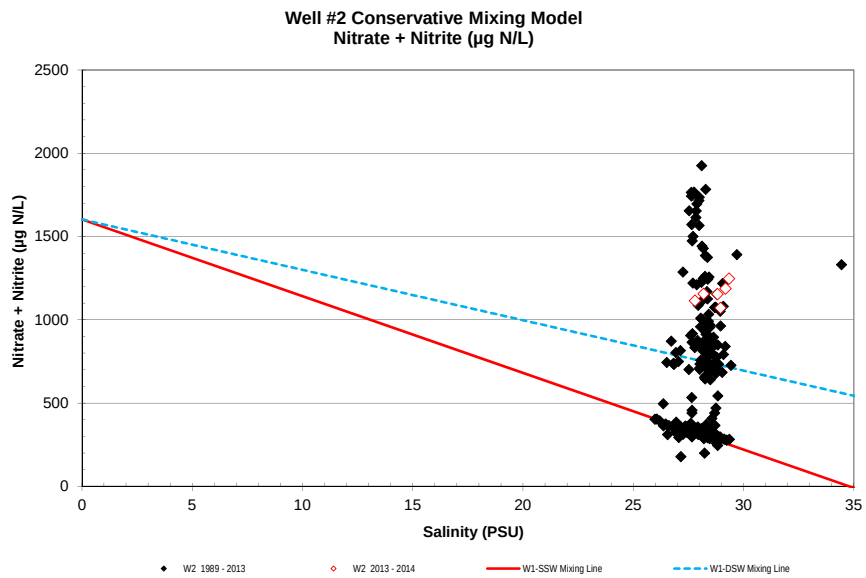
June 1989 - December 2014

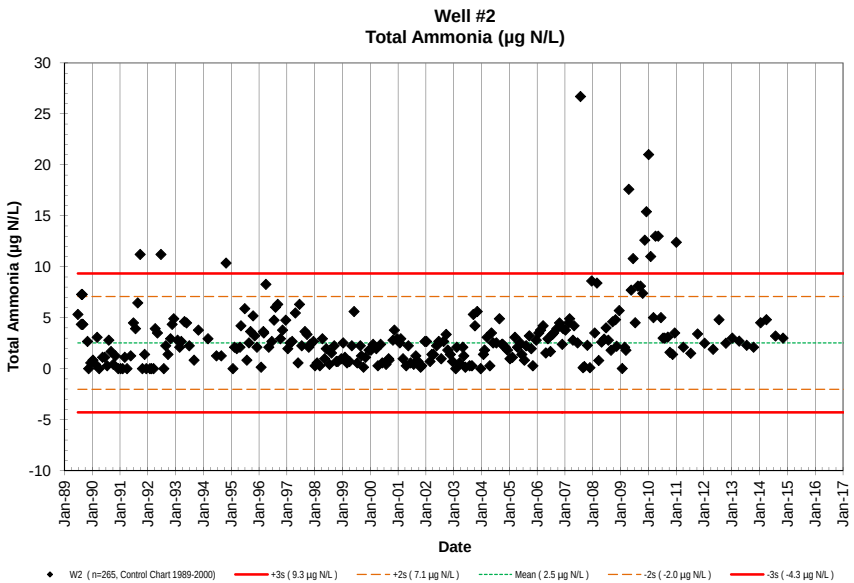
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W2	-13.11	7/17/13	1143	-1.89	0.58	Flood	3.58	111	82.5	1155	0.16	2.3	225	6316						16.8	7.91	28.19	5.87	0.02		
W2	-13.11	10/15/13	1035	-1.96	0.30	Flood	3.39	105	89.0	1247	0.15	2.1	199	5591						16.7	7.90	29.34	6.27	0.05		
W2	-13.11	1/15/14	1032	-1.98	0.06	Ebb	3.62	112	84.7	1187	0.32	4.5	197	5546						17.0	7.95	29.18	5.80	0.07		
W2	-13.11	4/1/14	1132	-2.33	0.00	Flood	3.58	111	82.4	1154	0.34	4.8	201	5646						17.0	7.81	28.82	6.24	0.15		
W2	-13.11	7/29/14	1111	-2.21	0.12	Low	3.97	123	76.5	1071	0.23	3.2	197	5534						16.8	7.85	28.96	7.77	0.15		
W2	-13.11	11/5/14	1108	-2.05	0.15	Flood	3.45	107	79.5	1114	0.21	3	208	5840						17.4	7.74	27.80	6.10	0.22		
W2	-13.11	1/1/15																								
W2	-13.11	4/1/15																								

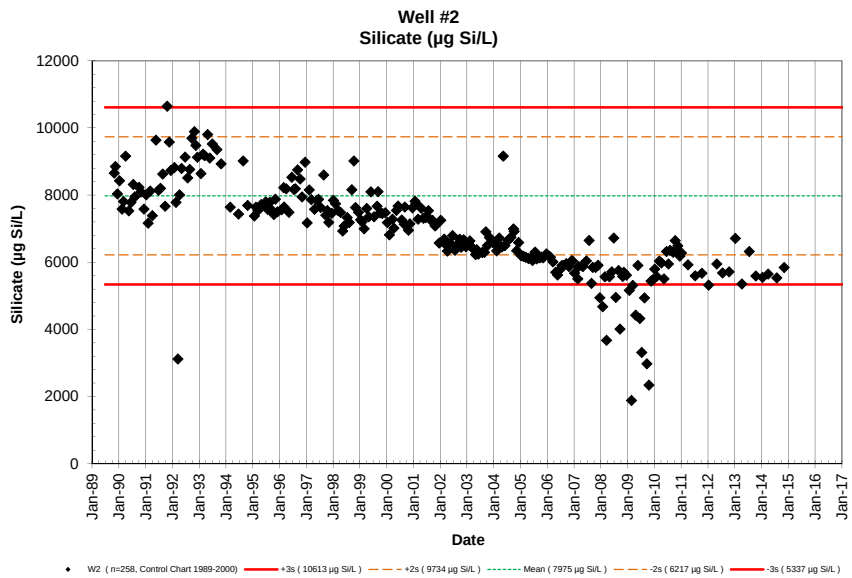

Well #2
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W2 (n=265, Control Chart 1989-2000)
+3s (10613 µg Si/L)
+2s (9734 µg Si/L)
Mean (7975 µg Si/L)
-2s (6217 µg Si/L)
-3s (5337 µg Si/L)

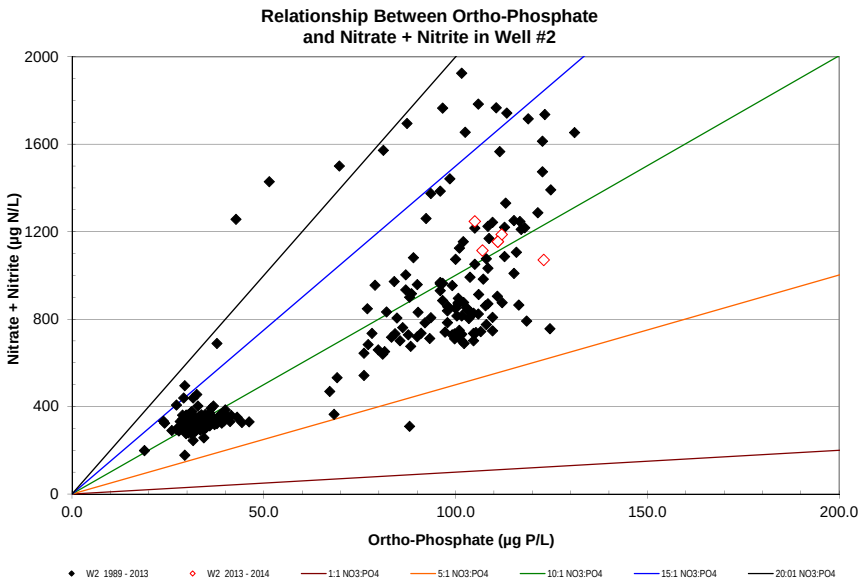

Well #2
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W2 (n=265, Control Chart 1989-2000)
+3s (448 µg N/L)
+2s (409 µg N/L)
Mean (330 µg N/L)
-2s (252 µg N/L)
-3s (213 µg N/L)

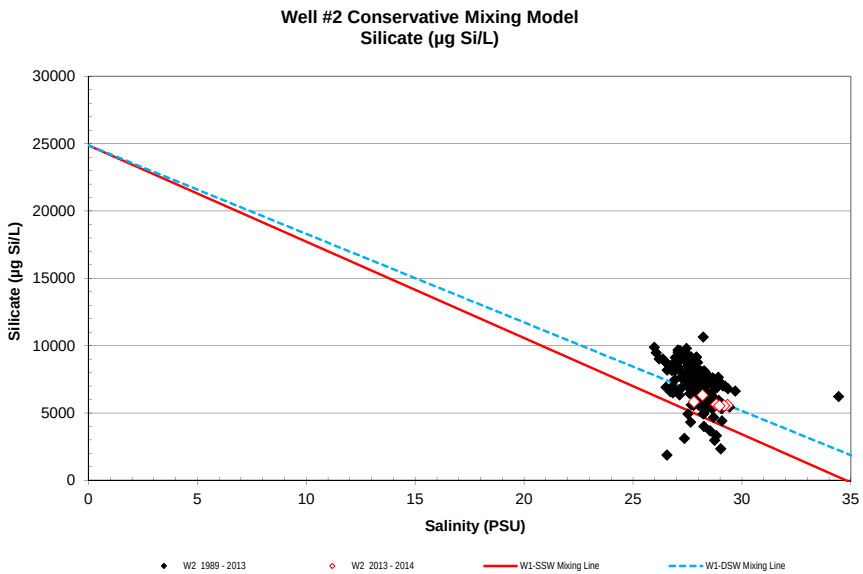

Well #2 Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W2 1989 - 2013
W2 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

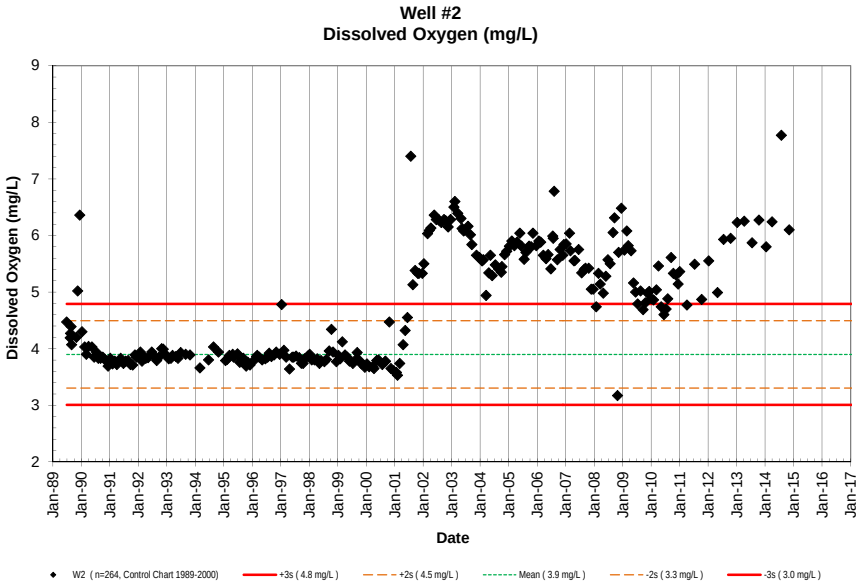

Well #2 Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W2 1989 - 2013
W2 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

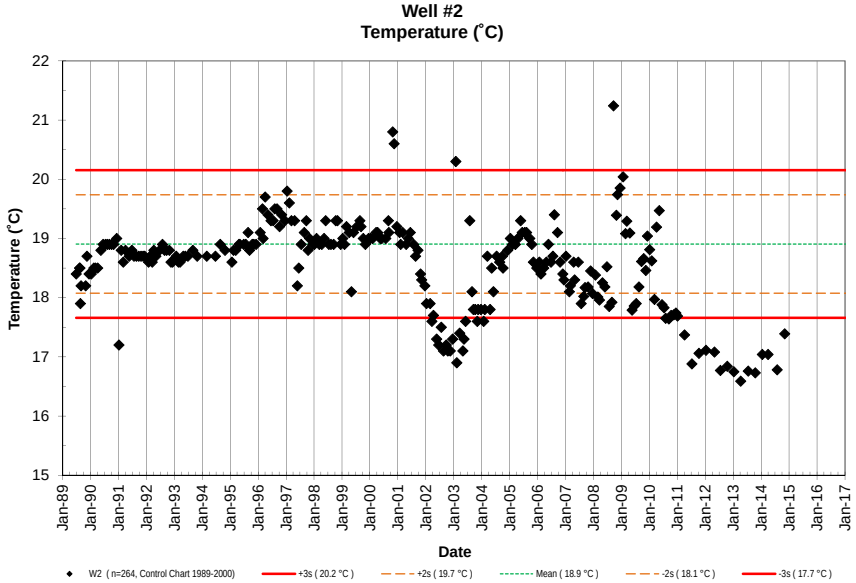

Well #2
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W2 (n=265, Control Chart 1989-2000)
+3s (9.3 µg N/L)
+2s (7.1 µg N/L)
Mean (2.5 µg N/L)
-2s (-2.0 µg N/L)
-3s (-4.3 µg N/L)

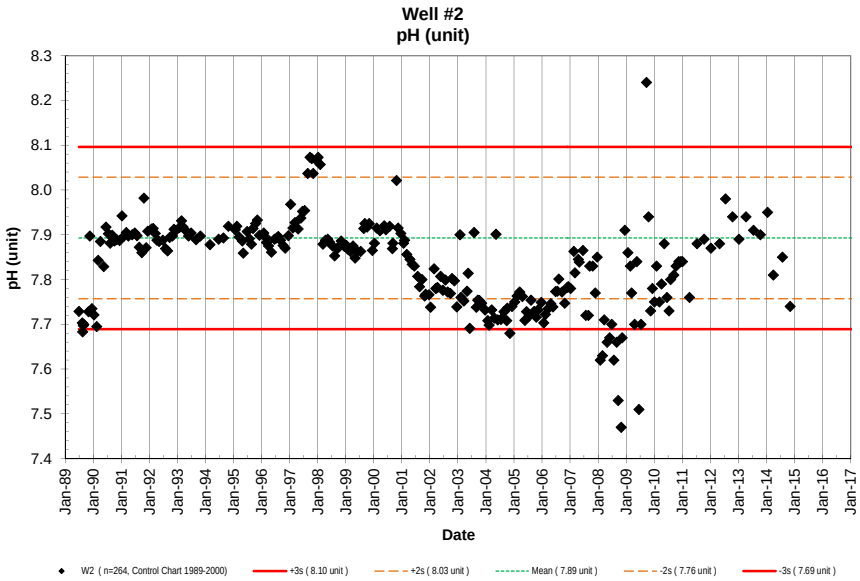

Well #2
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W2 (n=258, Control Chart 1989-2000)
+3s (10613 µg Si/L)
+2s (9734 µg Si/L)
Mean (7975 µg Si/L)
-2s (6217 µg Si/L)
-3s (5337 µg Si/L)

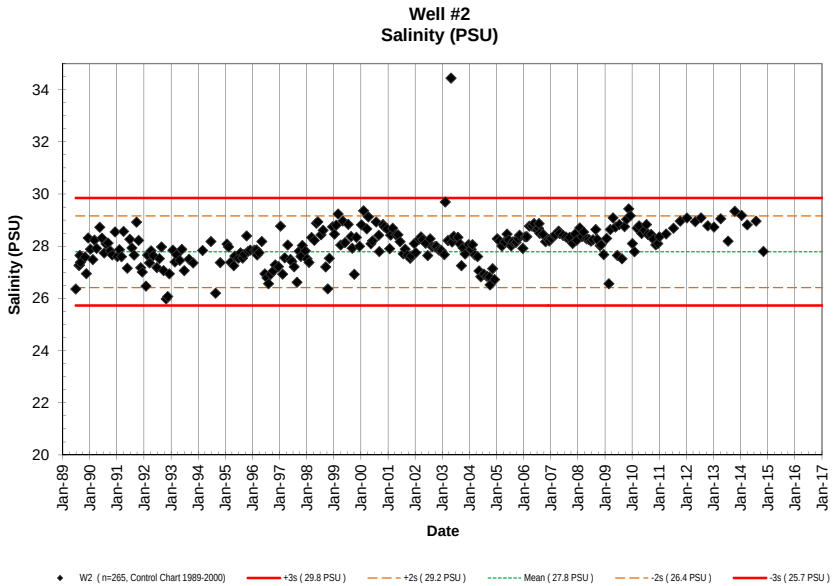

Relationship Between Ortho-Phosphate
and Nitrate + Nitrite in Well #2
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W2 1989 - 2013
W2 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

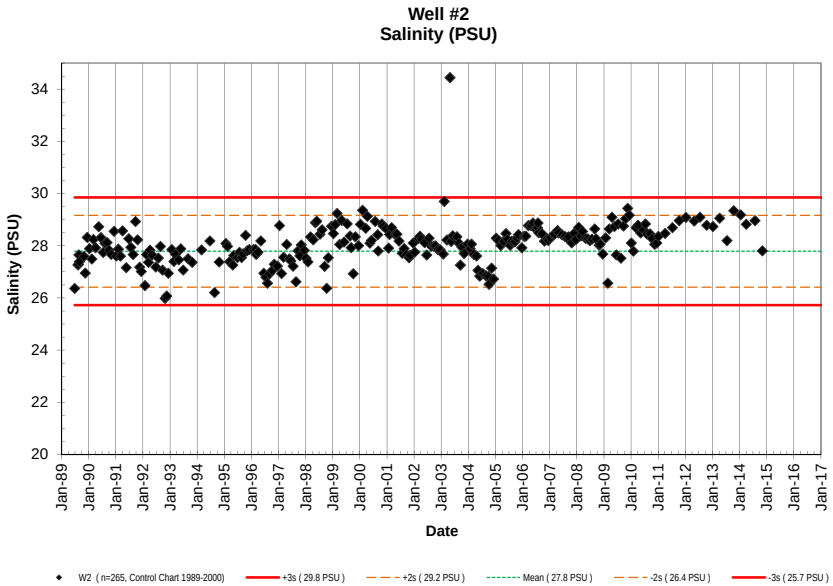

Well #2 Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W2 1989 - 2013
W2 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

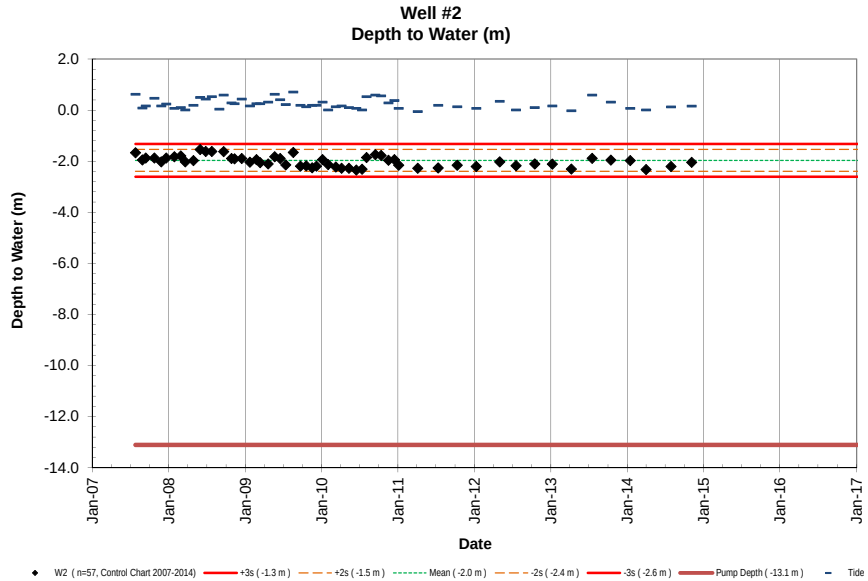

Well #2
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W2 (n=264, Control Chart 1989-2000)
+3s (4.8 mg/L)
+2s (4.5 mg/L)
Mean (3.9 mg/L)
-2s (3.3 mg/L)
-3s (3.0 mg/L)


Well #2
Temperature (˚C)
Temperature (˚C)
Date
W2 (n=264, Control Chart 1989-2000)
+3s (20.2 °C)
+2s (19.7 °C)
Mean (18.9 °C)
-2s (18.1 °C)
-3s (17.7 °C)


Well #2
pH (unit)
pH (unit)
Date
W2 (n=264, Control Chart 1989-2000)
+3s (8.10 unit)
+2s (8.03 unit)
Mean (7.89 unit)
-2s (7.76 unit)
-3s (7.69 unit)


Well #2
Salinity (PSU)
Salinity (PSU)
Date
W2 (n=265, Control Chart 1989-2000)
+3s (29.8 PSU)
+2s (29.2 PSU)
Mean (27.8 PSU)
-2s (26.4 PSU)
-3s (25.7 PSU)


Well #2
Salinity (PSU)
Salinity (PSU)
Date
W2 (n=265, Control Chart 1989-2000)
+3s (29.8 PSU)
+2s (29.2 PSU)
Mean (27.8 PSU)
-2s (26.4 PSU)
-3s (25.7 PSU)


Well #2
Depth to Water (m)
Depth to Water (m)
Date
W2 (n=57, Control Chart 2007-2014)
+3s (-1.3 m)
+2s (-1.5 m)
Mean (-2.0 m)
-2s (-2.4 m)
-3s (-2.6 m)
Pump Depth (-13.1 m)
Tide

NELHA Water Quality Laboratory

Well 2A Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W2A	-6.71	6/28/89					2.42	75	56.3	789	3.60	50.4								19.3	7.765	16.524	5.89		NA	NA
W2A	-6.71	8/11/89	1050				2.21	68	44.0	616	0.31	4.3								19.3	7.750	16.574	5.46		<1	NA
W2A	-6.71	8/16/89	1000				2.44	76	48.4	678	0.42	5.9								19.2	7.705	15.049	6.12		<1	NA
W2A	-6.71	8/23/89	1015				2.27	70	45.7	640	0.27	3.8								18.9	7.729	18.099	5.77		<1	NA
W2A	-6.71	8/30/89	1035				2.56	79	53.2	745	0.42	5.9								19.1	7.755	15.759	6.60		<1	NA
W2A	-6.71	8/30/89	1035				2.56	79	53.2	745	0.42	5.9													NA	NA
W2A	-6.71	10/31/89	940				2.60	81	59.1	828	0.05	0.7	570	16009	2.76	85.5	60.6	849	0.48	19.1	7.816	15.824	6.02		1	NA
W2A	-6.71	11/16/89	814				2.32	72	49.1	688	0.06	0.8	500	14043	2.61	80.8	51.8	726	0.69	19.4	7.774	18.471	6.60		1	NA
W2A	-6.71	12/13/89	1045				2.82	87	64.8	908	0.08	1.1	557	15644	3.07	95.1	66.3	929	0.34	19.6	7.838	14.620	6.66		<1	NA
W2A	-6.71	1/11/90	826				2.05	63	54.6	765	0.01	0.1	571	16037	2.26	70.0	56.0	784	1.85	19.2	7.775	16.089	7.76		<1	NA
W2A	-6.71	2/14/90	1005				2.44	76	54.9	769	0.00	0.0	535	15026	2.89	89.5	44.2	619	0.61	19.4	7.756	15.801	6.19		<1	NA
W2A	-6.71	3/6/90	1345				2.28	71	54.3	761	0.11	1.5	528	14829	2.71	83.9	54.3	761	0.56	19.2	7.889	16.258	5.76		<1	NA
W2A	-6.71	4/4/90	1130				2.45	76	52.1	730	0.41	5.7	587	16486	2.56	79.3	53.5	749	0.50	19.3	7.932	16.460	5.24		4	NA
W2A	-6.71	5/17/90	1430				2.51	78	53.3	747	0.05	0.7	519	14576	2.74	84.9	28.5	399	0.44	19.3	7.895	15.853	5.83		<1	NA
W2A	-6.71	6/16/90	1335				3.25	101	47.9	671	0.36	5.0	491	13790	3.60	111.5	83.2	1165	0.75	19.4	7.936	17.880	5.33		3	NA
W2A	-6.71	7/17/90	1407				2.53	78	47.0	658	0.00	0.0	496	13930	2.77	85.8	50.0	700	0.65	19.8	7.918	18.216	5.59		<1	NA
W2A	-6.71	8/8/90	1355				2.10	65	51.6	723	0.17	2.4	504	14155	2.77	85.8	52.8	740	0.84	19.9	7.909	17.192	5.36		<1	NA
W2A	-6.71	9/5/90	1432				2.45	76	49.2	689	0.00	0.0			2.45	75.9	49.8	698	0.32	19.7	7.924	17.677	5.36		<1	NA
W2A	-6.71	10/4/90	1426				2.24	69	47.1	660	0.04	0.6	508	14253	2.65	82.1	50.0	701	1.40	19.6	7.916	17.663	5.02		<1	NA
W2A	-6.71	11/1/90	1438				2.30	71	49.7	696	0.03	0.4	505	14183	2.55	79.0	51.2	716	0.44	19.5	7.916	17.530	5.32		<1	NA
W2A	-6.71	12/10/90	1446				2.33	72	57.3	803	0.15	2.1	501	14071	2.65	82.1	59.5	833	0.35	19.6	7.927	16.072	5.64		<1	NA
W2A	-6.71	1/9/91	1025				2.36	73	56.7	794	0.05	0.7	512	14380	2.38	73.7	58.7	823	0.38	19.3	7.916	16.241	5.66		14	NA
W2A	-6.71	2/6/91	1016				2.11	65	49.7	696	0.11	1.5	475	13341	2.28	70.6	51.1	716	0.64	19.4	7.922	15.837	5.76		<1	NA
W2A	-6.71	3/6/91	1036				2.27	70	53.9	755	0.22	3.1	510	14324	2.39	74.0	54.1	758	0.61	19.2	7.925	15.907	5.75		<1	NA
W2A	-6.71	4/3/91	1021				2.16	67	59.4	832	0.00	0.0	507	14239	2.30	71.2	66.5	931	0.49	19.3	7.928	15.958	5.75		<1	NA
W2A	-6.71	5/22/91	1049				2.03	63	31.9	447	0.00	0.0	567	15924	2.28	70.6	26.2	367	0.51	19.3	7.919	16.735	5.45		<1	NA
W2A	-6.71	6/26/91	1117				2.30	71	53.6	751	0.00	0.0	534	14998	2.35	72.8	55.7	780	0.38	19.3	7.926	16.574	5.63		<1	<1
W2A	-6.71	7/24/91	1113				2.01	62	49.6	695	0.08	1.1	512	14380	2.16	66.9	50.4	706	0.40	17.6	7.924	16.810	5.54		<1	<1
W2A	-6.71	8/23/91	1057				2.19	68	53.7	752	0.15	2.1	540	15166	2.27	70.3	56.7	794	0.52	19.2	7.908	16.337	5.63		<1	<1
W2A	-6.71	9/24/91	1014				2.34	72	54.8	768	0.00	0.0	546	15335	2.40	74.3	58.0	812	0.44	19.5	7.896	15.377	6.06		<1	<1
W2A	-6.71	10/23/91	1029				2.61	81	57.1	800	0.00	0.0	746	20952	2.63	81.5	59.5	833	0.52	19.5	7.920	15.033	6.03		<1	<1
W2A	-6.71	11/20/91	1011				2.85	88	53.5	749	0.00	0.0	616	17301	2.96	91.7	56.8	796	0.44	19.3	7.896	15.408	6.00		<1	<1
W2A	-6.71	12/11/91	1043				2.35	73	54.2	759	0.00	0.0	533	14970	2.48	76.8	56.8	796	0.44	19.3	7.918	16.006	5.79		<1	<1
W2A	-6.71	1/29/92	1039				2.25	70	53.4	748	0.00	0.0	529	14857	2.28	70.6	54.9	769	1.10	19.5	7.914	16.094	5.78		<1	<1
W2A	-6.71	2/19/92	1059				2.40	74	43.6	611	0.00	0.0	507	14239	2.52	78.1	59.4	832	0.42	19.5	7.940	15.048	6.09		<1	2
W2A	-6.71	3/17/92	1014				2.36	73	58.8	824	0.00	0.0	552	15503	2.43	75.3	62.1	870	0.62	19.5	7.937	14.577	6.20		<1	<1
W2A	-6.71	4/8/92	1009				2.34	72	54.3	761	0.09	1.3	520	14604	2.42	75.0	57.1	800	0.46	19.4	7.904	15.405	5.99		<1	<1
W2A	-6.71	5/6/92	1045				2.31	72	55.3	775	0.00	0.0	568	15953	2.40	74.3	59.1	828	0.74	19.5	7.904	15.949	6.07		<1	<1
W2A	-6.71	6/23/92	1023				2.16	67	50.5	707	0.17	2.4	548	15391	2.16	66.9	52.1	730	0.64	19.4	7.896	17.027	5.66		<1	<1
W2A	-6.71	7/29/92	1018				2.27	70	54.7	766	ND	0.0	557	15644	2.34	72.5	56.3	789	0.51	19.2	7.893	15.408	6.02		<1	<1
W2A	-6.71	8/25/92	1003				2.37	73	48.7	682	0.00	0.0	553	15531	2.37	73.4	54.1	757	0.59	19.5	7.881	17.292	5.50		<1	<1
W2A	-6.71	9/22/92	1044				2.16	67	47.9	670	0.00	0.0	553	15531	2.25	69.7	49.1	688	0.46	19.4	7.896	17.537	5.37		<1	<1
W2A	-6.71	10/27/92	1031				2.55	79	58.7	823	0.00	0.0	580	16290	2.64	81.8	61.7	864	0.53	19.6	7.919	15.357	6.10		4	6
W2A	-6.71	11/17/92	1053				2.16	67	52.7	737	0.20	2.8	531	14913	2.50	77.4	56.0	784	0.56	19.4	7.913	17.460	5.50		0	0
W2A	-6.71	12/8/92	955				2.54	79	58.4	818	0.12	1.7	578	16233	2.56	79.3	61.1	856	0.45	19.4	7.928	15.492	6.02		28	1
W2A	-6.71	1/26/93	1013				2.33	72	57.0	798	0.10	1.4	562	15781	2.48	76.8	61.5	861	0.50	19.4	7.933	16.134	5.87		<1	1
W2A	-6.71	2/23/93	1000				2.39	74	60.1	842	0.07	1.0	595	16719	2.42	75.0	69.2	970	0.42	19.4	7.932	14.885	6.07		<1	<1
W2A	-6.71	3/16/93	952				2.28	71	54.3	760	0.08	1.1	572	16071	2.31	71.5	57.8	809	0.49	19.2	7.923	16.522	5.70		<1	<1
W2A	-6.71	4/27/93	950				2.30	71	56.1	785	0.43	6.0	595	16711	2.40	74.3	58.3	816	0.42	19.4	7.910	16.373	5.76		<1	<1
W2A	-6.71	5/25/93	942				2.32	72	55.9	783	0.14	2.0	581	16318	2.32	71.9	60.3	845	0.34	19.4	7.903	16.269	5.84		<1	<1
W2A	-6.71	6/28/93	1010				2.07	64	51.1	716	0.08	1.1	548	15391	2.23	69.1	54.4	762	0.42	19.4	7.899	17.611	5.43		<1	<1
W2A	-6.71	8/31/93	912				2.50	77	58.6	821	0.00	0.0	594	16694	2.50	77.4	70.0	981	0.82	19.5	7.915	15.246	6.06		<1	<1
W2A	-6.71	10/26/93	859				2.48	77	55.8	781	0.56	7.8	549	15419	2.50	77.4	56.8	796	0.52	19.4	7.915	15.958	5.79		152	135
W2A	-6.71	3/1/94	840				2.53	78	57.2	801	0.15	2.1	510	14324	2.54	78.7	73.5	1029	0.52	19.4	7.899	16.134	5.65		<1	<1
W2A	-6.71	6/21/94	936				2.51	78	56.4	790	0.16	2.2	608	17073	2.56	79.3	67.4	944	0.44	19.3	7.907	16.192	5.85		<1	<1

NELHA Water Quality Laboratory

Well 2A Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W2A	-6.71	8/23/94	1006				2.49	77	63.0	883	0.32	4.5	589	16537	2.55	79.0	70.2	984	0.58	20.2	8.151	15.342	7.00		3	4
W2A	-6.71	10/25/94	1025				2.43	75	53.7	753	0.23	3.2	499	14003	2.45	75.9	56.3	788	0.44	19.4	7.947	16.410	5.76		<1	<1
W2A	-6.71	1/24/95	1022				2.64	82	59.0	827	0.02	0.3	508	14256	2.70	83.6	62.0	868	0.39	19.4	7.943	15.339	5.30		<1	<1
W2A	-6.71	2/14/95	959				2.71	84	64.1	898	0.53	7.4	539	15144	2.75	85.2	65.6	918	0.38	19.6	7.921	14.278	5.94		<1	<1
W2A	-6.71	3/14/95	1048				2.39	74	54.5	764	0.07	1.0	480	13475	2.42	75.0	55.5	778	0.41	19.5	7.897	16.569	6.32		<1	<1
W2A	-6.71	4/26/95	1038				2.44	76	56.3	789	0.12	1.7	495	13888	2.57	79.6	60.0	840	0.48	19.9	8.067	16.307	6.69		<1	<1
W2A	-6.71	5/8/95	1041				2.23	69	51.6	723	0.23	3.2	451	12675	2.28	70.6	55.9	783	0.41	20.2	7.951	17.912	7.17		<1	<1
W2A	-6.71	6/27/95	1018				1.99	62	48.8	683	0.39	5.5	468	13155	2.15	66.6	50.4	706	0.50	20.2	7.810	17.332	4.89		<1	<1
W2A	-6.71	7/25/95	1030				2.39	74	58.2	816	0.07	1.0	515	14453	2.49	77.1	60.3	845	0.47	20.1	7.852	15.220	5.57		<1	<1
W2A	-6.71	8/22/95	1121				2.43	75	53.1	744	0.32	4.5	473	13279	2.50	77.4	56.1	786	0.42	20.4	8.078	17.349	6.49		3	<1
W2A	-6.71	9/11/95	1108				2.31	72	55.5	777	0.21	2.9	486	13644	2.31	71.5	58.2	815	0.52	18.8	7.914	16.618	6.70		1	<1
W2A	-6.71	10/16/95	1126				2.18	68	51.6	723	0.33	4.6	644	18084	2.21	68.5	52.8	739	0.56	20.0	8.089	17.750	6.43		<1	1
W2A	-6.71	11/6/95	1114				2.73	85	54.4	762	0.22	3.1	485	13619	2.30	71.2	57.2	801	0.53	20.1	7.992	16.875	6.31		1	<1
W2A	-6.71	12/4/95	1059				2.30	71	53.4	748	0.13	1.8	468	13130	2.42	75.0	55.2	773	0.58	20.1	7.935	17.661	6.30		1	2
W2A	-6.71	1/29/96	1151				2.33	72	56.9	796	0.01	0.1	487	13680	2.39	74.0	59.7	836	0.63	20.6	7.961	16.505	6.81		<1	<1
W2A	-6.71	2/26/96	1209				2.28	71	55.0	770	0.17	2.4	494	13874	2.35	72.8	56.9	797	0.56	20.4	8.045	16.760	6.82		<1	<1
W2A	-6.71	3/5/96	1106				2.38	74	60.0	840	0.18	2.5	502	14098	2.47	76.5	63.0	882	0.63	20.2	8.028	15.275	6.84		1	1
W2A	-6.71	4/1/96	1139				2.35	73	56.4	790	0.41	5.7	503	14123	2.45	75.9	59.1	827	0.56	20.7	7.914	16.211	6.71		<1	<1
W2A	-6.71	5/8/96	1150				2.39	74	54.9	769	0.16	2.2	483	13578	2.48	76.8	58.0	812	0.45	20.5	7.929	16.680	6.75		<1	<1
W2A	-6.71	6/17/96	1106				2.24	69	53.7	753	0.14	2.0	501	14070	2.35	72.8	56.3	788	0.49	21.4	8.100	17.038	6.84		1	<1
W2A	-6.71	7/16/96	1114				2.17	67	52.9	741	0.21	2.9	479	13451	2.35	72.8	55.2	773	0.49	21.0	7.960	17.164	6.55		1	<1
W2A	-6.71	8/5/96	1155				2.34	72	54.4	762	0.30	4.2	462	12968	2.35	72.8	59.9	839	0.40	21.0	7.971	17.310	6.99		<1	<1
W2A	-6.71	9/3/96	1118				2.37	73	57.2	801	0.31	4.3	510	14337	2.47	76.5	59.6	835	0.33	20.9	7.979	16.406	6.64		1	<1
W2A	-6.71	10/8/96	1126				2.46	76	55.6	779	0.13	1.8	520	14604	2.63	81.5	60.8	852	0.35	20.2	7.896	15.763	5.67		<1	<1
W2A	-6.71	11/4/96	1142				2.32	72	53.2	745	0.19	2.7	509	14308	2.35	72.8	63.9	895	0.41	20.2	7.874	16.648	5.58		<1	<1
W2A	-6.71	12/16/96	1117				2.35	73	50.6	709	0.30	4.2	493	13843	2.38	73.7	52.1	730	0.42	19.9	7.905	17.773	5.36		<1	1
W2A	-6.71	1/13/97	1158				2.49	77	58	815	0.12	1.7	508	14253	2.61	80.8	60.4	846	0.70	20.7	7.974	13.921	6.58		<1	<1
W2A	-6.71	2/11/97	1206				2.23	69	56	784	0.19	2.7	520	14602	2.28	70.6	58.2	815	0.49	20.4	7.924	15.082	6.07		14	<1
W2A	-6.71	3/11/97	1136				2.55	79	63	886	0.12	1.7	551	15461	2.70	83.6	65.5	918	0.49	20.2	7.959	13.155	6.49		<1	<1
W2A	-6.71	4/22/97	1147				2.38	74	52	721	0.26	3.6	463	13001	2.42	75.0	60.3	845	0.55	20.2	7.938	15.024	5.84		<1	<1
W2A	-6.71	5/27/97	1052				2.27	70	56	790	0.10	1.4	456	12799	2.37	73.4	60.1	842	0.44	19.0	7.946	15.736	5.78		<1	<1
W2A	-6.71	6/16/97	1105				2.23	69	51	712	0.26	3.6	435	12203	2.26	70.0	54.9	769	0.47	19.2	7.955	16.781	5.43		<1	<1
W2A	-6.71	7/16/97	1017				2.32	72	53	737	0.08	1.1	485	13624	2.46	76.2	56.9	797	0.46	19.7	7.953	16.436	5.53		<1	<1
W2A	-6.71	8/25/97	1113				2.49	77	51	710	0.28	3.9	510	14332	3.10	96.0	51.9	726	0.40	20.0	8.029	16.886	5.27		<1	<1
W2A	-6.71	9/22/97	1039				2.29	71	51	717	0.10	1.4	491	13798	2.40	74.3	52.5	735	0.44	20.0	8.068	16.669	5.53		<1	2
W2A	-6.71	10/15/97	1029				2.55	79	60	835	0.12	1.7	518	14545	2.72	84.2	66.7	934	0.46	20.0	8.068	14.684	5.90		<1	<1
W2A	-6.71	11/3/97	1017				2.58	80	58.9	825	0.24	3.4	515	14461	2.83	87.7	65.8	922	0.47	19.8	8.040	15.214	5.90		<1	<1
W2A	-6.71	12/15/97	1034				2.52	78	56.1	786	0.04	0.6	521	14635	2.69	83.3	59.2	829	0.51	19.7	8.075	15.080	6.17		<1	<1
W2A	-6.71	1/6/98	952				2.35	73	51.3	719	0.01	0.1	490	13762	2.56	79.3	54.3	761	0.48	19.5	8.067	17.110	5.51		<1	<1
W2A	-6.71	2/2/98	1048				2.38	74	52.5	735	0.13	1.8	512	14369	2.55	79.0	55.3	775	0.47	19.6	8.064	16.237	5.69		<1	<1
W2A	-6.71	3/9/98	1047				2.59	80	56.4	789	0.23	3.2	524	14703	2.71	83.9	58.8	824	0.49	19.7	7.897	15.467	5.91		<1	<1
W2A	-6.71	4/13/98	1017				2.67	83	58	817	0.09	1.3	562	15790	2.73	84.6	61.8	866	0.48	19.8	7.921	14.915	6.12		<1	<1
W2A	-6.71	5/11/98	1114				2.50	77	51	716	0.25	3.5	481	13518	2.72	84.2	53.7	752	0.46	19.6	7.918	15.526	5.99		<1	58
W2A	-6.71	6/1/98	1102				2.58	80	55.5	778	0.17	2.4	526	14767	2.68	83.0	61.2	857	0.41	19.6	7.903	17.339	5.59		<1	<1
W2A	-6.71	7/13/98	1102				2.59	80	56	778	0.23	3.2	517	14526	2.74	84.9	59	824	0.40	19.8	7.901	15.799	5.86		1	<1
W2A	-6.71	8/10/98	1117				2.74	85	59.6	834	0.11	1.5	535	15026	2.88	89.2	64.6	905	0.40	19.6	7.896	14.871	5.59		1	<1
W2A	-6.71	9/14/98	1120				2.28	71	46.0	644	0.16	2.2	475	13343	2.37	73.4	48	666	0.35	19.8	7.871	18.572	5.22		<1	<1
W2A	-6.71	10/12/98	1011				2.20	68	46.9	657	0.16	2.2	472	13265	2.49	77.1	49	684	0.40	19.9	7.874	18.434	5.66		<1	1
W2A	-6.71	11/2/98	1037				2.52	78	57.1	800	0.04	0.6	523	14686	2.68	83.0	59.6	835	0.83	19.9	7.905	15.721	5.84		<1	<1
W2A	-6.71	12/15/98	1021				2.56	79	54.3	761	0.04	0.6	527	14787	2.69	83.3	61.0	854	0.56	19.9	7.900	16.190	5.72		<1	<1
W2A	-6.71	1/11/99	1046				2.43	75	52	721	0.22	3.1	508	14262	2.54	78.7	55	775	0.51	19.6	7.893	16.638	5.74		<1	<1
W2A	-6.71	2/2/99	1050				2.60	81	61	861	0.16	2.2	536	15057	2.70	83.6	66	926	0.70	19.8	7.912	14.962	6.32		<1	<1
W2A	-6.71	3/1/99	1102				2.68	83	60.8	852	0.01	0.1	546	15337	2.78	86.1	63.3	887	0.52	19.6	7.915	14.376	7.10		<1	<1
W2A	-6.71	4/5/99	1047				2.49	77	56.6	793	0.21	2.9	525	14753	2.63	81.5	59.2	829	0.44	19.6	7.901	15.676	5.99		<1	<1
W2A	-6.71	5/3/99	1112				2.60	81	61.0	854	0.19	2.7	537	15073	2.74	84.9	66.1	926	0.48	19.7	7.894	15.092	7.33		<1	<1
W2A	-6.71	6/1/99	1041				2.60	81	58.4	818	0.29	4.1	527	14790	2.70	83.6	61.6	863	0.50	19.7	7.903	15.104	6.17		<1	<1

NELHA Water Quality Laboratory

Well 2A Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W2A	-6.71	7/14/99	1100				2.62	81	60.4	846	0.06	0.8	538	15096	2.78	86.1	62.8	880	0.48	19.9	7.906	14.738	6.26		<1	<1
W2A	-6.71	8/23/99	1109				2.30	71	47.9	671	0.15	2.1	504	14141	2.46	76.2	49.8	698	0.41	19.9	7.929	17.348	5.44		<1	<1
W2A	-6.71	9/7/99	1110				2.42	75	53.7	752	0.09	1.3	494	13869	2.63	81.5	61.3	859	0.39	19.9	7.938	17.010	5.59		<1	<1
W2A	-6.71	10/5/99	1047				2.35	73	52.9	741	0.04	0.6	506	14200	2.45	75.9	55.0	770	0.39	19.8	7.933	16.866	5.54		<1	3
W2A	-6.71	11/1/99	1119				2.16	67	47.7	668	0.10	1.4	472	13262	2.41	74.6	51.2	717	0.34	19.6	7.933	18.554	5.17		<1	<1
W2A	-6.71	12/14/99	1112				2.41	75	54.3	761	0.08	1.1	503	14124	2.52	78.1	57.3	803	0.40	19.7	7.868	16.633	5.44		<1	19
W2A	-6.71	1/10/00	1130				2.48	77	57.0	798	0.16	2.2	522	14672	2.64	81.8	61.6	863	0.41	19.7	7.915	15.794	5.91		<1	<1
W2A	-6.71	2/7/00	1129				2.67	83	62.2	871	0.14	2.0	536	15062	2.80	86.7	66.6	933	0.48	19.7	7.960	14.663	6.25		<1	46
W2A	-6.71	3/21/00	1129				2.64	82	63.8	894	0.16	2.2	558	15683	2.56	79.3	68.7	962	0.57	19.8	7.962	13.574	6.52		<1	26
W2A	-6.71	4/10/00	1210				2.21	68	58.5	819	0.02	0.3	539	15132	2.39	74.0	62.3	873	0.48	19.7	7.954	15.574	5.96		<1	2
W2A	-6.71	5/15/00	1111				2.36	73	53.9	755	0.33	4.6	499	14026	2.37	73.4	57.1	800	0.44	19.9	7.941	16.560	5.66		<1	1
W2A	-6.71	6/5/00	1114				2.54	79	59.2	829	0.09	1.3	535	15017	2.52	78.1	64.8	908	0.49	19.8	7.955	14.905	6.29		<1	1
W2A	-6.71	7/26/00	1140				2.13	66	47.4	664	0.80	11.2	471	13231	2.26	70.0	50.4	706	0.39	19.6	7.920	18.929	5.10		<1	7
W2A	-6.71	8/29/00	1050				2.47	77	56.8	796	0.05	0.7	517	14531	2.54	78.7	58.8	824	0.52	20.3	7.899	15.721	5.90		<1	1
W2A	-6.71	9/5/00	1104				2.30	71	52.4	734	0.09	1.3	489	13720	2.34	72.5	55.9	783	0.42	19.7	7.890	17.683	5.35		<1	<1
W2A	-6.71	10/24/00	1117				2.36	73	53.3	747	0.11	1.5	524	14714	2.49	77.1	55.8	782	0.44	20.1	7.927	16.776	5.43		<1	<1
W2A	-6.71	11/13/00	1057				2.41	75	85.0	1191	0.14	2.0	557	15630	2.52	78.1	88.9	1246	0.56	19.9	7.897	14.512	5.82		<1	<1
W2A	-6.71	12/18/00	1049				2.38	74	52.3	733	0.16	2.2	513	14416	2.48	76.8	57.4	804	0.62	19.9	7.906	17.607	5.24		<1	6
W2A	-6.71	1/22/01	1113				3.20	99	83.6	1171	0.18	2.5	532	14927	3.66	113.4	89.5	1254	0.59	19.8	7.886	15.284	6.09		1148	TNTC
W2A	-6.71	2/5/01	1118				2.88	89	85.1	1192	0.11	1.5	515	14467	2.98	92.3	87.2	1221	0.53	19.7	7.894	16.556	5.68		4	TNTC
W2A	-6.71	3/5/01	1110				3.40	105	82.5	1156	0.07	1.0	506	14206	3.52	109.0	96.4	1350	0.56	19.7	7.860	16.869	5.66		<1	83
W2A	-6.71	4/17/01	1110				4.02	125	95.8	1342	0.02	0.3	486	13647	4.04	125.1	102	1433	0.55	19.8	7.834	17.673	6.12		<1	<1
W2A	-6.71	5/15/01	1040				3.94	122	91.1	1277	0.09	1.3	447	12563	3.82	118.3	95.2	1333	0.54	19.5	7.826	18.087	5.82		<1	<1
W2A	-6.71	6/12/01	1119				4.65	144	99.5	1393	0.05	0.7	466	13085	4.72	146.2	104	1454	0.53	19.4	7.831	18.425	5.84		<1	35
W2A	-6.71	7/25/01	920				4.55	141	79.6	1115	0.06	0.8	474	13304	4.56	141.2	82.4	1154	0.61	19.4	7.807	18.699	5.03		<1	<1
W2A	-6.71	8/20/01	901				3.80	118	83.4	1168	0.26	3.6	505	14183	3.96	122.7	84.5	1184	0.76	19.4	7.839	17.378	6.27		<1	22
W2A	-6.71	9/19/01	1023				3.49	108	77.6	1087	0.09	1.3	503	14121	3.50	108.4	81.3	1138	0.55	19.5	7.842	16.692	6.27		<1	1
W2A	-6.71	10/24/01	1015				3.34	103	70.1	982	0.06	0.8	452	12692	3.42	105.9	76.0	1064	0.55	19.3	7.820	19.615	5.58		<1	<1
W2A	-6.71	11/7/01	1050				3.46	107	73.4	1028	0.22	3.1	444	12467	3.48	107.8	91.2	1277	0.56	19.3	7.805	19.850	5.59		<1	2
W2A	-6.71	12/19/01	1041				3.14	97	78.4	1098	0.12	1.7	485	13619	3.24	100.4	99.2	1389	0.54	19.5	7.813	18.539	5.91		<1	1268
W2A	-6.71	1/9/02	1021				3.20	99	65.4	916	0.20	2.8	483	13551	3.07	95.1	66.5	931	0.51	19.3	7.837	18.799	5.48		<1	17
W2A	-6.71	2/25/02	1100				2.84	88	75.1	1052	0.09	1.3	489	13725	2.94	91.1	79.6	1115	0.43	19.3	7.962	17.394	7.12		<1	<1
W2A	-6.71	3/20/02	1039				2.62	81	67.7	948	0.13	1.8	476	13355	3.14	97.3	71.9	1007	0.45	19.4	7.987	17.858	6.91		<1	<1
W2A	-6.71	4/10/02	1112				2.86	89	71.9	1007	0.01	0.1	475	13343	2.94	91.1	77.5	1085	0.48	19.3	7.931	17.729	6.37		<1	<1
W2A	-6.71	5/22/02	928				3.14	97	93.8	1314	0.15	2.1	491	13787	3.15	97.6	96.1	1346	0.52	19.4	7.812	17.373	7.40		<1	1
W2A	-6.71	6/19/02	948				2.92	90	70.8	991	0.26	3.6	465	13065	3.06	94.8	74.7	1047	0.42	19.3	7.857	18.892	6.24		<1	<1
W2A	-6.71	7/22/02	937				2.90	90	68.5	959	0.09	1.3	484	13579	3.10	96.0	67.7	949	0.43	19.5	7.867	17.922	5.83		<1	<1
W2A	-6.71	8/21/02	1006				2.95	91	69.3	971	0.18	2.5	488	13703	3.12	96.6	71.6	1002	0.41	19.3	7.852	17.414	6.03		<1	<1
W2A	-6.71	9/25/02	1159				2.94	91	72.0	1008	0.23	3.2	516	14484	2.98	92.3	62.9	881	0.61	19.6	7.886	16.726	7.25		<1	<1
W2A	-6.71	10/15/02	919				2.75	85	54.0	756	0.16	2.2	470	13186	2.83	87.7	55.8	781	0.48	19.6	7.877	18.782	5.71		<1	<1
W2A	-6.71	11/17/02	1113				3.29	102	69.2	969	0.03	0.4	490	13762	3.46	107.2	64.5	903	0.43	19.6	7.862	17.710	6.23		<1	<1
W2A	-6.71	12/18/02	1141				2.91	90	65.4	916	0.18	2.5	485	13624	2.95	91.4	57.6	806	0.43	19.7	7.862	17.642	6.04		<1	<1
W2A	-6.71	1/29/03	1105				2.56	79	65.8	922	<0.1	0.0	474	13315	2.65	82.1	70.7	990	0.46	19.2	7.892	18.197	6.04		<1	<1
W2A	-6.71	2/10/03	1104				2.59	80	65.1	912	0.04	0.6	497	13961	2.74	84.9	71.7	1004	0.44	19.2	7.893	17.877	6.22		<1	<1
W2A	-6.71	3/20/03	1015				2.82	87	75.4	1056	0.17	2.4	521	14644	3.04	94.2	82.5	1156	0.44	19.7	7.898	15.784	6.74		<1	<1
W2A	-6.71	4/30/03	1111				2.90	90	65.7	920	0.12	1.7	501	14082	3.02	93.5	76.5	1072	0.40	19.6	7.921	17.299	5.98		<1	1
W2A	-6.71	5/14/03	1022				2.96	92	68.9	964	0.29	4.1	496	13928	3.02	93.5	77.7	1088	0.36	19.6	7.918	17.198	6.27		<1	<1
W2A	-6.71	6/4/03	1110				2.85	88	68.2	956	0.23	3.2	473	13273	3.01	93.2	75.9	1062	0.36	19.7	7.847	17.993	6.62		<1	<1

NELHA Water Quality Laboratory

Well 2A Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W2A	-6.71	7/30/03	1044				3.12	97	82.7	1158	0.44	6.2	513	14411	3.20	99.1	86.7	1214		19.3	7.905	16.286	6.43		<1	2
W2A	-6.71	8/28/03	1017				3.04	94	77.8	1089	0.42	5.9	489	13739	3.14	97.3	101	1413		20.1	7.858	17.471	6.08		<1	<1
W2A	-6.71	9/16/03	1056				3.14	97	66.9	937	0.46	6.4	477	13405	2.92	90.4	72.4	1014		19.9	7.865	18.328	5.71		<1	<1
W2A	-6.71	10/8/03	1056				2.72	84	63.4	888	0.95	13.3	475	13332	2.80	86.7	76.4	1070		19.6	7.877	17.891	NA		<1	<1
W2A	-6.71	11/5/03	1057				2.68	83	62.0	868	0.50	7.0	471	13234	2.80	86.7	68.3	957		19.4	7.883	18.450			<1	<1
W2A	-6.71	11/14/03	1447																	19.7			5.84			
W2A	-6.71	12/22/03	947				3.09	96	72.9	1021	1.00	14.0	497	13970	3.20	99.1	76.0	1064		19.8	7.926	17.309	6.15		<1	188
W2A	-6.71	1/26/04	1038				2.74	85	73.9	1035	0.40	5.6	480	13475	2.90	89.8	82.3	1153		19.3	7.875	18.097	5.61		<1	260
W2A	-6.71	2/11/04	1025				2.78	86	64.9	909	0.67	9.4	470	13211	2.96	91.7	69.6	975	0.69	19.5	7.861	18.218	5.84		<1	22
W2A	-6.71	3/16/04	1241				2.92	90	65.2	913	0.20	2.8	474	13318	3.42	105.9	72.6	1017		20.0	7.883	17.951	5.61		<1	1
W2A	-6.71	4/20/04	1059				2.44	76	51.4	721	0.04	0.6	479	13442	2.56	79.3	54.7	766		19.5	7.887	17.628	5.97		<1	<1
W2A	-6.71	5/11/04	1005				2.82	87	54.8	768	0.20	2.8	459	12891	3.08	95.4	60.8	852		19.5	7.955	18.38	5.97		<1	<1
W2A	-6.71	6/2/04	1059				2.86	89	59.9	839	0.17	2.4	462	12973	2.94	91.1	61.9	867		19.5	7.870	17.85	5.96		<1	<1
W2A	-6.71	7/14/04	1108				3.02	94	65.3	915	0.17	2.4	468	13136	3.18	98.5	69.5	974		19.5	7.866	18.29	5.89		<1	1
W2A	-6.71	8/23/04	1052				3.06	95	59.2	829	0.25	3.5	450	12624	3.22	99.7	66.9	937		19.5	7.865	18.85	5.75		<1	<1
W2A	-6.71	9/27/04	933				3.28	102	70.1	982	0.16	2.2	504	14166	3.40	105.3	94.0	1317		19.6	7.862	17.09	6.28		<1	<1
W2A	-6.71	10/5/04	935				3.20	99	63.5	890	0.23	3.2	449	12613	3.36	104.1	69.8	977		19.6	7.878	19.17	5.80		<1	<1
W2A	-6.71	11/9/04	1022				3.24	100	63.0	883	0.18	2.5	473	13276	3.40	105.3	65.5	917		19.8	7.865	17.99	5.82		3	208
W2A	-6.71	12/6/04	1100				3.10	96	64.0	897	0.22	3.1	460	12917	3.22	99.7	64.2	899		19.7	7.889	18.43	5.84		<1	85
W2A	-6.71	1/10/05	1027				3.28	102	82.8	1159	0.08	1.1	506	14214	3.30	102.2	89.5	1253		19.6	7.940	17.484	6.38		1	<1
W2A	-6.71	2/9/05	1024				3.30	102	95.9	1343	0.18	2.5	479	13442	3.43	106.2	120	1679		19.9	7.951	16.570	6.46		<1	6
W2A	-6.71	3/15/05	1050				3.04	94	71.5	1001	0.14	2.0	477	13400	3.22	99.7	79.1	1108	0.41	19.5	7.949	17.714	6.25		<1	<1
W2A	-6.71	4/19/05	1002				2.98	92	65.6	918	0.16	2.2	469	13183	3.10	96.0	70.5	987		19.7	7.934	18.105	6.23		6	14
W2A	-6.71	5/23/05	1048				2.98	92	70.0	980	0.21	2.9	477	13388	3.14	97.3	70.7	990		19.9	7.887	18.317	6.24		<1	<1
W2A	-6.71	6/13/05	910				3.08	95	68.5	959	0.22	3.1	457	12821	3.16	97.9	72.3	1013		19.8	7.901	18.982	6.16		<1	<1
W2A	-6.71	7/18/05	1020				3.20	99	70.2	983	0.16	2.2	461	12950	3.38	104.7	70.8	992	0.55	19.8	7.878	18.841	6.07		<1	<1
W2A	-6.71	8/9/05	1030				3.24	100	72.6	1016	0.20	2.8	462	12961	3.36	104.1	75.7	1060	0.49	19.7	7.913	18.546	6.49		<1	<1
W2A	-6.71	9/20/05	1018				3.40	105	80.5	1128	0.21	2.9	493	13838	3.56	110.3	82.7	1158	0.63	19.5	7.918	16.883	7.07		<1	<1
W2A	-6.71	10/17/05	1018				3.60	112	82.4	1154	0.12	1.7	494	13885	3.68	114.0	85.8	1202		19.5	7.893	16.624	7.13		<1	<1
W2A	-6.71	11/7/05	947				3.28	102	69.4	973	0.07	1.0	420	11782	3.46	107.2	71.3	998		19.2	7.897	20.552	6.29		<1	<1
W2A	-6.71	12/21/05	916				3.14	97	64.4	902	0.21	2.9	415	11661	3.28	101.6	65.3	914	0.53	18.9	7.903	20.935	6.21		<1	<1
W2A	-6.71	1/23/06	1018				3.10	96	69.9	979	0.20	2.8	456	12807	3.20	99.1	75.9	1063		19.1	7.904	18.739	6.44		<1	<1
W2A	-6.71	2/14/06	1033				3.24	100	72.8	1020	0.19	2.7	489	13745	3.42	105.9	73.3	1026	0.46	18.7	7.921	16.961	6.87		<1	<1
W2A	-6.71	3/20/06	936				3.09	96	70.7	990	0.20	2.8	472	13256	3.17	98.2	72.3	1013	0.43	18.6	7.930	18.053	6.56		<1	<1
W2A	-6.71	4/25/06	1005				2.90	90	69.7	976	0.08	1.1	458	12863	3.06	94.8	62.4	874	0.47	18.9	7.908	17.978	6.19		<1	<1
W2A	-6.71	5/22/06	1035				2.72	84	64.1	898	0.18	2.5	428	12021	3.06	94.8	56.5	791	0.42	19.0	7.884	19.657	6.64		<1	<1
W2A	-6.71	6/26/06	1048				2.94	91	76.8	1076	0.12	1.7	477	13397	3.16	97.9	72.6	1016	0.49	19.9	7.929	17.143	6.97		<1	<1
W2A	-6.71	7/20/06	1053				2.50	77	58.0	812	0.21	2.9	419	11768	2.77	85.8	53.7	752	0.39	19.3	7.892	20.219	6.75		<1	<1
W2A	-6.71	8/7/06	1110				2.65	82	68.0	952	0.20	2.8	440	12358	2.98	92.3	59.7	836	0.40	18.8	7.912	19.313	8.13		<1	<1
W2A	-6.71	9/18/06	1033				2.62	81	66.1	926	0.21	2.9	437	12273	3.03	93.9	61.0	854	0.48	19.0	7.898	19.209	6.45		<1	<1
W2A	-6.71	10/23/06	1010				3.01	93	83.1	1164	0.26	3.6	469	13172	3.15	97.6	77.8	1090	0.55	19.0	7.914	17.582	7.6		1	<1
W2A	-6.71	11/27/06	1021				2.69	83	66.4	930	0.20	2.8	423	11880	2.83	87.7	57.3	802	0.49	19.0	7.915	20.250	6.43		<1	<1
W2A	-6.71	12/11/06	1049				2.79	86	67.7	948	0.14	2.0	429	12049	3.05	94.5	60.4	846	0.47	19.0	7.910	19.686	6.58		<1	<1
W2A	-6.71	1/8/07	1141				2.91	90	74.3	1041	0.28	3.9	442	12414	3.20	99.1	68.9	965	0.41	18.9	7.934	17.927	6.95		<1	<1
W2A	-6.71	2/20/07	1110				3.21	99	87.2	1221	0.37	5.2	475	13341	3.36	104.1	93.1	1305	0.54	19.1	7.932	16.319	7.14		<1	<1
W2A	-6.71	3/5/07	1108				3.16	98	87.5	1226	0.28	3.9	486	13650	3.46	107.2	91.6	1283	0.53	19.0	7.919	16.811	7.07		<1	<1
W2A	-6.71	4/18/07	1107				2.97	92	76.4	1070	0.28	3.9	481	13509	3.06	94.8	67.6	946	0.44	19.5	7.955	17.178	6.7		<1	<1
W2A	-6.71	5/1/07	1056				2.85	88	68.3	957	0.31	4.3	449	12610	2.99	92.6	65.4	915	0.49	19.0	7.935	18.803	6.45		<1	<1
W2A	-6.71	6/18/07	1050				3.07	79	71.9	1006	0.26	23.4	471	11465	3.48		71.9		0.38	19.5	7.983	17.617	7.16		<1	<1

NELHA Water Quality Laboratory

Well 2A Data Table

June 1989 - December 2014

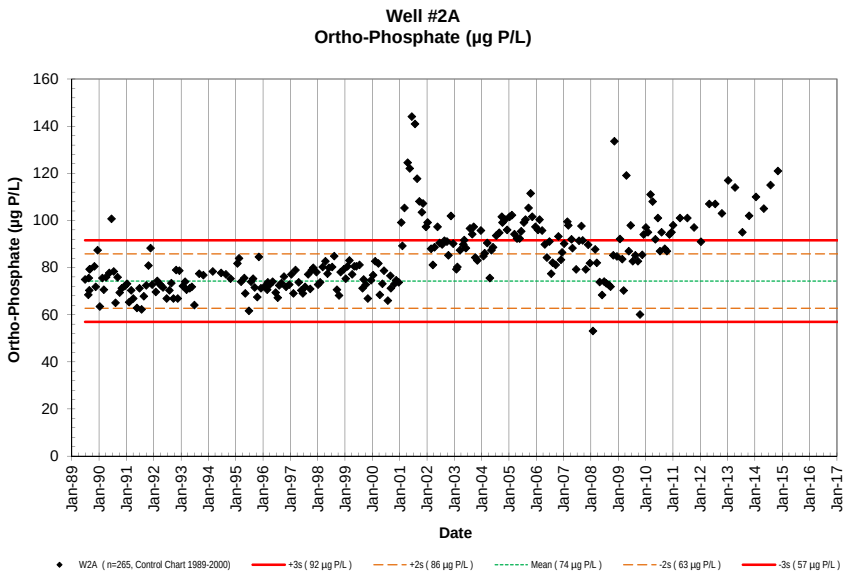
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W2A	-6.71	7/26/07	1321	-1.88	0.64	Flood	2.95	91	77.7	1088	0.11	1.6	475	13328	3.11	96.2	75.6	1059		18.5	7.87	20.22	6.44			
W2A	-6.71	8/28/07	1130	-2.23	0.08	Flood	3.15	98	78.6	1101	0.04	0.6	541	15189	3.16	97.8	78.8	1103		18.7	7.85	18.54	6.45			
W2A	-6.71	9/13/07	1134	-2.23	0.15	Low	2.96	92	71.4	1000	1.37	19.2	481	13511	3.08	95.3	76.9	1077		19.6	7.96	18.51	6.36			
W2A	-6.71	10/24/07	1416	-2.06	0.46	Flood	2.56	79	71.8	1006	1.67	23.4	408	11465	2.63	81.5	70.2	984		19.0	7.97	20.17	6.13			
W2A	-6.71	11/26/07	1127	-2.31	0.15	Ebb	2.90	90	84.1	1178	0.05	0.7	508	14279	2.75	85.3	89.3	1251		19.1	7.94	16.92	6.46			
W2A	-6.71	12/20/07	1223	-2.03	0.23	High	2.64	82	77.1	1080	0.61	8.5	372	10453						18.6	8.02	18.86	6.05			
W2A	-6.71	1/28/08	1249	-2.23	0.09	Ebb	1.71	53	47.1	660	0.38	5.3	236	6635						19.0	7.79	17.33	6.05			
W2A	-6.71	2/27/08	1046	-2.08	0.12	Ebb	2.83	88	79.4	1111	0.29	4.1	448	12579						18.8	7.79	17.69	6.73			
W2A	-6.71	3/20/08	1118	-2.29	0.00	Low	2.65	82	75.6	1059	0.82	11.5	368	10348						18.8	7.87	18.82	6.31			
W2A	-6.71	4/28/08	1113	-2.19	0.18	High	2.39	74	70.2	983	0.19	2.6	425	11926						18.8	7.86	18.90	5.96			
W2A	-6.71	5/30/08	1210	-1.88	0.49	Flood	2.21	68	61.2	858	0.21	2.9	412	11570						18.9	7.83	20.31	5.74			
W2A	-6.71	6/26/08	951	-1.98	0.37	High	2.39	74	64.7	907	0.29	4	532	14950						19.1	7.87	19.96	6.05	1.31		
W2A	-6.71	7/25/08	1151	-1.85	0.55	High	2.37	73	62.1	870	0.20	2.8	309	8686						18.6	7.65	19.17	6.40			
W2A	-6.71	8/30/08	944		0.03	Low	2.34	73	72.8	1020	0.17	2.4	516	14479						18.8	7.83	17.43	6.80			
W2A	-6.71	9/19/08	942	-1.49	0.52	Ebb	2.32	72	68.5	959	0.79	11.1	299	8410						21.5	7.74	16.90	6.65	4.74		
W2A	-6.71	10/27/08	1239	-2.08	0.27	Flood	2.75	85	84.6	1185	0.29	4.1	481	13505						21.4	7.61	16.19	7.03	2.87		
W2A	-6.71	11/10/08	1021	-2.11	0.24	Flood	4.31	134	83.9	1176	0.09	1.3	448	12590						20.9	7.87	15.45	7.00	2.36		
W2A	-6.71	12/15/08	948	-1.90	0.43	Ebb	2.73	85	88.7	1242	0.01	0.2	449	12597						20.9	8.03	16.31	7.44			
W2A	-6.71	1/23/09	1326	-2.23	0.15	High	2.97	92	96.8	1356	1.13	15.8	456	12803						21.2	7.97	15.30	7.25	0.83		
W2A	-6.71	2/23/09	1450	-2.13	0.24	Flood	2.70	84	90.8	1272	0.32	4.5	472	13261						20.1	7.90	15.13	7.61	0.79		
W2A	-6.71	3/13/09	1440	-2.24	0.24	Flood	2.27	70	56.9	797	0.51	7.1	345	9676						20.0	7.87	15.82	7.38	0.42		
W2A	-6.71	4/20/09	1218	-2.17	0.30	Flood	3.85	119	96.7	1354	3.23	45.2	400	11243						20.8	7.78	14.67	7.75	13.40		
W2A	-6.71	5/21/09	1426	-1.89	0.61	High	2.81	87	76.8	1076	1.90	26.6	464	13032						19.2	7.93	17.78	6.90	0.52		
W2A	-6.71	6/16/09	1100	-2.02	0.40	Flood	3.16	98	27.7	389	0.94	13.2	320	8996						19.2	7.64	17.69	6.76	13.40		
W2A	-6.71	7/13/09	1504	-2.18	0.21	Flood	2.67	83	70.1	982	0.23	3.2	220	6183						19.0	7.94	17.29	7.15	0.28		
W2A	-6.71	8/18/09	1403	-1.68	0.70	Flood	2.75	85	73.9	1036	0.74	10.4	558	15664						19.2	7.81	19.85	6.84	0.21		
W2A	-6.71	9/21/09	1357	-2.25	0.18	Flood	2.67	83	76.6	1073	0.49	6.8	186	5211						19.5	8.36	17.44	7.35	0.28		
W2A	-6.71	10/19/09	1111	-2.34	0.12	Low	1.94	60	63.8	893	0.41	5.7	156	4385						19.7	8.18	16.70	7.10	0.10		
W2A	-6.71	11/16/09	1340	-2.28	0.18	Flood	2.76	85	77.6	1087	0.79	11.1	345	9691						19.6	7.92	17.37	6.98	0.16		
W2A	-6.71	12/7/09	1325	-2.22	0.18	Ebb	3.03	94	96.2	1347	0.61	8.6	464	13028						19.6	7.89	16.43	6.85	0.08		
W2A	-6.71	1/5/10	1049	-2.02	0.30	Ebb	3.13	97	87.5	1225	1.14	16	430	12080						19.9	7.89	16.18	6.86	0.14		
W2A	-6.71	2/1/10	1123	-2.18	0.00	Ebb	3.07	95	97.3	1363	0.79	11	363	10206						19.8	7.97	15.69	6.97	4.83		
W2A	-6.71	3/9/10	1109	-2.26	0.12	Flood	3.58	111	86.5	1211	0.29	4	495	13913						19.2	7.94	15.34	6.96	1.02		
W2A	-6.71	4/6/10	1015	-2.35	0.15	Flood	3.49	108	93.8	1314	0.57	8	500	14031						19.0	7.94	15.59	7.58	0.15		
W2A	-6.71	5/11/10	1036	-2.31	0.09	Flood	2.97	92	79.7	1116	1.21	17	428	12015						19.0	8.00	15.60	7.50	0.16		
W2A	-6.71	6/15/10	1118	-2.42	0.06	Low	3.26	101	92.2	1291	0.57	8	537	15087						19.3	7.96	15.57	7.61	0.16		
W2A	-6.71	7/13/10	1035	-2.32	0.00	Low	2.81	87	86.8	1216	0.43	6	517	14514						19.5	7.94	15.88	7.09	0.38		
W2A	-6.71	8/3/10	1017	-1.87	0.52	Flood	3.07	95	80.7	1130	0.29	4	481	13514						19.1	7.94	17.78	6.94	0.33		
W2A	-6.71	9/14/10	1027	-1.79	0.58	Ebb	2.84	88	81.5	1142	0.61	8.6	489	13745						19.2	7.91	18.27	7.03	0.12		
W2A	-6.71	10/12/10	1045	-1.93	0.55	Ebb	2.81	87	79.2	1109	0.22	3.1	491	13777						19.5	7.94	18.55	7.05	0.12		
W2A	-6.71	11/16/10	1001	-2.00	0.27	Flood	3.03	94	84.8	1188	0.27	3.8	501	14084						19.2	7.89	17.33	7.07	2.50		
W2A	-6.71	12/14/10	1042	-1.97	0.37	High	3.07	95	89.2	1249	0.37	5.2	503	14116						19.2	7.92	16.90	7.26	0.12		
W2A	-6.71	1/4/11	1028	-2.19	0.06	Ebb	3.16	98	87.2	1222	0.66	9.3	490	13771						19.2	7.89	16.75	7.20	0.21		
W2A	-6.71	4/5/11	1100	-2.33	-0.06	Low	3.26	101	91.7	1284	0.17	2.4	485	13608						19.2	7.88	15.70	6.26	0.26		
W2A	-6.71	7/12/11	1025	-2.32	0.18	Flood	3.26	101	86.5	1212	0.16	2.3	503	14121						19.3	7.90	16.38	6.99	0.09		
W2A	-6.71	10/11/11	1044	-2.21	0.12	Low	3.13	97	84.1	1178	0.25	3.5	494	13869						19.6	7.91	16.71	7.39	0.24		
W2A	-6.71	1/10/12	1040	-2.25	0.06	Ebb	2.94	91	77.5	1086	0.37	5.2	472	13248						19.3	7.88	17.56	7.26	0.52		
W2A	-6.71	5/1/12	1054	-2.07	0.34	Flood	3.45	107	84.9	1189	0.19	2.7	496	13940						18.8	7.97	17.83	6.92	0.41		
W2A	-6.71	7/18/12	959	-2.37	0.00	Flood	3.45	107	91.0	1275	0.49	6.9	500	14037						19.4	7.89	16.44	7.50	1.28		
W2A	-6.71	10/16/12	1039	-2.18	0.09	Ebb	3.33	103	90.1	1262	0.31	4.4	538	15102						19.2	7.90	17.10	7.16	0.45		
W2A	-6.71	1/8/13	1105	-2.16	0.15	Flood	3.78	117	87.7	1229	0.54	7.5	532	14954						19.0	7.83	17.09	7.29	1.55		
W2A	-6.71	4/9/13	1045	-2.36	-0.03	Flood	3.68	114	90.8	1272	0.41	5.7	508	14264						19.1	7.96	16.20	7.59	0.51		

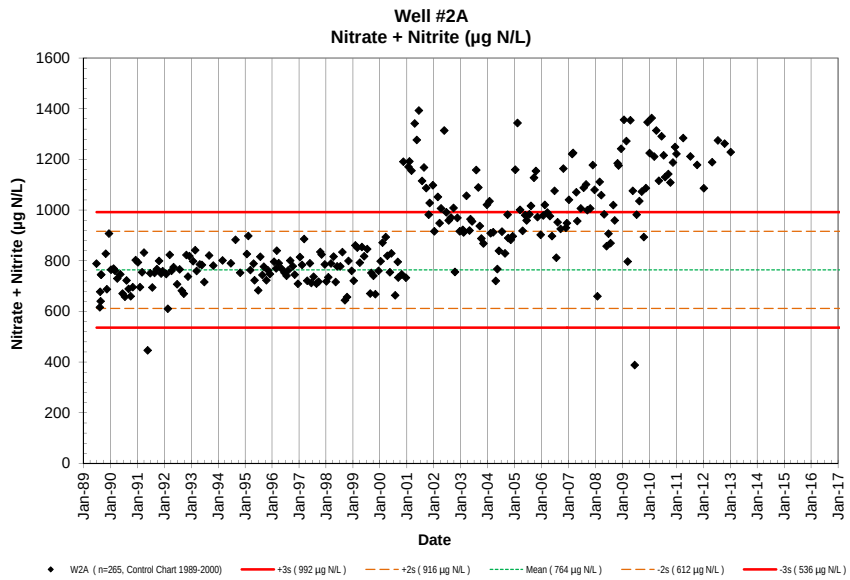
NELHA Water Quality Laboratory

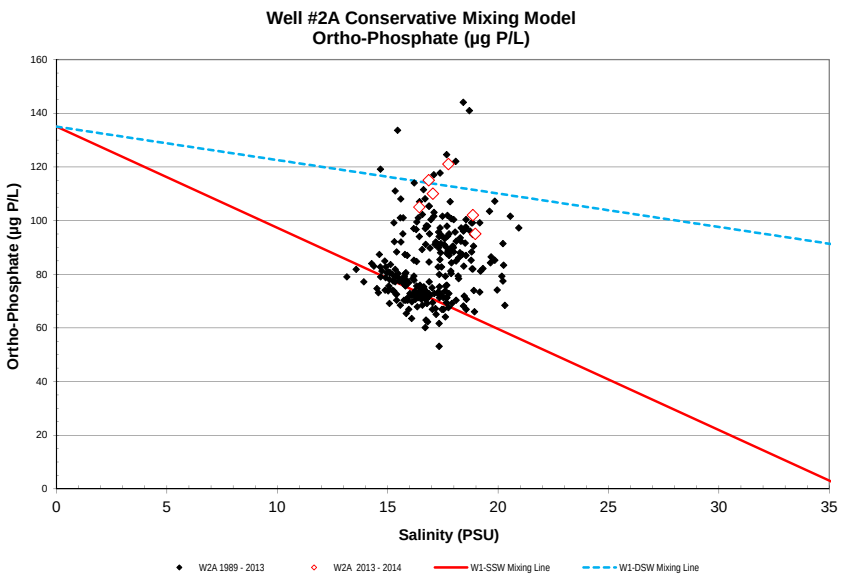
Well 2A Data Table

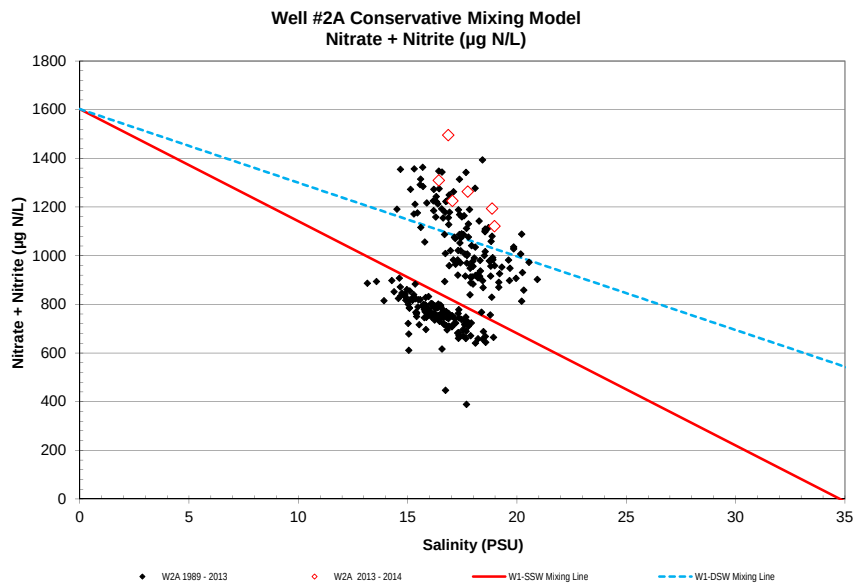
June 1989 - December 2014

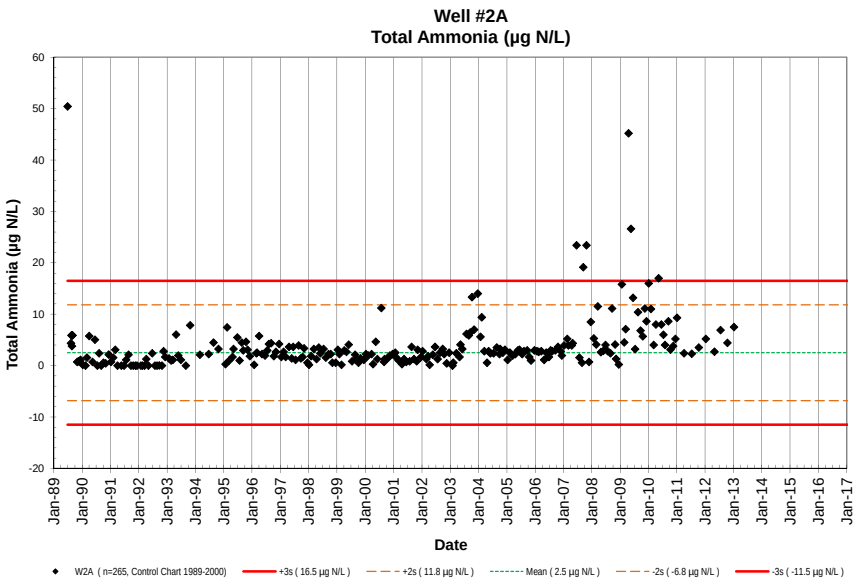
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W2A	-6.71	7/17/13	1131	-1.94	0.58	Flood	3.07	95	80.0	1121	0.42	5.9	433	12159						19.2	7.90	18.97	6.66	0.05		
W2A	-6.71	10/15/13	1026	-2.07	0.30	Flood	3.29	102	85.2	1193	0.37	5.2	447	12556						19.3	7.89	18.86	7.29	0.08		
W2A	-6.71	1/15/14	1007	-2.23	0.06	Ebb	3.55	110	87.5	1225	0.47	6.6	458	12873						19.4	7.93	17.05	7.00	0.34		
W2A	-6.71	4/29/14	1124	-2.41	0.00	Flood	3.39	105	93.5	1309	0.70	9.8	462	12974						19.4	7.86	16.43	7.69	2.42		
W2A	-6.71	7/29/14	1054	-2.26	0.12	Low	3.71	115	106.7	1495	0.79	11	481	13513						19.7	7.84	16.86	7.10	0.97		
W2A	-6.71	11/5/14	1101	-2.11	0.15	Flood	3.91	121	90.2	1263	0.64	9	449	12617						19.7	7.82	17.75	7.44	1.01		
W2A	-6.71	1/1/15																								
W2A	-6.71	4/1/15																								

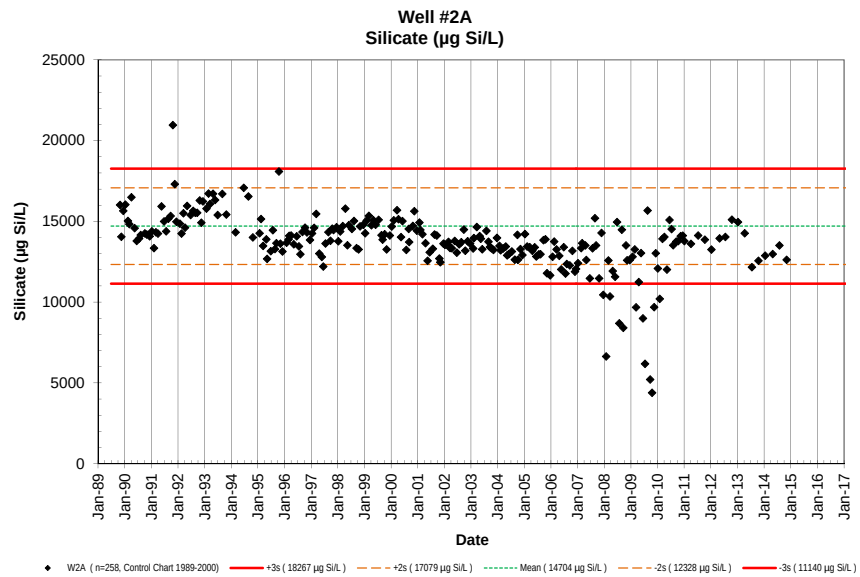

Well #2A
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W2A (n=265, Control Chart 1989-2000)
+3s (92 µg P/L)
+2s (86 µg P/L)
Mean (74 µg P/L)
-2s (63 µg P/L)
-3s (57 µg P/L)

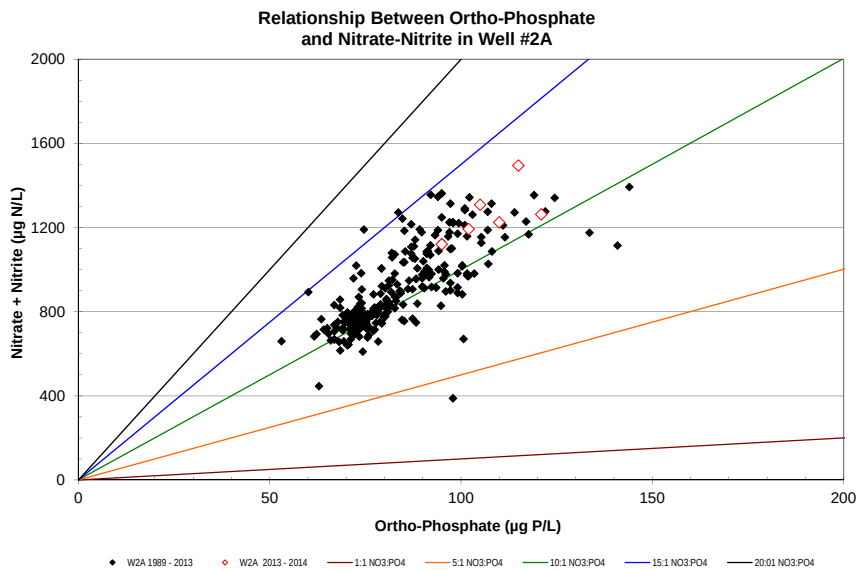

Well #2A
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W2A (n=265, Control Chart 1989-2000)
+3s (992 µg N/L)
+2s (916 µg N/L)
Mean (764 µg N/L)
-2s (612 µg N/L)
-3s (536 µg N/L)

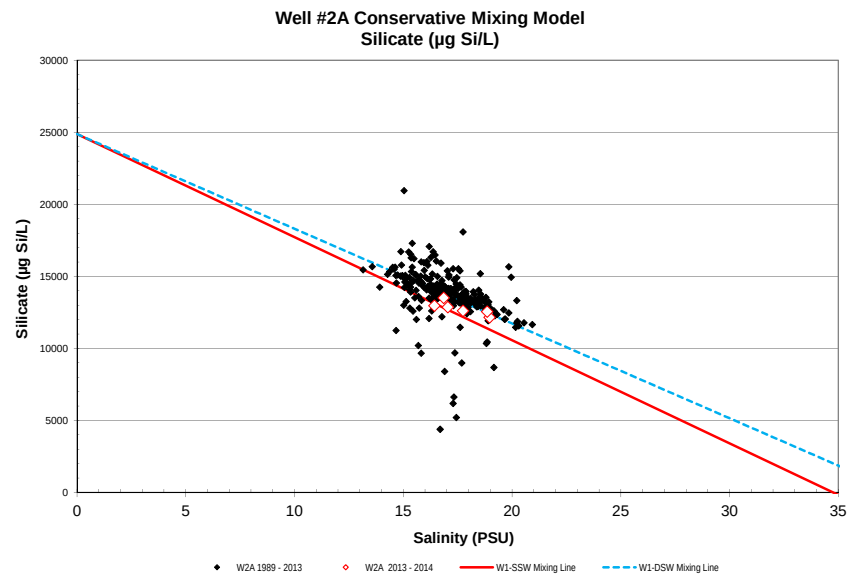

Well #2A Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W2A 1989 - 2013
W2A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

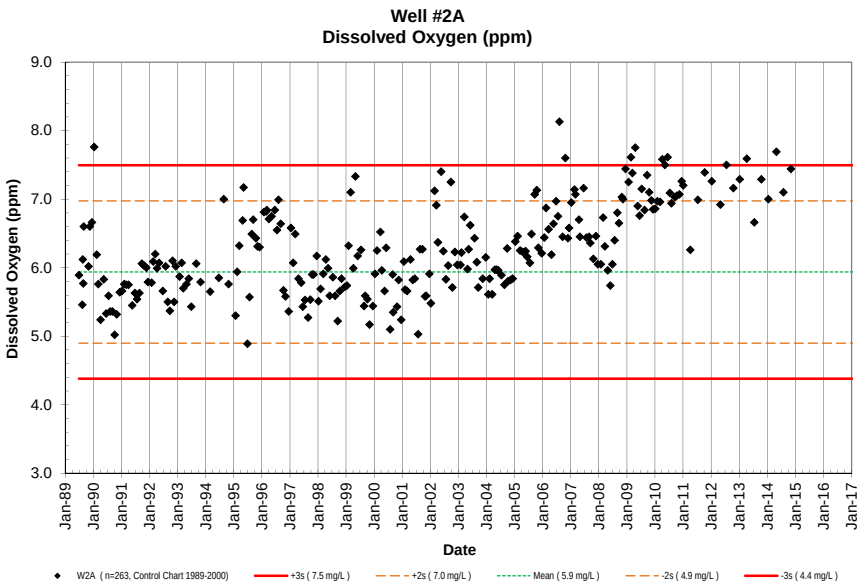

Well #2A Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W2A 1989 - 2013
W2A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

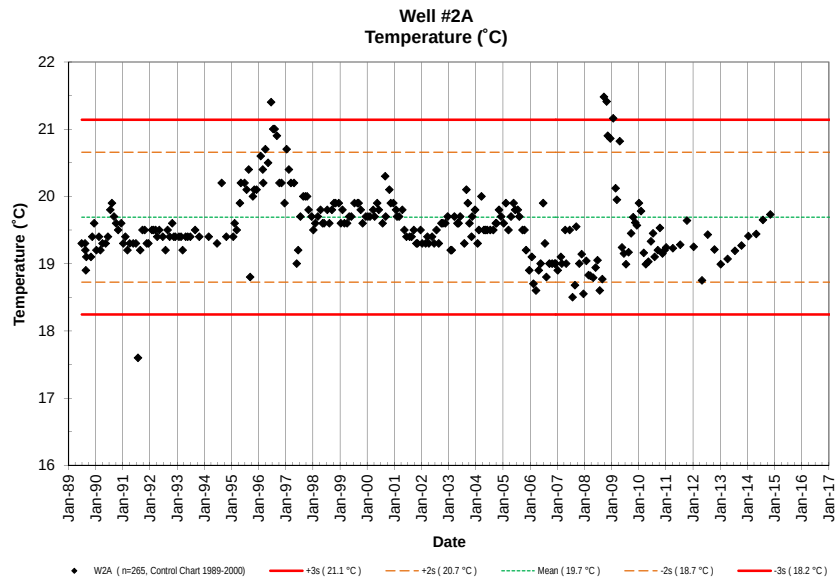

Well #2A
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W2A (n=265, Control Chart 1989-2000)
+3s (16.5 µg N/L)
+2s (11.8 µg N/L)
Mean (2.5 µg N/L)
-2s (-6.8 µg N/L)
-3s (-11.5 µg N/L)

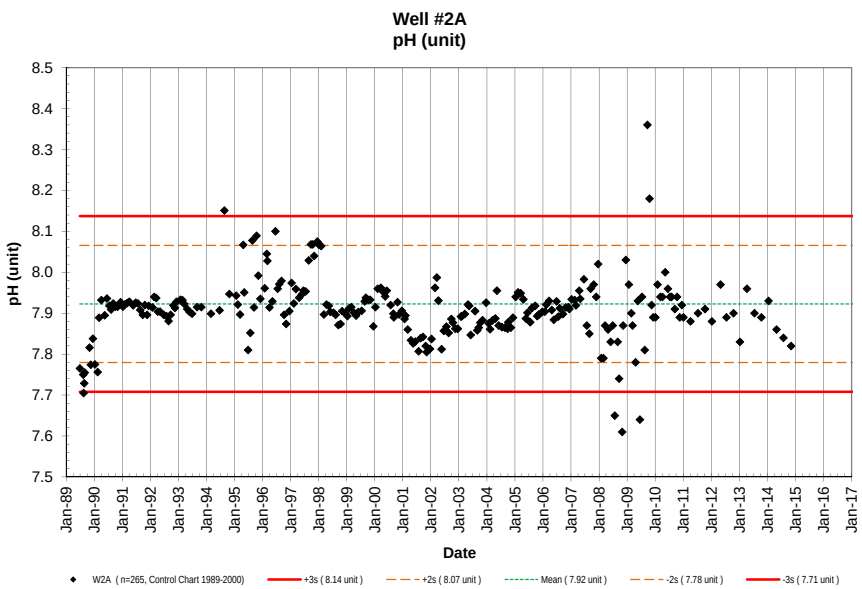

Well #2A
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W2A (n=258, Control Chart 1989-2000)
+3s (18267 µg Si/L)
+2s (17079 µg Si/L)
Mean (14704 µg Si/L)
-2s (12328 µg Si/L)
-3s (11140 µg Si/L)

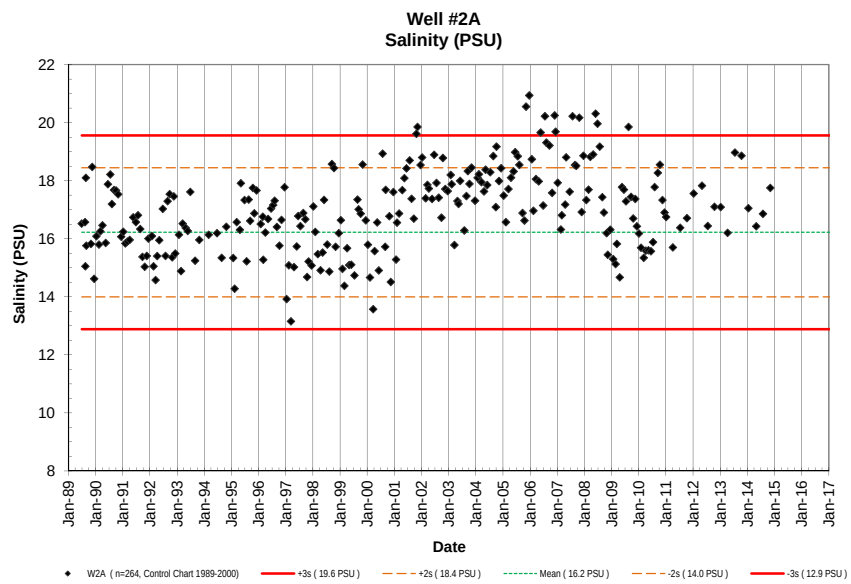

Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #2A
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W2A 1989 - 2013
W2A 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

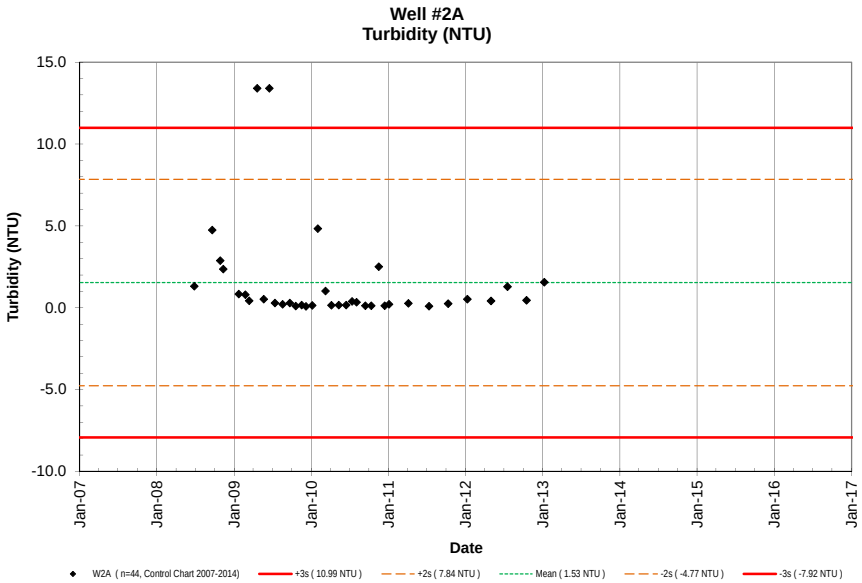

Well #2A Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W2A 1989 - 2013
W2A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

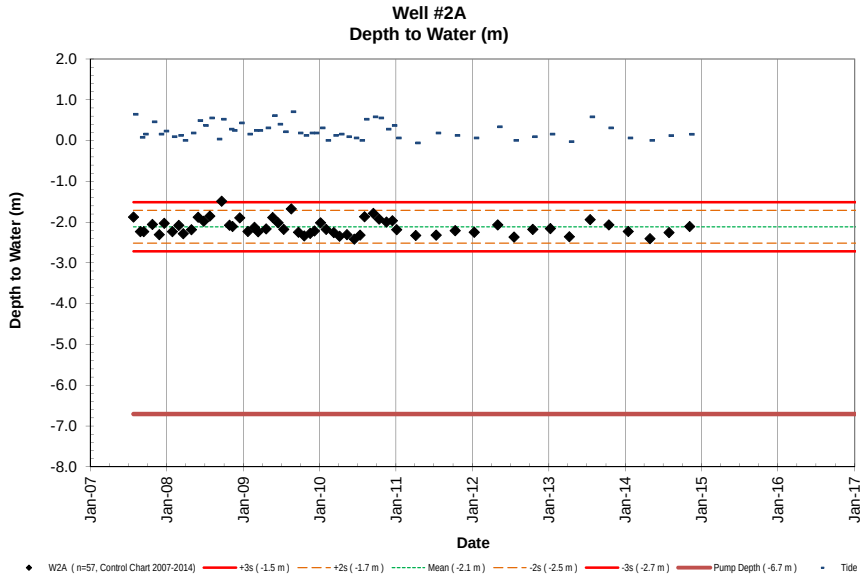

Well #2A
Dissolved Oxygen (ppm)
Dissolved Oxygen (ppm)
Date
W2A (n=263, Control Chart 1989-2000)
+3s (7.5 mg/L)
+2s (7.0 mg/L)
Mean (5.9 mg/L)
-2s (4.9 mg/L)
-3s (4.4 mg/L)


Well #2A
Temperature (˚C)
Temperature (˚C)
Date
W2A (n=265, Control Chart 1989-2000)
+3s (21.1 °C)
+2s (20.7 °C)
Mean (19.7 °C)
-2s (18.7 °C)
-3s (18.2 °C)


Well #2A
pH (unit)
pH (unit)
Date
W2A (n=265, Control Chart 1989-2000)
+3s (8.14 unit)
+2s (8.07 unit)
Mean (7.92 unit)
-2s (7.78 unit)
-3s (7.71 unit)


Well #2A
Salinity (PSU)
Salinity (PSU)
Date
W2A (n=264, Control Chart 1989-2000)
+3s (19.6 PSU)
+2s (18.4 PSU)
Mean (16.2 PSU)
-2s (14.0 PSU)
-3s (12.9 PSU)


Well #2A
Turbidity (NTU)
15.0
10.0
5.0
0.0
-5.0
-10.0
Turbidity (NTU)
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W2A (n=44, Control Chart 2007-2014)
+3s (10.99 NTU)
+2s (7.84 NTU)
Mean (1.53 NTU)
-2s (-4.77 NTU)
-3s (-7.92 NTU)


Well #2A
Depth to Water (m)
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
-8.0
Depth to Water (m)
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W2A (n=57, Control Chart 2007-2014)
+3s (-1.5 m)
+2s (-1.7 m)
Mean (-2.1 m)
-2s (-2.5 m)
-3s (-2.7 m)
Pump Depth (-6.7 m)
Tide

NELHA Water Quality Laboratory

Well 2B Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W2B	-3.96	6/28/89					3.65	113	86.4	1210	0.06	0.8								20.3	7.928	7.182	8.36		NA	NA
W2B	-3.96	8/11/89	1114				2.62	81	50.6	709	0.10	1.4								20.4	7.872	7.346	8.27		<1	NA
W2B	-3.96	8/16/89	1020				3.55	110	67.5	945	0.10	1.4								20.4	7.779	7.326	8.62		<1	NA
W2B	-3.96	8/23/89	1015				3.23	100	55.2	773	0.10	1.4								19.7	7.840	7.724	8.25		2	NA
W2B	-3.96	8/30/89	1055				3.31	103	58.5	819	0.10	1.4								20.3	7.890	7.355	8.19		<1	NA
W2B	-3.96	8/30/89	1055				3.31	103	65.7	920	0.15	2.1													NA	NA
W2B	-3.96	10/31/89	1010				3.60	112	81.8	1146	0.03	0.4	711	19969	3.78	117	92.6	1297	0.54	20.0	7.909	7.667	8.05		<1	NA
W2B	-3.96	11/16/89	838				3.55	110	84.5	1184	0.06	0.8	674	18930	3.86	120	89.1	1248	1.01	20.4	7.419	8.821	8.39		57	NA
W2B	-3.96	12/13/89	1105				3.58	111	83.7	1172	0.00	0.0	684	19210	3.81	118	86.7	1214	1.10	20.1	7.921	8.485	8.87		223	NA
W2B	-3.96	1/11/90	859				3.06	95	70.7	990	0.00	0.0	730	20502	3.28	102	74.8	1048	1.26	20.1	7.973	7.282	8.06		<1	NA
W2B	-3.96	2/14/90	1035				3.44	107	71.4	1000	0.00	0.0	734	20615	2.89	90	74.4	1042	1.02	20.5	7.861	7.282	8.49		5	NA
W2B	-3.96	3/6/90	1408				3.02	94	76.7	1074	0.03	0.4	653		3.27	101	78.3	1097	1.13	20.2	7.985	6.354	8.19		1	NA
W2B	-3.96	4/4/90	1155				3.35	104	81.3	1139	0.36	5.0	698	19604	3.39	105	83.1	1164	1.21	20.3	8.054	6.889	7.69		<1	NA
W2B	-3.96	5/17/90	1449				3.31	103	81.7	1144	0.00	0.0	651	18284	3.40	105	87.5	1226	0.89	20.6	7.985	7.417	8.00		<1	NA
W2B	-3.96	6/16/90	1356				2.46	76	78.9	1105	0.62	8.7	652	18312	2.56	79	50.9	713	0.85	20.5	8.028	7.754	7.95		<1	NA
W2B	-3.96	7/17/90	1433				3.77	117	78.0	1093	0.03	0.4	658	18480	3.97	123	83.1	1164	0.81	20.5	8.020	7.978	7.99		22	NA
W2B	-3.96	8/8/90	1418				3.22	100	81.3	1139	0.15	2.1	663	18621	3.62	112	82.5	1156	0.93	20.7	8.014	7.616	7.98		7	NA
W2B	-3.96	9/5/90	1454				3.41	106	80.6	1129	0.00	0.0			3.41	106	81.4	1141	0.39	20.7	8.024	7.828	7.98		59	NA
W2B	-3.96	10/4/90	1400				3.42	106	78.0	1092	0.00	0.0	664	18649	3.95	122	78.1	1094	1.42	20.7	7.999	7.613	8.70		<1	NA
W2B	-3.96	11/1/90	1414				3.36	104	80.1	1121	0.08	1.1	791	22204	3.52	109	82.4	1154	0.57	20.7	7.990	7.682	7.93		<1	NA
W2B	-3.96	12/10/90	1443				3.30	102	81.8	1146	0.14	2.0	652	18312	3.71	115	86.5	1212	0.46	20.5	7.978	7.422	7.89		<1	NA
W2B	-3.96	1/9/91	1035				3.41	106	81.9	1147	0.12	1.7	647	18171	3.41	106	86.7	1214	0.69	20.5	8.026	7.047	8.13		<1	NA
W2B	-3.96	2/6/91	1031				3.15	98	65.5	918	0.07	1.0	586	16458	3.24	100	67.6	947	0.79	20.6	8.006	6.493	8.23		<1	NA
W2B	-3.96	3/6/91	1049				3.20	99	80.8	1132	0.18	2.5	650	18256	3.35	104	82.3	1153	0.68	20.3	8.014	6.952	8.24		<1	NA
W2B	-3.96	4/3/91	1035				3.05	94	65.9	923	0.00	0.0	645	18115	3.20	99	100	1401	0.69	20.2	7.998	7.372	8.15		<1	NA
W2B	-3.96	5/22/91	1100				3.01	93	39.7	556	0.00	0.0	748	21008	3.25	101	41.0	574	0.65	20.6	8.015	7.253	8.08		<1	NA
W2B	-3.96	6/26/91	1128				3.08	95	84.3	1181	0.00	0.0	665	18677	3.18	98	87.9	1231	0.52	20.5	8.009	7.553	8.26		<1	<1
W2B	-3.96	7/24/91	1124				2.59	80	61.1	856	0.00	0.0	651	18284	2.95	91	62.7	878	0.50		8.020	7.427	8.29		<1	<1
W2B	-3.96	8/23/91	1027				3.19	99	88.3	1237	0.00	0.0	681	19126	3.22	100	91.7	1284	0.61	20.6	7.983	7.250	8.40		<1	<1
W2B	-3.96	9/24/91	1026				3.17	98	77.3	1083	0.00	0.0	655	18396	3.17	98	82.8	1160	0.66	20.6	7.950	8.078	8.21		<1	<1
W2B	-3.96	10/23/91	1038				2.98	92	79.6	1115	0.00	0.0	922	25895	3.00	93	82.0	1149	0.61	20.6	7.989	7.730	8.21		2	<1
W2B	-3.96	11/20/91	1023				3.73	116	76.7	1074	0.00	0.0	768	21570	3.87	120	80.2	1123	0.49	20.4	7.970	7.517	8.07		<1	<1
W2B	-3.96	12/11/91	1031				3.23	100	81.3	1139	0.00	0.0	659	18508	3.30	102	86.3	1209	0.66	20.4	7.981	7.639	7.98		<1	<1
W2B	-3.96	1/29/92	1025				3.56	110	80.6	1129	0.00	0.0	656	18424	3.63	112	82.8	1160	1.10	20.3	7.994	7.526	8.39		<1	<1
W2B	-3.96	2/19/92	1046				3.15	98	75.7	1060	0.00	0.0	611	17160	3.23	100	83.4	1168	0.66	20.4	7.990	8.198	8.12		1	5
W2B	-3.96	3/17/92	1000				3.12	97	80.2	1123	0.00	0.0	662	18593	3.20	99	84.3	1181	0.86	20.4	8.006	7.543	8.36		<1	<1
W2B	-3.96	4/8/92	954				3.24	100	79.7	1116	0.00	0.0	645	18115	3.31	103	82.9	1161	0.58	20.4	7.988	7.755	8.42		<1	<1
W2B	-3.96	5/6/92	1035				3.25	101	79.3	1111	0.00	0.0	701	19688	3.30	102	85.1	1192	0.94	20.6	7.977	7.745	8.50		<1	<1
W2B	-3.96	6/23/92	1009				3.25	101	80.5	1128	0.07	1.0	711	19969	3.52	109	82.0	1149	0.72	20.5	7.987	7.639	8.47		3	<1
W2B	-3.96	7/29/92	945				3.10	96	77.1	1079	ND	0.0	692	19435	3.15	98	80.0	1120	0.86	20.6	7.938	7.819	8.38		<1	<1
W2B	-3.96	8/25/92	950				3.45	107	75.9	1063	0.00	0.0	706	19828	3.45	107	85.0	1190	0.56	20.6	7.969	7.974	8.17		<1	<1
W2B	-3.96	9/22/92	1031				3.29	102	85.8	1202	0.00	0.0	711	19969	3.35	104	93.5	1310	0.60	20.6	7.992	7.827	8.19		1	<1
W2B	-3.96	10/27/92	1017				3.39	105	81.4	1140	0.00	0.0	697	19576	3.43	106	84.7	1186	0.71	20.7	7.933	8.395	8.22		10	7
W2B	-3.96	11/17/92	1018				3.29	102	86.6	1213	0.72	10.1	695	19519	3.73	116	91.4	1280	0.81	20.4	8.007	7.757	8.32		0	0
W2B	-3.96	12/8/92	942				2.74	85	83.6	1171	0.15	2.1	700	19660	3.35	104	86.6	1213	1.08	19.8	7.982	8.006	8.25		76	4
W2B	-3.96	1/26/93	1000				3.21	99	84.7	1187	0.12	1.7	688	19309	3.33	103	89.9	1259	0.65	20.3	7.969	8.197	8.23		<1	<1
W2B	-3.96	2/23/93	948				3.18	98	84.7	1186	0.00	0.0	708	19885	3.20	99	99.6	1396	0.55	20.3	7.999	7.932	8.30		<1	<1
W2B	-3.96	3/16/93	939				3.29	102	84.5	1183	0.11	1.5	707	19862	3.44	107	89.0	1247	0.66	20.0	8.008	7.960	8.34		<1	<1
W2B	-3.96	4/27/93	938				3.30	102	88.1	1235	0.05	0.7	719	20185	3.40	105	91.9	1287	0.59	20.3	8.000	7.744	8.34		1	<1
W2B	-3.96	5/25/93	930				3.26	101	86.3	1209	0.00	0.0	710	19935	3.26	101	94.3	1321	0.47	20.4	7.985	8.030	8.32		<1	<1
W2B	-3.96	6/28/93	958				3.24	100	86.4	1210	0.00	0.0	707	19856	3.29	102	91.0	1275	0.64	20.5	8.000	7.865	8.30		<1	1
W2B	-3.96	8/31/93	900				3.36	104	86.6	1213	0.00	0.0	713	20025	3.36	104	105	1467	0.63	20.5	7.988	7.859	8.39		<1	<1
W2B	-3.96	10/26/93	845				3.41	106	88.7	1242	0.27	3.8	671	18845	3.41	106	90.5	1268	1.01	20.5	8.012	7.614	8.23		12	6
W2B	-3.96	3/1/94	827				3.50	108	88.0	1233	0.13	1.8	642	18031	3.50	108	113	1579	0.64	20.2	7.958	8.291	7.84		<1	2
W2B	-3.96	6/21/94	923				3.38	105	86.1	1207	0.03	0.4	654	18372	3.38	105	104	1458	0.54	20.4	7.989	8.092	8.35		5	1

NELHA Water Quality Laboratory

Well 2B Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W2B	-3.96	8/23/94	953				3.38	105	87.8	1229	0.19	2.7	772	21690	3.38	105	96.5	1351	0.89	20.6	8.051	8.496	8.22		5	1
W2B	-3.96	10/25/94	1011				3.41	106	83.0	1163	0.26	3.6	645	18101	3.41	106	86.8	1216	0.36	20.4	8.030	8.162	8.18		1	12
W2B	-3.96	1/24/95	1009				3.46	107	84.8	1188	0.14	2.0	636	17862	3.47	107	89.2	1249	0.52	20.1	8.052	8.351	8.02		1	1
W2B	-3.96	2/14/95	946				3.41	106	87.0	1218	0.38	5.3	642	18039	3.41	106	88.4	1237	0.56	20.2	8.035	8.305	8.16		<1	<1
W2B	-3.96	3/14/95	1036				3.46	107	86.0	1205	0.04	0.6	640	17975	3.47	107	87.4	1224	0.51	20.4	8.013	8.003	8.30		<1	<1
W2B	-3.96	4/26/95	1025				3.41	106	87.4	1224	0.08	1.1	638	17919	3.47	107	96.6	1354	0.79	20.5	8.000	7.879	8.16		<1	3
W2B	-3.96	5/8/95	1029				3.42	106	85.8	1201	0.14	2.0	629	17671	3.42	106	91.6	1283	0.49	20.5	7.972	8.179	8.10		<1	<1
W2B	-3.96	6/27/95	1004				3.44	107	86.3	1209	0.27	3.8	647	18180	3.54	110	88.6	1242	0.53	20.6	8.015	7.994	8.27		<1	<1
W2B	-3.96	7/25/95	1018				3.34	103	86.6	1213	0.09	1.3	641	18000	3.39	105	89.3	1251	0.60	20.5	7.981	8.422	7.80		<1	1
W2B	-3.96	8/22/95	1107				3.41	106	84.6	1185	0.27	3.8	649	18213	3.51	109	88.0	1233	0.46	21.8	7.971	8.024	7.86		<1	1
W2B	-3.96	9/11/95	1030				3.29	102	83.8	1173	0.12	1.7	641	18000	3.29	102	87.3	1223	0.44	20.2	8.000	8.475	7.98		109	1
W2B	-3.96	10/16/95	1055				3.30	102	82.7	1158	0.31	4.3	625	17548	3.33	103	83.1	1164	0.70	20.9	8.067	9.400	7.66		2	1
W2B	-3.96	11/6/95	1059				3.28	102	83.5	1170	0.16	2.2	661	18576	3.37	104	87.7	1229	0.61	20.6	8.034	8.619	7.86		5	2
W2B	-3.96	12/4/95	1046				3.28	102	82.3	1153	0.05	0.7	627	17618	3.30	102	84.7	1186	0.66	20.5	7.996	9.273	9.42		1	3
W2B	-3.96	1/29/96	1158				3.34	103	84.1	1178	0.02	0.3	644	18081	3.41	106	92.4	1295	0.58	21.2	8.019	8.153	8.04		1	1
W2B	-3.96	2/26/96	1156				3.34	103	83.7	1172	0.14	2.0	633	17791	3.37	104	103	1448	0.68	20.8	7.997	8.154	8.12		2	1
W2B	-3.96	3/5/96	1053				3.20	99	88.3	1237	0.14	2.0	624	17516	3.25	101	92.7	1298	0.93	20.8	8.047	7.990	8.17		6	3
W2B	-3.96	4/1/96	1126				3.30	102	84.3	1181	0.29	4.1	629	17659	3.34	103	87.9	1231	0.69	21.1	7.977	8.203	8.07		<1	<1
W2B	-3.96	5/8/96	1138				3.42	106	82.7	1159	0.05	0.7	637	17896	3.45	107	86.4	1210	0.48	21.0	7.966	8.416	8.04		<1	<1
W2B	-3.96	6/17/96	1054				3.38	105	84.7	1187	0.17	2.4	676	18981	3.45	107	87.9	1231	0.66	20.7	8.016	8.183	8.14		<1	1
W2B	-3.96	7/16/96	1101				3.29	102	83.7	1173	0.18	2.5	659	18516	3.47	107	87.0	1218	0.60	21.4	8.001	8.355	7.97		13	2
W2B	-3.96	8/5/96	1143				3.31	103	82.7	1158	0.23	3.2	616	17292	3.32	103	85.9	1203	0.45	21.4	7.989	9.404	7.75		<1	1
W2B	-3.96	9/3/96	1105				3.29	102	83.0	1162	0.20	2.8	648	18197	3.36	104	86.2	1208	0.62	21.3	7.991	8.926	7.87		5	4
W2B	-3.96	10/8/96	1113				3.41	106	85.9	1203	0.10	1.4	632	17751	3.60	112	93.3	1307	0.61	21.2	7.983	7.894	8.13		<1	<1
W2B	-3.96	11/4/96	1130				3.38	105	87.3	1223	0.20	2.8	662	18579	3.40	105	91.1	1276	0.73	21.2	7.974	7.915	8.14		<1	1
W2B	-3.96	12/16/96	1105				3.26	101	86.8	1216	0.29	4.1	638	17911	3.31	103	89.6	1254	0.80	21.0	7.985	8.487	8.03		3	2
W2B	-3.96	1/13/97	1146				3.15	98	77	1084	0.02	0.3	609	17101	3.20	99	82.0	1149	0.74	21.2	7.972	7.433	8.19		1	1
W2B	-3.96	2/11/97	1153				3.05	94	81	1130	0.12	1.7	623	17497	3.1*	0	83.4	1168	0.72	21.3	7.979	7.141	8.23		<1	<1
W2B	-3.96	3/11/97	1123				3.17	98	84	1172	0.04	0.6	629	17669	3.24	100	85.6	1199	0.61	21.0	8.011	7.375	8.27		<1	<1
W2B	-3.96	4/22/97	1134				3.14	97	87	1217	0.13	1.8	535	15037	3.31	103	88.4	1238	0.65	21.3	8.014	7.588	7.86		<1	<1
W2B	-3.96	5/27/97	1039				3.33	103	88	1230	0.02	0.3	528	14821	3.55	110	94.8	1328	0.52	20.4	8.014	7.371	9.84		<1	1
W2B	-3.96	6/16/97	1100				3.31	103	83	1169	0.24	3.4	516	14495	3.36	104	91.5	1282	0.65	20.3	8.036	7.500	8.15		<1	2
W2B	-3.96	7/16/97	1012				3.36	104	85	1185	0.12	1.7	636	17874	3.48	108	93.4	1308	0.48	20.7	8.016	7.465	8.09		<1	<1
W2B	-3.96	8/25/97	1108				3.43	106	81	1141	0.21	2.9	674	18924	3.45	107	82.8	1160	0.50	21.3	8.095	7.731	9.28		<1	6
W2B	-3.96	9/22/97	1025				3.21	99	79	1108	0.08	1.1	643	18051	3.23	100	80.9	1133	0.52	21.2	8.121	8.153	7.94		<1	1
W2B	-3.96	10/15/97	1024				3.32	103	89	1247	0.07	1.0	634	17815	3.69	114	100	1402	0.58	21.0	8.105	7.492	8.00		1	<1
W2B	-3.96	11/3/97	1012				3.44	107	85.7	1200	0.07	1.0	624	17531	3.60	112	98.2	1375	0.51	20.9	8.083	8.097	8.01		<1	1
W2B	-3.96	12/15/97	1029				3.27	101	75.5	1058	0.06	0.8	266	7457	3.41	106	79.7	1116	0.60	20.2	8.116	8.521	8.06		15	1
W2B	-3.96	1/6/98	947				3.43	106	85.8	1202	0.14	2.0	635	17829	3.71	115	89.5	1254	0.65	20.3	8.128	7.858	7.94		1	12
W2B	-3.96	2/2/98	1043				3.34	103	81.2	1137	0.05	0.7	640	17983	3.48	108	85.3	1195	0.61	20.7	8.113	8.032	8.15		<1	1
W2B	-3.96	3/9/98	1042				3.49	108	83.0	1163	0.12	1.7	637	17885	3.59	111	84.7	1186	0.59	20.6	7.985	8.109	8.18		<1	<1
W2B	-3.96	4/13/98	1012				3.55	110	84	1173	0.04	0.6	645	18107	3.60	112	87.3	1223	0.60	20.6	8.006	7.946	8.33		<1	<1
W2B	-3.96	5/11/98	1109				3.62	112	82	1154	0.11	1.5	600	16851	3.79	117	85.9	1203	0.57	20.6	7.993	8.446	8.26		<1	<1
W2B	-3.96	6/1/98	1057				3.45	107	83.0	1163	0.12	1.7	640	17972	3.51	109	87.8	1229	0.49	20.5	7.995	8.787	8.12		<1	<1
W2B	-3.96	7/13/98	1057				3.55	110	83	1163	0.01	0.1	646	18146	3.73	116	87	1214	0.49	20.8	7.995	8.219	8.11		2	1
W2B	-3.96	8/10/98	1112				3.69	114	85.4	1196	0.09	1.3	643	18059	3.78	117	90.4	1266	0.59	20.7	7.973	8.296	8.25		<1	2
W2B	-3.96	9/14/98	1115				3.54	110	80.3	1124	0.16	2.2	647	18183	3.66	113	83	1162	0.61	20.7	7.979	8.450	8.07		4	3
W2B	-3.96	10/12/98	1006				3.48	108	84.7	1186	0.08	1.1	648	18208	3.68	114	87	1212	0.55	21.3	7.981	8.183	8.76		<1	<1
W2B	-3.96	11/2/98	1032				3.50	108	86.5	1212	0.04	0.6	652	18323	3.63	112	90.1	1262	0.72	21.2	7.992	8.109	8.13		1	<1
W2B	-3.96	12/15/98	1016				3.52	109	83.5	1170	0.05	0.7	638	17919	3.66	113	85.6	1199	0.65	20.6	7.988	8.621	8.08		<1	<1
W2B	-3.96	1/11/99	1041				3.37	104	87	1214	0.16	2.2	645	18124	3.49	108	90	1256	0.67	20.5	7.989	8.389	8.21		1	<1
W2B	-3.96	2/2/99	1045				3.29	102	84	1177	0.12	1.7	634	17803	3.38	105	91	1275	0.65	20.6	7.971	9.116	8.20		<1	<1
W2B	-3.96	3/1/99	1057				3.30	102	78.7	1102	0.01	0.1	626	17593	3.40	105	80.1	1122	0.50	21.7	7.969	9.202	8.90		<1	<1
W2B	-3.96	4/5/99	1042				3.40	105	85.3	1195	0.15	2.1	650	18242	3.53	109	89.1	1248	0.55	20.6	7.991	8.153	8.21		<1	<1
W2B	-3.96	5/3/99	1107				3.38	105	85.9	1203	0.17	2.4	641	18000	3.50	108	92.4	1294	0.55	21.6	7.964	8.772	8.22		<1	<1
W2B	-3.96	6/1/99	1036				3.44	107	86.3	1209	0.24	3.4	651	18272	3.50	108	91.0	1275	0.55	21.0	7.991	8.108	8.30		<1	1

NELHA Water Quality Laboratory

Well 2B Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W2B	-3.96	7/14/99	1055				3.40	105	82.2	1151	0.08	1.1	640	17986	3.42	106	84.4	1182	0.53	20.8	7.973	8.760	8.20		<1	3
W2B	-3.96	8/23/99	1104				3.33	103	80.0	1121	0.12	1.7	648	18194	3.57	111	83.3	1167	0.58	20.9	8.032	8.429	8.15		<1	<1
W2B	-3.96	9/7/99	1105				3.51	109	91.4	1280	0.14	2.0	643	18048	3.67	114	104	1458	0.59	21.0	8.036	8.352	8.21		<1	1
W2B	-3.96	10/5/99	1042				3.44	107	86.6	1213	0.12	1.7	651	18278	3.48	108	88.6	1241	0.52	20.9	8.030	8.312	8.07		<1	<1
W2B	-3.96	11/1/99	1114				3.37	104	84.0	1177	0.14	2.0	640	17983	3.44	107	88.0	1233	0.56	20.9	8.024	8.893	7.91		<1	<1
W2B	-3.96	12/14/99	1107				3.44	107	89.1	1248	0.13	1.8	648	18188	3.54	110	92.4	1294	0.57	20.8	7.959	8.303	6.94		<1	<1
W2B	-3.96	1/10/00	1125				3.31	103	80.8	1132	0.12	1.7	634	17815	3.42	106	88.1	1234	0.58	20.9	7.977	9.070	7.96		<1	22
W2B	-3.96	2/7/00	1124				3.35	104	84.3	1181	0.19	2.7	624	17514	3.44	107	88.8	1244	0.56	20.8	8.012	9.188	7.98		<1	<1
W2B	-3.96	3/21/00	1124				3.21	99	82.3	1153	0.14	2.0	542	15211	3.02	94	88.3	1237	0.61	20.6	8.014	8.632	8.11		<1	<1
W2B	-3.96	4/10/00	1205				3.34	103	83.1	1164	0.11	1.5	640	17983	3.04	94	90.1	1262	0.62	20.8	8.024	8.918	8.00		<1	<1
W2B	-3.96	5/15/00	1106				3.32	103	87.1	1220	0.33	4.6	626	17593	3.26	101	91.9	1287	0.64	20.9	8.038	8.304	8.15		<1	<1
W2B	-3.96	6/5/00	1109				3.31	103	84.5	1184	0.13	1.8	643	18053	3.39	105	91.9	1287	0.61	20.9	8.023	8.609	8.17		<1	744
W2B	-3.96	7/26/00	1135				3.28	102	83.5	1170	1.40	19.6	637	17876	3.32	103	84.6	1185	0.65	21.0	7.968	9.292	7.66		5	34
W2B	-3.96	8/29/00	1045				3.41	106	88.4	1238	0.10	1.4	638	17919	3.39	105	90.2	1263	0.67	21.6	7.958	8.566	7.95		<1	2
W2B	-3.96	9/5/00	1059				3.30	102	90.1	1263	0.11	1.5	642	18034	3.34	103	92.7	1298	0.73	21.2	7.955	8.687	7.94		<1	1
W2B	-3.96	10/24/00	1112				3.48	108	87.2	1221	0.11	1.5	671	18848	3.69	114	88.1	1234	0.72	21.1	8.000	8.490	7.78		<1	<1
W2B	-3.96	11/13/00	1052				3.00	93	146	2039	0.14	2.0	647	18174	3.12	97	154	2151	0.80	21.3	7.907	8.442	7.41		<1	1
W2B	-3.96	12/18/00	1044				3.35	104	95.1	1332	0.14	2.0	657	18449	3.49	108	97.6	1367	0.65	21.1	7.973	9.016	7.60		<1	1
W2B	-3.96	1/22/01	1108				3.78	117	98.9	1385	0.11	1.5	624	17537	3.86	120	102	1434	0.73	21.1	7.929	9.530	7.57		<1	<1
W2B	-3.96	2/5/01	1113				3.60	112	97.3	1363	0.10	1.4	631	17733	3.70	115	100	1402	0.64	20.9	7.956	9.574	7.48		<1	1
W2B	-3.96	3/5/01	1105				3.63	112	102	1422	0.08	1.1	628	17626	3.69	114	106	1486	0.64	20.9	7.928	9.500	7.52		<1	<1
W2B	-3.96	4/17/01	1115				3.64	113	97.1	1360	0.04	0.6	632	17756	3.69	114	99.0	1386	0.57	20.9	7.918	9.931	8.00		<1	2
W2B	-3.96	5/15/01	1040				3.70	115	98.0	1372	0.08	1.1	622	17478	3.58	111	100	1403	0.58	21.2	7.917	10.035	8.07		<1	<1
W2B	-3.96	6/12/01	1119				3.93	122	94.9	1329	0.02	0.3	621	17435	3.92	121	96.6	1352	0.55	20.7	7.929	10.118	8.04		<1	<1
W2B	-3.96	7/25/01	906				3.81	118	93.0	1302	0.10	1.4	606	17009	3.66	113	97.1	1361	0.74	20.8	7.899	10.753	7.81		<1	<1
W2B	-3.96	8/20/01	856				3.60	112	89.6	1254	0.09	1.3	609	17107	3.58	111	93.9	1315	0.69	21.3	7.902	11.099	7.77		1	<1
W2B	-3.96	9/19/01	1018				3.22	100	90.5	1267	0.09	1.3	636	17865	3.49	108	93.1	1304	0.69	21.2	7.909	10.491	7.78		<1	1
W2B	-3.96	10/24/01	1010				3.34	103	91.2	1277	0.04	0.6	620	17402	3.51	109	103	1443	0.61	21.1	7.922	10.443	7.77		<1	<1
W2B	-3.96	11/7/01	1045				3.44	107	90.3	1265	0.22	3.1	596	16750	3.48	108	111	1548	0.60	20.8	7.894	11.489	7.46		1	<1
W2B	-3.96	12/19/01	1026				3.28	102	97.9	1371	0.18	2.5	593	16643	3.32	103	128	1793	0.59	21.0	7.867	11.693	7.27		<1	1
W2B	-3.96	1/9/02	1016				3.33	103	97.0	1359	0.11	1.5	625	17565	3.52	109	98.2	1375	0.64	21.5	7.916	10.387	7.42		<1	<1
W2B	-3.96	2/25/02	1055				3.30	102	110	1546	0.10	1.4	617	17326	3.38	105	115	1614	0.50	20.7	7.956	10.053	7.76		<1	8
W2B	-3.96	3/20/02	1034				3.26	101	116	1623	0.14	2.0	612	17191	3.32	103	120	1681	0.57	20.8	7.793	9.368	7.64		<1	<1
W2B	-3.96	4/10/02	1107				3.34	103	99.0	1387	0.11	1.5	626	17579	3.46	107	103	1440	0.52	21.1	7.929	9.381	7.53		<1	<1
W2B	-3.96	5/22/02	923				3.32	103	102	1427	0.11	1.5	626	17573	3.47	107	106	1483	0.49	20.7	7.921	10.176	7.85		<1	<1
W2B	-3.96	6/19/02	943				3.58	111	115	1607	0.18	2.5	613	17214	3.76	116	123	1728	0.53	21.1	7.954	10.156	7.74		1	1
W2B	-3.96	7/22/02	932				3.44	107	99.6	1395	0.18	2.5	614	17253	3.58	111	103	1446	0.50	21.3	7.920	10.290	7.92		<1	<1
W2B	-3.96	8/21/02	1013				3.45	107	96.1	1346	0.17	2.4	620	17421	3.60	112	99.9	1399	0.49	21.2	7.912	9.941	7.83		<1	<1
W2B	-3.96	9/25/02	1208				3.32	103	102	1422	0.16	2.2	633	17770	3.54	110	89.0	1247	0.60	21.2	7.934	9.933	8.04		24	<1
W2B	-3.96	10/15/02	914				3.35	104	94.0	1317	0.09	1.3	611	17160	3.49	108	92.3	1293	0.64	21.2	7.936	9.917	7.99		1	1
W2B	-3.96	11/17/02	1108				3.64	113	97.8	1370	0.09	1.3	597	16753	3.88	120	86.9	1217	0.50	21.4	7.899	11.410	7.79		<1	<1
W2B	-3.96	12/18/02	1136				3.48	108	96.0	1345	0.27	3.8	614	17242	3.63	112	107	1505	0.55	21.5	7.934	10.223	8.02		<1	1
W2B	-3.96	1/29/03	1100				3.19	99	104	1457	<0.1	0.0	608	17068	3.37	104	114	1597	0.61	20.5	7.954	10.411	7.99		<1	<1
W2B	-3.96	2/10/03	1048				3.33	103	94.5	1324	0.04	0.6	626	17567	3.47	107	111	1555	0.56	20.5	7.962	9.906	7.99		<1	<1
W2B	-3.96	3/20/03	1010				3.46	107	95.7	1340	0.20	2.8	597	16770	3.42	106	108	1507	0.50	21.1	7.927	11.016	8.01		<1	<1
W2B	-3.96	4/30/03	1106				3.55	110	98.8	1384	0.29	4.1	631	17725	3.66	113	116	1625	0.51	20.9	7.961	9.875	7.98		<1	<1
W2B	-3.96	5/14/03	1017				3.81	118	99.8	1397	0.40	5.6	628	17646	3.82	118	103	1445	0.58	21.3	7.971	9.799	8.07		<1	<1
W2B	-3.96	6/4/03	1105				3.75	116	107	1502	0.98	13.7	606	17014	3.99	124	127	1772	0.49	21.7	8.004	10.198	8.07		<1	<1

NELHA Water Quality Laboratory

Well 2B Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W2B	-3.96	7/30/03	1030				3.70	115	113	1576	0.94	13.2	622	17469	3.93	122	120	1678		21.0	7.936	10.134	8.27		<1	1
W2B	-3.96	8/28/03	1011				3.80	118	122	1702	0.70	9.8	613	17205	3.98	123	172	2413		21.5	7.904	10.177	8.10		<1	1
W2B	-3.96	9/16/03	1051				3.82	118	99.8	1398	0.08	1.1	610	17132	3.92	121	110	1535		21.3	7.924	13.352	7.75		<1	1
W2B	-3.96	10/8/03	1051				3.50	108	100	1402	0.40	5.6	610	17132	3.80	118	120	1675		21.2	7.936	10.008	NA		<1	<1
W2B	-3.96	11/5/03	1052				3.52	109	108	1513	0.50	7.0	611	17163	3.80	118	113	1583		21.1	7.970	10.131			3	1
W2B	-3.96	11/14/03	1442																	21.1			8.01			
W2B	-3.96	12/22/03	927				3.48	108	97.6	1366	0.25	3.5	594	16680	3.74	116	101	1412		20.9	8.003	11.673	7.62		2	1
W2B	-3.96	1/26/04					3.40	105	111	1553	0.30	4.2	596	16731	3.51	109	117	1640		20.8	7.914	11.169	7.35		1	1
W2B	-3.96	2/11/04	1020				3.56	110	102	1434	0.80	11.2	593	16641	3.62	112	112	1566	0.72	20.6	7.900	11.060	7.65		<1	1
W2B	-3.96	3/16/04	1230				3.71	115	108	1507	0.17	2.4	604	16964	3.90	121	120	1674		21.4	7.950	8.841	7.31		<1	<1
W2B	-3.96	4/20/04	1054				3.72	115	98.8	1384	0.08	1.1	619	17393	3.72	115	100	1402		21.7	7.941	9.465	7.74		<1	<1
W2B	-3.96	5/11/04	1000				3.52	109	88.7	1242	0.21	2.9	602	16902	3.72	115	91.5	1282		21.2	7.732	10.36	7.79		<1	<1
W2B	-3.96	6/2/04	1054				3.46	107	90.5	1268	0.18	2.5	606	17014	3.52	109	93.4	1308		21.7	7.933	9.65	7.78		1	<1
W2B	-3.96	7/14/04	1103				3.50	108	95.9	1343	0.17	2.4	604	16975	3.54	110	109	1521		21.5	7.914	10.64	7.68		<1	<1
W2B	-3.96	8/23/04	1047				3.48	108	94.6	1325	0.21	2.9	590	16562	3.66	113	98.5	1380		21.2	7.930	10.68	7.68		<1	<1
W2B	-3.96	9/27/04	928				3.60	112	99.4	1392	0.14	2.0	625	17548	3.70	115	134	1873		21.2	7.918	10.49	7.71		<1	<1
W2B	-3.96	10/5/04	930				3.62	112	92.7	1299	0.15	2.1	584	16410	3.76	116	104	1455		20.7	7.942	11.25	7.59		<1	2
W2B	-3.96	11/9/04	1017				3.66	113	92.9	1302	0.16	2.2	603	16936	3.84	119	97.0	1359		21.2	7.929	10.84	7.75		<1	<1
W2B	-3.96	12/6/04	1055				3.60	112	99.9	1400	0.20	2.8	593	16652	3.88	120	98.2	1376		21.1	7.963	11.18	7.81		<1	<1
W2B	-3.96	1/10/05	1022				3.58	111	128	1793	0.11	1.5	567	15919	3.60	112	130	1817		20.7	7.980	11.917	7.64		4	<1
W2B	-3.96	2/9/05	1019				3.67	114	143	2009	0.20	2.8	566	15891	3.70	115	192	2682		21.3	7.983	10.608	7.78		<1	<1
W2B	-3.96	3/15/05	1045				3.56	110	105	1472	0.15	2.1	589	16542	3.76	116	114	1597	0.51	21.1	7.985	10.518	7.84		<1	<1
W2B	-3.96	4/19/05	957				3.56	110	102	1426	0.16	2.2	587	16472	3.60	112	104	1459		21.4	7.979	10.563	7.92		110	133
W2B	-3.96	5/23/05	1043				3.46	107	99.7	1396	0.21	2.9	590	16568	3.58	111	105	1467		21.7	7.915	11.784	7.42		<1	<1
W2B	-3.96	6/13/05	905				3.52	109	98.2	1376	0.22	3.1	578	16219	3.46	107	102	1434		21.3	7.941	11.756	7.82		<1	<1
W2B	-3.96	7/18/05	1015				3.60	112	98.4	1378	0.10	1.4	588	16511	3.76	116	101	1413	0.56	21.5	7.928	11.335	7.56		<1	<1
W2B	-3.96	8/9/05	1025				3.42	106	91.6	1283	0.23	3.2	570	16000	3.58	111	95.4	1336	0.53	21.5	7.946	12.229	7.83		<1	1
W2B	-3.96	9/20/05	1013				3.54	110	93.4	1309	0.24	3.4	566	15896	3.68	114	95.7	1340	0.55	21.7	7.944	12.981	7.88		<1	<1
W2B	-3.96	10/17/05	1013				3.64	113	95.1	1332	0.14	2.0	578	16242	3.72	115	99.1	1388		21.7	7.931	12.377	7.90		<1	<1
W2B	-3.96	11/7/05	942				3.44	107	89.8	1258	0.04	0.6	536	15040	3.60	112	94.6	1325		21.1	7.944	13.735	7.77		<1	<1
W2B	-3.96	12/21/05	911				3.48	108	94.8	1328	0.22	3.1	540	15158	3.62	112	96.2	1348	0.57	20.4	7.959	13.551	7.68		<1	1
W2B	-3.96	1/23/06	1013				3.46	107	92.8	1300	0.25	3.5	577	16205	3.58	111	100	1405		20.9	7.967	12.44	8.01		<1	1
W2B	-3.96	2/14/06	1028				3.44	107	87.4	1224	0.18	2.5	556	15604	3.62	112	87.3	1222	0.49	20.7	7.961	12.858	7.96		<1	<1
W2B	-3.96	3/20/06	931				3.48	108	92.9	1301	0.18	2.5	578	16233	3.62	112	95.7	1340	0.49	20.6	7.964	12.626	7.86		<1	<1
W2B	-3.96	4/25/06	1000				3.34	103	95.2	1333	0.11	1.5	553	15531	3.56	110	79.7	1117	0.50	20.6	7.96	12.615	7.88		<1	<1
W2B	-3.96	5/22/06	1030				3.29	102	92.2	1291	0.23	3.2	438	12301	3.79	117	79.5	1114	0.54	20.6	7.932	13.386	7.73		<1	<1
W2B	-3.96	6/26/06	1043				3.25	101	94.6	1325	0.16	2.2	544	15279	3.36	104	93.5	1310	0.53	20.1	7.966	12.883	7.81		<1	<1
W2B	-3.96	7/20/06	1048				3.23	100	89.6	1255	0.15	2.1	552	15503	3.64	113	76.0	1065	0.66	20.3	7.939	13.285	8.30		1	<1
W2B	-3.96	8/7/06	1105				3.30	102	100	1401	0.17	2.4	557	15644	3.37	104	82.0	1149	0.49	20.2	7.962	12.353	8.47		<1	<1
W2B	-3.96	9/18/06	1028				3.25	101	91.2	1277	0.19	2.7	555	15587	3.57	111	84.7	1187	0.55	20.5	7.953	12.294	8.10		<1	<1
W2B	-3.96	10/23/06	1005				3.51	109	109	1527	0.22	3.1	537	15082	3.56	110	108	1513	0.68	20.5	7.951	11.743	7.96		>5000	1364
W2B	-3.96	11/27/06	1016				3.44	107	101	1415	0.18	2.5	543	15250	3.62	112	86.6	1214	0.53	20.1	7.954	13.155	7.97		<1	1
W2B	-3.96	12/11/06	1046				3.72	115	94.1	1318	0.21	2.9	546	15335	3.94	122	84.4	1182	0.54	19.8	7.945	13.319	8.01		<1	<1
W2B	-3.96	1/8/07	1136				3.31	103	94.7	1326	0.21	2.9	514	14436	3.51	109	86.8	1216	0.47	19.2	7.96	13.243	8.04		<1	<1
W2B	-3.96	2/20/07	1105				3.48	108	101	1415	0.35	4.9	537	15082	3.64	113	111	1560	0.58	19.6	7.944	13.099	8.05		<1	<1
W2B	-3.96	3/5/07	1103				3.44	107	111	1555	0.36	5.0	553	15531	3.58	111	109	1530	0.59	20.1	7.943	12.715	8.04		<1	<1
W2B	-3.96	4/18/07	1102				3.47	107	100	1401	0.23	3.2	555	15587	3.58	111	87.3	1223	0.47	20.6	7.973	13.221	7.79		<1	1
W2B	-3.96	5/1/07	1051				3.36	104	93.4	1308	0.27	3.8	551	15475	3.51	109	87.2	1222	0.49	20.2	7.978	12.945	7.61		<1	<1
W2B	-3.96	6/18/07	1045				3.63	101	107.4	1505	0.2	1.4	548	14959	3.9	119	91.6	1283	0.44	20.4	8.001	13.445	8.21		<1	<1

NELHA Water Quality Laboratory

Well 2B Data Table

June 1989 - December 2014

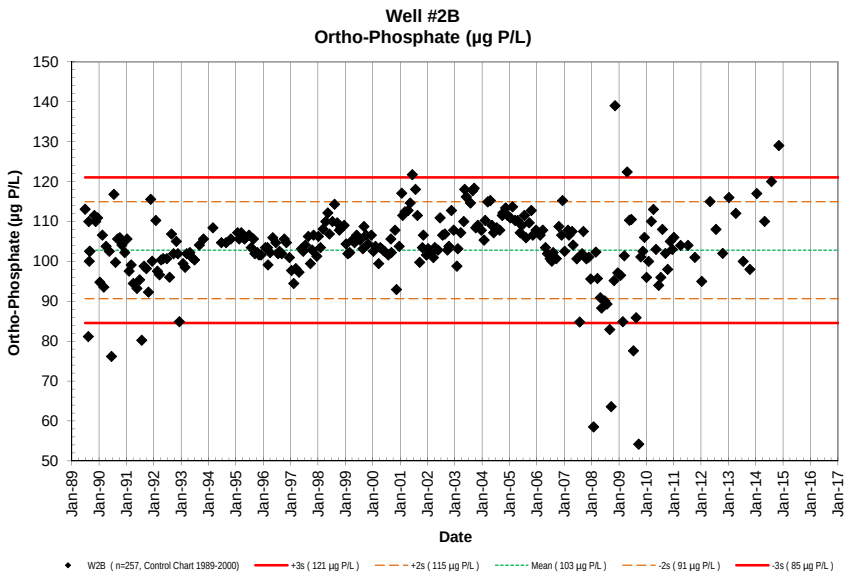
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W2B	-3.96	7/26/07	1312	-1.98	0.64	Flood	2.74	85	76.4	1070	0.0	0.1	580	16297	0.0		75.8	1062		19.9	7.91	12.98	7.62			
W2B	-3.96	8/28/07	1115	-2.44	0.08	Flood	3.29	102	99.1	1388	3.6	50.7	629	17678	3.0	94	101.7	1424		20.5	7.86	12.80	7.42			
W2B	-3.96	9/13/07	1128	-2.23	0.15	Low	3.47	108	98.8	1383	1.0	13.8	631	17726	3.3	103	97.8	1371		20.6	7.97	13.11	7.41			
W2B	-3.96	10/24/07	1358	-1.96	0.46	Flood	3.25	101	107.4	1505	0.1	1.4	533	14959	3.6	111	101.8	1426		20.1	8.03	12.75	7.31			
W2B	-3.96	11/26/07	1115	-2.31	0.15	Ebb	3.26	101	97.0	1359	0.3	3.8	562	15793	3.3	101	103.2	1446		19.8	7.93	14.03	7.17			
W2B	-3.96	12/20/07	1210	-2.08	0.23	High	3.09	96	114.5	1604	0.3	4.1	493	13840						19.8	8.03	10.85	7.43			
W2B	-3.96	1/28/08	1220	-2.29	0.09	Ebb	1.89	59	36.1	506	0.2	3.1	310	8721						19.9	7.83	12.69	6.66			
W2B	-3.96	2/27/08	1025	-2.13	0.12	Ebb	3.30	102	103.2	1446	0.2	2.6	538	15110						19.6	7.82	12.49	7.77			
W2B	-3.96	3/20/08	1057	-2.41	0.00	Low	3.09	96	97.6	1367	0.2	2.5	429	12059						19.8	7.88	12.84	7.36			
W2B	-3.96	4/28/08	1054	-2.06	0.18	High	2.93	91	99.5	1394	0.2	2.6	541	15201						20.0	7.91	12.34	7.40			
W2B	-3.96	5/15/08	1154	-2.03	0.49	Flood	2.85	88	94.5	1324	0.2	2.9	538	15117						19.8	7.88	13.00	7.14			
W2B	-3.96	6/26/08	929	-1.98	0.37	High	2.91	90	101.5	1421	0.3	4	702	19717						20.3	7.86	12.64	7.81	0.10		
W2B	-3.96	7/25/08	1137	-1.88	0.55	High	2.88	89	95.2	1334	0.2	2.8	385	10816						20.3	7.50	12.08	7.67			
W2B	-3.96	8/30/08	933		0.03	Low	2.68	83	96.8	1356	0.3	4	529	14866						20.4	7.87	12.47	7.16			
W2B	-3.96	9/19/08	953	-1.88	0.52	Ebb	2.05	64	54.6	765	1.0	14.1	379	10635						21.5	7.78	12.70	7.59	1.42		
W2B	-3.96	10/27/08	1255	-2.07	0.27	Flood	3.07	95	101.9	1427	0.3	4.7	548	15386						21.9	7.75	12.01	N/A	0.30		
W2B	-3.96	11/10/08	1010	-2.12	0.24	Flood	4.49	139	99.1	1389	0.3	4.7	496	13940						21.8	7.86	12.05	7.61	0.41		
W2B	-3.96	12/15/08	930	-1.90	0.43	Ebb	3.13	97	103.6	1452	0.0	0.0	486	13639						21.2	8.03	13.38	7.97			
W2B	-3.96	1/23/09	1316	-2.26	0.15	High	3.12	97	111.6	1563	1.3	18.1	507	14238						21.3	8.01	12.27	7.71	0.14		
W2B	-3.96	2/23/09	1417	-2.15	0.24	Flood	2.74	85	105.3	1475	0.9	13.0	537	15071						20.8	7.89	13.04	8.06	0.13		
W2B	-3.96	3/13/09	1426	-2.27	0.24	Flood	3.27	101	95.7	1340	0.1	1.9	466	13090						20.5	7.89	13.26	7.67	0.12		
W2B	-3.96	4/20/09	1236	-2.18	0.30	Flood	3.95	122	108.0	1513	1.7	24.3	410	11513						21.2	7.79	12.20	8.21	6.03		
W2B	-3.96	5/21/09	1414	-1.86	0.61	High	3.56	110	101.1	1416	0.5	7.5	558	15669						20.2	7.97	12.65	8.13	0.10		
W2B	-3.96	6/16/09	1050	-2.01	0.40	Flood	3.57	111	97.4	1364	0.5	6.6	348	9766						20.1	7.81	11.86	8.02	0.07		
W2B	-3.96	7/13/09	1453	-2.18	0.21	Flood	2.51	78	68.4	958	0.2	2.6	278	7805						19.9	7.99	12.61	8.02	0.18		
W2B	-3.96	8/18/09	1350	-1.71	0.70	Flood	2.77	86	77.6	1087	0.1	1.4	442	12415						20.5	7.90	13.58	7.74	0.09		
W2B	-3.96	9/21/09	1344	-2.24	0.18	Flood	1.75	54	44.6	624	0.2	2.2	249	6988						20.6	8.38	13.24	8.59	0.04		
W2B	-3.96	10/19/09	1055	-2.28	0.12	Low	3.26	101	102.5	1436	0.7	9.5	272	7635						20.5	7.47	13.16	7.93	0.05		
W2B	-3.96	11/16/09	1326	-2.29	0.18	Flood	3.31	103	105.5	1478	0.8	11	449	12603						20.2	7.96	13.75	7.96	0.04		
W2B	-3.96	12/7/09	1300	-2.23	0.18	Ebb	3.42	106	112.7	1579	0.5	7.2	512	14379						20.2	7.93	13.23	6.85	0.09		
W2B	-3.96	1/5/10	1042	-2.06	0.30	Ebb	3.10	96	103.0	1443	0.5	7.0	517	14524						20.7	7.92	12.91	6.63	0.10		
W2B	-3.96	2/1/10	1100	-2.20	0.00	Ebb	3.23	100	108.2	1515	0.6	9.0	459	12884						20.4	7.98	13.10	7.33	0.18		
W2B	-3.96	3/9/10	1116	-2.28	0.12	Flood	3.55	110	99.4	1392	0.2	3.0	532	14948						20.0	7.98	12.16	7.85	0.20		
W2B	-3.96	4/6/10	1005	-2.31	0.15	Flood	3.65	113	107.1	1500	0.1	2.0	532	14931						19.7	7.96	12.63	8.19	0.04		
W2B	-3.96	5/11/10	1029	-2.39	0.09	Flood	3.33	103	96.0	1344	1.8	25	576	16173						19.9	8.05	11.97	8.23	0.11		
W2B	-3.96	6/15/10	1108	-2.39	0.06	Low	3.03	94	92.7	1298	0.3	4.0	509	14283						20.1	7.98	12.67	7.46	0.15		
W2B	-3.96	7/13/10	1026	-2.39	0.00	Low	3.10	96	100.6	1409	0.4	6.0	562	15791						20.2	7.97	13.42	7.90	0.17		
W2B	-3.96	8/3/10	1020	-1.89	0.52	Flood	3.49	108	103.9	1455	0.3	4.0	567	15921						20.0	7.99	12.88	7.88	0.08		
W2B	-3.96	9/14/10	1020	-1.81	0.58	Ebb	3.29	102	98.6	1381	0.5	6.9	581	16305						20.1	7.97	13.77	8.26	0.80		
W2B	-3.96	10/12/10	1051	-1.83	0.55	Ebb	3.16	98	99.2	1390	0.3	4.7	567	15933						20.2	7.97	14.81	7.67	0.06		
W2B	-3.96	11/16/10	1008	-2.03	0.27	Flood	3.39	105	105.9	1484	0.2	3.4	575	16154						20.0	7.89	13.04	7.88	0.04		
W2B	-3.96	12/14/10	1049	-1.99	0.37	High	3.33	103	108.7	1522	0.5	6.6	566	15899						20.0	7.96	13.29	7.93	0.04		
W2B	-3.96	1/4/11	1037	-2.23	0.06	Ebb	3.42	106	104.2	1459	0.5	6.9	552	15509						19.8	7.90	14.05	7.65	0.08		
W2B	-3.96	4/5/11	1053	-2.34	-0.06	Low	3.36	104	103.5	1450	0.2	3.2	574	16121						20.1	7.91	13.19	6.80	0.16		
W2B	-3.96	7/12/11	1017	-2.13	0.18	Flood	3.36	104	97.7	1369	0.6	8.2	546	15336						20.1	7.92	13.93	7.67	0.02		
W2B	-3.96	10/11/11	1038	-2.22	0.12	Low	3.26	101	92.9	1301	0.3	3.9	547	15373						20.5	7.93	14.05	7.82	0.05		
W2B	-3.96	1/10/12	1032	-2.24	0.06	Ebb	3.07	95	86.6	1213	0.3	3.6	523	14676						19.8	7.92	15.45	7.89	0.04		
W2B	-3.96	5/1/12	1100	-2.07	0.30	Flood	3.71	115	98.2	1376	0.2	2.3	579	16248						19.9	7.92	13.84	7.77	0.05		
W2B	-3.96	7/18/12	951	-2.39	0.03	Flood	3.49	108	100.0	1400	0.6	7.8	544	15287						20.1	8.01	14.23	7.98	0.07		
W2B	-3.96	10/16/12	1034	-2.24	0.09	Ebb	3.29	102	97.3	1363	0.3	4.4	538	15102						20.1	7.90	14.49	7.53	0.04		
W2B	-3.96	1/8/13	1058	-2.20	0.15	Flood	3.75	116	99.1	1388	0.6	7.9	585	16426						19.7	7.93	14.22	7.85	0.04		
W2B	-3.96	4/9/13	1035	-2.38	-0.03	Flood	3.62	112	96.8	1356	0.5	6.7	555	15584						19.9	7.96	13.72	8.31	0.09		
W2B	-3.96	7/17/13	1120	-1.95	0.58	Flood	3.23	100	93.0	1302	0.4	5.4	517	14517						20.3	7.93	14.42	7.64	0.06		
W2B	-3.96	10/15/13	1020	-2.09	0.30	Flood	3.16	98	97.1	1360	0.6	8.9	511	14343						20.3	7.90	14.54	7.74	0.05		
W2B	-3.96	1/15/14	1000	-2.24	0.06	Ebb	3.78	117	102.2	1431	0.3	4.8	505	14185						20.0	7.97	14.27	7.91	0.02		
W2B	-3.96	4/29/14	1114	-2.42	0.00	Flood	3.55	110	105.3	1475	0.6	8.2	508	14260						20.15	7.94	14.10	6.02	0.08		

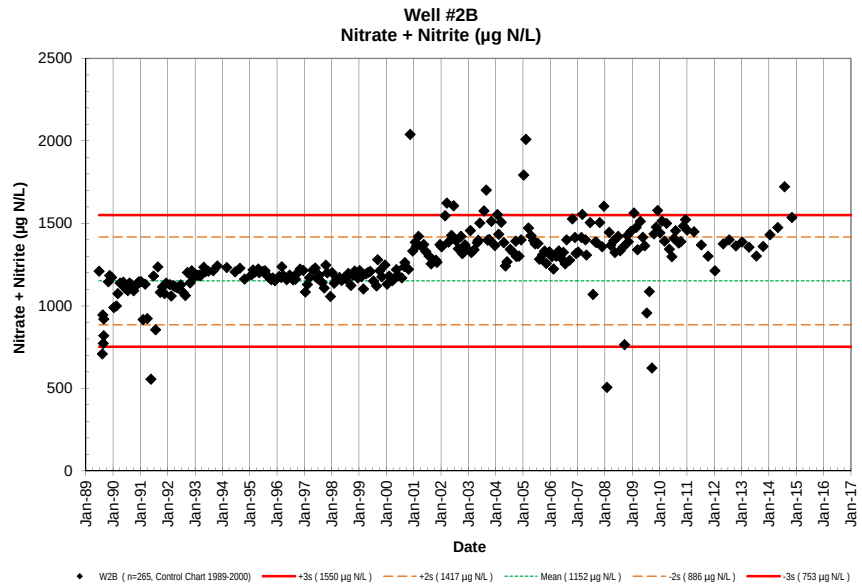
NELHA Water Quality Laboratory

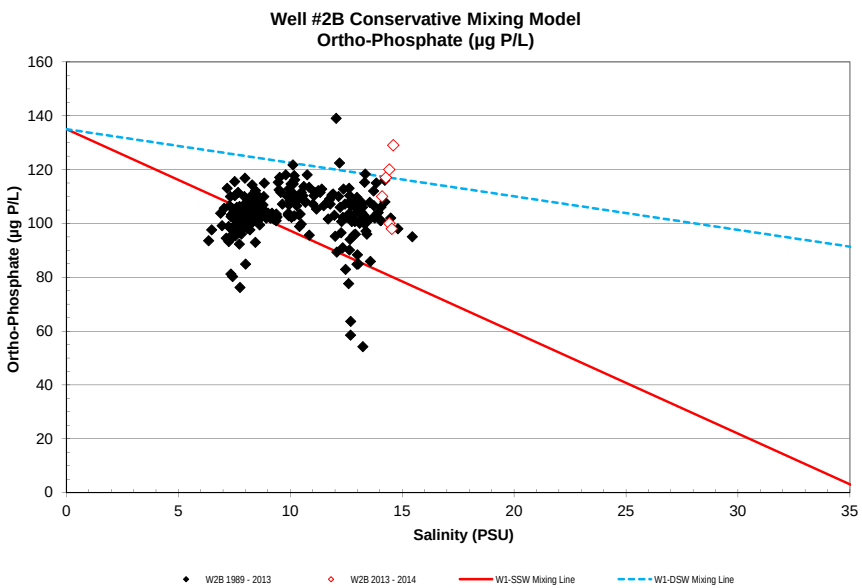
Well 2B Data Table

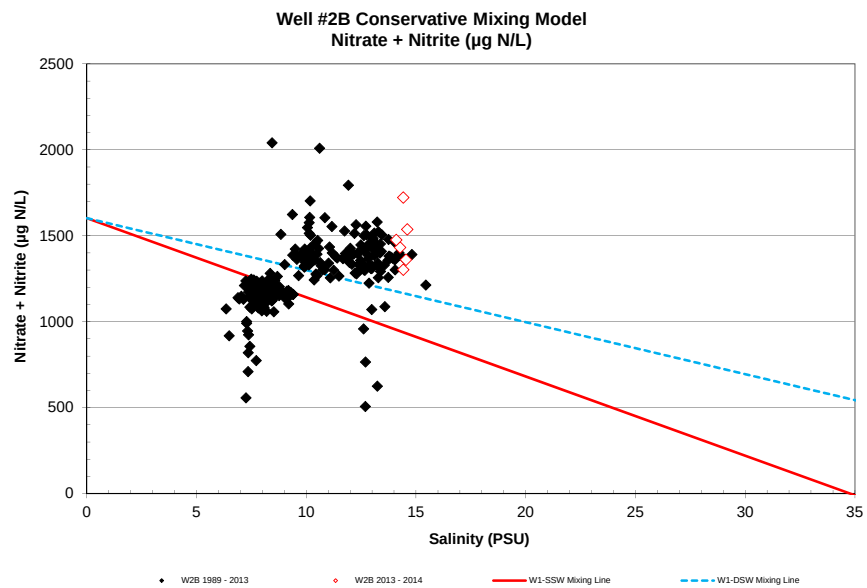
June 1989 - December 2014

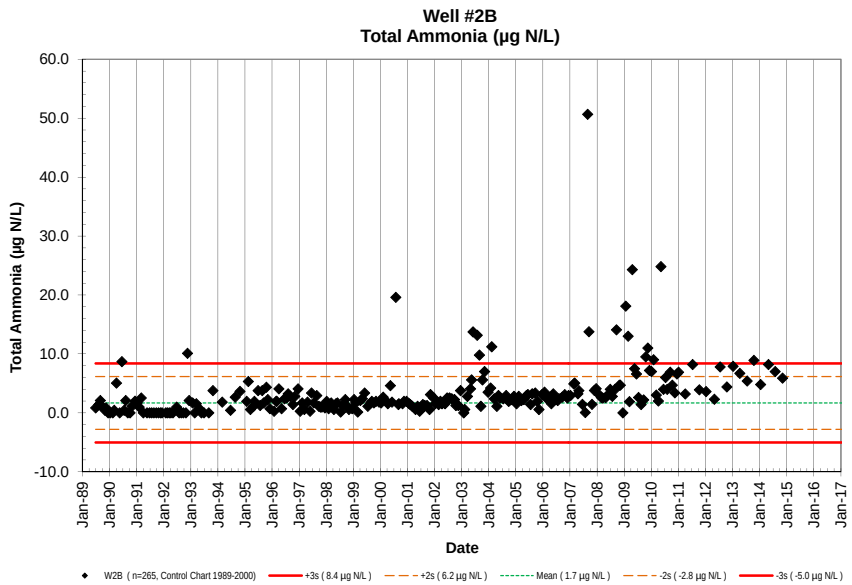
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W2B	-3.96	7/29/14	1049	-2.26	0.12	Low	3.87	120	122.9	1722	0.5	7.0	523	14679						20.43	7.89	14.42	7.73	0.19		
W2B	-3.96	11/5/14	1052	-2.13	0.15	Flood	4.16	129	109.7	1536	0.4	5.9	499	14004						20.75	7.94	14.60	8.02	0.06		
W2B	-3.96	1/1/15																								
W2B	-3.96	4/1/15																								

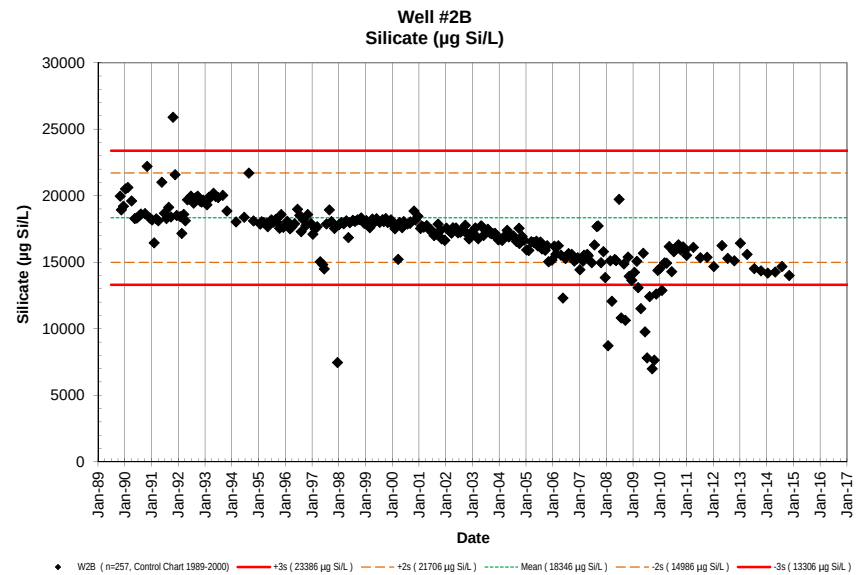

Well #2B
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W2B (n=257, Control Chart 1989-2000)
+3s (121 µg P/L)
+2s (115 µg P/L)
Mean (103 µg P/L)
-2s (91 µg P/L)
-3s (85 µg P/L)

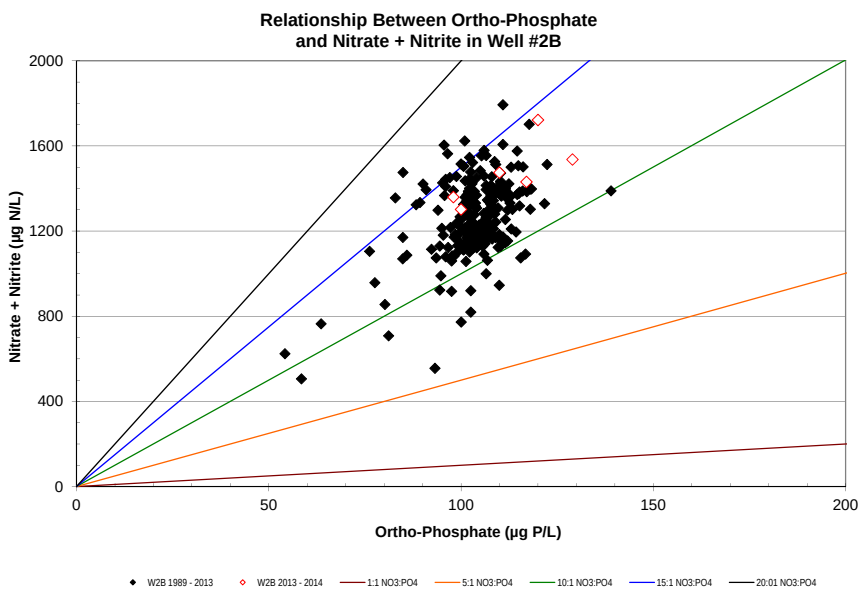

Well #2B
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W2B (n=265, Control Chart 1989-2000)
+3s (1550 µg N/L)
+2s (1417 µg N/L)
Mean (1152 µg N/L)
-2s (886 µg N/L)
-3s (753 µg N/L)

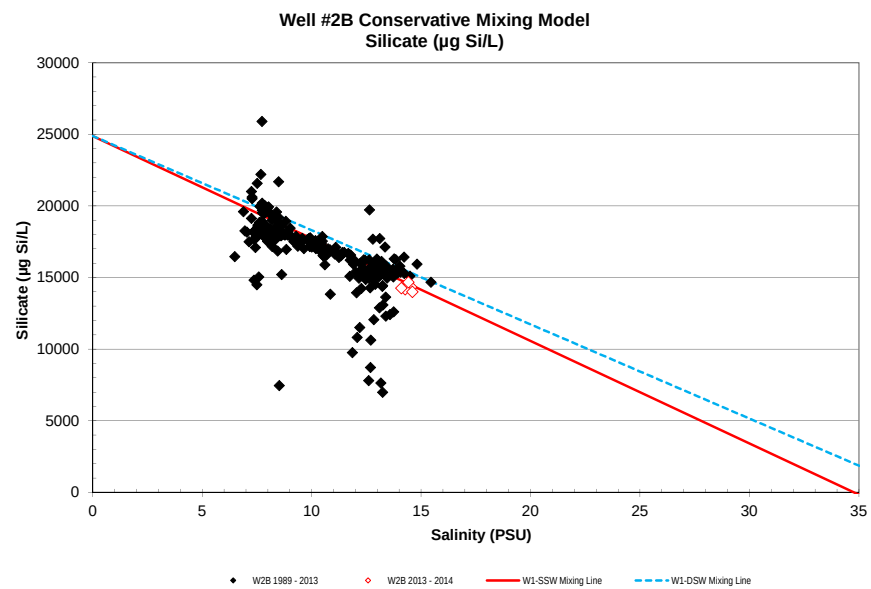

Well #2B Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W2B 1989 - 2013
W2B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

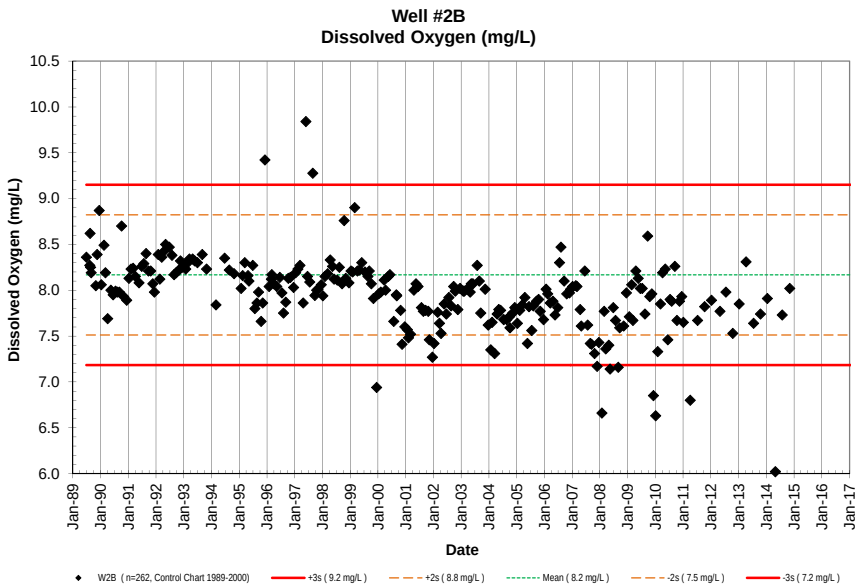

Well #2B Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W2B 1989 - 2013
W2B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

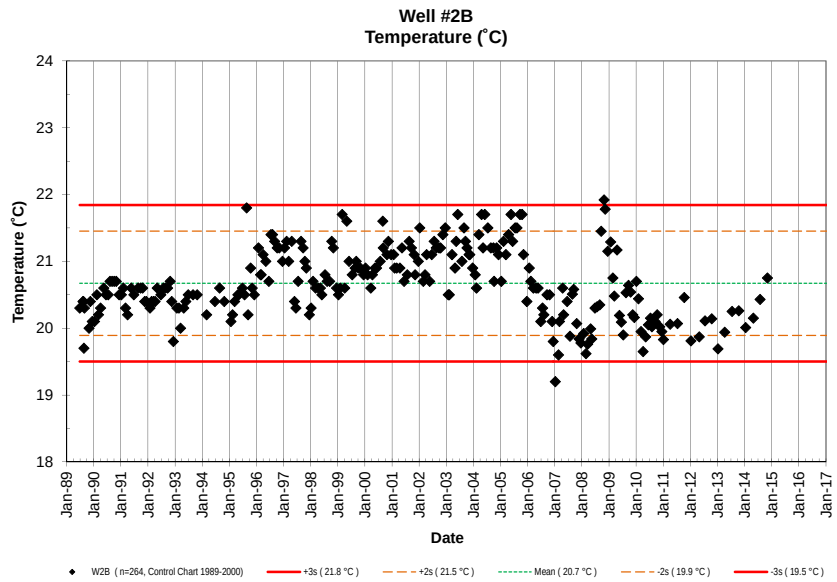

Well #2B
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W2B (n=265, Control Chart 1989-2000)
+3s (8.4 µg N/L)
+2s (6.2 µg N/L)
Mean (1.7 µg N/L)
-2s (-2.8 µg N/L)
-3s (-5.0 µg N/L)

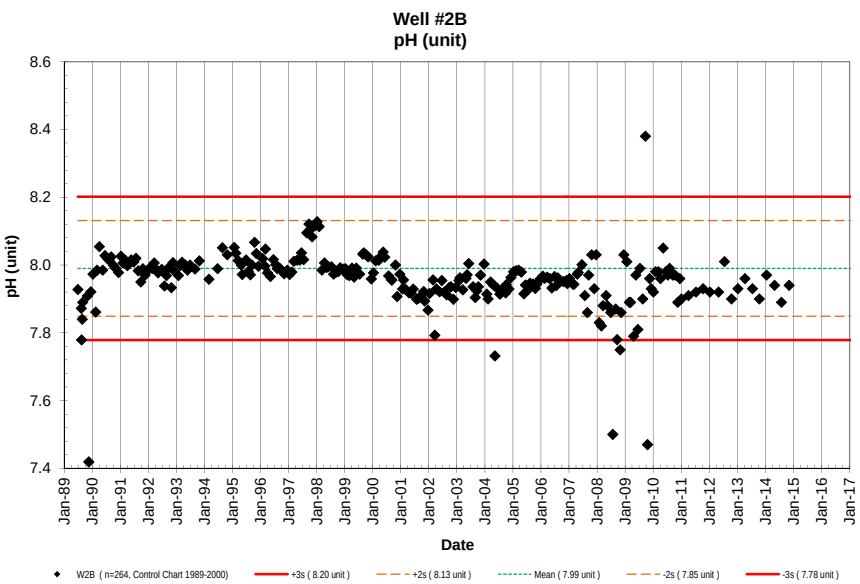

Well #2B
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W2B (n=257, Control Chart 1989-2000)
+3s (23386 µg Si/L)
+2s (21706 µg Si/L)
Mean (18346 µg Si/L)
-2s (14986 µg Si/L)
-3s (13306 µg Si/L)

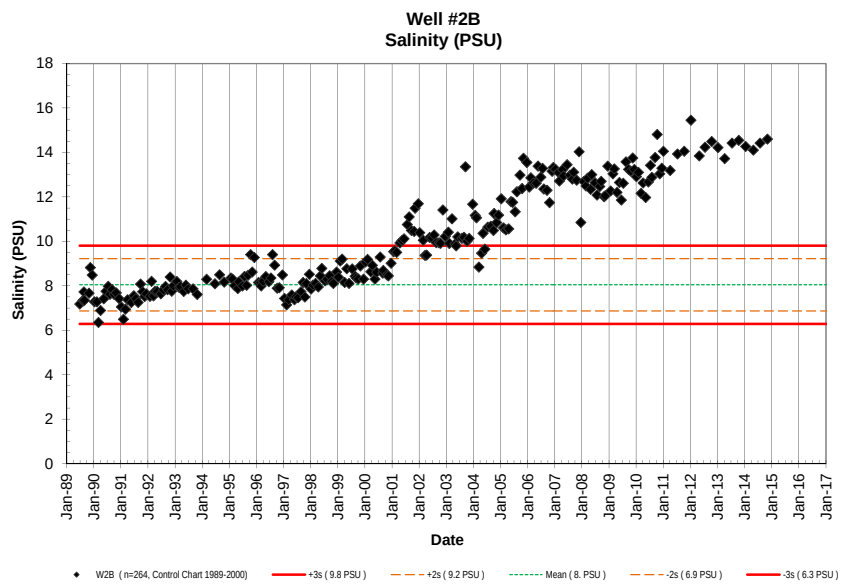

Relationship Between Ortho-Phosphate
and Nitrate + Nitrite in Well #2B
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W2B 1989 - 2013
W2B 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

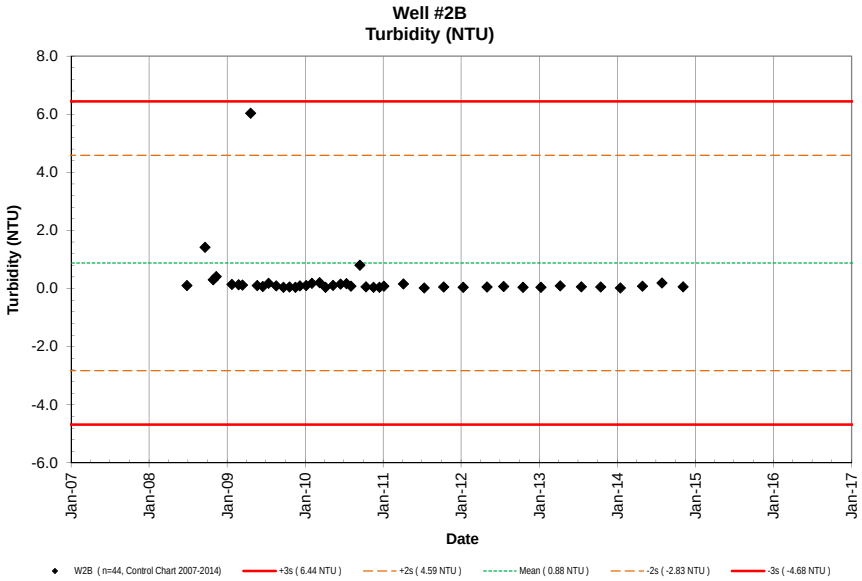

Well #2B Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W2B 1989 - 2013
W2B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

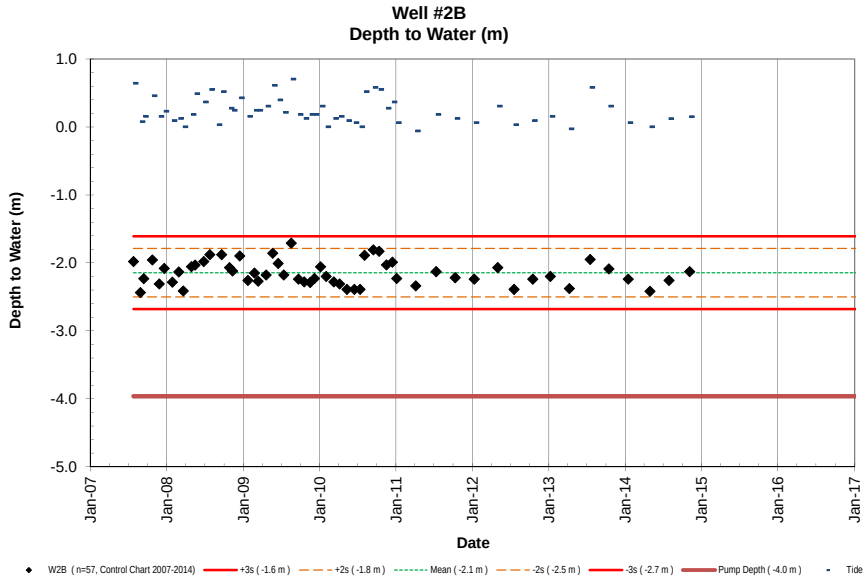

Well #2B
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W2B (n=262, Control Chart 1989-2000)
+3s (9.2 mg/L)
+2s (8.8 mg/L)
Mean (8.2 mg/L)
-2s (7.5 mg/L)
-3s (7.2 mg/L)


Well #2B
Temperature (˚C)
Temperature (˚C)
Date
W2B (n=264, Control Chart 1989-2000)
+3s (21.8 °C)
+2s (21.5 °C)
Mean (20.7 °C)
-2s (19.9 °C)
-3s (19.5 °C)


Well #2B
pH (unit)
pH (unit)
Date
W2B (n=264, Control Chart 1989-2000)
+3s (8.20 unit)
+2s (8.13 unit)
Mean (7.99 unit)
-2s (7.85 unit)
-3s (7.78 unit)


Well #2B
Salinity (PSU)
Salinity (PSU)
Date
W2B (n=264, Control Chart 1989-2000)
+3s (9.8 PSU)
+2s (9.2 PSU)
Mean (8. PSU)
-2s (6.9 PSU)
-3s (6.3 PSU)


Well #2B
Turbidity (NTU)
Turbidity (NTU)
8.0
6.0
4.0
2.0
0.0
-2.0
-4.0
-6.0
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W2B (n=44, Control Chart 2007-2014)
+3s (6.44 NTU)
+2s (4.59 NTU)
Mean (0.88 NTU)
-2s (-2.83 NTU)
-3s (-4.68 NTU)


Well #2B
Depth to Water (m)
Depth to Water (m)
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W2B (n=57, Control Chart 2007-2014)
+3s (-1.6 m)
+2s (-1.8 m)
Mean (-2.1 m)
-2s (-2.5 m)
-3s (-2.7 m)
Pump Depth (-4.0 m)
Tide

NELHA Water Quality Laboratory

Well 3 Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W3	-17.3736	6/27/89					1.54	48	24.8	347	0.51	7.1								21.0	7.773	25.220	4.27		NA	NA
W3	-17.3736	8/10/89	1305				1.51	47	27.6	387	0.58	8.1								20.5	7.618	25.104	5.42		<1	NA
W3	-17.3736	8/16/89	1400				1.57	49	27.6	387	0.67	9.4								20.5	7.631	25.107	5.42		<1	NA
W3	-17.3736	8/24/89	1045				1.55	48	27.6	387	0.58	8.1								20.0	7.756	25.159	4.47		<1	NA
W3	-17.3736	8/29/89	1005				1.58	49	28.1	394	0.58	8.1								20.6	7.704	24.889	4.70		<1	NA
W3	-17.3736	8/29/89	1005				1.57	49	28.1	394	0.70	9.8													NA	NA
W3	-17.3736	10/30/89	1016				1.51	47	29.1	408	0.01	0.1	380	10672	1.63	50.49	30.6	429	0.35	20.8	7.728	24.981	4.17		<1	NA
W3	-17.3736	11/16/89	941				1.61	50	29.9	419	0.06	0.8	370	10392	2.13	65.97	59.0	826	0.41	20.5	7.726	24.941	3.94		1	NA
W3	-17.3736	12/12/89	950				1.44	45	31.1	436	0.46	6.4	404	11347	1.73	53.58	32.1	450	0.67	20.1	7.767	24.775	4.94		<1	NA
W3	-17.3736	1/11/90	1036				3.06	95	70.7	990	0.00	0.0	730	20502	3.28	101.59	74.8	1048	0.32	21.7	7.726	24.763	4.43		<1	NA
W3	-17.3736	2/14/90	1340				1.55	48	28.1	394	0.27	3.8	375	10532	1.82	56.37	28.9	405	0.41	20.5	7.682	25.031	5.92		<1	NA
W3	-17.3736	3/7/90	1320				1.44	45	29.5	413	0.10	1.4	382		1.70	52.66	29.5	413	0.35	20.4	7.847	24.954	3.97		<1	NA
W3	-17.3736	4/2/90	1356				1.45	45	28.1	394	0.07	1.0	426	11964	1.73	53.58	28.6	401	0.36	20.9	7.904	25.177	4.04		<1	NA
W3	-17.3736	5/17/90	933				1.48	46	27.1	380	0.00	0.0	367	10307	1.59	49.25	28.2	395	0.36	20.6	7.841	25.331	4.73		<1	NA
W3	-17.3736	6/16/90	900				1.58	49	26.8	375	0.00	0.0	366	10279	1.80	55.75	29.1	408	0.41	20.9	7.904	25.513	3.81		<1	NA
W3	-17.3736	7/17/90	930				1.60	50	25.6	359	0.16	2.2	369	10364	1.90	58.85	27.1	380	0.38	20.8	7.899	25.882	3.73		<1	NA
W3	-17.3736	8/8/90	1020				1.29	40	26.7	374	0.21	2.9	363	10195	1.77	54.82	27.2	381	0.37	21.9	7.878	26.026	3.96		<1	NA
W3	-17.3736	9/5/90	939				1.63	50	25.7	360	0.14	2.0			1.63	50.49	26.9	377	0.27	20.7	7.878	26.018	3.96		<1	NA
W3	-17.3736	10/4/90	940				1.38	43	24.4	342	0.07	1.0	363	10195	1.99	61.64	24.5	344	0.82	20.8	7.877	26.048	3.58		<1	NA
W3	-17.3736	11/1/90	959				1.39	43	26.4	369	0.07	1.0	361	10125	1.43	44.29	25.6	359	0.34	20.8	7.867	26.273	3.76		<1	NA
W3	-17.3736	12/10/90	943				1.36	42	29.3	410	0.03	0.4	352	9886	1.75	54.20	30.3	425	0.26	20.8	7.880	25.721	3.74		<1	NA
W3	-17.3736	1/10/90	800				1.35	42	27.2	381	0.00	0.0	356	9998	1.49	46.15	28.5	399	0.30	20.7	7.874	26.065	3.84		<1	NA
W3	-17.3736	2/6/91	815				1.12	35	26.6	373	0.00	0.0	307	8622	1.45	44.91	26.8	375	0.54	20.8	7.870	25.446	3.65		<1	NA
W3	-17.3736	3/7/91	846				1.26	39	27.3	382	0.00	0.0	358	10055	1.32	40.89	27.8	389	0.57	20.5	7.881	25.492	3.77		<1	NA
W3	-17.3736	4/4/91	814				1.02	32	22.7	318	0.00	0.0	364	10223	1.38	42.74	27.2	381	0.57	20.5	7.883	25.600	3.79		<1	NA
W3	-17.3736	5/22/91	858				1.17	36	12.9	181	0.14	2.0	417	11712	1.21	37.48	13.5	189	0.32	21.6	7.883	25.680	3.67		<1	NA
W3	-17.3736	6/26/91	903				1.52	47	27.9	391	0.17	2.4	380	10672	1.63	50.49	28.6	401	0.33	20.6	7.880	25.421	3.78		<1	<1
W3	-17.3736	7/24/91	936				1.25	39	24.4	342	0.28	3.9	369	10364	1.47	45.53	26.4	370	0.51	18.0	7.879	25.715	3.71		<1	<1
W3	-17.3736	8/23/91	930				1.19	37	22.2	311	0.32	4.5	387	10869	1.25	38.72	26.1	366	0.38	20.5	7.823	25.758	3.64		<1	<1
W3	-17.3736	9/24/91	824				1.32	41	26.6	373	0.18	2.5	380	10672	1.44	44.60	28.6	401	0.35	20.5	7.840	25.423	3.77		<1	<1
W3	-17.3736	10/23/91	833				1.86	58	27.0	378	0.00	0.0	501	14071	1.97	61.02	28.6	401	0.36	20.5	7.864	25.664	3.73		<1	<1
W3	-17.3736	11/20/91	902				1.62	50	25.9	363	0.15	2.1	424	11908	1.68	52.04	27.0	378	0.28	20.5	7.862	25.441	3.76		<1	<1
W3	-17.3736	12/11/91	945				1.25	39	27.0	378	0.00	0.0	383	10757	1.28	39.65	28.0	392	0.39	20.5	7.873	25.369	3.74		<1	<1
W3	-17.3736	1/29/92	938				1.35	42	25.6	359	0.00	0.0	377	10588	1.42	43.98	29.1	408	0.92	20.6	7.882	25.174	3.83		<1	<1
W3	-17.3736	2/19/92	1008				1.41	44	28.8	403	0.02	0.3	357	10027	1.46	45.22	40.5	567	0.47	20.7	7.887	24.856	3.89		<1	<1
W3	-17.3736	3/17/92	919				1.34	42	29.0	406	0.00	0.0	380	10672	1.45	44.91	31.4	440	0.56	20.6	7.880	24.860	3.93		<1	<1
W3	-17.3736	4/8/92	909				1.37	42	28.9	405	0.31	4.3	378	10616	1.48	45.84	31.4	440	0.29	20.7	7.874	24.870	3.94		<1	<1
W3	-17.3736	5/6/92	922				1.33	41	28.2	395	0.21	2.9	400	11234	1.46	45.22	29.7	416	0.55	20.6	7.865	24.859	3.94		<1	<1
W3	-17.3736	6/23/92	921				1.35	42	28.2	395	0.33	4.6	405	11375	1.40	43.36	29.9	419	0.57	20.7	7.863	25.068	3.93		<1	<1
W3	-17.3736	7/29/92	906				1.29	40	28.3	396	ND	0.0	398	11178	1.36	42.12	29.4	412	0.57	20.7	7.843	24.839	3.91		<1	<1
W3	-17.3736	8/26/92	854				1.47	46	32.9	460	0.16	2.2	418	11740	1.47	45.53	35.1	491	0.42	20.7	7.851	24.681	3.90		<1	<1
W3	-17.3736	9/22/92	850				1.34	42	22.1	309	0.08	1.1	420	11796	1.61	49.87	21.6	302	0.35	20.7	7.863	24.918	3.85		<1	<1
W3	-17.3736	10/27/92	915				1.51	47	29.0	406	0.12	1.7	416	11684	1.56	48.32	30.9	433	0.45	20.2	7.861	24.931	3.89		<1	<1
W3	-17.3736	11/17/92	928				1.30	40	16.9	236	0.23	3.2	407	11431	1.52	47.08	31.5	441	0.74	20.2	7.874	24.961	3.91		<1	<1
W3	-17.3736	12/8/92	911				1.76	55	29.0	406	0.29	4.1	413	11599	1.42	43.98	31.8	445	0.54	20.1	7.870	24.748	3.92		<1	<1
W3	-17.3736	1/26/93	926				1.34	42	28.6	401	0.34	4.8	408	11462	1.40	43.36	31.1	436	0.37	20.6	7.891	24.617	3.94		<1	<1
W3	-17.3736	2/23/93	857				1.30	40	29.9	419	0.20	2.8	418	11740	1.33	41.20	31.3	438	0.40	20.5	7.897	24.769	3.92		<1	<1
W3	-17.3736	3/16/93	858				1.33	41	28.8	403	0.08	1.1	418	11751	1.37	42.43	29.9	419	0.41	20.5	7.887	24.848	3.94		<1	<1
W3	-17.3736	4/27/93	902				1.36	42	28.4	398	0.26	3.6	431	12113	1.43	44.29	29.7	416	0.34	20.6	7.879	24.953	3.92		<1	<1
W3	-17.3736	5/25/93	855				1.35	42	28.1	394	0.26	3.6	429	12046	1.37	42.43	29.7	416	0.24	20.6	7.871	24.943	3.88		<1	<1
W3	-17.3736	6/28/93	931				1.28	40	27.9	391	0.13	1.8	419	11768	1.46	45.22	29.7	416	0.40	20.7	7.864	25.089	3.92		<1	<1
W3	-17.3736	8/9/93	800				1.38	43	28.4	398	0.05	0.7	378	10602	1.40	43.36	31.0	434	0.56	20.9	7.850	24.854	4.02		<1	<1
W3	-17.3736	WELL SET RELOCATED																								
W3	-17.3736	6/21/94	853				0.89	28	19.3	271	2.26	31.7	305	8576	0.89	27.57	25.2	353	0.39	20.5	7.980	25.374	1.87		<1	<1

NELHA Water Quality Laboratory

Well 3 Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W3	-17.3736	8/23/94	919				1.05	33	19.3	270	0.36	5.0	376	10563	1.12	34.69	21.6	303	0.46	20.8	7.960	25.062	2.37		<1	<1
W3	-17.3736	10/25/94	940				1.14	35	22.1	309	0.55	7.7	333	9352	1.16	35.93	23.7	333	0.33	20.6	7.912	24.884	3.18		<1	<1
W3	-17.3736	11/28/94	1253				1.22	38	21.6	303	0.48	6.7	326	9142	1.31	40.58	24.2	339		20.8		24.966				
W3	-17.3736	12/13/94	955				1.24	38	23.2	325	0.64	9.0	359	10086	1.35	41.81	24.9	349		20.7		25.125				
W3	-17.3736	1/24/95	935				1.36	42	23.3	327	0.18	2.5	335	9414	1.44	44.60	24.9	349	0.33	20.4	7.891	25.080	3.42		<1	<1
W3	-17.3736	2/14/95	919				1.29	40	23.3	327	0.14	2.0	341	9583	1.38	42.74	23.8	333	0.39	20.6	7.894	25.208	3.37		<1	<1
W3	-17.3736	3/14/95	1007				1.27	39	23.4	328	0.18	2.5	342	9605	1.35	41.81	24.6	344	0.29	20.6	7.863	25.204	3.58		<1	<1
W3	-17.3736	4/25/95	1035				1.39	43	24.2	339	0.28	3.9	334	9389	1.50	46.46	25.7	360	0.28	20.4	7.881	24.898	3.67		<1	<1
W3	-17.3736	5/9/95	925				1.37	42	25.1	351	0.27	3.8	363	10206	1.41	43.67	26.7	373	0.27	20.6	7.854	24.902	3.51		<1	<1
W3	-17.3736	6/27/95	937				1.25	39	24.5	344	0.49	6.9	348	9777	1.42	43.98	26.3	369	0.26	20.7	7.868	24.993	3.61		<1	<1
W3	-17.3736	7/25/95	952				1.23	38	24.8	348	0.09	1.3	351	9852	1.38	42.74	26.0	364	0.28	20.6	7.857	25.077	3.53		<1	<1
W3	-17.3736	8/22/95	1043				1.27	39	23.1	324	0.34	4.8	355	9965	1.42	43.98	26.2	368	0.27	20.8	7.848	24.911	3.46		<1	<1
W3	-17.3736	9/12/95	812				1.30	40	25.5	357	0.23	3.2	358	10041	1.32	40.89	26.8	376	0.35	22.7	7.894	25.077	3.54		<1	<1
W3	-17.3736	10/17/95	956				1.35	42	25.3	355	0.24	3.4	364	10223	1.40	43.36	27.1	380	0.63	20.6	7.880	24.888	3.59		<1	<1
W3	-17.3736	11/7/95	917				1.40	43	24.5	343	0.43	6.0	347	9757	1.43	44.29	25.9	362	0.38	20.3	7.901	25.095	3.40		<1	<1
W3	-17.3736	12/6/95	927				1.35	42	25.4	356	0.36	5.0	354	9954	1.38	42.74	26.5	371	0.49	20.5	7.936	24.933	3.61		<1	<1
W3	-17.3736	1/30/96	1002				1.32	41	27.2	381	0.12	1.7	356	10010	1.36	42.12	27.7	387	0.35	20.4	7.934	24.953	3.67		<1	<1
W3	-17.3736	2/27/96	1014				1.38	43	25.6	359	0.17	2.4	354	9954	1.47	45.53	26.7	374	0.49	20.7	7.882	24.986	3.71		<1	<1
W3	-17.3736	3/13/96	1044				1.39	43	25.6	359	0.38	5.3	358	10052	1.45	44.91	27.4	384	0.40	20.8	7.853	24.860	3.76		<1	<1
W3	-17.3736	4/2/96	857				1.31	41	24.3	340	0.15	2.1	375	10540	1.41	43.67	27.5	385	0.35	20.8	7.864	25.056	3.72		<1	<1
W3	-17.3736	5/15/96	1011				1.38	43	25.2	353	0.12	1.7	371	10406	1.44	44.60	26.7	374	0.38	21.3	7.838	25.120	3.69		<1	<1
W3	-17.3736	6/18/96	923				1.40	43	25.1	351	0.10	1.4	362	10172	1.46	45.22	26.8	376	0.49	21.0	7.865	25.009	3.65		<1	<1
W3	-17.3736	7/17/96	956				1.38	43	25.5	357	0.12	1.7	357	10035	1.40	43.36	27.2	381	0.34	21.0	7.862	24.808	3.61		<1	<1
W3	-17.3736	8/6/96	1006				1.29	40	27.1	379	0.31	4.3	366	10291	1.38	42.74	28.5	399	0.31	21.2	7.852	24.585	3.82		<1	<1
W3	-17.3736	9/4/96	952				1.35	42	28.3	396	0.38	5.3	361	10132	1.42	43.98	30.2	423	0.43	21.0	7.864	24.540	3.83		<1	<1
W3	-17.3736	10/9/96	1005				1.31	41	27	376	0.27	3.8	373	10481	1.38	42.74	28.1	394	0.44	21.1	7.864	24.546	4.60		<1	<1
W3	-17.3736	11/6/96	952				1.36	42	27	381	0.25	3.5	366	10281	1.51	46.77	30.2	423	0.52	21.0	8.011	24.562	3.87		3	<1
W3	-17.3736	12/17/96	949				1.35	42	27	373	0.27	3.8	353	9909	1.42	43.98	29.5	413	0.34	21.0	7.938	24.615	3.85		<1	<1
W3	-17.3736	1/14/97	1006				1.30	40	27	372	0.10	1.4	368	10330	1.35	41.81	28.5	399	0.35	21.1	7.879	24.519	3.90		<1	<1
W3	-17.3736	2/10/97	1135				1.50	46	27	373	0.25	3.5	369	10369	1.50	46.46	27.9	391	0.29	21.4	7.872	24.660	3.88		<1	<1
W3	-17.3736	3/10/97	1130				1.24	38	26	365	0.06	0.8	378	10616	1.34	41.50	26.6	373	0.42	21.3	7.877	24.834	4.27		<1	<1
W3	-17.3736	4/23/97	952				1.44	45	26	361	0.27	3.8	356	9990	1.56	48.32	28.2	395	0.33	20.8	7.887	24.920	3.60		<1	<1
W3	-17.3736	5/28/97	851				1.31	41	27	373	0.06	0.8	348	9760	1.48	45.84	32.1	450	0.35	20.7	7.900	24.927	3.78		<1	<1
W3	-17.3736	6/17/97	950				1.37	42	26	357	0.19	2.7	360	10119	1.47	45.53	26.5	371	0.37	20.4	7.913	24.940	3.84		<1	<1
W3	-17.3736	7/15/97	941				1.46	45	27	378	0.10	1.4	349	9802	1.54	47.70	28.1	393	0.33	20.3	7.921	24.775	3.77		<1	<1
W3	-17.3736	8/26/97	955				1.36	42	26.2	366	0.28	3.9	355	9976	1.46	45.22	27.1	380	0.35	20.7	7.987	24.784	3.73		<1	<1
W3	-17.3736	9/23/97	1159				1.39	43	26.6	373	0.25	3.5	347	9751	1.44	44.60	27.4	384	0.37	21.7	8.024	24.822	3.91		<1	<1
W3	-17.3736	10/15/97	918				1.40	43	26.6	373	0.24	3.4	363	10187	1.55	48.01	28.1	394	0.39	21.0	8.040	24.929	3.72		<1	<1
W3	-17.3736	11/4/97	1035				1.33	41	26.9	376	0.04	0.6	342	9600	1.48	45.84	30.7	431	0.29	20.7	8.050	24.997	3.89		<1	<1
W3	-17.3736	12/16/97	953				1.45	45	24.5	343	0.02	0.3	362	10170	1.60	49.56	27.8	389	0.30	20.3	8.027	25.211	3.77		<1	<1
W3	-17.3736	1/5/98	1231				1.40	43	26	360	0.08	1.1	351	9851	1.51	46.77	27.3	382	0.34	20.9	8.028	25.171	3.83		<1	<1
W3	-17.3736	2/3/98	1048				1.38	43	26	367	0.05	0.7	366	10279	1.56	48.32	28.1	394	0.32	20.8	8.015	25.128	3.84		<1	<1
W3	-17.3736	3/10/98	1106				1.46	45	25.2	353	0.10	1.4	356	9984	1.56	48.32	27.4	384	0.34	20.9	7.842	25.304	3.83		<1	<1
W3	-17.3736	4/14/98	932				1.48	46	25	354	0.03	0.4	357	10029	1.55	48.01	29	399	0.35	20.8	7.852	25.378	3.82		<1	<1
W3	-17.3736	5/12/98	1055				1.46	45	25.0	350	0.11	1.5	354	9928	1.53	47.39	26.8	376	0.33	21.1	7.862	25.565	3.82		<1	<1
W3	-17.3736	6/2/98	1048				1.38	43	25.2	353	0.05	0.7	356	9984	1.51	46.77	27	376	0.30	20.8	7.858	25.520	3.84		<1	<1
W3	-17.3736	7/14/98	1058				1.48	46	23.9	335	0.13	1.8	359	10069	1.61	49.87	26	359	0.30	21.1	7.837	25.670	3.71		<1	<1
W3	-17.3736	8/11/98	1117				1.42	44	24.7	346	0.13	1.8	354	9951	1.53	47.39	26.7	373	0.30	20.8	7.823	25.667	3.86		<1	<1
W3	-17.3736	9/15/98	1151				1.43	44	25.8	361	0.03	0.4	361	10147	1.59	49.25	28.9	405	0.32	20.7	7.821	25.359	3.85		<1	<1
W3	-17.3736	10/13/98	1025				1.42	44	25	350	0.05	0.7	393	11035	1.50	46.46	27	374	0.32	21.0	7.838	25.384	4.10		<1	<1
W3	-17.3736	11/4/98	1058				1.36	42	26	357	0.05	0.7	369	10369	1.39	43.05	27	384	0.37	21.0	7.852	25.409	3.81		<1	<1
W3	-17.3736	12/16/98	1038				1.31	41	24.7	346	0.07	1.0	352	9886	1.44	44.60	29.0	406	0.49	22.0	7.846	25.358	3.86		<1	<1
W3	-17.3736	1/12/99	1113				1.33	41	24.5	343	0.16	2.2	353	9917	1.48	45.84	26.3	368	0.36	20.9	7.847	25.516	3.88		<1	<1
W3	-17.3736	2/3/99	1101				1.34	42	25.2	353	0.09	1.3	352	9875	1.45	44.91	29.2	409	0.46	20.9	7.855	25.719	3.86		<1	<1
W3	-17.3736	3/2/99	1109				1.35	42	24.0	336	0.06	0.8	350	9833	1.46	45.22	26.9	377	0.36	20.7	7.837	25.859	4.28		<1	<1
W3	-17.3736	4/6/99	1059				1.34	42	23.8	333	0.06	0.8	362	10161	1.44	44.60	25.6	359	0.43	20.8	7.834	25.770	3.76		<1	<1
W3	-17.3736	5/4/99	1104				1.32	41	24.1	338	0.05	0.7	351	9850	1.35	41.81	28.1	394	0.31	20.7	7.831	25.791	3.85		<1	<1
W3	-17.3736	6/2/99	1048				1.39	43	23.7	332	0.12	1.7	347	9746	1.45	44.91	26.3	368	0.31	20.9	7.833	25.799	3.81		<1	<1

NELHA Water Quality Laboratory

Well 3 Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W3	-17.3736	7/7/99	1121				1.37	42	24.1	338	0.04	0.6	356	9984	1.44	44.60	25.7	360	0.29	21.0	7.832	25.705	3.90		<1	<1
W3	-17.3736	8/25/99	1054				1.29	40	24.7	346	0.04	0.6	355	9970	1.45	44.91	26.9	377	0.30	20.7	7.879	25.759	3.80		<1	<1
W3	-17.3736	9/8/99	1057				1.31	41	25.2	353	0.04	0.6	364	10232	1.43	44.29	28.2	395	0.30	20.7	7.890	25.695	3.72		<1	<1
W3	-17.3736	10/6/99	1102				1.45	45	25.3	354	0.06	0.8	344	9647	1.54	47.70	27.2	381	0.33	20.9	7.887	25.650	3.76		<1	<1
W3	-17.3736	11/3/99	1116				1.39	43	25.4	356	0.07	1.0	352	9883	1.44	44.60	27.6	387	0.28	20.8	7.900	25.454	3.79		<1	<1
W3	-17.3736	12/15/99	1133				1.40	43	24.8	347	0.09	1.3	355	9965	1.50	46.46	30.3	424	0.36	21.1	7.840	25.699	3.59		<1	<1
W3	-17.3736	1/11/00	1108				1.31	41	25.9	363	0.18	2.5	349	9810	1.45	44.91	28.9	405	0.35	20.8	7.853	25.616	3.84		<1	<1
W3	-17.3736	2/14/00	1125				1.40	43	24.3	340	0.17	2.4	343	9619	1.42	43.98	27.9	391	0.35	20.7	7.878	25.882	3.80		<1	<1
W3	-17.3736	3/22/00	1135				1.35	42	24.7	346	0.12	1.7	350	9838	1.38	42.74	28.4	398	0.44	20.8	7.892	26.045	3.67		<1	<1
W3	-17.3736	4/12/00	1118				1.37	42	24.6	345	0.11	1.5	354	9937	1.44	44.60	27.6	387	0.39	20.9	7.880	25.933	3.69		<1	<1
W3	-17.3736	5/17/00	1055				1.36	42	24.2	339	0.02	0.3	347	9746	1.41	43.67	27.0	378	0.37	20.8	7.880	25.975	3.72		<1	<1
W3	-17.3736	6/6/00	1133				1.34	42	23.7	332	0.03	0.4	347	9757	1.41	43.67	26.5	371	0.34	21.8	7.871	25.905	3.66		<1	<1
W3	-17.3736	7/31/00	1122				1.38	43	24.0	336	0.06	0.8	344	9673	1.48	45.84	27.3	382	0.57	20.8	7.886	26.017	3.75		<1	<1
W3	-17.3736	8/30/00	1127				1.37	42	24.8	347	0.03	0.4	344	9659	1.44	44.60	26.0	364	0.31	20.9	7.847	26.061	3.61		<1	<1
W3	-17.3736	9/6/00	1106				1.36	42	23.8	333	0.04	0.6	350	9838	1.47	45.53	26.0	364	0.32	21.1	7.840	26.092	3.67		<1	<1
W3	-17.3736	10/25/00	1043				1.37	42	23.0	322	0.16	2.2	358	10046	1.45	44.91	26.7	375	0.33	22.1	7.862	26.056	4.25		<1	<1
W3	-17.3736	11/14/00	1057				1.24	38	23.4	328	0.31	4.3	347	9740	1.47	45.53	31.0	434	0.41	22.2	7.860	25.943	3.73		<1	1
W3	-17.3736	12/19/00	1048				1.32	41	25.1	352	0.18	2.5	362	10164	1.49	46.15	27.3	382	0.40	21.6	7.873	25.892	3.72		<1	<1
W3	-17.3736	1/24/01	1042				1.38	43	24.1	337	0.12	1.7	357	10035	1.34	41.50	33.8	473	0.36	21.4	7.929	26.081	3.52		<1	<1
W3	-17.3736	2/7/01	1111				1.30	40	24.5	343	0.05	0.7	353	9903	1.38	42.74	29.3	410	0.38	21.7	7.884	26.160	3.70		<1	1
W3	-17.3736	3/12/01	1056				1.29	40	23.1	324	0.03	0.4	356	9996	1.44	44.60	**27.8**	389	0.47	22.8	7.837	26.166	3.95		<1	<1
W3	-17.3736	4/18/01	1048				1.38	43	24.7	346	0.04	0.6	360	10111	1.44	44.60	25.0	350	0.33	22.1	7.822	25.975	3.82		<1	<1
W3	-17.3736	5/14/01	924				2.20	68	24.2	339	0.17	2.4	359	10086	2.52	78.05	25.9	363	0.31	21.9	7.836	26.003	4.06		<1	<1
W3	-17.3736	6/13/01	1117				1.54	48	24.9	349	0.04	0.6	363	10192	1.70	52.66	26.9	377	0.30	22.4	7.845	25.889	4.39		<1	<1
W3	-17.3736	7/25/01	1025				1.44	45	24.8	347	0.05	0.7	361	10144	1.50	46.46	27.0	378	0.36	22.1	7.839	25.926	4.14		<1	<1
W3	-17.3736	8/20/01	1019				1.28	40	24.1	337	0.07	1.0	355	9956	1.39	43.05	27.3	382	0.47	22.1	7.850	25.860	4.18		<1	<1
W3	-17.3736	9/18/01	1057				1.28	40	24.8	348	0.12	1.7	352	9897	1.30	40.27	26.4	369	0.35	22.7	7.832	25.806	4.72		<1	<1
W3	-17.3736	10/9/01	1048				1.50	46	26.9	377	0.02	0.3	359	10069	1.60	49.56	30.4	426	0.37	22.6	7.833	25.324	4.39		<1	<1
W3	-17.3736	11/6/01	1015				1.36	42	27.9	390	0.06	0.8	360	10097	1.42	43.98	32.2	451	0.33	22.7	7.844	25.392	4.42		<1	<1
W3	-17.3736	12/18/01	1010				1.02	32	25.7	359	0.11	1.5	367	10302	1.16	35.93	29.9	419	0.33	21.8	7.842	25.456	4.29		<1	<1
W3	-17.3736	1/8/02	1024				1.38	43	25.8	361	0.29	4.1	358	10049	1.57	48.63	30.8	431	0.30	22.0	7.842	25.613	4.60		<1	<1
W3	-17.3736	2/27/02	1023				1.42	44	25.0	351	0.04	0.6	350	9824	1.46	45.22	29.2	410	0.31	22.0	7.847	25.995	4.65		<1	<1
W3	-17.3736	3/19/02	1030				1.32	41	25.1	352	0.14	2.0	355	9962	1.44	44.60	26.2	367	0.33	22.2	7.859	25.968	4.13		<1	<1
W3	-17.3736	4/9/02	1022				1.30	40	25.0	350	0.10	1.4	356	10004	1.54	47.70	27.3	382	0.40	22.3	7.826	25.984	4.04		<1	<1
W3	-17.3736	5/21/02	1025				1.24	38	23.8	333	0.04	0.6	350	9830	1.30	40.27	27.0	378	0.31	22.6	7.854	26.018	4.33		<1	<1
W3	-17.3736	6/18/02	1038				1.30	40	25.7	360	0.04	0.6	360	10111	1.42	43.98	27.6	387	0.22	22.6	7.844	25.787	4.43		<1	<1
W3	-17.3736	7/17/02	1016				1.38	43	26.0	364	0.02	0.3	358	10043	1.44	44.60	25.1	352	0.29	22.8	7.860	25.795	4.65		<1	<1
W3	-17.3736	8/22/02	1055				1.38	43	24.1	337	0.13	1.8	354	9942	1.46	45.22	24.3	341	0.38	23.4	7.841	25.972	4.26		<1	<1
W3	-17.3736	9/24/02	1036				1.34	42	25.6	358	0.17	2.4	362	10178	1.48	45.84	24.6	345	0.25	22.3	7.871	25.947	4.81		<1	<1
W3	-17.3736	10/16/02	1049				1.37	42	27.1	379	0.25	3.5	364	10212	1.55	48.01	30.0	420	0.52	22.7	7.859	25.614	4.26		<1	<1
W3	-17.3736	11/6/02	1034				1.41	44	28.5	399	0.19	2.7	359	10088	1.49	46.15	23.4	328	0.42	21.9	7.854	25.758	4.17		<1	<1
W3	-17.3736	12/19/02	1122				1.17	36	25.8	361	0.04	0.6	358	10043	1.44	44.60	23.5	329	0.52	22.0	7.861	25.738	4.15		<1	<1
W3	-17.3736	1/22/03	1112				1.50	46	23.9	335	0.03	0.4	360	10097	1.62	50.18	27.6	386	0.25	21.7	7.881	25.813	4.03		<1	<1
W3	-17.3736	2/20/03	1027				1.36	42	26.2	366	0.02	0.3	262	7358	1.44	44.60	27.4	384	0.26	21.5	7.892	25.771	4.47		<1	<1
W3	-17.3736	3/18/03	1013				1.40	43	22.0	308	0.02	0.3	370	10389	1.47	45.53	24.9	349	0.21	22.3	7.861	25.942	4.72		<1	<1
W3	-17.3736	4/29/03	1020				1.47	46	24.4	342	0.04	0.6	361	10139	1.57	48.63	27.3	382	0.24	22.8	7.899	25.914	4.99		<1	<1
W3	-17.3736	5/13/03	1047				1.51	47	23.6	330	0.05	0.7	364	10234	1.65	51.11	25.1	351	0.29	21.9	7.898	25.926	3.69		<1	<1
W3	-17.3736	6/5/03	1015				1.48	46	23.0	322	0.10	1.4	352	9878	1.54	47.70	27.5	385	0.24	22.3	7.884	25.953	3.87		<1	<1

NELHA Water Quality Laboratory

Well 3 Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W3	-17.3736	7/31/03	1035				1.39	43	24.6	344	0.31	4.3	357	10012	1.53	47.39	27.5	385		22.1	7.861	25.944	4.97		<1	<1
W3	-17.3736	8/27/03	1053				1.40	43	24.9	348	0.08	1.1	349	9813	1.52	47.08	31.4	440		22.1	7.854	25.827	4.95		<1	<1
W3	-17.3736	9/17/03	1020				1.52	47	25.4	355	0.03	0.4	362	10173	1.76	54.51	27.2	381		22.9	7.845	25.721	3.91		<1	1
W3	-17.3736	10/7/03	1021				1.42	44	25.3	355	0.34	4.8	361	10125	1.46	45.22	29.7	416		22.6	7.849	25.761	NA		<1	<1
W3	-17.3736	11/4/03	1002				1.42	44	23.0	323	0.34	4.8	360	10105	1.56	48.32	29.1	408		22.7	7.866	25.641			<1	<1
W3	-17.3736	11/14/03	1138																	22.8			3.90			
W3	-17.3736	12/16/03	959				1.43	44	25.8	361	0.40	5.6	363	10181	1.42	43.98	30.4	426		22.8	7.854	25.541	3.98		<1	<1
W3	-17.3736	1/27/04	1020				1.39	43	26.2	367	0.61	8.5	358	10060	1.49	46.15	28.4	398		22.4	7.898	25.681	4.42		<1	<1
W3	-17.3736	2/10/04	1017				1.36	42	25.6	359	0.15	2.1	341	9563	1.37	42.43	27.6	387		22.3	7.850	25.789	4.03		<1	<1
W3	-17.3736	3/15/04	1021				1.52	47	26.3	368	0.04	0.6	363	10181	1.62	50.18	26.8	376		22.8	7.877	25.650	3.56		<1	<1
W3	-17.3736	4/21/04	932				1.37	42	26.9	376	0.15	2.1	362	10153	1.33	41.20	27.7	388		21.6	7.866	25.591	5.27		<1	<1
W3	-17.3736	5/12/04	927				1.46	45	26.0	364	0.16	2.2	361	10144	1.54	47.70	28.8	403		22.5	7.879	24.95	5.24		<1	<1
W3	-17.3736	6/7/04	1002				1.38	43	26.5	371	0.12	1.7	355	9973	1.50	46.46	28.3	397		22.8	7.851	24.90	4.70		<1	<1
W3	-17.3736	7/8/04	1032				1.44	45	25.9	362	0.20	2.8	368	10338	1.58	48.94	29.4	411	0.26	21.8	7.882	24.76	3.96		<1	<1
W3	-17.3736	8/24/04	1005				1.40	43	27.1	379	0.19	2.7	358	10063	1.44	44.60	28.2	396		22.2	7.870	24.59	3.94		<1	<1
W3	-17.3736	9/28/04	1015				1.32	41	26.2	367	0.16	2.2	361	10128	1.36	42.12	28.7	402		22.1	7.842	24.81	3.85		<1	<1
W3	-17.3736	10/5/04	1105				1.38	43	27.8	389	0.21	2.9	359	10094	1.48	45.84	29.9	418		22.3	7.869	24.61	3.94		<1	<1
W3	-17.3736	11/8/04	1006				1.40	43	25.6	358	0.23	3.2	357	10018	1.48	45.84	29.3	411		22.2	7.871	24.34	3.96		<1	<1
W3	-17.3736	12/7/04	1007				1.42	44	27.6	387	0.16	2.2	360	10097	1.44	44.60	30.6	428		22.2	7.902	24.45	3.94		<1	<1
W3	-17.3736	1/11/05	950				1.34	42	25.8	361	0.16	2.2	376	10557	1.40	43.36	27.9	391		22.6	7.943	25.572	4.46		<1	<1
W3	-17.3736	2/8/05	955				1.36	42	27.2	380	0.16	2.2	356	10001	1.48	45.84	32.8	460		22.6	7.942	25.714	4.02		<1	<1
W3	-17.3736	3/16/05	1043				1.32	41	28.7	401	0.29	4.1	353	9900	1.46	45.22	30.2	423	0.22	21.9	7.920	25.775	4.04		<1	<1
W3	-17.3736	4/18/05	1046				1.46	45	26.6	373	0.19	2.7	362	10175	1.62	50.18	30.8	431		22.9	7.904	25.672	3.69		<1	<1
W3	-17.3736	5/24/05	1003				1.32	41	26.3	368	0.21	2.9	347	9734	1.42	43.98	32.0	448		22.8	7.855	25.878	4.14		<1	<1
W3	-17.3736	6/13/05	1024				1.38	43	26.2	366	0.14	2.0	357	10018	1.50	46.46	28.1	394		22.9	7.875	25.669	3.94		<1	<1
W3	-17.3736	7/11/05	1025				1.52	47	25.5	357	0.18	2.5	359	10080	1.88	58.23	30.9	433		22.2	7.869	25.751	5.94		<1	<1
W3	-17.3736	8/10/05	940				1.42	44	25.9	363	0.16	2.2	356	10010	1.52	47.08	27.2	381		22.9	7.891	25.674	3.86		<1	<1
W3	-17.3736	9/21/05	933				1.38	43	26.3	369	0.06	0.8	350	9838	1.54	47.70	28.8	404	0.30	22.8	7.893	25.615	3.90		<1	<1
W3	-17.3736	10/18/05	958				1.42	44	25.7	361	0.13	1.8	351	9869	1.62	50.18	29.8	417		22.7	7.893	25.791	3.96		<1	<1
W3	-17.3736	11/3/05	943				1.40	43	26.0	364	0.26	3.6	353	9920	1.56	48.32	26.4	370		22.5	7.904	25.903	3.96		<1	<1
W3	-17.3736	12/21/05	1030				1.42	44	20.3	284	0.24	3.4	361	10125	1.52	47.08	23.0	322	0.45	22.6	7.896	25.876	4.63		<1	2
W3	-17.3736	1/24/06	937				1.40	43	24.8	348	0.31	4.3	356	10001	1.46	45.22	28.9	404		21.9	7.871	26.053	3.96		<1	<1
W3	-17.3736	2/15/06	935				1.39	43	27.4	384	0.21	2.9	352	9892	1.54	47.70	28.8	404	0.19	22.2	7.880	25.972	3.94		<1	<1
W3	-17.3736	3/21/06	928				1.34	42	25.7	360	0.17	2.4	354	9942	1.43	44.29	26.5	371	0.21	21.9	7.883	26.208	3.81		<1	<1
W3	-17.3736	4/26/06	943				1.35	42	23.4	328	<0.05	0.0	345	9689	1.47	45.53	21.4	300	0.28	21.3	7.892	26.284	3.86		<1	<1
W3	-17.3736	5/23/06	1013				1.35	42	25	350	0.09	1.3	350	9830	1.36	42.12	23.4	327	0.36	22.3	7.903	26.195	4.27		<1	<1
W3	-17.3736	6/27/06	1011				1.52	47	25.8	361	0.14	2.0	355	9970	1.64	50.80	22.7	318	0.22	21.1	7.855	26.296	3.64		<1	<1
W3	-17.3736	7/18/06	1009				1.35	42	24.8	347	0.14	2.0	347	9746	1.47	45.53	23.6	331	0.36	21.7	7.871	26.141	3.89		<1	<1
W3	-17.3736	8/8/06	949				1.34	42	24.0	336	0.05	0.7	356	9998	1.45	44.91	20.5	287	0.17	22.2	7.887	26.396	3.84		<1	<1
W3	-17.3736	9/19/06	1046				1.35	42	24.5	343	0.07	1.0	354	9942	1.47	45.53	23.5	329	0.24	22.0	7.850	26.186	3.88		<1	<1
W3	-17.3736	10/24/06	1025				1.32	41	24.7	346	0.38	5.3	353	9914	1.42	43.98	23.3	326	0.24	21.3	7.888	26.154	4.56		<1	<1
W3	-17.3736	11/28/06	1004				1.35	42	25.7	360	0.28	3.9	353	9914	1.50	46.46	23.2	325	0.25	21.3	7.875	25.875	3.81		<1	<1
W3	-17.3736	12/12/06	956				1.38	43	24.9	349	0.22	3.1	348	9774	1.41	43.67	23.4	328	0.26	21.0	7.867	25.875	3.75		<1	<1
W3	-17.3736	1/9/07	1024				1.42	44	25.0	350	0.28	3.9	348	9774	1.47	45.53	26.7	374	0.23	20.8	7.900	25.935	3.89		<1	<1
W3	-17.3736	2/22/07	1010				1.38	43	25.8	361	0.32	4.5	356	9998	1.44	44.60	28.4	397	0.26	21.4	7.879	26.033	3.81		<1	<1
W3	-17.3736	3/6/07	1035				1.36	42	26.1	366	0.37	5.2	353	9914	1.44	44.60	27.2	381	0.31	22.0	7.894	26.183	3.82		<1	<1
W3	-17.3736	4/11/07	1157				1.34	42	26.7	374	0.22	3.1	366	10279	1.38	42.74	24.4	341	0.22	21.7	7.882	25.955	3.71		<1	<1
W3	-17.3736	5/3/07	1010				1.37	42	26.0	364	0.24	3.4	357	10027	1.45	44.91	25.1	351	0.27	21.6	7.892	26.015	3.67		<1	<1
W3	-17.3736	6/19/07	945				1.42	44	25.6	358	0.28	1.4	368	10335	1.5	46.2	21.6	303	0.16	21.6	7.919	25.953	3.89		<1	<1

NELHA Water Quality Laboratory

Well 3 Data Table

June 1989 - December 2014

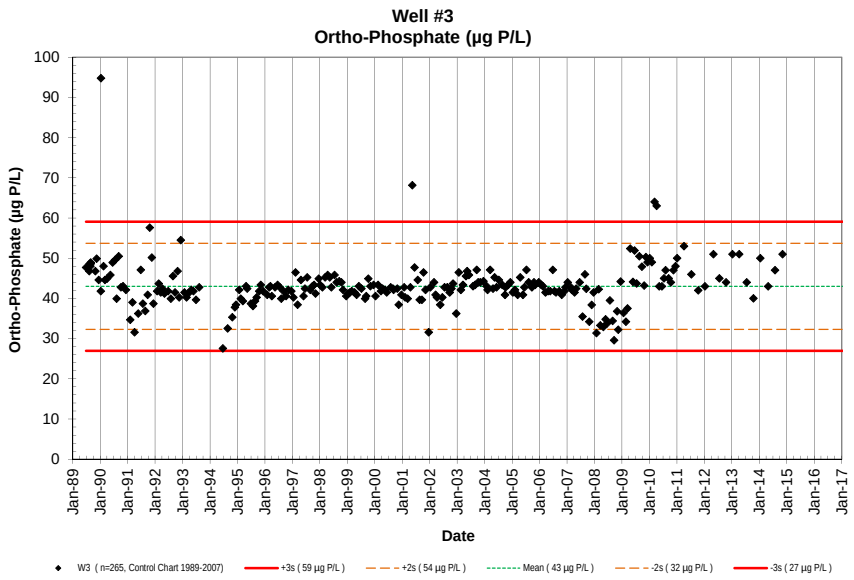
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W3	-17.3736	7/26/07	1115	-5.82	0.37	Flood	1.15	36	27.7	388	0.04	0.5	352	9899	1.5	45.9	30.9	432		20.7	7.77	25.80	3.56			
W3	-17.3736	8/28/07	1038	-5.39	0.00	Low	1.49	46	28.7	401	0.04	0.5	409	11479	1.6	50.7	30.8	431		20.8	7.73	25.72	3.54			
W3	-17.3736	9/13/07	1248	-5.26	0.15	Low	1.37	42	24.6	344	2.98	41.8	371	10412	1.6	49.7	33.6	470		21.0	7.85	25.86	3.51			
W3	-17.3736	10/24/07	1215	-5.26	0.30	Flood	1.10	34	28.5	399	1.40	19.5	347	9745	1.4	43.0	31.6	443		21.2	7.88	25.85	3.38			
W3	-17.3736	11/26/07	1504	-4.52	0.09	Flood	1.24	38	27.4	384	0.08	1.1	348	9767	1.1	33.9	31.5	442		21.0	7.82	25.94	3.40			
W3	-17.3736	12/20/07	1141	-5.46	0.23	High	1.34	42	28.3	396	0.70	9.8	345	9694						20.7	7.88	25.48	3.50			
W3	-17.3736	1/28/08	1517	-6.10	0.06	Low	1.01	31	15.5	217	0.06	0.8	244	6862						21.2	7.73	25.95	3.33			
W3	-17.3736	2/27/08	1256	-4.83	0.06	Low	1.37	42	27.1	380	0.21	3.0	335	9406						20.8	7.70	25.86	3.65			
W3	-17.3736	3/20/08	1238	-5.51	0.12	Flood	1.08	33	26.3	369	0.06	0.8	309	8686						21.2	7.76	25.95	3.29			
W3	-17.3736	4/28/08	1211	-5.59	0.18	High	1.06	33	27.3	382	0.19	2.6	331	9287						21.3	7.75	25.84	3.72			
W3	-17.3736	5/29/08	1036		0.30	Flood	1.12	35	27.2	382	0.12	1.7	341	9564						21.5	7.78	25.86	3.58			
W3	-17.3736	6/19/08	1115	-5.64	0.21	Ebb	1.09	34	25.7	360	0.61	8.5	331	9286						21.6	7.66	26.04	3.35	1.21		
W3	-17.3736	7/24/08	1035	-5.56	0.46	Ebb	1.28	40	29.2	408	0.79	11.1	323	9071						20.6	7.68	25.81	3.89			
W3	-17.3736	8/30/08	1105		0.06	Flood	1.11	34	24.7	346	0.26	3.7	331	9290						20.9	7.78	25.99	3.59			
W3	-17.3736	9/18/08	958	-5.52	0.34	Ebb	0.96	30	18.6	261	0.42	5.9	203	5700						21.7	7.65	26.06	3.81	0.39		
W3	-17.3736	10/28/08	849	-5.74	0.24	Ebb	1.19	37	25.8	362	0.34	4.7	325	9140						22.7	7.47	25.73	3.41	5.01		
W3	-17.3736	11/13/08	1003	-5.73	0.15	Ebb	1.04	32	24.9	348	0.31	4.4	313	8794						23.2	7.73	25.67	3.59	5.06		
W3	-17.3736	12/15/08	1050	-5.63	0.37	Ebb	1.43	44	29.0	406	0.11	1.5	337	9458						22.1	7.99	25.32	3.94			
W3	-17.3736	1/21/09	1000	-5.89	0.12	Low	1.18	36	28.5	399	0.06	0.9	326	9160						22.9	8.01	25.69	3.67	0.62		
W3	-17.3736	2/23/09	1539	-5.76	0.37	High	1.10	34	30.1	421	0.90	12.6	354	9946						21.9	7.76	24.92	3.86	0.68		
W3	-17.3736	3/16/09	843	-5.85	0.18	High	1.21	38	25.5	357	0.13	1.8	333	9360						22.4	7.82	25.27	3.70	0.28		
W3	-17.3736	4/20/09	1423	-5.75	0.40	High	1.69	52	29.1	408	0.73	10.2	296	8310						24.1	7.71	25.90	3.64	2.09		
W3	-17.3736	5/27/09	734	-5.83	0.15	High	1.42	44	26.6	373	0.33	4.6	362	10177						20.7	8.10	25.89	3.28	0.15		
W3	-17.3736	6/18/09	1043	-5.78	0.40	Flood	1.68	52	27.3	382	0.49	6.9	147	4116						20.9	7.81	25.74	3.66	0.24		
W3	-17.3736	7/14/09	850	-5.77	0.37	Flood	1.41	44	24.2	340	0.27	3.8	168	4708						20.6	7.21	25.86	3.54	0.07		
W3	-17.3736	8/19/09	910	-5.93	0.03	Low	1.63	51	26.8	376	0.55	7.7	325	9133						20.9	7.19	25.95	3.76	0.56		
W3	-17.3736	9/22/09	932	-5.55	0.46	Ebb	1.55	48	23.5	329	0.46	6.5	210	5903						20.9	8.27	25.81	3.63	0.09		
W3	-17.3736	10/22/09	1410	-5.88	0.18	Ebb	1.39	43	19.4	271	0.87	12.2	137	3859						20.9	7.89	26.10	3.81	0.13		
W3	-17.3736	11/16/09	1503	-5.87	0.21	High	1.62	50	25.7	360	0.87	12.2	299	8406						20.8	7.86	26.20	3.50	0.07		
W3	-17.3736	12/7/09	1355	-5.92	0.09	Ebb	1.58	49	22.6	317	0.61	8.6	306	8582						21.6	7.80	25.75	3.70	0.11		
W3	-17.3736	1/5/10	1123	-5.65	0.21	Ebb	1.61	50	28.1	393	2.00	28.0	343	9647						21.5	7.83	25.58	4.06	0.70		
W3	-17.3736	2/1/10	1151	-5.87	-0.09	Low	1.58	49	31.0	434	0.86	12.0	302	8493						21.4	7.89	25.65	3.72	0.43		
W3	-17.3736	3/9/10	1146	-5.90	0.15	High	2.07	64	38.0	532	0.29	4.0	430	12073						21.3	7.88	22.20	3.43	0.16		
W3	-17.3736	4/6/10	1100	-5.92	0.15	High	2.03	63	29.0	406	0.29	4.0	353	9928						22.0	7.86	25.70	3.78	0.56		
W3	-17.3736	5/11/10	1127	-5.90	0.21	Flood	1.39	43	25.6	359	1.36	19.0	327	9171						22.9	7.93	25.13	3.97	0.07		
W3	-17.3736	6/15/10	1216	-6.03	0.06	Low	1.39	43	25.5	357	0.57	8.0	346	9715						20.3	7.90	25.61	4.73	0.09		
W3	-17.3736	7/13/10	1128	-5.97	0.00	Low	1.45	45	28.8	403	0.64	9.0	389	10913						20.6	7.88	24.81	3.88	0.13		
W3	-17.3736	8/3/10	1110	-5.52	0.55	High	1.52	47	28.1	394	0.21	3.0	379	10635						22.0	7.91	25.36	3.60	0.46		
W3	-17.3736	9/14/10	1110	-5.48	0.52	Ebb	1.45	45	29.8	417	0.33	4.6	406	11398						20.4	7.87	24.90	4.00	0.32		
W3	-17.3736	10/12/10	1120	-5.52	0.46	Ebb	1.42	44	27.8	389	0.16	2.3	391	10977						20.4	7.88	25.36	3.75	0.13		
W3	-17.3736	11/16/10	1035	-5.66	0.34	Flood	1.52	47	29.8	417	0.17	2.4	400	11244						20.5	7.89	24.98	3.75	0.07		
W3	-17.3736	12/14/10	1116	-5.63	0.34	Ebb	1.55	48	31.1	435	0.34	4.7	409	11474						20.6	7.87	24.04	3.95	0.03		
W3	-17.3736	1/4/11	1105	-5.83	0.03	Low	1.61	50	30.8	431	0.26	3.7	405	11372						20.5	7.82	24.89	3.74	0.10		
W3	-17.3736	4/5/11	1132	-5.97	-0.03	Low	1.71	53	28.6	400	0.03	0.4	379	10640						20.5	7.89	24.77	3.40	0.15		
W3	-17.3736	7/12/11	1118	-5.90	0.30	Flood	1.49	46	27.4	384	0.09	1.3	374	10500						20.5	7.82	25.57	3.71	0.03		
W3	-17.3736	10/11/11	1119	-5.90	0.15	Flood	1.36	42	25.3	355	0.19	2.6	354	9929						20.6	7.82	26.11	3.81	0.12		
W3	-17.3736	1/10/12	1118	-5.91	0.03	Ebb	1.39	43	27.3	383	0.19	2.6	375	10540						20.6	7.83	25.64	3.76	0.16		
W3	-17.3736	5/1/12	1136	-5.67	0.34	Flood	1.65	51	27.3	383	0.13	1.8	381	10707						20.6	7.84	25.83	3.72	0.07		
W3	-17.3736	7/18/12	1030	-5.99	0.03	Flood	1.45	45	27.4	384	0.31	4.4	369	10372						20.7	7.93	26.09	3.75	0.31		
W3	-17.3736	10/16/12	1116	-5.88	0.09	Low	1.42	44	27.5	385	0.14	1.9	367	10321						20.8	7.79	26.10	3.60	0.24		
W3	-17.3736	1/8/13	1139	-5.81	0.18	Flood	1.65	51	29.5	413	0.31	4.4	415	11661						20.8	7.78	25.83	3.71	0.25		
W3	-17.3736	4/9/13	1123	-5.98	0.00	Flood	1.65	51	26.0	364	0.36	5.1	362	10158						21.1	7.85	26.11	3.59	0.64		
W3	-17.3736	7/17/13	1237	-5.61	0.61	High	1.42	44	24.6	345	0.15	2.1	363	10202						21.0	7.75	26.11	3.84	0.10		
W3	-17.3736	10/15/13	1100	-5.71	0.37	Flood	1.29	40	27.8	389	0.25	3.5	352	9882						21.0	7.82	26.33	3.78	0.46		
W3	-17.3736	1/15/14	1102	-5.87	0.03	Low	1.61	50	27.8	389	0.34	4.8	354	9941						20.9	7.90	26.20	3.80	0.28		
W3	-17.3736	4/29/14	1201	-6.01	0.12	Flood	1.39	43	26.1	366	0.31	4.4	341	9571						21.0	7.81	26.21	3.96	0.36		

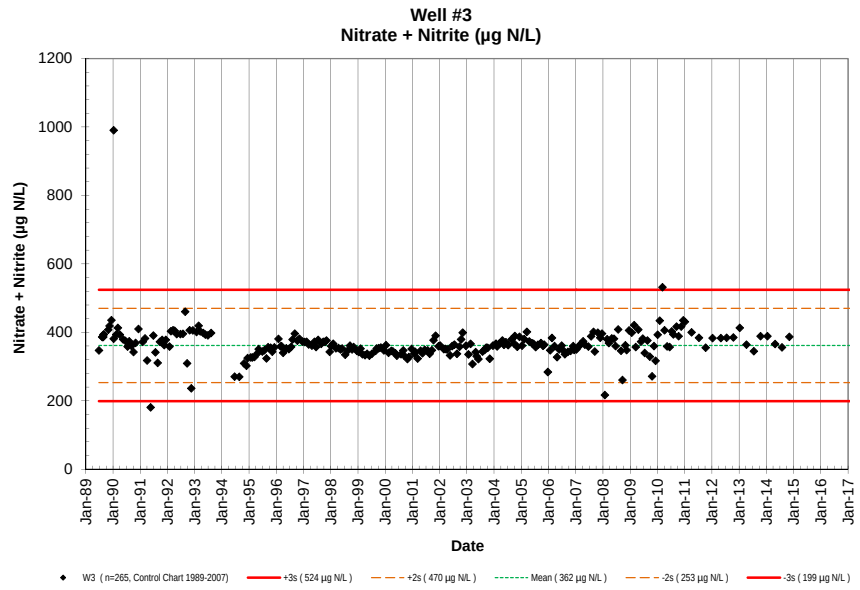
NELHA Water Quality Laboratory

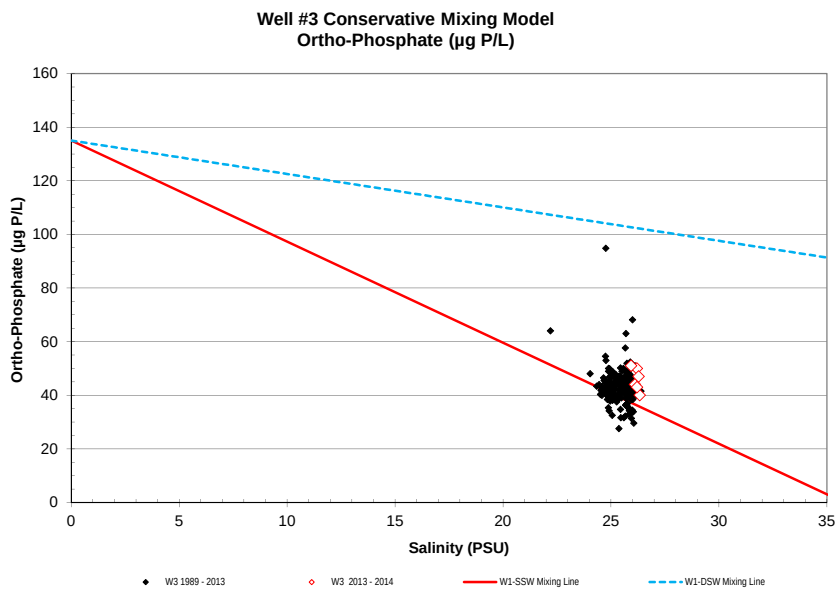
Well 3 Data Table

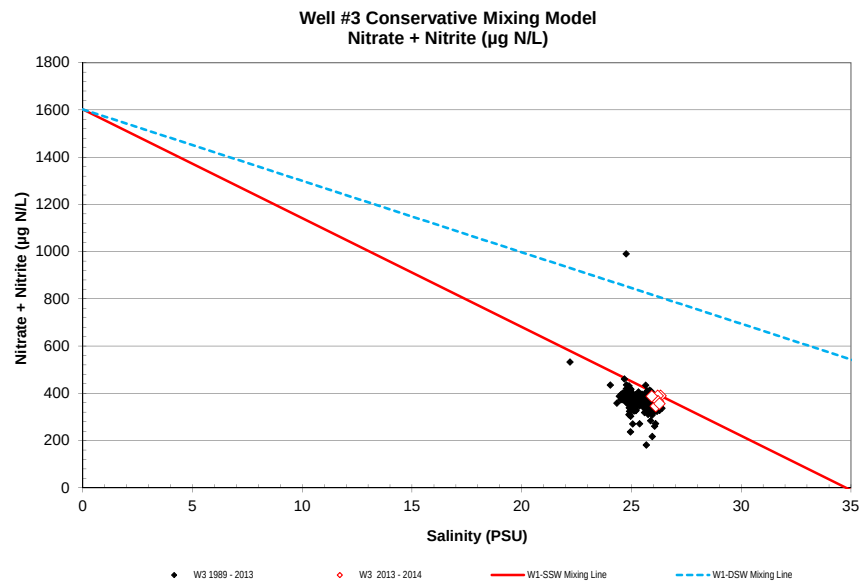
June 1989 - December 2014

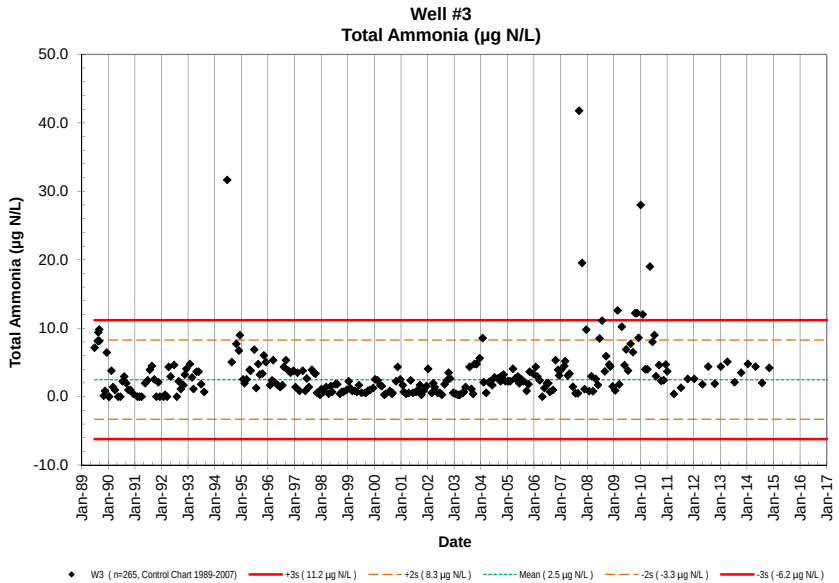
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W3	-17.3736	7/29/14	1141	-5.91	0.12	Low	1.52	47	25.4	356	0.14	2.0	355	9973						20.8	7.78	26.28	3.99	0.18		
W3	-17.3736	11/5/14	1135	-5.74	0.17	Flood	1.65	51	27.6	387	0.30	4.2	340	9547						21.1	7.85	25.93	3.91	0.24		
W3	-17.3736	1/1/15																								
W3	-17.3736	4/1/15																								

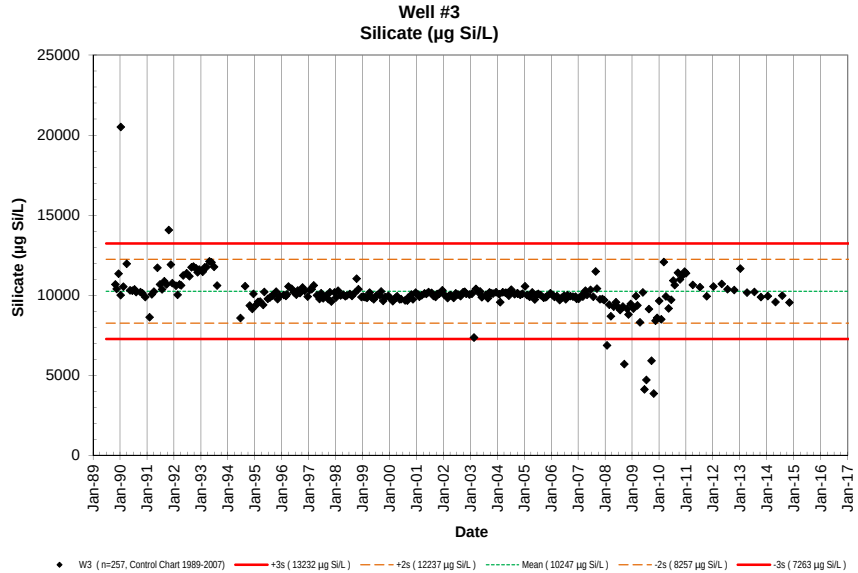

Well #3
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W3 (n=265, Control Chart 1989-2007)
+3s (59 µg P/L)
+2s (54 µg P/L)
Mean (43 µg P/L)
-2s (32 µg P/L)
-3s (27 µg P/L)

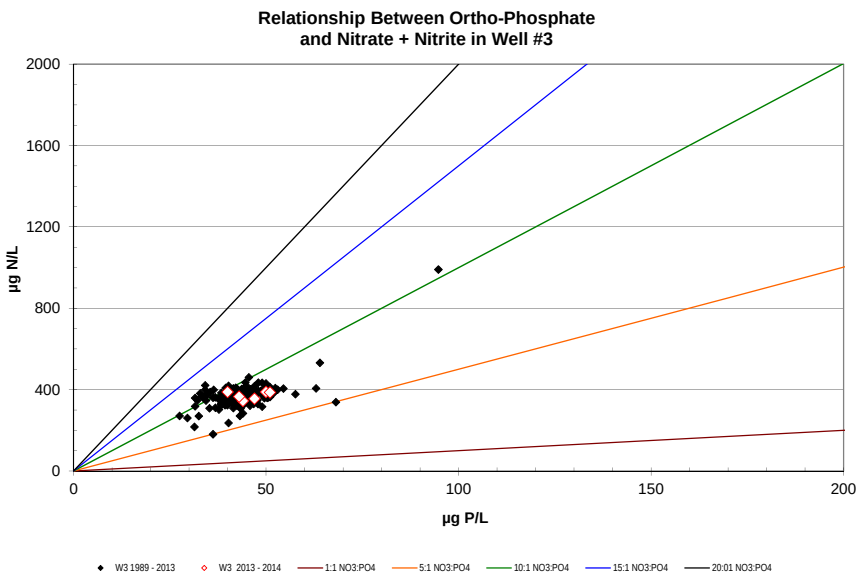

Well #3
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W3 (n=265, Control Chart 1989-2007)
+3s (524 µg N/L)
+2s (470 µg N/L)
Mean (362 µg N/L)
-2s (253 µg N/L)
-3s (199 µg N/L)

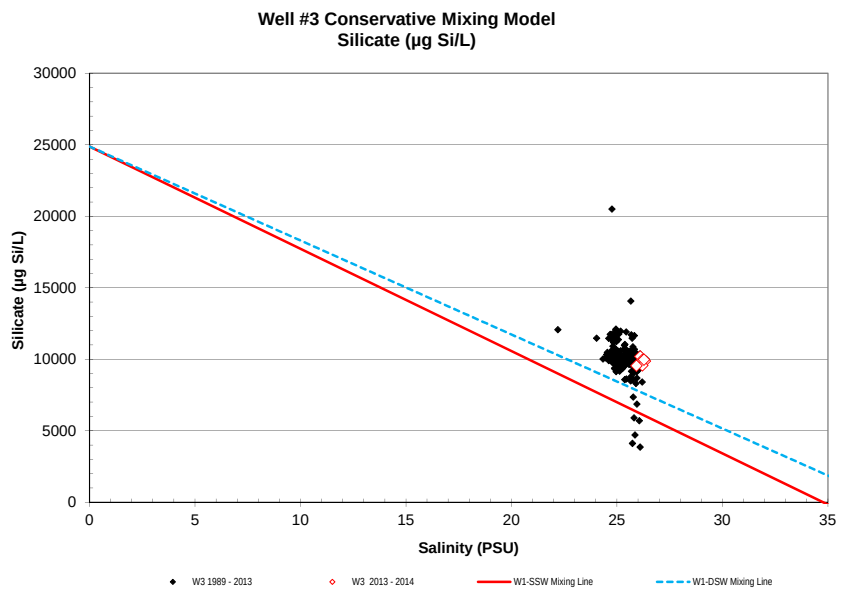

Well #3 Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W3 1989 - 2013
W3 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

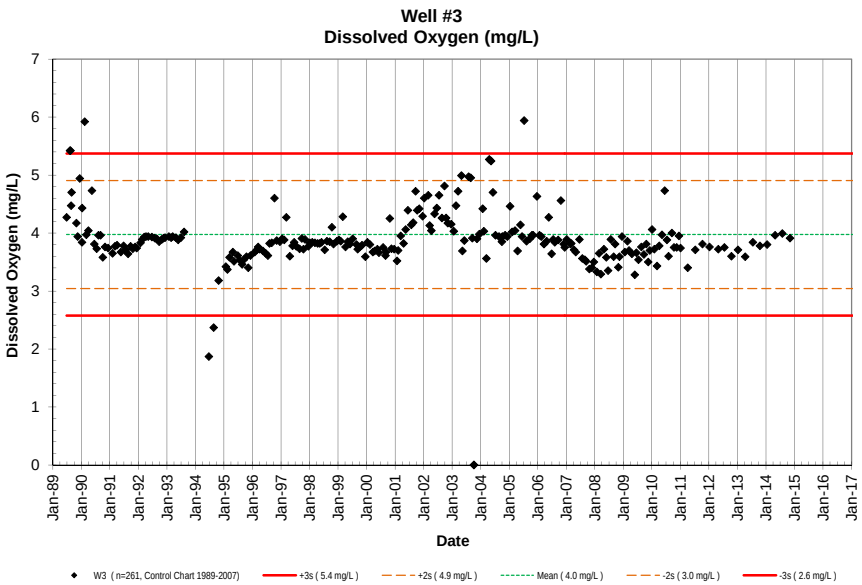

Well #3 Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W3 1989 - 2013
W3 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

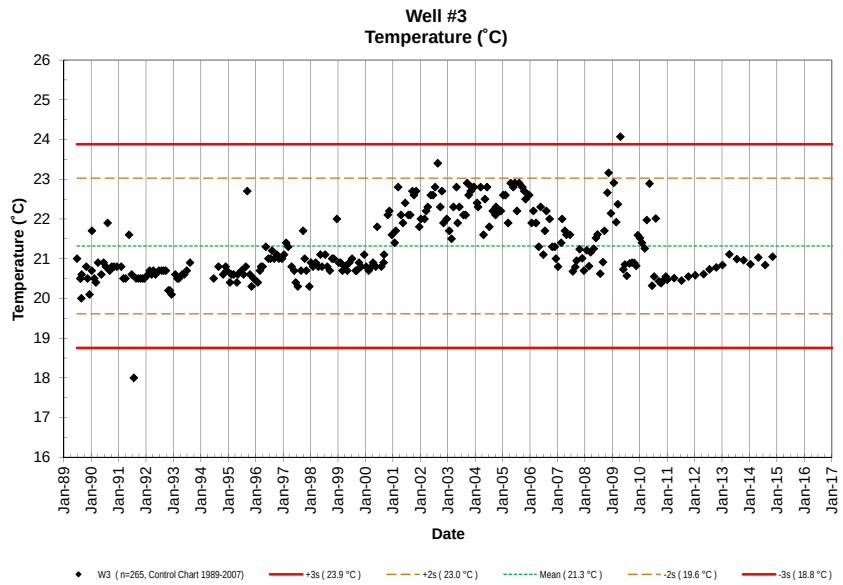

Well #3
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W3 (n=265, Control Chart 1989-2007)
+3s (11.2 µg N/L)
+2s (8.3 µg N/L)
Mean (2.5 µg N/L)
-2s (-3.3 µg N/L)
-3s (-6.2 µg N/L)

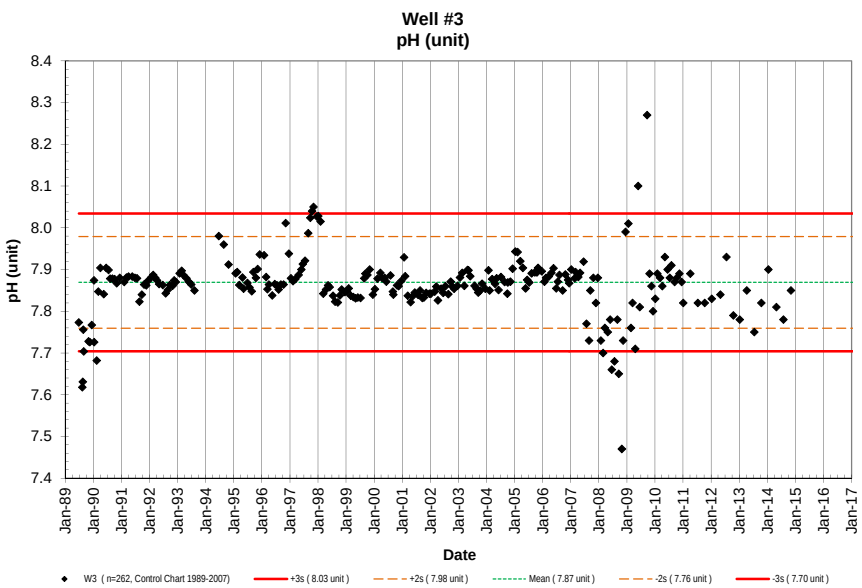

Well #3
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W3 (n=257, Control Chart 1989-2007)
+3s (13232 µg Si/L)
+2s (12237 µg Si/L)
Mean (10247 µg Si/L)
-2s (8257 µg Si/L)
-3s (7263 µg Si/L)

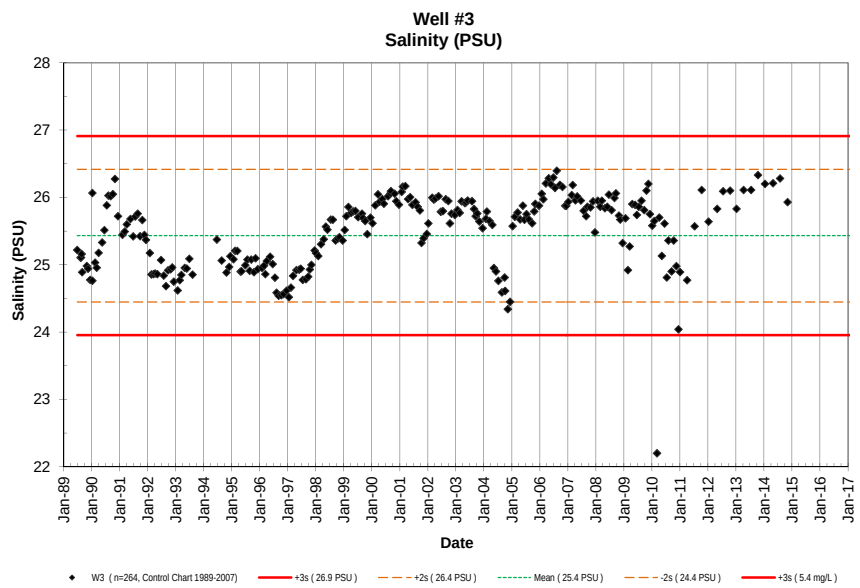

Relationship Between Ortho-Phosphate
and Nitrate + Nitrite in Well #3
µg N/L
µg P/L
W3 1989 - 2013
W3 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

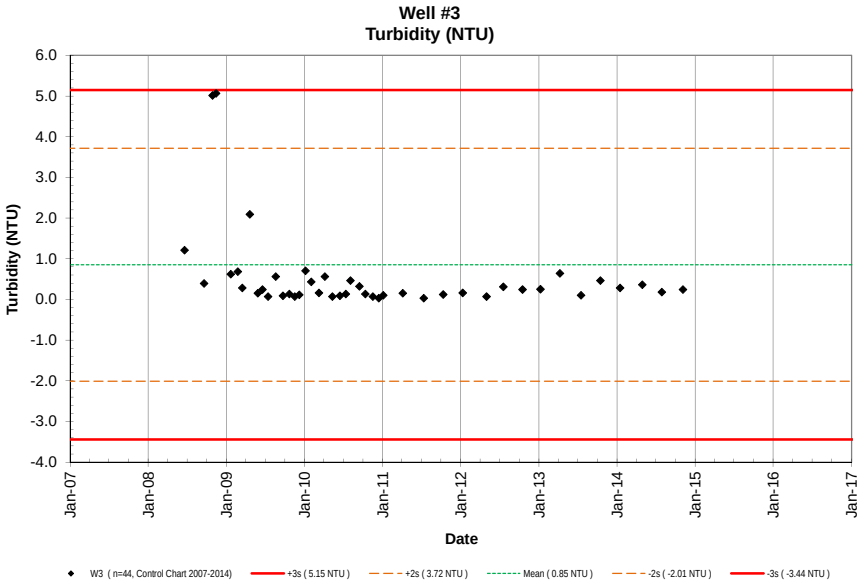

Well #3 Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W3 1989 - 2013
W3 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

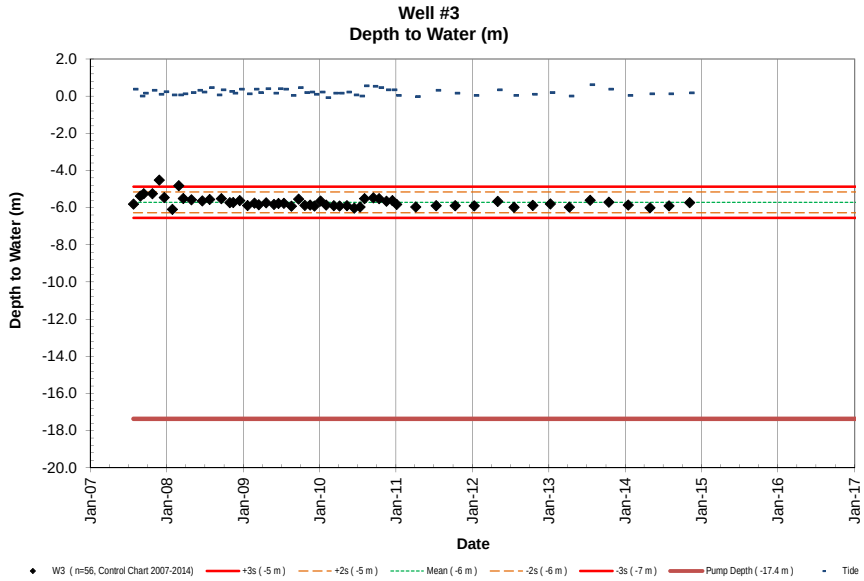

Well #3
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W3 (n=261, Control Chart 1989-2007)
+3s (5.4 mg/L)
+2s (4.9 mg/L)
Mean (4.0 mg/L)
-2s (3.0 mg/L)
-3s (2.6 mg/L)


Well #3
Temperature (˚C)
Temperature (˚C)
Date
W3 (n=265, Control Chart 1989-2007)
+3s (23.9 °C)
+2s (23.0 °C)
Mean (21.3 °C)
-2s (19.6 °C)
-3s (18.8 °C)


Well #3
pH (unit)
pH (unit)
Date
W3 (n=262, Control Chart 1989-2007)
+3s (8.03 unit)
+2s (7.98 unit)
Mean (7.87 unit)
-2s (7.76 unit)
-3s (7.70 unit)


Well #3
Salinity (PSU)
Salinity (PSU)
Date
W3 (n=264, Control Chart 1989-2007)
+3s (26.9 PSU)
+2s (26.4 PSU)
Mean (25.4 PSU)
-2s (24.4 PSU)
+3s (5.4 mg/L)


Well #3
Turbidity (NTU)
Turbidity (NTU)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W3 (n=44, Control Chart 2007-2014)
+3s (5.15 NTU)
+2s (3.72 NTU)
Mean (0.85 NTU)
-2s (-2.01 NTU)
-3s (-3.44 NTU)


Well #3
Depth to Water (m)
Depth to Water (m)
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
-12.0
-14.0
-16.0
-18.0
-20.0
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W3 (n=56, Control Chart 2007-2014)
+3s (-5 m)
+2s (-5 m)
Mean (-6 m)
-2s (-6 m)
-3s (-7 m)
Pump Depth (-17.4 m)
Tide

NELHA Water Quality Laboratory

Well 3A Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W3A	-8.53	6/27/89					3.14	97	63.0	882	0.19	2.7								22.1	7.793	11.870	6.93		NA	NA
W3A	-8.53	8/10/89	1337				2.94	91	71.4	1000	0.58	8.1								21.8	7.796	9.202	8.17		<1	NA
W3A	-8.53	8/16/89	1430				2.81	87	63.8	894	0.77	10.8								21.1	7.772	10.838	7.67		14	NA
W3A	-8.53	8/24/89	1118				2.91	90	62.2	871	0.48	6.7								22.1	7.891	10.477	7.73		<1	NA
W3A	-8.53	8/29/89	1032				3.26	101	71.9	1007	0.38	5.3								21.7	7.842	9.896	7.33		<1	NA
W3A	-8.53	8/29/89	1032				3.23	100	71.9	1007	0.38	5.3													NA	NA
W3A	-8.53	10/30/89	1045				3.22	100	73.5	1029	0.01	0.1	645	18115	3.27	101.28	86.2	1207	0.40	22.1	7.782	9.443	6.29		<1	NA
W3A	-8.53	11/16/89	1009				3.35	104	69.0	966	0.06	0.8	669	18789	3.58	110.89	76.0	1065	0.48	22.0	7.908	10.806	8.09		1	NA
W3A	-8.53	12/12/89	1021				3.35	104	77.6	1087	0.15	2.1	702	19716	3.45	106.86	78.6	1101	0.38	21.7	7.877	9.345	7.66		<1	NA
W3A	-8.53	1/11/90	1058				2.60	81	70.1	982	0.01	0.1	719	20193	2.76	85.49	73.4	1028	0.35	22.0	7.835	9.797	7.85		<1	NA
W3A	-8.53	2/14/90	1405				3.06	95	66.9	937	0.03	0.4	666	18705	3.43	106.24	57.0	798	0.35	21.9	7.839	10.504	7.65		<1	NA
W3A	-8.53	3/7/90	1352				2.86	89	72.9	1021	0.00	0.0	661		3.19	98.81	73.8	1034	0.38	21.8	7.972	9.928	7.65		<1	NA
W3A	-8.53	4/2/90	1417				2.94	91	69.7	976	0.52	7.3	649	18227	3.04	94.16	71.8	1006	0.36	21.8	7.994	9.799	7.37		<1	NA
W3A	-8.53	5/17/90	1010				3.01	93	69.2	969	0.00	0.0	629	17666	3.09	95.71	74.6	1045	0.25	22.3	7.940	9.954	7.40		<1	NA
W3A	-8.53	6/16/90	926				3.13	97	61.4	860	0.24	3.4	611	17160	3.19	98.81	64.5	903	0.38	22.9	7.993	12.476	6.59		<1	NA
W3A	-8.53	7/31/90	1002				2.75	85	44.9	629	0.01	0.1	551	15475	3.17	98.19	52.1	730	0.24	21.8	7.940	16.675	5.49		3	NA
W3A	-8.53	8/30/90	935				2.56	79	52.9	741	0.37	5.2	571	16037	2.76	85.49	53.8	754	0.40	22.4	7.921	16.416	5.75		<1	NA
W3A	-8.53	9/6/90	1008				2.99	93	63.7	893	0.00	0.0			2.81	87.04	65.1	912	0.33	21.9	7.969	12.994	5.75		<1	NA
W3A	-8.53	10/25/90	1008				2.80	87	58.3	816	0.00	0.0	661	18565	3.37	104.38	58.9	825	0.90	22.1	7.962	13.063	6.25		<1	NA
W3A	-8.53	11/14/90	1025				2.63	81	57.1	800	0.11	1.5	616	17301	2.94	91.06	58.0	812	0.43	22.2	7.944	14.241	5.82		<1	NA
W3A	-8.53	12/19/90	1009				2.23	69	51.8	726	0.10	1.4	547	15363	2.67	82.70	52.9	741	0.30	21.7	7.928	17.745	5.19		<1	NA
W3A	-8.53	1/24/91	820				2.64	82	60.9	853	0.01	0.1	582	16346	2.92	90.44	62.4	874	0.41	21.7	7.948	13.964	6.30		<1	NA
W3A	-8.53	2/7/91	838				2.84	88	62.3	873	0.25	3.5	597	16767	3.04	94.16	66.3	929	0.54	21.9	8.010	10.985	6.84		<1	NA
W3A	-8.53	3/12/91	902				2.76	85	68.7	962	0.03	0.4	612	17188	2.87	88.89	70.0	981	0.62	21.9	8.017	9.461	7.36		<1	NA
W3A	-8.53	4/4/91	831				2.65	82	62.9	880	0.01	0.1	626	17582	2.70	83.63	63.7	892	0.80	22.0	8.019	10.828	7.31		<1	NA
W3A	-8.53	5/22/91	912				2.57	80	31.4	440	0.00	0.0	632	17750	2.68	83.01	32.4	454	0.47	22.1	7.987	11.872	6.96		<1	NA
W3A	-8.53	6/26/91	918				2.90	90	76.1	1066	0.00	0.0	656	18424	3.10	96.02	75.4	1056	0.43	21.9	8.014	9.692	7.52		<1	<1
W3A	-8.53	7/24/91	950				2.41	75	63.6	891	0.08	1.1	608	17076	2.65	82.08	65.3	915	0.57	19.4	7.977	12.312	6.83		<1	<1
W3A	-8.53	8/23/91	911				2.58	80	66.4	930	0.09	1.3	628	17638	2.64	81.77	68.4	958	0.42	21.7	7.924	12.770	6.54		<1	<1
W3A	-8.53	9/24/91	837				2.76	85	67.7	948	0.00	0.0	629	17666	2.82	87.35	72.2	1011	0.39	21.8	7.951	11.167	6.98		<1	<1
W3A	-8.53	10/23/91	847				2.87	89	66.4	930	0.00	0.0	875	24575	3.00	92.92	68.8	964	0.38	21.9	7.969	12.113	6.82		<1	<1
W3A	-8.53	11/20/91	846				3.24	100	61.7	864	0.00	0.0	704	19772	3.40	105.31	64.1	898	0.39	21.8	7.947	12.446	6.57		<1	<1
W3A	-8.53	12/11/91	928				2.55	79	62.3	873	0.00	0.0	602	16907	2.58	79.91	64.8	908	0.51	21.9	7.942	13.513	6.25		<1	<1
W3A	-8.53	1/29/92	919				2.76	85	67.3	943	0.00	0.0	627	17610	2.83	87.66	68.6	961	0.97	22.0	7.976	11.705	6.88		<1	<1
W3A	-8.53	2/19/92	949				2.81	87	69.4	972	0.00	0.0	592	16627	2.80	86.73	75.2	1053	0.42	22.1	7.993	10.893	7.11		<1	<1
W3A	-8.53	3/17/92	900				2.83	88	70.4	986	0.00	0.0	662	18593	2.92	90.44	73.9	1035	1.00	21.9	7.997	10.493	7.30		<1	<1
W3A	-8.53	4/8/92	849				2.80	87	66.1	926	0.04	0.6	613	17216	2.91	90.13	70.0	980	0.61	22.0	7.965	11.812	7.79		<1	<1
W3A	-8.53	5/6/92	901				2.77	86	66.5	931	0.00	0.0	661	18565	2.88	89.20	69.1	968	0.72	21.9	7.959	11.682	6.97		<1	<1
W3A	-8.53	6/23/92	901				2.66	82	62.0	868	0.12	1.7	646	18143	2.66	82.39	64.4	902	0.99	21.8	7.933	13.270	6.60		<1	<1
W3A	-8.53	7/29/92	847				2.75	85	67.3	943	ND	0.0	674	18930	2.81	87.04	69.2	970	0.77	21.9	7.959	10.665	7.24		<1	<1
W3A	-8.53	8/26/92	835				3.16	98	83.6	1171	0.00	0.0	704	19772	3.18	98.50	86.1	1206	0.70	22.0	7.983	9.796	7.40		<1	<1
W3A	-8.53	9/22/92	832				2.77	86	68.0	952	0.00	0.0	675	18958	2.85	88.28	69.6	974	0.47	21.9	7.961	11.938	6.75		<1	<1
W3A	-8.53	10/27/92	855				2.83	88	62.7	879	0.00	0.0	644	18087	2.91	90.13	64.8	908	0.66	21.9	7.938	13.749	6.33		<1	<1
W3A	-8.53	11/17/92	910				2.61	81	64.4	901	0.08	1.1	633	17778	2.72	84.25	69.4	972	0.61	21.9	7.945	13.698	6.33		<1	<1
W3A	-8.53	12/8/92	853				2.88	89	72.5	1015	0.05	0.7	675	18958	2.88	89.20	74.1	1038	0.67	22.0	7.979	11.114	7.03		<1	<1
W3A	-8.53	1/26/93	908				2.69	83	67.4	944	0.16	2.2	662	18604	2.80	86.73	74.7	1046	0.46	22.0	7.987	11.772	6.82		<1	<1
W3A	-8.53	2/23/93	840				2.80	87	70.5	988	0.00	0.0	671	18854	2.84	87.97	77.4	1083	0.88	21.8	7.987	12.087	6.77		<1	<1
W3A	-8.53	3/16/93	840				2.81	87	68.7	962	0.07	1.0	675	18955	2.82	87.35	72.9	1021	0.66	21.8	7.979	12.026	6.78		<1	<1
W3A	-8.53	4/27/93	844				2.74	85	67.6	947	0.13	1.8	670	18826	2.81	87.04	70.8	991	0.44	21.9	7.957	12.768	6.61		<1	<1
W3A	-8.53	5/25/93	836				2.75	85	68.1	954	0.00	0.0	674	18930	2.74	84.87	74.0	1037	0.39	21.9	7.956	12.352	6.67		<1	<1
W3A	-8.53	6/28/93	915				2.65	82	65.3	915	0.02	0.3	653	18340	2.84	87.97	68.8	964	0.46	21.9	7.939	13.252	6.45		<1	<1
W3A	-8.53	8/9/93	825				2.76	85	69.4	973	0.00	0.0	611	17160	2.78	86.11	71.8	1005	0.61	21.9	7.977	12.030	6.80		<1	<1
W3A	-8.53	WELL SET RELOCATED																								
W3A	-8.53	6/21/94	835				3.67	114	84.5	1184	0.27	3.8	675	18957	3.68	113.98	103	1446	0.60	21.9	7.987	8.374	7.79		<1	<1

NELHA Water Quality Laboratory

Well 3A Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W3A	-8.53	8/23/94	902				3.56	110	86.5	1212	0.31	4.3	950	26677	3.57	110.58	95.0	1331	0.50	22.1	7.986	8.498	7.76		<1	<1
W3A	-8.53	10/25/94	923				3.57	111	81.9	1147	0.26	3.6	665	18671	3.58	110.89	85.3	1194	0.43	21.8	8.006	8.403	7.69		<1	<1
W3A	-8.53	11/28/94	1310				3.50	108	83.5	1169	0.23	3.2	663	18630	3.52	109.03		0		22.3		8.777			<1	<1
W3A	-8.53	12/13/94	939				3.46	107	85.4	1196	0.00	0.0	711	19963	3.49	108.10		0		22.2		8.390				
W3A	-8.53	1/24/95	918				3.49	108	83.4	1167	0.23	3.2	660	18522	3.55	109.96	87.6	1226	0.41	22.0	8.027	8.773	7.57		<1	<1
W3A	-8.53	2/14/95	901				3.38	105	83.1	1165	0.16	2.2	665	18680	3.42	105.93	84.6	1185	0.45	22.1	8.023	8.899	7.56		<1	<1
W3A	-8.53	3/14/95	949				3.44	107	83.0	1163	0.08	1.1	668	18750	3.46	107.17	85.0	1191	0.60	22.0	8.014	8.267	7.87		<1	<1
W3A	-8.53	4/25/95	1018				3.41	106	84.0	1177	0.27	3.8	702	19716	3.46	107.17	86.8	1216	0.41	21.8	8.034	8.115	7.76		<1	<1
W3A	-8.53	5/9/95	907				3.28	102	84.3	1180	0.12	1.7	704	19767	3.37	104.38	88.9	1246	0.46	21.9	8.003	7.917	7.83		<1	<1
W3A	-8.53	6/27/95	920				3.39	105	84.4	1183	0.40	5.6	674	18918	3.54	109.65	86.8	1216	0.47	22.0	8.017	8.126	7.87		1	<1
W3A	-8.53	7/25/95	935				3.25	101	84.4	1182	0.01	0.1	688	19334	3.45	106.86	87.8	1230	0.51	22.1	7.999	8.153	6.85		<1	<1
W3A	-8.53	8/22/95	1024				3.29	102	82.4	1155	0.32	4.5	682	19140	3.45	106.86	85.5	1198	0.51	22.3	7.994	8.310	7.62		<1	1
W3A	-8.53	9/12/95	805				3.46	107	83.6	1172	0.36	5.0	679	19059	3.49	108.10	86.6	1213	0.47	22.2	8.046	8.408	7.60		<1	<1
W3A	-8.53	10/17/95	938				3.45	107	81.3	1138	0.14	2.0	685	19233	3.46	107.17	83.6	1170	0.61	22.3	8.033	8.571	7.49		<1	<1
W3A	-8.53	11/7/95	900				3.40	105	83.6	1171	0.22	3.1	669	18802	3.45	106.86	87.4	1224	0.60	22.2	8.051	8.562	7.56		<1	<1
W3A	-8.53	12/6/95	910				3.36	104	83.1	1164	0.11	1.5	675	18958	3.39	105.00	85.3	1194	0.63	22.4	8.068	8.546	7.53		<1	<1
W3A	-8.53	6/17/96	944				3.31	103	85.3	1195	0.04	0.6	682	19149	3.33	103.14	87.6	1226	0.54	22.2	8.085	8.527	7.57		<1	<1
W3A	-8.53	2/27/96	954				3.30	102	81.9	1148	0.10	1.4	676	18989	3.31	102.52	84.7	1187	0.46	22.4	8.043	8.167	7.69		<1	<1
W3A	-8.53	3/13/96	1025				3.15	98	78.2	1095	0.15	2.1	656	18431	3.26	100.97	81.8	1145	0.54	22.6	8.022	7.649	7.81		<1	<1
W3A	-8.53	4/2/96	838				3.26	101	80.3	1125	0.09	1.3	659	18519	3.35	103.76	86.3	1209	0.52	22.4	8.028	8.037	7.70		<1	<1
W3A	-8.53	5/15/96	952				3.35	104	82.7	1159	0.13	1.8	663	18626	3.39	105.00	86.6	1213	0.57	22.9	7.986	8.319	7.59		<1	<1
W3A	-8.53	6/18/96	936				3.34	103	83.7	1172	0.07	1.0	703	19744	3.40	105.31	87.6	1226	0.53	22.4	8.018	8.439	7.57		<1	<1
W3A	-8.53	7/17/96	1008				3.36	104	86.0	1205	0.17	2.4	709	19916	3.38	104.69	89.2	1249	0.61	22.6	8.031	8.156	7.70		<1	<1
W3A	-8.53	8/6/96	1019				3.31	103	86.6	1214	0.17	2.4	674	18920	3.34	103.45	91.1	1276	0.60	22.6	8.013	8.308	7.70		2	<1
W3A	-8.53	9/4/96	1013				3.37	104	88.0	1232	0.22	3.1	702	19722	3.41	105.62	91.0	1275	0.56	22.9	8.017	8.248	7.71		<1	1
W3A	-8.53	10/9/96	1017				3.35	104	90.4	1266	0.21	2.9	671	18852	3.42	105.93	93.4	1308	0.56	22.9	8.031	7.602	8.04		<1	<1
W3A	-8.53	11/6/96	1005				3.35	104	90.0	1261	0.20	2.8	694	19489	3.52	109.03	96.9	1357	0.71	23.0	7.994	7.808	7.84		<1	<1
W3A	-8.53	12/17/96	1002				3.23	100	85	1186	0.22	3.1	657	18451	3.30	102.21	89.9	1260	0.43	22.8	8.008	8.359	7.64		<1	1
W3A	-8.53	1/14/97	1018				2.84	88	75	1052	0.06	0.8	630	17691	2.96	91.68	78.7	1102	0.59	23.0	8.042	6.982	7.76		<1	<1
W3A	-8.53	2/10/97	1117				3.10	96	79	1105	0.20	2.8	645	18121	3.17	98.19	80.4	1126	0.55	23.2	8.020	7.124	7.81		<1	<1
W3A	-8.53	3/10/97	1143				3.06	95	83	1162	0.11	1.5	675	18958	3.18	98.50	84.1	1178	0.54	23.1	8.032	7.357	7.79		<1	<1
W3A	-8.53	4/23/97	1006				3.31	103	81	1138	0.22	3.1	558	15663	3.35	103.76	95.3	1335	0.62	22.5	8.037	7.461	7.44		<1	<1
W3A	-8.53	5/28/97	846				3.33	103	90	1263	0.05	0.7	587	16486	3.48	107.79	100	1402	0.62	22.1	8.049	7.514	7.62		<1	<1
W3A	-8.53	6/17/97	945				3.25	101	84	1175	0.19	2.7	619	17393	3.32	102.83	87.5	1226	0.62	21.8	8.047	7.480	7.65		<1	<1
W3A	-8.53	7/15/97	936				3.39	105	94	1311	0.08	1.1	665	18680	3.45	106.86	99.7	1396	0.54	22.0	8.038	7.279	7.70		<1	<1
W3A	-8.53	8/26/97	950				3.24	100	91	1270	0.29	4.1	680	19095	3.26	100.97	93.6	1311	0.53	22.1	8.098	7.511	7.61		<1	<1
W3A	-8.53	9/23/97	1212				3.29	102	89	1240	0.23	3.2	662	18587	3.33	103.14	90.2	1263	0.52	23.7	8.123	7.937	7.49		<1	<1
W3A	-8.53	10/15/97	913				3.26	101	91.2	1277	0.02	0.3	660	18536	3.38	104.69	100	1406	0.55	22.6	8.140	7.254	7.63		<1	<1
W3A	-8.53	11/4/97	1030				3.24	100	92.8	1300	0.07	1.0	662	18595	3.39	105.00	111	1548	0.50	22.6	8.147	7.873	7.50		<1	<1
W3A	-8.53	12/16/97	946				3.30	102	84.8	1188	0.05	0.7	658	18489	3.46	107.17	94.3	1321	0.48	22.5	8.132	8.296	7.54		<1	<1
W3A	-8.53	1/5/98	1225				3.34	103	86.4	1211	0.18	2.5	661	18554	3.37	104.38	89.9	1259	0.50	22.6	8.152	8.106	7.63		<1	<1
W3A	-8.53	2/3/98	1043				3.25	101	83.5	1170	0.04	0.6	673	18902	3.42	105.93	88.7	1242	0.52	22.5	8.132	8.198	7.59		<1	<1
W3A	-8.53	3/10/98	1059				3.45	107	85	1188	0.06	0.8	663	18618	3.54	109.65	89.2	1249	0.56	22.5	7.996	8.252	7.66		<1	<1
W3A	-8.53	4/14/98	925				3.43	106	84	1170	0.02	0.3	672	18859	3.52	109.03	86.3	1209	0.54	22.2	8.011	8.177	7.70		<1	<1
W3A	-8.53	5/12/98	1050				3.47	107	85.3	1195	0.25	3.5	668	18764	3.53	109.34	89.1	1248	0.55	22.3	8.010	8.458	7.64		<1	<1
W3A	-8.53	6/2/98	1043				3.39	105	83	1167	0.04	0.6	660	18549	3.56	110.27	86	1203	0.66	22.1	8.007	8.847	7.64		<1	<1
W3A	-8.53	7/14/98	1053				3.42	106	80.7	1130	0.16	2.2	666	18694	3.55	109.96	82.2	1151	0.56	22.2	7.993	8.717	7.48		<1	1
W3A	-8.53	8/11/98	1112				3.48	108	85.1	1192	0.07	1.0	674	18916	3.66	113.36	89	1248	0.52	22.1	7.986	8.477	7.84		<1	<1
W3A	-8.53	9/15/98	1146				3.42	106	82.3	1152	0.15	2.1	666	18713	3.60	111.51	84	1181	0.52	22.1	7.974	8.897	7.70		<1	<1
W3A	-8.53	10/13/98	1020				3.38	105	84.7	1186	0.02	0.3	726	20390	3.49	108.10	92.3	1293	0.44	22.5	7.989	8.521	8.28		<1	<1
W3A	-8.53	11/4/98	1053				3.35	104	84.1	1178	0.06	0.8	715	20076	3.46	107.17	89.7	1256	0.48	22.4	8.002	8.299	7.68		<1	<1
W3A	-8.53	12/16/98	1033				3.38	105	82	1151	0.15	2.1	672	18865	3.47	107.48	87	1217	0.45	22.4	7.993	8.779	7.56		<1	<1
W3A	-8.53	1/12/99	1108				3.34	103	81	1137	0.13	1.8	668	18770	3.49	108.10	86	1202	0.46	22.5	7.992	8.790	7.69		<1	<1
W3A	-8.53	2/3/99	1056				3.26	101	82.3	1152	0.17	2.4	669	18792	3.37	104.38	88.2	1235	0.45	22.3	7.985	9.102	7.65		<1	<1
W3A	-8.53	3/2/99	1104				3.33	103	77.6	1087	0.16	2.2	661	18559	3.41	105.62	80.6	1129	0.43	22.2	7.982	9.188	8.34		<1	<1
W3A	-8.53	4/6/99	1054				3.26	101	82.5	1156	0.08	1.1	677	19000	3.37	104.38	86.7	1214	0.59	22.2	7.999	8.570	7.88		<1	<1
W3A	-8.53	5/4/99	1059				3.15	98	76.2	1067	0.28	3.9	662	18598	3.40	105.31	78.3	1097	0.55	22.1	7.985	8.956	7.65		<1	<1
W3A	-8.53	6/2/99	1043				3.30	102	83.0	1163	0.70	9.8	728	20446	3.48	107.79	90.7	1270	0.51	22.1	7.995	8.570	7.83		<1	<1

NELHA Water Quality Laboratory

Well 3A Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W3A	-8.53	7/7/99	1116				3.33	103	77.5	1086	0.09	1.3	677	19014	3.44	106.55	81.6	1143	0.47	22.4	7.980	8.918	7.67		<1	<1
W3A	-8.53	8/25/99	1049				3.27	101	84.6	1185	0.09	1.3	682	19157	3.38	104.69	91.3	1279	0.50	22.5	8.039	8.401	7.86		<1	<1
W3A	-8.53	9/8/99	1052				3.24	100	85.2	1193	0.07	1.0	687	19292	3.41	105.62	96.2	1347	0.49	22.2	8.063	8.486	7.78		<1	<1
W3A	-8.53	10/6/99	1057				3.41	106	83.5	1169	0.23	3.2	650	18247	3.51	108.72	87.3	1223	0.49	22.4	8.044	8.313	7.73		<1	<1
W3A	-8.53	11/3/99	1111				3.27	101	80.1	1122	1.39	19.5	676	18975	3.32	102.83	86.2	1207	0.54	22.5	8.046	8.832	7.51		<1	<1
W3A	-8.53	12/15/99	1128				3.32	103	80.1	1122	1.03	14.4	680	19084	3.43	106.24	85.3	1195	0.53	22.5	8.001	8.513	7.46		<1	<1
W3A	-8.53	1/11/00	1103				3.25	101	82.6	1157	0.65	9.1	669	18795	3.27	101.28	91.3	1279	0.56	22.4	7.998	9.086	7.43		<1	<1
W3A	-8.53	2/14/00	1120				3.30	102	81.7	1144	0.84	11.8	650	18242	3.32	102.83	91.3	1279	0.55	22.3	8.024	8.972	7.52		<1	<1
W3A	-8.53	3/22/00	1130				3.16	98	81.7	1144	0.83	11.6	675	18961	3.05	94.47	87.7	1228	0.57	22.1	8.035	8.844	7.56		<1	<1
W3A	-8.53	4/12/00	1113				3.36	104	82.7	1158	0.28	3.9	672	18873	3.27	101.28	89.1	1248	0.62	22.2	8.030	9.017	7.49		<1	<1
W3A	-8.53	5/17/00	1050				3.31	103	83.4	1168	0.89	12.5	675	18961	3.35	103.76	87.1	1220	0.59	22.2	8.035	8.630	7.75		1	<1
W3A	-8.53	6/6/00	1128				3.26	101	82.3	1153	0.26	3.6	673	18887	3.34	103.45	91.4	1280	0.61	22.1	8.028	8.879	7.68		<1	<1
W3A	-8.53	7/31/00	1117				3.26	101	77.0	1079	0.44	6.2	665	18688	3.26	100.97	82.5	1156	0.53	22.2	8.033	9.159	7.63		<1	<1
W3A	-8.53	8/30/00	1122				3.24	100	81.3	1139	0.57	8.0	670	18814	3.40	105.31	85.2	1193	0.87	22.4	8.006	8.776	7.77		<1	1
W3A	-8.53	9/6/00	1101				3.23	100	78.0	1093	1.05	14.7	661	18559	3.32	102.83	84.5	1184	0.66	22.5	7.988	9.513	7.81		<1	<1
W3A	-8.53	10/25/00	1038				3.33	103	82.1	1150	0.81	11.3	702	19716	3.39	105.00	85.3	1195	0.52	22.7	7.998	8.501	7.34		<1	36
W3A	-8.53	11/14/00	1052				3.04	94	76.4	1070	1.26	17.6	655	18390	3.19	98.81	83.2	1165	0.52	22.7	8.020	7.952	7.35		<1	5
W3A	-8.53	12/19/00	1043				3.18	98	78.5	1100	**1.72**	24.1	670	18820	3.32	102.83	85.4	1196	0.64	22.6	8.007	8.697	7.17		<1	1
W3A	-8.53	1/24/01	1037				3.14	97	82.1	1150	0.27	3.8	672	18882	3.52	109.03	84.3	1181	0.61	22.6	7.999	8.639	7.81		<1	<1
W3A	-8.53	2/7/01	1106				3.28	102	80.6	1129	0.07	1.0	676	18980	3.46	107.17	**82.6**	1157	0.73	22.5	8.013	8.775	7.15		<1	1
W3A	-8.53	3/12/01	1051				3.23	100	77.8	1090	0.62	8.7	664	18660	3.44	106.55	**83.4**	1169	0.48	22.6	7.971	8.920	7.11		<1	1
W3A	-8.53	4/18/01	1043				3.31	103	82.4	1154	0.49	6.9	679	19070	3.39	105.00	86.4	1210	0.53	22.5	7.970	8.726	7.67		<1	<1
W3A	-8.53	5/14/01	928				4.82	149	82.3	1152	0.75	10.5	685	19250	4.94	153.01	84.5	1183	0.52	22.4	7.984	8.803	7.72		<1	<1
W3A	-8.53	6/13/01	1100				3.58	111	82.9	1161	2.94	41.2	680	19090	3.56	110.27	85.7	1200	0.47	22.2	7.986	8.907	7.71		<1	<1
W3A	-8.53	7/25/01	1031				3.36	104	85.8	1202	0.03	0.4	677	19014	3.26	100.97	88.2	1236	0.53	22.2	7.982	8.795	7.69		<1	1
W3A	-8.53	8/20/01	1014				3.22	100	84.0	1176	0.42	5.9	687	19295	3.25	100.66	87.8	1230	0.61	22.5	7.997	8.670	7.62		<1	<1
W3A	-8.53	9/18/01	1052				3.34	103	87.8	1230	0.29	4.1	674	18930	3.30	102.21	90.0	1261	0.55	22.7	7.988	8.404	7.78		<1	<1
W3A	-8.53	10/9/01	1052				3.54	110	86.0	1205	0.38	5.3	737	20685	3.58	110.89	92.9	1301	0.55	22.7	7.974	9.159	7.51		<1	<1
W3A	-8.53	11/6/01	1010				3.24	100	90.4	1267	0.08	1.1	669	18795	3.37	104.38	103	1443	0.53	22.7	7.969	9.317	7.43		<1	<1
W3A	-8.53	12/18/01	1005				2.75	85	82.5	1156	0.06	0.8	668	18767	2.83	87.66	98.1	1374	0.49	22.8	7.976	8.754	7.52		<1	<1
W3A	-8.53	1/8/02	1019				3.20	99	84.3	1180	0.45	6.3	659	18517	3.31	102.52	86.7	1214	0.51	22.6	7.991	8.529	7.320		<1	<1
W3A	-8.53	2/27/02	1018				3.30	102	89.2	1250	0.08	1.1	684	19208	3.38	104.69	96.6	1353	0.47	22.5	7.997	8.676	7.240		<1	<1
W3A	-8.53	3/19/02	1025				3.20	99	82.3	1153	0.07	1.0	669	18786	3.28	101.59	83.7	1172	0.46	22.3	8.000	8.615	7.260		<1	<1
W3A	-8.53	4/9/02	1017				3.26	101	82.4	1155	0.05	0.7	665	18680	3.44	106.55	95.1	1332	0.52	22.4	7.980	7.994	7.350		<1	<1
W3A	-8.53	5/21/02	1020				3.20	99	82.6	1157	0.02	0.3	665	18677	3.30	102.21	85.1	1192	0.53	22.4	7.996	8.314	7.71		<1	<1
W3A	-8.53	6/18/02	1033				3.25	101	86.8	1215	0.13	1.8	665	18674	3.37	104.38	89.5	1254	0.50	22.6	7.989	8.830	7.57		<1	<1
W3A	-8.53	7/17/02	1011				3.30	102	89.3	1251	0.08	1.1	663	18623	3.36	104.07	80.9	1134	0.68	22.7	8.002	8.877	7.55		<1	1
W3A	-8.53	8/22/02	1035				3.34	103	84.5	1183	0.13	1.8	682	19154	3.52	109.03	84.3	1181	0.58	22.4	7.997	8.659	7.65		<1	5
W3A	-8.53	9/24/02	1049				3.22	100	97.4	1365	0.20	2.8	682	19143	3.42	105.93	81.4	1141	0.54	22.9	8.033	8.476	7.76		<1	2
W3A	-8.53	10/16/02	1044				3.19	99	94.9	1329	0.12	1.7	669	18789	3.15	97.57	77.6	1087	0.48	23.0	8.014	8.091	7.74		<1	<1
W3A	-8.53	11/6/02	1029				3.18	98	94.0	1317	1.02	14.3	664	18646	3.31	102.52	78.4	1099	0.65	22.7	7.988	8.360	7.71		<1	<1
W3A	-8.53	12/19/02	1117				3.25	101	89.8	1258	0.08	1.1	669	18795	3.31	102.52	80.2	1124	0.57	22.9	8.005	8.556	7.66		<1	1
W3A	-8.53	1/22/03	1107				3.18	98	80.5	1128	0.33	4.6	657	18438	3.30	102.21	87.2	1221	0.61	22.6	7.987	9.507	8.77		<1	<1
W3A	-8.53	2/20/03	1034				3.06	95	85.8	1202	0.04	0.6	665	18671	3.24	100.35	88.0	1233	0.49	22.6	8.008	8.902	7.68		<1	<1
W3A	-8.53	3/18/03	1020				3.26	101	87.5	1226	0.06	0.8	663	18623	3.33	103.14	98.7	1382	1.06	22.7	8.020	8.773	7.77		<1	<1
W3A	-8.53	4/29/03	1015				3.34	103	90.8	1271	0.54	7.6	681	19115	3.44	106.55	95.4	1336	0.42	22.6	8.048	8.325	7.84		<1	<1
W3A	-8.53	5/13/03	1042				3.33	103	85.9	1203	0.44	6.2	674	18935	3.49	108.10	88.3	1237	0.44	22.4	8.061	8.242	7.89		<1	<1
W3A	-8.53	6/5/03	1010				3.39	105	87.9	1231	0.36	5.0	666	18697	3.46	107.17	99.6	1394	0.45	22.7	8.065	8.482	7.80		<1	<1

NELHA Water Quality Laboratory

Well 3A Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W3A	-8.53	7/31/03	1030				3.24	100	99.2	1389	0.45	6.3	672	18873	3.35	103.76	101	1419		22.4	8.020	8.650	8.01		<1	<1
W3A	-8.53	8/27/03	1059				3.30	102	94.3	1321	0.14	2.0	671	18857	3.50	108.41	112	1565		22.6	8.027	8.520	7.95		<1	<1
W3A	-8.53	9/17/03	1025				3.26	101	89.2	1249	0.49	6.9	652	18298	3.66	113.36	96.1	1346		NA	7.982	9.524	7.66		<1	<1
W3A	-8.53	10/7/03	1016				3.34	103	102	1423	0.99	13.9	673	18913	3.46	107.17	110	1539		23.1	8.009	8.252	NA		<1	<1
W3A	-8.53	11/4/03	957				3.30	102	99.5	1394	0.10	1.4	686	19278	3.40	105.31	102	1426		22.9	8.037	8.395			<1	<1
W3A	-8.53	11/14/03	1132																	23.0			7.57			
W3A	-8.53	12/16/03	954				3.19	99	89.6	1255	0.50	7.0	664	18646	3.28	101.59	92.2	1291		22.8	7.987	9.476	7.43		<1	<1
W3A	-8.53	1/27/04	1015				3.14	97	90.6	1270	**1.22**	17.1	654	18368	3.27	101.28	89.3	1251		22.9	8.038	8.421	7.50		<1	<1
W3A	-8.53	2/10/04	1012				3.08	95	86.8	1216	0.45	6.3	624	17514	3.08	95.40	90.1	1262		22.9	7.988	8.656	7.61		<1	<1
W3A	-8.53	3/15/04	1026				2.89	90	79.4	1112	0.09	1.3	632	17753	3.09	95.71	81.4	1140		22.7	8.063	6.741	7.31		<1	1
W3A	-8.53	4/21/04	927				3.06	95	89.8	1258	0.72	10.1	658	18475	3.07	95.09	92.3	1293		22.5	8.025	7.785	7.79		<1	<1
W3A	-8.53	5/12/04	922				3.00	93	91.8	1286	0.07	1.0	655	18382	3.14	97.26	94.9	1330		22.7	8.042	7.78	8.03		<1	<1
W3A	-8.53	6/7/04	957				3.18	98	87.2	1221	0.29	4.1	644	18098	3.34	103.45	103	1448		22.6	8.038	7.75	7.86		<1	<1
W3A	-8.53	7/8/04	1027				3.06	95	91.0	1275	0.20	2.8	663	18629	3.26	100.97	99.8	1397	0.41	22.8	8.096	8.13	7.67		<1	<1
W3A	-8.53	8/24/04	1010				3.06	95	93.2	1306	0.08	1.1	646	18146	3.08	95.40	96.9	1358		22.3	8.022	8.23	7.53		<1	<1
W3A	-8.53	9/28/04	1020				3.12	97	**104**	1461	0.20	2.8	668	18764	3.21	99.43	**112**	1563		22.8	8.016	7.84	7.69		<1	<1
W3A	-8.53	10/5/04	1109				3.10	96	99.8	1398	0.15	2.1	653	18351	3.18	98.50	**106**	1483		22.8	8.018	8.50	7.50		<1	<1
W3A	-8.53	11/8/04	951				3.16	98	91.9	1287	0.22	3.1	664	18635	3.36	104.07	99.4	1392		23.0	8.041	8.03	7.69		<1	<1
W3A	-8.53	12/7/04	1002				3.12	97	99.2	1389	0.24	3.4	662	18604	3.18	98.50	**114**	1602		22.9	8.065	7.97	7.58		<1	1
W3A	-8.53	1/11/05	950				3.02	94	87.3	1223	0.07	1.0	675	18963	3.08	95.40	90.0	1261		23.1	8.099	8.068	7.56		<1	<1
W3A	-8.53	2/8/05	1000				2.92	90	91.3	1278	0.09	1.3	642	18034	3.02	93.54	99.4	1392		22.9	8.101	7.239	7.73		<1	<1
W3A	-8.53	3/16/05	1040				3.02	94	99.5	1394	0.16	2.2	636	17860	3.22	99.74	**108**	1513	0.44	22.8	8.075	7.490	7.75		<1	<1
W3A	-8.53	4/18/05	1049				3.20	99	95.7	1340	0.16	2.2	671	18840	3.46	107.17	**102**	1434		23.0	8.075	7.696	7.22		<1	<1
W3A	-8.53	5/24/05	958				3.18	98	**105**	1471	0.21	2.9	665	18680	3.28	101.59	**109**	1523		23.0	8.011	8.105	7.66		<1	<1
W3A	-8.53	6/13/05	1019				3.20	99	92.5	1295	0.35	4.9	663	18621	3.46	107.17	97.8	1370		23.0	8.033	8.219	7.74		<1	<1
W3A	-8.53	7/11/05	1020				3.38	105	88.1	1234	0.17	2.4	665	18666	3.50	108.41	90.0	1260		22.6	8.038	7.833	7.74		<1	<1
W3A	-8.53	8/10/05	935				3.26	101	86.1	1206	0.18	2.5	662	18590	3.28	101.59	89.7	1257		23.1	8.045	8.094	7.60		<1	<1
W3A	-8.53	9/21/05	938				3.26	101	95.3	1335	0.07	1.0	662	18590	3.40	105.31	**107**	1504	0.43	23.0	8.039	8.392	7.61		<1	<1
W3A	-8.53	10/18/05	956				3.42	106	96.9	1357	0.18	2.5	659	18514	3.54	109.65	**113**	1582		23.1	8.027	8.219	7.58		<1	<1
W3A	-8.53	11/3/05	945				3.32	103	95.6	1340	0.16	2.2	674	18921	3.52	109.03	97.5	1366		22.9	8.035	8.622	7.48		<1	<1
W3A	-8.53	12/21/05	1035				3.14	97	81.5	1142	0.11	1.5	657	18444	3.26	100.97	89.6	1255	0.52	22.7	8.036	9.422	8.15		<1	<1
W3A	-8.53	1/24/06	932				3.28	102	94.4	1323	0.15	2.1	676	18994	3.44	106.55	95.7	1341		22.7	8.028	8.528	7.66		<1	<1
W3A	-8.53	2/15/06	941				3.25	101	91.5	1282	0.13	1.8	658	18483	3.36	104.07	94.1	1319	0.47	22.7	8.024	9.242	7.47		<1	<1
W3A	-8.53	3/21/06	923				3.25	101	93.4	1308	0.11	1.5	671	18845	3.46	107.17	95.9	1343	0.38	22.5	8.036	8.657	7.67		<1	<1
W3A	-8.53	4/26/06	938				3.45	107	90.9	1273	<0.05	0.0	660	18536	3.84	118.94	79.6	1116	0.45	22.2	8.03	8.441	7.65		<1	<1
W3A	-8.53	5/23/06	1016				3.04	94	89.6	1255	<0.05	0.0	668	18761	3.06	94.78	75.2	1054	0.55	22.4	8.025	8.753	7.66		<1	<1
W3A	-8.53	6/27/06	1020				3.39	105	92.6	1297	0.19	2.7	675	18958	3.78	117.08	89.4	1252	0.72	22.4	8.013	8.857	7.71		<1	<1
W3A	-8.53	7/18/06	1015				3.17	98	85.5	1198	0.16	2.2	655	18396	3.30	102.21	72.2	1011	0.57	22.8	7.998	9.158	7.99		<1	<1
W3A	-8.53	8/8/06	944				3.26	101	92.5	1296	0.15	2.1	662	18593	3.52	109.03	75.0	1051	0.40	22.5	7.995	8.596	7.99		<1	<1
W3A	-8.53	9/19/06	1041				3.27	101	89.5	1254	0.26	3.6	669	18789	3.42	105.93	83.1	1164	0.46	22.8	7.983	8.551	7.84		<1	<1
W3A	-8.53	10/24/06	1020				3.07	95	85.9	1203	0.33	4.6	662	18593	3.17	98.19	84.1	1179	0.56	22.7	8.029	8.877	7.94		<1	<1
W3A	-8.53	11/28/06	959				3.20	99	86.6	1213	0.20	2.8	649	18227	3.34	103.45	76.1	1066	0.43	22.7	8.000	8.093	7.67		<1	<1
W3A	-8.53	12/12/06	951				3.12	97	85.9	1203	0.15	2.1	649	18227	3.32	102.83	77.1	1080	0.46	22.8	7.989	9.120	7.69		<1	<1
W3A	-8.53	1/9/07	1019				3.23	100	86.4	1210	0.37	5.2	655	18396	3.34	103.45	91.8	1286	0.47	22.6	8.013	9.111	7.73		<1	<1
W3A	-8.53	2/22/07	1005				3.13	97	92.7	1298	0.33	4.6	669	18789	3.23	100.05	93.7	1313	0.45	22.8	7.994	8.994	7.77		<1	<1
W3A	-8.53	3/6/07	1030				3.12	97	93.3	1307	0.19	2.7	661	18565	3.24	100.35	92.9	1301	0.46	22.9	8.029	8.682	7.84		<1	<1
W3A	-8.53	4/11/07	1152				3.30	102	87.9	1231	0.13	1.8	664	18649	3.38	104.69	80.7	1131	0.40	23.0	8.032	8.629	7.57		<1	<1
W3A	-8.53	5/3/07	1005				3.28	102	92.4	1294	0.23	3.2	678	19042	3.44	106.55	85.6	1199	0.46	22.7	8.048	8.567	7.60		<1	<1
W3A	-8.53	6/19/07	940				3.22	100	91.6	1283	0.16	2.2	663	18621	3.41	105.62	72.9	1021	0.33	22.8	8.053	8.846	8.06		<1	<1

NELHA Water Quality Laboratory

Well 3A Data Table

June 1989 - December 2014

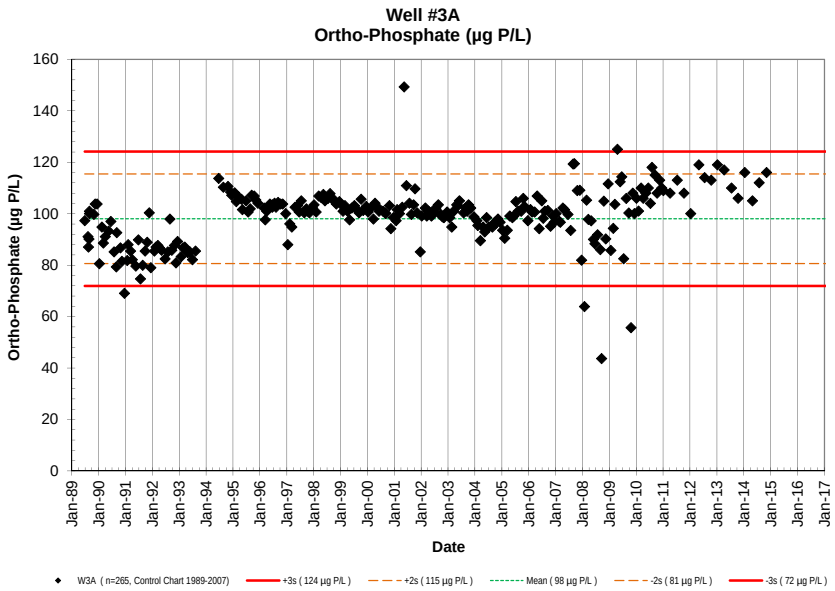
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W3A	-8.53	7/26/07	1050	-5.89	0.37	Flood	3.02	94	98.7	1382	0.04	0.5	653	18340	3.31	102.4	94.6	1325		22.5	7.95	8.51	7.34			
W3A	-8.53	8/28/07	1031	-5.97	0.00	Low	3.85	119	107.3	1503	0.71	9.9	935	26257	3.71	114.8	103.8	1454		22.6	7.90	8.16	7.45			
W3A	-8.53	9/13/07	1228	-6.10	0.15	Low	3.86	119	100.5	1408	1.54	21.6	738	20736	4.17	129.3	95.9	1344		22.9	8.00	8.39	7.23			
W3A	-8.53	10/24/07	1152	-3.79	0.30	Flood	3.52	109	107.0	1499	0.56	7.9	655	18399	3.73	115.5	105.1	1472		23.1	7.98	8.26	7.04			
W3A	-8.53	11/26/07	1458	-3.91	0.09	Flood	3.52	109	100.0	1401	1.29	18.1	705	19808	3.58	111.0	105.6	1479		22.8	7.98	8.63	7.00			
W3A	-8.53	12/20/07	1129	-5.94	0.23	High	2.64	82	82.2	1152	0.56	7.8	463	13012						22.5	8.08	6.75	7.36			
W3A	-8.53	1/28/08	1455	-5.41	0.06	Low	2.06	64	46.7	654	1.46	20.4	330	9264						23.0	7.89	8.15	6.55			
W3A	-8.53	2/27/08	1221	-5.33	0.06	Low	3.40	105	97.8	1369	0.84	11.7	633	17778						22.8	7.89	8.32	7.45			
W3A	-8.53	3/20/08	1231	-6.02	0.12	Flood	3.16	98	100.6	1410	0.84	11.8	480	13482						22.8	7.96	8.26	6.93			
W3A	-8.53	4/28/08	1203	-5.92	0.18	High	3.14	97	101.6	1424	0.19	2.6	644	18096						22.7	7.95	8.22	6.74			
W3A	-8.53	5/29/08	1023		0.30	Flood	2.91	90	102.0	1429	0.16	2.3	640	17981						23.1	7.96	8.19	7.18			
W3A	-8.53	6/19/08	1101	-5.31	0.21	Ebb	2.85	88	98.9	1386	0.68	9.5	656	18413						23.0	7.85	8.35	6.96	5.19		
W3A	-8.53	7/24/08	1022	-5.61	0.46	Ebb	2.96	92	124.2	1740	0.56	7.8	654	18356						22.8	7.88	8.14	7.45			
W3A	-8.53	8/30/08	1059		0.06	Flood	2.78	86	98.3	1377	0.42	5.9	620	17425						22.7	7.97	8.45	7.36			
W3A	-8.53	9/18/08	949	-5.53	0.34	Ebb	1.41	44	39.9	560	1.11	15.6	444	12459						23.4	7.89	8.23	6.76	3.34		
W3A	-8.53	10/18/08	910	-5.79	0.24	Ebb	3.39	105	104.2	1459	0.99	13.8	632	17744						24.1	7.72	8.06	7.25	11.7		
W3A	-8.53	11/13/08	952	-5.76	0.15	Ebb	2.91	90	97.7	1368	0.20	2.8	536	15063						24.8	7.97	8.13	7.57	8.41		
W3A	-8.53	12/15/08	1037	-5.66	0.37	Ebb	3.60	112	105.5	1478	0.11	1.5	628	17644						24.4	8.13	8.03	7.63			
W3A	-8.53	1/21/09	946	-5.93	0.12	Low	2.77	86	99.3	1390	0.30	4.2	591	16588						23.8	8.15	7.79	7.43	8.27		
W3A	-8.53	2/23/09	1528	-5.80	0.37	High	3.04	94	96.4	1351	1.25	17.5	613	17209						24.6	7.94	8.40	7.44	0.88		
W3A	-8.53	3/16/09	823	-5.88	0.18	High	3.34	104	86.6	1213	0.19	2.6	515	14478						23.6	7.97	8.75	7.44	3.14		
W3A	-8.53	4/20/09	1459	-5.75	0.40	Ebb	4.04	125	93.6	1311	0.89	12.5	513	14412						24.3	7.87	8.54	7.84	20.20		
W3A	-8.53	5/27/09	744	-5.86	0.15	High	3.63	112	92.8	1301	0.41	5.8	674	18919						22.4	8.05	8.69	6.84	0.49		
W3A	-8.53	6/18/09	1029	-5.79	0.37	Flood	3.69	114	95.3	1335	0.64	8.9	471	13221						22.6	8.05	8.10	8.23	0.21		
W3A	-8.53	7/14/09	836	-5.79	0.37	Flood	2.66	83	70.0	981	0.21	2.9	361	10147						22.5	8.11	8.65	7.29	0.10		
W3A	-8.53	8/19/09	857	-5.96	0.03	Low	3.42	106	101.3	1420	0.27	3.8	535	15040						22.9	7.94	7.97	7.53	0.34		
W3A	-8.53	9/22/09	912	-5.60	0.46	Ebb	3.24	100	98.5	1379	0.30	4.2	262	7366						23.3	8.27	8.59	7.75	0.12		
W3A	-8.53	10/22/09	1338	-5.94	0.18	Ebb	1.80	56	45.6	639	0.16	2.3	288	8096						23.3	8.09	8.64	7.74	0.24		
W3A	-8.53	11/16/09	1443	-5.93	0.21	High	3.49	108	99.3	1391	0.80	11.2	621	17441						23.3	8.05	8.81	7.19	0.08		
W3A	-8.53	12/7/09	1415	-5.97	0.09	Ebb	3.23	100	100.5	1407	0.30	4.2	614	17238						23.7	7.99	8.90	7.24	0.21		
W3A	-8.53	1/5/10	1132	-5.71	0.21	Ebb	3.42	106	92.6	1297	0.93	13.0	539	15146						23.4	8.05	9.00	7.82	0.50		
W3A	-8.53	2/1/10	1207	-5.89	-0.09	Low	3.26	101	102.4	1434	0.57	8.0	482	13541						23.4	8.08	8.63	7.41	0.92		
W3A	-8.53	3/9/10	1152	-5.94	0.15	High	3.55	110	95.3	1335	0.21	3.0	596	16740						22.7	8.04	8.75	7.49	0.60		
W3A	-8.53	4/6/10	1057	-5.95	0.15	High	3.42	106	94.2	1319	0.07	1.0	615	17270						22.4	8.04	8.95	8.03	0.32		
W3A	-8.53	5/11/10	1117	-5.93	0.21	Flood	3.49	108	83.2	1165	2.50	35.0	518	14562						22.9	8.06	8.15	8.06	0.35		
W3A	-8.53	6/15/10	1206	-6.08	0.06	Low	3.55	110	91.0	1275	0.43	6.0	630	17692						22.6	8.10	8.46	7.83	0.10		
W3A	-8.53	7/13/10	1118	-6.01	0.00	Low	3.36	104	93.5	1309	0.93	13.0	680	19110						22.6	8.04	8.66	7.59	0.32		
W3A	-8.53	8/3/10	1128	-5.54	0.55	High	3.81	118	98.7	1383	0.50	7.0	683	19188						22.7	8.10	8.10	7.64	0.25		
W3A	-8.53	9/14/10	1120	-5.52	0.52	Ebb	3.71	115	97.5	1366	0.44	6.2	718	20169						22.6	8.05	8.32	7.81	0.29		
W3A	-8.53	10/12/10	1132	-5.55	0.46	Ebb	3.49	108	95.5	1337	0.23	3.2	722	20287						22.8	8.06	8.46	8.06	17.70		
W3A	-8.53	11/16/10	1044	-5.69	0.34	Flood	3.65	113	103.3	1447	1.14	15.9	723	20300						22.8	8.03	8.03	7.97	0.11		
W3A	-8.53	12/14/10	1124	-5.67	0.34	Ebb	3.55	110	100.6	1409	0.36	5.0	686	19275						22.8	8.05	8.15	7.58	0.98		
W3A	-8.53	1/4/11	1113	-5.87	0.03	Low	3.52	109	97.0	1359	0.32	4.5	681	19134						22.8	8.00	8.12	7.6	0.16		
W3A	-8.53	4/5/11	1138	-6.01	-0.03	Low	3.49	108	92.0	1289	0.30	4.2	675	18961						22.8	8.04	7.98	6.71	0.82		
W3A	-8.53	7/12/11	1110	-5.93	0.30	Flood	3.65	113	95.0	1330	0.29	4.1	679	19074						22.7	8.02	8.59	7.36	0.13		
W3A	-8.53	10/11/11	1129	-5.88	0.15	Flood	3.49	108	93.7	1313	0.29	4.0	661	18572						23.0	7.97	8.19	7.84	0.20		
W3A	-8.53	1/10/12	1127	-5.95	0.03	Ebb	3.23	100	91.2	1278	0.51	7.2	641	18012						23.0	8.02	8.80	6.86	0.19		
W3A	-8.53	5/1/12	1142	-5.74	0.34	Flood	3.84	119	99.0	1387	0.24	3.4	721	20247						22.5	7.98	8.19	7.8	0.35		
W3A	-8.53	7/18/12	1038	-6.02	0.03	Flood	3.68	114	101.6	1423	0.62	8.7	657	18459						22.7	8.05	8.46	7.93	0.10		
W3A	-8.53	10/16/12	1122	-5.90	0.09	Low	3.65	113	98.9	1385	0.54	7.6	666	18706						22.8	7.95	8.53	7.54	4.41		
W3A	-8.53	1/8/13	1146	-6.03	0.18	Flood	3.84	119	101.5	1422	0.46	6.4	707	19861						23.0	7.93	8.50	7.41	0.19		
W3A	-8.53	4/9/13	1141	-6.03	0.00	Flood	3.78	117	92.2	1292	0.83	11.6	693	19469						22.5	8.02	8.91	6.46	8.80		
W3A	-8.53	7/17/13	1231	-5.68	0.61	High	3.55	110	97.5	1366	0.49	6.9	640	17983						22.9	7.92	8.52	6.65	0.06		
W3A	-8.53	10/15/13	1118	-5.80	0.37	Flood	3.42	106	96.9	1357	0.71	9.9	628	17645						23.5	7.95	8.57	7.65	2.45		
W3A	-8.53	1/15/14	1110	-5.92	0.03	Low	3.75	116	93.3	1307	0.49	6.9	628	17650						23.4	8.02	8.43	8.07	0.13		
W3A	-8.53	4/29/14	1210	-6.07	0.12	Flood	3.39	105	92.4	1294	0.56	7.8	646	18135						23.4	7.93	8.38	7.76	0.64		

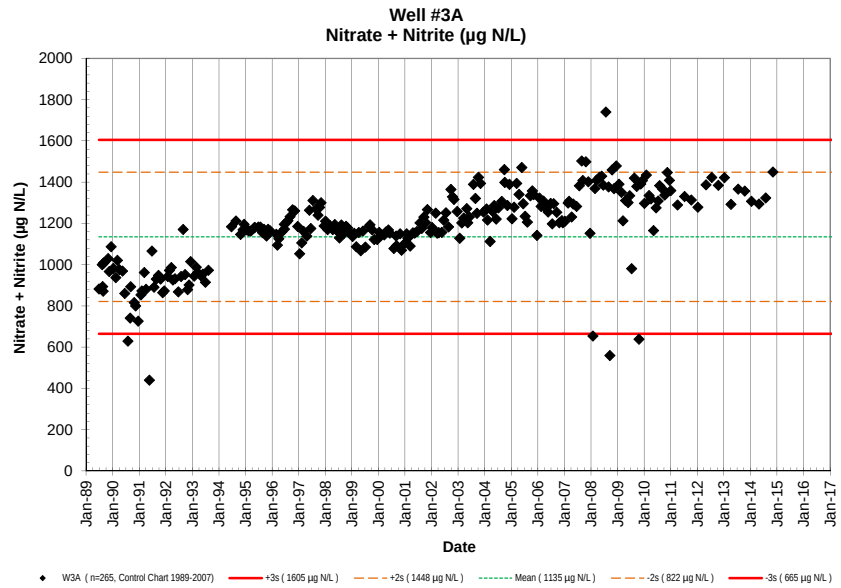
NELHA Water Quality Laboratory

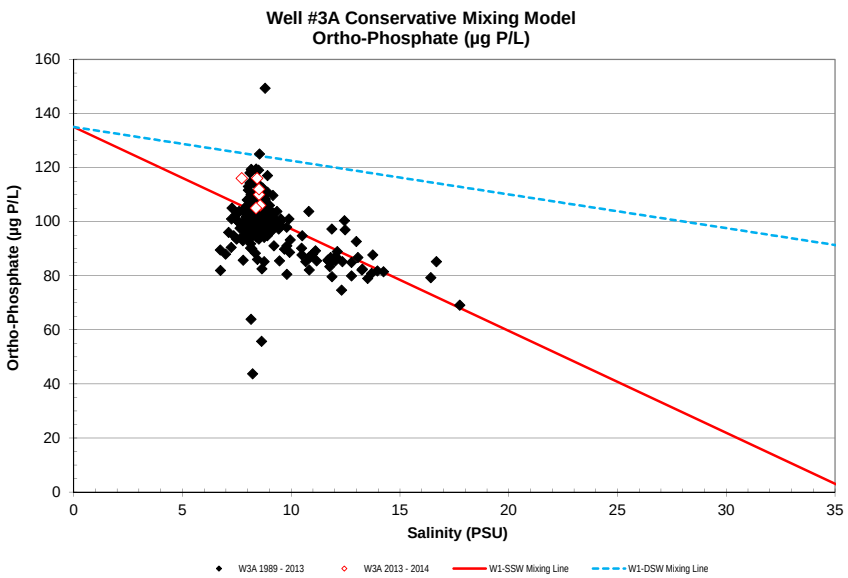
Well 3A Data Table

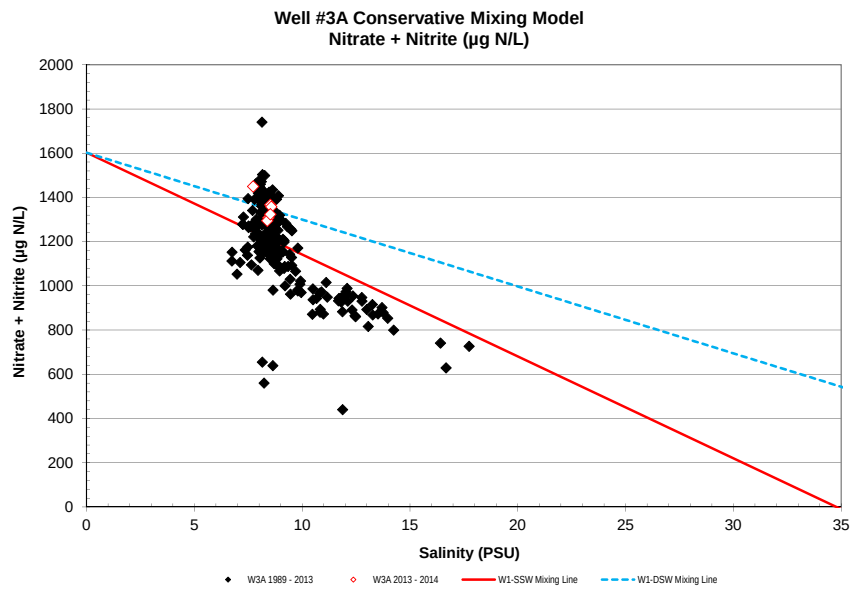
June 1989 - December 2014

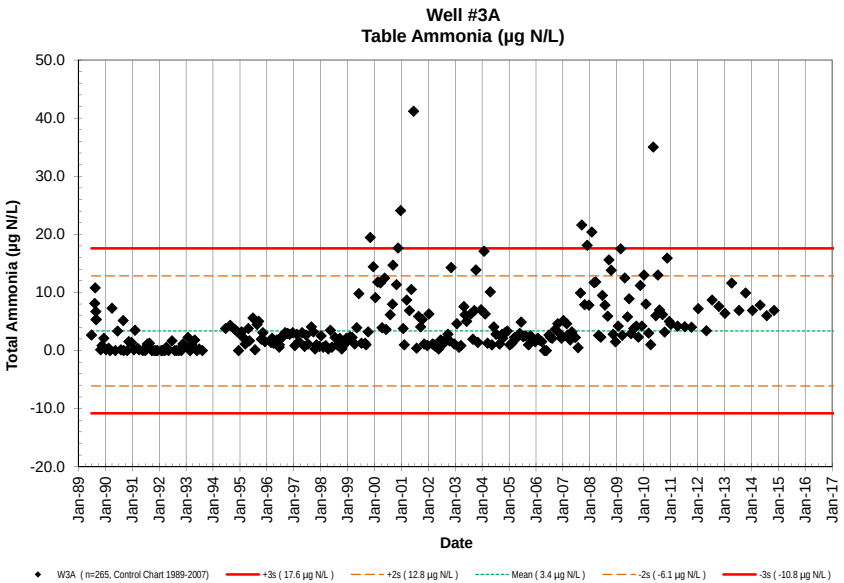
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W3A	-8.53	7/29/14	1150	-5.95	0.12	Low	3.62	112	94.5	1323	0.43	6.0	663	18610						23.2	7.90	8.52	7.76	9.48		
W3A	-8.53	11/5/14	1143	-5.77	0.17	Flood	3.75	116	103.5	1449	0.49	6.9	655	18398						23.6	8.03	7.73	8.20	0.15		
W3A	-8.53	1/1/15																								
W3A	-8.53	4/1/15																								

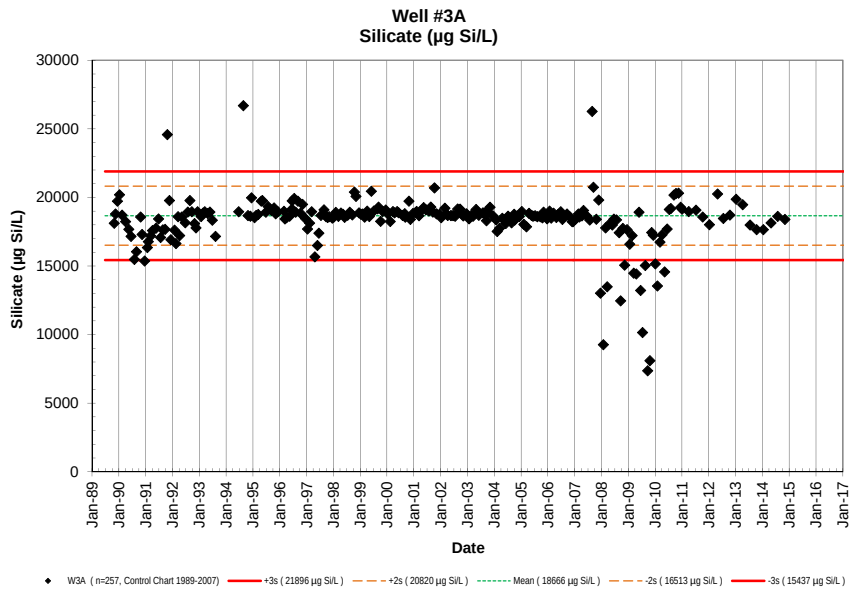

Well #3A
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W3A (n=265, Control Chart 1989-2007)
+3s (124 µg P/L)
+2s (115 µg P/L)
Mean (98 µg P/L)
-2s (81 µg P/L)
-3s (72 µg P/L)

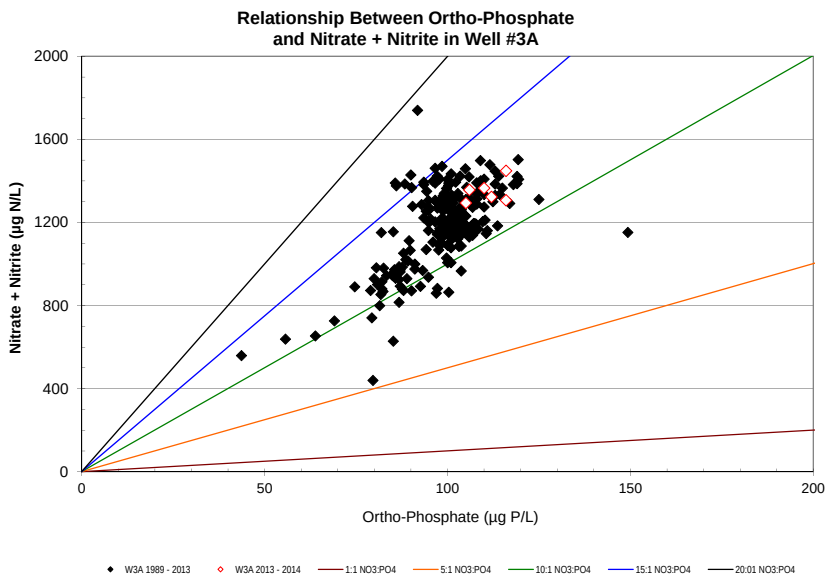

Well #3A
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W3A (n=265, Control Chart 1989-2007)
+3s (1605 µg N/L)
+2s (1448 µg N/L)
Mean (1135 µg N/L)
-2s (822 µg N/L)
-3s (665 µg N/L)

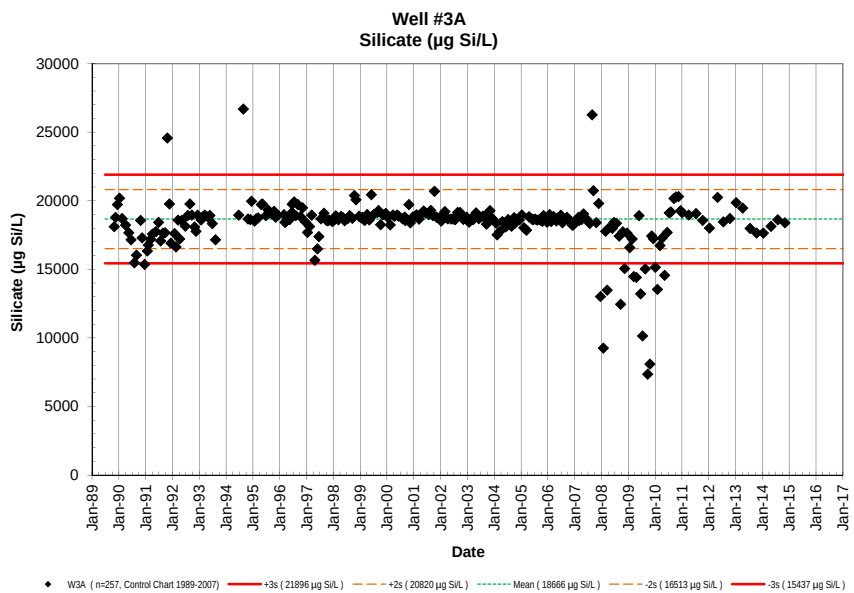

Well #3A Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W3A 1989 - 2013
W3A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

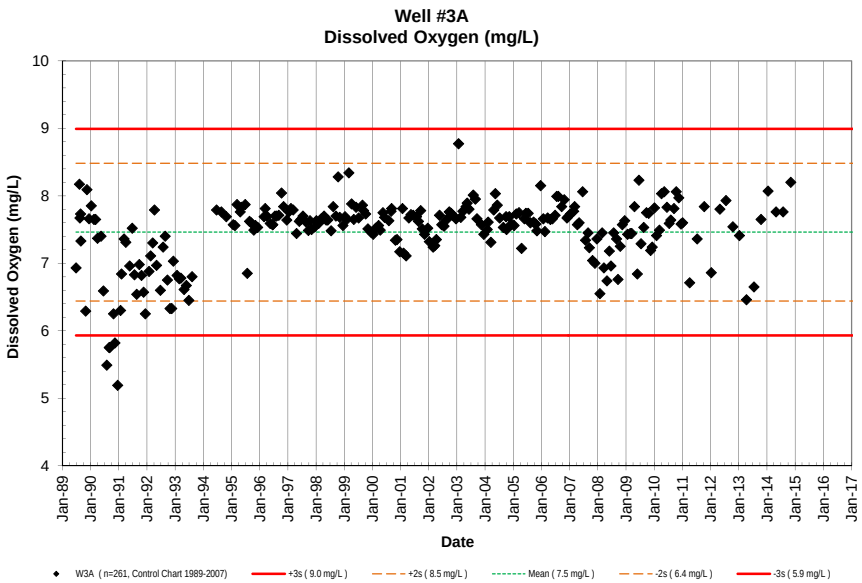

Well #3A Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W3A 1989 - 2013
W3A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

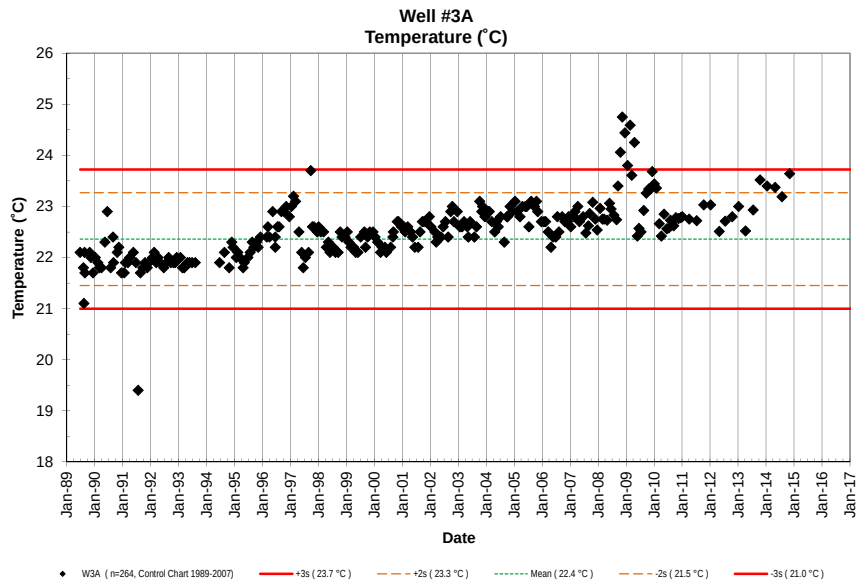

Well #3A
Table Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W3A (n=265, Control Chart 1989-2007)
+3s (17.6 µg N/L)
+2s (12.8 µg N/L)
Mean (3.4 µg N/L)
-2s (-6.1 µg N/L)
-3s (-10.8 µg N/L)

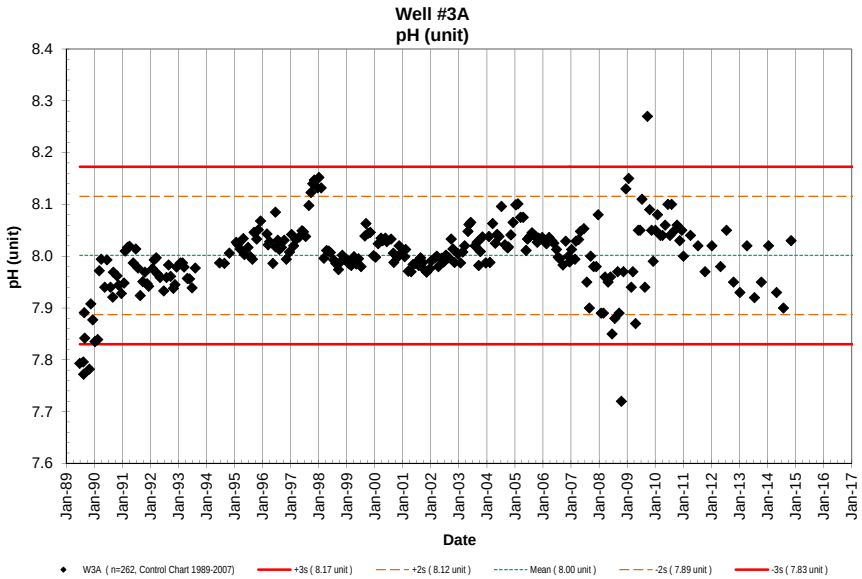

Well #3A
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W3A (n=257, Control Chart 1989-2007)
+3s (21896 µg Si/L)
+2s (20820 µg Si/L)
Mean (18666 µg Si/L)
-2s (16513 µg Si/L)
-3s (15437 µg Si/L)

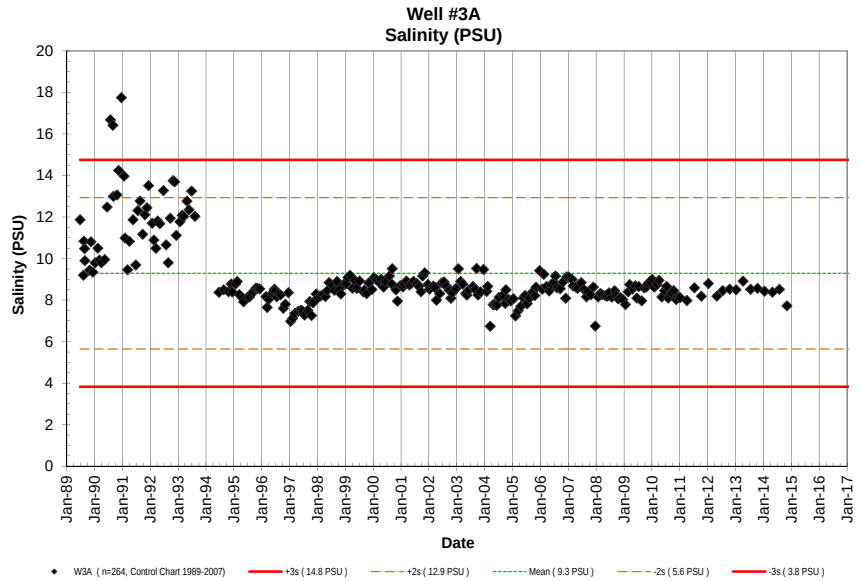

Relationship Between Ortho-Phosphate
and Nitrate + Nitrite in Well #3A
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W3A 1989 - 2013
W3A 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

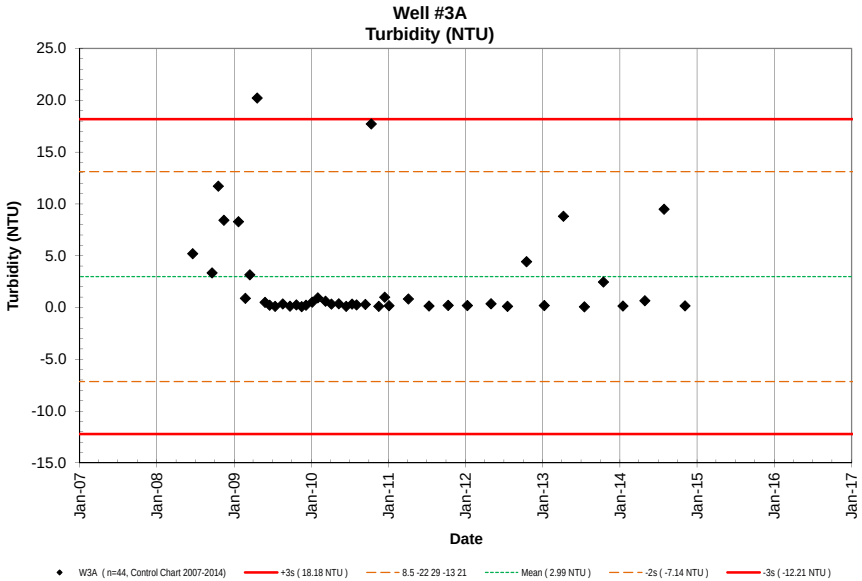

Well #3A
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W3A (n=257, Control Chart 1989-2007)
+3s (21896 µg Si/L)
+2s (20820 µg Si/L)
Mean (18666 µg Si/L)
-2s (16513 µg Si/L)
-3s (15437 µg Si/L)

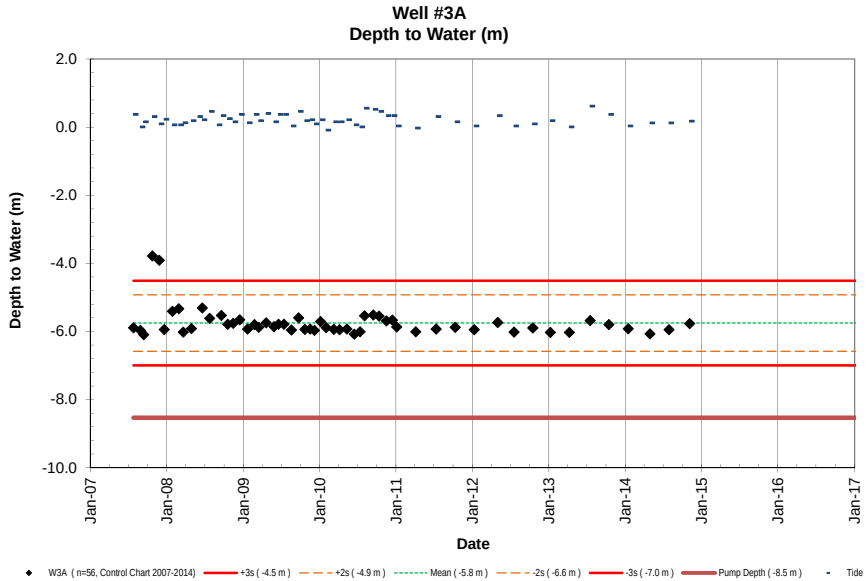

Well #3A
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W3A (n=261, Control Chart 1989-2007)
+3s (9.0 mg/L)
+2s (8.5 mg/L)
Mean (7.5 mg/L)
-2s (6.4 mg/L)
-3s (5.9 mg/L)


Well #3A
Temperature (˚C)
Temperature (˚C)
Date
W3A (n=264, Control Chart 1989-2007)
+3s (23.7 °C)
+2s (23.3 °C)
Mean (22.4 °C)
-2s (21.5 °C)
-3s (21.0 °C)


Well #3A
pH (unit)
pH (unit)
Date
W3A (n=262, Control Chart 1989-2007)
+3s (8.17 unit)
+2s (8.12 unit)
Mean (8.00 unit)
-2s (7.89 unit)
-3s (7.83 unit)


Well #3A
Salinity (PSU)
Salinity (PSU)
Date
W3A (n=264, Control Chart 1989-2007)
+3s (14.8 PSU)
+2s (12.9 PSU)
Mean (9.3 PSU)
-2s (5.6 PSU)
-3s (3.8 PSU)


Well #3A
Turbidity (NTU)
Turbidity (NTU)
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W3A (n=44, Control Chart 2007-2014)
+3s (18.18 NTU)
8.5 -22 29 -13 21
Mean (2.99 NTU)
-2s (-7.14 NTU)
-3s (-12.21 NTU)


Well #3A
Depth to Water (m)
Depth to Water (m)
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W3A (n=56, Control Chart 2007-2014)
+3s (-4.5 m)
+2s (-4.9 m)
Mean (-5.8 m)
-2s (-6.6 m)
-3s (-7.0 m)
Pump Depth (-8.5 m)
Tide

NELHA Water Quality Laboratory

Well 3B Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W3B	-7.32	6/27/89					3.35	104	70.9	993	0.13	2								22.9	7.845	8.049	7.95		NA	NA
W3B	-7.32	8/10/89	1405				3.40	105	77.8	1090	0.38	5								22.4	7.821	8.016	7.33		<1	NA
W3B	-7.32	8/16/89	1455				2.97	92	64.0	896	0.58	8								22.8	7.827	7.849	7.47		48	NA
W3B	-7.32	8/24/89	1140				3.33	103	72.2	1011	0.38	5								22.7	7.957	7.691	7.47		1	NA
W3B	-7.32	8/29/89	1055				3.44	107	88.3	1237	0.38	5									7.912		7.73		<1	NA
W3B	-7.32	8/29/89	1055				3.49	108	89.8	1258	0.38	5														NA
W3B	-7.32	10/30/89	1110				3.33	103	78.6	1101	0.01	0	674	18930	3.44	106.55	90.3	1265	0.37	22.6	7.820	7.998	7.37		<1	NA
W3B	-7.32	11/16/89	1025				3.46	107	78.2	1095	0.06	1	718	20165	3.81	118.01	85.1	1192	0.30	22.4	7.981	7.980	8.93		<1	NA
W3B	-7.32	12/12/89	1053				3.44	107	85.2	1193	0.01	0.1	737	20699	3.58	110.89	86.7	1214	1.18	22.4	7.943	8.522	7.95		<1	NA
W3B	-7.32	1/11/90	1119				2.67	83	71.7	1004	0.00	0.0	744	20896	2.83	87.66	74.5	1043	6.05	22.6	7.963	8.670	7.87		<1	NA
W3B	-7.32	2/14/90	1420				3.19	99	72.0	1008	0.00	0.0	701	19688	3.43	106.24	69.2	969	1.19	22.6	7.890	8.072	8.02		<1	NA
W3B	-7.32	3/7/90	1420				2.83	88	76.5	1072	0.03	0.4	645		3.04	94.16	77.5	1086	1.17	22.4	8.027	6.987	7.65		<1	NA
W3B	-7.32	4/2/90	1440				2.92	90	70.9	993	0.59	8.3	687	19295	3.00	92.92	73.4	1028	1.29	22.8	8.043	7.711	7.53		<1	NA
W3B	-7.32	5/17/90	1045				3.20	99	69.6	975	0.10	1.4	662	18593	3.17	98.19	79.0	1107	1.00	22.6	7.980	8.261	7.53		<1	NA
W3B	-7.32	6/16/90	953				3.47	107	72.8	1020	0.00	0.0	670	18817	3.47	107.48	76.4	1070	1.10	23.0	8.067	8.384	7.68		<1	NA
W3B	-7.32	7/31/90	1026				3.63	112	73.7	1032	0.01	0.1	684	19210	3.83	118.63	78.8	1104	1.22	23.8	8.075	8.277	7.77		<1	NA
W3B	-7.32	8/30/90	902				3.24	100	74.7	1046	0.19	2.7	681	19126	3.48	107.79	75.6	1059	0.98	22.9	8.050	8.556	7.49		<1	NA
W3B	-7.32	9/6/90	1031				3.35	104	75.5	1057	0.04	0.5			3.35	103.76	77.1	1079	0.34	23.2	8.053	8.570	7.49		<1	NA
W3B	-7.32	10/25/90	1027				3.40	105	73.6	1031	0.03	0.4	705	19800	3.89	120.49	73.7	1032	0.89	23.2	8.043	8.345	7.56		<1	NA
W3B	-7.32	11/14/90	1044				3.23	100	76.2	1067	0.08	1.1	765	21485	3.69	114.29	78.0	1093	0.14	23.1	8.047	8.306	7.61		<1	NA
W3B	-7.32	12/19/90	1030				3.13	97	76.3	1069	0.13	1.8	635	17834	3.54	109.65	77.1	1080	0.34	23.1	8.065	8.275	7.61		<1	NA
W3B	-7.32	1/24/91	835				3.10	96	75.8	1061	0.10	1.4	656	18424	3.16	97.88	76.9	1076	0.94	22.2	8.051	7.821	7.66		<1	NA
W3B	-7.32	2/7/91	855				2.92	90	62.0	868	0.57	8.0	574	16121	3.11	96.33	71.4	1000	0.61	22.8	8.157	6.661	7.61		<1	NA
W3B	-7.32	3/12/91	917				2.93	91	72.1	1010	0.06	0.8	631	17722	3.08	95.40	73.0	1022	0.75	22.2	8.047	8.152	7.73		<1	NA
W3B	-7.32	4/4/91	848				2.88	89	68.6	961	0.13	1.8	647	18171	2.92	90.44	69.9	979	0.72	22.1	8.061	8.390	7.58		<1	NA
W3B	-7.32	5/22/91	923				2.91	90	36.0	504	0.00	0.0	770	21626	3.06	94.78	37.6	527	0.51	22.3	8.053	8.322	7.57		<1	NA
W3B	-7.32	6/26/91	932				3.06	95	79.6	1115	0.00	0.0	683	19182	3.20	99.12	82.1	1150	0.50	22.4	8.036	8.679	7.68		<1	<1
W3B	-7.32	7/24/91	1002				2.59	80	56.1	786	0.00	0.0	670	18817	2.88	89.20	59.4	832	0.41	19.7	8.052	8.381	7.81		<1	<1
W3B	-7.32	8/23/91	857				3.02	94	83.3	1167	0.00	0.0	703	19744	3.04	94.16	88.3	1237	0.53	22.6	8.012	8.362	7.84		<1	<1
W3B	-7.32	9/24/91	851				3.07	95	77.3	1083	0.00	0.0	671	18845	3.13	96.95	80.5	1128	0.43	22.5	8.003	8.618	7.72		<1	<1
W3B	-7.32	10/23/91	857				3.04	94	77.4	1084	0.00	0.0	949	26653	3.13	96.95	80.0	1121	0.40	22.7	8.047	8.434	7.75		1	<1
W3B	-7.32	11/20/91	833				3.67	114	73.3	1027	0.00	0.0	792	22244	3.84	118.94	76.8	1076	0.42	22.8	8.042	8.311	7.89		<1	<1
W3B	-7.32	12/11/91	915				3.09	96	78.3	1097	0.00	0.0	684	19210	3.13	96.95	82.1	1150	0.59	22.8	8.048	8.317	7.85		<1	<1
W3B	-7.32	1/29/92	905				3.11	96	77.0	1079	0.00	0.0	671	18845	3.24	100.35	78.8	1104	0.90	22.7	8.049	8.544	7.85		<1	<1
W3B	-7.32	2/19/92	934				3.10	96	76.5	1072	0.00	0.0	630	17694	3.11	96.33	80.3	1125	0.40	22.7	8.059	8.482	7.93		<1	<1
W3B	-7.32	3/17/92	846				3.03	94	76.9	1077	0.00	0.0	686	19267	3.14	97.26	83.8	1174	0.52	22.4	8.060	8.380	8.06		<1	<1
W3B	-7.32	4/8/92	834				3.15	98	76.4	1070	0.00	0.0	669	18789	3.20	99.12	79.0	1107	0.46	22.5	8.049	8.327	8.04		<1	<1
W3B	-7.32	5/6/92	847				3.11	96	75.8	1062	0.00	0.0	724	20334	3.17	98.19	78.4	1098	0.63	22.4	8.037	8.448	7.97		<1	<1
W3B	-7.32	6/23/92	846				3.13	97	76.0	1065	0.07	1.0	731	20531	3.13	96.95	77.5	1086	0.85	22.5	8.034	8.538	8.09		<1	<1
W3B	-7.32	7/29/92	833				2.96	92	73.7	1033	ND	0.0	710	19941	3.03	93.85	73.6	1030	0.68	22.2	8.015	8.562	7.96		<1	<1
W3B	-7.32	8/26/92	821				3.31	103	87.8	1230	0.00	0.0	725	20362	3.31	102.52	90.9	1274	0.63	22.5	8.019	8.661	7.77		<1	<1
W3B	-7.32	9/22/92	818				3.17	98	79.5	1114	0.00	0.0	731	20531	3.19	98.81	84.3	1181	0.55	22.6	8.040	8.538	7.83		<1	<1
W3B	-7.32	10/27/92	841				3.40	105	80.2	1123	0.00	0.0	730	20502	3.43	106.24	83.9	1175	0.70	22.8	8.054	8.203	7.97		<1	<1
W3B	-7.32	11/17/92	858				3.16	98	81.9	1147	0.04	0.6	727	20418	3.29	101.90	87.9	1231	0.68	22.8	8.062	8.169	7.94		<1	<1
W3B	-7.32	12/8/92	840				3.17	98	81.1	1136	0.02	0.3	729	20474	3.45	106.86	84.1	1178	0.61	22.7	8.047	8.392	7.87		<1	<1
W3B	-7.32	1/26/93	855				3.06	95	76.1	1066	0.11	1.5	710	19927	3.07	95.09	83.6	1171	0.49	22.6	8.059	8.546	7.76		<1	<1
W3B	-7.32	2/23/93	827				3.01	93	80.9	1133	0.04	0.6	728	20455	3.03	93.85	88.1	1234	0.69	22.4	8.062	8.701	7.78		<1	<1
W3B	-7.32	3/16/93	827				3.13	97	78.8	1104	0.00	0.0	726	20390	3.13	96.95	81.4	1141	0.53	22.3	8.056	8.745	7.83		<1	<1
W3B	-7.32	4/27/93	832				3.14	97	82.6	1157	0.07	1.0	736	20671	3.23	100.05	86.4	1209	0.63	22.1	8.051	8.369	7.99		<1	<1
W3B	-7.32	5/25/93	823				3.16	98	81.7	1144	0.32	4.5	737	20699	3.14	97.26	88.8	1244	0.39	22.4	8.042	8.468	7.89		<1	<1
W3B	-7.32	6/28/93	902				3.11	96	81.6	1143	0.00	0.0	729	20474	3.29	101.90	86.7	1214	0.51	22.5	8.044	8.435	7.92		<1	<1
W3B	-7.32	8/9/93	845				3.20	99	80.8	1132	0.00	0.0	668	18770	3.20	99.12	83.5	1169	0.66	22.5	8.020	8.717	7.84		<1	<1
W3B	-7.32	WELL SET RELOCATED																								
W3B	-7.32	6/21/94	817				3.45	107	84.8	1187	0.17	2.4	688	19323	3.50	108.41	103	1437	0.52	22.3	8.026	8.137	7.97		<1	<1

NELHA Water Quality Laboratory

Well 3B Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W3B	-7.32	8/23/94	849				3.46	107	89.5	1253	0.28	3.9	953	26764	3.49	108.10	98.2	1376	0.65	22.6	8.028	7.873	8.01		<1	<1
W3B	-7.32	10/25/94	908				3.41	106	83.2	1165	0.30	4.2	683	19185	3.53	109.34		0	0.46	22.1	8.038	8.032	7.94		<1	<1
W3B	-7.32	11/28/94	1236				3.48	108	86.2	1208	0.23	3.2	680	19087	3.50	108.41	87.1	1219		22.9		8.048				
W3B	-7.32	12/13/94	928				3.38	105	86.7	1215	0.00	0.0	726	20379	3.41	105.62	88.5	1240		22.7		8.106				
W3B	-7.32	1/24/95	905				3.43	106	84.1	1178	0.22	3.1	670	18820	3.43	106.24	88.5	1240	0.52	22.5	8.056	8.429	7.86		<1	<1
W3B	-7.32	2/14/95	848				3.38	105	84.3	1181	0.20	2.8	677	19008	3.38	104.69	85.6	1199	0.51	22.6	8.057	8.526	7.82		<1	<1
W3B	-7.32	3/14/95	937				3.38	105	84.1	1177	0.10	1.4	674	18927	3.38	104.69	86.2	1207	0.53	22.6	8.040	7.977	7.99		<1	<1
W3B	-7.32	4/25/95	1004				3.42	106	84.9	1188	0.17	2.4	713	20022	3.51	108.72	85.5	1198	0.44	22.1	8.055	7.916	8.02		<1	<1
W3B	-7.32	5/9/95	850				3.40	105	84.6	1185	0.08	1.1	714	20039	3.40	105.31	87.8	1229	0.45	22.4	8.020	7.663	7.95		<1	<1
W3B	-7.32	6/27/95	907				3.33	103	85.0	1190	0.28	3.9	681	19121	3.50	108.41	88.6	1241	0.47	22.6	8.036	7.905	8.10		<1	<1
W3B	-7.32	7/25/95	922				3.28	102	85.1	1192	0.22	3.1	691	19413	3.48	107.79	88.2	1235	0.44	22.7	8.015	7.960	7.82		<1	<1
W3B	-7.32	8/22/95	1010				3.26	101	84.2	1179	0.27	3.8	694	19477	3.43	106.24	87.6	1227	0.55	22.8	8.020	7.997	7.78		<1	<1
W3B	-7.32	9/12/95	752				3.38	105	85.4	1196	0.09	1.3	691	19399	3.38	104.69	88.8	1244	0.44	20.5	8.072	7.990	7.81		<1	<1
W3B	-7.32	10/17/95	926				3.41	106	83.0	1163	0.19	2.7	695	19522	3.46	107.17	84.9	1189	0.53	22.9	8.051	8.191	7.78		<1	<1
W3B	-7.32	11/7/95	846				3.53	109	86.0	1205	0.17	2.4	688	19331	3.58	110.89	90.0	1260	0.49	22.8	8.081	7.990	7.83		<1	<1
W3B	-7.32	12/6/95	855				3.32	103	84.4	1182	0.16	2.2	689	19337	3.39	105.00	85.3	1194	0.51	23.0	8.085	8.249	7.75		<1	<1
W3B	-7.32	6/17/96	931				3.23	100	85.0	1191	0.02	0.3	690	19385	3.32	102.83	87.2	1221	0.54	22.7	8.104	8.152	7.79		<1	<1
W3B	-7.32	2/27/96	941				3.25	101	82.0	1148	0.07	1.0	686	19255	3.31	102.52	85.4	1196	0.50	23.1	8.054	7.975	7.81		<1	<1
W3B	-7.32	3/13/96	1011				3.13	97	79.0	1107	0.15	2.1	661	18569	3.23	100.05	81.7	1145	0.51	23.2	8.030	7.358	7.92		<1	<1
W3B	-7.32	4/2/96	826				3.25	101	80.3	1125	0.06	0.8	665	18679	3.34	103.45	87.5	1225	0.53	22.7	8.003	7.811	7.89		<1	<1
W3B	-7.32	5/15/96	939				3.37	104	83.4	1167	0.20	2.8	672	18875	3.41	105.62	88.0	1232	0.51	23.8	8.002	8.154	7.73		<1	<1
W3B	-7.32	6/18/96	905				3.34	103	84.7	1187	0.11	1.5	717	20150	3.45	106.86	89.8	1258	0.51	23.0	8.034	8.202	7.81		<1	<1
W3B	-7.32	7/17/96	938				3.33	103	87.3	1223	0.14	2.0	729	20486	3.40	105.31	90.3	1264	0.64	23.2	8.046	7.916	7.90		<1	<1
W3B	-7.32	8/6/96	947				3.29	102	87.8	1230	0.15	2.1	684	19218	3.41	105.62	92.3	1292	0.58	23.4	8.034	8.023	7.82		<1	<1
W3B	-7.32	9/4/96	1000				3.39	105	89.8	1258	0.17	2.4	711	19976	3.43	106.24	93.2	1305	0.51	23.5	8.039	7.837	7.84		<1	<1
W3B	-7.32	10/9/96	948				3.37	104	91.5	1281	0.17	2.4	681	19113	3.42	105.93	95.4	1336	0.61	23.4	8.045	7.375	8.43		<1	1
W3B	-7.32	11/6/96	934				3.34	103	92.0	1289	0.14	2.0	699	19627	3.46	107.17	97.5	1365	0.61	23.4	7.827	7.489	8.01		<1	<1
W3B	-7.32	12/17/96	1002				3.24	100	86	1200	0.20	2.8	666	18702	3.35	103.76	92.8	1299	0.48	22.8	8.008	7.864	7.94		<1	<1
W3B	-7.32	1/14/97	1025				2.82	87	75	1057	0.03	0.4	629	17671	2.93	90.75	78.7	1103	0.45	23.7	8.039	6.519	7.94		<1	<1
W3B	-7.32	2/10/97	1105				3.00	93	79	1112	0.13	1.8	651	18278	3.0*	0.00	80.2	1123	0.46	24.1	8.020	6.812	7.91		<1	<1
W3B	-7.32	3/10/97	1112				3.04	94	84	1178	0.03	0.4	682	19154	3.09	95.71	86.7	1214	0.51	23.5	8.035	7.200	7.97		<1	<1
W3B	-7.32	4/23/97	933				3.20	99	85	1196	0.13	1.8	570	16009	3.25	100.66	98.7	1382	0.55	23.0	8.041	7.284	7.59		<1	<1
W3B	-7.32	5/28/97	841				3.27	101	91	1270	0.04	0.6	599	16822	3.48	107.79	102	1422	0.45	23.1	8.055	7.390	7.88		<1	<1
W3B	-7.32	6/17/97	940				3.23	100	84	1178	0.15	2.1	624	17520	3.30	102.21	91.3	1279	0.48	22.4	8.053	7.245	7.83		<1	<1
W3B	-7.32	7/15/97	931				3.38	105	94	1314	0.05	0.7	692	19435	3.43	106.24	99.5	1394	0.44	23.1	8.045	7.097	7.89		<1	<1
W3B	-7.32	8/26/97	945				3.25	101	93	1307	0.19	2.7	687	19284	3.28	101.59	102	1426	0.49	23.3	8.112	7.209	7.85		<1	<1
W3B	-7.32	9/23/97	1140				3.26	101	90	1259	0.26	3.6	673	18910	3.28	101.59	92.2	1291	0.48	23.8	8.138	7.710	7.61		<1	<1
W3B	-7.32	10/15/97	908				3.21	99	98.8	1384	0.03	0.4	670	18817	3.29	101.90	100	1402	0.55	23.3	8.147	6.770	7.86		<1	<1
W3B	-7.32	11/4/97	1025				3.30	102	94.0	1317	0.04	0.6	669	18792	3.36	104.07	113	1580	0.52	23.3	8.158	7.590	7.57		<1	<1
W3B	-7.32	12/16/97	942				3.31	103	86.9	1217	0.01	0.1	675	18949	3.50	108.41	91.8	1286	0.48	23.1	8.154	7.676	7.87		<1	<1
W3B	-7.32	1/5/98	1221				3.31	103	88.5	1240	0.06	0.8	671	18844	3.41	105.62	91.1	1276	0.53	23.1	8.167	7.734	7.86		<1	<1
W3B	-7.32	2/3/98	1038				3.26	101	84.9	1189	0.05	0.7	684	19208	3.47	107.48	91.6	1283	0.52	22.9	8.145	7.915	7.88		<1	<1
W3B	-7.32	3/10/98	1054				3.43	106	86	1201	0.05	0.7	676	18985	3.51	108.72	90.0	1261	0.53	22.8	8.017	8.102	7.90		<1	<1
W3B	-7.32	4/14/98	920				3.46	107	87	1214	0.03	0.4	681	19129	3.57	110.58	88.5	1240	0.53	22.6	8.035	8.024	7.93		<1	<1
W3B	-7.32	5/12/98	1045				3.44	107	85.6	1199	0.09	1.3	672	18885	3.53	109.34	90.1	1262	0.52	22.9	8.029	8.416	7.84		<1	<1
W3B	-7.32	6/2/98	1038				3.41	106	85	1184	0.05	0.7	668	18770	3.54	109.65	88	1232	0.47	22.6	8.024	8.743	7.81		<1	<1
W3B	-7.32	7/14/98	1048				3.41	106	81.6	1142	0.09	1.3	677	19022	3.58	110.89	84.1	1178	0.79	22.8	8.021	8.423	7.77		<1	<1
W3B	-7.32	8/11/98	1107				3.48	108	85.7	1200	0.07	1.0	682	19143	3.66	113.36	89	1249	0.40	22.7	8.007	8.335	7.69		<1	<1
W3B	-7.32	9/15/98	1141				3.48	108	87.1	1220	0.07	1.0	684	19208	3.68	113.98	88	1234	0.49	22.9	8.008	8.047	8.05		<1	<1
W3B	-7.32	10/13/98	1015				3.46	107	88.8	1244	0.04	0.6	695	19517	3.54	109.65	92.0	1289	0.43	23.0	8.025	7.793	8.62		1	<1
W3B	-7.32	11/4/98	1048				3.40	105	86.9	1217	0.11	1.5	722	20269	3.43	106.24	91.9	1287	0.48	23.1	8.022	8.078	7.88		<1	<1
W3B	-7.32	12/16/98	1028				3.41	106	84	1171	0.08	1.1	679	19056	3.45	106.86	89	1251	0.44	23.1	8.013	8.628	7.79		<1	<1
W3B	-7.32	1/12/99	1103				3.29	102	82	1154	0.04	0.6	680	19107	3.44	106.55	86	1209	0.44	23.2	8.015	8.610	7.89		1	<1
W3B	-7.32	2/3/99	1051				2.80	87	82.7	1158	0.12	1.7	669	18784	2.90	89.82	89.9	1259	0.45	23.0	8.002	9.005	7.81		<1	<1
W3B	-7.32	3/2/99	1059				3.34	103	78.8	1104	0.14	2.0	664	18654	3.43	106.24	81.3	1139	0.41	22.7	8.004	9.055	8.54		<1	<1
W3B	-7.32	4/6/99	1049				3.26	101	83.5	1170	0.06	0.8	686	19269	3.35	103.89	86.9	1217	0.52	22.8	8.026	8.279	8.03		<1	<1
W3B	-7.32	5/4/99	1054				3.27	101	77.5	1086	0.11	1.5	664	18635	3.33	103.14	79.6	1115	0.50	22.6	8.001	8.883	7.81		<1	<1
W3B	-7.32	6/2/99	1038				3.37	104	83.5	1170	0.06	0.8	731	20531	3.48	107.79	90.8	1272	0.54	23.0	8.021	8.325	7.89		<1	<1

NELHA Water Quality Laboratory

Well 3B Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W3B	-7.32	7/7/99	1111				3.37	104	79.2	1109	0.04	0.6	685	19244	3.40	105.31	82.0	1149	0.52	23.1	8.005	8.723	7.84		<1	<1
W3B	-7.32	8/25/99	1044				3.37	104	84.9	1189	0.09	1.3	688	19328	3.40	105.31	91.9	1287	0.49	23.0	8.063	8.269	8.01		<1	<1
W3B	-7.32	9/8/99	1047				3.40	105	88.4	1238	0.07	1.0	699	19618	3.55	109.96	96.8	1356	0.49	23.0	8.088	8.207	7.97		<1	<1
W3B	-7.32	10/6/99	1052				3.47	107	84.3	1180	0.06	0.8	656	18413	3.52	109.03	87.6	1227	0.47	23.0	8.062	8.182	7.94		<1	<1
W3B	-7.32	11/3/99	1106				3.31	103	81.2	1137	0.02	0.3	677	19011	3.31	102.52	85.6	1199	0.47	23.3	8.071	8.394	7.89		<1	<1
W3B	-7.32	12/15/99	1123				3.37	104	83.8	1174	0.09	1.3	692	19432	3.45	106.86	86.4	1210	0.52	23.0	8.039	7.988	7.61		<1	<1
W3B	-7.32	1/11/00	1058				3.30	102	85.4	1196	0.07	1.0	679	19078	3.37	104.38	94.0	1317	0.48	23.0	8.016	8.885	7.62		<1	<1
W3B	-7.32	2/14/00	1115				3.35	104	81.8	1146	0.09	1.3	641	17992	3.33	103.14	88.6	1241	0.50	22.7	8.053	8.799	7.70		<1	<1
W3B	-7.32	3/22/00	1125				3.11	96	82.0	1149	0.16	2.2	686	19267	3.05	94.47	89.9	1259	0.63	22.5	8.062	8.742	7.78		<1	<1
W3B	-7.32	4/12/00	1108				3.39	105	81.9	1147	0.07	1.0	678	19048	3.27	101.28	89.7	1256	0.71	22.8	8.052	8.907	7.74		<1	1
W3B	-7.32	5/17/00	1045				3.30	102	82.5	1156	0.16	2.2	680	19101	3.32	102.83	90.1	1262	0.55	22.6	8.061	8.576	7.85		1	<1
W3B	-7.32	6/6/00	1123				3.28	102	85.4	1196	0.15	2.1	680	19101	3.31	102.52	92.8	1300	0.58	22.8	8.051	8.540	7.85		1	<1
W3B	-7.32	7/31/00	1112				3.28	102	79.8	1118	0.10	1.4	652	18312	3.32	102.83	83.1	1164	0.42	22.9	8.049	9.098	7.63		<1	<1
W3B	-7.32	8/30/00	1117				3.32	103	83.3	1167	0.26	3.6	685	19241	3.35	103.76	86.0	1205	0.45	22.8	8.029	8.482	7.77		<1	<1
W3B	-7.32	9/6/00	1056				3.30	102	83.0	1163	0.12	1.7	689	19357	3.46	107.17	87.8	1230	0.47	23.2	8.034	8.275	7.81		<1	<1
W3B	-7.32	10/25/00	1033				3.34	103	81.6	1143	0.35	4.9	706	19831	3.56	110.27	86.6	1214	0.45	23.3	8.029	8.334	7.49		<1	<1
W3B	-7.32	11/14/00	1047				2.90	90	74.7	1046	0.15	2.1	640	17978	3.16	97.88	84.7	1186	0.43	23.5	8.033	7.347	7.54		<1	1
W3B	-7.32	12/19/00	1038				3.18	98	80.7	1130	0.23	3.2	677	19000	3.29	101.90	83.3	1167	0.49	23.1	8.028	8.360	7.46		<1	<1
W3B	-7.32	1/24/01	1032				3.38	105	83.5	1170	0.06	0.8	688	19334	3.42	105.93	88.1	1234	0.56	23.2	8.025	8.298	7.41		<1	<1
W3B	-7.32	2/7/01	1101				3.18	98	81.5	1142	0.07	1.0	683	19168	3.20	99.12	82.2	1151	0.52	23.0	8.035	8.631	7.26		<1	<1
W3B	-7.32	3/12/01	1046				3.28	102	74.5	1043	0.06	0.8	666	18716	3.39	105.00	83.6	1171	0.52	23.1	7.995	8.654	7.26		<1	<1
W3B	-7.32	4/18/01	1038				3.30	102	82.8	1160	0.01	0.1	682	19143	3.36	104.07	83.2	1165	0.48	23.0	7.991	8.594	7.92		<1	<1
W3B	-7.32	5/14/01	914				4.91	152	84.7	1186	0.07	1.0	693	19472	5.24	162.30	89.4	1252	0.50	22.9	8.003	8.713	7.86		<1	<1
W3B	-7.32	6/13/01	1055				3.54	110	84.7	1187	0.06	0.8	692	19441	3.56	110.27	86.0	1204	0.51	22.8	8.020	8.413	8.00		<1	<1
W3B	-7.32	7/25/01	1015				3.57	111	87.3	1222	0.08	1.1	677	19014	3.56	110.27	92.7	1298	0.55	22.9	8.004	8.543	7.89		1	<1
W3B	-7.32	8/20/01	1009				3.30	102	86.6	1213	0.10	1.4	684	19219	3.31	102.52	88.4	1238	0.51	23.5	8.017	8.462	7.79		<1	<1
W3B	-7.32	9/18/01	1047				3.36	104	88.2	1235	0.11	1.5	683	19174	3.44	106.55	91.5	1282	0.60	23.4	8.014	8.098	7.83		<1	<1
W3B	-7.32	10/9/01	1038				3.55	110	89.5	1254	0.05	0.7	685	19244	3.52	109.03	98.1	1374	0.55	23.4	8.009	8.076	7.92		<1	<1
W3B	-7.32	11/6/01	1005				3.32	103	92.7	1298	0.17	2.4	693	19469	3.45	106.86	106	1486	0.53	23.2	8.020	8.142	7.92		<1	1
W3B	-7.32	12/18/01	1000				2.81	87	86.5	1212	0.09	1.3	674	18938	2.83	87.66	98.1	1374	0.57	23.5	7.999	8.234	7.78		<1	<1
W3B	-7.32	1/8/02	1014				3.24	100	86.2	1207	0.11	1.5	673	18913	3.35	103.76	89.1	1248	0.46	23.2	8.010	8.231	7.50		<1	<1
W3B	-7.32	2/27/02	1013				3.34	103	89.0	1246	0.10	1.4	694	19497	3.40	105.31	97.9	1371	0.46	23.0	8.597	8.402	7.43		<1	<1
W3B	-7.32	3/19/02	1020				2.90	90	78.4	1099	0.09	1.3	629	17671	2.94	91.06	81.1	1136	0.40	22.7	8.040	7.287	7.49		2	2
W3B	-7.32	4/9/02	1012				3.34	103	85.5	1198	0.07	1.0	664	18638	3.50	108.41	86.3	1209	0.45	22.9	7.987	7.825	7.43		<1	<1
W3B	-7.32	5/21/02	1015				3.20	99	85.0	1190	0.08	1.1	670	18826	3.30	102.21	86.5	1211	0.54	23.1	8.011	8.202	7.94		<1	<1
W3B	-7.32	6/18/02	1028				3.33	103	89.7	1257	0.26	3.6	681	19135	3.35	103.76	90.0	1260	0.49	22.8	8.010	8.475	8.84		<1	<1
W3B	-7.32	7/17/02	1006				3.18	98	89.2	1249	0.09	1.3	668	18764	3.38	104.69	79.1	1108	0.66	23.0	8.015	8.770	7.70		<1	<1
W3B	-7.32	8/22/02	1024				3.38	105	87.4	1224	0.13	1.8	682	19154	3.48	107.79	89.1	1248	0.68	23.0	8.019	8.297	7.85		<1	<1
W3B	-7.32	9/24/02	1059				3.30	102	91.3	1279	0.11	1.5	691	19404	3.44	106.55	81.7	1145	0.49	23.4	8.047	8.324	7.92		<1	<1
W3B	-7.32	10/16/02	1039				3.13	97	92.7	1299	0.13	1.8	666	18705	3.23	100.05	77.4	1085	0.41	23.4	8.024	7.664	7.93		<1	7
W3B	-7.32	11/6/02	1024				3.26	101	93.5	1309	0.12	1.7	664	18657	3.29	101.90	81.2	1138	0.56	23.6	8.007	7.792	7.88		<1	<1
W3B	-7.32	12/19/02	1112				3.28	102	89.1	1248	0.08	1.1	674	18927	3.33	103.14	80.4	1127	0.54	23.5	8.017	8.370	7.81		<1	<1
W3B	-7.32	1/22/03	1102				3.32	103	85.1	1192	0.28	3.9	668	18758	3.33	103.14	87.8	1230	0.72	23.1	8.023	8.559	7.91		<1	<1
W3B	-7.32	2/20/03	1015				3.10	96	87.0	1218	0.16	2.2	665	18680	3.18	98.50	89.1	1247	0.46	23.5	8.019	8.627	7.81		<1	<1
W3B	-7.32	3/18/03	954				3.30	102	85.8	1202	0.06	0.8	674	18930	3.33	103.14	101	1410	0.45	23.1	8.029	8.573	7.82		<1	<1
W3B	-7.32	4/29/03	1010				3.47	107	90.7	1271	0.42	5.9	675	18961	3.52	109.03	97.7	1368	0.28	23.2	8.051	8.183	7.94		<1	<1
W3B	-7.32	5/13/03	1037				3.48	108	87.7	1228	0.62	8.7	680	19084	3.50	108.41	90.0	1261	0.50	23.0	8.064	7.972	8.02		<1	<1
W3B	-7.32	6/5/03	1005				3.39	105	85.2	1193	0.38	5.3	670	18814	3.46	107.17	100	1404	0.45	23.0	8.060	8.337	7.97		<1	1

NELHA Water Quality Laboratory

Well 3B Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W3B	-7.32	7/31/03	1025				3.27	101	94.4	1322	0.27	3.8	674	18927	3.34	103.45	98.3	1377		23.5	8.026	8.537	7.31		<1	<1
W3B	-7.32	8/27/03	1043				3.38	105	95.6	1339	0.70	9.8	680	19101	3.92	121.42	115	1614		23.3	8.029	8.132	8.14		<1	<1
W3B	-7.32	9/17/03	1010				3.46	107	96.6	1352	0.35	4.9	690	19368	4.12	127.61	102	1433		23.4	8.036	7.900	8.22		<1	<1
W3B	-7.32	10/7/03	1011				3.38	105	96.7	1355	1.11	15.5	687	19286	3.50	108.41	110	1541		23.5	8.027	8.098	NA		<1	<1
W3B	-7.32	11/4/03	952				3.32	103	90.3	1265	0.44	6.2	688	19314	3.32	102.83	104	1450		23.3	8.051	8.179			<1	<1
W3B	-7.32	11/14/03	1127																	23.7			8.02			
W3B	-7.32	12/16/03	949				3.28	102	94.5	1324	0.40	5.6	701	19677	3.39	105.00	99.2	1389		23.5	8.025	8.489	7.90		<1	<1
W3B	-7.32	1/27/04	1010				3.10	96	89.3	1251	0.12	1.7	660	18525	3.19	98.81	91.0	1275		23.2	8.040	8.147	7.53		<1	<1
W3B	-7.32	2/10/04	1007				3.14	97	88.6	1241	0.15	2.1	630	17697	3.08	95.40	89.2	1249		23.7	8.006	8.172	7.83		<1	<1
W3B	-7.32	3/15/04	1011				2.88	89	78.9	1106	0.07	1.0	617	17320	3.05	94.47	80.9	1133		23.4	8.059	6.319	7.60		<1	<1
W3B	-7.32	4/21/04	922				3.14	97	91.6	1283	0.02	0.3	663	18623	3.09	95.71	94.4	1323		22.9	8.034	7.700	7.88		<1	<1
W3B	-7.32	5/12/04	917				3.14	97	94.3	1321	0.09	1.3	663	18626	3.08	95.40	97.0	1359		23.3	8.051	7.58	8.09		<1	<1
W3B	-7.32	6/7/04	952				3.20	99	95.5	1338	0.18	2.5	653	18337	3.30	102.21	97.5	1365		23.0	8.043	7.49	7.99		1	<1
W3B	-7.32	7/8/04	1022				3.16	98	90.5	1267	0.08	1.1	676	18977	3.22	99.74	99.0	1387	0.39	23.1	8.097	7.90	7.73		<1	<1
W3B	-7.32	8/24/04	950				3.14	97	94.7	1327	0.10	1.4	653	18351	3.08	95.40	101	1420		23.6	8.048	7.32	7.86		<1	<1
W3B	-7.32	9/28/04	1005				3.42	106	106	1483	0.20	2.8	719	20179	3.30	102.21	115	1607		23.5	8.023	7.57	7.86		<1	<1
W3B	-7.32	10/5/04	1055				3.16	98	101	1419	0.13	1.8	676	18972	3.28	101.59	116	1625		23.6	8.046	7.74	7.82		<1	<1
W3B	-7.32	11/8/04	946				3.34	103	94.5	1323	0.19	2.7	679	19064	3.42	105.93	104	1452		23.6	8.054	7.79	7.86		<1	<1
W3B	-7.32	12/7/04	957				3.20	99	101	1420	0.16	2.2	673	18899	3.24	100.35	118	1646		23.7	8.086	7.34	7.89		<1	<1
W3B	-7.32	1/11/05	945				2.94	91	86.4	1210	0.08	1.1	662	18579	3.00	92.92	88.2	1236		23.7	8.115	7.144	7.83		1	<1
W3B	-7.32	2/8/05	945				2.78	86	83.7	1172	0.20	2.8	626	17582	2.86	88.58	93.3	1307		23.5	8.112	6.373	7.89		<1	<1
W3B	-7.32	3/16/05	1028				3.01	93	99.4	1392	0.20	2.8	640	17974	3.17	98.19	110	1537	0.42	23.3	8.079	7.300	7.83		<1	<1
W3B	-7.32	4/18/05	1036				3.26	101	91.3	1279	0.11	1.5	675	18963	3.32	102.83	98.1	1373		23.4	8.083	7.553	7.91		<1	1
W3B	-7.32	5/24/05	953				3.18	98	99.5	1394	0.18	2.5	672	18876	3.22	99.74	110	1534		23.3	8.012	8.068	7.80		<1	<1
W3B	-7.32	6/13/05	1014				3.26	101	95.9	1344	0.18	2.5	677	19020	3.24	100.35	100	1405		23.3	8.045	8.080	7.78		<1	<1
W3B	-7.32	7/11/05	1015				3.47	107	91.4	1280	0.16	2.2	673	18890	3.58	110.89	98.0	1372		23.1	8.049	7.541	10.60		<1	<1
W3B	-7.32	8/10/05	930				3.32	103	89.0	1246	0.16	2.2	670	18809	3.46	107.17	89.6	1255		23.3	8.053	7.869	7.81		<1	<1
W3B	-7.32	9/21/05	923				3.30	102	96.1	1347	0.12	1.7	665	18668	3.44	106.55	111	1549	0.43	23.5	8.054	8.058	7.81		<1	<1
W3B	-7.32	10/18/05	948				3.36	104	94.0	1316	0.14	2.0	668	18770	3.50	108.41	102	1424		23.4	8.038	8.112	7.77		<1	<1
W3B	-7.32	11/3/05	908				3.38	105	97.7	1369	0.18	2.5	685	19241	3.58	110.89	99.8	1398		23.3	8.052	8.239	7.58		<1	2
W3B	-7.32	12/21/05	1020				3.34	103	91.4	1281	0.14	2.0	674	18938	3.44	106.55	99.6	1396	0.50	23.4	8.076	8.277	7.83		<1	<1
W3B	-7.32	1/24/06	927				3.42	106	94.2	1319	0.14	2.0	679	19076	3.58	110.89	97.9	1371		22.9	8.042	8.431	7.79		<1	<1
W3B	-7.32	2/15/06	925				3.37	104	93.0	1302	0.16	2.2	667	18741	3.42	105.93	97.0	1358	0.34	23.0	8.046	8.651	7.76		<1	<1
W3B	-7.32	3/21/06	918				3.26	101	94.0	1317	0.10	1.4	674	18930	3.29	101.90	94.7	1326	0.39	22.7	8.065	8.566	7.77		<1	1
W3B	-7.32	4/26/06	933				3.30	102	91.2	1278	<0.05	0.0	663	18621	3.42	105.93	80.0	1121	0.42	22.6	8.046	8.31	7.76		<1	<1
W3B	-7.32	5/23/06	1003				2.99	93	90.0	1261	<0.05	0.0	660	18536	3.16	97.88	77.8	1090	0.54	22.8	8.035	8.686	7.61		<1	<1
W3B	-7.32	6/27/06	1000				3.33	103	94.1	1318	0.21	2.9	670	18817	3.53	109.34	64.2	899	0.38	22.9	8.027	8.661	7.73		<1	<1
W3B	-7.32	7/18/06	959				3.25	101	87.1	1220	0.11	1.5	661	18565	3.33	103.14	69.4	971	0.49	23	8.014	9.001	8.16		<1	<1
W3B	-7.32	8/8/06	939				3.16	98	93.0	1303	<0.05	0.0	671	18845	3.30	102.21	75.9	1063	0.40	22.9	8.031	8.304	8.11		<1	<1
W3B	-7.32	9/19/06	1036				3.25	101	90.5	1268	0.07	1.0	668	18761	3.42	105.93	83.8	1174	0.41	23.6	8.023	8.347	8.06		<1	<1
W3B	-7.32	10/24/06	1015				3.12	97	84.3	1181	0.23	3.2	639	17947	3.26	100.97	81.1	1136	0.42	23.2	8.057	7.175	8.05		<1	<1
W3B	-7.32	11/28/06	954				3.40	105	87.3	1223	0.27	3.8	651	18284	3.45	106.86	82.8	1160	0.46	23.5	8.027	8.092	7.97		<1	<1
W3B	-7.32	12/12/06	946				3.15	98	86.4	1210	0.16	2.2	648	18199	3.32	102.83	80.6	1129	0.54	23.4	8.021	8.369	7.89		<1	<1
W3B	-7.32	1/9/07	1014				3.22	100	88.1	1234	0.26	3.6	651	18284	3.29	101.90	91.8	1286	0.43	23	8.034	8.730	7.84		<1	<1
W3B	-7.32	2/22/07	1000				3.15	98	91.6	1283	0.19	2.7	657	18452	3.24	100.35	93.4	1308	0.42	23.2	8.009	8.887	7.84		<1	<1
W3B	-7.32	3/6/07	1025				3.18	98	93.4	1308	0.21	2.9	666	18705	3.33	103.14	95.2	1334	0.49	23.1	8.049	8.549	8.01		<1	<1
W3B	-7.32	4/11/07	1147				3.23	100	87.3	1223	0.19	2.7	671	18845	3.37	104.38	82.2	1152	0.41	23.4	8.048	8.520	7.67		<1	<1
W3B	-7.32	5/3/07	1000				3.35	104	93.7	1312	0.24	3.4	686	19267	3.53	109.34	87.7	1229	0.50	23.5	8.067	8.471	7.65		<1	<1
W3B	-7.32	6/19/07	935				3.13	97	90.8	1272	0.17	2.4	649	18227	3.24	100.35	76.6	1073	0.35	23.3	8.066	8.664	8.13		<1	<1

NELHA Water Quality Laboratory

Well 3B Data Table

June 1989 - December 2014

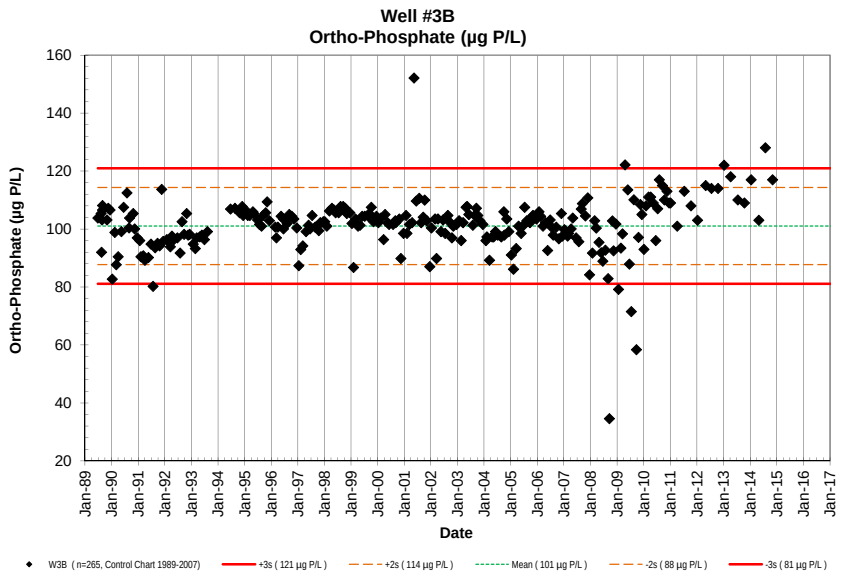
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W3B	-7.32	7/26/07	1040	-6.00	0.37	Flood	3.09	96	99.6	1395	0.04	0.5	661	18576	3.30	102.3	95.9	1343.1		23.5	7.97	8.19	7.27			
W3B	-7.32	8/28/07	1023	-6.02	0.00	Low	3.45	107	102.0	1429	0.51	7.2	929	26085	3.45	106.8	101.7	1424.2		24.2	7.90	8.14	7.24			
W3B	-7.32	9/13/07	1215	-5.94	0.15	Low	3.51	109	103.0	1443	0.74	10.4	751	21104	3.51	108.7	97.5	1366.0		24.0	8.02	8.29	6.82			
W3B	-7.32	10/24/07	1126	-5.94	0.30	Flood	3.37	105	108.3	1517	0.01	0.2	658	18466	3.33	103.2	103.2	1445.9		23.5	8.04	8.12	7.16			
W3B	-7.32	11/26/07	1437	-5.26	0.09	Flood	3.58	111	101.0	1414	0.60	8.5	739	20751	3.32	102.7	107.1	1500.7		23.3	8.10	8.52	7.29			
W3B	-7.32	12/20/07	1114	-5.82	0.23	High	2.72	84	81.8	1146	0.55	7.7	525	14748						23.5	8.06	6.26	7.26			
W3B	-7.32	1/28/08	1419	-6.02	0.06	Low	2.96	92	79.6	1115	0.31	4.3	398	11178						23.2	7.91	8.23	6.92			
W3B	-7.32	2/27/08	1153	-5.79	0.06	Low	3.32	103	98.1	1374	0.63	8.8	630	17693						23.2	7.90	8.31	7.42			
W3B	-7.32	3/20/08	1211	-6.04	0.12	Flood	3.24	100	108.7	1522	0.07	1	618	17363						23.0	7.98	8.25	7.07			
W3B	-7.32	4/28/08	1155	-6.00	0.18	High	3.08	95	102.2	1432	0.19	2.6	643	18057						23.1	7.96	8.22	6.83			
W3B	-7.32	5/29/08	1007		0.30	Flood	2.96	92	102.7	1438	0.12	1.7	640	17969						23.7	7.98	8.17	7.25			
W3B	-7.32	6/19/08	1049	-6.22	0.21	Ebb	2.87	89	99.0	1387	0.18	2.5	641	18014						25.3	7.86	8.35	6.55	0.21		
W3B	-7.32	7/24/08	1009	-5.74	0.46	Ebb	2.99	93	125.3	1756	0.72	10.1	650	18246						23.1	7.89	8.10	7.21			
W3B	-7.32	8/30/08	1033		0.06	Flood	2.68	83	96.8	1356	0.29	4.0	529	14866						23.2	7.98	8.44	7.27			
W3B	-7.32	9/18/08	920	-5.58	0.34	Ebb	1.12	35	37.0	519	1.29	18.0	345	9698						23.1	7.85	8.16	7.20	0.13		
W3B	-7.32	10/28/08	922	-5.83	0.24	Ebb	3.32	103	102.3	1433	0.47	6.6	623	17510						24.4	7.72	8.01	7.35	0.7		
W3B	-7.32	11/13/08	942	-5.80	0.15	Ebb	2.99	93	98.0	1372	0.06	0.9	537	15082						24.9	7.84	7.93	7.19	0.37		
W3B	-7.32	12/15/08	1025	-5.67	0.37	Ebb	3.28	102	106.9	1497	0.33	4.6	596	16735						24.5	8.16	7.83	7.51			
W3B	-7.32	1/21/09	934	-5.99	0.12	Low	2.56	79	100.0	1400	0.14	1.9	574	16135						24.3	8.16	7.08	7.54	0.12		
W3B	-7.32	2/23/09	1515	-5.83	0.37	High	3.02	93	104.6	1466	1.04	14.6	637	17898						23.8	7.99	8.39	7.56	0.33		
W3B	-7.32	3/16/09	809	-5.94	0.18	High	3.17	98	81.6	1143	0.54	7.6	540	15162						25.9	7.91	8.56	7.13	0.09		
W3B	-7.32	4/20/09	1512	-5.81	0.43	High	3.94	122	92.0	1289	0.46	6.4	418	11753						24.3	7.91	8.55	7.93	1.30		
W3B	-7.32	5/27/09	755	-5.91	0.15	Ebb	3.66	114	92.0	1288	0.21	3.0	669	18798						22.5	7.83	8.64	6.88	0.11		
W3B	-7.32	6/18/09	1016	-5.80	0.34	Flood	2.84	88	65.5	917	0.49	6.8	269	7546						22.7	8.11	8.11	8.12	0.11		
W3B	-7.32	7/14/09	825	-5.82	0.37	Flood	2.31	72	48.3	677	0.23	3.2	366	10281						22.5	8.17	8.63	7.71	0.04		
W3B	-7.32	8/19/09	848	-6.01	0.03	Low	3.55	110	103.4	1449	0.51	7.2	491	13782						23.0	7.98	7.93	7.39	0.05		
W3B	-7.32	9/22/09	859	-5.63	0.46	Ebb	1.89	58	44.4	622	0.12	1.7	254	7144						23.2	8.05	8.57	7.63	0.05		
W3B	-7.32	10/22/09	1324	-5.95	0.18	Ebb	3.13	97	89.9	1259	0.27	3.8	254	7140						23.5	8.07	8.63	7.78	0.04		
W3B	-7.32	11/16/09	1429	-5.98	0.21	High	3.50	108	96.7	1355	0.81	11.3	632	17762						23.4	8.04	8.79	7.03	0.03		
W3B	-7.32	12/7/09	1404	-6.02	0.09	Ebb	3.39	105	100.9	1413	0.29	4.0	543	15240						23.8	8.00	8.88	6.40	0.02		
W3B	-7.32	1/5/10	1138	-5.78	0.21	Ebb	3.00	93	93.0	1302	0.64	9.0	584	16396						23.8	8.05	8.87	7.82	0.39		
W3B	-7.32	2/1/10	1159	-5.92	-0.09	Low	3.49	108	103.5	1450	1.36	19.0	596	16748						22.9	8.08	8.60	7.21	0.06		
W3B	-7.32	3/9/10	1202	-5.98	0.15	High	3.58	111	93.6	1311	0.14	2.0	587	16483						22.8	8.04	8.88	7.46	1.04		
W3B	-7.32	4/6/10	1048	-6.00	0.15	High	3.58	111	93.8	1314	0.36	5.0	642	18025						22.6	8.06	8.92	8.02	0.25		
W3B	-7.32	5/11/10	1110	-5.98	0.21	Flood	3.52	109	83.8	1174	2.21	31.0	564	15834						22.7	8.08	8.12	7.99	0.15		
W3B	-7.32	6/15/10	1158	-6.15	0.06	Low	3.10	96	80.7	1130	0.36	5.0	546	15327						22.6	8.10	8.43	7.79	0.21		
W3B	-7.32	7/13/10	1110	-6.05	0.00	Low	3.45	107	95.2	1333	1.14	16.0	687	19308						22.6	8.06	8.64	7.64	0.09		
W3B	-7.32	8/3/10	1116	-5.58	0.55	High	3.78	117	99.0	1387	0.40	5.6	687	19293						22.8	8.09	8.13	7.79	0.22		
W3B	-7.32	9/14/10	1127	-5.54	0.52	Ebb	3.71	115	97.5	1365	0.49	6.9	712	20001						22.7	8.06	8.33	7.86	0.12		
W3B	-7.32	10/12/10	1139	-5.59	0.46	Ebb	3.55	110	99.0	1386	0.25	3.5	735	20649						22.9	8.06	8.44	7.59	0.09		
W3B	-7.32	11/16/10	1054	-5.73	0.34	Flood	3.65	113	103.0	1443	0.36	5.1	723	20298						22.8	8.05	8.01	7.90	0.08		
W3B	-7.32	12/14/10	1132	-5.69	0.34	Ebb	3.52	109	100.6	1409	0.33	4.6	685	19235						22.8	8.06	8.07	7.75	0.05		
W3B	-7.32	1/4/11	1119	-5.92	0.03	Low	3.52	109	96.5	1352	0.33	4.6	675	18965						22.9	8.00	8.10	7.28	0.06		
W3B	-7.32	4/5/11	1143	-6.05	-0.03	Low	3.26	101	87.6	1227	0.43	6.0	676	18975						22.8	8.03	7.96	6.75	0.16		
W3B	-7.32	7/12/11	1104	-5.98	0.30	Flood	3.65	113	94.6	1325	0.23	3.2	678	19047						22.8	8.01	8.58	7.60	0.02		
W3B	-7.32	10/11/11	1137	-5.92	0.15	Flood	3.49	108	93.2	1305	0.11	1.6	659	18516						23.0	8.02	8.19	7.84	0.20		
W3B	-7.32	1/10/12	1134	-6.00	0.03	Ebb	3.33	103	91.5	1282	0.53	7.4	650	18252						23.1	8.04	8.79	6.90	0.08		
W3B	-7.32	5/1/12	1149	-5.78	0.34	Flood	3.71	115	96.0	1345	0.30	4.2	689	19359						22.8	8.10	8.21	7.91	0.02		
W3B	-7.32	7/18/12	1043	-6.07	0.09	Flood	3.68	114	100.7	1410	0.62	8.7	657	18463						23.1	8.04	8.47	8.10	0.05		
W3B	-7.32	10/16/12	1131	-5.96	0.09	Low	3.68	114	99.9	1399	0.44	6.1	669	18793						23.0	8.00	8.44	7.78	0.15		
W3B	-7.32	1/8/13	1150	-5.98	0.18	Flood	3.94	122	103.7	1452	0.44	6.2	722	20272						23.1	7.98	8.46	7.40	0.02		
W3B	-7.32	4/9/13	1152	-6.07	0.00	Flood	3.81	118	92.5	1296	0.49	6.8	705	19805						22.8	8.03	8.60	6.57	0.15		
W3B	-7.32	7/17/13	1246	-5.70	0.61	High	3.55	110	94.5	1324	0.69	9.7	684	19203						23.1	7.90	8.55	7.52	0.05		
W3B	-7.32	10/15/13	1110	-5.76	0.37	Flood	3.52	109	98.3	1377	0.86	12.0	673	18915						23.6	7.97	8.58	7.51	0.07		
W3B	-7.32	1/15/14	1116	-5.96	0.03	Low	3.78	117	93.9	1315	0.56	7.8	642	18026						23.7	8.04	8.42	7.30	0.03		
W3B	-7.32	4/29/14	1217	-6.11	0.12	Flood	3.33	103	89.9	1259	0.57	8.0	616	17297						23.5	7.98	8.36	7.78	0.15		

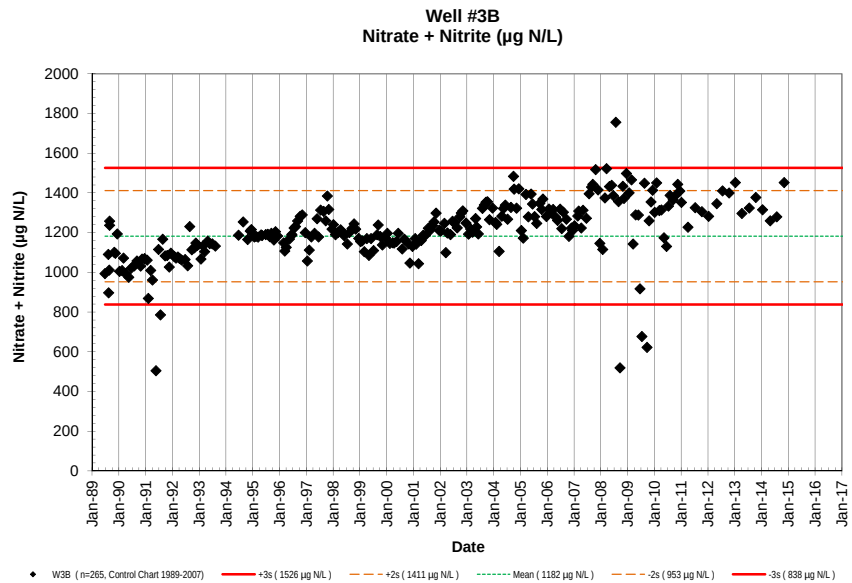
NELHA Water Quality Laboratory

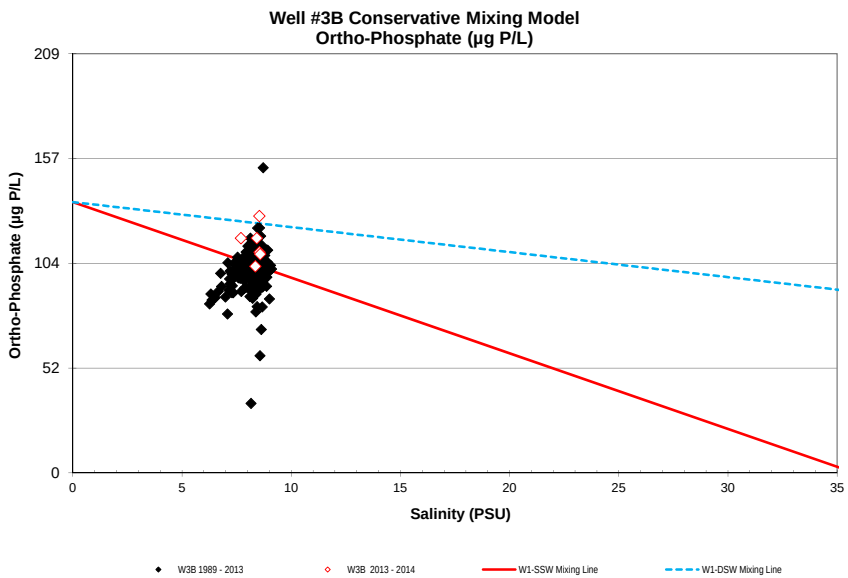
Well 3B Data Table

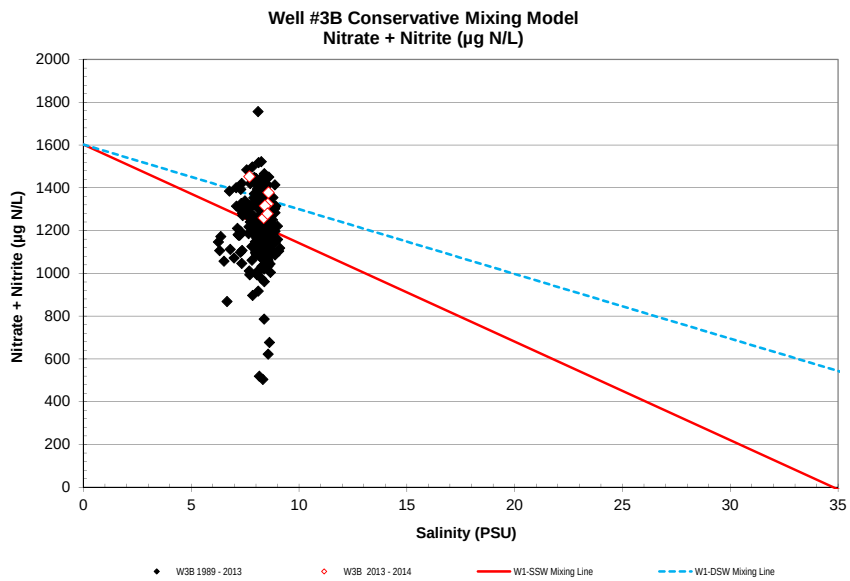
June 1989 - December 2014

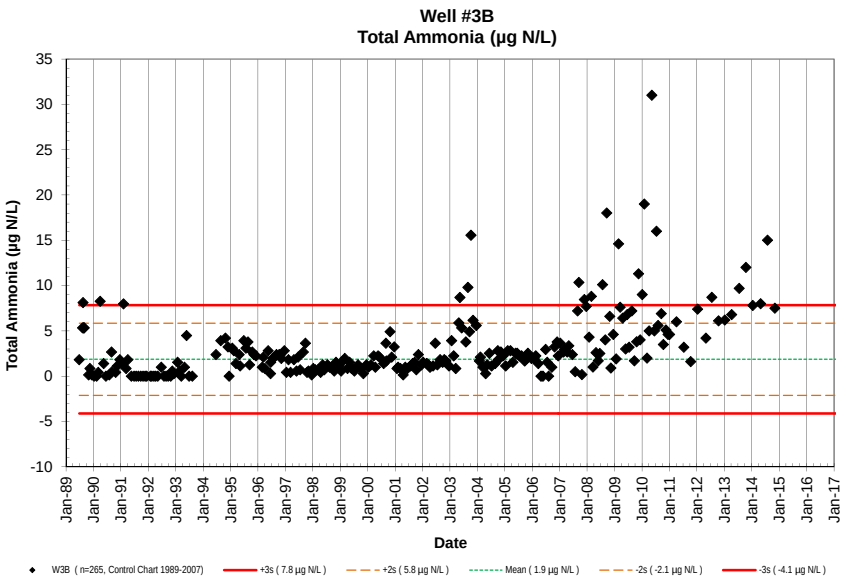
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W3B	-7.32	7/29/14	1156	-5.99	0.12	Low	4.13	128	91.3	1279	1.07	15.0	640	17985						23.4	7.97	8.54	7.32	0.28		
W3B	-7.32	11/5/14	1149	-5.82	0.17	Flood	3.78	117	103.7	1452	0.54	7.5	651	18296						24.0	8.01	7.70	8.22	0.14		
W3B	-7.32	1/1/15																								
W3B	-7.32	4/1/15																								

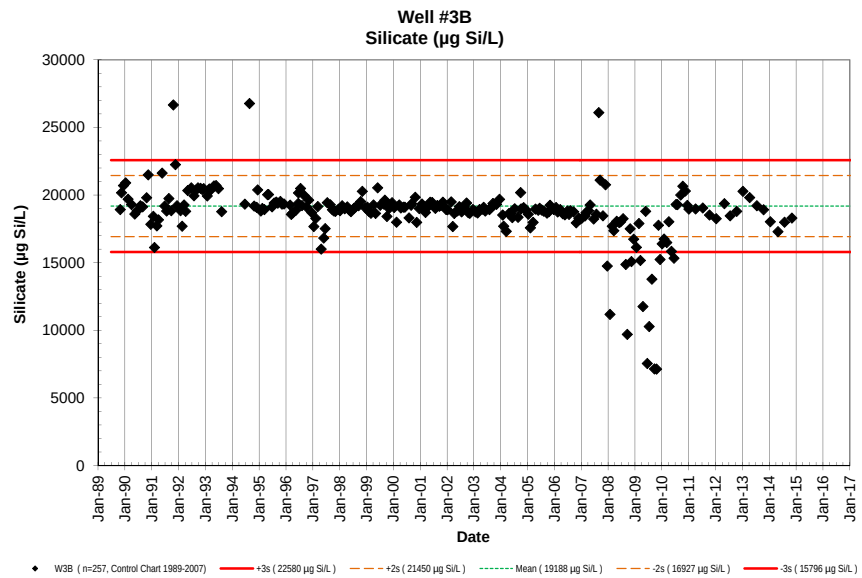

Well #3B
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W3B (n=265, Control Chart 1989-2007)
+3s (121 µg P/L)
+2s (114 µg P/L)
Mean (101 µg P/L)
-2s (88 µg P/L)
-3s (81 µg P/L)

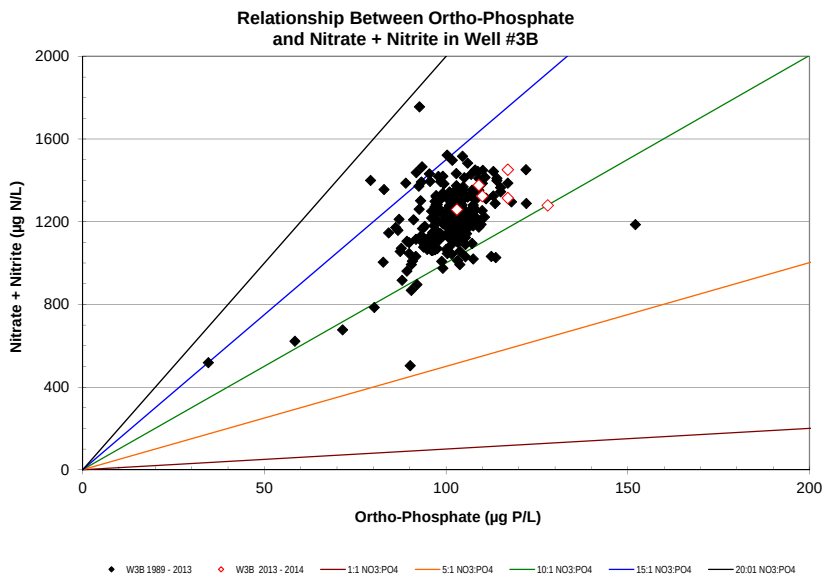

Well #3B
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W3B (n=265, Control Chart 1989-2007)
+3s (1526 µg N/L)
+2s (1411 µg N/L)
Mean (1182 µg N/L)
-2s (953 µg N/L)
-3s (838 µg N/L)

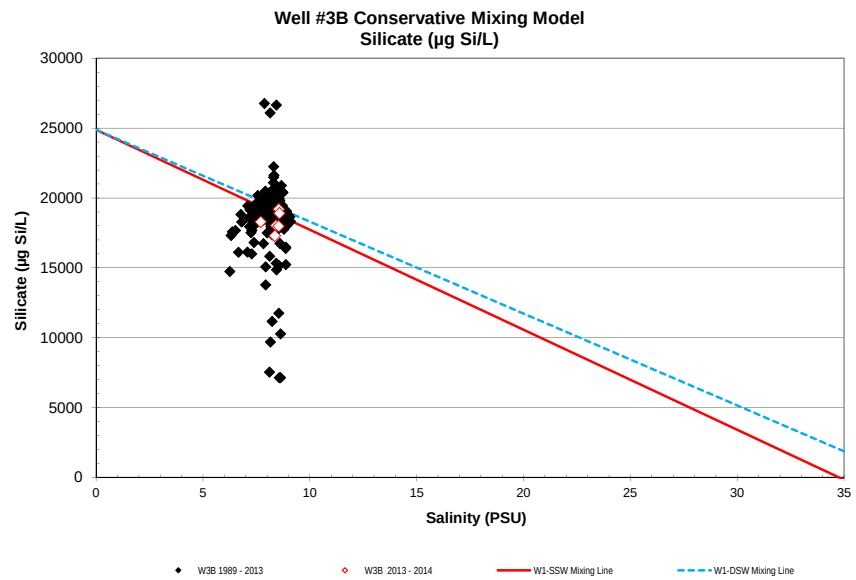

Well #3B Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W3B 1989 - 2013
W3B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

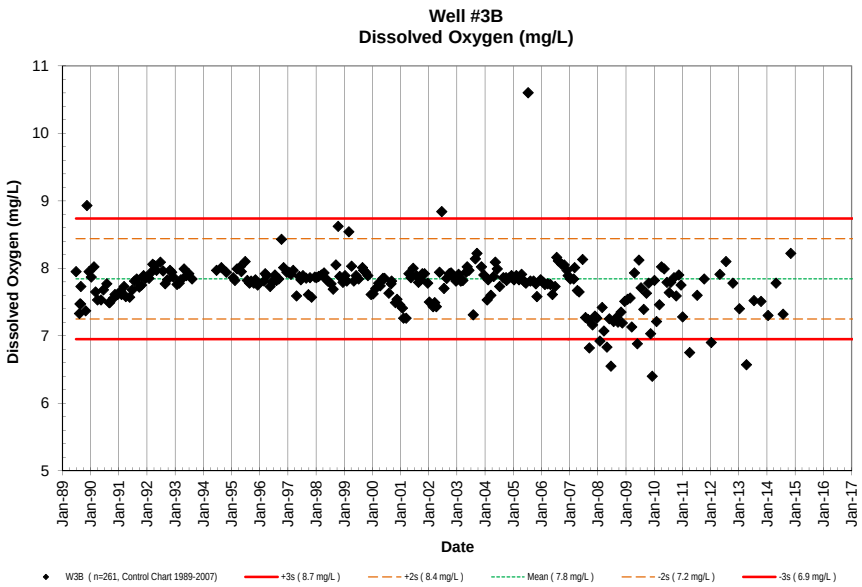

Well #3B Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W3B 1989 - 2013
W3B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

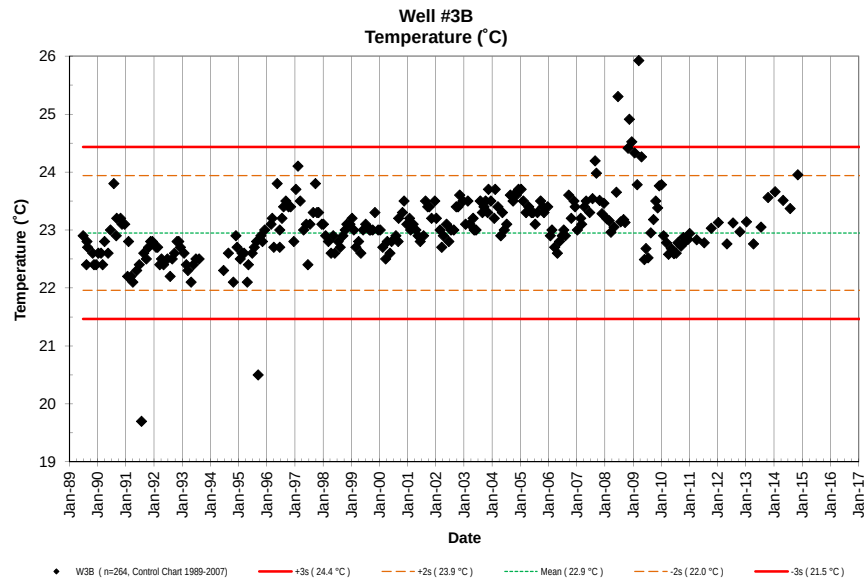

Well #3B
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W3B (n=265, Control Chart 1989-2007)
+3s (7.8 µg N/L)
+2s (5.8 µg N/L)
Mean (1.9 µg N/L)
-2s (-2.1 µg N/L)
-3s (-4.1 µg N/L)

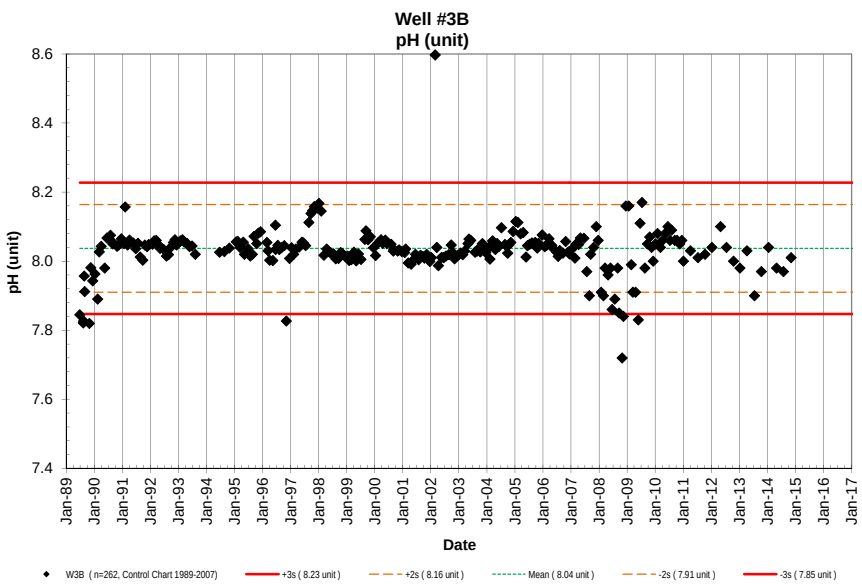

Well #3B
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W3B (n=257, Control Chart 1989-2007)
+3s (22580 µg Si/L)
+2s (21450 µg Si/L)
Mean (19188 µg Si/L)
-2s (16927 µg Si/L)
-3s (15796 µg Si/L)

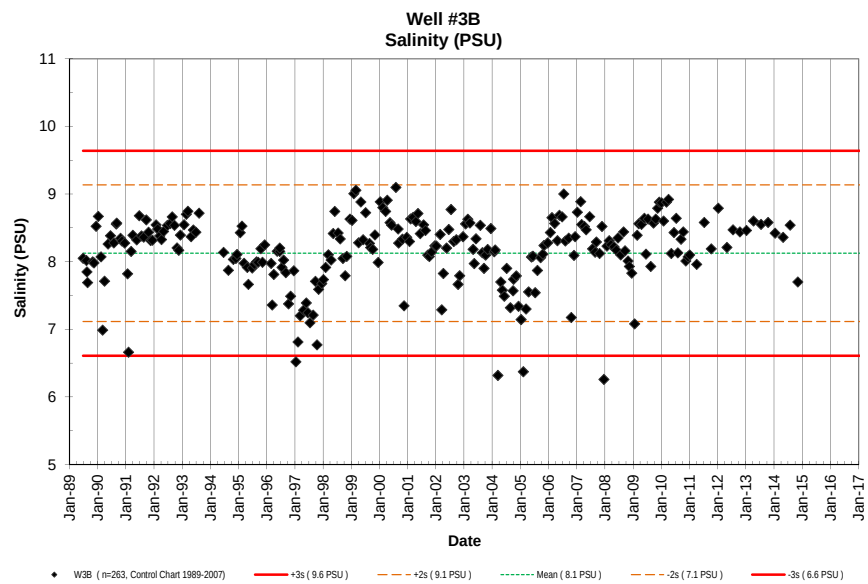

Relationship Between Ortho-Phosphate
and Nitrate + Nitrite in Well #3B
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W3B 1989 - 2013
W3B 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

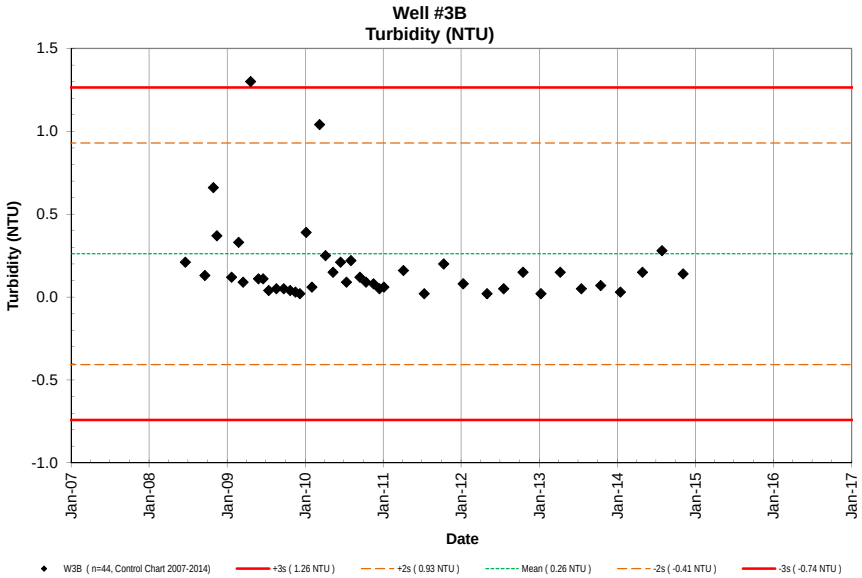

Well #3B Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W3B 1989 - 2013
W3B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

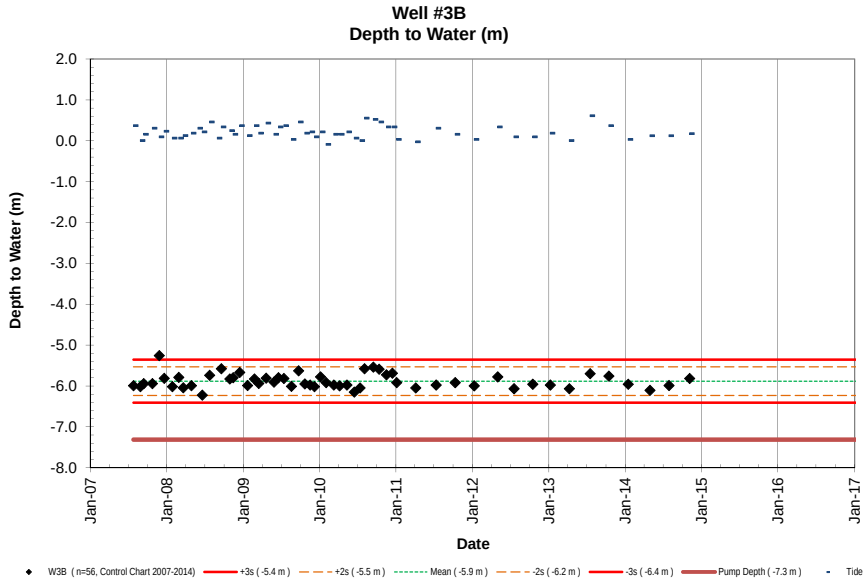

Well #3B
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W3B (n=261, Control Chart 1989-2007)
+3s (8.7 mg/L)
+2s (8.4 mg/L)
Mean (7.8 mg/L)
-2s (7.2 mg/L)
-3s (6.9 mg/L)


Well #3B
Temperature (˚C)
Temperature (˚C)
Date
W3B (n=264, Control Chart 1989-2007)
+3s (24.4 °C)
+2s (23.9 °C)
Mean (22.9 °C)
-2s (22.0 °C)
-3s (21.5 °C)


Well #3B
pH (unit)
pH (unit)
Date
W3B (n=262, Control Chart 1989-2007)
+3s (8.23 unit)
+2s (8.16 unit)
Mean (8.04 unit)
-2s (7.91 unit)
-3s (7.85 unit)


Well #3B
Salinity (PSU)
Salinity (PSU)
Date
W3B (n=263, Control Chart 1989-2007)
+3s (9.6 PSU)
+2s (9.1 PSU)
Mean (8.1 PSU)
-2s (7.1 PSU)
-3s (6.6 PSU)


Well #3B
Turbidity (NTU)
Turbidity (NTU)
1.5
1.0
0.5
0.0
-0.5
-1.0
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W3B (n=44, Control Chart 2007-2014)
+3s (1.26 NTU)
+2s (0.93 NTU)
Mean (0.26 NTU)
-2s (-0.41 NTU)
-3s (-0.74 NTU)


Well #3B
Depth to Water (m)
Depth to Water (m)
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
-8.0
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W3B (n=56, Control Chart 2007-2014)
+3s (-5.4 m)
+2s (-5.5 m)
Mean (-5.9 m)
-2s (-6.2 m)
-3s (-6.4 m)
Pump Depth (-7.3 m)
Tide

NELHA Water Quality Laboratory

Well 4 Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W4	-15.24	6/27/89					2.47	77	57.6	807	0.51	7.1								22.4	7.796	18.972	4.87		NA	NA
W4	-15.24	8/10/89	947				2.32	72	88.0	1233	0.48	6.7								21.2	7.648	18.626	5.40		<1	NA
W4	-15.24	8/15/89	1430				2.09	65	75.0	1051	0.67	9.4								21.1	7.696	19.164	5.19		<1	NA
W4	-15.24	8/22/89	1410				2.35	73	87.5	1226	0.54	7.6								20.8	7.771	18.827	6.24		<1	NA
W4	-15.24	8/30/89	1410				2.34	72	87.0	1219	0.58	8.1								21.4	7.719	18.791	5.47		<1	NA
W4	-15.24	8/30/89	1410				2.34	72	88.0	1233	0.54	7.6													NA	NA
W4	-15.24	10/31/89	1110				2.40	74	46.8	656	0.10	1.4	539	15138	2.65	82	48.1	674	0.28	20.9	7.750	18.537	5.24		<1	NA
W4	-15.24	11/16/89	1108				2.15	67	40.9	573	0.06	0.8	526	14773	2.65	82	44.4	622	7.02	22.4	7.755	18.917	5.84		<1	NA
W4	-15.24	12/12/89	1115				6.50	201	71.9	1007	0.93	13.0	456	12807	7.15	221	74.0	1036	125	20.8	8.385	18.554	5.20		<1	NA
W4	-15.24	1/11/90	912				2.96	92	48.1	674	1.17	16.4	512	14380	3.19	99	49.5	693	0.56	21.2	8.095	18.857	4.84		<1	NA
W4	-15.24	2/14/90	1130				2.93	91	51.4	720	0.27	3.8	459	12891	3.23	100	53.7	752	1.87	21.6	8.038	18.373	5.12		<1	NA
W4	-15.24	3/7/90	1110				2.46	76	50.1	702	0.44	6.2	514		2.86	89	50.9	713	0.54	21.1	7.965	18.298	4.94		<1	NA
W4	-15.24	4/4/90	1310				2.64	82	45.8	642	1.12	15.7	500	14043	2.83	88	46.9	657	0.50	21.4	7.916	19.193	4.43		<1	NA
W4	-15.24	5/17/90	1136				2.34	72	44.6	624	0.07	1.0	490	13762	2.42	75	46.4	649	0.43	21.3	7.865	18.944	4.59		<1	NA
W4	-15.24	6/16/90	1043				2.53	78	43.9	615	0.00	0.0	496	13930	2.62	81	46.4	649	0.73	21.3	7.935	19.144	4.84		<1	NA
W4	-15.24	7/17/90	1122				2.57	80	41.5	581	0.00	0.0	493	13846	2.97	92	44.5	623	0.44	21.4	7.923	19.677	4.70		<1	NA
W4	-15.24	8/8/90	1115				1.99	62	51.8	726	0.29	4.1	496	13930	2.64	82	44.0	616	0.34	21.4	7.901	19.841	4.74		<1	NA
W4	-15.24	9/5/90	1119				2.39	74	42.8	600	0.00	0.0			2.39	74	43.3	606	0.29	21.4	7.898	17.356	4.74		<1	NA
W4	-15.24	10/4/90	1128				2.24	69	40.5	567	0.00	0.0	496	13930	2.87	89	40.7	570	0.84	21.2	7.893	19.640	4.80		<1	NA
W4	-15.24	11/1/90	1143				2.16	67	42.6	597	0.04	0.6	494	13874	2.61	81	43.8	613	0.28	21.3	7.886	19.799	4.47		<1	NA
W4	-15.24	12/10/90	1120				2.26	70	44.2	619	0.13	1.8	537	15082	2.70	84	45.3	635	0.35	21.3	7.898	19.239	4.82		<1	NA
W4	-15.24	1/10/91	900				2.23	69	45.7	640	0.03	0.4	484	13593	2.30	71	46.8	656	0.39	21.4	7.896	19.390	4.67		<1	NA
W4	-15.24	2/5/91	1117				2.27	70	40.6	569	0.33	4.6	442	12414	2.27	70	42.0	588	0.68	21.3	7.897	19.163	4.79		<1	NA
W4	-15.24	3/7/91	745				2.04	63	43.5	609	0.06	0.8	477	13397	2.11	65	45.3	634	3.00	21.0	7.901	19.098	4.92		<1	NA
W4	-15.24	4/3/91	828				1.90	59	52.2	731	0.00	0.0	473	13284	2.00	62	53.3	747	0.54	21.0	7.912	19.304	4.77		<1	NA
W4	-15.24	5/22/91	804				1.96	61	21.3	298	0.00	0.0	555	15587	2.17	67	22.2	311	0.35	21.2	7.890	19.625	4.68		<1	NA
W4	-15.24	6/26/91	810				2.28	71	45.7	640	0.03	0.4	511	14352	2.43	75	47.1	660	0.43	21.2	7.906	19.209	4.74		<1	<1
W4	-15.24	7/24/91	845				2.07	64	41.7	584	0.15	2.1	498	13987	2.36	73	43.6	611	0.39	18.7	7.887	19.580	4.71		<1	<1
W4	-15.24	8/23/91	829				2.24	69	43.7	612	0.21	2.9	516	14492	2.34	72	46.2	647	0.42	21.1	7.847	19.429	4.68		<1	<1
W4	-15.24	9/24/91	751				2.11	65	43.2	605	0.30	4.2	504	14155	2.24	69	45.6	639	0.35	21.2	7.855	19.182	4.84		<1	<1
W4	-15.24	10/23/91	720				2.58	80	46.1	646	0.00	0.0	739	20755	2.68	83	48.5	679	0.44	21.1	7.943	19.450	4.62		<1	<1
W4	-15.24	11/20/91	813				2.87	89	42.7	598	0.00	0.0	561	15756	2.96	92	45.3	635	0.31	21.1	7.898	19.452	4.65		<1	<1
W4	-15.24	12/11/91	840				2.97	92	44.5	623	0.00	0.0	488	13706	3.07	95	47.1	660	0.52	21.5	7.947	19.590	4.43		<1	<1
W4	-15.24	1/29/92	836				2.63	81	45.4	636	0.00	0.0	490	13762	2.79	86	46.8	656	0.95	21.1	7.952	19.091	4.78		<1	<1
W4	-15.24	2/19/92	911				2.73	85	44.9	629	0.00	0.0	464	13032	2.76	85	51.8	726	0.35	21.7	7.923	19.331	4.72		<1	<1
W4	-15.24	3/17/92	824				2.24	69	44.8	628	0.00	0.0	496	13930	2.34	72	50.8	712	0.44	21.2	7.896	19.066	4.89		<1	<1
W4	-15.24	4/8/92	811				2.31	72	45.6	639	0.14	2.0	496	13930	2.40	74	47.3	663	0.56	21.2	7.886	18.840	4.96		<1	<1
W4	-15.24	5/6/92	821				2.16	67	43.3	606	0.05	0.7	530	14885	2.29	71	47.1	660	0.80	21.2	7.869	19.222	4.94		<1	<1
W4	-15.24	6/23/92	822				2.31	72	44.2	619	0.28	3.9	537	15082	2.57	80	46.0	644	0.44	21.3	7.878	19.191	5.01		<1	<1
W4	-15.24	7/29/92	811				2.06	64	43.3	606	ND	0.0	514	14436	2.14	66	45.4	635	0.53	21.8	7.857	19.274	4.92		<1	<1
W4	-15.24	8/26/92	755				2.29	71	51.4	720	0.14	2.0	543	15250	2.33	72	27.7	388	0.49	21.2	7.861	19.058	4.90		<1	<1
W4	-15.24	9/22/92	757				2.22	69	41.9	587	0.00	0.0	553	15531	2.31	72	41.9	587	0.39	21.2	7.890	19.012	4.92		<1	<1
W4	-15.24	10/27/92	813				2.95	91	44.3	621	0.14	2.0	527	14801	3.00	93	48.4	678	0.40	21.2	7.901	19.924	4.60		<1	<1
W4	-15.24	11/17/92	835				2.34	72	45.6	639	0.19	2.7	522	14661	2.48	77	48.8	684	0.36	21.1	7.903	19.469	4.81		<1	<1
W4	-15.24	12/8/92	820				2.19	68	46.4	650	0.21	2.9	539	15138	2.39	74	48.6	681	0.32	21.2	7.888	19.004	4.94		<1	<1
W4	-15.24	1/26/93	832				2.11	65	48.5	679	0.19	2.7	587	16486	2.27	70	50.3	705	0.41	21.2	7.905	18.679	5.03		<1	<1
W4	-15.24	2/23/93	803				2.15	67	46.9	657	0.05	0.7	554	15565	2.25	70	49.8	698	0.43	21.1	7.906	18.944	4.99		<1	<1
W4	-15.24	3/16/93	804				2.11	65	46.1	646	0.10	1.4	556	15616	2.16	67	47.8	670	0.48	21.1	7.894	18.999	5.01		<1	<1
W4	-15.24	4/27/93	808				2.07	64	45.0	630	0.21	2.9	552	15509	2.14	66	47.1	660	0.36	21.2	7.878	19.387	4.93		<1	<1
W4	-15.24	5/25/93	800				2.07	64	44.3	621	0.21	2.9	557	15635	2.10	65	49.6	695	0.29	21.3	7.867	19.382	4.90		<1	<1
W4	-15.24	6/28/93	839				2.00	62	44.6	625	0.16	2.2	532	14941	2.25	70	47.0	658	0.35	21.3	7.871	19.402	4.92		<1	<1
W4	-15.24	8/31/93	836				2.15	67	45.0	630	0.00	0.0	552	15503	2.15	67	52.9	741	0.47	21.3	7.864	19.087	5.05		<1	<1
W4	-15.24	10/26/93	808				2.16	67	46.2	648	0.32	4.5	526	14773	2.10	65	47.6	666	0.39	21.2	7.877	18.883	5.08		<1	<1
W4	-15.24	3/1/94	754				2.25	70	46.0	644	0.19	2.7	480	13481	2.27	70	58.9	825	0.58	21.1	7.860	19.322	4.78		<1	<1
W4	-15.24	6/21/94	744				2.34	72	49.8	697	0.21	2.9	727	20408	2.46	76	60.1	841	0.47	21.2	8.917	19.546	4.87		<1	<1

NELHA Water Quality Laboratory

Well 4 Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W4	-15.24	8/23/94	824				3.95	122	60.2	843	0.18	2.5	528	14840	4.04	125	68.0	953	0.56	21.3	8.019	19.850	5.47		<1	<1
W4	-15.24	10/25/94	840				2.45	76	45.4	636	0.40	5.6	464	13040	2.48	77	48.1	674	0.35	21.2	7.906	19.670	4.82		<1	<1
W4	-15.24	11/28/94	1215				2.42	75	44.3	620	0.43	6.0	468	13148	2.52	78	48.6	681		21.3		19.276	4.87			
W4	-15.24	12/13/94	905				2.36	73	45.2	633	0.00	0.0	184	5162	2.42	75		0		21.2		19.443				
W4	-15.24	1/24/95	838				2.31	72	45.1	631	0.14	2.0	473	13277	2.39	74	46.8	656	0.41	21.1	7.891	19.320	4.92		<1	<1
W4	-15.24	2/14/95	819				2.25	70	45.2	634	0.27	3.8	479	13442	2.36	73	45.9	642	0.45	21.2	7.904	19.380	4.92		<1	<1
W4	-15.24	3/14/95	913				2.25	70	45.4	636	0.07	1.0	471	13237	2.26	70	46.2	648	0.38	21.3	7.859	19.288	5.01		<1	<1
W4	-15.24	4/25/95	938				2.22	69	43.4	608	0.25	3.5	476	13369	2.26	70	45.0	631	0.32	21.1	7.871	19.668	4.86		<1	<1
W4	-15.24	5/9/95	828				2.19	68	46.0	644	0.25	3.5	510	14332	2.27	70	47.1	660	0.28	21.4	7.852	19.134	4.97		<1	<1
W4	-15.24	6/27/95	846				2.17	67	44.0	617	0.45	6.3	480	13470	2.31	72	46.0	645	0.29	21.4	7.859	19.312	5.01		<1	<1
W4	-15.24	7/25/95	900				2.06	64	44.5	623	0.15	2.1	482	13546	2.24	69	46.6	653	0.29	21.3	7.849	19.272	4.91		1	<1
W4	-15.24	8/22/95	947				2.01	62	43.1	603	0.31	4.3	481	13506	2.25	70	45.4	636	0.39	21.4	7.852	19.353	4.79		<1	<1
W4	-15.24	9/12/95	657				2.18	68	42.7	598	0.14	2.0	477	13386	2.19	68	45.0	631	0.44	21.3	7.899	19.685	6.36		<1	<1
W4	-15.24	10/17/95	856				2.14	66	43.7	613	0.16	2.2	488	13700	2.16	67	45.6	638	0.37	21.5	7.880	19.250	4.86		<1	<1
W4	-15.24	11/7/95	809				2.14	66	43.1	604	0.43	6.0	473	13296	2.20	68	45.5	637	0.43	21.3	7.910	19.628	4.78		<1	<1
W4	-15.24	12/6/95	823				2.10	65	44.4	621	0.29	4.1	483	13551	2.18	68	46.0	645	0.51	21.4	7.923	19.239	4.92		<1	<1
W4	-15.24	1/30/96	858				2.09	65	44.3	621	0.14	2.0	482	13532	2.18	68	45.2	633	0.43	21.0	7.939	19.651	4.82		<1	<1
W4	-15.24	2/27/96	905				2.10	65	43.9	615	0.15	2.1	489	13720	2.20	68	45.2	634	0.45	21.5	7.889	19.333	5.02		<1	<1
W4	-15.24	3/13/96	939				2.14	66	43.9	615	0.31	4.3	481	13509	2.21	68	46.6	653	0.62	21.5	7.868	19.166	4.96		<1	<1
W4	-15.24	4/2/96	924				2.14	66	40.4	565	0.18	2.5	494	13875	2.29	71	47.1	659	0.39	21.9	7.851	19.365	4.84		<1	<1
W4	-15.24	5/15/96	910				2.21	68	46.7	655	0.24	3.4	496	13925	2.24	69	50.0	700	0.47	21.7	7.840	19.008	4.98		<1	<1
W4	-15.24	6/18/96	831				2.17	67	43.1	603	0.15	2.1	493	13837	2.26	70	45.7	640	0.40	21.7	7.867	19.782	6.44		<1	<1
W4	-15.24	7/17/96	906				2.21	68	45.2	633	0.21	2.9	487	13678	2.24	69	46.8	656	0.41	21.7	7.895	19.496	0.99		<1	<1
W4	-15.24	8/6/96	915				2.09	65	47.2	661	0.38	5.3	477	13409	2.20	68	49.5	693	0.33	22.2	7.881	19.423	4.89		<1	<1
W4	-15.24	9/4/96	915				2.26	70	65.3	914	0.36	5.0	482	13542	2.30	71	70.0	980	0.41	21.7	7.886	19.041	4.97		<1	<1
W4	-15.24	10/9/96	918				2.54	79	62.8	880	0.35	4.9	495	13893	2.60	81	67.4	944	0.32	21.7	7.943	18.427	5.81		<1	<1
W4	-15.24	11/6/96	906				2.26	70	51	712	0.27	3.8	489	13737	2.40	74	55.5	777	0.47	21.7	7.869	18.471	5.11		<1	<1
W4	-15.24	12/17/96	905				2.31	72	50	702	0.21	2.9	458	12871	2.43	75	54.9	769	0.34	21.8	7.896	19.257	5.12		<1	<1
W4	-15.24	1/14/97	930				2.36	73	88	1233	0.18	2.5	451	12658	3.13	97	88.8	1244	0.56	21.8	7.940	19.517	5.51		<1	<1
W4	-15.24	2/10/97	1038				2.40	74	70	980	0.34	4.8	451	12669	2.5*	0	71.8	1006	0.46	21.7	7.903	20.106	5.38		<1	1
W4	-15.24	3/10/97	1041				3.02	94	72	1013	0.06	0.8	462	12976	3.2*	0	75.1	1051	0.46	21.9	7.908	20.165	5.38		<1	3
W4	-15.24	4/23/97	903				2.27	70	64	891	0.46	6.4	463	12992	2.39	74	70.6	989	0.49	21.7	7.931	20.317	4.98		<1	<1
W4	-15.24	5/28/97	922				2.58	80	45	627	0.06	0.8	418	11726	2.59	80	48.8	684	0.34	21.1	7.924	20.833	4.52		<1	<1
W4	-15.24	6/17/97	920				2.11	65	52	727	0.39	5.5	440	12366	2.16	67	54.0	756	0.38	21.1	7.947	19.934	4.64		<1	<1
W4	-15.24	7/15/97	912				2.45	76	67	944	0.05	0.7	435	12228	2.56	79	71.8	1006	0.49	21.2	7.994	19.865	4.47		<1	1
W4	-15.24	8/26/97	915				2.15	67	43	601	0.30	4.2	440	12346	2.22	69	44.3	620	0.39	21.0	8.079	20.537	4.48		<1	<1
W4	-15.24	9/23/97	1109				2.06	64	44.4	622	0.23	3.2	431	12116	2.11	65	45.6	639	0.37	21.7	8.092	20.512	4.48		<1	<1
W4	-15.24	10/15/97	851				2.16	67	43.6	611	0.06	0.8	466	13085	2.29	71	46.5	651	0.32	21.5	8.104	20.147	4.58		<1	<1
W4	-15.24	11/4/97	1007				2.16	67	44.9	629	0.18	2.5	455	12765	2.34	72	51.2	717	0.36	21.5	8.107	20.044	4.67		<1	<1
W4	-15.24	12/16/97	910				2.04	63	39.0	546	0.05	0.7	451	12678	2.22	69	42.0	588	0.37	21.5	8.060	20.977	4.60		<1	<1
W4	-15.24	1/5/98	1204				2.13	66	41.9	586	0.20	2.8	455	12775	2.27	70	43.9	615	0.43	21.5	8.074	20.199	4.69		<1	<1
W4	-15.24	2/3/98	1021				2.09	65	42	590	0.01	0.1	474	13310	2.24	69	45.2	633	0.36	21.5	8.050	19.990	4.76		<1	<1
W4	-15.24	3/10/98	1034				2.15	67	43	606	0.11	1.5	473	13290	2.25	70	45.4	636	0.39	21.4	7.879	20.029	4.79		<1	<1
W4	-15.24	4/14/98	858				5.71	177	676	9467	0.02	0.3	355	9979	6.19	192	731	10240	3.44	21.5	8.757	19.912	4.28		<1	<1
W4	-15.24	5/12/98	1028				2.71	84	75	1053	0.14	2.0	453	12711	2.81	87	81	1135	0.54	21.5	8.090	19.721	4.64		<1	<1
W4	-15.24	6/2/98	1023				2.44	76	50.7	710	0.14	2.0	455	12789	2.53	78	53.1	744	0.30	21.5	7.975	19.993	4.77		<1	<1
W4	-15.24	7/14/98	1033				18.01	558	288	4040	7.36	103.1	279	7830	19.3	599	340	4762	2.59	21.7	8.654	20.649	5.43		<1	<1
W4	-15.24	8/11/98	1048				7.68	238	74.3	1041	0.23	3.2	376	10546	8.07	250	80	1115	0.62	21.6	8.360	20.797	4.01		<1	<1
W4	-15.24	9/15/98	1122				3.39	105	51.3	719	0.09	1.3	412	11568	3.78	117	62.5	876	0.41	21.5	8.063	21.673	4.20		<1	<1
W4	-15.24	10/13/98	959				3.07	95	41.0	574	0.02	0.3	425	11928	3.26	101	43.3	606	0.34	21.8	8.007	21.676	4.61		<1	<1
W4	-15.24	11/4/98	1032				3.04	94	49	682	0.06	0.8	463	13006	3.12	97	51	720	0.47	21.9	8.029	20.424	4.50		<1	<1
W4	-15.24	12/16/98	1013				2.70	84	58	809	0.09	1.3	459	12891	2.82	87	63	875	0.53	21.7	7.975	19.612	4.69		<1	<1
W4	-15.24	1/12/99	1048				2.48	77	47.9	670	0.05	0.7	458	12855	2.65	82	50.5	707	0.41	21.7	7.946	19.884	4.74		<1	<1
W4	-15.24	2/3/99	1037				3.28	102	74.7	1046	0.09	1.3	434	12183	3.36	104	81.5	1142	0.61	21.5	7.987	20.493	4.29		<1	<1
W4	-15.24	3/2/99	1039				2.48	77	55.2	773	0.02	0.3	436	12240	2.61	81	58.4	818	0.41	21.6	7.981	20.695	4.82		<1	<1
W4	-15.24	4/6/99	1032				2.38	74	48.4	678	0.11	1.5	432	12139	2.49	77	50.9	713	0.45	21.6	7.969	21.382	4.39		<1	1
W4	-15.24	5/4/99	1037				2.53	78	47.9	671	0.10	1.4	440	12369	2.67	83	50.1	702	0.50	21.5	7.959	20.424	4.55		<1	<1
W4	-15.24	6/2/99	1020				2.44	76	40.1	562	0.19	2.7	425	11936	2.56	79	42.1	590	0.36	21.6	7.928	21.129	4.50		<1	<1

NELHA Water Quality Laboratory

Well 4 Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W4	-15.24	7/7/99	1055				2.66	82	40.3	564	0.01	0.1	446	12518	2.74	85	42.2	591	0.36	21.9	7.926	20.751	4.59		1	<1
W4	-15.24	8/25/99	1021				2.48	77	42.1	590	0.07	1.0	452	12689	2.59	80	44.1	618	0.33	22.1	7.970	20.644	5.03		<1	<1
W4	-15.24	9/8/99	1031				2.36	73	39.1	548	0.06	0.8	444	12464	2.48	77	41.8	585	0.34	21.5	7.957	21.654	4.49		<1	<1
W4	-15.24	10/6/99	1038				2.40	74	40.2	562	0.07	1.0	427	11993	2.53	78	41.9	587	0.33	21.6	7.956	20.874	4.67		<1	<1
W4	-15.24	11/3/99	1052				3.41	106	194	2714	0.13	1.8	377	10585	3.60	112	195	2731	1.08	21.7	8.362	20.529	4.92		<1	<1
W4	-15.24	12/15/99	1108				2.66	82	58.8	824	0.10	1.4	427	12001	2.76	85	59.8	838	0.42	21.7	8.026	21.058	4.05		<1	<1
W4	-15.24	1/11/00	1044				2.31	72	48.2	675	0.14	2.0	448	12582	2.40	74	52.7	738	0.38	21.5	7.952	20.298	4.61		<1	<1
W4	-15.24	2/14/00	1101				2.31	72	45.3	635	0.05	0.7	445	12504	2.36	73	47.6	667	0.39	21.8	7.970	20.339	4.78		<1	<1
W4	-15.24	3/22/00	1110				2.20	68	42.2	591	0.06	0.8	449	12610	2.20	68	51.4	720	0.43	21.5	7.954	21.111	4.44		<1	<1
W4	-15.24	4/12/00	1053				2.25	70	40.2	563	0.03	0.4	465	13051	2.25	70	43.1	604	0.45	21.6	7.941	21.119	4.45		<1	<1
W4	-15.24	5/17/00	1030				2.05	63	38.0	532	0.11	1.5	433	12155	2.07	64	39.2	549	0.46	21.6	7.924	21.777	7.65		<1	<1
W4	-15.24	6/6/00	1106				1.94	60	35.2	493	0.03	0.4	427	11987	2.06	64	37.8	529	0.35	21.6	7.917	22.335	7.52		<1	<1
W4	-15.24	7/31/00	1055				2.08	64	38.2	535	0.09	1.3	436	12231	2.19	68	40.1	562	0.61	21.4	7.931	21.244	4.52		<1	<1
W4	-15.24	8/30/00	1101				2.01	62	35.7	500	0.05	0.7	429	12051	2.11	65	36.7	514	0.65	21.6	7.881	22.266	4.32		<1	<1
W4	-15.24	9/6/00	1042				2.00	62	35.0	490	0.01	0.1	435	12217	2.19	68	36.3	508	1.55	21.9	7.878	22.183	4.27		<1	<1
W4	-15.24	10/25/00	1008				2.01	62	38.3	536	0.24	3.4	452	12683	2.22	69	40.1	562	0.61	21.6	7.886	21.825	4.25		<1	<1
W4	-15.24	11/14/00	1122				2.10	65	43.5	609	0.17	2.4	437	12265	2.18	68	44.0	616	0.57	21.6	7.918	21.515	4.20		<1	<1
W4	-15.24	12/19/00	1024				1.88	58	40.0	560	0.13	1.8	454	12759	2.10	65	41.0	575	0.46	21.5	7.905	21.299	4.31		<1	<1
W4	-15.24	1/24/01	1016				2.08	64	38.3	537	0.17	2.4	529	14852	2.20	68	41.9	587	0.49	21.5	7.894	21.525	4.24		<1	<1
W4	-15.24	2/7/01	1045				2.13	66	39.9	559	0.14	2.0	462	12984	2.20	68	42.2	591	0.50	21.6	7.925	20.931	4.37		<1	2
W4	-15.24	3/12/01	1030				2.03	63	37.2	521	0.03	0.4	441	12386	2.40	74	38.3	536	0.40	21.8	7.871	21.373	4.50		<1	<1
W4	-15.24	4/18/01	1020				2.14	66	40.7	570	0.04	0.6	368	10341	2.16	67	42.6	597	0.36	21.6	7.862	20.888	4.76		<1	<1
W4	-15.24	5/14/01	857				3.12	97	39.0	547	0.16	2.2	454	12751	3.44	107	43.1	604	0.37	21.5	7.871	21.287	4.65		<1	<1
W4	-15.24	6/13/01	1038				2.20	68	43.7	612	0.04	0.6	427	11986	2.50	77	46.2	648	0.53	21.6	8.002	21.522	4.71		<1	<1
W4	-15.24	7/25/01	957				2.22	69	41.7	584	0.09	1.3	445	12501	2.26	70	42.9	600	0.41	21.9	7.934	21.015	4.70		<1	<1
W4	-15.24	8/20/01	939				12.3	381	74.9	1049	0.15	2.1	213	5985	12.3	382	81.8	1146	0.67	21.7	7.907	21.177	4.83		<1	<1
W4	-15.24	9/18/01	930				2.14	66	42.5	595	0.19	2.7	457	12824	2.18	68	44.7	626	0.39	22.1	7.899	20.880	4.88		<1	1
W4	-15.24	10/9/01	1022				2.04	63	39.0	547	0.07	1.0	443	12442	2.16	67	41.6	583	0.40	21.8	7.878	21.316	4.79		<1	<1
W4	-15.24	11/6/01	930				1.94	60	39.8	558	0.05	0.7	455	12776	2.13	66	45.2	633	0.38	22.1	7.879	21.318	4.80		<1	<1
W4	-15.24	12/18/01	938				1.65	51	38.5	539	0.18	2.5	368	10335	1.82	56	40.8	571	0.42	21.6	7.870	21.195	4.69		<1	1
W4	-15.24	1/8/02	954				2.00	62	37.7	528	0.19	2.7	450	12647	2.11	65	39.1	548	0.43	21.5	7.865	21.662	4.27		<1	<1
W4	-15.24	2/27/02	952				2.08	64	40.8	572	0.06	0.8	461	12939	2.16	67	46.3	648	0.37	21.4	7.878	21.514	4.51		<1	<1
W4	-15.24	3/19/02	1004				1.96	61	37.3	522	0.11	1.5	443	12431	2.20	68	38.8	544	0.43	21.5	7.904	21.651	4.34		<1	<1
W4	-15.24	4/9/02	953				2.00	62	37.5	526	0.03	0.4	441	12386	2.14	66	39.4	552	0.44	21.3	7.863	21.613	4.35		<1	<1
W4	-15.24	5/21/02	950				1.80	56	37.1	520	0.03	0.4	441	12372	2.06	64	37.6	527	0.30	21.7	7.879	21.416	4.72		<1	<1
W4	-15.24	6/18/02	1010				2.01	62	38.1	533	0.13	1.8	445	12484	2.07	64	39.9	559	0.27	21.5	7.868	21.690	4.59		<1	<1
W4	-15.24	7/17/02	949				2.04	63	40.2	563	0.11	1.5	457	12841	2.10	65	38.0	532	0.46	21.9	7.887	21.184	4.81		<1	<1
W4	-15.24	8/22/02	955				2.00	62	35.4	495	0.13	1.8	434	12181	2.04	63	34.9	488	0.43	21.5	7.914	22.370	4.25		<1	<1
W4	-15.24	9/24/02	950				2.06	64	42.9	601	0.27	3.8	457	12829	2.19	68	36.7	514	0.41	21.8	7.917	21.441	4.69		<1	<1
W4	-15.24	10/16/02	1014				2.00	62	36.4	509	0.23	3.2	445	12504	2.02	63	36.3	508	0.33	21.6	7.890	21.825	4.43		<1	<1
W4	-15.24	11/6/02	1005				2.02	63	39.4	552	0.18	2.5	359	10077	2.25	70	37.1	520	0.54	21.9	7.879	21.380	4.70		<1	<1
W4	-15.24	12/19/02	1037				1.99	62	37.6	526	0.10	1.4	445	12484	2.02	63	35.7	501	0.52	21.5	7.876	21.567	4.52		<1	<1
W4	-15.24	1/22/03	1024				1.88	58	29.6	415	0.06	0.8	427	12001	2.20	68	39.4	552	0.41	21.4	7.881	23.002	4.25		<1	<1
W4	-15.24	2/20/03	951				1.92	59	39.2	550	0.26	3.6	447	12540	2.06	64	45.0	631	0.46	21.8	7.885	21.642	4.54		<1	<1
W4	-15.24	3/18/03	930				1.96	61	39.8	557	0.11	1.5	463	13006	2.16	67	44.9	629	0.32	22.3	7.884	21.092	4.67		<1	<1
W4	-15.24	4/29/03	941				2.23	69	43.1	603	0.21	2.9	479	13461	2.35	73	50.9	713	0.28	21.8	7.906	20.117	4.92		<1	<1
W4	-15.24	5/13/03	1017				2.12	66	39.6	555	0.27	3.8	461	12933	2.21	68	41.2	577	0.25	21.9	7.906	20.883	5.43		<1	1
W4	-15.24	6/5/03	940				2.14	66	44.3	620	0.20	2.8	457	12846	2.21	68	49.0	687	0.33	22.0	7.912	20.769	4.74		<1	2

NELHA Water Quality Laboratory

Well 4 Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W4	-15.24	7/31/03	1003				2.09	65	41.1	576	0.08	1.1	461	12954	2.17	67	44.7	626		21.5	7.883	20.883	4.71		<1	TNTC
W4	-15.24	8/27/03	1008				2.16	67	40.0	560	0.40	5.6	457	12827	3.4	107	49.6	695		21.7	7.905	21.100	4.71		<1	226
W4	-15.24	9/17/03	947				2.58	80	37.6	526	18.9	264.7	441	12394	2.98	92	61.8	866		22.3	7.830	21.970	4.26		5	TNTC
W4	-15.24	10/7/03	942				2.26	70	46.7	654	0.67	9.4	470	13200	2.42	75	52.0	728		22.3	7.873	20.557	NA		<1	8
W4	-15.24	11/4/03	935				2.18	68	43.0	603	0.48	6.7	462	12984	2.32	72	49.9	699		22.1	7.883	20.547			<1	<1
W4	-15.24	11/14/03	1119																	22.4			4.61			
W4	-15.24	12/16/03	930				2.11	65	39.7	557	1.00	14.0	453	12714	2.17	67	44.3	620		22.0	7.885	21.325	4.59		<1	<1
W4	-15.24	1/27/04	949				2.04	63	43.4	607	0.31	4.3	461	12933	2.18	68	49.8	698		21.8	7.880	20.828	4.81		<1	<1
W4	-15.24	2/10/04	940				2.26	70	41.1	576	0.21	2.9	435	12203	2.40	74	42.3	592		21.9	7.870	21.002	4.56		103	<1
W4	-15.24	3/15/04	949				2.44	76	46.6	652	0.11	1.5	465	13049	2.57	80	49.9	698		22.2	7.896	20.671	4.59		<1	37
W4	-15.24	4/21/04	900				2.18	68	41.6	583	0.04	0.6	464	13026	2.15	67	42.7	598		21.2	7.879	21.324	4.52		<1	1
W4	-15.24	5/12/04	855				2.06	64	37.3	522	0.24	3.4	448	12585	2.10	65	39.5	553		21.9	7.892	21.37	4.67		<1	1
W4	-15.24	6/7/04	849				2.06	64	33.9	475	5.21	73.0	427	11993	2.24	69	42.9	600		22.0	7.834	22.27	4.64		688	752
W4	-15.24	7/8/04	956				2.10	65	37.4	523	0.07	1.0	441	12394	2.26	70	42.3	593	0.30	22.2	7.903	21.85	4.42		2200	2216
W4	-15.24	8/24/04	925				2.28	71	36.3	508	4.7	65.4	427	11978	2.36	73	43.5	609		22.2	7.847	21.66	4.39		<1	2672
W4	-15.24	9/28/04	947				2.30	71	39.9	559	5.0	69.3	439	12327	2.38	74	47.6	667		22.3	7.829	21.77	4.49		<1	307
W4	-15.24	10/5/04	1034				1.84	57	35.9	503	0.30	4.2	420	11802	2.00	62	38.2	536		22.2	7.876	22.45	4.36		<1	4192
W4	-15.24	11/8/04	925				2.06	64	40.3	565	0.27	3.8	461	12933	2.22	69	45.9	642		22.0	7.868	20.11	4.95		<1	4608
W4	-15.24	12/7/04	938				1.94	60	36.7	514	0.19	2.7	429	12046	1.96	61	41.1	575		22.0	7.883	21.86	4.39		<1	1204
W4	-15.24	1/11/05	928				2.06	64	44.5	623	0.10	1.4	489	13734	2.20	68	46.4	650		22.2	7.941	20.796	4.85		<1	69
W4	-15.24	2/8/05	932				2.10	65	48.5	679	0.19	2.7	469	13178	2.18	68	51.0	714		22.3	7.944	20.212	4.94		<1	5
W4	-15.24	3/16/05	1004				2.33	72	42.7	598	5.1	70.9	462	12984	2.57	80	45.1	632	0.27	22.2	7.883	20.667	5.10		<1	324
W4	-15.24	4/18/05	1019				2.08	64	45.4	636	0.9	12.6	462	12973	2.20	68	48.6	681		22.6	7.934	20.609	5.48		<1	3
W4	-15.24	5/24/05	929				2.26	70	47.2	661	0.20	2.8	466	13074	2.50	77	49.0	687		22.6	7.879	20.120	4.58		<1	<1
W4	-15.24	6/13/05	950				2.15	67	43.9	615	5.6	78.3	463	12995	2.28	71	54.0	756		22.8	7.860	20.718	4.45		<1	4960
W4	-15.24	7/11/05	945				2.34	72	39.3	551	3.2	44.1	454	12756	2.44	76	42.0	589		22.6	7.844	21.385	4.52		1	688
W4	-15.24	8/10/05	910				2.48	77	41.8	586	0.11	1.5	459	12883	2.58	80	41.8	585		22.6	7.898	20.776	6.07		13	91
W4	-15.24	9/21/05	905				3.90	121	43.3	607	1.32	18.5	458	12858	4.10	127	52.4	734	0.36	22.3	7.886	20.745	4.41		3	>5,000
W4	-15.24	10/18/05	931				2.51	78	44.6	624	0.19	2.7	448	12588	2.60	81	45.6	638		22.3	8.383	20.689	4.57		3	105
W4	-15.24	11/3/05	850				2.20	68	47.2	661	0.43	6.0	450	12647	2.58	80	51.2	717		22.1	7.926	21.177	4.47		1	38
W4	-15.24	12/21/05	1001				3.72	115	40.5	568	26.8	375.4	439	12338	4.16	129	73.9	1035	0.67	23.6	7.840	21.978	3.13		633	>5,000
W4	-15.24	1/24/06	910				3.12	97	44.6	625	17.5	245.1	470	13197	3.26	101	62.0	868		22.4	7.867	20.581	4.35		1	824
W4	-15.24	2/15/06	903				2.43	75	44.4	622	6.15	86.1	451	12675	2.52	78	54.6	765	0.27	22.0	7.879	21.126	4.44		<1	100
W4	-15.24	3/21/06	850				2.38	74	41.8	585	7.70	107.9	464	13032	2.45	76	47.7	668	0.25	22.2	7.892	20.973	7.86		1	78
W4	-15.24	4/19/06	957				2.52	78	42.2	591	8.0	112.1	458	12863	-	0	45.2	633	0.33	22.1	7.869	21.156	6.89		<1	136
W4	-15.24	4/26/06	905				2.54	79	41.8	585	8.9	124.7	451	12667	2.72	84	46.9	656	0.30	21.5	7.874	21.271	5.94		<1	6
W4	-15.24	5/3/06					2.55	79	43.9	615	10	140.1	447	12554		0	47.6	666	0.32	21.6	7.872	21.406	4.63		<1	6
W4	-15.24	5/10/06					2.38	74	42.3	592	6.3	88.2	466	13088		0	36.4	510	0.25	21.9	7.877	21.074	4.59		<1	3
W4	-15.24	5/16/06					2.25	70	42.1	590	4.1	57.4	457	12835		0	38.6	540	0.29	22.0	7.898	21.198	6.07		<1	1
W4	-15.24	5/23/06	937				2.34	72	43.7	612	9.8	137.3	447	12554	2.60	81	49.2	689	0.37	21.8	7.856	21.077	4.64		<1	1
W4	-15.24	6/27/06	942				2.76	85	46.3	649	8.1	113.5	440	12358	2.88	89	39.6	555	0.25	21.8	7.825	21.842	4.43		<1	7
W4	-15.24	7/18/06	937				2.31	72	41.4	580	4.3	60.2	443	12442	2.40	74	42.6	597	0.39	22.3	7.874	21.300	4.71		<1	26
W4	-15.24	8/8/06	915				2.47	77	43.5	609	5.8	81.2	454	12751	2.60	81	42.3	592	0.26	21.7	7.852	21.378	4.63		<1	2
W4	-15.24	9/19/06	1015				2.04	63	39.9	559	0.58	8.1	448	12582	2.19	68	38.9	545	0.27	22.0	7.856	21.296	4.58		<1	<1
W4	-15.24	10/24/06	953				2.02	63	40.3	564	0.37	5.2	454	12751	2.13	66	37.5	525	0.28	22.5	7.888	21.174	4.63		1	<1
W4	-15.24	11/28/06	934				2.02	63	38.8	543	0.52	7.3	445	12498	2.06	64	34.8	487	0.25	22.0	7.875	21.173	4.67		93	99
W4	-15.24	12/12/06	929				1.88	58	37.4	524	0.21	2.9	438	12301	1.97	61	35.9	502	0.42	22.0	7.88	21.422	4.55		1	1
W4	-15.24	1/9/07	955				2.02	63	42.4	594	0.28	3.9	441	12386	2.13	66	42.2	591	0.51	22.0	7.891	21.074	4.64		<1	<1
W4	-15.24	2/22/07	936				1.92	59	40.7	570	0.31	4.3	454	12751	1.99	62	44.1	617	0.28	21.9	7.871	21.020	4.80		<1	1
W4	-15.24	3/6/07	953				2.02	63	42.1	590	0.35	4.9	465	13060	2.16	67	44.7	626	0.33	22.3	7.894	20.725	4.90		<1	1
W4	-15.24	4/11/07	1106				2.02	63	40.9	573	0.19	2.7	471	13228	2.15	67	37.7	528	0.28	22.3	7.925	20.516	4.76		<1	<1
W4	-15.24	5/3/07	939				2.14	66	38.8	543	0.23	3.2	472	13256	2.26	70	40.4	566	0.34	21.9	7.911	20.637	4.52		<1	<1
W4	-15.24	6/19/07	906				2.00	62	41.3	579	0.22	3.1	450	12638	2.16	67	33.1	463	0.22	22.2	7.909	21.267	4.74		<1	<1

NELHA Water Quality Laboratory

Well 4 Data Table

June 1989 - December 2014

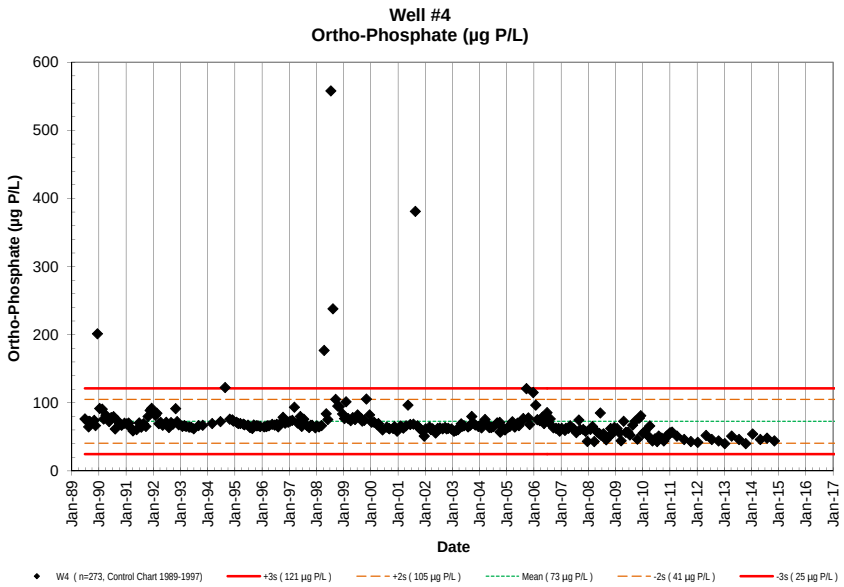
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W4	-15.24	7/25/07	1445	-5	0.6	High	1.81	56	41.3	578	5.70	80	468	13143	2.04	63	40.7	570.7		21.6	7.81	21.69	4.32			
W4	-15.24	8/28/07	950	-7	0.0	Low	2.41	75	47.5	665	0.04	0.5	594	16676	2.38	74	48.3	675.9		21.6	7.78	21.03	4.33			
W4	-15.24	9/13/07	1240	-7	0.2	Flood	1.97	61	41.3	578	1.33	19	491	13789	2.08	65	49.2	688.7		22.5	7.84	21.28	4.29			
W4	-15.24	10/24/07	1006	-7	0.1	Low	1.96	61	44.7	627	0.17	2.4	437	12276	2.11	65	42.5	594.6		21.9	7.82	21.08	4.07			
W4	-15.24	11/26/07	1329	-8	0.1	Low	1.87	58	44.2	619	0.44	6.1	482	13537	1.73	53	49.9	698.8		21.9	7.85	21.18	4.06			
W4	-15.24	12/20/07	1019	-7	0.2	Low	1.40	43	17.3	243	0.74	10	443	12439						21.5	7.87	20.47	4.28			
W4	-15.24	1/29/08	954	-7	0.2	Ebb	1.97	61	45.3	635	0.04	0.5	341	9580						21.6	7.74	20.38	4.42			
W4	-15.24	2/27/08	1420	-7	0.1	Low	2.11	65	46.0	644	0.49	6.8	453	12719						22.0	7.76	20.15	4.55			
W4	-15.24	3/20/08	1432	-7	0.3	Flood	1.39	43	66.7	934	0.26	3.6	197	5534						21.8	7.79	21.19	4.15			
W4	-15.24	4/29/08	1048	-7	0.2	Flood	1.84	57	42.6	597	0.09	1.2	428	12031						22.2	7.80	20.91	4.73			
W4	-15.24	5/29/08	1137		0.4	Flood	1.77	55	45.4	636	0.12	1.7	458	12871						22.5	7.83	20.56	4.58			
W4	-15.24	6/10/08	1038	-7	0.3	Flood	2.75	85	41.6	583	2.31	32	506	14211						22.3	7.78	21.02	5.20			
W4	-15.24	6/19/08	1241	-7	0.1	Flood	1.69	52	42.6	597	0.72	10	444	12459						22.3	7.70	21.07	4.65	0.31		
W4	-15.24	7/24/08	1129	-7	0.4	Ebb	1.75	54	45.4	635	0.20	2.8	407	11424						21.6	7.75	21.68	4.57			
W4	-15.24	8/29/08	1702		0.7	Ebb	1.47	46	36.5	511	0.24	3.3	388	10902						21.6	7.72	21.94	2.90			
W4	-15.24	9/19/08	1102	-7	0.4	Ebb	1.59	49	37.4	523	0.41	5.8	295	8281						24.7	7.67	21.28	4.28	0.17		
W4	-15.24	10/28/08	958	-7.14	0.2	Ebb	2.01	62	43.6	611	0.31	4.4	421	11827						23.4	7.55	21.08	4.22	0.14		
W4	-15.24	11/13/08	1045	-7.2	0.1	Ebb	1.76	54	43.6	611	0.22	3.1	398	11166						24.9	7.94	21.04	4.14	0.10		
W4	-15.24	12/15/08	1129	-6.94	0.2	Ebb	2.06	64	47.9	671	0.15	2.1	403	11330						23.3	7.98	20.71	4.46			
W4	-15.24	1/22/09	943	-7.22	0.1	Low	2.01	62	51.1	715	1.44	20	426	11952						23.3	7.92	19.92	4.59	0.22		
W4	-15.24	2/24/09	857	-7.16	0.1	Ebb	1.80	56	47.7	668	0.69	9.7	455	12781						22.2	7.65	20.24	4.62	8.10		
W4	-15.24	3/16/09	941	-7.19	0.1	Ebb	1.43	44	36.7	515	0.13	1.8	292	8188						23.1	7.64	20.24	4.47	0.45		
W4	-15.24	4/20/09	1628	-7.07	0.2	Ebb	2.35	73	43.1	604	0.43	6.0	349	9801						23.4	7.72	20.70	4.65	1.98		
W4	-15.24	5/21/09	1534	-6.79	0.6	Ebb	1.83	57	36.6	513	0.21	3.0	444	12468						21.5	7.86	22.49	4.26	0.08		
W4	-15.24	6/18/09	1306	-6.83	0.6	High	1.83	57	33.0	463	0.34	4.8	242	6790						21.6	7.86	23.50	4.19	0.04		
W4	-15.24	7/14/09	757	-7.18	0.4	Flood	1.70	53	32.7	458	0.16	2.2	174	4895						21.4	7.97	21.44	4.39	0.05		
W4	-15.24	8/19/09	1021	-7.24	0.1	Flood	2.17	67	41.7	584	0.86	12.1	411	11536						21.7	7.81	21.74	3.98	0.06		
W4	-15.24	9/24/09	844	-6.9	0.6	High	2.37	73	40.9	573	0.50	7.0	217	6104						21.6	8.23	21.47	4.28	0.04		
W4	-15.24	10/22/09	1452	-7.21	0.4	Ebb	1.50	47	23.8	334	0.49	6.8	104	2928						21.9	7.86	21.29	4.04	0.05		
W4	-15.24	11/16/09	1535	-7.16	0.2	High	2.51	78	41.8	586	0.89	12.4	428	12017						21.8	7.88	21.48	4.06	0.03		
W4	-15.24	12/7/09	1545	-7.36	0.1	Low	2.62	81	56.0	784	0.74	10.4	443	12445						23.0	7.87	20.96	4.28	0.02		
W4	-15.24	1/5/10	1345	-7.29	0.0	Ebb	1.78	55	33.1	463	1.50	21.0	338	9488						22.0	7.86	24.74	3.98	0.20		
W4	-15.24	2/1/10	1330	-7.23	0.0	Ebb	1.87	58	36.4	510	0.86	12.0	318	8922						22.0	7.97	24.66	3.80	0.23		
W4	-15.24	3/9/10	1433	-7.22	0.2	High	1.68	52	31.1	435	0.29	4.0	381	10713						22.8	7.86	24.53	3.72	0.14		
W4	-15.24	4/6/10	1304	-7.25	0.2	High	2.13	66	31.7	444	0.50	7.0	365	10244						22.9	7.89	24.80	3.76	0.30		
W4	-15.24	5/11/10	1335	-6.94	0.5	Flood	1.42	44	27.1	379	1.50	21.0	360	10102						22.9	7.93	25.13	3.97	0.07		
W4	-15.24	6/15/10	1419	-6.86	0.2	Flood	1.52	47	27.3	383	0.57	8.0	358	10051						21.0	7.96	25.38	3.75	0.13		
W4	-15.24	7/13/10	1319	-7.22	0.2	Flood	1.39	43	28.9	405	0.57	8.0	386	10836						21.0	7.89	25.33	3.71	0.04		
W4	-15.24	8/3/10	1311	-6.85	0.5	Ebb	1.65	51	29.9	419	0.29	4.0	386	10852						21.2	7.93	24.75	3.70	0.08		
W4	-15.24	9/14/10	1326	-7.07	0.4	Ebb	1.55	48	31.7	444	0.46	6.4	412	11567						21.0	7.87	24.75	4.03	0.07		
W4	-15.24	10/12/10	1406	-7.03	0.3	Ebb	1.42	44	28.7	402	0.06	0.9	397	11140						21.0	7.91	25.20	3.92	0.07		
W4	-15.24	11/16/10	1253	-6.91	0.4	High	1.65	51	31.8	446	0.13	1.8	405	11368						21.0	7.89	24.42	3.92	0.10		
W4	-15.24	12/14/10	1324	-6.99	0.2	Ebb	1.71	53	35.5	497	0.24	3.3	430	12078						21.1	7.93	23.34	4.04	0.05		
W4	-15.24	1/4/11	1309	-7.28	0.1	Flood	1.81	56	35.1	492	0.29	4.0	412	11560						21.1	7.87	23.57	3.89	0.12		
W4	-15.24	2/1/11	1020	-7.17	0.0	Low	1.84	57	35.1	491	0.14	2.0	417	11703						21.2	7.84	23.68	4.02	0.16		
W4	-15.24	4/5/11	1331	-7.19	0.1	Flood	1.65	51	30.3	425	0.18	2.5	370	10387						21.3	7.82	23.99	3.42	0.08		
W4	-15.24	7/12/11	1324	-6.92	0.6	Flood	1.49	46	28.3	396	0.10	1.4	375	10541						21.0	7.84	25.49	3.50	0.02		
W4	-15.24	10/10/11	1503	-6.87	0.5	High	1.39	43	26.3	369	0.09	1.3	355	9976						20.9	7.86	26.07	3.65	0.05		
W4	-15.24	1/10/12	1358	-7.33	0.0	Flood	1.36	42	28.3	397	0.22	3.1	369	10366						21.2	7.86	25.02	3.84	0.21		
W4	-15.24	5/1/12	1403	-6.85	0.4	Ebb	1.68	52	28.2	395	0.12	1.7	392	11013						21.6	7.79	25.63	3.51	0.04		
W4	-15.24	7/18/12	1330	-6.89	0.5	Flood	1.49	46	28.0	392	0.26	3.7	376	10553						21.3	7.90	25.91	3.70	0.68		
W4	-15.24	10/16/12	1318	-7.15	0.2	Flood	1.42	44	28.8	403	0.34	4.7	373	10483						21.0	7.83	25.87	3.65	0.07		
W4	-15.24	1/8/13	1409	-7.04	0.2	High	1.29	40	31.5	441	0.42	5.9	427	11991						21.0	7.78	24.99	3.74	0.05		
W4	-15.24	4/9/13	1345	-7.04	0.3	Flood	1.65	51	27.6	386	0.30	4.2	361	10152						20.8	7.84	25.86	3.16	0.02		
W4	-15.24	7/17/13	1502	-6.88	0.52	Ebb	1.49	46	26.4	370	0.37	5.2	380	10676						21.8	7.74	25.66	3.61	0.02		
W4	-15.24	10/15/13	1346	-6.81	0.55	High	1.29	40	28.0	392	0.31	4.3	356	9989						21.2	7.80	26.18	3.73	0.17		
W4	-15.24	1/15/14	1332	-7.21	0.12	Flood	1.74	54	29.6	415	0.34	4.7	370	10378						21.4	7.87	25.54	4.20	0.02		
W4	-15.24	4/29/14	1502	-6.97	0.49	Flood	1.49	46	28.7	402	0.40	5.6	364	10218						21.2	7.82	25.39	4.03	0.06		

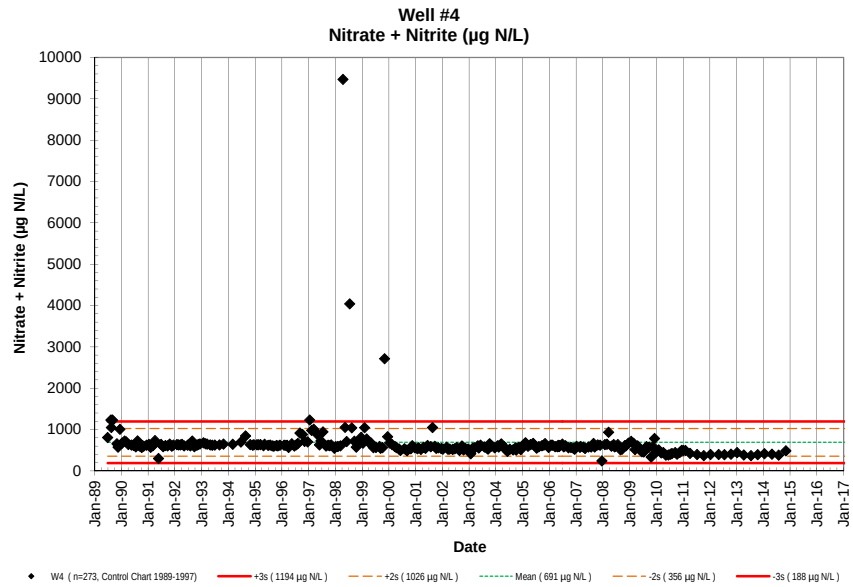
NELHA Water Quality Laboratory

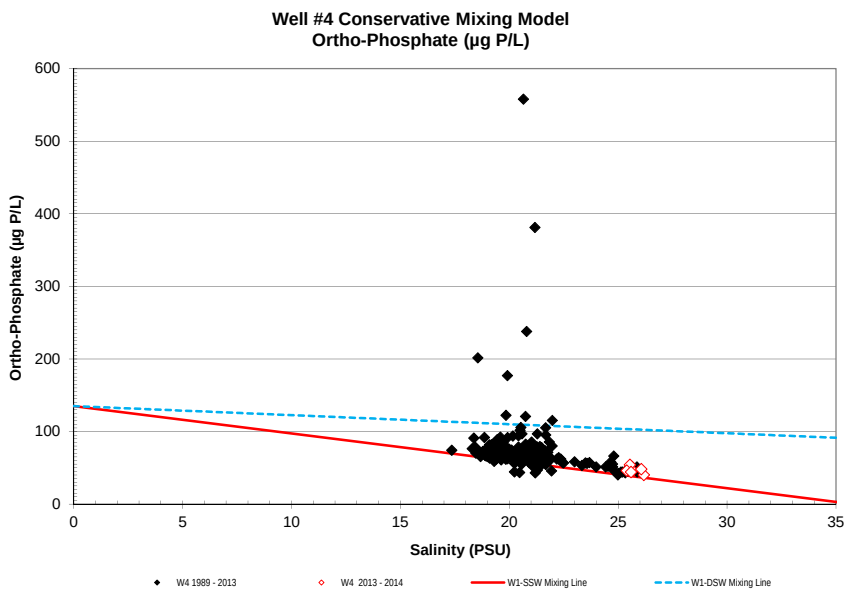
Well 4 Data Table

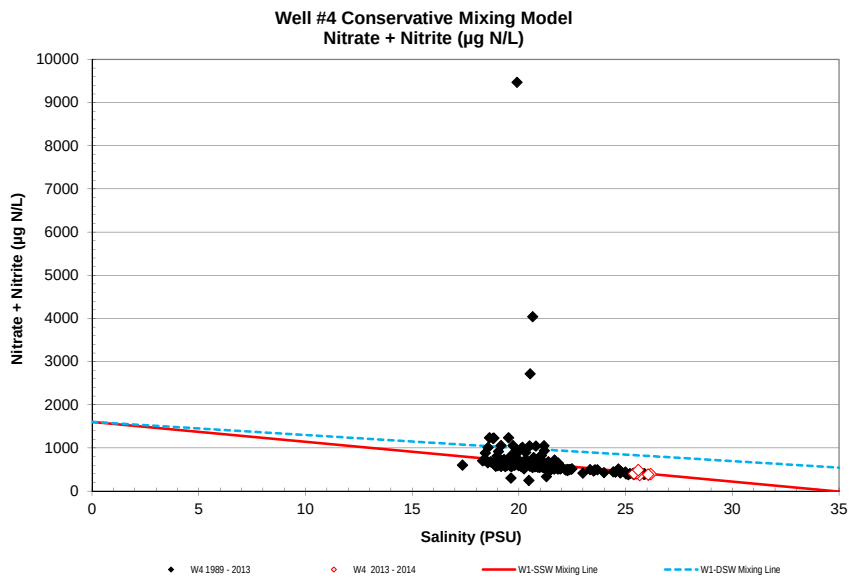
June 1989 - December 2014

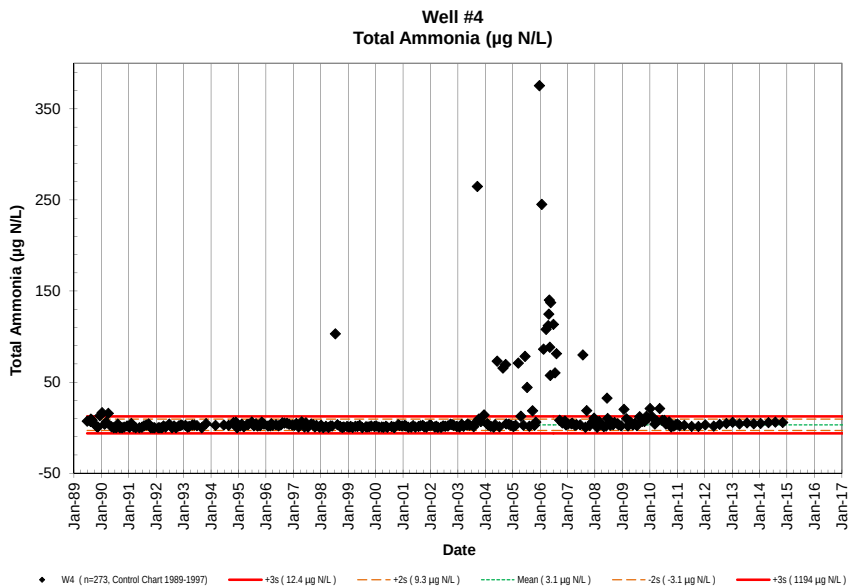
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W4	-15.24	7/29/14	1430	-7.09	0.3	Flood	1.55	48	27.3	382	0.43	6.0	363	10207						21.7	7.85	26.06	3.97	0.08		
W4	-15.24	11/5/14	1417	-6.91	0.38	Flood	1.42	44	34.6	485	0.41	5.8	345	9700						21.7	7.81	25.59	3.98	0.14		
W4	-15.24	1/1/15																								
W4	-15.24	4/1/15																								

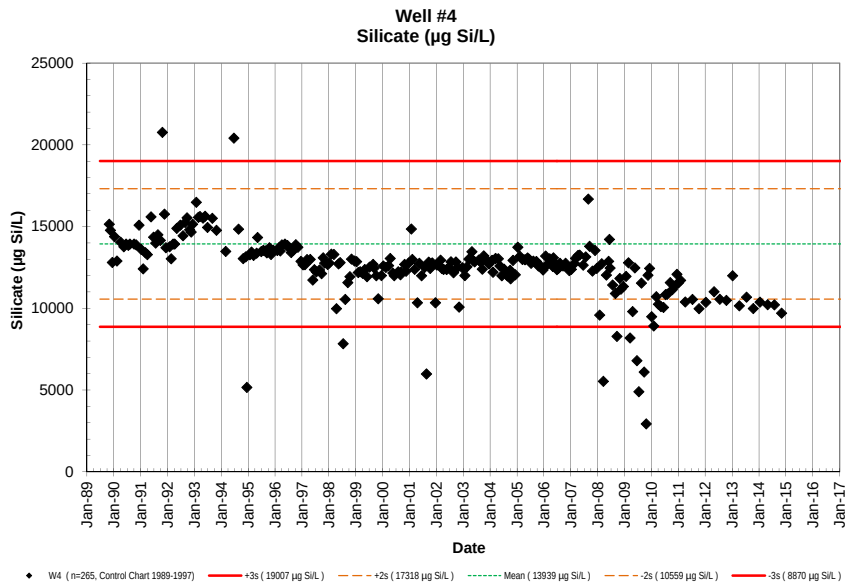

Well #4
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W4 (n=273, Control Chart 1989-1997)
+3s (121 µg P/L)
+2s (105 µg P/L)
Mean (73 µg P/L)
-2s (41 µg P/L)
-3s (25 µg P/L)

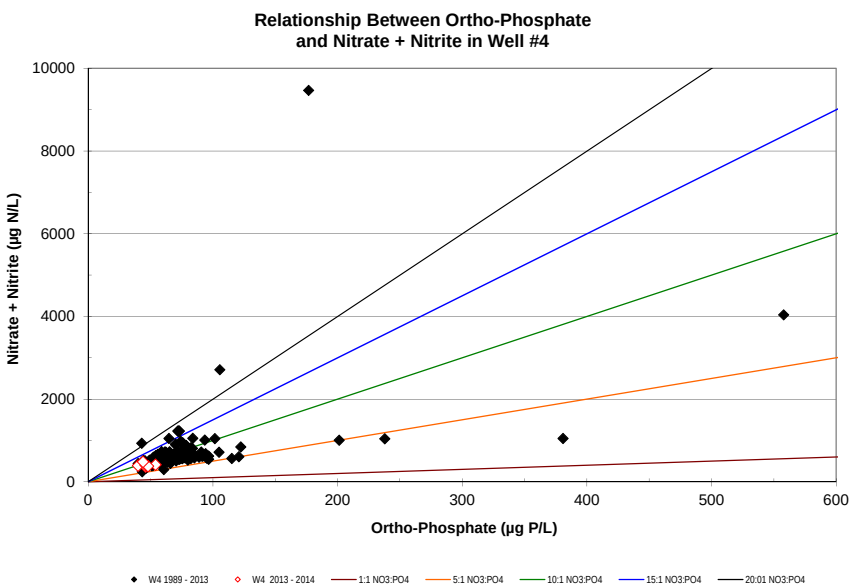

Well #4
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W4 (n=273, Control Chart 1989-1997)
+3s (1194 µg N/L)
+2s (1026 µg N/L)
Mean (691 µg N/L)
-2s (356 µg N/L)
-3s (188 µg N/L)

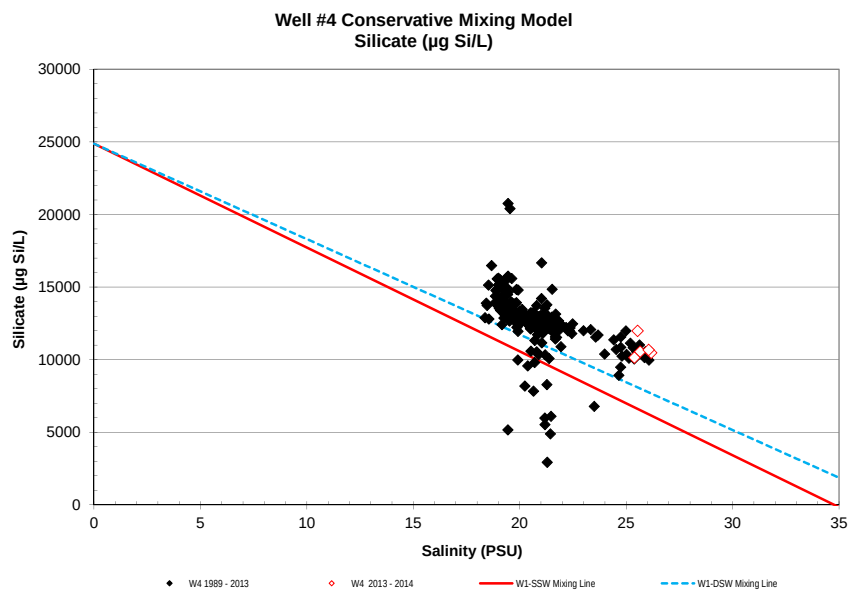

Well #4 Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W4 1989 - 2013
W4 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

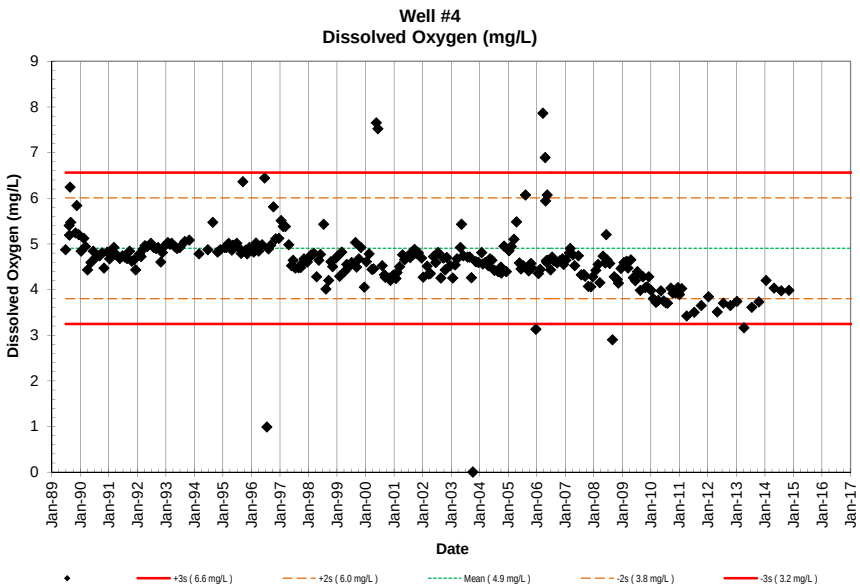

Well #4 Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W4 1989 - 2013
W4 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

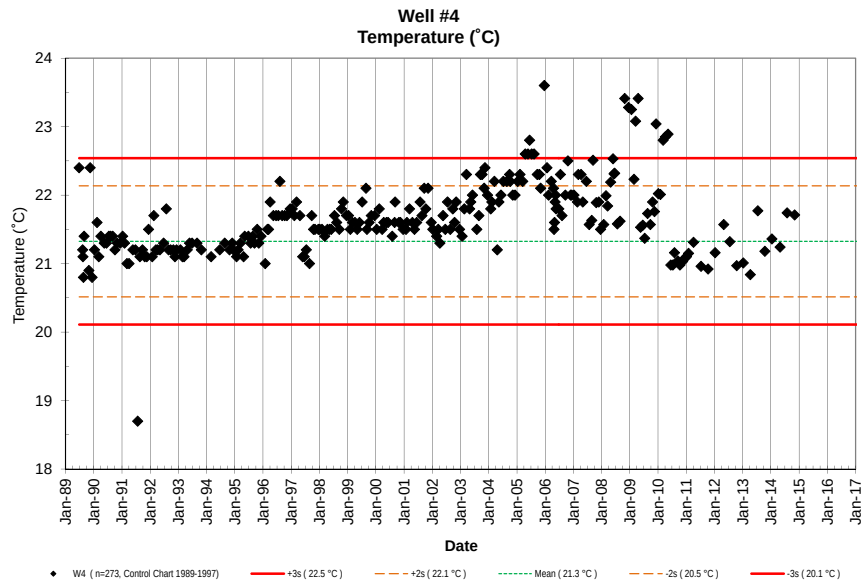

Well #4
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W4 (n=273, Control Chart 1989-1997)
+3s (12.4 µg N/L)
+2s (9.3 µg N/L)
Mean (3.1 µg N/L)
-2s (-3.1 µg N/L)
+3s (1194 µg N/L)

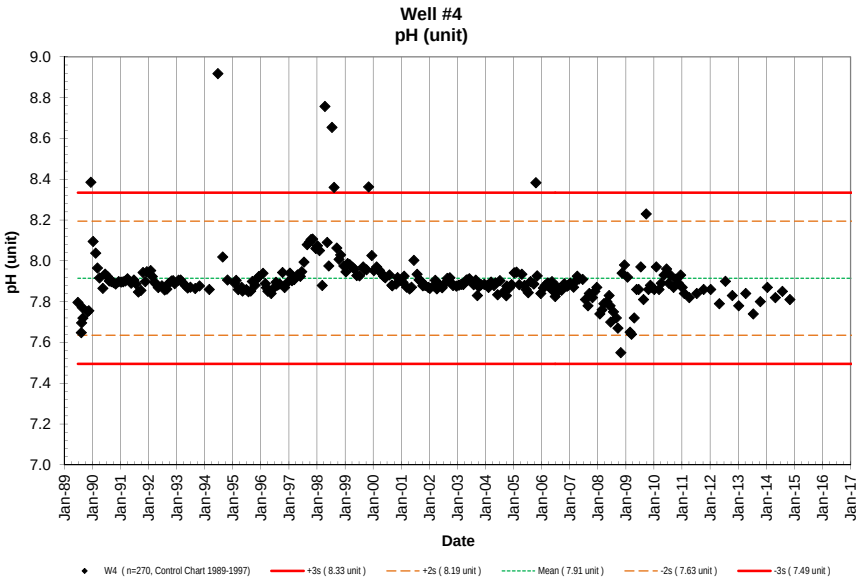

Well #4
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W4 (n=265, Control Chart 1989-1997)
+3s (19007 µg Si/L)
+2s (17318 µg Si/L)
Mean (13939 µg Si/L)
-2s (10559 µg Si/L)
-3s (8870 µg Si/L)

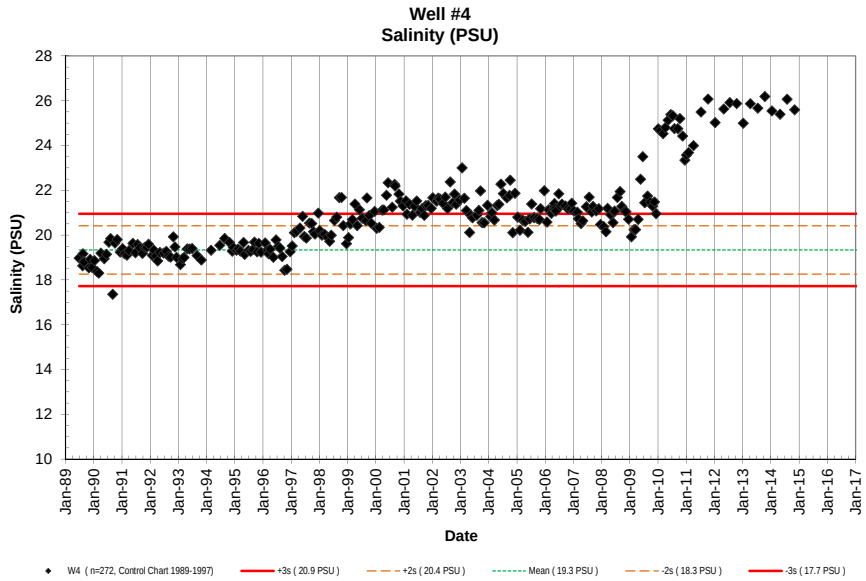

Relationship Between Ortho-Phosphate
and Nitrate + Nitrite in Well #4
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W4 1989 - 2013
W4 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

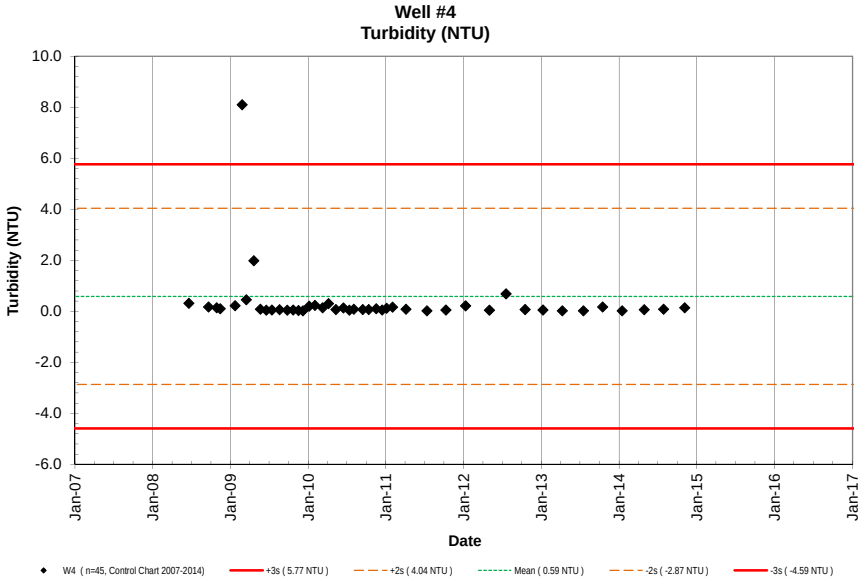

Well #4 Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W4 1989 - 2013
W4 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

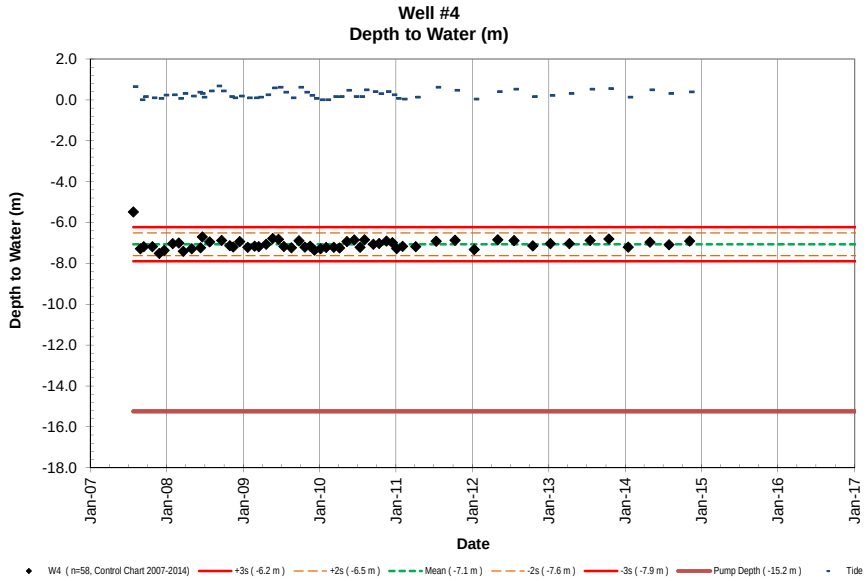

Well #4
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
+3s (6.6 mg/L)
+2s (6.0 mg/L)
Mean (4.9 mg/L)
-2s (3.8 mg/L)
-3s (3.2 mg/L)


Well #4
Temperature (˚C)
Temperature (˚C)
Date
W4 (n=273, Control Chart 1989-1997)
+3s (22.5 °C)
+2s (22.1 °C)
Mean (21.3 °C)
-2s (20.5 °C)
-3s (20.1 °C)


Well #4
pH (unit)
pH (unit)
Date
W4 (n=270, Control Chart 1989-1997)
+3s (8.33 unit)
+2s (8.19 unit)
Mean (7.91 unit)
-2s (7.63 unit)
-3s (7.49 unit)


Well #4
Salinity (PSU)
Salinity (PSU)
Date
W4 (n=272, Control Chart 1989-1997)
+3s (20.9 PSU)
+2s (20.4 PSU)
Mean (19.3 PSU)
-2s (18.3 PSU)
-3s (17.7 PSU)


Well #4
Turbidity (NTU)
Turbidity (NTU)
10.0
8.0
6.0
4.0
2.0
0.0
-2.0
-4.0
-6.0
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W4 (n=45, Control Chart 2007-2014)
+3s (5.77 NTU)
+2s (4.04 NTU)
Mean (0.59 NTU)
-2s (-2.87 NTU)
-3s (-4.59 NTU)


Well #4
Depth to Water (m)
Depth to Water (m)
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
-12.0
-14.0
-16.0
-18.0
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W4 (n=58, Control Chart 2007-2014)
+3s (-6.2 m)
+2s (-6.5 m)
Mean (-7.1 m)
-2s (-7.6 m)
-3s (-7.9 m)
Pump Depth (-15.2 m)
Tide

NELHA Water Quality Laboratory

Well 4A Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W4A	-10.67	6/27/89					8.96	278			99.3	1390.9								22.3	8.060	15.233	4.03		NA	NA
W4A	-10.67	8/10/89	1011				7.21	223			36.6	512.6								21.6	8.028	14.210	1.04		<1	NA
W4A	-10.67	8/15/89	1508				6.05	187			27.9	390.8								21.5	8.027	15.722	1.71		<1	NA
W4A	-10.67	8/22/89	1435				6.93	215			37.5	525.3								21.3	8.050	15.511	1.59		<1	NA
W4A	-10.67	8/30/89	1435				8.34	258			24.4	341.8								21.6	8.095	14.095	1.34		<1	NA
W4A	-10.67	8/30/89	1435				8.35	259			24.2	339.0													NA	NA
W4A	-10.67	10/31/89	1134				7.92	245	12	162	26.9	376.8	567	15924	8.50	263	44.4	622	1.09	21.5	7.879	14.719	0.10		<1	NA
W4A	-10.67	11/16/89	1130				7.85	243	5	64	72.5	1015.5	555	15587	9.12	282	45.3	635	1.98	21.6	7.864	14.560	0.44		<1	NA
W4A	-10.67	12/12/89	1135				23.2	719	857	12004	60.9	853.0	181	5083	25.4	787	1000	14007	0.78	21.5	8.861	11.875	NA		<1	NA
W4A	-10.67	1/11/90	950				14.8	458	652	9132	51.8	725.5	197	5533	16.3	505	761	10659	119	21.7	8.632	14.328	NA		<1	NA
W4A	-10.67	2/14/90	1155				1.31	41	116	1625	4.72	66.1	121	3398	10.2	315	146	2045	32.4	21.7	8.320	14.360	4.76		<1	NA
W4A	-10.67	3/7/90	1137				10.1	313	80	1118	6.67	93.4	291		10.7	331	100	1401	5.28	21.5	8.594	10.881	2.69		<1	NA
W4A	-10.67	4/4/90	1342				13.6	421	11	158	1.37	19.2	257	7218	14.2	440	67.5	945	24.2	21.9	8.420	14.011	NA		<1	NA
W4A	-10.67	5/17/90	1202				8.80	273	18	251	4.44	62.2	250	7021	9.50	294	44.8	628	32.1	21.8	8.281	15.696	1.21		<1	NA
W4A	-10.67	6/16/90	1105				7.60	235	22	314	8.78	123.0	319	8959	7.90	245	38.6	541	1.70	21.8	8.327	17.240	1.69		<1	NA
W4A	-10.67	7/17/90	1146				7.09	220	26	366	4.93	69.1	342	9605	7.33	227	35.6	499	7.70	21.8	8.294	17.853	2.58		<1	NA
W4A	-10.67	8/8/90	1137				6.99	217	19	269	4.76	66.7	334	9381	6.41	199	30.8	431	1.81	21.8	8.278	18.042	1.93		<1	NA
W4A	-10.67	9/5/90	1143				7.47	231	20	280	2.40	33.6	ND	ND	7.47	231	28.7	402	0.43	21.8	8.272	17.356	1.93		<1	NA
W4A	-10.67	10/4/90	1151				9.40	291	22	313	3.87	54.2	374	10504	10.9	338	29.3	410	0.86	21.8	8.226	17.570	1.91		<1	NA
W4A	-10.67	11/1/90	1205				5.85	181	26	359	2.84	39.8	405	11375	6.49	201	30.9	433	8.62	21.7	8.180	17.960	2.02		<1	NA
W4A	-10.67	12/10/90	1142				8.32	258	23	321	6.99	97.9	435	12217	8.91	276	26.9	377	0.66	21.8	8.230	16.632	2.07		<1	NA
W4A	-10.67	1/10/91	1000				7.46	231	8	112	4.52	63.3	324	9100	2.30	71	16.4	229	0.70	22.1	8.211	15.925	0.41		<1	NA
W4A	-10.67	2/5/91	1137				8.62	267	54	759	2.44	34.2	274	7695	9.49	294	59.9	839	3.11	21.8	8.555	12.097	1.07		<1	NA
W4A	-10.67	3/7/91	803				8.67	269	40	562	0.37	5.2	289	8117	9.31	288	44.6	625	20.7	21.5	8.369	14.018	0.81		<1	NA
W4A	-10.67	4/3/91	844				8.20	254	15	207	2.46	34.5	273	7667	8.67	269	63.6	891	62.1	21.4	8.798	15.974	0.69		<1	NA
W4A	-10.67	5/22/91	819				4.30	133	8	113	2.57	36.0	371	10420	6.75	209	11.6	162	5.73	21.6	8.294	16.709	0.46		<1	NA
W4A	-10.67	6/26/91	824				4.83	150	25	345	1.50	21.0	357	10027	4.95	153	30.4	426	0.51	21.6	8.290	13.749	0.72		<1	<1
W4A	-10.67	7/24/91	858				2.85	88	9	122	0.75	10.5	340	9549	3.28	102	15.6	219	1.03	19.1	8.228	15.924	0.41		<1	<1
W4A	-10.67	8/23/91	810				4.41	137	20	282	0.15	2.1	365	10251	4.73	147	27.6	387	0.83	21.5	8.191	15.994	0.54		<1	<1
W4A	-10.67	9/24/91	733				5.53	171	31	427	0.30	4.2	416	11684	5.93	184	35.9	503	0.53	21.5	8.128	14.603	1.67		<1	<1
W4A	-10.67	10/23/91	733				7.12	221	62	873	0.32	4.5	508	14267	8.81	273	70.9	993	6.56	21.5	8.230	15.647	0.38		<1	<1
W4A	-10.67	11/20/91	756				8.20	254	18	255	1.15	16.1	424	11908	8.74	271	24.0	336	1.05	21.5	8.160	15.552	0.29		<1	<1
W4A	-10.67	12/11/91	857				11.7	362	74	1032	4.19	58.7	347	9746	60.7	1880	112	1567	46.7	21.0	8.803	14.071	0.58		<1	6
W4A	-10.67	1/29/92	817				7.68	238	19	266	0.54	7.6	416	11684	8.00	248	25.1	352	18.4	21.6	8.144	14.235	0.55		<1	<1
W4A	-10.67	2/19/92	853				7.63	236	28	389	0.11	1.5	402	11290	7.91	245	40.5	567	0.49	21.6	8.136	14.048	0.81		<1	8
W4A	-10.67	3/17/92	805				5.47	169	17	231	0.69	9.7	371	10420	7.00	217	25.2	353	0.73	21.7	8.101	14.311	0.70		<1	<1
W4A	-10.67	4/8/92	751				5.70	177	17	235	0.53	7.4	421	11824	5.90	183	22.0	308	0.54	21.7	8.074	14.708	0.73		<1	<1
W4A	-10.67	5/6/92	802				5.94	184	12	164	0.91	12.7	440	12358	6.77	210	18.4	258	1.02	21.6	8.056	15.035	0.41		<1	<1
W4A	-10.67	6/23/92	803				6.75	209	11	150	1.32	18.5	447	12554	6.41	199	18.9	264	0.73	21.7	8.036	15.686	0.50		<1	<1
W4A	-10.67	7/29/92	752				5.43	168	18	256	ND	0.0	453	12723	5.74	178	22.2	311	0.90	21.7	8.023	14.764	0.59		<1	<1
W4A	-10.67	8/26/92	736				6.72	208	30	419	0.21	2.9	487	13678	6.82	211	33.3	467	0.68	21.6	8.039	13.892	0.92		<1	<1
W4A	-10.67	9/22/92	740				5.98	185	7	93	0.68	9.5	539	15138	6.16	191	7.67	107	0.52	21.6	8.029	15.481	0.44		<1	<1
W4A	-10.67	10/27/92	755				6.34	196	22	313	0.50	7.0	488	13706	6.38	198	26.8	375	0.51	21.6	7.999	16.486	1.15		<1	<1
W4A	-10.67	11/17/92	817				6.02	186	21	295	0.54	7.6	470	13200	6.55	203	24.6	345	0.59	21.5	8.025	15.369	0.72		<1	<1
W4A	-10.67	12/8/92	802				6.17	191	32	444	0.64	9.0	499	14015	6.29	195	35.2	493	0.54	21.6	8.027	14.277	1.30		<1	<1
W4A	-10.67	1/26/93	814				5.92	183	24	340	0.33	4.6	515	14458	6.03	187	28.1	393	0.61	21.6	8.064	14.303	1.05		<1	<1
W4A	-10.67	2/23/93	745				6.00	186	20	276	0.25	3.5	516	14498	6.00	186	22.8	319	0.48	21.5	8.040	14.952	0.76		<1	<1
W4A	-10.67	3/16/93	745				6.36	197	14	199	0.42	5.9	513	14402	6.44	199	17.4	244	0.58	21.6	8.008	15.652	0.48		<1	<1
W4A	-10.67	4/27/93	749				5.18	160	26	370	0.39	5.5	551	15475	5.30	164	28.4	398	0.55	21.7	7.989	15.744	0.99		<1	<1
W4A	-10.67	5/25/93	743				4.86	151	29	400	0.43	6.0	544	15279	4.96	154	32.4	454	0.47	21.7	7.981	15.064	1.11		<1	<1
W4A	-10.67	6/28/93	822				4.93	153	25	353	0.19	2.7	527	14801	5.10	158	27.8	389	0.44	21.7	7.952	16.114	1.09		<1	<1
W4A	-10.67	8/31/93	819				5.08	157	26	367	0.08	1.1	552	15503	5.08	157	45.4	636	0.69	21.7	7.925	14.735	0.63		<1	<1
W4A	-10.67	10/26/93	751				5.09	158	42	587	0.42	5.9	529	14857	5.09	158	44.6	625	0.56	21.6	7.944	14.270	1.32		<1	<1
W4A	-10.67	3/1/94	737				25.2	781	1780	24932	53.2	745.3	184	5168	26.6	823	1840	25772	113	21.6	8.941	13.342	NA		<1	<1
W4A	-10.67	6/21/94	726				10.5	326	601	8420	25.7	359.7	51.6	1449	14.8	458	797	11165	62.4	21.7	8.002	15.474	6.08		<1	<1

NELHA Water Quality Laboratory

Well 4A Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W4A	-10.67	8/23/94	807				21.8	676	1660	23251	34.9	489.0	76.3	2143	30.2	937	1900	26613	140	21.7	9.100	16.098	5.75		<1	8
W4A	-10.67	10/25/94	823				34.0	1053	695	9733	33.1	464.2	86.6	2432	34.4	1065	750	10502	4.43	21.7	8.770	15.321	NA		<1	<1
W4A	-10.67	11/28/94	1200				28.0	869	540	7557	19.4	272.2	109	3075	28.7	889				21.8		15.321				
W4A	-10.67	12/13/94	849				23.1	716	272	3806	9.39	131.5	184	5162	24.1	745				21.7		15.321				
W4A	-10.67	1/24/95	821				24.5	758	341	4780	8.70	121.9	150	4209	24.5	758			1.39	21.6	8.582	15.321	1.83		<1	<1
W4A	-10.67	2/14/95	802				19.9	616	202	2831	1.61	22.6	184	5168	20.2	625	204	2853	1.18	21.7	8.514	15.321	0.79		<1	<1
W4A	-10.67	3/14/95	856				19.2	595	718	10058	71.0	993.8	88.9	2496	21.9	678			12.1	21.7	8.917	15.321	4.59		<1	3
W4A	-10.67	4/25/95	921				16.8	520	242	3384	5.38	75.4	147	4131	17.5	543	454	6355	1.33	21.6	8.556	15.321	1.45		<1	<1
W4A	-10.67	5/9/95	811				14.9	462	131	1835	2.02	28.3	181	5089	15.6	483	141	1978	0.75	21.8	8.537	15.321	2.51		<1	<1
W4A	-10.67	6/27/95	829				14.4	446	183	2567	0.40	5.6	205	5746	15.8	489	194	2719	1.00	21.7	8.422	15.321	0.80		<1	<1
W4A	-10.67	7/25/95	843				13.3	412	119	1669	0.15	2.1	217	6106	14.3	444	129	1801	0.73	21.8	8.430	14.709	1.10		<1	<1
W4A	-10.67	8/22/95	928				14.1	438	110	1538	0.47	6.6	220	6173	14.4	446			0.96	21.8	8.392	15.922	0.78		<1	<1
W4A	-10.67	9/12/95	710				13.8	428	87	1225	0.08	1.1	226	6359	13.8	428	91.3	1278	0.89	21.7	8.449	16.579	1.72		<1	<1
W4A	-10.67	10/17/95	911				13.2	408	76	1059	0.14	2.0	251	7055	13.6	421			0.71	21.9	8.506	14.373	2.53		<1	<1
W4A	-10.67	11/7/95	823				12.9	398	76	1066	0.29	4.1	238	6676	13.1	406	83.8	1174	0.64	21.8	8.468	16.340	1.15		<1	<1
W4A	-10.67	12/6/95	837				12.7	394	71	992	0.26	3.6	262	7367	13.1	405			0.58	21.8	8.529	14.653	2.62		<1	<1
W4A	-10.67	1/30/96	912				11.0	340	77	1074	0.12	1.7	261	7328	12.3	380	78.0	1093	0.49	21.6	8.534	14.984	2.52		<1	<1
W4A	-10.67	2/27/96	921				11.0	340	72	1006	0.15	2.1	281	7895	11.4	354	74.9	1049	0.50	21.9	8.448	15.680	2.20		<1	1
W4A	-10.67	3/13/96	953				12.8	397	126	1761	0.29	4.1	241	6755	13.3	411	133	1870	0.65	22.0	8.542	14.340	2.28		<1	<1
W4A	-10.67	4/2/96	925				21.5	667	2220	31095	1.10	15.4	119	3338	26.6	824			13.8	22.2	9.277	11.412	4.67		<1	5
W4A	-10.67	5/15/96	922				25.5	789	2270	31795	191	2675.3	92.5	2597	28.8	893			19.4	23.6	9.422	12.390	1.63		<1	10
W4A	-10.67	6/18/96	845				21.9	679	2550	35717	134	1878.3	86.5	2429	24.4	755	2770	38799	14.4	22.1	9.133	15.226	1.56		<1	<1
W4A	-10.67	7/17/96	920				55.1	1705	5480	76757	46.4	649.2	66.9	1880	56.2	1740	5700	79838	30.7	22.1	9.639	13.011	0.99		<1	12
W4A	-10.67	8/6/96	929				67.1	2078	8690	121718	22.5	315.2	51.4	1444	73.0	2260	8660	121298	41.0	22.5	9.868	11.803	1.73		<1	15
W4A	-10.67	9/4/96	927				59.6	1846	6280	87962	66.7	933.8	83.6	2347	60.4	1869	6760	94685	28.6	22.2	9.620	12.358	3.29		1	3
W4A	-10.67	10/9/96	931				34.1	1057	3390	47483	112	1564.5	44.6	1253	34.3	1061	3380	47343	16.4	22.0	9.410	13.168	3.42		<1	<1
W4A	-10.67	11/6/96	918				34.1	1057	4220	59108	76.0	1064.5	95.2	2674	36.0	1115	4090	57287	15.8	22.1	9.233	13.063	4.75		<1	4
W4A	-10.67	12/17/96	922				34.9	1081	5490	76897	87.9	1231.3	34.2	962	36.9	1143	5850	81939	21.7	22.3	9.512	12.796	1.89		<1	<1
W4A	-10.67	1/14/97	942				18.5	572	1420	19890	15.5	217.1	40.7	1144	20.8	645	2170	30395	2.15	22.3	9.158	11.882	0.71		<1	1
W4A	-10.67	2/10/97	1050				20.0	618	2070	28994	44.4	621.9	88.9	2497	21.5	665	2090	29274	2.61	22.5	9.150	11.355	2.30		<1	<1
W4A	-10.67	3/10/97	1054				30.2	934	2650	37118	11.3	158.3	47.0	1320	40.0	1239	3900	54625	12.7	22.4	9.352	11.109	3.99		<1	133
W4A	-10.67	4/23/97	916				12.9	400	1420	19890	24.1	337.6	103	2898	13.5	418	1670	23391	7.29	22.2	9.185	12.486	4.23		<1	3
W4A	-10.67	5/28/97	917				15.9	493	904	12663	18.5	259.1	140	3943	16.9	522	1210	16948	2.86	21.4	8.952	11.715	4.96		<1	2
W4A	-10.67	6/17/97	915				10.1	314	270	3778	1.82	25.5	208	5842	12.6	390	318	4447	1.07	21.5	8.782	11.766	3.78		2	1
W4A	-10.67	7/15/97	907				12.2	377	219	3067	0.78	10.9	207	5811	15.6	482	253	3542	1.07	21.7	8.716	11.466	4.35		<1	7
W4A	-10.67	8/26/97	924				19.1	590	482	6744	10.8	150.9	153	4300	20.1	623	523	7323	1.23	21.5	8.713	12.843	1.76		<1	2
W4A	-10.67	9/23/97	1121				15.1	468	223	3125	0.66	9.2	166	4657	16.4	508	250	3499	0.83	22.4	8.700	11.422	2.77		<1	<1
W4A	-10.67	10/15/97	846				18.6	575	440	6163	3.33	46.6	180	5044	20.6	638	489	6848	3.20	22.1	8.758	12.429	2.31		1	4
W4A	-10.67	11/4/97	1002				16.2	501	343	4803	6.22	87.1	155	4356	17.3	536	496	6940	1.58	22.2	8.736	12.735	1.37		<1	9
W4A	-10.67	12/16/97	905				15.5	480	293	4100	2.48	34.7	186	5230	16.9	523	303	4244	1.17	22.1	8.633	14.763	0.88		<1	3
W4A	-10.67	1/5/98	1159				13.0	403	183	2565	0.39	5.5	185	5198	14.6	451	213	2976	0.78	22.3	8.664	12.989	2.42		<1	<1
W4A	-10.67	2/3/98	1016				13.8	429	168	2354	0.49	6.9	198	5572	16.3	504	189	2642	0.73	22.2	8.644	12.699	2.07		<1	<1
W4A	-10.67	3/10/98	1029				15.0	466	138	1927	0.27	3.8	229	6418	16.4	508	144	2014	0.70	22.0	8.494	12.244	3.72		<1	1
W4A	-10.67	4/14/98	853				57.6	1784	1460	20450	4.10	57.4	80.8	2269	64.4	1995	4440	62190	23.2	22.1	9.591	12.301	6.51		<1	1
W4A	-10.67	5/12/98	1023				16.4	508	295	4137	16.3	228.7	133	3735	19.5	604	323	4524	1.26	22.2	8.830	11.953	2.86		<1	<1
W4A	-10.67	6/2/98	1018				32.8	1017	636	8905	51.3	718.5	123	3452	33.9	1050	708	9918	2.22	22.3	8.731	12.631	2.43		<1	<1
W4A	-10.67	7/14/98	1028				40.8	1263	1220	17088	89.1	1248.0	54.4	1528	42.2	1307	1360	19049	12.6	22.4	9.049	13.985	11.10		<1	1
W4A	-10.67	8/11/98	1043				36.6	1133	863	12086	64.8	907.5	72.7	2041	38.7	1200	943	13213	6.88	22.1	8.865	13.675	4.20		<1	1
W4A	-10.67	9/15/98	1117				39.7	1229	852	11927	42.4	593.9	74.0	2078	40.4	1251	908	12715	6.40	22.1	8.675	16.214	4.02		<1	1
W4A	-10.67	10/13/98	954				32.4	1002	671	9398	24.8	347.5	84.1	2363	34.2	1059	740	10365	4.38	22.5	8.594	16.349	3.31		<1	<1
W4A	-10.67	11/4/98	1027				24.3	754	351	4915	7.40	103.6	111	3126	26.4	819	388	5435	2.11	21.4	8.589	14.069	0.82		<1	<1
W4A	-10.67	12/16/98	1008				22.9	709	171	2390	0.10	1.4	152	4275	24.8	769	189	2647	1.09	22.5	8.562	12.610	2.89		<1	<1
W4A	-10.67	1/12/99	1043				22.2	689	166	2331	1.20	16.8	148	4151	23.7	734	180	2527	1.10	22.3	8.517	13.298	2.23		<1	<1
W4A	-10.67	2/3/99	1032				24.1	748	163	2281	0.76	10.6	147	4137	26.1	809	182	2545	1.13	22.2	8.489	13.742	0.96		<1	<1
W4A	-10.67	3/2/99	1034				21.0	651	147	2053	0.33	4.6	185	5187	22.8	706	160	2247	1.08	22.2	8.485	13.464	2.61		<1	<1
W4A	-10.67	4/6/99	1027				22.6	699	186	2602	1.41	19.7	154	4311	24.9	770	188	2633	1.18	22.1	8.410	16.417	0.43		<1	<1
W4A	-10.67	5/4/99	1032				20.1	623	133	1856	0.24	3.4	186	5230	21.6	668	160	2235	0.76	22.3	8.481	13.090	3.74		<1	116
W4A	-10.67	6/2/99	1015				21.7	672	138	1927	0.17	2.4	169	4746	22.8	706	149	2087	0.90	22.3	8.394	15.953	0.44		<1	<1

NELHA Water Quality Laboratory

Well 4A Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W4A	-10.67	7/7/99	1050				23.5	728	102	1430	0.05	0.7	165	4637	24.9	771	113	1579	0.75	22.4	8.424	14.622	1.44		<1	<1
W4A	-10.67	8/25/99	1016				19.8	612	115	1611	0.12	1.7	177	4968	21.3	659	118	1655	0.66	22.6	8.423	15.649	0.96		1	1
W4A	-10.67	9/8/99	1026				22.6	700	110	1538	0.18	2.5	181	5069	23.7	734	121	1695	0.70	22.1	8.419	17.130	0.57		<1	<1
W4A	-10.67	10/6/99	1033				16.8	520	104	1450	0.13	1.8	179	5036	20.4	632	107	1499	0.67	22.0	8.430	15.593	1.28		<1	<1
W4A	-10.67	11/3/99	1047				18.9	587	126	1765	0.05	0.7	182	5106	20.1	622	132	1849	0.84	22.1	8.476	14.857	1.21		<1	<1
W4A	-10.67	12/15/99	1103				16.9	523	161	2255	0.19	2.7	170	4763	19.5	604	177	2479	0.88	22.2	8.414	17.030	0.59		<1	<1
W4A	-10.67	1/11/00	1039				17.3	537	111	1555	0.10	1.4	178	4996	19.7	610	127	1776	0.66	22.1	8.493	13.748	3.49		<1	<1
W4A	-10.67	2/14/00	1055				19.3	596	165	2310	0.30	4.2	185	5193	20.7	640	174	2437	0.93	22.2	8.451	14.869	0.42		<1	<1
W4A	-10.67	3/22/00	1105				17.4	539	148	2077	0.03	0.4	189	5311	18.8	582	164	2303	0.78	22.1	8.419	15.798	0.95		<1	<1
W4A	-10.67	4/12/00	1048				16.6	514	133	1863	0.05	0.7	185	5204	18.1	561	148	2066	0.74	22.3	8.442	15.157	1.53		<1	<1
W4A	-10.67	5/17/00	1025				16.7	517	100	1399	0.05	0.7	193	5426	17.8	551	105	1467	0.64	22.1	8.390	17.298	0.99		<1	1
W4A	-10.67	6/6/00	1101				15.7	485	91	1269	0.13	1.8	198	5567	16.3	504	90.6	1269	0.59	22.0	8.399	18.052	1.18		<1	<1
W4A	-10.67	7/31/00	1050				16.3	505	591	8278	2.00	28.0	175	4907	19.1	591	643	9006	5.67	22.1	8.667	15.429	4.89		<1	<1
W4A	-10.67	8/30/00	1056				14.8	459	82	1154	0.08	1.1	196	5505	16.1	499	84.9	1189	0.88	22.2	8.389	18.343	1.65		<1	<1
W4A	-10.67	9/6/00	1037				15.4	477	74	1035	0.07	1.0	181	5089	16.4	509	77.3	1083	0.70	22.7	8.376	19.021	1.62		<1	<1
W4A	-10.67	10/25/00	1003				14.2	440	68	949	0.13	1.8	221	6196	14.5	449	72.8	1020	0.69	22.3	8.388	18.033	1.52		<1	6
W4A	-10.67	11/14/00	1117				14.2	440	691	9672	0.19	2.7	135	3792	15.5	480	735	10296	6.33	22.5	8.607	15.792	4.94		<1	1
W4A	-10.67	12/19/00	1019				13.4	415	255	3572	0.75	10.5	153	4297	14.0	434	254	3553	2.20	22.0	8.466	16.494	0.48		<1	<1
W4A	-10.67	1/24/01	1011				12.6	392	132	1847	0.17	2.4	181	5092	13.2	408	139	1946	0.94	22.0	8.395	18.163	1.07		<1	3
W4A	-10.67	2/7/01	1040				12.4	385	116	1621	0.21	2.9	177	4980	12.9	400	120	1674	0.83	22.2	8.432	17.336	1.49		<1	<1
W4A	-10.67	3/12/01	1025				12.8	396	100	1398	0.04	0.6	185	5207	13.6	422	108	1519	0.69	22.4	8.377	16.187	1.12		<1	<1
W4A	-10.67	4/18/01	1015				12.8	397	91	1268	0.21	2.9	184	5165	13.0	404	92.5	1296	0.60	22.1	8.381	16.488	1.94		<1	<1
W4A	-10.67	5/14/01	852				12.6	390	87	1223	0.27	3.8	193	5418	13.1	406	89.3	1251	0.65	22.1	8.388	17.479	1.93		<1	1
W4A	-10.67	6/13/01	1033				13.4	416	85	1188	0.06	0.8	197	5544	14.9	460	87.0	1219	0.84	22.3	8.371	18.040	1.03		<1	1
W4A	-10.67	7/25/01	952				12.2	377	70	986	1.07	15.0	201	5648	12.4	383	73.4	1028	0.56	22.4	8.364	16.826	1.53		<1	tntc
W4A	-10.67	8/20/01	934				12.0	371	75	1053	0.19	2.7	208	5836	12.5	388	79.1	1107	0.62	22.2	8.396	17.335	1.46		<1	1
W4A	-10.67	9/18/01	925				12.3	382	73	1026	0.16	2.2	211	5915	12.5	388	78.2	1095	0.53	22.3	8.365	17.724	1.71		<1	<1
W4A	-10.67	10/9/01	1017				12.2	378	70	978	0.07	1.0	204	5718	12.6	389	74.1	1038		22.3	8.371	18.194	2.25		<1	<1
W4A	-10.67	11/6/01	925				11.2	345	64	891	0.06	0.8	230	6448	12.5	387	73.9	1035		22.4	8.374	18.185	2.82		<1	<1
W4A	-10.67	12/18/01	932				12.0	372	70	979	0.26	3.6	218	6123	12.9	401	81.2	1137	0.55	22.3	8.409	16.414	2.76		<1	<1
W4A	-10.67	1/8/02	949				11.8	365	68	952	0.05	0.7	214	6005	12.5	387	72.6	1017	0.57	22.1	8.382	17.534	1.80		<1	41
W4A	-10.67	2/27/02	947				13.3	412	113	1584	10.1	141.5	130	3648	13.9	430	142	1989	1.89	22.1	8.597	17.124	0.68		<1	<1
W4A	-10.67	3/19/02	959				20.3	629	829	11614	844	11826	129	3615	31.5	976	959	13425	18.4	22.7	8.040	15.008	7.15		<1	168
W4A	-10.67	4/9/02	948				11.4	353	15	216	25.4	355.8	100	2809	12.5	387	71.0	994	5.79	22.1	8.631	16.421	0.17		<1	<1
W4A	-10.67	5/21/02	945				10.7	331	37	521	3.56	49.9	143	4013	11.1	344	52.6	737	1.78	22.2	8.468	17.068	0.58		<1	<1
W4A	-10.67	6/18/02	1005				10.5	326	50	702	0.50	7.0	161	4522	11.3	350	59.2	829	1.07	22.2	8.434	17.050	0.73		<1	1
W4A	-10.67	7/17/02	944				10.8	333	78	1096	0.09	1.3	168	4727	10.8	335	75.3	1055	0.98	23.0	8.015	15.934	1.45		<1	1
W4A	-10.67	8/22/02	1009				10.1	313	70	975	4.98	69.8	111	3103	11.0	339	102	1423	4.08	22.1	8.578	17.929	0.60		<1	<1
W4A	-10.67	9/24/02	1003				9.38	291	56	784	0.98	13.7	141	3960	9.80	304	64.1	898	1.39	22.3	8.517	17.064	0.92		<1	1
W4A	-10.67	10/16/02	1016				9.34	289	69	969	0.28	3.9	143	4022	9.65	299	73.1	1023	1.03	22.6	8.491	16.140	1.00		1	6
W4A	-10.67	11/6/02	1000				9.20	285	106	1479	0.35	4.9	140	3932	9.30	288	106	1484	1.99	22.6	8.465	17.147	0.61		<1	1
W4A	-10.67	12/19/02	1032				7.41	230	67	937	0.06	0.8	217	6092	7.61	236	66.4	930	0.80	22.0	8.448	17.196	1.09		<1	<1
W4A	-10.67	1/22/03	1019				8.36	259	51	718	0.03	0.4	222	6229	8.64	268	54.1	757	0.71	21.9	8.405	19.296	2.52		<1	<1
W4A	-10.67	2/20/03	946				8.60	266	72	1003	0.10	1.4	189	5317	9.40	291	80.0	1121	0.77	22.3	8.459	15.959	2.42		<1	<1
W4A	-10.67	3/18/03	925				9.12	282	71	992	0.18	2.5	211	5923	9.60	297	83.4	1168	0.56	22.5	8.463	15.572	2.44		<1	49
W4A	-10.67	4/29/03	936				9.22	286	78	1090	0.21	2.9	226	6347	10.7	333	97.3	1363	0.50	22.1	8.499	14.688	3.64		<1	38
W4A	-10.67	5/13/03	1012				9.51	295	70	979	0.31	4.3	211	5937	9.69	300	72.4	1014	0.51	22.3	8.463	16.139	2.07		<1	3
W4A	-10.67	6/5/03	935				9.54	295	70	986	0.27	3.8	194	5454	9.76	302	85.0	1190	0.65	22.2	8.442	16.578	1.62		<1	3

NELHA Water Quality Laboratory

Well 4A Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W4A	-10.67	7/31/03	958				9.29	288	78	1095	0.35	4.9	223	6252	9.55	296	82.4	1154		22.0	8.412	16.552	1.87		<1	<1
W4A	-10.67	8/27/03	1013				8.82	273	64	901	0.75	10.5	254	7134	9.15	283	76.5	1071		22.2	8.359	18.582	2.10		<1	407
W4A	-10.67	9/17/03	942				9.92	307	59	824	0.30	4.2	199	5575	11.3	351	61.4	860		22.7	8.370	19.061	1.92		<1	324
W4A	-10.67	10/7/03	937				9.68	300	73	1026	0.77	10.8	214	6005	10.0	310	84.0	1177		22.7	8.398	16.856	NA		<1	140
W4A	-10.67	11/4/03	930				9.60	297	65	908	0.89	12.5	205	5758	10.1	314	77.5	1086		22.6	8.425	16.525			<1	31
W4A	-10.67	11/14/03	1104																	23.9			0.35			
W4A	-10.67	12/16/03	925				9.45	293	31	440	4.50	63.0	224	6294	9.91	307	42.4	594		22.5	8.353	17.399	0.51		1	3
W4A	-10.67	1/27/04	944				9.98	309	89	1248	1.84	25.8	230	6460	10.3	320	98.0	1373		22.2	8.404	15.999	0.57		<1	<1
W4A	-10.67	2/10/04	935				9.80	304	74	1035	0.45	6.3	223	6257	10.0	308	77.2	1082		22.3	8.378	16.869	0.79		<1	TNTC
W4A	-10.67	3/15/04	944				9.98	309	74	1038	0.19	2.7	235	6589	10.2	316	78.5	1100		22.6	8.415	16.191	0.96		<1	<1
W4A	-10.67	4/21/04	855				10.11	313	74	1036	0.38	5.3	226	6342	10.8	334	78.0	1093		22.3	8.377	17.280	1.03		<1	<1
W4A	-10.67	5/12/04	850				9.62	298	66	918	0.16	2.2	227	6364	9.78	303	68.9	965		22.9	8.406	17.88	1.72		<1	1
W4A	-10.67	6/7/04	844				9.62	298	58	813	0.15	2.1	233	6533	10.0	309	61.8	866		22.3	8.391	18.35	2.08		<1	<1
W4A	-10.67	7/8/04	951				9.52	295	59	821	0.09	1.3	244	6861	9.87	306	66.9	938	0.46	22.4	8.436	17.51	2.35		<1	2
W4A	-10.67	8/24/04	920				8.44	261	55	764	0.26	3.6	267	7485	8.74	271	58.3	816		22.3	8.391	18.47	2.92		<1	2
W4A	-10.67	9/28/04	942				9.18	284	131	1828	0.32	4.5	252	7083	9.44	292	147	2059		22.6	8.385	17.76	2.20		<1	70
W4A	-10.67	10/5/04	1029				8.60	266	89	1252	0.24	3.4	249	6982	8.96	278	96.8	1356		22.5	8.400	18.80	2.86		<1	37
W4A	-10.67	11/8/04	920				8.72	270	109	1530	0.210	2.9	255	7165	9.04	280	123	1717		22.4	8.419	16.33	2.19		<1	1
W4A	-10.67	12/7/04	933				8.44	261	291	4082	20	280.1	198	5547	8.80	273	327	4584		22.3	8.486	17.54	2.45		3	>5,000
W4A	-10.67	1/11/05	923				7.86	243	149	2090	4.5	62.5	217	6106	8.18	253	155	2171		22.4	8.485	16.889	0.69		<1	536
W4A	-10.67	2/8/05	927				7.90	245	133	1868	0.21	2.9	235	6600	8.40	260	149	2087		22.4	8.502	15.429	1.18		<1	108
W4A	-10.67	3/16/05	959				7.97	247	108	1513	0.16	2.2	224	6302	8.37	259	121	1696	0.64	22.2	8.446	16.765	0.68		<1	56
W4A	-10.67	4/18/05	1014				9.90	307	121	1700	66	924.4	207	5814	11.1	344	217	3037		22.6	8.418	16.754	1.07		<1	196
W4A	-10.67	5/24/05	924				8.08	250	81	1137	8.3	116.4	238	6676	8.42	261	98.7	1382		22.8	8.364	15.491	0.49		<1	14
W4A	-10.67	6/13/05	945				8.40	260	53	748	0.12	1.7	234	6583	8.74	271	60.1	842		22.7	8.367	16.165	0.30		<1	364
W4A	-10.67	7/11/05	940				8.18	253	61	861	0.25	3.5	246	6906	8.50	263	70.6	989		22.9	8.369	17.679	1.63		<1	>5,000
W4A	-10.67	8/10/05	905				8.04	249	61	861	4.37	61.2	250	7027	8.30	257	68.3	956		22.5	8.412	17.088	0.60		<1	1340
W4A	-10.67	9/21/05	900				8.74	271	205	2867	0.13	1.8	243	6836	8.96	278	214	2997	0.95	22.6	8.393	16.730	0.63		<1	5
W4A	-10.67	10/18/05	926				8.62	267	148	2076	0.17	2.4	248	6965	8.85	274	150	2104		22.4	7.913	16.384	0.70		<1	<1
W4A	-10.67	11/3/05	845				8.14	252	567	7947	8.7	121.9	213	5988	8.74	271	597	8366		22.5	8.468	16.548	4.87		<1	1
W4A	-10.67	12/21/05	956				7.42	230	129	1800	0.22	3.1	225	6314	7.72	239	133	1867	0.90	23.0	8.416	18.320	0.98		<1	<1
W4A	-10.67	1/24/06	905				7.36	228	106	1478	0.27	3.8	231	6477	7.58	235	113	1576		22.3	8.419	16.176	2.45		<1	1
W4A	-10.67	2/15/06	858				7.75	240	100	1405	0.23	3.2	227	6367	7.94	246	123	1723	0.61	22.3	8.405	17.256	0.91		<1	<1
W4A	-10.67	3/21/06	845				7.73	239	88	1237	0.16	2.2	242	6797	7.97	247	90.3	1265	1.95	22.4	8.392	17.275	1.17		<1	<1
W4A	-10.67	4/19/06	952				8.47	262	83	1158	0.30	4.2	239	6712	-	0	78.1	1095	0.47	22.4	8.433	17.105	1.39		<1	<1
W4A	-10.67	4/26/06	900				7.80	242	80	1119	0.20	2.8	243	6825	8.12	252	75.9	1064	0.52	22	8.417	17.387	1.8		<1	<1
W4A	-10.67	5/3/06					8.13	252	79	1102	0.86	12.0	240	6741		0	67.1	939	0.54	22.1	8.419	18.149	2.1		<1	<1
W4A	-10.67	5/10/06					7.89	244	78	1097	<0.05	0.0	246	6909		0	66.5	931	0.48	22.1	8.402	17.256	1.48		<1	<1
W4A	-10.67	5/16/06					8.02	248	79	1101	0.16	2.2	247	6937		0	70.8	991	0.47	22	8.436	16.938	2.12		<1	<1
W4A	-10.67	5/23/06	932				7.30	226	78	1098	0.09	1.3	240	6741	7.65	237	71.8	1005	0.53	22.5	8.429	16.358	1.97		<1	<1
W4A	-10.67	6/27/06	937				7.94	246	66	922	0.34	4.8	251	7049	8.31	257	49.7	696	0.77	22.4	8.382	18.833	2.05		<1	1
W4A	-10.67	7/18/06	932				7.81	242	65	906	0.84	11.8	250	7021	7.99	247	59.9	838	0.54	22.5	8.414	17.616	2.62		>5,000	>5,000
W4A	-10.67	8/8/06	910				7.88	244	66	930	<0.05	0.0	256	7190	8.09	251	56.6	793	0.42	22.2	8.402	18.056	2.15		204	198
W4A	-10.67	9/19/06	1010				7.73	239	64	902	0.24	3.4	251	7049	8.15	252	60.4	845	0.47	22.6	8.377	18.074	2.05		<1	6
W4A	-10.67	10/24/06	948				7.74	240	61	847	0.44	6.2	270	7583	8.16	253	55.5	777	0.47	22.6	8.375	18.890	2.18		1	153
W4A	-10.67	11/28/06	929				7.19	223	56	784	0.26	3.6	281	7892	7.71	239	51.4	720	0.52	22.2	8.372	18.680	2.82		<1	5
W4A	-10.67	12/12/06	924				7.42	230	55	765	0.31	4.3	286	8032	7.88	244	51.3	718	0.46	22.1	8.364	18.872	2.66		<1	1
W4A	-10.67	1/9/07	950				7.77	241	56	790	0.24	3.4	270	7583	8.01	248	59.5	833	0.37	22.1	8.391	18.726	3.07		<1	<1
W4A	-10.67	2/22/07	931				7.61	236	66	922	0.30	4.2	294	8257	7.80	242	72.1	1009	0.47	22.1	8.409	16.421	3.39		1	206
W4A	-10.67	3/6/07	948				7.65	237	63	884	0.25	3.5	290	8145	7.87	244	68.1	954	0.44	22	8.417	16.983	2.46		<1	13
W4A	-10.67	4/11/07	1101				7.86	243	66	930	0.20	2.8	301	8454	8.19	254	63.6	891	0.43	22.5	8.449	15.289	3.26		<1	1
W4A	-10.67	5/3/07	934				7.77	241	64	889	0.20	2.8	276	7752	8.10	251	64.4	901	0.52	22.6	8.438	16.645	2.24		<1	<1
W4A	-10.67	6/19/07	901				7.77	241	64	898	0.25	3.5	296	8313	8.15	252	46.1	645	0.46	22.6	8.418	18.300	2.77		<1	<1

NELHA Water Quality Laboratory

Well 4A Data Table

June 1989 - December 2014

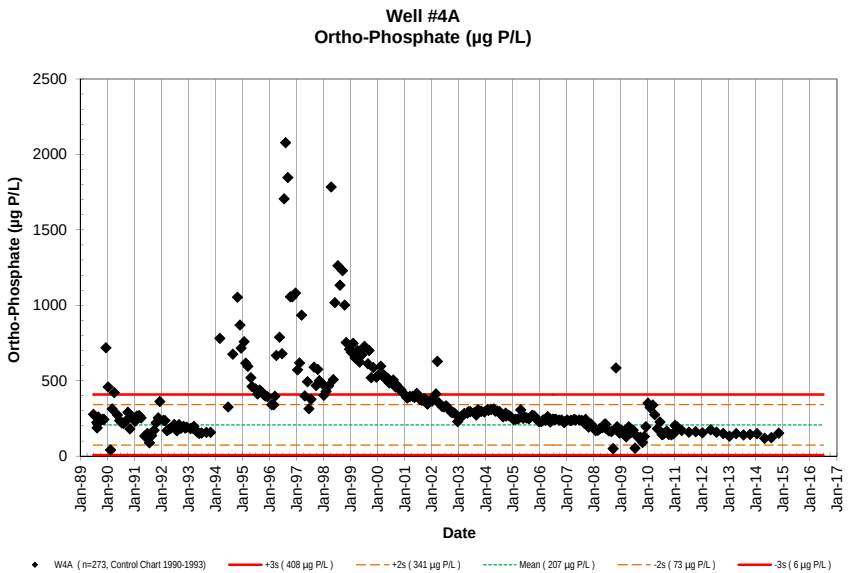
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W4A	-10.67	7/25/07	1423	-6.91	0.64	High	7.64	237	59	824	0.44	6.2	342	9614	7.62	236	58.9	824.3		22.9	8.30	19.11	3.43			
W4A	-10.67	8/28/07	930	-7.32	0.00	Low	7.06	219	70	983	0.55	7.7	404	11354	6.82	211	72.7	1018.7		22.9	8.20	16.48	2.48			
W4A	-10.67	9/13/07	1220	-7.01	0.15	Flood	7.88	244	64	894	0.71	9.9	372	10449	8.24	255	66.2	926.6		22.9	8.32	17.41	3.04			
W4A	-10.67	10/24/07	948	-7.01	0.09	Low	6.21	192	78	1088	5.14	72.0	413	11590	6.41	198	82.3	1153.3		22.7	8.16	15.21	4.11			
W4A	-10.67	11/26/07	1319	-6.99	0.06	Low	6.85	212	87	1213	1.45	20.4	470	13190	6.44	200	93.5	1310.1		22.7	8.26	14.33	4.26			
W4A	-10.67	12/20/07	1009	-7.16	0.23	Low	6.31	195	90	1257	0.98	13.7	386	10833						22.4	8.36	12.63	4.94			
W4A	-10.67	1/29/08	936	-7.06	0.24	Ebb	5.47	169	83	1167	0.59	8.2	364	10213						22.5	8.15	11.97	4.62			
W4A	-10.67	2/27/08	1357	-6.71	0.06	Low	5.51	171	87	1216	1.04	14.6	483	13565						22.8	8.14	11.58	4.77			
W4A	-10.67	3/20/08	1423	-7.29	0.30	Flood	5.82	180	67	936	0.28	3.9	349	9795						22.5	8.11	15.43	3.95			
W4A	-10.67	4/29/08	1038	-7.29	0.18	Flood	6.07	188	77	1082	0.09	1.2	412	11575						22.8	8.18	14.00	4.43			
W4A	-10.67	5/29/08	1120		0.37	Flood	6.84	212	523	7319	0.22	3.1	427	11982						23.3	8.26	13.04	3.28			
W4A	-10.67	6/10/08	1023	-7.21	0.30	Flood	6.81	211	283	3969	0.35	4.9	709	19913						23.0	8.14	14.90	2.25			
W4A	-10.67	6/19/08	1023	-6.71	0.12	Flood	5.86	181	245	3432	3.90	55	573	16106						23.1	8.04	14.98	2.13	17.5		
W4A	-10.67	7/24/08	1121	-6.91	0.43	Ebb	5.41	168	94	1311	0.20	2.8	339	9515						22.5	8.10	17.50	3.84			
W4A	-10.67	8/29/08	1657		0.67	Ebb	5.25	163	74	1030	0.92	13	343	9646						22.4	8.05	17.36	2.30			
W4A	-10.67	9/19/08	1119	-6.87	0.43	Ebb	1.59	49	37	523	0.41	5.8	295	8281						26.0	8.52	9.03		10.1		
W4A	-10.67	10/28/08	1016	-7.08	0.15	Ebb	18.89	585	555	7779	1.49	21	414	11632						25.7	8.49	12.60	3.51	3.8		
W4A	-10.67	11/13/08	1030	-7.03	0.09	Ebb	6.28	195	199	2788	0.57	8.0	472	13245						25.2	8.31	9.85	5.13	2.7		
W4A	-10.67	12/15/08	1115	-6.94	0.18	Ebb	4.96	154	156	2189	0.10	1.4	494	13888						25.0	8.23	10.09	5.71			
W4A	-10.67	1/22/09	931	-7.14	0.09	Low	5.41	168	105	1466	0.96	13.4	355	9982						24.3	8.17	15.64	4.04	4.9		
W4A	-10.67	2/24/09	902	-7.06	0.09	Ebb	5.31	165	50	699	0.49	6.9	384	10798						23.0	8.01	15.34	3.52	0.18		
W4A	-10.67	3/16/09	921	-7.11	0.12	Ebb	4.14	128	53	738	0.13	1.8	304	8550						23.8	7.84	15.83	3.82	7.0		
W4A	-10.67	4/20/09	1649	-6.97	0.24	Ebb	6.29	195	75	1054	0.81	11.4	370	10403						23.9	8.04	17.17	3.87	15.7		
W4A	-10.67	5/21/09	1522	-6.73	0.58	Ebb	5.07	157	56	782	0.26	3.6	400	11227						22.3	8.02	19.07	3.91	3.7		
W4A	-10.67	6/18/09	1244	-6.86	0.61	High	5.58	173	47	657	0.31	4.3	225	6321						22.3	8.07	20.09	4.13	1.84		
W4A	-10.67	7/14/09	744	-7.08	0.37	Flood	1.70	53	33	458	0.16	2.2	174	4895						22.0	8.20	19.78	3.90	4.36		
W4A	-10.67	8/19/09	958	-7.19	0.09	Flood	4.09	127	50	695	3.93	55.0	356	10005						22.2	7.99	20.43	3.57	3.97		
W4A	-10.67	9/24/09	820	-6.84	0.61	High	4.03	125	52	731	0.54	7.5	230	6455						22.0	8.27	19.58	3.94	0.55		
W4A	-10.67	10/22/09	1431	-7.13	0.37	Ebb	2.94	91	31	435	0.43	6.0	146	4106						22.4	8.04	19.19	3.23	0.70		
W4A	-10.67	11/16/09	1558	-7.12	0.21	High	4.18	129	49	681	0.86	12.1	448	12576						22.1	8.05	19.26	2.82	0.36		
W4A	-10.67	12/7/09	1532	-7.23	0.06	Low	6.30	195	377	5280	0.67	9.4	441	12386						22.8	8.07	16.26	3.05	0.82		
W4A	-10.67	1/5/10	1405	-7.21	0.00	Ebb	11.36	352	595	8340	36.41	510	277	7780						22.7	8.43	17.76	1.41	10.90		
W4A	-10.67	2/1/10	1348	-7.17	0.00	Ebb	10.43	323	419	5864	13.21	185	267	7491						22.6	8.42	17.34	0.70	3.21		
W4A	-10.67	3/9/10	1423	-7.20	0.15	High	10.94	339	147	2053	2.37	33	368	10339						22.0	8.33	15.19	1.38	3.70		
W4A	-10.67	4/6/10	1317	-7.14	0.15	High	8.90	276	134	1874	0.71	10	327	9195						21.9	8.30	16.72	1.95	1.61		
W4A	-10.67	5/11/10	1324	-6.88	0.46	Flood	5.88	182	77	1072	1.64	23.0	396	11117						22.1	8.22	19.66	2.95	0.24		
W4A	-10.67	6/15/10	1419	-6.97	0.15	Flood	7.30	226	116	1621	0.36	5.0	242	6807						22.1	8.16	20.13	2.87	1.17		
W4A	-10.67	7/13/10	1331	-7.16	0.15	Flood	4.62	143	63	883	0.79	11.0	390	10951						21.9	8.12	20.05	3.22	0.30		
W4A	-10.67	8/3/10	1328	-6.76	0.49	Ebb	4.75	147	51	717	0.36	5.0	405	11369						22.0	8.11	20.76	3.64	0.26		
W4A	-10.67	9/14/10	1337	-6.86	0.40	Ebb	5.36	166	56	785	0.43	6.0	406	11403						22.0	8.07	20.36	3.51	3.42		
W4A	-10.67	10/12/10	1416	-6.98	0.30	Ebb	4.65	144	51	715	0.49	6.9	419	11757						21.8	8.08	20.44	3.75	1.72		
W4A	-10.67	11/16/10	1305	-6.86	0.40	High	4.58	142	56	778	0.46	6.5	420	11794						21.8	8.08	21.81	3.39	1.48		
W4A	-10.67	12/14/10	1335	-6.95	0.24	Ebb	4.78	148	63	882	0.26	3.7	426	11971						21.7	8.11	18.72	3.76	3.57		
W4A	-10.67	1/4/11	1317	-7.12	0.06	Flood	6.55	203	171	2396	0.22	3.1	360	10118						21.8	8.14	17.08	2.47	2.11		
W4A	-10.67	2/1/11	1038	-7.10	0.03	Low	6.26	194	120	1679	0.30	4.2	439	12320						22.0	8.10	15.47	3.79	2.30		
W4A	-10.67	4/5/11	1344	-7.11	0.12	Flood	5.49	170	88	1226	0.96	13.4	385	10802						21.2	8.16	15.51	3.00	4.23		
W4A	-10.67	7/12/11	1337	-6.84	0.61	Flood	5.13	159	66	920	0.24	3.3	425	11949						22.0	8.17	18.93	3.59	3.63		
W4A	-10.67	10/11/11	1513	-6.82	0.46	High	5.23	162	59	830	0.42	5.9	443	12439						20.1	8.08	18.09	3.68	0.67		
W4A	-10.67	1/10/12	1410	-7.19	0.03	Flood	4.97	154	79	1100	0.39	5.5	470	13210						22.7	8.07	12.54	5.32	6.34		
W4A	-10.67	5/1/12	1415	-6.80	0.40	Ebb	5.62	174	62	870	0.25	3.5	499	14020						22.6	8.05	17.55	4.60	0.49		
W4A	-10.67	7/18/12	1340	-6.88	0.52	Flood	5.10	158	72	1012	0.55	7.7	521	14646						22.4	8.00	16.61	5.26	1.16		
W4A	-10.67	10/16/12	1312	-7.10	0.15	Flood	4.84	150	70	983	0.35	4.9	493	13853						22.3	8.05	16.33	7.93	0.48		
W4A	-10.67	1/8/13	1422	-6.97	0.21	High	4.26	132	86	1206	0.54	7.5	590	16559						22.4	7.88	13.06	5.41	0.64		
W4A	-10.67	4/9/13	1355	-6.98	0.30	Flood	4.81	149	77	1084	0.47	6.6	547	15353						22.5	8.02	13.64	4.72	0.98		
W4A	-10.67	7/17/13	1516	-6.77	0.52	Ebb	4.52	140	61	859	0.51	7.2	471	13220						23.0	7.92	16.46	4.54	0.45		
W4A	-10.67	10/15/13	1356	-6.74	0.55	High	4.65	144	78	1099	0.82	11.5	514	14449						22.5	7.96	14.72	5.47	1.12		
W4A	-10.67	1/15/14	1343	-7.13	0.12	Flood	4.81	149	78	1091	0.69	9.6	485	13635						22.6	8.02	13.25	5.97	1.87		
W4A	-10.67	4/29/14	1453	-6.88	0.488	Flood	3.81	118	55	768	0.71	10.0	447	12543						22.4	7.95	17.23	5.18	0.49		

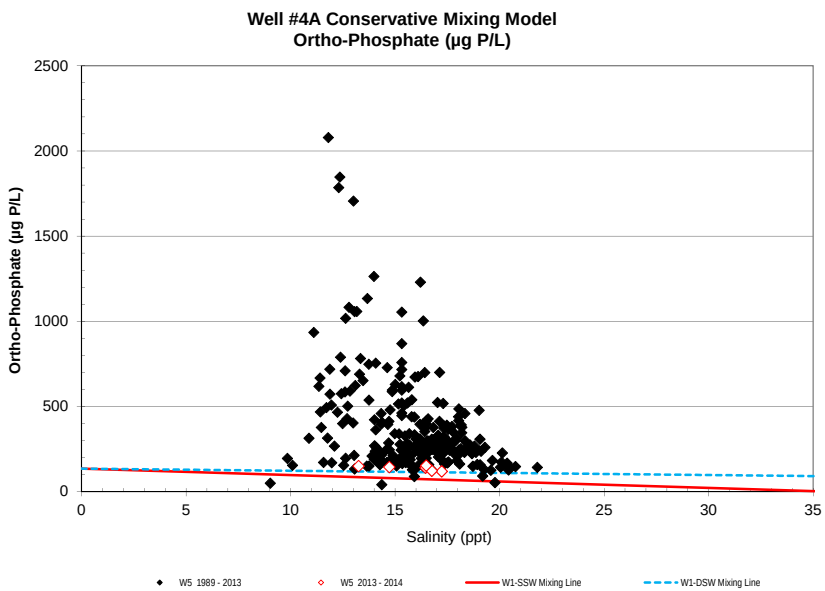
NELHA Water Quality Laboratory

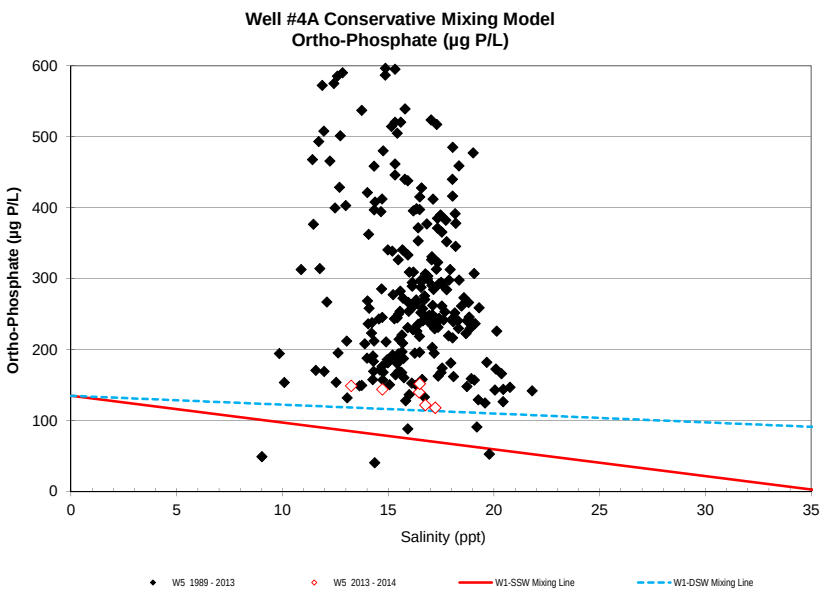
Well 4A Data Table

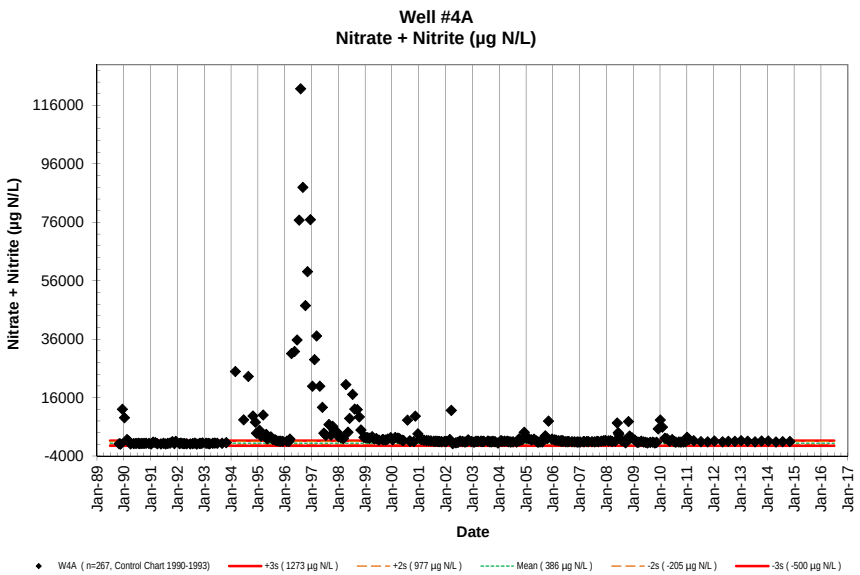
June 1989 - December 2014

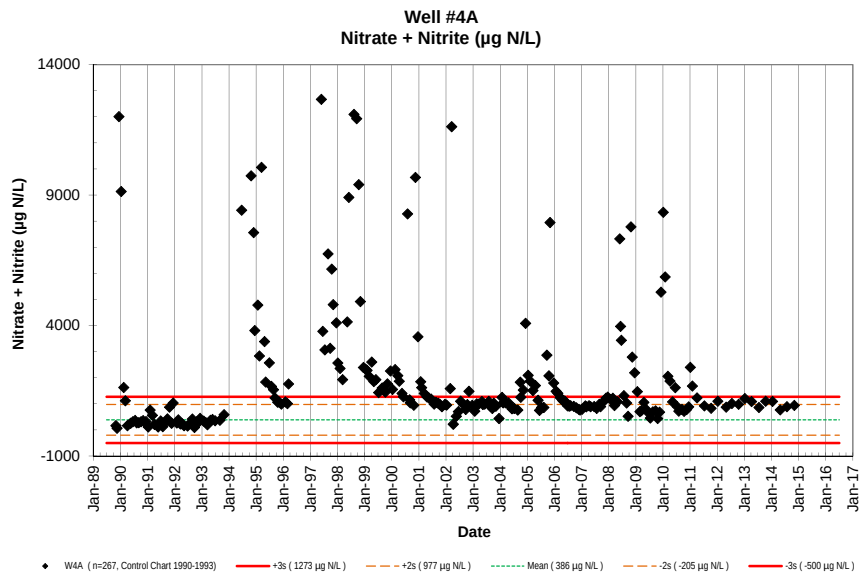
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W4A	-10.67	7/29/14	1421	-7.01	0.305	Flood	3.94	122	63	888	1.50	21.0	507	14245						22.8	7.88	16.76	4.73	0.12		
W4A	-10.67	11/5/14	1409	-6.84	0.38	Flood	4.91	152	67	940	0.46	6.4	460	12907						22.8	7.97	16.49	4.72	0.72		
W4A	-10.67	1/1/15																								
W4A	-10.67	4/1/15																								

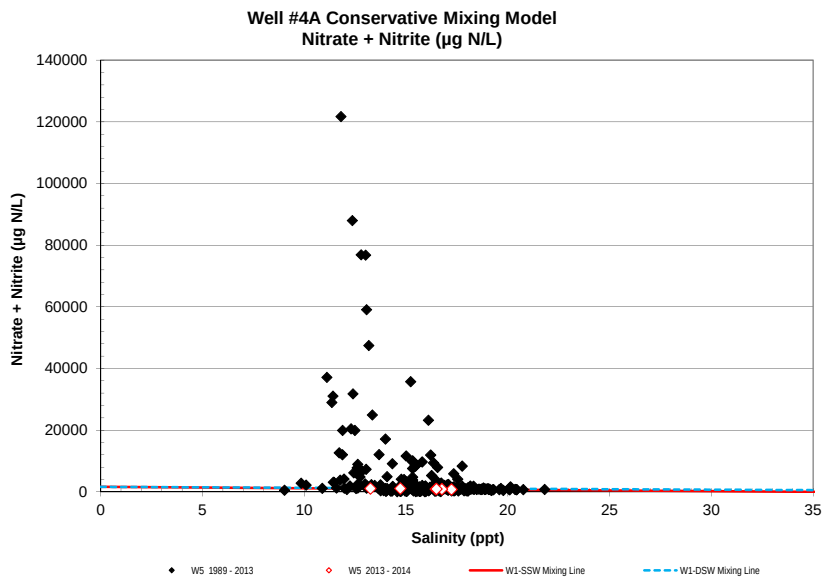

Well #4A
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
2500
2000
1500
1000
500
0
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W4A (n=273, Control Chart 1990-1993)
+3s (408 µg P/L)
+2s (341 µg P/L)
Mean (207 µg P/L)
-2s (73 µg P/L)
-3s (6 µg P/L)

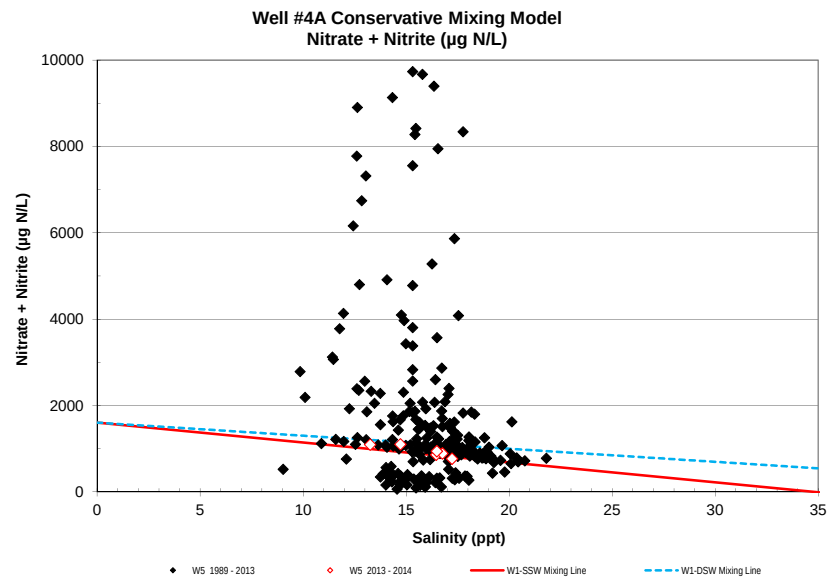

Well #4A Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
2500
2000
1500
1000
500
0
0
5
10
15
20
25
30
35
Salinity (ppt)
W5 1989 - 2013
W5 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

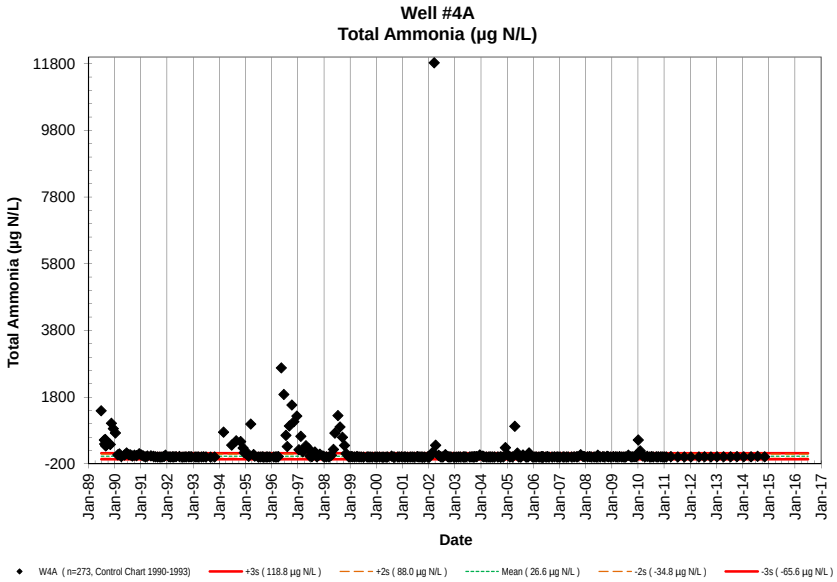

Well #4A Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
600
500
400
300
200
100
0
0
5
10
15
20
25
30
35
Salinity (ppt)
W5 1989 - 2013
W5 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

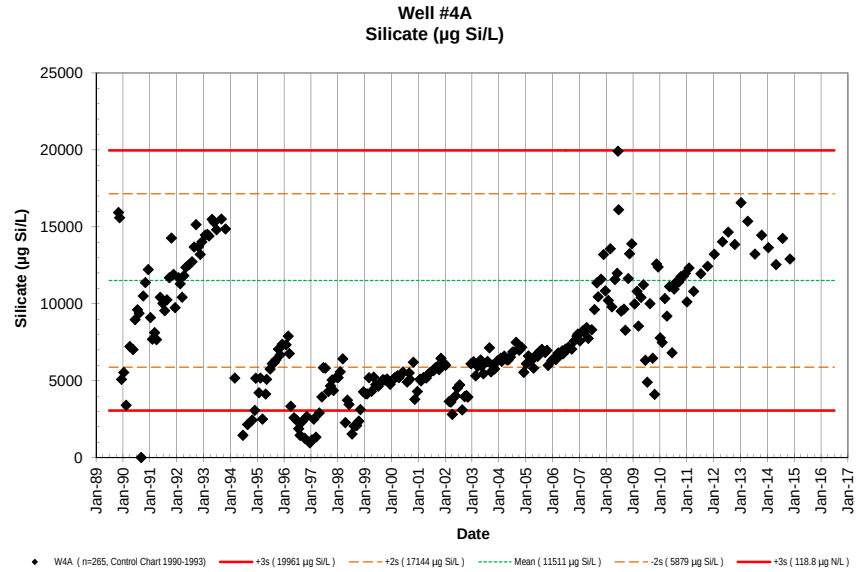

Well #4A
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
116000
96000
76000
56000
36000
16000
-4000
Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05 Jan-06 Jan-07 Jan-08 Jan-09 Jan-10 Jan-11 Jan-12 Jan-13 Jan-14 Jan-15 Jan-16 Jan-17
Date
W4A (n=267, Control Chart 1990-1993)
+3s (1273 µg N/L)
+2s (977 µg N/L)
Mean (386 µg N/L)
-2s (-205 µg N/L)
-3s (-500 µg N/L)

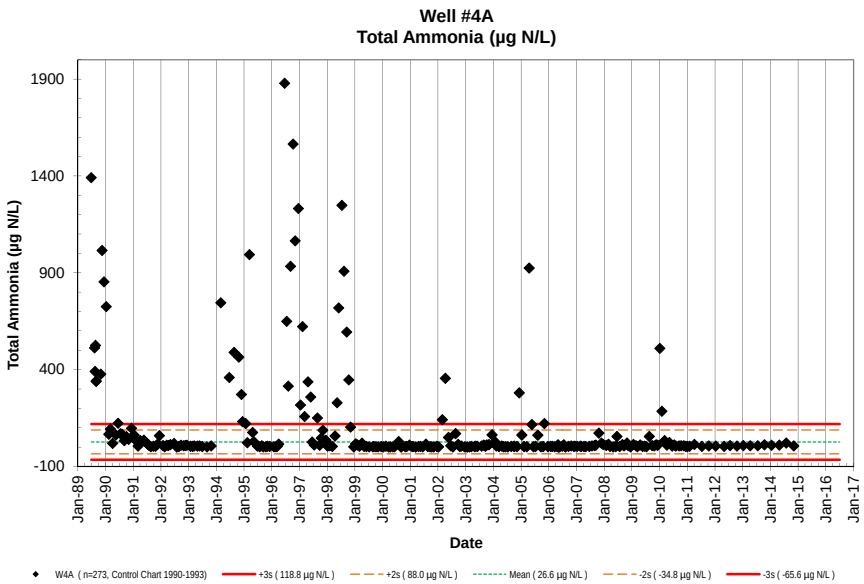

Well #4A
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
14000
9000
4000
-1000
Jan-89 Jan-90 Jan-91 Jan-92 Jan-93 Jan-94 Jan-95 Jan-96 Jan-97 Jan-98 Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05 Jan-06 Jan-07 Jan-08 Jan-09 Jan-10 Jan-11 Jan-12 Jan-13 Jan-14 Jan-15 Jan-16 Jan-17
Date
W4A (n=267, Control Chart 1990-1993)
+3s (1273 µg N/L)
+2s (977 µg N/L)
Mean (386 µg N/L)
-2s (-205 µg N/L)
-3s (-500 µg N/L)

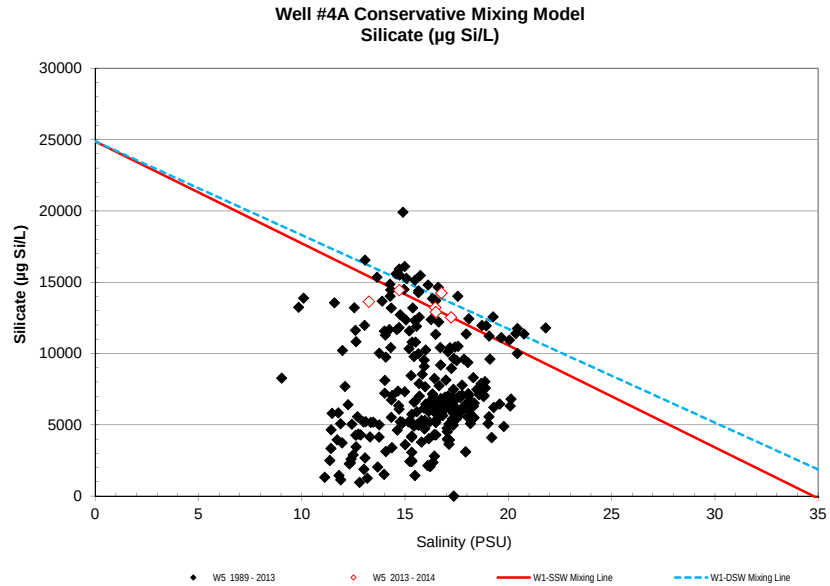

Well #4A Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
140000
120000
100000
80000
60000
40000
20000
0
0 5 10 15 20 25 30 35
Salinity (ppt)
W5 1989 - 2013
W5 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

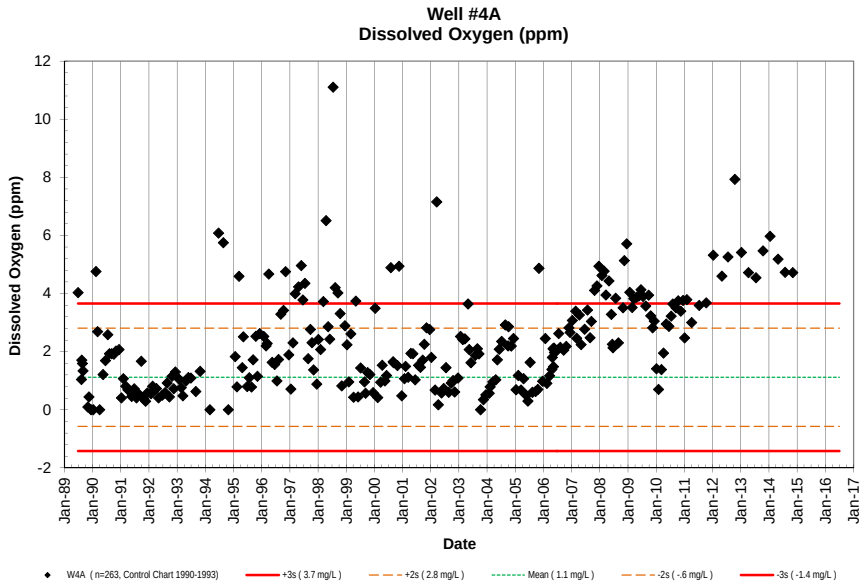

Well #4A Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
10000
8000
6000
4000
2000
0
0 5 10 15 20 25 30 35
Salinity (ppt)
W5 1989 - 2013
W5 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

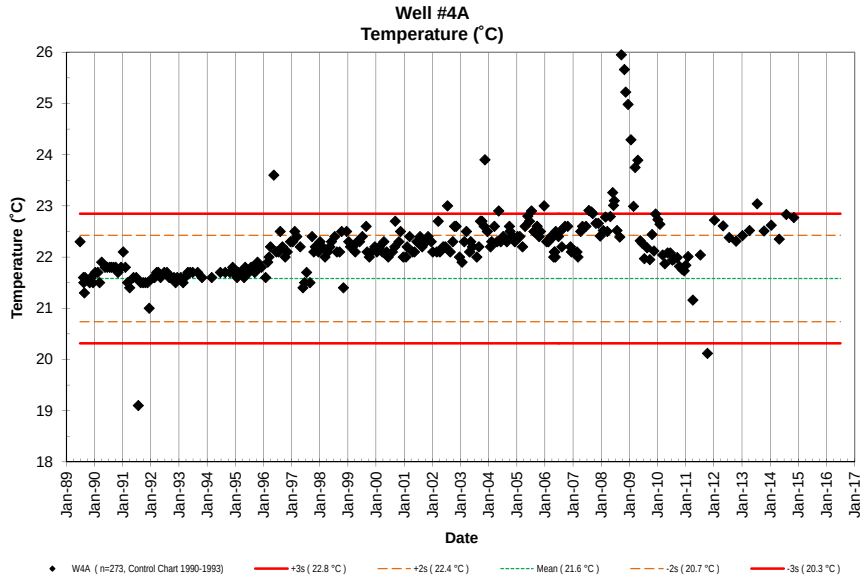

Well #4A
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W4A (n=273, Control Chart 1990-1993)
+3s (118.8 µg N/L)
+2s (88.0 µg N/L)
Mean (26.6 µg N/L)
-2s (-34.8 µg N/L)
-3s (-65.6 µg N/L)

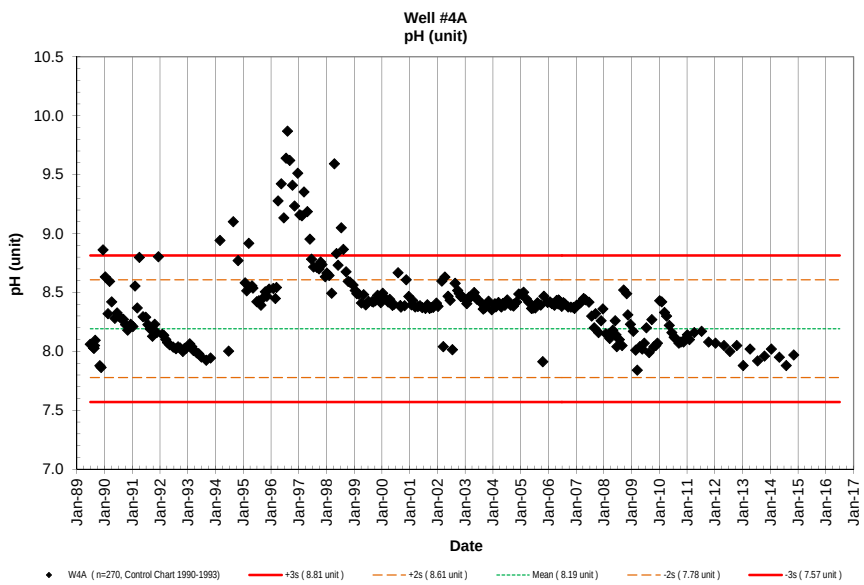

Well #4A
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W4A (n=265, Control Chart 1990-1993)
+3s (19961 µg Si/L)
+2s (17144 µg Si/L)
Mean (11511 µg Si/L)
-2s (5879 µg Si/L)
+3s (118.8 µg N/L)

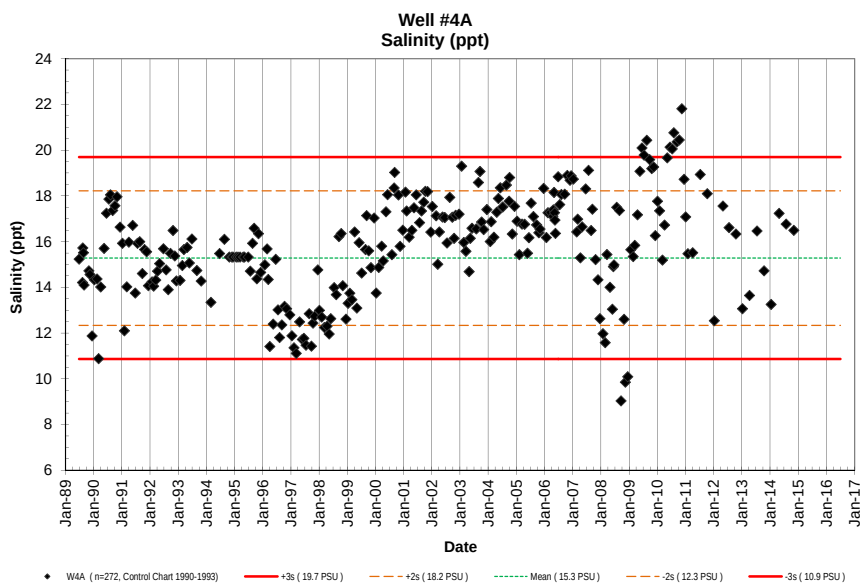

Well #4A
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W4A (n=273, Control Chart 1990-1993)
+3s (118.8 µg N/L)
+2s (88.0 µg N/L)
Mean (26.6 µg N/L)
-2s (-34.8 µg N/L)
-3s (-65.6 µg N/L)

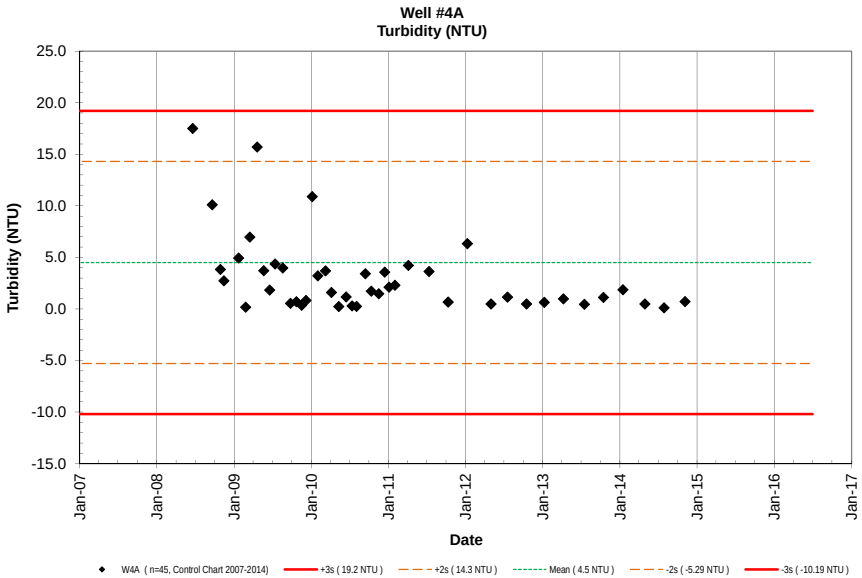

Well #4A Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W5 1989 - 2013
W5 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

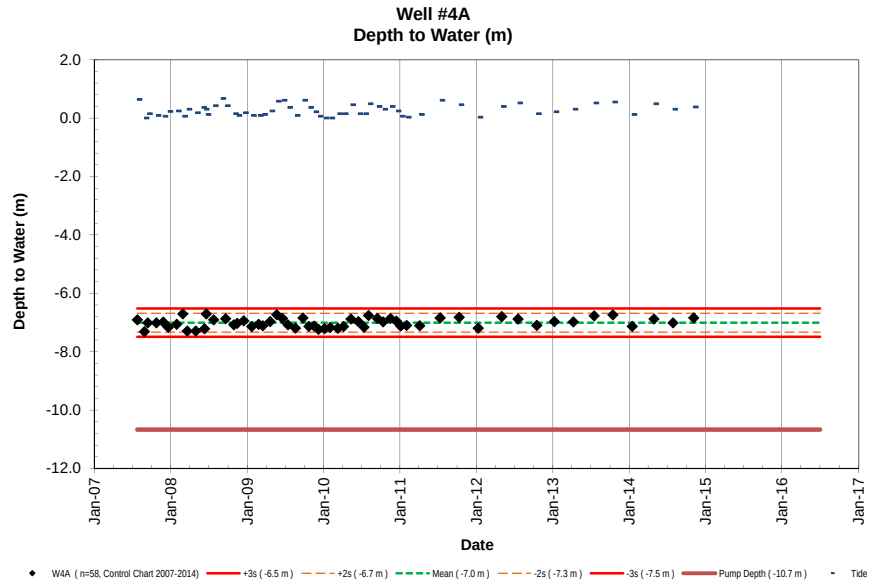

Well #4A
Dissolved Oxygen (ppm)
Dissolved Oxygen (ppm)
Date
W4A (n=263, Control Chart 1990-1993)
+3s (3.7 mg/L)
+2s (2.8 mg/L)
Mean (1.1 mg/L)
-2s (-.6 mg/L)
-3s (-1.4 mg/L)

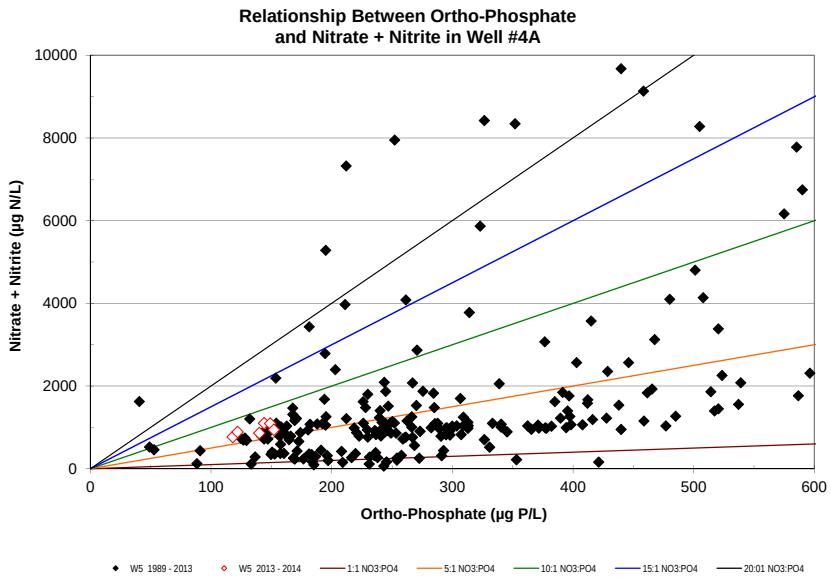

Well #4A
Temperature (˚C)
Temperature (˚C)
Date
W4A (n=273, Control Chart 1990-1993)
+3s (22.8 °C)
+2s (22.4 °C)
Mean (21.6 °C)
-2s (20.7 °C)
-3s (20.3 °C)


Well #4A
pH (unit)
pH (unit)
Date
W4A (n=270, Control Chart 1990-1993)
+3s (8.81 unit)
+2s (8.61 unit)
Mean (8.19 unit)
-2s (7.78 unit)
-3s (7.57 unit)


Well #4A
Salinity (ppt)
Salinity (ppt)
Date
W4A (n=272, Control Chart 1990-1993)
+3s (19.7 PSU)
+2s (18.2 PSU)
Mean (15.3 PSU)
-2s (12.3 PSU)
-3s (10.9 PSU)


Well #4A
Turbidity (NTU)
Turbidity (NTU)
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W4A (n=45, Control Chart 2007-2014)
+3s (19.2 NTU)
+2s (14.3 NTU)
Mean (4.5 NTU)
-2s (-5.29 NTU)
-3s (-10.19 NTU)


Well #4A
Depth to Water (m)
Depth to Water (m)
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
-12.0
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W4A (n=58, Control Chart 2007-2014)
+3s (-6.5 m)
+2s (-6.7 m)
Mean (-7.0 m)
-2s (-7.3 m)
-3s (-7.5 m)
Pump Depth (-10.7 m)
Tide


Relationship Between Ortho-Phosphate
and Nitrate + Nitrite in Well #4A
Nitrate + Nitrite (µg N/L)
10000
8000
6000
4000
2000
0
0
100
200
300
400
500
600
Ortho-Phosphate (µg P/L)
W5 1989 - 2013
W5 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

NELHA Water Quality Laboratory

Well 5 Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W5	-4.88	6/23/89					4.64	144	41.6	583	0.64	9.0								20.7	7.607	23.348	6.50		NA	NA
W5	-4.88	8/9/89	1051				4.71	146	41.8	585	0.52	7.3								17.2	7.504	24.491	5.82		<1	NA
W5	-4.88	8/15/89	905				4.77	148	45.0	630	0.60	8.4								19.7	7.520	23.217	5.59		<1	NA
W5	-4.88	8/22/89	855				4.80	149	45.2	633	0.60	8.4								19.5	7.575	24.175	5.03		<1	NA
W5	-4.88	8/28/89	1008				4.87	151	46.0	644	0.43	6.0								19.8	7.537	24.121	5.37		<1	NA
W5	-4.88	8/28/89	1008				4.88	151	45.8	642	0.34	4.8										24.121			NA	NA
W5	-4.88	10/27/89	905				4.64	144	78.5	1100	0.03	0.4	353	9914	4.80	148.67	82.0	1149	0.35	20.1	7.510	24.323	4.33		<1	NA
W5	-4.88	11/15/89	655				4.57	142	82.5	1156	0.10	1.4	336	9437	4.80	148.67	90.4	1266	0.84	20.1	7.431	25.380	5.00		<1	NA
W5	-4.88	12/8/89	1020				4.50	139	79.6	1115	0.10	1.4	320	8987	4.96	153.63	80.0	1121		19.8	7.394	26.086	5.57		<1	NA
W5	-4.88	1/10/90	805				3.62	112	87.8	1230	0.00	0.0	285	8004	3.77	116.77	92.0	1289	0.87	19.8	7.656	25.552	6.56		<1	NA
W5	-4.88	2/13/90	930				4.80	149	100.6	1409	0.28	3.9	325	9128	5.10	157.97	104.0	1457	1.31	19.5	7.572	24.690	7.07		<1	NA
W5	-4.88	3/5/90	1042				4.62	143	117.0	1639	0.17	2.4	346		5.10	157.97	126.0	1765	0.98	19.3	7.662	21.633	5.92		<1	NA
W5	-4.88	4/2/90	946				4.98	154	111.0	1555	0.16	2.2	354	9942	5.06	156.73	114.0	1597	4.46	18.9	7.671	24.539	5.37		<1	NA
W5	-4.88	5/16/90	910				5.14	159	101.0	1415	0.00	0.0	318	8931	5.08	157.35	109.0	1527	0.80	18.7	7.586	24.629	5.89		<1	NA
W5	-4.88	6/17/90	1046				6.09	189	105.0	1471	0.00	0.0	313	8791	6.25	193.59	108.0	1513	2.33	18.7	7.596	25.244	5.00		<1	NA
W5	-4.88	7/12/90	953				6.80	211	120.8	1692	0.00	0.0	324	9100	6.83	211.55	127.1	1780	0.83	18.9	7.568	25.438	5.23		<1	NA
W5	-4.88	8/7/90	932				0.57	18	121.7	1705	0.19	2.7	336	9437	6.29	194.82	119.4	1672	1.27	18.9	7.559	25.056	5.64		<1	NA
W5	-4.88	9/5/90	952				8.99	278	134.2	1880	2.45	34.3			8.99	278.45	137.0	1919	0.68	19.2	7.546	24.904	5.64		<1	NA
W5	-4.88	10/4/90	1010				9.49	294	91.4	1280	0.03	0.4	345	9689	10.90	337.61	97.7	1368	0.93	19.0	7.568	24.702	5.90		<1	NA
W5	-4.88	10/31/90	925				7.21	223	105.2	1474	0.05	0.7	327	9184	7.54	233.54	110.3	1545	0.68	19.3	7.536	25.155	5.84		<1	NA
W5	-4.88	12/7/90	920				7.08	219	104.8	1467	0.16	2.2	356	9998	7.16	221.77	106.6	1493	0.68	19.0	7.538	24.815	6.06		<1	NA
W5	-4.88	1/9/91	700				6.54	203	102.4	1434	0.02	0.3	296	8313	6.55	202.88	103.5	1450	0.88	18.6	7.555	25.996	6.00		<1	NA
W5	-4.88	2/5/91	751				6.32	196	80.3	1125	0.55	7.7	282	7920	6.33	196.06	80.4	1126	1.04	18.5	7.583	24.686	6.39		<1	NA
W5	-4.88	3/6/91	809				5.32	165	90.6	1269	0.03	0.4	268	7527	5.38	166.64	91.4	1280	4.86	16.2	7.480	25.901	6.25		<1	NA
W5	-4.88	4/2/91	813				5.25	163	90.1	1262	0.35	4.9	278	7808	5.30	164.16	92.0	1289	0.96	17.7	7.598	24.745	6.49		1	NA
W5	-4.88	5/21/91	835				5.60	173	52.0	728	0.07	1.0	117	3286	5.62	174.07	54.3	761	0.81	17.5	7.564	25.285	6.77		<1	NA
W5	-4.88	6/25/91	821				4.39	136	76.8	1076	0.16	2.2	334	9381	4.55	140.93	80.0	1121	0.66	17.8	7.620	24.744	7.30		<1	<1
W5	-4.88	7/23/91	915				5.51	171	82.9	1161	0.28	3.9	326	9156	5.99	185.53	83.3	1167	0.66	17.8	7.598	24.611	6.74		<1	<1
W5	-4.88	8/22/91	828				5.21	161	69.5	973	0.15	2.1	350	9830	5.49	170.05	75.6	1059	0.68	18.1	7.574	24.205	6.80		<1	<1
W5	-4.88	9/23/91	835				5.53	171	79.2	1109	0.18	2.5	323	9072	5.58	172.83	83.4	1168	0.70	18.5	7.548	24.486	6.42		<1	<1
W5	-4.88	10/22/91	748				4.88	151	78.0	1093	0.00	0.0	427	11993	5.47	169.43	81.9	1147	0.58	18.7	7.537	24.917	5.14		<1	<1
W5	-4.88	11/19/91	955				5.33	165	86.4	1210	0.28	3.9	360	10111	5.37	166.33	88.6	1241	0.57	18.7	7.546	25.443	5.75		<1	2
W5	-4.88	12/10/91	825				5.24	162	85.0	1191	0.45	6.3	314	8819	5.25	162.61	87.0	1219	0.70	18.4	7.546	26.422	5.89		<1	<1
W5	-4.88	1/28/92	812				5.26	163	71.3	999	0.05	0.7	266	7471	5.37	166.33	86.1	1206	0.96	17.5	7.537	28.175	6.24		<1	15
W5	-4.88	2/18/92	735				4.96	154	74.4	1042	0.00	0.0	267	7499	5.17	160.13	79.9	1119	0.81	17.8	7.509	26.646	6.12		<1	3
W5	-4.88	3/16/92	832				4.96	154	80.0	1121	0.85	11.9	289	8117	5.16	159.82	81.2	1137	0.81	17.6	7.558	26.500	6.22		<1	<1
W5	-4.88	4/7/92	800				4.83	150	74.9	1049	0.65	9.1	326	9156	4.98	154.25	75.3	1055	0.78	17.5	7.586	25.994	6.57		<1	1
W5	-4.88	5/5/92	808				5.17	160	69.4	972	0.21	2.9	307	8622	5.21	161.37	73.0	1022	1.14	17.6	7.573	25.692	6.84		<1	<1
W5	-4.88	6/22/92	755				4.91	152	70.3	985	0.49	6.9	322	9044	5.03	155.80	73.0	1022	0.90	18.0	7.580	25.559	7.10		<1	<1
W5	-4.88	7/28/92	710				5.12	159	73.1	1024	1.32	18.5	289	8117	5.13	158.90	75.5	1057	0.88	18.0	7.571	25.261	7.13		<1	<1
W5	-4.88	8/25/92	734				5.07	157	63.3	887	0.21	2.9	341	9577	5.23	161.99	71.3	999	0.79	18.2	7.595	25.071	7.04		<1	<1
W5	-4.88	9/21/92	752				4.74	147	67.3	943	0.15	2.1	297	8341	4.84	149.91	71.0	995	0.85	18.4	7.626	26.033	6.78		<1	<1
W5	-4.88	10/26/92	759				4.62	143	71.4	1000	0.53	7.4	347	9746	4.68	144.96	75.2	1053	0.76	19.0	7.524	25.603	6.55		<1	<1
W5	-4.88	11/16/92	824				4.60	142	67.3	942	0.49	6.9	313	8791	5.14	159.21	72.8	1020	0.70	18.7	7.632	26.714	6.48		<1	<1
W5	-4.88	12/7/92	822				4.33	134	66.7	934	0.22	3.1	318	8931	4.44	137.52	70.1	982	0.72	18.8	7.630	26.052	6.56		<1	<1
W5	-4.88	1/25/93	808				4.35	135	73.4	1028	0.66	9.2	317	8906	4.42	136.90	79.3	1111	0.80	18.5	7.658	25.739	6.60		<1	<1
W5	-4.88	2/22/93	749				4.45	138	72.5	1016	0.41	5.7	300	8417	4.48	138.76	80.6	1130	0.70	17.6	7.687	26.748	6.48		<1	<1
W5	-4.88	3/15/93	744				4.62	143	71.6	1003	0.21	2.9	307	8622	4.63	143.41	74.0	1037	0.78	17.7	7.710	26.201	6.59		<1	<1
W5	-4.88	4/26/93	754				4.62	143	66.7	934	0.23	3.2	320	8987	4.79	148.36	69.7	976	0.78	17.7	7.707	25.326	6.49		<1	<1
W5	-4.88	5/24/93	810				4.61	143	68.8	963	0.32	4.5	338	9493	4.82	149.29	75.3	1055	0.63	17.8	7.674	24.239	6.50		<1	<1
W5	-4.88	6/21/93	809				4.62	143	62.9	881	0.22	3.1	618	17357	4.94	153.01	77.0	1078	0.56	18.0	7.618	23.863	5.75		<1	<1
W5	-4.88	8/30/93	912				5.12	159	75.3	1055	0.09	1.3	374	10504	5.16	159.82	87.5	1226	0.76	18.5	7.679	22.469	5.97		<1	<1
W5	-4.88	10/25/93	752				5.46	169	72.6	1017	0.22	3.1	353	9914	5.52	170.98	74.8	1047	0.74	18.9	7.691	23.237	4.54		<1	<1
W5	-4.88	2/7/94	952				6.12	190	58.6	821	0.38	5.3	341	9577	6.14	190.18	64.8	908	0.86	19.6	7.654	22.828	4.41		<1	<1
W5	-4.88	6/20/94	742				5.23	162	59.1	828	0.03	0.4	336	9448	5.26	162.92	71.5	1001	0.77	20.2	7.638	23.588	4.26		<1	<1

NELHA Water Quality Laboratory

Well 5 Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m) (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W5	-4.88	8/22/94	847			6.19	192	54.9	769	0.18	2.5	333	9339	6.27	194.21	65.0	910	0.79	20.8	7.633	24.528	4.23		<1	<1
W5	-4.88	10/24/94	808			4.78	148	65.5	918	0.09	1.3	332	9319	5.28	163.54	70.1	982	0.72	21.5	7.678	23.668	3.81		<1	<1
W5	-4.88	1/23/95	850			5.11	158	61.7	865	0.12	1.7	299	8389	5.20	161.06	64.5	904	0.70	21.2	7.630	24.922	3.89		<1	<1
W5	-4.88	2/13/95	847			5.24	162	71.2	997	0.29	4.1	317	8897	5.25	162.61	79.5	1114	0.73	20.9	7.671	24.311	4.45		<1	<1
W5	-4.88	3/13/95	925			5.25	163	85.8	1202	0.17	2.4	375	10529	5.25	162.61	87.8	1230	0.67	21.0	7.725	24.285	3.76		<1	<1
W5	-4.88	4/24/95	830			5.15	160	86.5	1211	0.18	2.5	309	8690	5.26	162.92	88.7	1242	0.72	21.0	7.704	24.443	4.36		<1	<1
W5	-4.88	5/8/95	828			5.15	160	95.7	1341	0.45	6.3	302	8479	5.17	160.13	98.2	1375	0.64	21.3	7.724	23.328	3.95		<1	<1
W5	-4.88	6/19/95	905			5.08	157	86.1	1206	0.30	4.2	311	8746	5.11	158.28	90.0	1261	0.60	21.1	7.683	23.584	4.04		<1	<1
W5	-4.88	7/24/95	833			5.02	155	83.3	1167	0.29	4.1	335	9417	5.11	158.28	87.9	1231	0.68	21.4	7.695	22.147	4.29		<1	<1
W5	-4.88	8/21/95	924			4.94	153	71.2	997	0.38	5.3	334	9375	5.00	154.87	77.4	1084	0.62	21.6	7.692	23.008	4.29		<1	<1
W5	-4.88	9/11/95	746			4.82	149	69.3	970	0.26	3.6	333	9347	4.87	150.84	72.5	1015	0.56	21.8	7.743	22.784	5.16		<1	<1
W5	-4.88	10/16/95	811			4.83	150	67.6	947	0.36	5.0	326	9161	4.87	150.84	70.8	992	0.87	22.1	7.751	23.322	4.40		<1	45
W5	-4.88	11/6/95	751			4.92	152	71.7	1005	0.22	3.1	325	9125	4.94	153.01	77.0	1078	0.75	21.9	7.764	23.264	4.18		<1	348
W5	-4.88	12/4/95	815			4.94	153	72.1	1010	0.14	2.0	329	9251	5.01	155.18	75.1	1052	0.63	21.9	7.756	23.240	4.36		<1	1
W5	-4.88	1/29/96	918			5.33	165	76.6	1073	0.07	1.0	323	9080	5.35	165.71	89.0	1246	0.74	21.8	7.759	23.558	5.36		1	<1
W5	-4.88	2/26/96	900			5.08	157	92.0	1288	0.30	4.2	332	9337	5.09	157.66	95.7	1340	0.68	22.0	7.752	23.631	4.95		<1	<1
W5	-4.88	3/5/96	825			5.26	163	100.0	1401	0.22	3.1	308	8652	5.29	163.85	105.3	1475	0.82	21.7	7.748	23.735	4.93		<1	<1
W5	-4.88	4/1/96	846			5.31	164	115.8	1623	0.41	5.7	323	9068	5.32	164.78	121.1	1697	0.94	22.2	7.790	22.863	4.44		<1	<1
W5	-4.88	5/8/96	845			5.85	181	144.3	2021	0.13	1.8	321	9001	5.89	182.44		0	0.80	22.3	7.827	22.329	4.14		<1	<1
W5	-4.88	6/17/96	823			5.88	182	126.7	1775	0.34	4.8	329	9226	5.91	183.05		0	0.86	22.8	7.831	23.473	4.53		<1	<1
W5	-4.88	7/16/96	832			6.18	191	253.5	3551	1370	19189	298	8366	6.03	186.77	1400.0	19609	0.83	23.4	8.251	23.525	3.82		<1	<1
W5	-4.88	8/5/96	927			6.34	196	255.1	3573	86	1205	302	8487	6.26	193.90	244.8	3428	0.90	22.9	7.735	23.653	2.10		<1	<1
W5	-4.88	9/3/96	916			5.94	184	143.8	2014	0.57	8.0	342	9607	5.96	184.60	146.5	2052	0.85	23.1	7.728	23.744	2.21		<1	<1
W5	-4.88	10/8/96	907			5.85	181	112.3	1572	0.20	2.8	330	9270	6.21	192.35	120.0	1681	0.91	22.7	7.725	24.750	4.20		<1	<1
W5	-4.88	11/4/96	908			5.94	184	100.4	1406	0.27	3.8	293	8235	6.03	186.77	105.6	1479	0.79	23.2	7.716	25.061	4.46		<1	<1
W5	-4.88	12/16/96	851			5.95	184	102.4	1434	0.32	4.5	305	8565	5.97	184.91	103.0	1442	0.74	22.8	7.831	25.008	4.78		<1	<1
W5	-4.88	1/13/97	922			6.02	186	145	2031	0.05	0.7	280	7853	6.32	195.75	147.0	2059	0.69	23.2	7.768	24.472	4.78		<1	<1
W5	-4.88	2/10/97	829			6.40	198	216	3030	0.20	2.8	266	7462	6.5*	0.00	218.0	3053	1.19	22.7	7.838	25.241	3.81		<1	<1
W5	-4.88	3/10/97	847			8.32	258	467	6537	0.03	0.4	285	8004	9.01	279.07	210.1	2943	1.33	23.4	8.016	23.878	2.70		<1	<1
W5	-4.88	4/22/97	927			8.02	248	644	9018	0.23	3.2	273	7679	8.27	256.15	850.1	11907	1.65	23.8	8.128	23.214	1.17		<1	<1
W5	-4.88	5/27/97	853			8.33	258	433	6062	0.14	2.0	270	7580	8.74	270.71	478.7	6705	1.11	22.7	8.060	24.551	2.74		<1	<1
W5	-4.88	6/16/97	900			8.99	278	290	4055	0.29	4.1	296	8310	8.99	278.45	323.4	4530	0.92	22.8	8.067	24.231	3.14		<1	<1
W5	-4.88	7/14/97	912			9.00	279	236	3303	0.34	4.8	266	7471	9.04	280.00	381.0	5337	1.52	23.3	8.021	24.222	3.21		<1	<1
W5	-4.88	8/25/97	857			8.56	265	195	2726	0.24	3.4	267	7504	8.56	265.14	212.9	2982	0.71	23.7	8.033	25.335	2.44		<1	<1
W5	-4.88	9/22/97	822			7.78	241	148	2073	0.12	1.7	276	7745	7.84	242.83	152.1	2130	0.70	23.9	8.010	24.735	1.84		<1	<1
W5	-4.88	10/14/97	859			7.54	234	143	2009	0.30	4.2	303	8507	7.61	235.71	166.8	2336	0.68	24.1	7.984	23.579	2.03		<1	<1
W5	-4.88	11/3/97	831			7.02	217	144.8	2028	0.16	2.2	279	7841	7.25	224.56	172.6	2418	0.78	24.0	7.976	25.150	2.39		<1	<1
W5	-4.88	12/15/97	923			7.70	238	115.6	1619	0.09	1.3	284	7976	7.82	242.21	137.4	1925	0.81	23.8	7.951	25.064	2.37		<1	<1
W5	-4.88	1/5/98	1018			7.25	225	111.1	1557	0.05	0.7	256	7181	7.33	227.04	120.1	1682	0.76	23.7	7.919	26.327	1.57		<1	<1
W5	-4.88	2/2/98	916			7.01	217	100.2	1403	0.06	0.8	244	6856	7.24	224.25	120.8	1692	0.82	22.6	7.902	27.027	2.04		<1	<1
W5	-4.88	3/9/98	926			8.49	263	98.6	1381	0.12	1.7	263	7378	8.59	266.06	100.7	1410	0.70	22.6	7.752	25.366	2.33		<1	<1
W5	-4.88	4/13/98	835			8.33	258	91	1280	0.13	1.8	259	7260	8.57	265.45	97.4	1365	0.74	22.1	7.763	26.507	3.05		<1	<1
W5	-4.88	5/11/98	901			8.02	248	111	1556	0.27	3.8	262	7350	8.17	253.06	119.2	1669	0.73	22.3	7.784	26.054	4.05		<1	<1
W5	-4.88	6/1/98	858			7.86	243	107.6	1506	0.11	1.5	254	7145	8.10	250.89	112.2	1572	0.74	22.2	7.762	25.931	4.50		<1	<1
W5	-4.88	7/13/98	908			7.47	231	96	1342	0.05	0.7	269	7552	7.82	242.21	99	1391	0.75	22.2	7.721	25.874	4.00		<1	<1
W5	-4.88	8/10/98	930			7.26	225	107.0	1499	0.17	2.4	270	7583	7.52	232.92	109.2	1530	0.67	22.5	7.705	26.539	4.27		<1	<1
W5	-4.88	9/14/98	914			7.01	217	97.1	1360	0.12	1.7	250	7024	7.28	225.49	100	1399	0.81	22.2	7.706	27.710	4.23		<1	<1
W5	-4.88	10/12/98	831			7.00	217	115.8	1622	0.03	0.4	249	6996	7.10	219.91	121	1693	0.80	22.4	7.690	27.672	4.43		<1	<1
W5	-4.88	11/2/98	852			6.88	213	100.5	1408	0.04	0.6	259	7285	6.99	216.51	112.0	1569	1.06	22.3	7.719	26.795	3.93		<1	<1
W5	-4.88	12/15/98	850			6.53	202	84.1	1178	0.09	1.3	266	7465	6.70	207.52	86.3	1209	0.92	22.8	7.696	26.545	3.51		<1	<1
W5	-4.88	1/11/99	908			6.08	188	91	1272	0.18	2.5	252	7080	6.27	194.21	94	1319	0.96	22.9	7.646	27.593	2.57		<1	<1
W5	-4.88	2/2/99	901			6.59	204	105	1474	0.25	3.5	261	7342	6.73	208.45	121	1691	0.93	23.1	7.664	26.634	3.54		<1	<1
W5	-4.88	3/1/99	903			6.58	204	102.6	1437	0.05	0.7	265	7451	6.77	209.69	105.8	1482	0.94	23.1	7.665	26.208	3.24		<1	<1
W5	-4.88	4/5/99	905			5.95	184	83.4	1168	0.06	0.8	254	7145	6.09	188.63	86.1	1206	1.15	23.0	7.664	27.353	3.49		<1	<1
W5	-4.88	5/3/99	903			6.04	187	111	1558	0.15	2.1	262	7367	6.20	192.04	124	1742	0.87	23.1	7.670	27.089	4.05		<1	<1
W5	-4.88	6/1/99	857			5.66	175	240	3362	140	1960.9	251	7049	5.90	182.75	336	4706	0.94	22.9	7.572	27.727	0.49		<1	<1

NELHA Water Quality Laboratory

Well 5 Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W5	-4.88	7/14/99	902				5.64	175	156	2185	0.02	0.3	269	7561	5.68	175.93	168	2355	0.90	23.3	7.615	26.400	2.10		<1	<1
W5	-4.88	8/23/99	925				6.02	186	99.3	1391	0.11	1.5	272	7639	6.19	191.73	115	1605	0.90	23.7	7.711	25.906	3.31		<1	<1
W5	-4.88	9/7/99	914				6.01	186	95.7	1340	0.07	1.0	256	7193	6.33	196.06	112	1572	0.85	23.2	7.673	26.489	3.42		<1	<1
W5	-4.88	10/5/99	908				5.16	160	187	2618	21.0	293.9	266	7457	5.09	157.66	221	3095	0.77	23.5	7.577	26.459	0.77		<1	<1
W5	-4.88	11/1/99	928				5.48	170	110	1542	0.08	1.1	254	7131	5.58	172.83	115	1611	0.70	23.2	7.667	26.605	3.64		<1	<1
W5	-4.88	12/14/99	919				5.68	176	94.6	1325	0.08	1.1	245	6873	5.83	180.58	98.2	1375	0.95	23.7	7.575	27.936	1.83		<1	<1
W5	-4.88	1/10/00	948				5.51	171	88.8	1244	0.22	3.1	250	7027	5.55	171.90	94.3	1321	0.89	23.7	7.609	27.338	2.55		<1	<1
W5	-4.88	2/7/00	946				5.59	173	165	2311	147	2059.0	246	6917	5.45	168.81	294	4118	0.86	23.6	7.601	26.125	0.64		<1	<1
W5	-4.88	3/21/00	948				5.61	174	94.0	1317	0.09	1.3	261	7333	5.40	167.26	98.0	1373	0.86	23.1	7.638	25.816	2.51		<1	<1
W5	-4.88	4/10/00	1012				5.70	177	86.6	1213	0.07	1.0	256	7179	5.44	168.50	91.5	1282	0.79	23.0	7.644	25.977	2.00		<1	1
W5	-4.88	5/15/00	925				5.67	176	80.6	1129	0.21	2.9	279	7839	5.69	176.24	85.2	1193	0.79	23.8	7.653	25.289	2.23		<1	<1
W5	-4.88	6/5/00	926				5.36	166	69.6	975	0.04	0.6	278	7802	5.38	166.64	76.9	1077	0.88	23.3	7.621	25.585	2.02		<1	<1
W5	-4.88	7/26/00	955				5.47	169	76.4	1070	0.12	1.7	290	8148	5.68	175.93	81.5	1142	0.77	23.9	7.622	25.187	2.12		<1	<1
W5	-4.88	8/29/00	853				5.43	168	85.2	1193	0.11	1.5	301	8457	5.50	170.36	87.3	1223	0.707	24.3	7.616	24.412	3.06		<1	<1
W5	-4.88	9/5/00	924				5.60	173	86.0	1205	0.08	1.1	282	7923	5.81	179.96	92.3	1293	0.75	24.0	7.621	25.765	1.96		<1	<1
W5	-4.88	10/24/00	928				5.52	171	91.2	1277	0.19	2.7	318	8940	5.74	177.79	95.6	1339	0.71	24.2	7.589	24.808	2.06		<1	<1
W5	-4.88	11/13/00	903				4.87	151	163	2279	0.27	3.8	328	9223	5.13	158.90	171	2398	1.00	24.3	7.595	22.769	2.45		<1	<1
W5	-4.88	12/18/00	912				5.39	167	120	1678	0.16	2.2	285	8007	5.40	167.26	123	1723	0.91	24.2	7.551	25.776	1.16		<1	<1
W5	-4.88	1/22/01	906				4.94	153	93.4	1308	0.04	0.6	254	7134	5.13	158.90	96.5	1352	0.81	24.1	7.544	27.913	1.14		<1	<1
W5	-4.88	2/5/01	931				4.90	152	90.6	1269	0.10	1.4	260	7288	5.02	155.49	95.2	1333	0.78	24.0	7.556	27.332	0.99		TNTC	5
W5	-4.88	3/5/01	923				4.82	149	91.2	1277	0.02	0.3	254	7120	4.96	153.63	94.0	1317	0.75	24.0	7.523	26.889	1.28		1	<1
W5	-4.88	4/17/01	915				5.04	156	103	1440	0.07	1.0	260	7308	5.11	158.28	105	1472	0.76	23.7	7.546	25.642	2.19		<1	<1
W5	-4.88	5/15/01	846				5.18	160	101	1413	0.14	2.0	285	8010	5.10	157.97	105	1474	0.66	24.0	7.601	24.688	2.68		<1	<1
W5	-4.88	6/12/01	859				5.24	162	96.6	1352	0.02	0.3	285	8002	5.09	157.66	99.3	1391	0.74	23.4	7.594	24.878	2.55		<1	<1
W5	-4.88	7/23/01	904				4.97	154	90.0	1261	0.03	0.4	278	7816	4.98	154.25	97.5	1366	0.72	23.5	7.566	25.725	2.54		<1	<1
W5	-4.88	8/8/01	858				5.01	155	86.6	1213	0.03	0.4	303	8496	5.04	156.11	89.8	1258	0.74	23.2	7.600	25.136	2.31		<1	<1
W5	-4.88	9/19/01	911				5.34	165	96.7	1354	0.05	0.7	320	8996	5.60	173.45	103	1438	0.83	23.9	7.583	25.306	2.16		<1	<1
W5	-4.88	10/24/01	844				5.06	157	93.2	1305	0.06	0.8	288	8089	5.44	168.50	101	1415	0.74	24.4	7.608	25.717	2.18		<1	<1
W5	-4.88	11/7/01	901				5.32	165	100	1403	0.03	0.4	270	7580	5.40	167.26	121	1689	0.75	23.9	7.576	26.307	2.46		<1	<1
W5	-4.88	12/19/01	920				5.16	160	112	1574	0.16	2.2	267	7496	5.06	156.73	149	2090	0.75	24.1	7.577	26.103	2.33		<1	<1
W5	-4.88	1/9/02	914				5.21	161	104	1458	0.20	2.8	248	6965	5.34	165.40	107	1499	0.73	22.9	7.600	27.819	1.75		<1	<1
W5	-4.88	2/19/02	1030				5.40	167	102	1427	0.05	0.7	264	7401	5.58	172.83	108	1514	0.67	23.5	7.649	25.159	2.14		<1	<1
W5	-4.88	3/20/02	928				5.32	165	99.7	1397	0.18	2.5	275	7712	5.54	171.59	104	1450	0.81	22.9	7.765	25.654	2.43		<1	<1
W5	-4.88	4/8/02	1018				5.38	167	102	1424	0.07	1.0	252	7066	5.58	172.83	105	1471	0.71	23.1	7.638	26.302	2.65		<1	<1
W5	-4.88	5/29/02	1006				6.34	196	109	1532	0.11	1.5	276	7757	6.50	201.33	114	1600	0.90	23.4	7.774	24.305	2.85		<1	<1
W5	-4.88	6/17/02	939				6.90	214	91.9	1288	0.01	0.1	259	7269	7.16	221.77	96.1	1345	0.74	23.0	7.790	25.298	2.07		<1	<1
W5	-4.88	7/15/02	935				7.06	219	87.2	1222	0.09	1.3	275	7735	7.32	226.73	95.3	1335	0.81	24.1	7.716	24.938	2.67		<1	<1
W5	-4.88	8/20/02	934				6.68	207	70.1	982	0.28	3.9	301	8454	6.94	214.96	67.1	939	0.75	24.3	7.740	24.551	2.83		<1	<1
W5	-4.88	9/23/02	951				6.26	194	68.4	959	0.21	2.9	287	8055	6.46	200.09	63.9	895	0.64	24.5	7.747	25.346	2.37		<1	5
W5	-4.88	10/14/02	914				5.86	182	88.5	1240	0.01	0.1	296	8308	6.16	190.80	84.3	1181	0.77	24.8	7.728	24.265	5.46		1	<1
W5	-4.88	11/4/02	924				5.62	174	99.1	1388	0.03	0.4	282	7920	5.92	183.36	97.1	1360	0.97	25.0	7.733	24.688	2.28		<1	<1
W5	-4.88	12/17/02	945				5.89	182	75.9	1063	0.10	1.4	228	6415	6.24	193.28	80.6	1130	0.79	24.3	7.867	28.210	3.33		<1	<1
W5	-4.88	1/21/03	1015				5.10	158	83.7	1172	0.05	0.7	194	5449	5.38	166.64	88.3	1237	0.99	24.1	7.733	30.049	3.39		<1	<1
W5	-4.88	2/12/03	940				6.02	186	91.5	1282	0.03	0.4	207	5808	6.26	193.90	108	1507	0.87	23.9	7.737	28.922	1.90		<1	<1
W5	-4.88	3/19/03	943				6.99	217	127	1775	0.06	0.8	227	6370	7.24	224.25	148	2066	0.79	23.6	7.731	27.047	2.54		<1	2
W5	-4.88	4/28/03	925				6.71	208	126	1761	0.04	0.6	245	6884	7.24	224.25	151	2121	1.05	23.7	7.786	26.153	3.69		<1	7
W5	-4.88	5/12/03	903				6.71	208	111	1559	0.05	0.7	248	6962	7.11	220.22	118	1647	0.92	23.7	7.808	26.489	3.87		2	1
W5	-4.88	6/3/03	918				6.71	208	105	1471	0.43	6.0	249	6982	6.86	212.48	116	1629	0.98	23.7	7.812	25.955	3.97		<1	<1

NELHA Water Quality Laboratory

Well 5 Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W5	-4.88	7/29/03	935				7.46	231	80.4	1126	0.55	7.7	256	7198	7.70	238.50	94.1	1318		24.6	7.768	25.494	3.83		<1	TNTC
W5	-4.88	8/26/03	937				9.00	279	91.2	1277	0.21	2.9	261	7336	9.39	290.84	105	1465		25.2	7.861	24.938	3.26		<1	42
W5	-4.88	9/15/03	921				8.83	273	87.2	1221	0.07	1.0	243	6830	9.54	295.49	97.2	1361		24.4	7.782	26.019	2.70		<1	<1
W5	-4.88	10/6/03	903				8.48	263	81.0	1134	0.46	6.4	252	7083	8.96	277.52	89.3	1250		23.9	7.768	25.964	NA		<1	5
W5	-4.88	10/28/03	947				7.90	245	80.0	1121	0.10	1.4	250	7021	8.56	265.14	89.3	1251		24.2	7.762	26.220			<1	153
W5	-4.88	11/14/03	1301																	25.2			3.66			
W5	-4.88	12/15/03	909				7.78	241	94.6	1324	0.46	6.4	231	6482	8.06	249.65	97.3	1363		23.9	7.737	27.229	2.86		<1	6
W5	-4.88	1/26/04	914				7.02	217	116	1628	0.10	1.4	208	5845	7.42	229.83	118	1656		23.0	7.733	27.723	3.00		<1	15
W5	-4.88	2/5/04	913				7.44	230	127	1780	0.22	3.1	229	6418	7.56	234.16	141	1968		23.6	7.764	26.524	3.65		<1	184
W5	-4.88	3/2/04	918				7.18	222	148	2072	0.41	5.7	223	6274	7.10	219.91	159	2224		23.2	7.803	25.035	4.07		<1	1
W5	-4.88	4/20/04	912				8.22	255	146	2046	0.18	2.5	228	6403	8.32	257.70	148	2079		22.7	7.771	25.061	2.85		<1	1
W5	-4.88	5/11/04	828				8.80	273	138	1939	0.32	4.5	240	6741	10.1	314.07	151	2116		23.6	7.767	23.99	2.87		<1	<1
W5	-4.88	6/2/04	847				8.70	269	133	1860	0.23	3.2	253	7092	8.94	276.91	140	1962		24.1	7.735	22.88	2.44		<1	<1
W5	-4.88	7/14/04	919				8.60	266	127	1782	0.23	3.2	268	7513	8.56	265.14	146	2041		23.7	7.720	23.72	2.75		<1	<1
W5	-4.88	8/23/04	911				8.50	263	125	1745	0.27	3.8	259	7280	8.44	261.42	130	1818		24.3	7.666	24.31	1.87		<1	<1
W5	-4.88	9/2/04	922				8.42	261	114	1590	0.15	2.1	267	7490	8.50	263.28	118	1658		24.3	7.715	24.08	2.36		<1	<1
W5	-4.88	10/4/04	850				8.68	269	111	1551	0.17	2.4	264	7415	9.16	283.72	117	1636		25.1	7.660	24.53	2.14		<1	<1
W5	-4.88	11/23/04	845				8.62	267	92.9	1301	0.09	1.3	277	7788	9.06	280.62	120	1681		24.3	7.664	24.05	1.69		<1	<1
W5	-4.88	12/8/04	845				8.56	265	94.6	1325	0.08	1.1	278	7799	8.84	273.81	125	1747		24.2	7.644	24.03	1.38		<1	<1
W5	-4.88	1/18/05	858				7.94	246	84.1	1178	0.09	1.3	237	6656	8.16	252.75	88.3	1236		23.7	7.616	27.212	0.89		<1	<1
W5	-4.88	2/10/05	845				8.18	253	102	1424	0.25	3.5	243	6814	8.50	263.28	138	1932		23.6	7.689	26.065	1.20		<1	1
W5	-4.88	3/22/05	852				10.1	312	124	1730	0.18	2.5	239	6707	10.38	321.51	142	1992	1.59	23.5	7.783	26.164	0.92		<1	260
W5	-4.88	4/20/05	843				9.36	290	94.5	1324	0.15	2.1	230	6454	9.56	296.11	96.2	1347		23.4	7.863	25.702	2.06		<1	<1
W5	-4.88	5/25/05	905				8.44	261	86.8	1216	0.15	2.1	244	6847	8.74	270.71	95.8	1342		21.9	7.866	24.832	3.44		<1	<1
W5	-4.88	6/14/05	903				7.56	234	74.4	1042	1.57	22.0	234	6578	7.84	242.83	84.8	1188		23.6	7.842	25.733	3.73		6	TNTC>5,000
W5	-4.88	7/19/05	858				6.86	212	83.8	1174	0.12	1.7	239	6698	7.18	222.39	88.0	1233	0.67	24.3	7.844	24.148	3.71		<1	2
W5	-4.88	8/3/05	928				6.90	214	85.2	1193	0.10	1.4	240	6732	7.30	226.11	89.2	1249	0.69	24.6	7.870	24.811	3.81		<1	2
W5	-4.88	9/22/05	851				6.28	195	64.1	897	0.12	1.7	216	6052	6.60	204.43	69.8	978	0.62	25.8	7.823	28.080	3.31		<1	<1
W5	-4.88	10/19/05	905				6.40	198	76.9	1077	0.14	2.0	213	5991	6.60	204.43	85.1	1192		26.2	7.738	28.205	2.79		<1	<1
W5	-4.88	11/8/05	850				6.70	208	75.1	1052	0.07	1.0	213	5974	6.94	214.96	84.0	1177		25.9	7.658	28.261	1.78		<1	2512
W5	-4.88	12/22/05	824				5.58	173	72.1	1010	0.33	4.6	168	4704	5.82	180.27	75.4	1056		25.2	7.575	30.395	1.45		53	2184
W5	-4.88	1/31/06	849				5.68	176	70.0	980	0.19	2.7	179	5036	5.92	183.36	74.8	1047		24.6	7.603	29.854	2.10		<1	<1
W5	-4.88	2/16/06	844				5.66	175	67.4	944	0.22	3.1	171	4797	6.26	193.90	70.5	987	0.61	24.7	7.577	30.050	1.93		<1	<1
W5	-4.88	3/22/06	835				5.52	171	72.3	1013	0.27	3.8	185	5196	5.72	177.17	76.6	1073	0.59	23.9	7.615	29.625	3.14		<1	<1
W5	-4.88	4/27/06	915				5.47	169	74.3	1041	0.08	1.1	184	5168	5.66	175.31	72.3	1012	0.57	24.1	7.649	28.803	4.00		<1	<1
W5	-4.88	5/24/06	937				5.11	158	67.8	950	0.06	0.8	181	5083	5.29	163.85	65.1	911	0.75	24.3	7.613	29.200	3.13		<1	<1
W5	-4.88	6/28/06	922				5.27	163	61.9	867	0.18	2.5	189	5308	5.59	173.14	60.1	841	0.55	24.2	7.664	29.044	2.21		<1	<1
W5	-4.88	7/19/06	900				5.17	160	61.4	860	0.25	3.5	188	5280	5.39	166.95	52.2	731	0.60	24.5	7.603	29.373	3.15		<1	2
W5	-4.88	8/9/06	922				5.20	161	56.8	796	0.12	1.7	197	5533	5.39	166.95	52.1	729	0.68	24.6	7.64	28.993	2.33		<1	<1
W5	-4.88	9/20/06	933				5.16	160	59.9	839	0.33	4.6	190	5336	5.42	167.88	56.0	784	0.65	25.4	7.66	29.446	1.21		<1	3
W5	-4.88	10/25/06	928				5.43	168	51.2	717	0.34	4.8	184	5168	5.59	173.14	48.7	682	0.72	25.4	7.593	29.720	1.24		1	38
W5	-4.88	11/29/06	925				5.43	168	53.3	747	0.23	3.2	173	4859	5.74	177.79	48.3	676	0.64	25.5	7.546	30.574	0.64		<1	<1
W5	-4.88	12/13/06	929				5.30	164	56.7	794	0.24	3.4	168	4718	5.49	170.05	53.1	744	0.65	25.5	7.548	30.708	1.00		<1	28
W5	-4.88	1/10/07	915				5.21	161	61.0	854	0.32	4.5	151	4241	5.45	168.81	63.4	888	0.60	25.1	7.653	31.159	1.29		<1	7
W5	-4.88	2/21/07	955				4.87	151	72.1	1010	0.43	6.0	150	4213	5.15	159.51	78.9	1105	0.67	24.3	7.555	30.244	2.58		<1	<1
W5	-4.88	3/7/07	946				4.87	151	75.8	1062	0.34	4.8	156	4381	5.05	156.42	78.9	1106	0.68	24.3	7.628	30.155	2.24		<1	1
W5	-4.88	4/19/07	925				5.12	159	77.0	1079	0.19	2.7	168	4718	5.22	161.68	72.4	1013	0.54	24.3	7.632	29.543	2.63		2	55
W5	-4.88	5/2/07	932				5.19	161	75.4	1056	0.28	3.9	174	4887	5.46	169.12	72.5	1015	0.54	23.4	7.585	29.395	2.79		1	1
W5	-4.88	6/20/07	936				5.20	161	76.9	1077	0.18	2.5	182	5112	5.57	172.52		0		24.2	7.651	28.923	3.28		<1	37

NELHA Water Quality Laboratory

Well 5 Data Table

June 1989 - December 2014

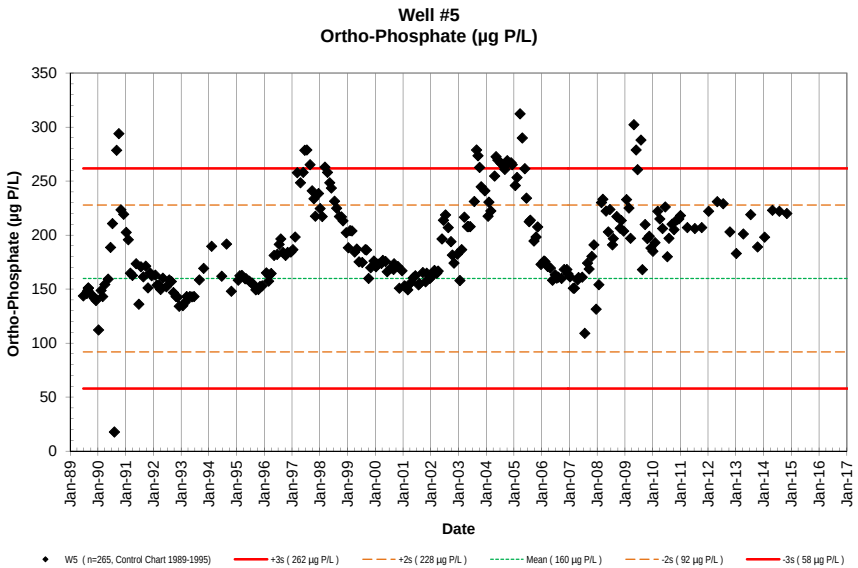
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W5	-4.88	7/23/07	1102	-2.74	0.52	Flood	3.52	109	41.8	585	0.04	0.5	148	4156	3.75	116.1	41.7	584.3		22.6	7.52	31.68	2.60			
W5	-4.88	8/27/07	1340	-3.22	0.52	Flood	5.62	174	76.4	1071	0.07	1.0	152	4268	5.22	161.6	76.3	1068.4		24.8	7.55	29.51	3.35			
W5	-4.88	9/18/07	1536	-3.30	0.24	Ebb	5.44	169	75.3	1055	0.50	7.0	176	4951	5.51	170.6	75.2	1053.8		25.0	7.50	29.34	2.33			
W5	-4.88	10/23/07	1352	-3.12	0.52	High	5.82	180	80.1	1121	0.02	0.3	173	4866	5.76	178.4	75.3	1054.2		24.4	7.47	27.85	0.72			
W5	-4.88	11/20/07	1432	-3.35	0.38	Ebb	6.16	191	85.0	1191	0.23	3.2	214	6002	5.60	173.5	90.5	1266.9		23.5	7.58	26.81	0.84			
W5	-4.88	12/19/07	1238	-3.35	0.30	High	4.24	131	70.1	981	0.75	11	206	5775						23.0	7.42	24.22	1.27			
W5	-4.88	1/25/08	958	-3.12	0.24	Ebb	4.98	154	57.5	806	0.28	3.9	146	4111						22.7	7.15	26.58	1.38			
W5	-4.88	2/26/08	1145	-3.58	0.03	Ebb	7.43	230	104.3	1461	0.74	10.4	210	5894						22.4	7.37	26.60	1.17			
W5	-4.88	3/17/08	1315	-3.35	0.21	Flood	7.53	233	97.3	1363	0.06	0.8	160	4500						22.5	7.45	26.51	1.41			
W5	-4.88	4/29/08	916	-3.53	0.09	Flood	7.17	222	90.2	1263	0.09	1.2	215	6042						21.6	7.31	26.35	1.35			
W5	-4.88	5/28/08	916	-3.40	0.18	Flood	6.55	203	97.6	1367	0.29	4.1	246	6921						22.2	7.40	25.44	2.10			
W5	-4.88	6/17/08	1024	-3.66	0.00	Flood	7.22	224	102.8	1440	0.81	11.4	228	6396						22.1	7.31	24.80	n/a	2.32		
W5	-4.88	7/22/08	918	-3.25	0.30	Ebb	6.17	191	86.5	1212	0.92	12.9	238	6682						22.1	7.35	25.42	1.35			
W5	-4.88	7/31/08	9.11	-3.81	-0.09	Low	6.35	197	81.1	1136	0.81	11.4	232	6507						24.8	7.34	24.89	3.13			
W5	-4.88	9/16/08	1012	-3.49	0.12	Ebb	7.01	217	98.9	1385	0.67	9.4	244	6854						23.0	7.26	25.16	1.85			
W5	-4.88	10/31/08	951	-3.37	0.30	Ebb	6.66	206	90.2	1264	0.39	5.4	244	6864						25.1	7.30	26.32	1.26			
W5	-4.88	11/14/08	1114	-3.54	0.12	Ebb	6.89	213	101.7	1425	0.16	2.3	219	6158						24.1	7.68	26.60	1.37	1.02		
W5	-4.88	12/16/08	937	-3.56	0.61	Ebb	6.58	204	117.3	1643	0.01	0.2	230	6458						23.8	7.51	27.11	1.49			
W5	-4.88	1/23/09	1411	-3.49	0.15	High	7.52	233	135.7	1901	0.94	13.1	186	5213						23.9	7.51	28.70	1.60	1.89		
W5	-4.88	2/24/09	1526	-3.32	0.30	Flood	7.26	225	90.0	1261	0.54	7.5	219	6144						23.7	7.42	27.84	2.60	4.80		
W5	-4.88	3/16/09	1520	-3.58	0.03	Low	6.36	197	167.3	2344	0.17	2.4	181	5078						23.7	7.43	27.65	3.03	2.30		
W5	-4.88	4/30/09	1450	-3.64	0.06	Flood	9.75	302	139.4	1952	0.68	9.5	130	3647						24.1	7.93	26.83	3.44			
W5	-4.88	5/29/09	924	-3.43	0.21	High	9.00	279	127.1	1780	0.10	1.4	229	6425						22.1	8.26	27.26	3.69	0.47		
W5	-4.88	6/18/09	1342	-3.05	0.61	High	8.41	261	120.5	1688	0.57	8.0	188	5279						22.3	7.53	27.64	4.23	0.78		
W5	-4.88	7/31/09	1048	-3.12	0.52	Flood	9.30	288	121.1	1696	0.23	3.2	142	3984						22.2	7.17	28.10	3.59	0.95		
W5	-4.88	8/19/09	1040	-3.47	0.09	Flood	5.42	168	84.2	1180	0.71	9.9	123	3460						22.6	7.56	27.94	3.56	0.26		
W5	-4.88	9/24/09	907	-3.15	0.61	High	6.77	210	107.1	1500	0.57	8	148	4168						22.4	8.40	27.34	2.79	0.26		
W5	-4.88	10/23/09	1330	-3.54	0.21	Ebb	6.35	197	94.2	1319	0.64	9	104	2921						22.8	7.51	26.92	2.84	0.29		
W5	-4.88	11/17/09	1002	-3.63	0.21	Ebb	6.42	199	88.8	1244	0.85	12	203	5699						22.7	7.45	27.19	2.56	0.14		
W5	-4.88	12/8/09	1004	-3.19	0.52	Ebb	6.07	188	91.4	1280	1.00	14	230	6462						22.6	7.48	27.94	1.49	0.15		
W5	-4.88	1/6/10	948	-3.27	0.40	Ebb	5.97	185	92.1	1290	1.93	27	197	5539						22.9	7.57	28.35	1.92	14.20		
W5	-4.88	2/2/10	915	-3.22	0.24	Ebb	6.23	193	116.7	1634	0.79	11	179	5033						22.4	7.59	28.83	2.09	0.53		
W5	-4.88	3/10/10	853	-3.69	0.09	Low	7.17	222	116.7	1634	0.29	4	217	6086						22.1	7.53	28.00	2.81	0.24		
W5	-4.88	4/6/10	1457	-3.55	0.09	Ebb	6.94	215	107.4	1504	0.64	9	220	6169						21.7	7.56	27.42	3.08	3.55		
W5	-4.88	5/12/10	834	-3.71	-0.06	Low	6.65	206	99.3	1391	1.07	15	196	5501						21.6	7.82	26.97	3.25	0.48		
W5	-4.88	6/16/10	1052	-3.58	0.09	Ebb	7.30	226	115.7	1621	0.36	5	242	6807						21.8	7.58	26.83	3.97	0.39		
W5	-4.88	7/14/10	857	-3.40	0.18	Ebb	5.81	180	115.5	1618	0.29	4	235	6607						21.6	7.55	27.05	4.18	0.08		
W5	-4.88	8/3/10	1714	-3.30	0.12	Ebb	6.36	197	109.1	1528	0.29	4	231	6492						21.7	7.65	27.24	3.28	0.86		
W5	-4.88	9/13/10	1447	-3.39	0.24	Ebb	6.78	210	108.6	1521	0.19	2.6	251	7051						22.0	7.52	26.99	3.83	0.24		
W5	-4.88	10/11/10	1010	-3.06	0.46	Ebb	6.62	205	106.9	1497	0.03	0.4	245	6878						22.0	7.63	27.34	3.93	0.41		
W5	-4.88	11/15/10	1122	-3.14	0.43	High	6.91	214	101.0	1415	0.11	1.5	239	6711						22.2	7.53	28.13	2.67	0.18		
W5	-4.88	12/13/10	917	-3.02	0.40	High	6.94	215	103.7	1453	0.09	1.3	240	6736						21.9	7.51	28.32	2.59	0.39		
W5	-4.88	1/3/11	1520	-3.43	0.21	High	7.04	218	120.1	1682	0.28	3.9	234	6567						22.0	7.56	28.07	2.91	0.12		
W5	-4.88	4/4/11	1413	-3.25	0.30	Flood	6.68	207	133.3	1867	0.09	1.2	194	5446						21.8	7.68	27.72	3.61	0.16		
W5	-4.88	7/11/11	1255	-3.12	0.67	Flood	6.65	206	135.3	1895	0.11	1.5	213	5974						22.8	7.59	27.63	5.12	3.22		
W5	-4.88	10/10/11	1211	-3.36	0.24	Flood	6.68	207	119.2	1670	0.24	3.4	217	6106						22.2	7.63	27.72	4.54	0.47		
W5	-4.88	1/9/12	1234	-3.63	0.03	Low	7.17	222	109.6	1535	0.16	2.3	213	5981						22.0	7.66	27.31	3.11	0.15		
W5	-4.88	4/30/12	1349	-3.26	0.30	High	7.46	231	116.1	1626	0.06	0.8	216	6067						21.5	7.54	27.79	3.58	0.06		
W5	-4.88	7/17/12	1557	-2.91	0.73	High	7.39	229	110.7	1550	0.21	3	213	5980						21.8	7.57	28.31	4.68	0.55		
W5	-4.88	10/15/12	1229	-3.48	0.12	Flood	6.55	203	107.4	1505	0.28	3.9	221	6197						21.4	7.58	28.20	3.90	0.11		
W5	-4.88	1/7/13	1315	-3.34	0.24	Ebb	5.91	183	139.6	1956	0.52	7.3	250	7014						21.1	7.56	28.55	3.88	0.16		
W5	-4.88	4/9/13	1125	-3.56	0.09	Flood	6.49	201	155.4	2177	0.30	4.2	202	5679						20.6	7.66	27.72	4.86	0.41		
W5	-4.88	7/16/13	1504	-3.31	0.37	Ebb	7.07	219	159.1	2228	0.24	3.4	238	6673						21.3	7.58	26.51	4.67	0.35		
W5	-4.88	10/14/13	1515	-3.21	0.43	Ebb	6.10	189	138.4	1938	0.26	3.6	232	6516						23.0	7.69	26.96	5.53	2.52		
W5	-4.88	1/14/14	1407	-3.40	0.21	Flood	6.39	198	160.4	2247	0.31	4.4	215	6026						22.5	7.77	27.55	3.89	0.08		
W5	-4.88	4/28/14	1625	-3.03	0.55	High	7.20	223	187.9	2632	0.33	4.6	202	5676						22.2	7.82	25.75	3.22	0.28		

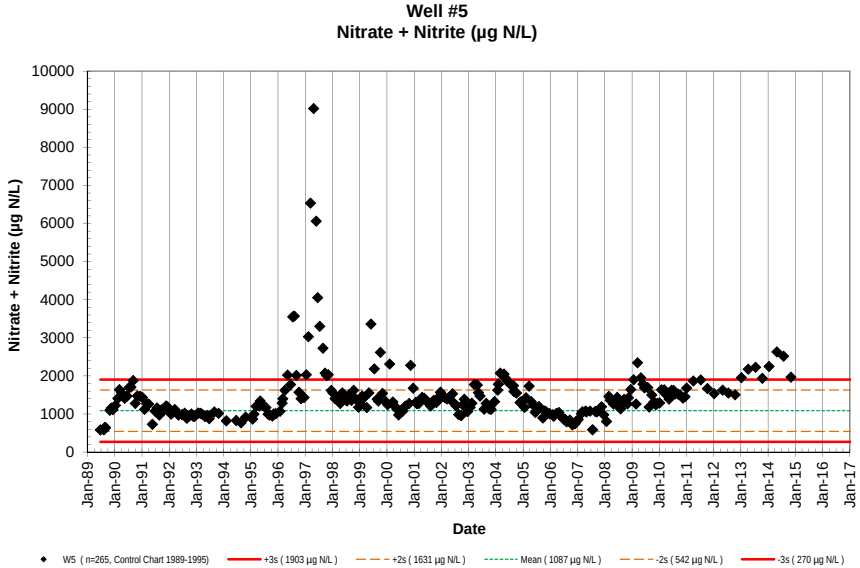
NELHA Water Quality Laboratory

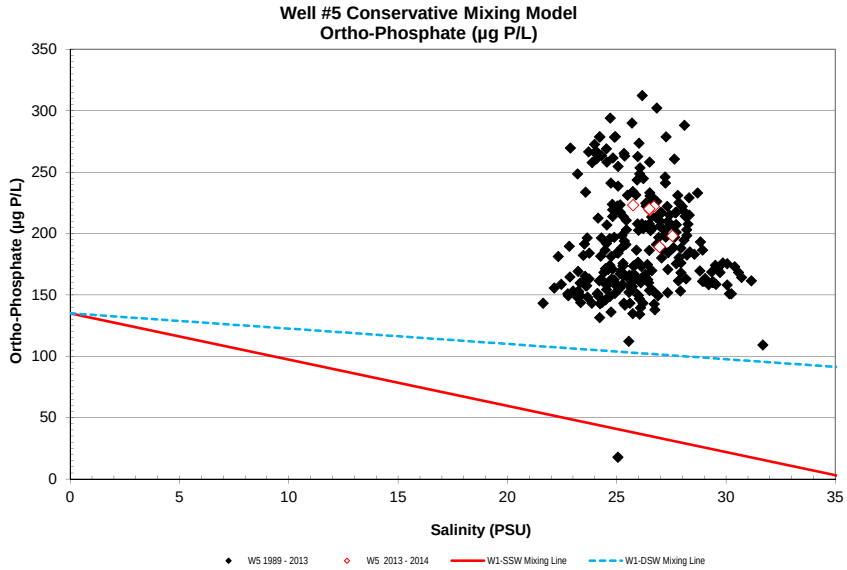
Well 5 Data Table

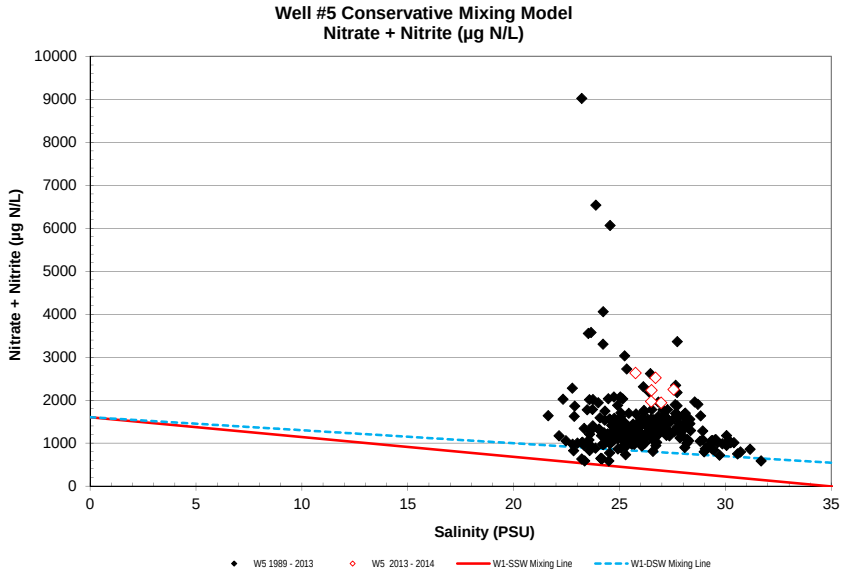
June 1989 - December 2014

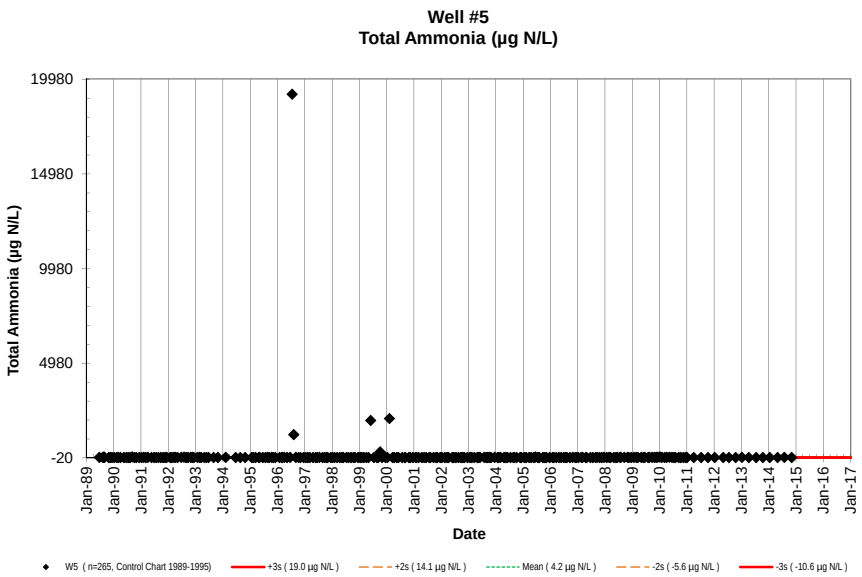
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W5	-4.88	7/28/14	1415	-3.24	0.38	Flood	7.17	222	179.8	2518	0.93	13	203	5703						22.6	7.77	26.7	4.56	0.26		
W5	-4.88	11/3/14	1050	-3.20	0.38	Flood	7.10	220	140.5	1968	0.15	2.1	200	5613						23.2	7.62	26.49	3.65	0.59		
W5	-4.88	1/1/15																								
W5	-4.88	4/1/15																								

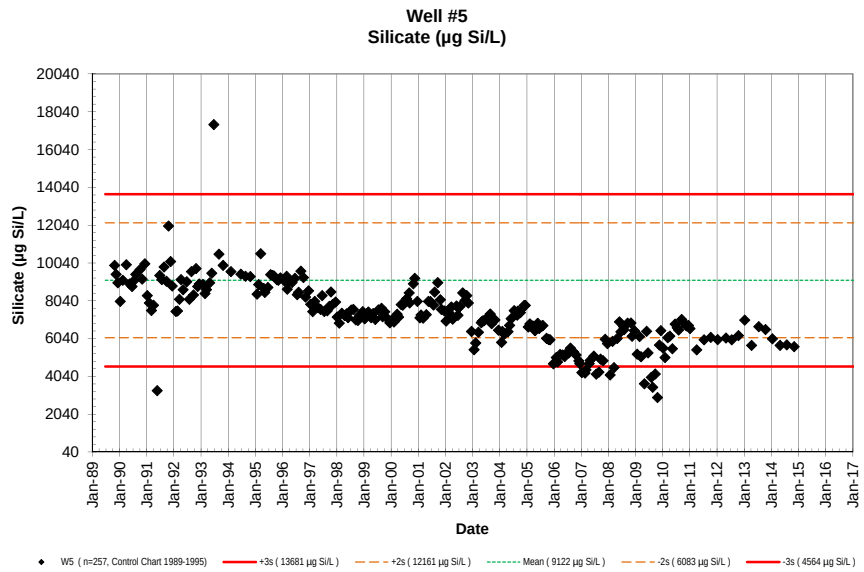

Well #5
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W5 (n=265, Control Chart 1989-1995)
+3s (262 µg P/L)
+2s (228 µg P/L)
Mean (160 µg P/L)
-2s (92 µg P/L)
-3s (58 µg P/L)

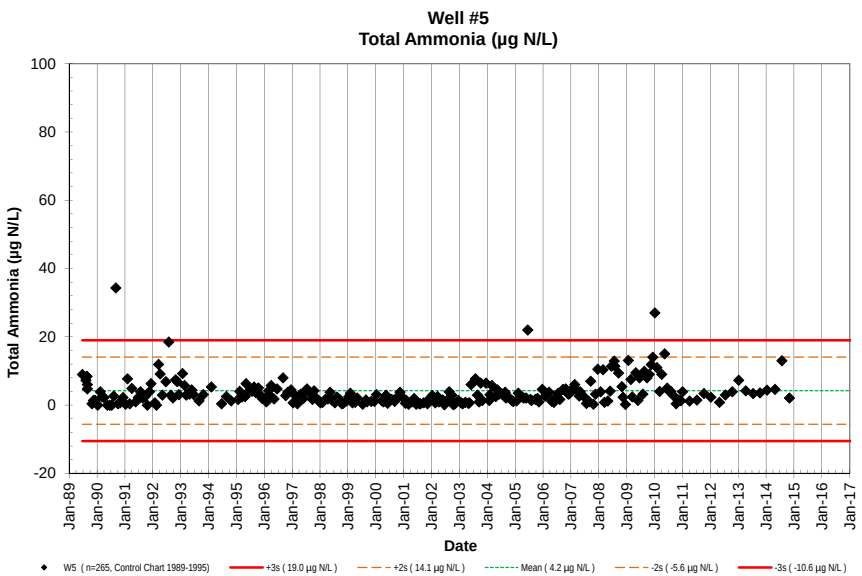

Well #5
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W5 (n=265, Control Chart 1989-1995)
+3s (1903 µg N/L)
+2s (1631 µg N/L)
Mean (1087 µg N/L)
-2s (542 µg N/L)
-3s (270 µg N/L)

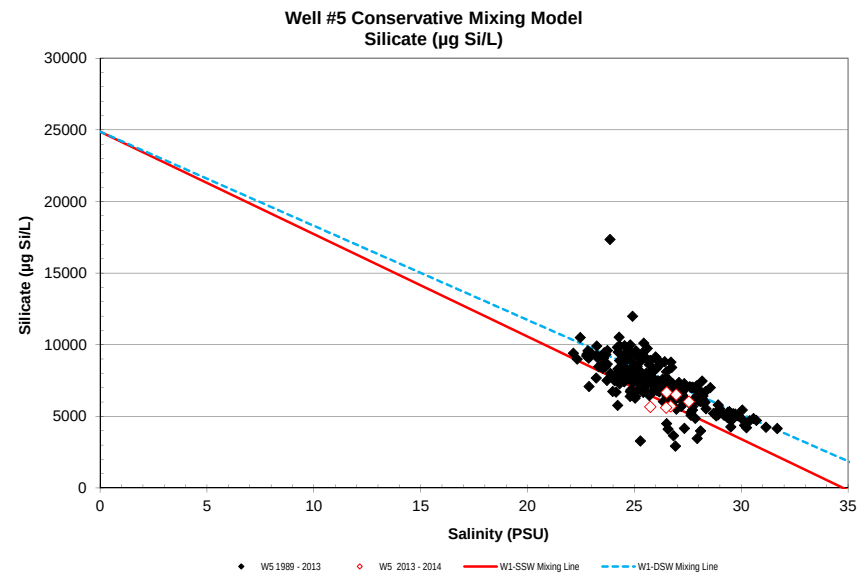

Well #5 Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W5 1989 - 2013
W5 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

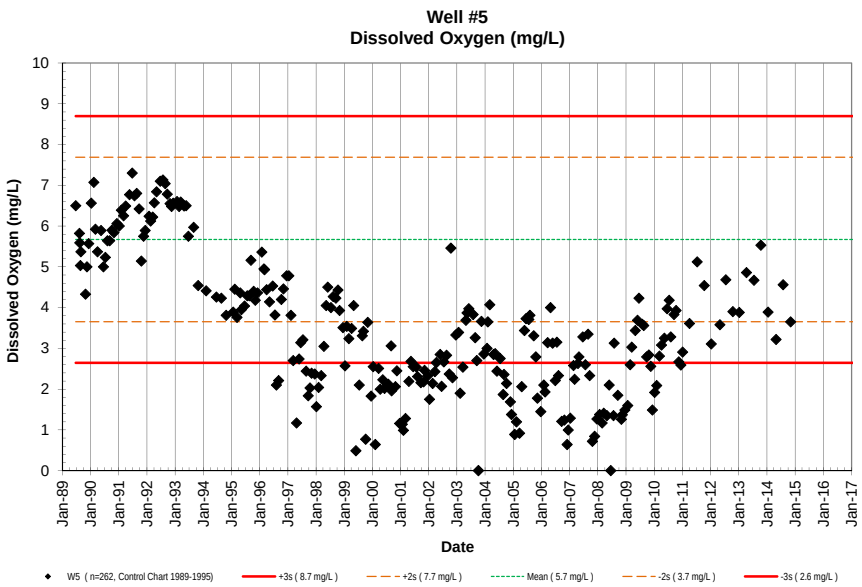

Well #5 Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W5 1989 - 2013
W5 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

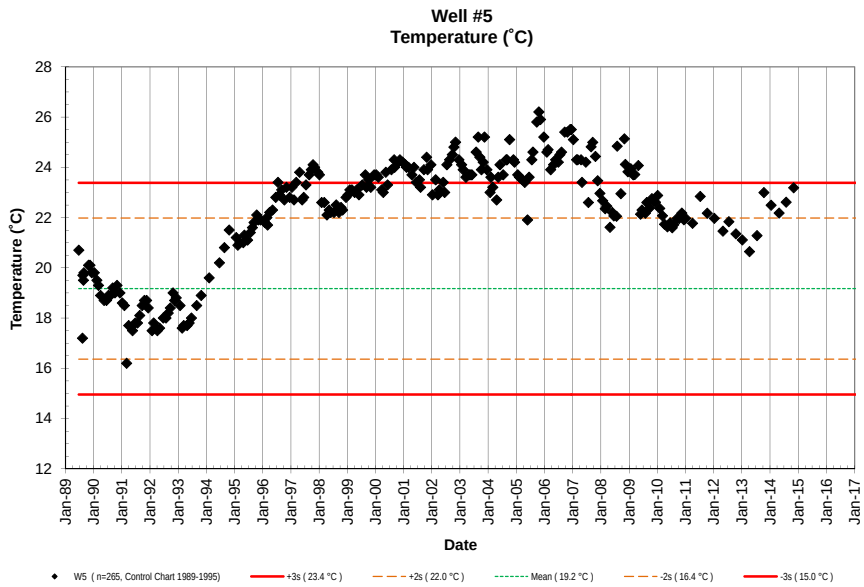

Well #5
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W5 (n=265, Control Chart 1989-1995)
+3s (19.0 µg N/L)
+2s (14.1 µg N/L)
Mean (4.2 µg N/L)
-2s (-5.6 µg N/L)
-3s (-10.6 µg N/L)

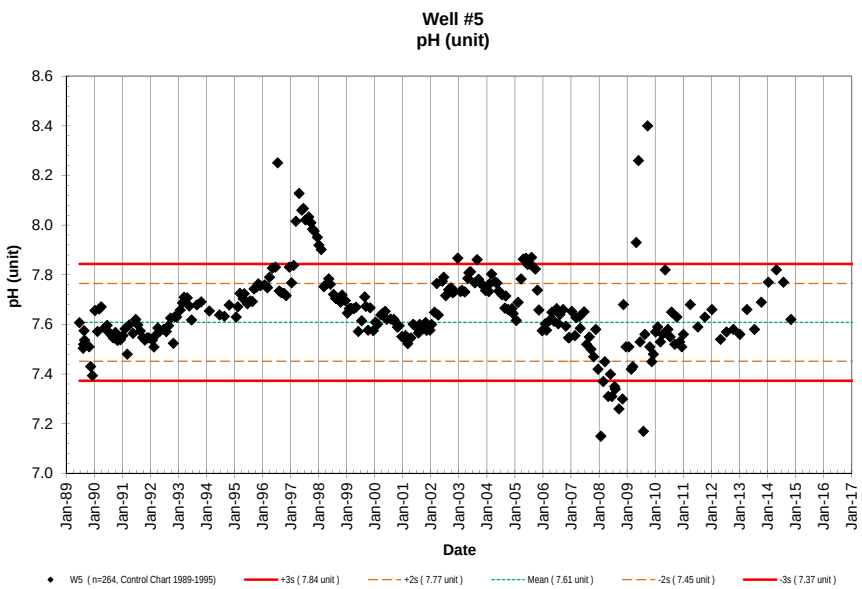

Well #5
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W5 (n=257, Control Chart 1989-1995)
+3s (13681 µg Si/L)
+2s (12161 µg Si/L)
Mean (9122 µg Si/L)
-2s (6083 µg Si/L)
-3s (4564 µg Si/L)

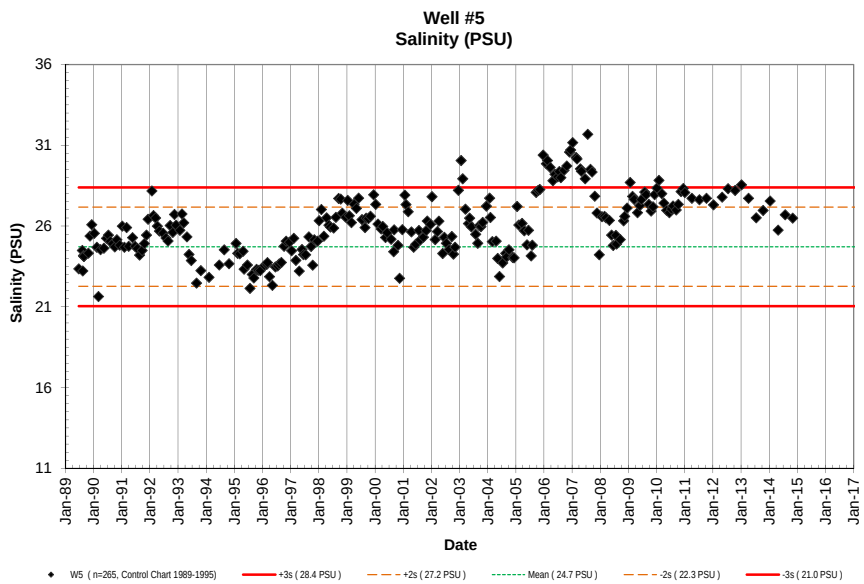

Well #5
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W5 (n=265, Control Chart 1989-1995)
+3s (19.0 µg N/L)
+2s (14.1 µg N/L)
Mean (4.2 µg N/L)
-2s (-5.6 µg N/L)
-3s (-10.6 µg N/L)

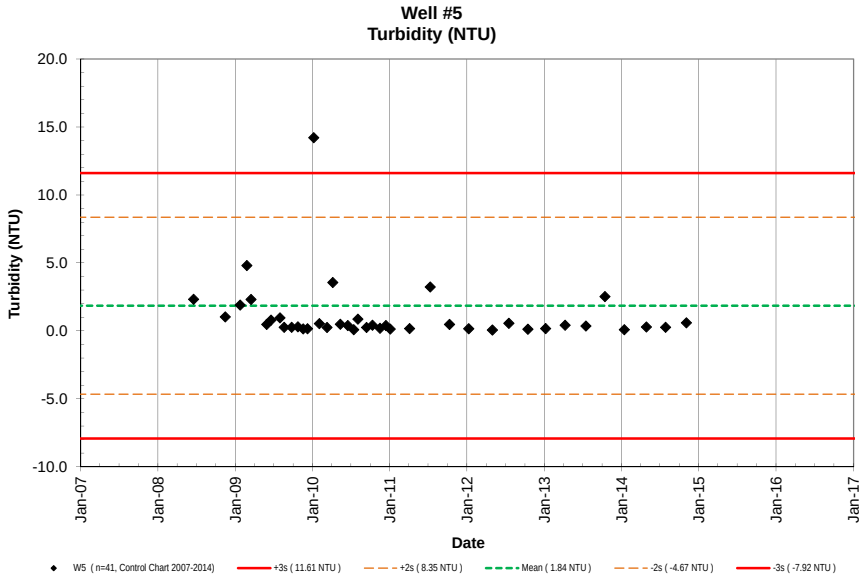

Well #5 Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W5 1989 - 2013
W5 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

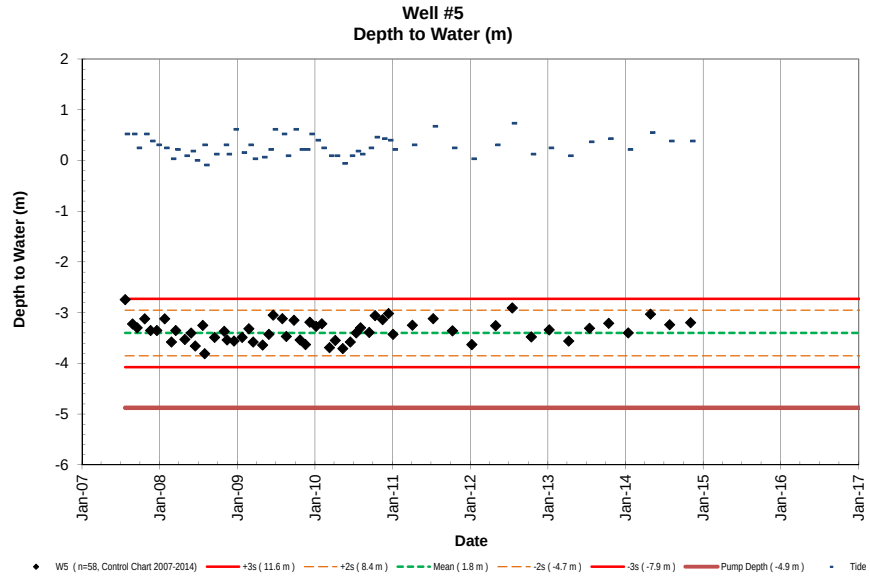

Well #5
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W5 (n=262, Control Chart 1989-1995)
+3s (8.7 mg/L)
+2s (7.7 mg/L)
Mean (5.7 mg/L)
-2s (3.7 mg/L)
-3s (2.6 mg/L)

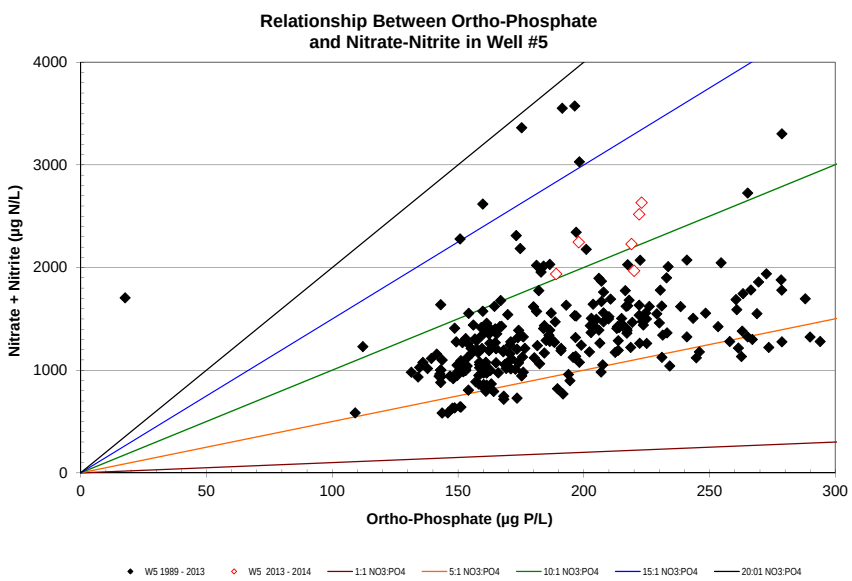

Well #5
Temperature (˚C)
Temperature (˚C)
Date
W5 (n=265, Control Chart 1989-1995)
+3s (23.4 °C)
+2s (22.0 °C)
Mean (19.2 °C)
-2s (16.4 °C)
-3s (15.0 °C)


Well #5
pH (unit)
pH (unit)
Date
W5 (n=264, Control Chart 1989-1995)
+3s (7.84 unit)
+2s (7.77 unit)
Mean (7.61 unit)
-2s (7.45 unit)
-3s (7.37 unit)


Well #5
Salinity (PSU)
Salinity (PSU)
Date
W5 (n=265, Control Chart 1989-1995)
+3s (28.4 PSU)
+2s (27.2 PSU)
Mean (24.7 PSU)
-2s (22.3 PSU)
-3s (21.0 PSU)


Well #5
Turbidity (NTU)
Turbidity (NTU)
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W5 (n=41, Control Chart 2007-2014)
+3s (11.61 NTU)
+2s (8.35 NTU)
Mean (1.84 NTU)
-2s (-4.67 NTU)
-3s (-7.92 NTU)


Well #5
Depth to Water (m)
Depth to Water (m)
2
1
0
-1
-2
-3
-4
-5
-6
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W5 (n=58, Control Chart 2007-2014)
+3s (11.6 m)
+2s (8.4 m)
Mean (1.8 m)
-2s (-4.7 m)
-3s (-7.9 m)
Pump Depth (-4.9 m)
Tide


Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #5
Nitrate + Nitrite (µg N/L)
4000
3000
2000
1000
0
0
50
100
150
200
250
300
Ortho-Phosphate (µg P/L)
W5 1989 - 2013
W5 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

NELHA Water Quality Laboratory

Well 5A Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W5A	-8.2296	6/23/89					5.71	177	70.0	980	0.64	9.0								18.0	7.50	28.56	4.67		NA	NA
W5A	-8.2296	8/9/89	1020				5.06	157	85.8	1202	0.86	12.0								19.5	7.40	28.85	4.70		<1	NA
W5A	-8.2296	8/15/89	940				4.98	154	85.8	1202	0.70	9.8								17.4	7.42	30.48	4.56		<1	NA
W5A	-8.2296	8/22/89	930				5.18	160	86.2	1207	0.70	9.8								17.8	7.46	28.88	4.29		<1	NA
W5A	-8.2296	8/28/89	1055				5.06	157	86.7	1214	0.70	9.8								17.1	7.45	28.62	4.37		<1	NA
W5A	-8.2296	8/28/89	1055				5.04	156	86.9	1217	0.86	12.0													NA	NA
W5A	-8.2296	10/27/89	937				5.04	156	77.7	1088	0.03	0.4	240	6741	5.28	163.5	78.1	1094	0.36	17.2	7.40	28.92	3.38		<1	NA
W5A	-8.2296	11/15/89	725				5.04	156	76.7	1074	0.06	0.8	231	6488	5.33	165.1	82.5	1156	0.70	17.5	7.41	28.02	4.42		<1	NA
W5A	-8.2296	12/8/89	1010				5.01	155	74.5	1043	0.10	1.4	240	6741	5.31	164.5	76.4	1070		17.2	7.11	28.92	4.84		<1	NA
W5A	-8.2296	1/10/90	826				4.15	129	76.6	1073	0.00	0.0	203	5701	4.38	135.7	79.3	1111	1.16	17.1	7.65	28.90	5.22		<1	NA
W5A	-8.2296	2/13/90	955				5.64	175	84.0	1177	0.08	1.1	196	5505	5.84	180.9	87.4	1224	0.86	16.9	7.46	28.93	5.14		<1	NA
W5A	-8.2296	3/5/90	1118				5.26	163	96.2	1347	0.10	1.4	232	6516	5.52	171.0	96.2	1347	0.80	16.6	7.57	28.19	4.82		<1	NA
W5A	-8.2296	4/2/90	1015				5.44	168	93.8	1314	0.03	0.4	278	7808	5.47	169.4	97.5	1366	15.07	16.2	7.55	28.70	4.89		<1	NA
W5A	-8.2296	5/16/90	1027				5.71	177	94.6	1325	0.00	0.0	221	6207	5.90	182.7	99.1	1388	4.77	16.3	7.48	28.69	5.40		<1	NA
W5A	-8.2296	6/17/90	1153				6.16	191	90.7	1270	0.00	0.0	223	6263	6.22	192.7	95.5	1338	1.55	16.4	7.53	28.78	4.64		<1	NA
W5A	-8.2296	7/12/90	1059				6.33	196	88.6	1241	0.00	0.0	222	6235	6.50	201.3	91.1	1276	0.67	16.4	7.51	29.40	4.19		<1	NA
W5A	-8.2296	8/7/90	1034				4.95	153	92.6	1297	0.04	0.6	219	6151	5.56	172.2	91.8	1285	2.35	16.4	7.47	29.25	4.58		<1	NA
W5A	-8.2296	9/5/90	1022				5.79	179	89.8	1258	0.00	0.0			5.79	179.3	91.5	1281	0.52	16.5	7.42	29.30	4.58		<1	NA
W5A	-8.2296	10/31/90	951				5.11	158	77.5	1085	0.03	0.4	211	5926	5.23	162.0	80.7	1131	1.98	18.8	7.53	29.76	5.25		<1	NA
W5A	-8.2296	12/7/90	947				3.62	112	63.5	889	0.00	0.0	251	7041	4.91	152.1	75.9	1063	0.57	17.0	7.45	29.11	5.06		<1	NA
W5A	-8.2296	1/9/91	755				5.67	176	81.9	1147	0.00	0.0	208	5842	5.69	176.2	89.3	1251	0.69	16.5	7.52	29.81	5.18		<1	NA
W5A	-8.2296	2/5/91	730				5.66	175	63.6	891	0.50	7.0	186	5224	5.67	175.6	66.3	929	0.86	15.1	7.54	29.35	5.28		<1	NA
W5A	-8.2296	3/6/91	754				5.11	158	73.2	1025	0.07	1.0	186	5224	5.14	159.2	75.9	1063	5.85	14.4	7.58	29.37	5.81		<1	NA
W5A	-8.2296	4/2/91	759				5.11	158	71.2	997	0.40	5.6	190	5336	5.21	161.4	75.4	1056	0.73	15.4	7.52	28.85	6.01		<1	NA
W5A	-8.2296	5/21/91	823				5.25	163	41.5	581	0.07	1.0	186	5224	5.39	166.9	43.4	608	0.71	15.3	7.51	29.20	6.16		<1	NA
W5A	-8.2296	6/25/91	802				4.19	130	57.6	807	0.40	5.6	222	6235	5.00	154.9	60.8	852	0.57	15.6	7.53	29.09	6.32		<1	<1
W5A	-8.2296	7/23/91	858				5.43	168	69.3	971	0.28	3.9	234	6572	6.05	187.4	73.6	1031	1.61	15.6	7.49	28.53	6.25		<1	<1
W5A	-8.2296	8/22/91	817				5.10	158	65.9	923	0.19	2.7	230	6460	5.35	165.7	77.8	1090	0.70	15.3	7.50	28.69	6.36		<1	<1
W5A	-8.2296	9/23/91	820				5.24	162	67.3	943	0.18	2.5	231	6488	5.31	164.5	71.2	997	0.73	16.2	7.50	28.17	5.82		1	<1
W5A	-8.2296	10/22/91	710				4.59	142	70.9	993	0.03	0.4	292	8201	4.60	142.5	74.7	1046	0.61	16.6	7.49	28.90	4.93		<1	74
W5A	-8.2296	11/19/91	943				5.18	160	68.9	965	0.02	0.3	244	6853	5.26	162.9	69.7	976	0.53	16.2	7.51	29.15	5.89		<1	1
W5A	-8.2296	12/10/91	840				4.91	152	71.2	997	0.08	1.1	218	6123	4.95	153.3	73.5	1029	0.69	16.1	7.53	29.26	5.70		<1	<1
W5A	-8.2296	1/28/92	829				4.93	153	67.7	948	0.05	0.7	202	5673	5.01	155.2	69.2	969	0.89	15.5	7.51	29.70	6.10		<1	4
W5A	-8.2296	2/18/92	820				4.77	148	66.0	924	0.00	0.0	196	5505	4.92	152.4	70.2	983	0.73	15.5	7.52	29.19	6.42		<1	<1
W5A	-8.2296	3/16/92	848				4.87	151	65.5	917	0.30	4.2	210	5898	5.02	155.5	66.1	926	0.86	15.3	7.53	29.16	6.75		<1	<1
W5A	-8.2296	4/7/92	820				4.26	132	62.6	877	0.23	3.2	220	6179	4.48	138.8	62.1	870	0.74	15.3	7.56	28.84	6.92		<1	<1
W5A	-8.2296	5/5/92	827				5.14	159	60.7	850	0.21	2.9	222	6235	5.21	161.4	64.3	901	0.89	15.2	7.56	28.84	7.21		<1	<1
W5A	-8.2296	6/22/92	816				4.09	127	62.0	868	0.41	5.7	206	5786	4.26	131.9	64.3	901	0.82	15.0	7.59	29.55	6.54		<1	<1
W5A	-8.2296	7/28/92	811				4.86	151	60.7	850	ND	0.0	203	5701	5.05	156.4	58.9	825	0.79	15.5	7.57	28.87	7.40		<1	<1
W5A	-8.2296	8/25/92	751				4.80	149	56.2	787	0.16	2.2	247	6937	4.96	153.6	61.7	864	0.71	15.7	7.60	28.73	7.14		<1	3
W5A	-8.2296	9/21/92	808				4.67	145	60.4	845	0.13	1.8	226	6347	4.75	147.1	62.5	875	0.75	16.0	7.62	28.74	6.77		<1	<1
W5A	-8.2296	10/26/92	815				4.64	144	61.3	859	0.42	5.9	252	7078	4.75	147.1	63.7	892	0.71	16.5	7.60	28.65	6.78		1	<1
W5A	-8.2296	11/16/92	838				4.65	144	59.7	836	0.36	5.0	248	6965	4.74	146.8	64.7	906	0.64	16.4	7.63	28.68	6.89		<1	<1
W5A	-8.2296	12/7/92	835				4.43	137	59.4	832	0.14	2.0	244	6853	4.54	140.6	62.5	875	0.66	16.4	7.64	28.58	6.88		<1	<1
W5A	-8.2296	1/25/93	821				4.24	131	60.7	850	0.29	4.1	244	6864	4.30	133.2	66.2	928	0.73	16.4	7.65	28.60	6.42		<1	<1
W5A	-8.2296	2/22/93	802				4.28	133	59.7	837	0.35	4.9	236	6614	4.28	132.6	65.9	923	0.66	15.9	7.68	28.80	6.27		<1	<1
W5A	-8.2296	3/15/93	758				4.46	138	60.1	842	0.22	3.1	243	6816	4.53	140.3	62.8	879	0.65	15.6	7.70	28.53	6.32		<1	<1
W5A	-8.2296	4/26/93	807				4.41	137	56.5	791	0.02	0.3	238	6684	4.60	142.5	60.4	846	0.73	15.9	7.71	28.48	6.00		<1	<1
W5A	-8.2296	5/24/93	824				4.48	139	56.5	792	0.32	4.5	250	7021	4.56	141.2	62.3	873	0.64	15.8	7.68	28.27	5.99		<1	<1
W5A	-8.2296	6/21/93	822				4.56	141	55.1	771	0.15	2.1	278	7808	4.74	146.8	59.9	839	0.60	15.9	7.69	28.00	5.64		<1	<1
W5A	-8.2296	8/30/93	926				4.79	148	62.1	869	0.09	1.3	270	7577	5.17	160.1	72.6	1016	0.75	16.7	7.67	26.97	4.33		<1	<1
W5A	-8.2296	10/25/93	806				4.91	152	57.1	800	0.22	3.1	261	7330	4.97	153.9	61.0	855	0.61	17.3	7.68	27.07	3.15		<1	<1
W5A	-8.2296	2/7/94	1007				4.99	155	45.7	640	0.19	2.7	233	6544	5.11	158.3	51.2	717	0.90	18.3	7.66	27.73	3.14		<1	1
W5A	-8.2296	6/20/94	756				4.37	135	44.0	616	0.06	0.8	215	6049	4.45	137.8	53.6	751	0.68	18.8	7.66	28.88	3.55		<1	<1

NELHA Water Quality Laboratory

Well 5A Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W5A	-8.2296	8/22/94	906				4.56	141	43.9	614	0.10	1.4	215	6031	4.65	144.0	52.1	730	0.69	19.0	7.67	29.08	4.11		<1	<1
W5A	-8.2296	10/24/94	821				4.60	142	50.9	713	0.01	0.1	237	6651	4.75	147.1	55.2	774	0.56	19.5	7.67	27.33	3.40		<1	<1
W5A	-8.2296	1/23/95	904				4.30	133	52.5	735	0.02	0.3	227	6364	4.44	137.5	56.0	784	0.58	19.5	7.65	27.54	3.71		<1	<1
W5A	-8.2296	2/13/95	901				4.38	136	56.1	786	0.29	4.1	234	6561	4.42	136.9	61.7	864	0.58	19.4	7.68	27.55	3.73		<1	<1
W5A	-8.2296	3/13/95	939				4.45	138	62.6	876	0.14	2.0	285	7993	4.45	137.8	65.0	910	0.53	19.6	7.73	27.40	3.19		4	<1
W5A	-8.2296	4/24/95	843				4.50	139	64.4	902	0.17	2.4	226	6353	4.66	144.3	65.8	921	0.71	19.1	7.69	27.85	4.37		<1	<1
W5A	-8.2296	5/8/95	842				4.55	141	68.5	960	0.27	3.8	223	6269	4.57	141.6	72.3	1013	0.64	19.2	7.70	27.41	4.03		<1	<1
W5A	-8.2296	6/19/95	919				4.47	138	65.4	917	0.31	4.3	227	6375	4.52	140.0	68.1	954	0.63	19.2	7.67	27.31	4.56		<1	<1
W5A	-8.2296	7/24/95	847				4.40	136	60.5	847	0.21	2.9	236	6637	4.52	140.0	62.6	877	0.59	19.1	7.67	27.04	4.60		1	<1
W5A	-8.2296	8/21/95	937				4.43	137	54.0	756	0.41	5.7	171	4794	4.40	136.3	59.0	827	0.55	19.5	7.68	27.48	4.42		<1	<1
W5A	-8.2296	9/11/95	728				4.28	133	53.1	744	0.24	3.4	231	6491	4.31	133.5	55.9	783	0.58	19.3	7.73	27.37	4.35		<1	<1
W5A	-8.2296	10/16/95	826				4.16	129	50.0	701	0.34	4.8	228	6409	4.33	134.1	52.9	741	0.69	19.5	7.74	27.59	4.37		<1	<1
W5A	-8.2296	11/6/95	806				3.78	117	52.5	735	0.25	3.5	173	4850	3.80	117.7	54.8	768	0.66	19.6	7.79	29.59	5.22		<1	<1
W5A	-8.2296	12/4/95	815				4.25	132	52.6	737	0.11	1.5	223	6269	4.33	134.1	55.5	777	0.74	19.6	7.73	27.55	5.40		<1	<1
W5A	-8.2296	1/29/96	933				4.62	143	52.2	731	0.02	0.3	224	6286	4.66	144.3	63.4	887	0.65	19.8	7.73	27.91	4.74		<1	<1
W5A	-8.2296	2/26/96	941				4.53	140	61.1	856	0.30	4.2	251	7062	4.62	143.1	63.9	896	0.61	20.2	7.73	27.51	4.54		<1	25
W5A	-8.2296	3/5/96	840				4.64	144	65.6	919	0.28	3.9	226	6351	4.74	146.8	69.9	979	0.74	19.9	7.72	27.63	4.26		<1	<1
W5A	-8.2296	4/1/96	901				4.71	146	87.3	1223	0.55	7.7	236	6634	4.85	150.2	90.2	1263	0.58	20.2	7.69	27.05	4.77		<1	<1
W5A	-8.2296	5/8/96	859				5.26	163	105.0	1470	0.20	2.8	228	6394	5.37	166.3	111.8	1566	0.71	20.6	7.73	27.03	3.78		<1	<1
W5A	-8.2296	6/17/96	856				5.21	161	93.2	1305	0.13	1.8	231	6474	5.25	162.6	96.3	1348	0.69	21.0	7.75	23.02	3.88		<1	<1
W5A	-8.2296	7/16/96	846				5.89	182	121.7	1704	43.27	606.1	225	6307	5.40	167.3	140.6	1969	0.74	20.6	7.77	27.67	3.36		1	<1
W5A	-8.2296	8/5/96	959				5.33	165	95.4	1336	0.43	6.0	222	6235	5.39	166.9	101.3	1419	0.68	21.0	7.74	27.74	3.67		<1	<1
W5A	-8.2296	9/3/96	1355				5.40	167	87.2	1222	0.50	7.0	250	7007	5.45	168.8	88.8	1244	0.75	20.7	7.75	27.73	4.01		<1	<1
W5A	-8.2296	10/8/96	937				5.04	156	72.0	1008	0.26	3.6	238	6693	5.42	167.9	78.6	1101	0.78	20.8	7.74	28.31	4.31		<1	<1
W5A	-8.2296	11/4/96	941				5.09	158	69.4	972	0.25	3.5	210	5911	5.25	162.6	74.3	1040	0.87	21.3	7.74	28.27	4.70		1	<1
W5A	-8.2296	12/16/96	920				4.84	150	71.2	997	0.30	4.2	231	6475	4.87	150.8	73.4	1029	0.74	20.9	7.79	28.65	4.87		<1	<1
W5A	-8.2296	1/13/97	956				5.13	159	92.4	1294	0.08	1.1	212	5957	5.38	166.6	95.7	1341	0.67	21.1	7.78	27.80	4.32		<1	<1
W5A	-8.2296	2/10/97	903				5.40	167	146	2042	0.20	2.8	214	6022	5.5*	0.0	148.0	2073	0.77	21.0	7.80	27.81	4.11		<1	<1
W5A	-8.2296	3/10/97	907				6.37	197	256	3589	0.05	0.7	218	6123	6.53	202.3	308.4	4320	0.91	21.1	7.86	27.90	2.89		<1	<1
W5A	-8.2296	4/22/97	948				6.41	199	404	5659	0.31	4.3	210	5906	6.55	202.9	1290.0	18069	1.09	21.3	8.01	28.07	1.86		<1	<1
W5A	-8.2296	5/27/97	905				6.03	187	245	3430	0.16	2.2	209	5870	6.30	195.1	281.0	3936	0.80	20.2	7.99	28.53	2.96		<1	<1
W5A	-8.2296	6/16/97	918				6.41	199	169	2362	0.34	4.8	220	6168	6.44	199.5	189.0	2647	0.78	20.2	7.99	28.50	3.24		<1	<1
W5A	-8.2296	7/16/97	821				6.75	209	152	2123	0.07	1.0	190	5328	6.76	209.4	164.8	2308	0.70	20.5	7.96	28.50	3.26		<1	<1
W5A	-8.2296	8/25/97	912				6.70	208	137	1925	0.36	5.0	199	5583	6.70	207.5	149.9	2100	0.68	21.4	8.02	28.76	3.09		<1	<1
W5A	-8.2296	9/22/97	839				6.56	203	127	1780	0.28	3.9	194	5440	6.60	204.4	136.4	1911	0.66	21.6	8.02	28.76	3.02		<1	<1
W5A	-8.2296	10/14/97	904				6.93	215	137	1916	0.33	4.6	219	6139	6.95	215.3	140.6	1969	0.70	22.3	7.96	27.77	2.03		<1	<1
W5A	-8.2296	11/3/97	836				6.34	196	109	1532	0.21	2.9	197	5524	6.52	201.9	124.3	1741	0.73	21.7	7.96	28.69	2.91		<1	<1
W5A	-8.2296	12/15/97	928				6.89	213	97.2	1361	0.13	1.8	199	5581	7.02	217.4	108.0	1513	0.82	21.6	8.00	28.58	3.06		<1	<1
W5A	-8.2296	1/5/98	1023				6.42	199	97.6	1367	0.04	0.6	185	5207	6.48	200.7	100.3	1405	0.75	21.5	7.94	29.09	1.95		<1	<1
W5A	-8.2296	2/2/98	931				6.18	191	85.9	1203	0.06	0.8	190	5345	6.32	195.8	89.6	1255	0.73	20.7	7.88	29.22	1.95		<1	<1
W5A	-8.2296	3/9/98	931				7.21	223	87.3	1223	0.14	2.0	200	5611	7.27	225.2	92.8	1300	0.68	21.1	7.73	28.37	1.76		<1	<1
W5A	-8.2296	4/13/98	839				6.96	216	86.0	1205	0.15	2.1	202	5659	7.13	220.8	89.1	1248	0.65	20.8	7.70	28.85	2.85		<1	<1
W5A	-8.2296	5/11/98	907				6.89	213	106	1483	0.43	6.0	206	5783	7.01	217.1	109.9	1539	0.68	20.7	7.74	28.45	3.10		<1	<1
W5A	-8.2296	6/1/98	903				6.91	214	107	1500	0.05	0.7	199	5592	7.03	217.7	106.2	1487	0.88	21.0	7.74	28.59	3.36		<1	<1
W5A	-8.2296	7/13/98	913				6.46	200	91.6	1283	0.07	1.0	199	5597	6.78	210.0	96.1	1346	0.77	21.2	7.73	28.99	3.56		<1	<1
W5A	-8.2296	8/10/98	935				6.50	201	112	1573	0.14	2.0	204	5718	6.75	209.1	109	1531	0.76	21.6	7.70	29.38	3.14		<1	<1
W5A	-8.2296	9/14/98	919				6.41	199	92.0	1289	0.14	2.0	196	5494	6.60	204.4	94.7	1326	0.73	21.1	7.70	29.81	3.49		<1	<1
W5A	-8.2296	10/12/98	936				6.30	195	96.5	1352	0.03	0.4	194	5435	6.43	199.2	101	1410	0.75	21.0	7.70	29.88	3.94		1	<1
W5A	-8.2296	11/2/98	857				6.20	192	90.4	1266	0.01	0.1	196	5516	6.34	196.4	100	1401	0.90	21.0	7.72	29.69	3.31		<1	<1
W5A	-8.2296	12/15/98	855				6.04	187	79.6	1115	0.05	0.7	204	5729	6.13	189.9	82.0	1149	0.86	21.8	7.68	29.39	2.64		<1	<1
W5A	-8.2296	1/11/99	913				5.71	177	94.8	1328	0.22	3.1	202	5685	5.83	180.6	96.7	1354	1.04	21.8	7.65	29.97	1.55		<1	<1
W5A	-8.2296	2/2/99	906				6.03	187	110	1546	0.20	2.8	184	5171	6.13	189.9	121	1693	0.96	21.9	7.68	30.10	2.31		<1	<1
W5A	-8.2296	3/1/99	908				6.19	192	104	1461	0.04	0.6	188	5286	6.32	195.8	108	1510	0.88	22.2	7.66	29.71	1.93		<1	<1
W5A	-8.2296	4/5/99	910				5.74	178	85.2	1193	0.10	1.4	192	5381	5.91	183.1	88.7	1242	0.70	22.0	7.66	30.03	1.90		<1	<1
W5A	-8.2296	5/3/99	908				5.57	173	84.2	1179	0.14	2.0	191	5370	5.68	175.9	90.4	1267	0.79	21.8	7.66	30.15	2.24		<1	22
W5A	-8.2296	6/1/99	902				5.10	158	135	1891	20.0	280.1	193	5421	5.25	162.6	159	2227	0.82	22.0	7.61	30.13	0.55		<1	3

NELHA Water Quality Laboratory

Well 5A Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W5A	-8.2296	7/14/99	907				5.13	159	139	1947	10.3	144.3	204	5724	5.16	159.8	159	2226	0.88	22.1	7.50	29.31	0.25		<1	<1
W5A	-8.2296	8/23/99	930				5.69	176	87.1	1220	0.11	1.5	201	5645	5.80	179.6	93.6	1311	0.87	22.8	7.67	29.28	2.58		<1	<1
W5A	-8.2296	9/7/99	919				5.63	174	82.0	1149	0.04	0.6	199	5583	5.84	180.9	93.7	1312	0.81	22.6	7.68	29.75	2.42		<1	<1
W5A	-8.2296	10/5/99	913				5.02	155	114	1601	5.25	73.5	194	5446	5.04	156.1	122	1709	0.71	22.4	7.61	29.64	0.39		<1	<1
W5A	-8.2296	11/1/99	933				5.31	164	73.2	1025	0.06	0.8	182	5123	5.37	166.3	77.0	1079	0.68	22.5	7.66	29.93	2.10		<1	<1
W5A	-8.2296	12/14/99	924				5.07	157	70.1	982	0.04	0.6	176	4937	5.21	161.4	74.0	1036	0.84	23.9	7.59	30.98	1.30		<1	<1
W5A	-8.2296	1/10/00	953				5.03	156	69.5	973	0.04	0.6	187	5252	5.08	157.3	74.4	1042	0.88	23.1	7.61	30.42	1.60		<1	<1
W5A	-8.2296	2/7/00	951				5.17	160	76.6	1073	0.21	2.9	185	5182	5.33	165.1	81.1	1136	0.85	23.0	7.61	30.04	1.92		<1	<1
W5A	-8.2296	3/21/00	953				5.06	157	75.3	1055	0.06	0.8	181	5072	4.95	153.3	76.3	1069	0.84	23.1	7.63	29.87	1.45		<1	<1
W5A	-8.2296	4/10/00	1017				5.08	157	72.2	1012	0.07	1.0	176	4943	4.89	151.5	78.2	1095	0.80	22.4	7.64	29.84	1.44		<1	<1
W5A	-8.2296	5/15/00	930				5.22	162	66.4	930	0.22	3.1	193	5432	5.30	164.2	70.3	985	0.79	22.5	7.62	29.68	1.16		<1	<1
W5A	-8.2296	6/5/00	931				5.14	159	62.7	878	0.05	0.7	202	5673	5.26	162.9	67.6	947	0.76	22.8	7.58	29.67	1.04		<1	<1
W5A	-8.2296	7/26/00	1000				5.19	161	70.3	985	0.05	0.7	192	5404	5.30	164.2	72.8	1020	0.73	23.0	7.62	29.98	1.29		<1	<1
W5A	-8.2296	8/29/00	858				5.20	161	78.0	1093	0.03	0.4	199	5589	5.25	162.6	80.1	1122	0.74	22.8	7.57	29.38	1.42		<1	<1
W5A	-8.2296	9/5/00	929				4.95	153	78.4	1098	0.13	1.8	188	5266	5.15	159.5	80.3	1125	0.72	22.8	7.57	30.20	1.34		<1	<1
W5A	-8.2296	10/24/00	930				4.88	151	80.2	1123	0.14	2.0	177	4968	5.09	157.7	84.2	1179	0.74	23.0	7.56	30.69	1.36		<1	2
W5A	-8.2296	11/13/00	908				4.58	142	84.4	1182	0.26	3.6	183	5126	4.82	149.3	89.3	1251	0.75	23.7	7.55	30.42	1.28		<1	<1
W5A	-8.2296	12/18/00	917				4.59	142	100	1406	0.20	2.8	168	4716	4.72	146.2	106	1488	0.94	23.3	7.55	30.57	0.59		<1	<1
W5A	-8.2296	1/22/01	911				4.35	135	86.3	1209	0.02	0.3	164	4606	4.48	138.8	88.3	1236	0.84	23.3	7.54	30.89	0.77		<1	1
W5A	-8.2296	2/5/01	936				4.23	131	87.5	1226	0.17	2.4	166	4673	4.35	134.7	91.0	1274	0.78	23.2	7.55	30.88	0.55		<1	<1
W5A	-8.2296	3/5/01	928				4.25	132	81.4	1140	0.02	0.3	159	4468	4.53	140.3	84.6	1185	0.82	23.1	7.50	30.50	0.70		<1	<1
W5A	-8.2296	4/17/01	915				4.48	139	90.0	1261	0.02	0.3	153	4297	4.58	141.9	94.6	1325	0.80	22.7	7.56	30.94	1.20		<1	<1
W5A	-8.2296	5/15/01	851				4.50	139	93.6	1311	0.17	2.4	155	4339	4.50	139.4	95.6	1339	0.70	22.4	7.59	30.74	1.41		3	1
W5A	-8.2296	6/12/01	904				4.70	146	86.7	1215	0.02	0.3	156	4390	4.55	140.9	90.8	1272	0.68	22.1	7.59	30.61	1.38		<1	<1
W5A	-8.2296	7/23/01	909				4.47	138	81.7	1145	0.04	0.6	159	4454	4.48	138.8	88.8	1244	0.81	22.2	7.59	30.88	1.64		<1	<1
W5A	-8.2296	8/8/01	912				4.44	138	84.1	1178	0.03	0.4	167	4687	4.44	137.5	87.8	1230	0.81	21.9	7.59	30.78	1.27		<1	<1
W5A	-8.2296	9/19/01	916				4.76	147	94.6	1325	0.04	0.6	160	4488	4.92	152.4	97.8	1370	0.78	22.3	7.61	30.73	1.55		<1	<1
W5A	-8.2296	10/24/01	849				4.78	148	95.3	1335	0.08	1.1	165	4643	5.06	156.7	103	1436	0.77	22.3	7.57	30.23	1.03		<1	<1
W5A	-8.2296	11/7/01	906				4.92	152	104	1451	0.06	0.8	167	4682	4.92	152.4	124	1735	0.75	22.4	7.58	30.29	1.29		<1	1
W5A	-8.2296	12/19/01	925				5.06	157	108	1518	0.16	2.2	163	4578	4.98	154.2	140	1967	0.72	22.4	7.59	30.15	2.11		<1	<1
W5A	-8.2296	1/9/02	919				5.31	164	104	1454	0.18	2.5	166	4673	5.23	162.0	108	1517	0.78	22.2	7.61	30.32	2.07		1	<1
W5A	-8.2296	2/19/02	1035				5.22	162	98.2	1375	0.05	0.7	157	4401	5.24	162.3	98.5	1380	0.71	22.0	7.62	30.56	1.80		<1	<1
W5A	-8.2296	3/20/02	933				4.96	154	98.1	1374	0.16	2.2	151	4238	5.12	158.6	101	1410	0.75	21.8	7.64	30.66	1.59		<1	<1
W5A	-8.2296	4/8/02	1023				5.00	155	96.7	1354	0.04	0.6	154	4317	5.18	160.4	99.6	1395	0.78	21.8	7.63	30.47	1.26		<1	<1
W5A	-8.2296	5/29/02	1011				5.86	182	91.6	1283	0.16	2.2	149	4174	6.18	191.4	93.7	1312	0.73	21.9	7.69	30.19	1.19		<1	<1
W5A	-8.2296	6/17/02	944				6.35	197	89.9	1259	0.01	0.1	152	4269	6.44	199.5	96.6	1353	0.68	21.9	7.69	30.08	1.21		<1	<1
W5A	-8.2296	7/15/02	940				6.08	188	77.4	1084	0.11	1.5	161	4530	6.28	194.5	84.4	1183	0.74	22.1	7.65	30.65	1.20		<1	<1
W5A	-8.2296	8/20/02	939				6.06	188	64.3	901	0.18	2.5	165	4628	6.14	190.2	61.8	866	0.69	22.4	7.64	30.36	1.45		<1	<1
W5A	-8.2296	9/23/02	942				5.54	172	68.3	957	0.24	3.4	167	4682	5.64	174.7	66.3	929	0.63	22.8	7.64	34.64	1.65		<1	<1
W5A	-8.2296	10/14/02	919				5.28	164	74.3	1041	0.02	0.3	177	4971	5.51	170.7	73.8	1033	0.71	23.0	7.67	29.97	2.30		<1	9
W5A	-8.2296	11/4/02	929				5.00	155	80.3	1125	0.02	0.3	153	4294	5.24	162.3	77.9	1091	0.82	23.4	7.69	30.68	2.29		2	8
W5A	-8.2296	12/17/02	950				5.43	168	79.8	1118	0.05	0.7	154	4320	5.63	174.4	77.5	1086	0.70	23.3	7.63	30.83	1.29		<1	<1
W5A	-8.2296	1/21/03	1010				4.92	152	80.7	1130	<0.02	0.0	147	4140	5.18	160.4	86.0	1205	1.23	23.1	7.67	31.68	1.70		<1	22
W5A	-8.2296	2/12/03	1001				5.92	183	78.6	1101	0.03	0.4	166	4665	6.06	187.7	90.7	1271	0.82	22.7	7.66	31.03	1.14		<1	<1
W5A	-8.2296	3/19/03	948				6.36	197	106	1478	0.04	0.6	150	4221	6.48	200.7	111	1548	0.74	23.1	7.70	30.93	1.40		<1	1
W5A	-8.2296	4/28/03	930				5.89	182	87.2	1221	0.46	6.4	146	4095	6.02	186.5	99.5	1394	0.65	23.0	7.74	30.93	2.99		<1	2
W5A	-8.2296	5/12/03	908				5.66	175	83.0	1163	0.10	1.4	152	4275	5.85	181.2	89.7	1256	0.68	22.8	7.76	30.81	2.42		<1	12
W5A	-8.2296	6/3/03	923				5.59	173	74.8	1048	0.29	4.1	145	4061	5.80	179.6	89.3	1251	0.95	22.9	7.78	30.96	2.50		4	565

NELHA Water Quality Laboratory

Well 5A Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W5A	-8.2296	7/29/03	940				5.40	167	68.8	963	0.06	0.8	144	4036	5.53	171.3	77.7	1088		22.8	7.77	30.81	2.79		<1	11
W5A	-8.2296	8/26/03	945				6.41	199	76.1	1065	0.11	1.5	163	4575	6.49	201.0	84.6	1184		22.7	7.73	29.55	3.28		<1	10
W5A	-8.2296	9/15/03	926				6.00	186	73.2	1025	0.04	0.6	150	4199	6.22	192.7	96.6	1353		23.0	7.73	30.47	2.52		<1	1
W5A	-8.2296	10/6/03	908				6.10	189	69.1	968	0.10	1.4	158	4435	6.26	193.9	76.5	1071		22.8	7.73	30.25	NA		<1	<1
W5A	-8.2296	10/28/03	952				5.94	184	69.0	966	<0.10	0.0	152	4266	4.80	148.7	74.0	1036		23.2	7.72	30.40			<1	<1
W5A	-8.2296	11/14/03	1318																	23.1			2.46			
W5A	-8.2296	12/15/03	914				6.03	187	76.2	1068	0.20	2.8	160	4482	6.19	191.7	82.1	1151		22.7	7.70	30.30	2.21		<1	<1
W5A	-8.2296	1/26/04	919				5.97	185	83.6	1171	0.10	1.4	144	4030	6.18	191.4	90.6	1269		21.7	7.67	30.16	1.93		<1	<1
W5A	-8.2296	2/5/04	918				6.06	188	88.0	1232	0.21	2.9	146	4103	6.18	191.4	96.5	1352		21.6	7.69	30.11	2.95		<1	<1
W5A	-8.2296	3/2/04	923				6.18	191	94.8	1327	0.47	6.6	148	4151	6.18	191.4	104	1461		21.3	7.71	29.94	3.02		<1	<1
W5A	-8.2296	4/20/04	917				6.74	209	100	1402	0.01	0.1	159	4452	6.76	209.4	105	1471		21.6	7.69	29.42	2.02		<1	3
W5A	-8.2296	5/11/04	833				7.04	218	94.0	1317	0.30	4.2	162	4555	6.96	215.6	98.9	1385		21.2	7.70	28.93	2.10		<1	26
W5A	-8.2296	6/2/04	852				6.66	206	83.2	1165	0.14	2.0	152	4266	6.80	210.6	88.0	1233		24.7	7.70	29.29	2.57		<1	<1
W5A	-8.2296	7/14/04	924				5.92	183	89.2	1249	0.26	3.6	144	4039	5.88	182.1	105	1475		22.3	7.74	29.52	3.38		<1	<1
W5A	-8.2296	8/23/04	916				6.70	208	97.3	1362	0.29	4.1	161	4530	6.64	205.7	102	1429		22.7	7.68	28.86	1.86		<1	<1
W5A	-8.2296	9/2/04	927				6.43	199	94.3	1321	0.09	1.3	161	4519	6.50	201.3	98.8	1384		22.6	7.71	28.81	2.49		<1	<1
W5A	-8.2296	10/4/04	855				5.84	181	86.4	1209	0.16	2.2	145	4081	6.10	188.9	92.2	1291		20.6	7.70	29.52	3.12		<1	<1
W5A	-8.2296	11/23/04	850				6.04	187	72.0	1008	0.05	0.7	156	4379	6.24	193.3	104	1455		21.3	7.68	29.53	1.88		<1	<1
W5A	-8.2296	12/8/04	850				5.72	177	76.1	1066	0.09	1.3	150	4204	5.88	182.1	98.0	1372		22.8	7.71	29.69	2.87		<1	<1
W5A	-8.2296	1/18/05	903				5.98	185	68.2	955	0.06	0.8	152	4263	6.16	190.8	74.3	1041		22.8	7.67	30.41	1.36		<1	1
W5A	-8.2296	2/10/05	850				6.18	191	74.9	1049	0.25	3.5	155	4339	6.36	197.0	97.7	1369		22.7	7.69	30.24	1.58		<1	<1
W5A	-8.2296	3/22/05	857				7.18	222	97.8	1370	0.15	2.1	144	4030	7.40	229.2	104	1454	0.98	22.1	7.75	30.31	1.65		<1	2
W5A	-8.2296	4/20/05	848				6.30	195	87.4	1224	0.11	1.5	134	3752	6.40	198.2	89.4	1253		21.9	7.80	30.55	2.68		<1	11
W5A	-8.2296	5/25/05	910				6.02	186	75.7	1060	0.24	3.4	137	3853	6.46	200.1	89.0	1247		20.4	7.77	30.23	2.75		<1	6
W5A	-8.2296	6/14/05	908				5.76	178	66.5	931	0.63	8.8	138	3879	5.94	184.0	74.1	1038		21.9	7.78	30.32	3.16		2520	1244
W5A	-8.2296	7/19/05	903				5.42	168	71.2	997	0.07	1.0	145	4070	5.68	175.9	73.9	1035	0.72	22.8	7.82	29.84	3.36		<1	1
W5A	-8.2296	8/3/05	933				5.48	170	70.2	983	0.03	0.4	147	4117	5.66	175.3	71.7	1005	0.62	22.9	7.85	29.82	4.69		<1	1
W5A	-8.2296	9/22/05	856				5.10	158	56.9	797	0.07	1.0	145	4061	5.32	164.8	61.3	859	0.57	24.9	7.83	30.63	3.22		<1	920
W5A	-8.2296	10/19/05	910				4.80	149	72.0	1009	0.12	1.7	130	3654	4.98	154.2	78.5	1100		25.1	7.72	30.86	3.39		<1	<1
W5A	-8.2296	11/8/05	855				4.62	143	68.9	965	0.09	1.3	117	3297	4.84	149.9	75.6	1059		25.2	7.67	31.27	3.49		<1	<1
W5A	-8.2296	12/22/05	829				4.66	144	73.7	1032	0.32	4.5	133	3733	4.90	151.8	74.7	1046		24.7	7.56	31.28	1.66		<1	<1
W5A	-8.2296	1/31/06	854				4.72	146	67.8	950	0.19	2.7	136	3806	4.92	152.4	71.5	1001		23.8	7.55	31.07	2.03		<1	<1
W5A	-8.2296	2/16/06	849				4.82	149	66.4	930	0.22	3.1	136	3825	5.08	157.3	69.8	977	0.58	23.6	7.55	31.00	1.58		<1	<1
W5A	-8.2296	3/22/06	840				4.55	141	63.5	889	0.23	3.2	130	3651	4.69	145.3	68.6	961	0.63	23.5	7.54	31.38	2.91		<1	29
W5A	-8.2296	4/27/06	920				4.51	140	67.3	943	0.35	4.9	124	3483	4.73	146.5	63.3	886	0.67	23.6	7.61	31.35	3.00		<1	341
W5A	-8.2296	5/24/06	942				4.25	132	61.0	854	0.06	0.8	121	3398	4.52	140.0	59.0	826	0.77	24.0	7.54	31.30	2.38		<1	>5,000
W5A	-8.2296	6/28/06	927				4.18	129	57.6	807	0.29	4.1	123	3455	4.36	135.0	54.0	756	0.59	23.9	7.49	31.61	1.64		<1	9
W5A	-8.2296	7/19/06	905				4.42	137	55.6	779	0.32	4.5	128	3595	4.59	142.2	47.6	666	0.65	24.4	7.47	31.27	2.82		<1	1
W5A	-8.2296	8/9/06	927				4.12	128	53.8	754	0.20	2.8	122	3426	4.35	134.7	49.7	696	0.63	24.4	7.45	31.71	1.28		<1	<1
W5A	-8.2296	9/20/06	938				4.46	138	47.6	667	0.70	9.8	121	3398	4.78	148.1	46.8	655	0.71	25.1	7.46	31.77	0.86		1	>5000
W5A	-8.2296	10/25/06	933				4.74	147	44.3	620	0.31	4.3	130	3651	4.95	153.3	43.1	603	0.74	25.3	7.47	31.48	0.59		<1	499
W5A	-8.2296	11/29/06	930				5.00	155	48.9	685	0.26	3.6	130	3651	5.17	160.1	45.4	635	0.66	25.4	7.48	31.62	0.48		<1	5
W5A	-8.2296	12/13/06	934				4.84	150	54.3	761	0.24	3.4	122	3426	5.11	158.3	52.0	728	0.62	25.4	7.48	31.80	0.86		<1	1
W5A	-8.2296	1/10/07	920				4.67	145	55.5	777	0.29	4.1	121	3398	4.80	148.7	57.6	807	0.58	24.7	7.47	31.83	0.87		<1	14
W5A	-8.2296	2/21/07	1000				4.29	133	63.0	882	0.58	8.1	107	3005	4.61	142.8	69.9	979	0.67	23.9	7.51	31.52	1.92		<1	<1
W5A	-8.2296	3/7/07	951				4.39	136	70.0	980	0.32	4.5	118	3314	4.51	139.7	70.7	990	0.64	23.7	7.54	31.16	1.63		<1	<1
W5A	-8.2296	4/19/07	930				4.61	143	68.7	962	0.45	6.3	119	3342	4.89	151.5	61.4	859	0.55	23.5	7.59	31.04	1.96		<1	1
W5A	-8.2296	5/2/07	937				4.60	142	61.8	866	0.33	4.6	123	3455	4.87	150.8	61.0	854	0.57	23.0	7.58	31.16	2.09		<1	<1
W5A	-8.2296	6/20/07	941				4.61	143	62.6	876	0.23	3.2	127	3567	4.99	154.6				23.3	7.60	31.23	1.85		<1	1

NELHA Water Quality Laboratory

Well 5A Data Table

June 1989 - December 2014

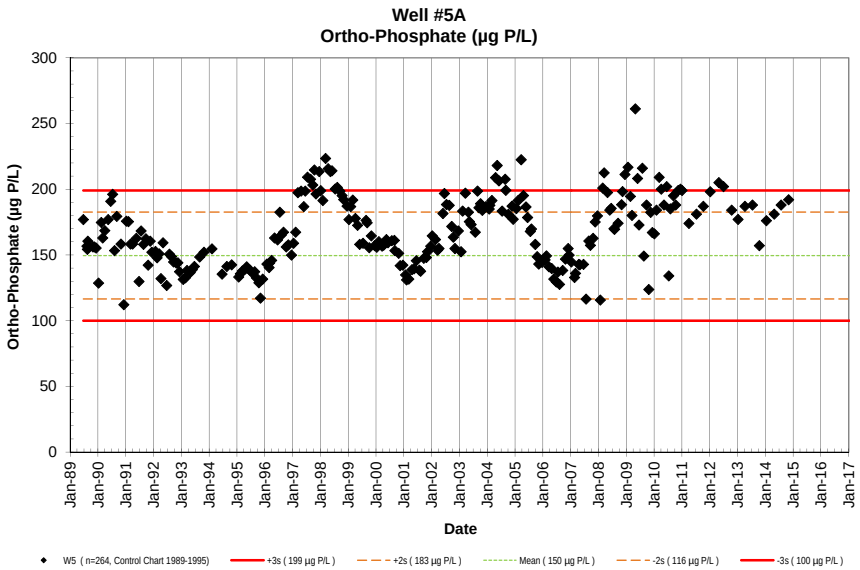
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W5A	-8.2296	7/23/07	1105	-3.05	0.52	Flood	3.76	116	34.5	484	0.04	0.5	66	1854	3.96	122.7	35.8	501		22.4	7.53	31.76	2.64			
W5A	-8.2296	8/27/07	1404	-3.15	0.52	Flood	5.19	161	71.7	1004	0.06	0.8	102	2868	4.80	148.7	71.9	1007		23.8	7.57	30.85	2.38			
W5A	-8.2296	9/18/07	1540	-3.12	0.24	Ebb	5.08	157	71.9	1007	0.15	2.1	124	3487	5.20	161.0	72.5	1016		23.0	7.54	30.92	1.81			
W5A	-8.2296	10/23/07	1412	-3.12	0.52	High	5.25	163	78.2	1095	0.35	5.0	122	3437	5.26	162.8	79.2	1110		22.2	7.52	30.44	1.54			
W5A	-8.2296	11/20/07	1412	-3.15	0.38	Ebb	5.65	175	79.2	1110	0.08	1.1	142	3982	5.06	156.7	85.0	1191		21.2	7.57	30.35	1.10			
W5A	-8.2296	12/19/07	1251	-3.25	0.30	High	5.80	180	94.2	1319	1.15	16	148	4161						21.3	7.38	29.14	0.48			
W5A	-8.2296	1/25/08	1020	-3.05	0.24	Ebb	3.74	116	32.1	450	0.53	7.4	86	2409						21.1	7.12	30.22	0.82			
W5A	-8.2296	2/26/08	1202	-3.40	0.03	Ebb	6.49	201	100.8	1412	0.65	9.1	133	3727						20.7	7.34	30.48	1.11			
W5A	-8.2296	3/17/08	1334	-3.28	0.21	Flood	6.86	212	87.6	1227	0.06	0.8	125	3521						20.4	7.38	29.95	0.59			
W5A	-8.2296	4/29/08	928	-3.43	0.09	Flood	6.37	197	81.7	1144	0.09	1.2	138	3882						20.1	7.34	30.23	1.24			
W5A	-8.2296	5/28/08	935	-3.45	0.18	Flood	5.94	184	79.4	1112	0.13	1.8	149	4185						20.4	7.40	30.04	0.84			
W5A	-8.2296	6/17/08	1045	-3.38	0.00	Flood	5.99	185	85.1	1192	0.89	12	141	3954						20.4	7.29	30.21	4.33	2.32		
W5A	-8.2296	7/22/08	939	-3.43	0.30	Ebb	5.49	170	77.0	1079	0.20	2.8	144	4045						20.6	7.42	30.20	0.74			
W5A	-8.2296	7/31/08	935	-3.73	-0.09	Low	5.47	170	78.0	1093	0.67	9.4	136	3818						24.1	7.36	30.11	1.56			
W5A	-8.2296	9/16/08	1023	-3.53	0.12	Ebb	5.62	174	78.8	1104	0.65	9.1	138	3881						21.3	7.32	30.42	2.73			
W5A	-8.2296	10/31/08	937	-3.35	0.30	Ebb	6.08	188	70.2	984	0.16	2.2	142	3979						23.1	7.34	30.43	0.79			
W5A	-8.2296	11/14/08	1129	-3.55	0.12	Ebb	6.40	198	86.4	1210	0.20	2.8	145	4069						22.7	7.58	30.10	0.66	1.02		
W5A	-8.2296	12/15/08	1519	-3.48	0.61	Ebb	6.82	211	100.7	1410	1.61	23	152	4281						23.9	7.58	30.25	0.81			
W5A	-8.2296	1/23/09	1424	-3.39	0.15	High	7.00	217	111.3	1559	0.78	11	131	3682						22.9	7.51	30.39	1.36	1.89		
W5A	-8.2296	2/24/09	1542	-3.33	0.30	Flood	6.28	195	55.2	773	1.10	15.4	137	3843						22.4	7.45	30.82	3.14	0.20		
W5A	-8.2296	3/16/09	1529	-3.61	0.03	Low	5.81	180	93.8	1315	0.13	1.8	124	3491						22.9	7.34	30.32	1.59	2.01		
W5A	-8.2296	4/30/09	1602	-3.64	0.09	Flood	8.43	261	108.1	1515	1.01	14.1	144	4042						22.4	7.74	29.87	1.32			
W5A	-8.2296	5/29/09	938	-3.42	0.21	High	6.72	208	94.4	1322	0.17	2.4	114	3202						20.9	7.78	30.55	1.56	0.38		
W5A	-8.2296	6/18/09	1355	-3.05	0.61	High	5.58	173	80.3	1125	0.34	4.7	114	3206						20.8	7.43	30.69	1.78	0.03		
W5A	-8.2296	7/31/09	1057	-3.14	0.52	Flood	6.97	216	90.8	1273	0.16	2.2	100	2813						21.0	7.50	30.59	1.94	0.06		
W5A	-8.2296	8/19/09	1055	-3.40	0.09	Flood	4.81	149	71.2	998	1.44	20.2	87	2452						21.2	7.46	30.68	1.54	0.11		
W5A	-8.2296	9/24/09	920	-3.15	0.61	High	6.07	188	85.3	1195	0.33	4.6	119	3349						21.0	8.17	30.23	1.12	0.04		
W5A	-8.2296	10/23/09	1343	-3.53	0.21	Ebb	3.99	124	49.1	688	0.56	7.8	71	1994						21.8	7.45	30.12	1.71	0.07		
W5A	-8.2296	11/17/09	1002	-3.56	0.21	Ebb	5.89	182	76.0	1064	0.86	12.1	169	4736						21.6	7.44	29.98	1.26	0.02		
W5A	-8.2296	12/8/09	1020	-3.20	0.52	Ebb	5.39	167	82.0	1148	0.99	13.9	177	4976						21.5	7.49	29.89	0.93	0.03		
W5A	-8.2296	1/6/10	954	-3.25	0.40	Ebb	5.36	166	84.1	1178	1.50	21.0	169	4749						22.2	7.49	29.68	1.69	0.18		
W5A	-8.2296	2/2/10	936	-3.22	0.24	Ebb	5.94	184	107.1	1500	0.79	11.0	152	4279						21.8	7.51	29.84	1.51	0.18		
W5A	-8.2296	3/10/10	910	-3.68	0.09	Low	6.75	209	105.6	1479	0.43	6.0	175	4928						21.3	7.56	29.51	1.21	0.44		
W5A	-8.2296	4/6/10	1508	-3.59	0.09	Ebb	6.46	200	96.8	1356	0.64	9.0	170	4781						20.8	7.47	29.77	1.33	0.25		
W5A	-8.2296	5/12/10	850	-3.73	-0.06	Low	6.07	188	87.5	1226	1.21	17.0	163	4582						20.8	7.60	29.75	1.27	0.06		
W5A	-8.2296	6/16/10	1102	-3.58	0.09	Ebb	6.52	202	100.7	1410	0.36	5.0	183	5128						20.7	7.50	29.74	1.78	0.33		
W5A	-8.2296	7/14/10	850	-3.40	0.18	Ebb	4.33	134	80.9	1133	0.21	3.0	144	4035						20.5	7.50	29.85	1.97	0.06		
W5A	-8.2296	8/3/10	1723	-3.31	0.12	Ebb	5.97	185	90.5	1267	0.20	2.8	171	4796						20.8	7.55	30.09	1.31	0.13		
W5A	-8.2296	9/13/10	1459	-3.41	0.24	Ebb	6.30	195	90.6	1269	0.15	2.1	184	5154						20.9	7.45	30.08	1.79	0.12		
W5A	-8.2296	10/11/10	1011	-3.01	0.46	Ebb	6.07	188	87.3	1223	0.07	1.0	176	4930						21.0	7.59	30.16	1.62	0.28		
W5A	-8.2296	11/15/10	1134	-3.18	0.43	High	6.42	199	84.7	1186	0.08	1.1	178	5002						21.3	7.50	30.41	1.08	0.10		
W5A	-8.2296	12/13/10	908	-3.16	0.00	High	6.46	200	86.6	1213	0.07	1.0	177	4983						21.2	7.44	30.23	0.96	0.11		
W5A	-8.2296	1/3/11	1529	-3.44	0.21	High	6.42	199	89.5	1254	0.14	2.0	174	4892						21.3	7.47	30.04	1.33	0.09		
W5A	-8.2296	4/4/11	1421	-3.28	0.30	Flood	5.62	174	97.2	1362	0.14	1.9	169	4756						20.9	7.71	29.99	2.10	0.07		
W5A	-8.2296	7/11/11	1307	-3.14	0.67	Flood	5.84	181	105.7	1481	0.11	1.6	157	4417						21.6	7.51	30.18	3.83	0.28		
W5A	-8.2296	10/10/11	1220	-3.42	0.30	Flood	6.04	187	88.7	1243	0.41	5.7	159	4452						21.5	7.44	30.51	2.75	0.10		
W5A	-8.2296	1/9/12	1249	-3.58	0.03	Low	6.39	198	85.9	1203	0.33	4.6	158	4445						21.4	7.43	29.54	1.42	0.09		
W5A	-8.2296	4/30/12	1412	-3.25	0.27	Ebb	6.62	205	98.9	1385	0.16	2.2	159	4471						20.7	7.45	30.20	1.69	0.03		
W5A	-8.2296	7/1/12	1605	-2.92	0.73	High	6.52	202	93.9	1315	0.17	2.4	158	4442						20.2	7.45	30.55	3.15	0.26		
W5A	-8.2296	10/15/12	1236	-3.47	0.12	Flood	5.94	184	88.2	1235	0.07	1.0	163	4584						20.3	7.49	30.37	2.45	0.02		
W5A	-8.2296	1/7/13	1324	-3.37	0.24	Ebb	5.71	177	113.1	1584	0.10	1.4	199	5602						19.6	7.53	30.46	3.04	0.02		
W5A	-8.2296	4/8/13	1132	-3.61	0.09	Flood	6.04	187	117.5	1646	0.24	3.3	155	4351						19.0	7.59	29.98	3.19	0.03		
W5A	-8.2296	7/16/13	1512	-3.30	0.37	Ebb	6.07	188	111.4	1561	0.14	1.9	164	4616						20.3	7.63	30.13	2.16	0.12		
W5A	-8.2296	10/14/13	1525	-3.15	0.43	Ebb	5.07	157	86.5	1212	0.38	5.3	144	4045						22.7	7.53	31.07	3.85	0.18		
W5A	-8.2296	1/14/14	1415	-3.39	0.21	Flood	5.68	176	103.6	1451	0.30	4.2	152	4267						20.4	7.55	31.99	3.74	0.13		
W5A	-8.2296	4/28/14	1633	-3.04	0.55	High	5.84	181	134	1880	0.57	8.0	145	4080						21.2	7.65	29.74	2.23	0.16		

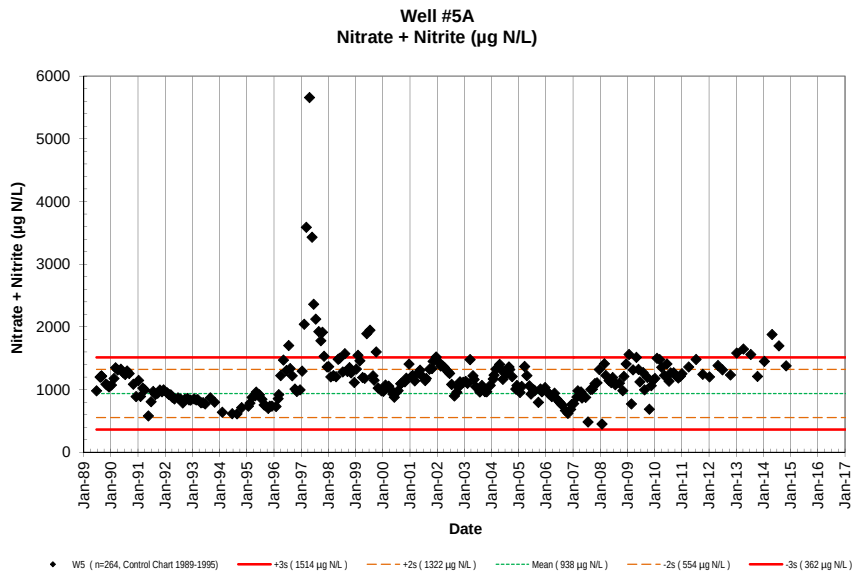
NELHA Water Quality Laboratory

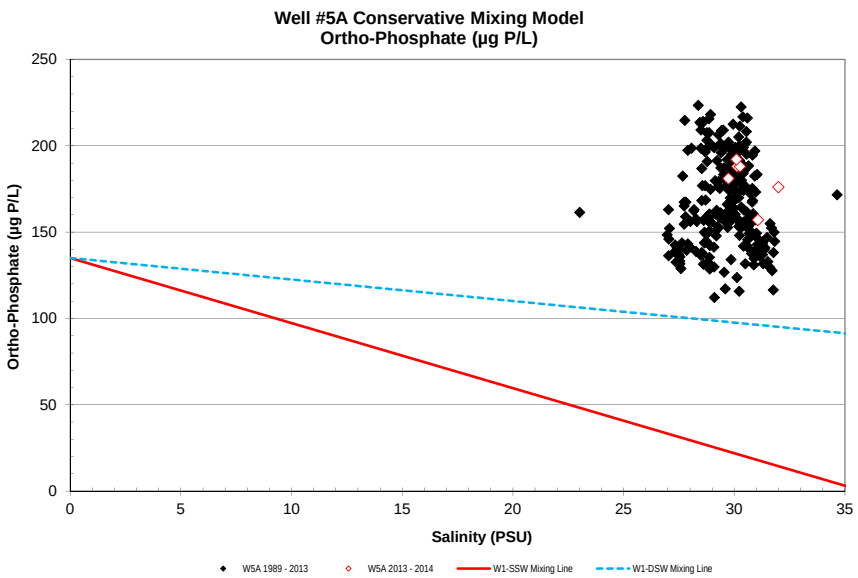
Well 5A Data Table

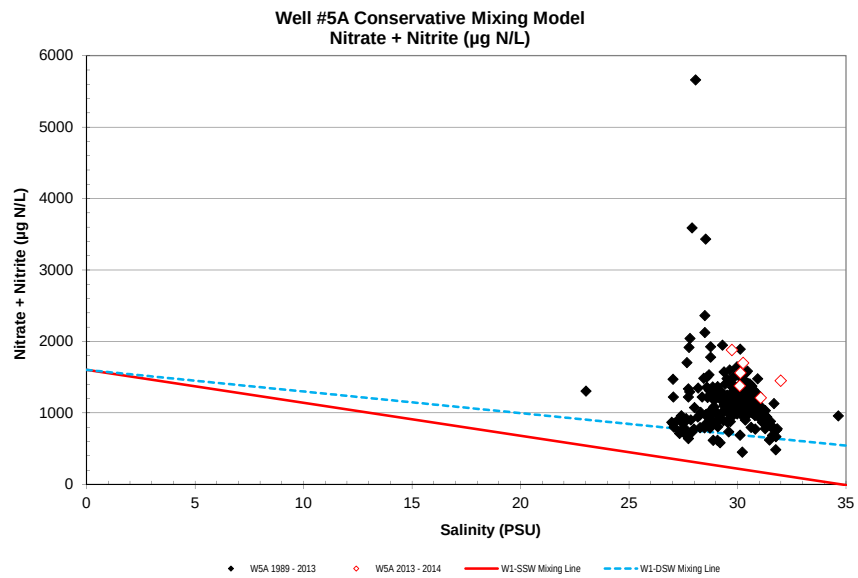
June 1989 - December 2014

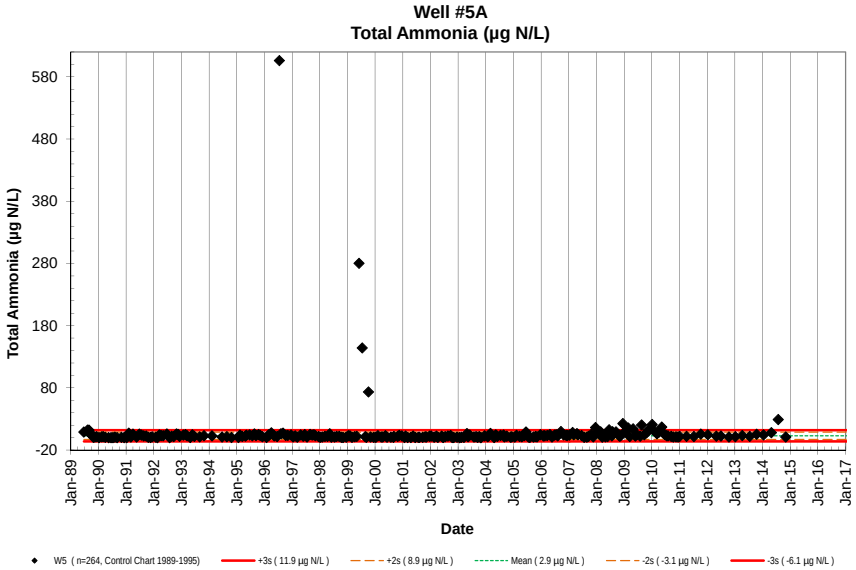
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W5A	-7.2296	7/28/14	1422	-3.39	0.38	Flood	6.07	188	121.2	1698	2.07	29.0	148	4166						21.4	7.61	30.26	2.76	0.09		
W5A	-6.2296	11/3/14	1059	-3.22	0.38	Flood	6.20	192	98.4	1378	0.07	1.0	146	4109						22.2	7.60	30.10	1.93	0.07		
W5A	-5.2296	1/1/15																								
W5A	-4.2296	4/1/15																								

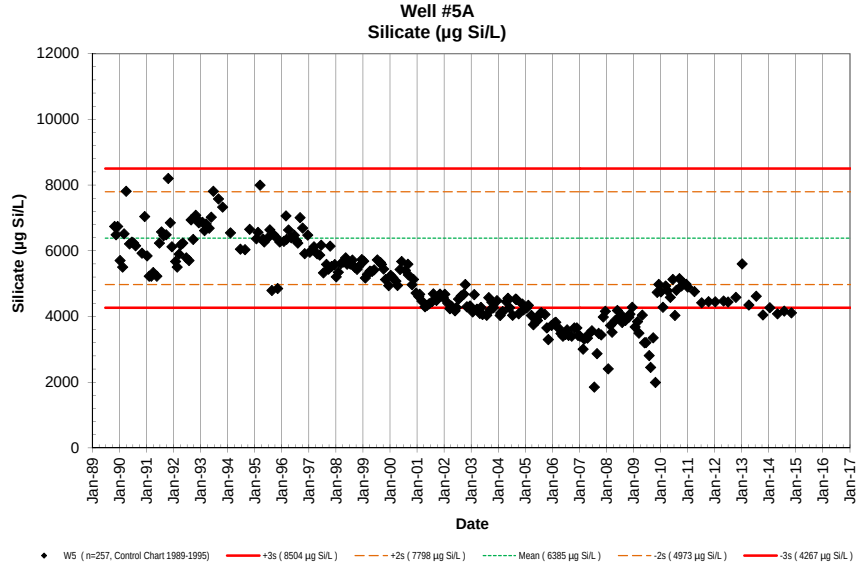

Well #5A
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W5 (n=264, Control Chart 1989-1995)
+3s (199 µg P/L)
+2s (183 µg P/L)
Mean (150 µg P/L)
-2s (116 µg P/L)
-3s (100 µg P/L)

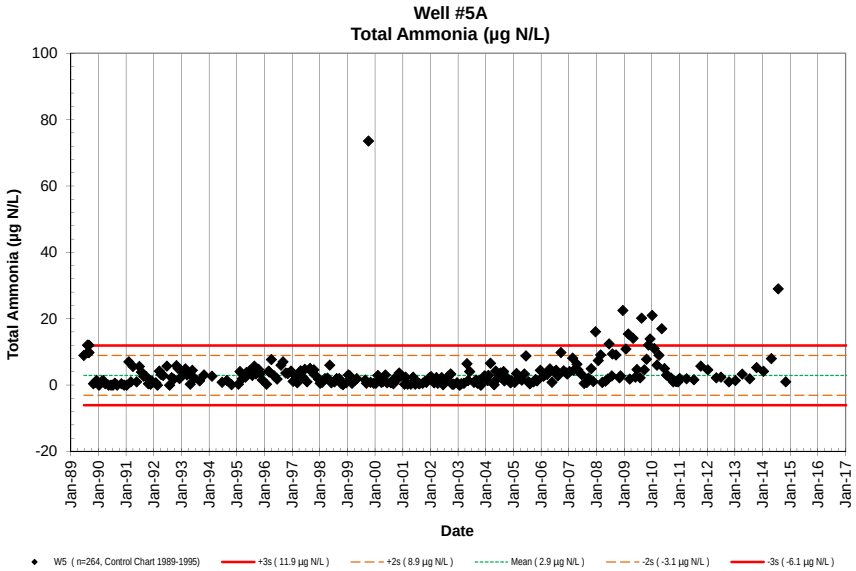

Well #5A
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W5 (n=264, Control Chart 1989-1995)
+3s (1514 µg N/L)
+2s (1322 µg N/L)
Mean (938 µg N/L)
-2s (554 µg N/L)
-3s (362 µg N/L)

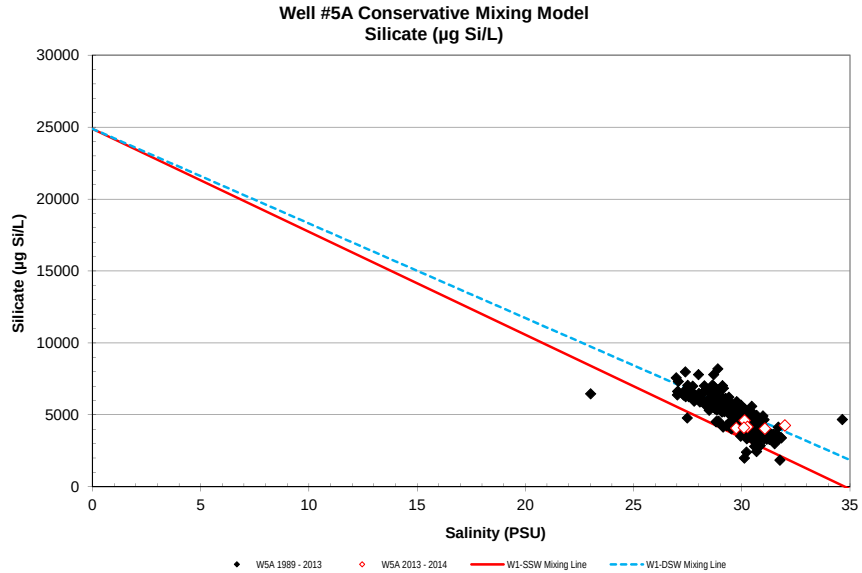

Well #5A Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W5A 1989 - 2013
W5A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

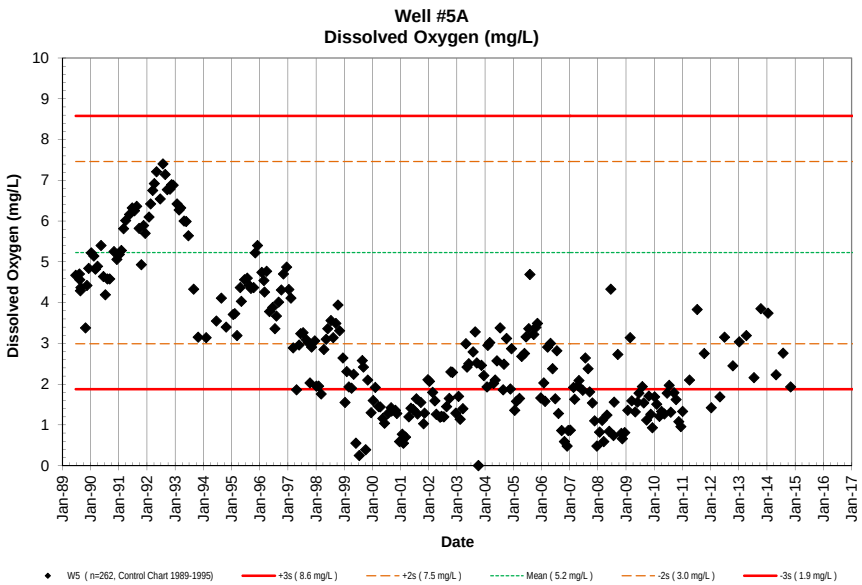

Well #5A Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W5A 1989 - 2013
W5A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

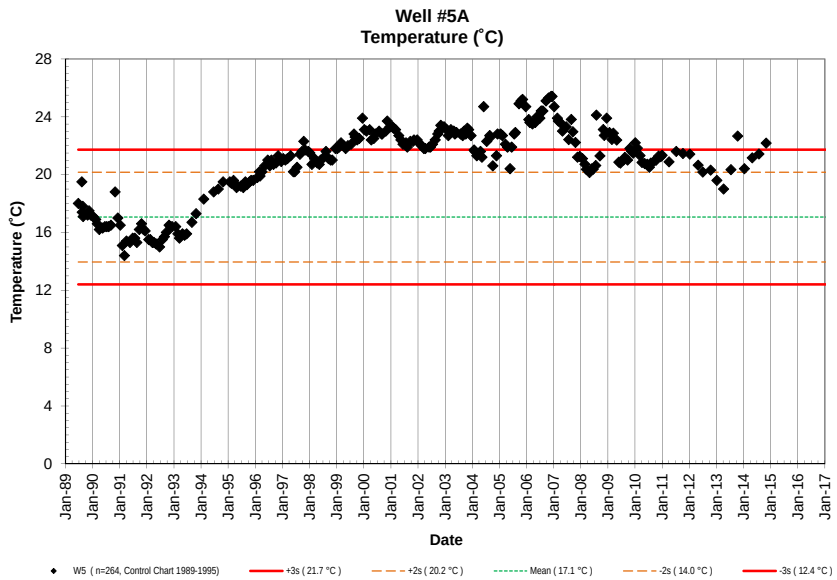

Well #5A
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W5 (n=264, Control Chart 1989-1995)
+3s (11.9 µg N/L)
+2s (8.9 µg N/L)
Mean (2.9 µg N/L)
-2s (-3.1 µg N/L)
-3s (-6.1 µg N/L)

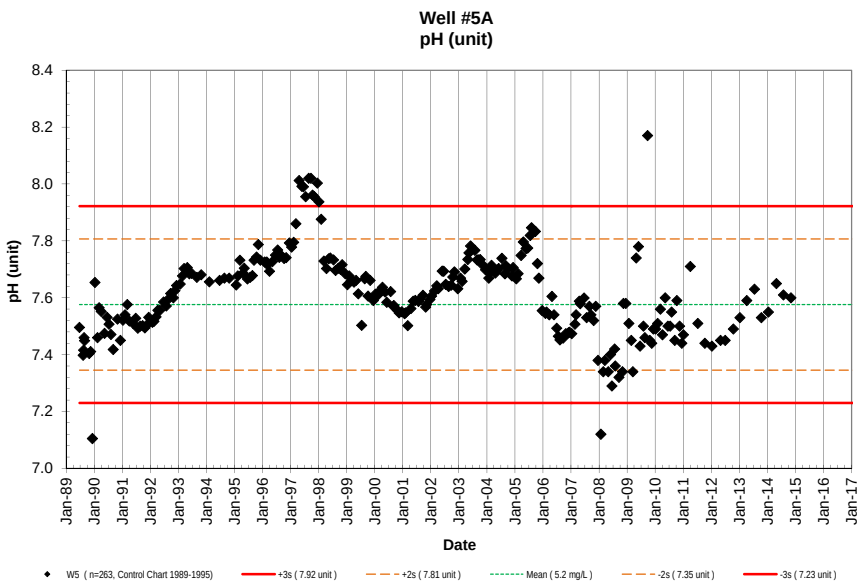

Well #5A
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W5 (n=257, Control Chart 1989-1995)
+3s (8504 µg Si/L)
+2s (7798 µg Si/L)
Mean (6385 µg Si/L)
-2s (4973 µg Si/L)
-3s (4267 µg Si/L)

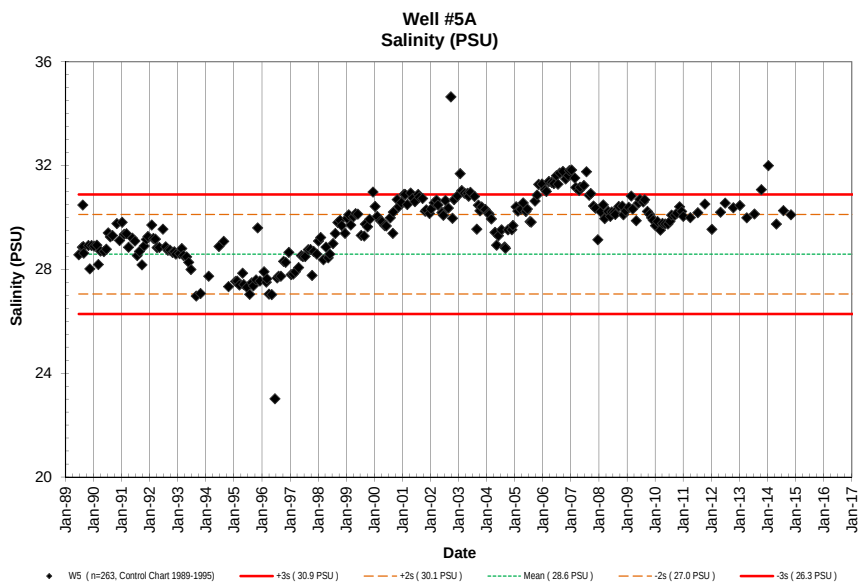

Well #5A
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W5 (n=264, Control Chart 1989-1995)
+3s (11.9 µg N/L)
+2s (8.9 µg N/L)
Mean (2.9 µg N/L)
-2s (-3.1 µg N/L)
-3s (-6.1 µg N/L)

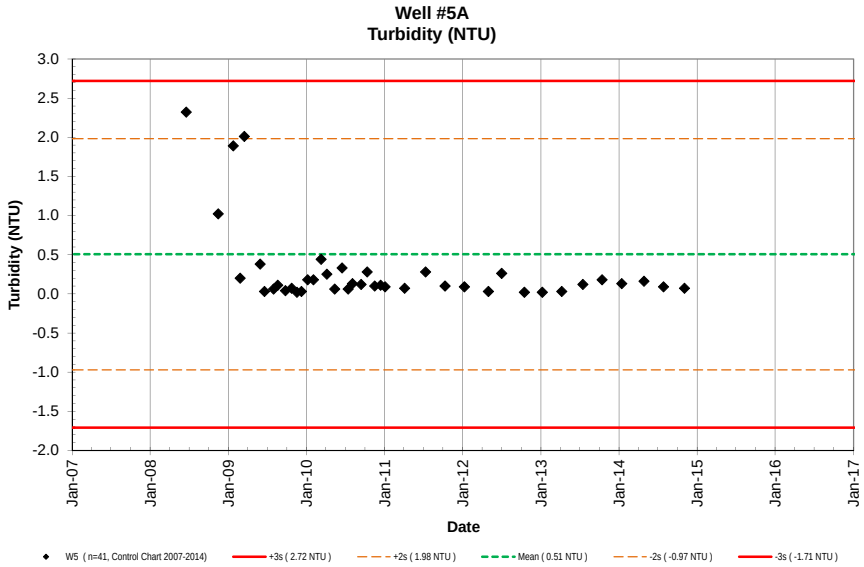

Well #5A Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W5A 1989 - 2013
W5A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

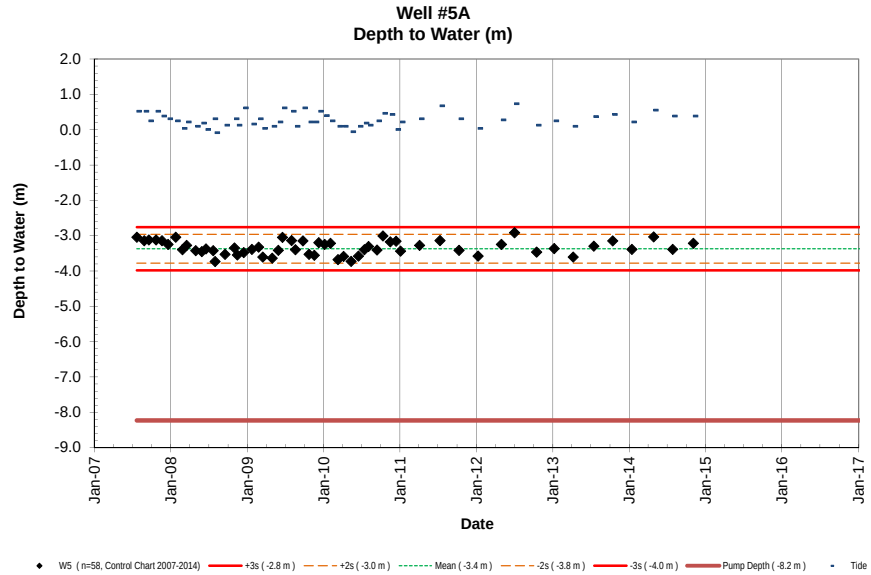

Well #5A
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W5 (n=262, Control Chart 1989-1995)
+3s (8.6 mg/L)
+2s (7.5 mg/L)
Mean (5.2 mg/L)
-2s (3.0 mg/L)
-3s (1.9 mg/L)

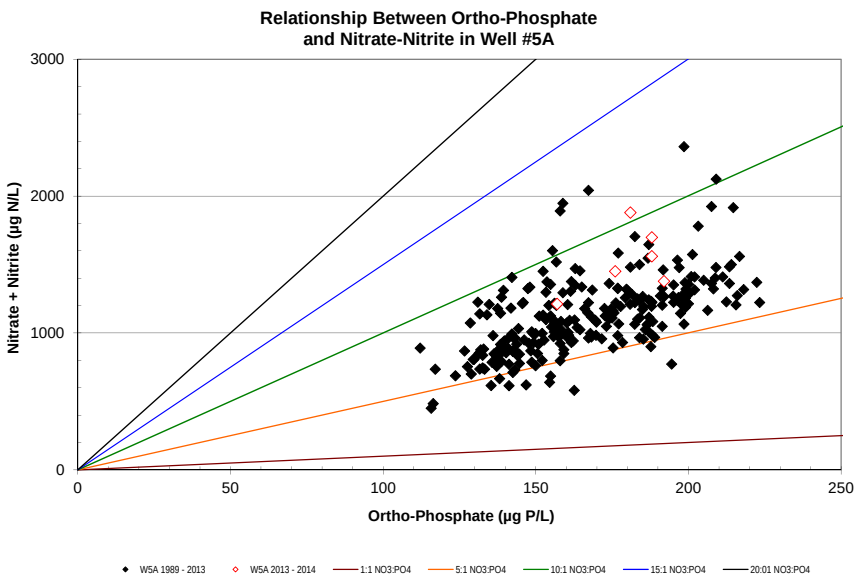

Well #5A
Temperature (˚C)
Temperature (˚C)
Date
W5 (n=264, Control Chart 1989-1995)
+3s (21.7 °C)
+2s (20.2 °C)
Mean (17.1 °C)
-2s (14.0 °C)
-3s (12.4 °C)


Well #5A
pH (unit)
pH (unit)
Date
W5 (n=263, Control Chart 1989-1995)
+3s (7.92 unit)
+2s (7.81 unit)
Mean (5.2 mg/L)
-2s (7.35 unit)
-3s (7.23 unit)


Well #5A
Salinity (PSU)
Salinity (PSU)
Date
W5 (n=263, Control Chart 1989-1995)
+3s (30.9 PSU)
+2s (30.1 PSU)
Mean (28.6 PSU)
-2s (27.0 PSU)
-3s (26.3 PSU)


Well #5A
Turbidity (NTU)
Turbidity (NTU)
Date
W5 (n=41, Control Chart 2007-2014)
+3s (2.72 NTU)
+2s (1.98 NTU)
Mean (0.51 NTU)
-2s (-0.97 NTU)
-3s (-1.71 NTU)


Well #5A
Depth to Water (m)
Depth to Water (m)
Date
W5 (n=58, Control Chart 2007-2014)
+3s (-2.8 m)
+2s (-3.0 m)
Mean (-3.4 m)
-2s (-3.8 m)
-3s (-4.0 m)
Pump Depth (-8.2 m)
Tide


Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #5A
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W5A 1989 - 2013
W5A 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

NELHA Water Quality Laboratory

Well 5B Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W5B	-15.5	6/23/89					2.06	64	45.2	633	0.51	7.1								17.3	7.79	30.42	1.40		na	na
W5B	-15.5	8/9/89	957				2.59	80	48.2	675	0.69	9.7								17.0	7.80	30.43	1.37		<1	na
W5B	-15.5	8/15/89	1020				2.94	91	50.7	710	1.30	18.2								17.2	7.85	28.66	1.21		<1	na
W5B	-15.5	8/22/89	1005				2.71	84	48.8	684	0.70	9.8								17.2	7.90	30.59	1.26		<1	na
W5B	-15.5	8/28/89	1125				2.82	87	49.4	692	1.03	14.4								17.3	7.88	30.62	0.97		<1	na
W5B	-15.5	8/28/89	1125				2.64	82	47.1	660	0.78	10.9														na
W5B	-15.5	10/27/89	1016				2.94	91	50.4	706	0.02	0.3	190	5336	3.28	101.6	50.8	712	0.31	17.7	7.87	30.84	1.31		<1	na
W5B	-15.5	11/15/89	759				2.90	90	41.3	578	0.06	0.8	185	5196	3.24	100.4	45.4	636	0.72	17.9	7.88	30.90	1.33		<1	na
W5B	-15.5	12/8/89	930				2.88	89	41.3	578	0.10	1.4	180	5055	3.15	97.6	41.8	585		18.0	7.90	30.84	1.13		<1	na
W5B	-15.5	1/10/90	905				2.32	72	46.0	644	0.00	0.0	171	4803	2.60	80.5	47.9	671	1.05	17.8	8.01	30.96	0.96		<1	na
W5B	-15.5	2/13/90	1030				2.65	82	54.1	758	0.00	0.0	181	5083	2.91	90.1	56.3	789	0.80	17.5	7.94	30.84	1.51		<1	na
W5B	-15.5	3/5/90	1148				2.49	77	59.3	831	0.02	0.3	223		2.76	85.5	59.8	838	0.91	18.5	8.06	31.07	0.86		<1	na
W5B	-15.5	4/2/90	1042				2.55	79	60.0	840	0.20	2.8	184	5168	2.82	87.3	61.0	854	1.14	17.5	8.04	30.71	2.46		<1	na
W5B	-15.5	5/16/90	956				2.66	82	77.9	1091	0.09	1.3	180	5055	2.83	87.7	81.9	1147	0.77	16.2	7.95	30.18	4.09		<1	na
W5B	-15.5	6/17/90	1130				3.35	104	75.2	1053	0.00	0.0	178	4999	3.54	109.6	79.1	1108	2.00	16.2	7.92	30.19	4.03		<1	na
W5B	-15.5	7/12/90	1031				3.97	123	79.2	1109	0.00	0.0	193	5421	4.13	127.9	82.2	1151	0.73	15.9	7.81	30.18	4.16		<1	na
W5B	-15.5	8/7/90	1010				3.70	115	86.7	1214	0.00	0.0	195	5477	4.02	124.5	86.3	1209	1.21	15.9	7.68	30.11	3.70		<1	na
W5B	-15.5	9/5/90	1055				4.15	129	82.1	1150	0.00	0.0			4.15	128.5	83.8	1174	0.57	16.0	7.61	30.14	3.70		<1	na
W5B	-15.5	10/4/90	1112				4.44	138	72.2	1011	0.08	1.1	203	5701	5.48	169.7	73.1	1024	0.97	16.7	7.59	30.57	4.68		<1	na
W5B	-15.5	10/31/90	1024				3.50	108	63.0	883	0.00	0.0	197	5533	4.23	131.0	75.9	1063	1.00	17.1	7.59	30.53	4.33		<1	na
W5B	-15.5	12/7/90	1020				3.56	110	71.2	997	0.00	0.0	205	5758	4.31	133.5	75.9	1063	0.56	15.9	7.50	30.28	4.01		<1	na
W5B	-15.5	1/9/91	740				4.56	141	78.5	1100	0.00	0.0	189	5308	4.60	142.5	84.6	1185	0.63	15.7	7.47	30.42	4.07		<1	na
W5B	-15.5	2/5/91	825				4.79	148	61.2	857	0.39	5.5	160	4494	4.85	150.2	62.1	870	0.82	15.4	7.51	30.40	4.88		<1	na
W5B	-15.5	3/6/91	734				4.21	130	76.7	1074	0.19	2.7	170	4775	4.25	131.6	79.3	1111	1.05	15.2	7.57	30.55	4.39		<1	na
W5B	-15.5	4/2/91	740				4.11	127	72.7	1018	0.00	0.0	63	1778	4.13	127.9	76.1	1066	0.83	15.3	7.57	30.17	4.87		<1	na
W5B	-15.5	5/21/91	808				4.30	133	39.1	548	0.07	1.0	210	5898	4.53	140.3	41.2	577	0.75	15.0	7.57	30.00	5.73		<1	na
W5B	-15.5	6/25/91	745				3.32	103	51.2	717	0.34	4.8	217	6095	3.78	117.1	57.6	807	0.68	15.1	7.56	30.24	5.43		<1	<1
W5B	-15.5	7/23/91	842				4.31	133	72.8	1020	0.35	4.9	192	5392	4.78	148.1	67.2	941	0.62	15.0	7.54	30.21	5.06		<1	<1
W5B	-15.5	8/22/91	803				4.25	132	58.6	821	0.27	3.8	194	5449	4.50	139.4	73.8	1034	0.70	15.1	7.54	30.08	5.27		<1	<1
W5B	-15.5	9/23/91	802				4.65	144	58.1	814	0.24	3.4	185	5196	4.75	147.1	62.6	877	1.75	15.4	7.50	30.01	4.74		<1	<1
W5B	-15.5	10/22/91	733				3.97	123	65.8	922	0.03	0.4	245	6881	3.99	123.6	69.3	971	0.54	13.5	7.55	30.10	4.08		<1	<1
W5B	-15.5	11/19/91	930				4.51	140	65.8	922	0.04	0.6	212	5954	4.62	143.1	67.3	943	0.56	15.6	7.53	30.00	5.41		<1	<1
W5B	-15.5	12/10/91	858				4.32	134	63.8	894	0.08	1.1	195	5477	4.40	136.3	66.4	930	0.70	15.4	7.55	29.96	5.41		<1	<1
W5B	-15.5	1/28/92	846				4.28	133	63.3	887	0.05	0.7	187	5252	4.38	135.7	64.5	903	0.88	14.9	7.61	30.45	5.52		<1	3
W5B	-15.5	2/18/92	803				4.08	126	63.3	887	0.00	0.0	173	4859	4.23	131.0	66.5	931	0.77	14.9	7.59	30.22	5.85		<1	<1
W5B	-15.5	3/16/92	908				4.17	129	63.0	882	0.05	0.7	187	5252	4.36	135.0	65.1	912	0.95	14.8	7.59	30.08	6.09		<1	<1
W5B	-15.5	4/7/92	841				4.98	154	65.2	913	0.20	2.8	248	6965	5.00	154.9	62.6	877	0.95	14.8	7.61	29.89	6.55		<1	<1
W5B	-15.5	5/5/92	848				4.46	138	61.1	856	0.24	3.4	205	5758	4.53	140.3	64.9	909	1.09	14.8	7.58	29.17	6.44		<1	<1
W5B	-15.5	6/22/92	848				4.71	146	60.4	846	0.33	4.6	236	6628	4.84	149.9	63.3	887	0.85	15.3	7.56	28.74	7.38		<1	<1
W5B	-15.5	7/28/92	735				4.50	139	61.7	865	0.07	1.0	180	5055	4.59	142.2	64.5	904	0.92	14.8	7.58	29.48	6.91		<1	<1
W5B	-15.5	8/25/92	810				4.52	140	55.5	777	0.16	2.2	223	6263	4.67	144.6	60.5	847	1.20	15.0	7.60	29.27	6.94		<1	<1
W5B	-15.5	9/21/92	826				4.37	135	57.7	808	0.15	2.1	193	5421	4.50	139.4	61.8	865	0.84	15.1	7.63	29.48	6.57		<1	<1
W5B	-15.5	10/26/92	834				4.43	137	58.0	812	0.37	5.2	219	6151	4.52	140.0	61.8	865	0.79	15.4	7.60	29.44	6.63		<1	<1
W5B	-15.5	11/16/92	856				4.43	137	57.5	805	0.31	4.3	210	5898	4.59	142.2	62.6	877	0.70	15.3	7.64	29.42	6.61		<1	<1
W5B	-15.5	12/7/92	853				4.36	135	57.1	800	0.18	2.5	209	5870	4.51	139.7	60.8	852	0.68	15.3	7.65	29.37	6.64		<1	<1
W5B	-15.5	1/25/93	839				4.25	132	56.0	784	0.36	5.0	210	5884	4.48	138.8	61.7	864	0.70	15.2	7.67	29.81	6.41		<1	<1
W5B	-15.5	2/22/93	820				4.15	129	56.0	784	0.36	5.0	205	5755	4.18	129.5	60.7	850	0.56	14.9	7.70	29.98	6.37		<1	<1
W5B	-15.5	3/15/93	816				4.13	128	56.7	794	0.19	2.7	211	5912	4.16	128.9	58.9	825	0.94	14.7	7.71	29.92	6.36		<1	<1
W5B	-15.5	4/26/93	827				4.10	127	53.7	753	0.09	1.3	209	5870	4.29	132.9	57.0	799	0.68	15.1	7.70	29.96	6.24		<1	<1
W5B	-15.5	5/24/93	842				4.29	133	42.4	593	0.33	4.6	210	5898	4.21	130.4	57.3	803	0.66	15.1	7.69	29.93	6.11		<1	<1
W5B	-15.5	6/21/93	840				4.13	128	51.1	716	0.30	4.2	220	6179	4.30	133.2	54.4	762	0.59	15.5	7.70	30.00	6.07		<1	<1
W5B	-15.5	8/30/93	944				3.87	120	48.0	672	0.13	1.8	205	5758	3.94	122.0	55.0	771	0.97	17.1	7.76	29.88	5.76		<1	<1
W5B	-15.5	10/25/93	824				3.55	110	52.0	728	0.18	2.5	176	4943	3.63	112.4	54.7	766	0.71	17.8	7.82	29.60	5.18		<1	<1
W5B	-15.5	2/7/94	1028				3.53	109	43.0	602	0.19	2.7	164	4606	3.56	110.3	47.9	671	0.93	17.7	7.80	30.07	5.65		<1	1
W5B	-15.5	6/20/94	814				3.73	116	40.6	568	0.05	0.7	175	4916	3.79	117.4	49.3	690	0.71	17.7	7.75	30.45	3.68		<1	<1

NELHA Water Quality Laboratory

Well 5B Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W5B	-15.5	8/22/94	924				3.64	113	44.0	617	0.04	0.6	172	4821	3.72	115.2	49.0	687	0.68	17.7	7.76	30.38	4.19		<1	<1
W5B	-15.5	10/24/94	839				3.63	112	43.7	612	0.00	0.0	182	5118	3.84	118.9	49.0	686	0.60	18.6	7.76	29.36	6.28		<1	<1
W5B	-15.5	1/23/95	927				3.72	115	47.6	667	0.00	0.0	166	4659	3.85	119.2	49.9	699	0.60	18.0	7.75	29.54	4.89		<1	<1
W5B	-15.5	2/13/95	919				3.71	115	43.8	614	0.22	3.1	169	4758	3.80	117.7	46.5	651	0.64	17.8	7.77	29.92	4.82		<1	<1
W5B	-15.5	3/13/95	956				3.72	115	48.2	675	0.18	2.5	210	5887	3.76	116.5	49.9	698	0.62	17.9	7.78	29.94	5.31		<1	<1
W5B	-15.5	4/24/95	900				3.62	112	53.9	755	0.18	2.5	169	4755	3.75	116.2	54.8	768	0.66	17.7	7.76	29.70	5.29		<1	<1
W5B	-15.5	5/8/95	901				3.36	104	53.4	747	0.33	4.6	159	4471	3.67	113.7	56.4	791	0.66	17.8	7.76	29.69	5.22		<1	<1
W5B	-15.5	6/19/95	936				3.63	112	54.0	756	0.33	4.6	168	4721	3.71	114.9	58.5	820	0.58	17.9	7.72	29.59	5.37		<1	<1
W5B	-15.5	7/24/95	904				3.55	110	54.7	766	0.19	2.7	167	4685	3.64	112.7	56.5	791	0.67	17.7	7.73	29.54	5.31		<1	<1
W5B	-15.5	8/21/95	954				3.62	112	50.1	701	0.44	6.2	224	6302	3.72	115.2	64.4	902	0.67	18.0	7.74	29.66	5.10		<1	<1
W5B	-15.5	9/11/95	715				3.64	113	51.7	724	0.18	2.5	170	4777	3.67	113.7	54.3	761	0.54	17.8	7.78	29.57	4.40		<1	<1
W5B	-15.5	10/16/95	841				3.69	114	52.1	729	0.31	4.3	171	4803	3.75	116.2	54.4	763	0.63	18.3	7.79	29.58	5.15		<1	<1
W5B	-15.5	11/6/95	825				4.16	129	49.7	696	0.22	3.1	228	6412	4.18	129.5	52.8	739	0.69	18.1	7.76	27.97	4.09		<1	<1
W5B	-15.5	12/4/95	834				3.71	115	51.3	718	0.12	1.7	172	4822	3.77	116.8	53.4	748	0.62	18.0	7.78	29.47	6.31		<1	<1
W5B	-15.5	1/29/96	905				3.79	117	47.3	662	0.10	1.4	170	4769	3.81	118.0	57.0	798	0.59	17.8	7.78	29.69	5.29		<1	<1
W5B	-15.5	2/26/96	1009				3.64	113	49.0	687	0.30	4.2	188	5271	3.75	116.2	57.6	807	0.58	19.0	7.77	29.70	5.32		<1	<1
W5B	-15.5	3/5/96	858				3.73	116	50.4	706	0.31	4.3	175	4913	3.80	117.7	52.9	741	0.67	18.0	7.76	29.65	3.77		<1	<1
W5B	-15.5	4/1/96	920				3.70	115	50.5	707	0.45	6.3	184	5173	3.88	120.2	52.6	737	0.58	18.5	7.72	29.59	5.34		<1	<1
W5B	-15.5	5/8/96	917				3.88	120	54.9	769	0.13	1.8	175	4927	4.04	125.1	60.4	845	0.51	18.5	7.73	29.51	5.39		<1	<1
W5B	-15.5	6/17/96	843				4.00	124	57.7	808	0.18	2.5	184	5154	4.00	123.9	59.7	836	0.61	18.8	7.74	29.35	5.26		<1	<1
W5B	-15.5	7/16/96	822				4.15	129	66.9	937	0.09	1.3	188	5272	4.37	135.4	68.0	952	0.73	19.1	7.75	29.15	5.04		<1	<1
W5B	-15.5	8/5/96	946				4.39	136	68.5	959	0.34	4.8	180	5053	4.41	136.6	72.1	1009	0.72	19.3	7.76	29.02	6.05		1	<1
W5B	-15.5	9/3/96	906				4.43	137	68.1	953	0.44	6.2	207	5823	4.46	138.1	69.9	979	0.83	19.2	7.76	28.98	4.95		<1	2
W5B	-15.5	10/8/96	925				4.28	133	60.2	843	0.26	3.6	200	5610	4.62	143.1	66.4	929	0.74	18.7	7.73	29.20	5.69		<1	<1
W5B	-15.5	11/4/96	926				4.31	133	59.1	828	0.29	4.1	176	4943	4.40	136.3	92.2	1291	0.65	19.3	7.72	29.25	5.34		<1	<1
W5B	-15.5	12/16/96	908				4.24	131	57.0	798	0.33	4.6	198	5572	4.37	135.4	59.9	839	0.80	18.5	7.75	29.58	5.21		<1	<1
W5B	-15.5	1/13/97	942				4.30	133	59	826	0.08	1.1	181	5095	4.60	142.5	65.0	910	0.45	19.3	7.76	29.58	5.22		<1	<1
W5B	-15.5	2/10/97	850				4.05	125	61	855	0.20	2.8	183	5142	4.10	127.0	63.7	892	0.47	18.9	7.78	29.68	5.29		<1	<1
W5B	-15.5	3/10/97	836				3.96	123	74	1033	0.05	0.7	187	5252	4.18	129.5	76.6	1073	0.73	19.0	7.79	29.77	5.29		<1	<1
W5B	-15.5	4/22/97	917				4.11	127	65	912	0.37	5.2	190	5325	4.18	129.5	116.8	1636	0.81	18.9	7.79	29.60	5.11		<1	<1
W5B	-15.5	5/27/97	910				4.08	126	72	1006	0.05	0.7	182	5117	4.44	137.5	80.0	1121	0.67	18.1	7.81	29.51	5.21		<1	<1
W5B	-15.5	6/16/97	910				4.62	143	94	1315	0.33	4.6	195	5488	4.67	144.6	102.6	1437	0.65	18.2	7.83	29.43	5.06		<1	<1
W5B	-15.5	7/14/97	826				4.59	142	80	1120	0.07	1.0	175	4923	4.73	146.5	87.5	1226	0.61	18.2	7.83	29.42	5.00		<1	<1
W5B	-15.5	8/25/97	907				4.87	151	86	1206	0.22	3.1	177	4974	4.96	153.6	89.3	1251	0.67	19.5	7.92	29.40	4.90		<1	<1
W5B	-15.5	9/22/97	856				5.03	156	94	1319	0.17	2.4	175	4908	5.06	156.7	96.0	1345	0.65	19.5	7.95	29.40	4.67		<1	<1
W5B	-15.5	10/14/97	909				5.00	155	102	1434	0.21	2.9	175	4904	5.06	156.7	104.1	1458	0.65	19.5	7.94	29.37	4.80		<1	<1
W5B	-15.5	11/3/97	1130				5.05	156	94.7	1326	0.21	2.9	174	4892	5.16	159.8	109.7	1537	0.68	19.2	7.91	29.34	4.89		<1	<1
W5B	-15.5	12/15/97	933				5.16	160	89.3	1251	0.14	2.0	175	4909	5.24	162.3	95.0	1331	0.67	18.7	7.93	29.39	5.22		<1	<1
W5B	-15.5	1/5/98	1035				4.98	154	88.1	1234	0.05	0.7	161	4523	5.09	157.7	94.9	1329	0.65	18.5	7.92	29.46	5.30		<1	<1
W5B	-15.5	2/2/98	925				4.78	148	74.6	1044	0.05	0.7	168	4716	4.86	150.5	76.4	1071	0.64	17.4	7.91	29.77	5.56		<1	<1
W5B	-15.5	3/9/98	937				5.11	158	82.9	1161	0.14	2.0	170	4769	5.22	161.7	85.2	1193	0.61	17.8	7.73	29.63	5.50		<1	<1
W5B	-15.5	4/13/98	845				5.27	163	83	1159	0.15	2.1	171	4801	5.36	166.0	85.3	1195	0.64	17.9	7.74	29.69	5.39		<1	<1
W5B	-15.5	5/11/98	914				5.28	164	86	1201	0.24	3.4	172	4834	5.40	167.3	89.2	1249	0.59	17.9	7.73	29.73	4.62		<1	<1
W5B	-15.5	6/1/98	912				5.31	164	82.8	1159	0.05	0.7	170	4769	5.43	168.2	85.3	1195	0.71	18.2	7.73	29.74	5.18		<1	<1
W5B	-15.5	7/13/98	918				5.33	165	79	1113	0.06	0.8	171	4794	5.56	172.2	83	1161	0.64	18.7	7.72	29.87	4.89		<1	<1
W5B	-15.5	8/10/98	941				5.70	177	89.6	1255	0.17	2.4	176	4943	5.88	182.1	95.5	1338	0.73	19.4	7.69	30.16	3.86		<1	<1
W5B	-15.5	9/14/98	926				5.69	176	78.9	1105	0.14	2.0	178	5008	5.85	181.2	81	1139	0.70	19.2	7.71	30.26	4.32		<1	<1
W5B	-15.5	10/12/98	941				5.67	176	78.1	1094	0.04	0.6	173	4870	5.78	179.0	82	1153	0.71	19.0	7.72	30.35	4.78		<1	<1
W5B	-15.5	11/2/98	902				5.63	174	79.0	1107	0.04	0.6	175	4907	5.79	179.3	83.6	1171	0.96	19.7	7.73	30.53	4.09		<1	<1
W5B	-15.5	12/15/98	900				5.51	171	71.9	1007	0.07	1.0	179	5019	5.55	171.9	73.9	1035	0.83	20.0	7.72	30.72	4.22		<1	<1
W5B	-15.5	1/11/99	918				5.14	159	68	945	0.22	3.1	174	4878	5.29	163.9	71	987	0.85	19.5	7.72	30.59	4.91		<1	<1
W5B	-15.5	2/2/99	911				5.30	164	83	1161	0.23	3.2	172	4836	5.41	167.6	89	1242	0.90	19.8	7.71	30.73	4.01		<1	<1
W5B	-15.5	3/1/99	913				5.21	161	65.1	912	0.03	0.4	167	4690	5.38	166.6	66.9	937	0.82	18.7	7.72	30.61	5.51		<1	<1
W5B	-15.5	4/5/99	915				5.24	162	77.8	1090	0.06	0.8	169	4758	5.38	166.6	81.3	1139	0.76	19.6	7.71	31.25	3.29		<1	<1
W5B	-15.5	5/3/99	913				5.12	159	73.7	1033	0.15	2.1	181	5092	5.23	162.0	79.3	1111	0.77	22.4	7.66	32.41	1.58		<1	<1
W5B	-15.5	6/1/99	907				5.03	156	71.3	999	0.21	2.9	187	5249	5.27	163.2	75.8	1062	0.85	22.9	7.67	32.66	1.70		<1	<1

NELHA Water Quality Laboratory

Well 5B Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W5B	-15.5	7/14/99	912				4.57	142	63.7	892	0.02	0.3	178	4996	4.69	145.3	71.6	1003	0.79	22.7	7.66	32.69	1.81		<1	<1
W5B	-15.5	8/23/99	935				4.43	137	63.0	882	0.22	3.1	160	4494	4.53	140.3	66.2	927	0.76	22.2	7.75	31.99	3.66		<1	<1
W5B	-15.5	9/7/99	924				4.44	138	64.1	898	0.09	1.3	152	4269	4.68	145.0	73.3	1027	0.76	21.8	7.76	31.93	3.51		<1	13
W5B	-15.5	10/5/99	918				4.30	133	67.8	949	0.06	0.8	151	4235	4.44	137.5	70.4	986	0.66	21.9	7.73	32.07	3.30		<1	<1
W5B	-15.5	11/1/99	938				4.31	133	62.6	877	0.04	0.6	156	4376	4.34	134.4	66.4	930	0.64	22.5	7.73	32.23	2.93		<1	<1
W5B	-15.5	12/14/99	929				4.20	130	62.5	875	0.03	0.4	157	4409	4.37	135.4	66.1	926	0.86	22.2	7.68	32.26	3.37		<1	<1
W5B	-15.5	1/10/00	958				4.15	129	58.6	821	0.16	2.2	163	4570	4.20	130.1	62.8	880	0.85	22.7	7.67	32.83	2.40		<1	<1
W5B	-15.5	2/7/00	956				4.23	131	56.0	784	0.17	2.4	174	4878	4.32	133.8	60.3	845	0.86	23.4	7.69	33.22	2.02		<1	<1
W5B	-15.5	3/21/00	958				4.05	125	56.1	786	0.06	0.8	168	4716	4.01	124.2	57.7	808	0.79	23.1	7.68	33.12	1.96		<1	<1
W5B	-15.5	4/10/00	1027				3.98	123	53.8	754	0.11	1.5	166	4662	3.90	120.8	58.1	814	0.78	23.2	7.69	33.15	2.30		<1	<1
W5B	-15.5	5/15/00	935				4.21	130	52.7	738	0.08	1.1	186	5230	4.31	133.5	56.6	793	0.77	24.0	7.68	33.51	2.27		<1	<1
W5B	-15.5	6/5/00	936				4.10	127	51.1	716	0.05	0.7	187	5249	4.16	128.9	54.2	759	0.79	24.0	7.66	33.48	2.14		<1	<1
W5B	-15.5	7/26/00	1005				4.31	133	52.8	740	0.02	0.3	192	5381	4.41	136.6	55.2	773	0.72	23.8	7.68	33.25	2.81		<1	<1
W5B	-15.5	8/29/00	903				4.12	128	60.9	853	0.03	0.4	164	4600	4.24	131.3	62.8	880	0.70	21.8	7.67	32.17	3.63		<1	<1
W5B	-15.5	9/5/00	934				4.09	127	67.7	948	0.08	1.1	163	4578	4.23	131.0	70.0	980	0.82	21.6	7.66	31.95	3.62		<1	<1
W5B	-15.5	10/24/00	935				3.95	122	67.0	938	0.21	2.9	150	4210	4.20	130.1	69.5	973	0.75	22.2	7.67	32.18	3.51		<1	<1
W5B	-15.5	11/13/00	913				3.69	114	75.5	1058	0.29	4.1	156	4384	3.90	120.8	79.6	1115	0.77	22.3	7.65	32.11	2.99		<1	<1
W5B	-15.5	12/18/00	922				3.95	122	96.3	1349	0.20	2.8	150	4204	4.02	124.5	98.0	1373	0.85	22.1	7.67	31.99	2.54		<1	<1
W5B	-15.5	1/22/01	916				3.85	119	85.9	1203	0.01	0.1	143	4019	3.93	121.7	86.9	1218	0.76	21.8	7.63	32.13	2.16		<1	<1
W5B	-15.5	2/5/01	941				3.68	114	84.2	1179	0.10	1.4	144	4047	3.83	118.6	91.8	1286	0.75	22.5	7.64	32.58	1.93		<1	<1
W5B	-15.5	3/5/01	933				3.81	118	78.9	1105	0.04	0.6	143	4022	3.92	121.4	79.9	1119	0.83	22.6	7.62	32.55	2.15		<1	<1
W5B	-15.5	4/17/01	920				3.80	118	74.7	1047	0.01	0.1	139	3898	3.98	123.3	81.2	1138	0.75	22.1	7.65	32.61	2.67		<1	<1
W5B	-15.5	5/15/01	905				3.83	119	77.5	1086	0.13	1.8	141	3957	3.85	119.2	80.1	1122	0.71	21.4	7.67	32.29	3.17		<1	<1
W5B	-15.5	6/12/01	918				3.86	120	73.4	1028	0.02	0.3	144	4039	3.73	115.5	75.9	1063	0.72	21.4	7.68	32.26	3.25		<1	<1
W5B	-15.5	7/23/01	923				3.79	117	74.4	1042	0.04	0.6	137	3851	3.78	117.1	79.1	1108	0.80	20.9	7.67	32.03	3.40		<1	<1
W5B	-15.5	8/8/01	908				3.84	119	74.1	1038	0.02	0.3	140	3938	3.86	119.6	77.2	1082	0.80	20.9	7.67	32.22	3.69		<1	<1
W5B	-15.5	9/19/01	921				4.06	126	83.0	1163	0.06	0.8	134	3755	4.20	130.1	87.8	1230	0.82	20.9	7.69	31.71	3.58		<1	<1
W5B	-15.5	10/24/01	854				4.06	126	82.5	1155	0.03	0.4	130	3643	4.35	134.7	88.5	1240	0.69	20.7	7.68	31.62	3.01		<1	<1
W5B	-15.5	11/7/01	911				4.24	131	91.6	1283	0.01	0.1	133	3727	4.28	132.6	104	1455	0.73	20.6	7.67	31.51	3.48		<1	<1
W5B	-15.5	12/19/01	930				4.26	132	96.5	1352	0.03	0.4	145	4070	4.24	131.3	126	1762	0.77	20.5	7.69	31.32	4.11		<1	<1
W5B	-15.5	1/9/02	924				4.23	131	92.0	1289	0.17	2.4	136	3831	4.40	136.3	96.4	1350	1.14	20.1	7.67	31.31	3.94		<1	<1
W5B	-15.5	2/19/02	1040				4.42	137	81.4	1140	0.05	0.7	144	4036	4.58	141.9	85.0	1191	0.73	20.8	7.69	31.91	3.77		<1	<1
W5B	-15.5	3/20/02	938				4.36	135	80.1	1122	0.22	3.1	138	3873	4.50	139.4	83.7	1172	0.72	21.0	7.72	31.87	3.63		<1	<1
W5B	-15.5	4/8/02	1028				4.38	136	82.6	1157	0.04	0.6	129	3615	4.60	142.5	84.3	1181	0.64	20.7	7.70	31.66	3.45		<1	<1
W5B	-15.5	5/29/02	1016				4.44	138	82.3	1152	0.16	2.2	135	3803	4.58	141.9	84.7	1186	0.76	20.9	7.71	31.47	4.83		<1	<1
W5B	-15.5	6/17/02	949				4.81	149	71.6	1003	0.08	1.1	126	3544	4.95	153.3	74.2	1040	0.64	21.0	7.71	31.68	3.82		<1	<1
W5B	-15.5	7/15/02	945				4.66	144	61.2	857	0.10	1.4	135	3786	4.82	149.3	65.8	922	0.69	21.8	7.72	32.05	4.10		<1	<1
W5B	-15.5	8/20/02	944				4.52	140	60.5	847	0.23	3.2	132	3719	4.66	144.3	59.4	832	0.65	21.7	7.72	31.87	4.16		<1	<1
W5B	-15.5	9/23/02	1008				4.36	135	57.8	810	0.24	3.4	130	3651	4.38	135.7	56.6	793	0.61	22.3	7.73	32.38	3.82		<1	<1
W5B	-15.5	10/14/02	924				4.33	134	70.5	987	0.04	0.6	133	3735	4.45	137.8	70.2	983	0.71	22.7	7.74	32.26	3.11		<1	<1
W5B	-15.5	11/4/02	934				4.29	133	76.6	1072	0.02	0.3	141	3949	4.48	138.8	74.2	1039	0.89	22.5	7.74	31.88	3.27		<1	<1
W5B	-15.5	12/17/02	955				4.33	134	70.6	988	0.03	0.4	129	3612	4.45	137.8	67.3	942	0.71	23.3	7.72	32.33	2.95		<1	<1
W5B	-15.5	1/21/03	1040				4.02	125	74.1	1038	0.02	0.3	135	3786	4.29	132.9	83.5	1170	1.25	22.2	7.74	32.20	3.63		<1	<1
W5B	-15.5	2/12/03	950				4.42	137	65.3	915	0.03	0.4	137	3851	4.64	143.7	76.4	1070	0.64	23.1	7.74	32.85	2.84		<1	<1
W5B	-15.5	3/19/03	953				4.68	145	75.9	1063	0.04	0.6	129	3623	4.76	147.4	100	1401	0.59	23.0	7.77	32.30	3.22		<1	<1
W5B	-15.5	4/28/03	935				4.70	146	72.9	1021	0.32	4.5	122	3421	4.88	151.2	83.0	1163	0.60	22.5	7.81	32.07	3.67		<1	<1
W5B	-15.5	5/12/03	913				4.58	142	71.8	1006	0.10	1.4	126	3536	4.75	147.1	77.6	1087	0.58	22.3	7.82	32.08	3.76		<1	<1
W5B	-15.5	6/3/03	928				4.67	145	72.3	1013	0.02	0.3	120	3362	4.80	148.7	81.1	1135	0.59	22.4	7.75	32.08	3.36		19	483

NELHA Water Quality Laboratory

Well 5B Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W5B	-15.5	7/29/03	954				4.11	127	59.9	838	0.06	0.8	142	3977	4.33	134.1	65.7	921		22.7	7.77	32.59	3.75		na	na
W5B	-15.5	8/26/03	949				4.52	140	66.6	933	0.06	0.8	129	3620	4.68	145.0	76.4	1070		21.3	7.74	31.63	3.77		<1	<1
W5B	-15.5	9/15/03	931				4.43	137	63.8	894	0.02	0.3	125	3516	4.54	140.6	75.0	1050		21.7	7.76	31.54	3.69		<1	<1
W5B	-15.5	10/6/03	913				4.66	144	67.1	940	0.07	1.0	126	3533	4.78	148.1	73.5	1030		21.1	7.74	31.67	NA		<1	4
W5B	-15.5	10/28/03	1007				4.70	146	63.1	884	0.10	1.4	126	3530	4.80	148.7	70.8	992		22.3	7.74	31.59	NA		<1	<1
W5B	-15.5	11/14/03	1316																	22.2			3.71			
W5B	-15.5	12/15/03	919				4.86	151	59.5	834	0.06	0.8	124	3469	5.03	155.8	63.2	886		21.8	7.74	31.72	3.41		<1	<1
W5B	-15.5	1/26/04	924				4.80	149	63.1	884	0.10	1.4	130	3640	5.00	154.9	65.5	917		21.5	7.76	31.45	3.52		<1	<1
W5B	-15.5	2/5/04	923				4.84	150	69.1	968	0.20	2.8	132	3716	5.02	155.5	73.2	1026		21.2	7.76	31.49	3.98		<1	<1
W5B	-15.5	3/2/04	928				4.82	149	63.7	892	0.30	4.2	125	3516	5.04	156.1	76.3	1069		21.6	7.78	31.59	3.63		<1	<1
W5B	-15.5	4/20/04	923				4.78	148	82.4	1155	0.05	0.7	120	3376	4.80	148.7	90.5	1268		21.2	7.78	31.29	4.35		<1	1
W5B	-15.5	5/11/04	838				4.70	146	74.9	1049	0.30	4.2	120	3381	4.70	145.6	79.6	1115		22.0	7.81	30.56	n/a		1	3
W5B	-15.5	5/12/04	1005																	21.4			4.36		na	na
W5B	-15.5	6/2/04	857				4.74	147	72.5	1015	0.18	2.5	121	3407	4.82	149.3	74.3	1040		21.5	7.76	30.50	4.29		<1	2
W5B	-15.5	7/14/04	929				4.38	136	80.5	1127	0.20	2.8	123	3466	4.40	136.3	89.0	1246		21.8	7.79	30.29	4.49		<1	<1
W5B	-15.5	8/23/04	940				4.46	138	81.9	1147	0.39	5.5	123	3460	4.50	139.4	86.0	1205		21.2	7.78	30.15	4.34		<1	1792
W5B	-15.5	9/2/04	946				4.44	138	80.7	1131	0.13	1.8	124	3494	4.46	138.1	84.1	1179		20.8	7.78	30.09	4.44		<1	2640
W5B	-15.5	10/4/04	900				4.42	137	79.4	1112	0.19	2.7	118	3314	4.70	145.6	83.3	1167		22.7	7.76	30.26	4.41		<1	232
W5B	-15.5	11/23/04	908				4.50	139	70.7	990	0.06	0.8	129	3620	4.72	146.2	105	1474		22.7	7.78	30.29	4.06		<1	342
W5B	-15.5	12/8/04	855				4.48	139	71.9	1008	0.10	1.4	127	3553	4.58	141.9	89.0	1246		21.6	7.79	30.36	4.33		<1	47
W5B	-15.5	1/18/05	908				4.42	137	71.0	994	0.08	1.1	136	3820	4.6	142.5	76.1	1066		21.8	7.85	31.52	4.11		<1	127
W5B	-15.5	2/10/05	855				4.44	138	72.4	1014	0.27	3.8	131	3682	4.58	141.9	101	1410		21.5	7.84	31.35	4.14		<1	95
W5B	-15.5	3/22/05	902				4.68	145	84.3	1181	0.14	2.0	131	3665	4.94	153.0	92.4	1294	0.72	21.0	7.84	31.28	4.30		<1	<1
W5B	-15.5	4/20/05	853				4.38	136	75.8	1061	0.11	1.5	128	3589	4.54	140.6	80.8	1132		20.9	7.85	31.32	4.44		<1	13
W5B	-15.5	5/25/05	915				4.22	131	79.6	1115	0.15	2.1	131	3682	4.64	143.7	91.5	1282		19.8	7.83	31.30	4.47		<1	343
W5B	-15.5	6/14/05	913				4.36	135	77.1	1080	0.12	1.7	128	3603	4.42	136.9	82.9	1161		20.9	7.82	31.21	4.52		205	460
W5B	-15.5	7/19/05	908				4.36	135	77.1	1080	0.10	1.4	124	3488	4.52	140.0	78.9	1105	0.55	21.0	7.81	31.17	4.53		<1	3
W5B	-15.5	8/3/05	938				4.48	139	73.1	1024	0.03	0.4	126	3528	4.64	143.7	76.0	1065	0.58	21.0	7.85	31.08	5.08		<1	1428
W5B	-15.5	9/22/05	901				4.34	134	64.4	902	0.13	1.8	124	3469	4.5	139.4	73.1	1023	0.53	21.9	7.84	31.40	4.85		<1	218
W5B	-15.5	10/19/05	915				4.22	131	74.1	1038	0.14	2.0	120	3356	4.42	136.9	79.3	1111		21.6	7.82	31.16	4.69		<1	1
W5B	-15.5	11/8/05	900				4.08	126	75.3	1055	0.08	1.1	108	3030	4.28	132.6	82.7	1158		22.4	7.78	31.42	3.96		<1	2
W5B	-15.5	12/22/05	834				3.80	118	70.3	985	0.29	4.1	123	3457	3.96	122.7	75.3	1055		22.6	7.70	31.71	3.59		<1	<1
W5B	-15.5	1/31/06	859				3.72	115	67.9	951	0.19	2.7	124	3483	3.84	118.9	71.9	1007		22.5	7.66	31.95	2.87		<1	1
W5B	-15.5	2/16/06	854				3.84	119	69.6	975	0.20	2.8	124	3477	4.12	127.6	67.2	941	0.60	21.9	7.71	31.66	3.44		<1	1
W5B	-15.5	3/22/06	845				3.63	112	63.7	892	0.27	3.8	120	3370	3.85	119.2	69.8	978	0.61	22.1	7.63	32.00	1.44		<1	<1
W5B	-15.5	4/27/06	925				3.61	112	69.7	976	0.10	1.4	108	3033	3.71	114.9	66.6	932	0.62	22.2	7.65	32.05	3.46		<1	<1
W5B	-15.5	5/24/06	948				3.27	101	63.2	885	<0.05	0.0	112	3146	3.56	110.3	61.9	867	0.64	22.9	7.65	32.11	3.28		<1	<1
W5B	-15.5	6/28/06	932				3.30	102	64.0	896	0.35	4.9	110	3089	3.41	105.6	61.8	865	0.59	22.7	7.61	32.33	2.46		<1	2
W5B	-15.5	7/19/06	910				3.25	101	67.1	940	0.25	3.5	101	2837	3.35	103.8	56.0	784	0.61	23.5	7.54	32.28	2.69		1	17
W5B	-15.5	8/9/06	932				3.15	98	64.2	899	0.14	2.0	109	3061	3.38	104.7	59.6	835	0.62	24.7	7.59	32.26	2.53		<1	1
W5B	-15.5	9/20/06	943				3.23	100	57.5	805	0.24	3.4	107	3005	3.50	108.4	54.2	759	0.63	23.5	7.56	32.40	2.07		<1	>5,000
W5B	-15.5	10/25/06	938				3.36	104	49.3	691	0.34	4.8	108	3033	3.55	110.0	46.4	650	0.74	25.1	7.51	32.78	3.15		<1	688
W5B	-15.5	11/29/06	935				3.58	111	54.4	762	0.29	4.1	104	2921	3.73	115.5	50.1	701	0.70	24.5	7.52	32.60	1.92		<1	3
W5B	-15.5	12/13/06	939				3.52	109	59.2	829	0.24	3.4	103	2893	3.71	114.9	52.7	738	0.60	24.7	7.53	32.61	1.76		<1	1
W5B	-15.5	1/10/07	925				3.87	120	59.6	835	0.26	3.6	106	2977	3.95	122.3	63.1	883	0.63	23.4	7.54	32.41	2.10		<1	<1
W5B	-15.5	2/21/07	1005				3.62	112	61.1	856	0.43	6.0	107	3005	3.82	118.3	65.4	916	0.60	23.3	7.58	32.16	2.69		<1	<1
W5B	-15.5	3/7/07	956				3.64	113	63.2	885	0.25	3.5	110	3089	3.77	116.8	65.6	918	0.64	22.8	7.61	32.00	2.76		<1	<1
W5B	-15.5	4/19/07	935				3.88	120	69.2	969	0.24	3.4	110	3089	4.06	125.8	59.8	837	0.52	23	7.66	31.79	2.72		<1	<1
W5B	-15.5	5/2/07	942				3.89	120	63.3	887	0.27	3.8	110	3089	4.17	129.2	61.2	857	0.54	22.2	7.64	31.84	2.87		<1	1
W5B	-15.5	6/20/07	946				3.90	121	60.5	848	0.19	2.7	107	3005	4.07	126.1	n/a	n/a		22.9	7.66	32.13	2.77		<1	15

NELHA Water Quality Laboratory

Well 5B Data Table

June 1989 - December 2014

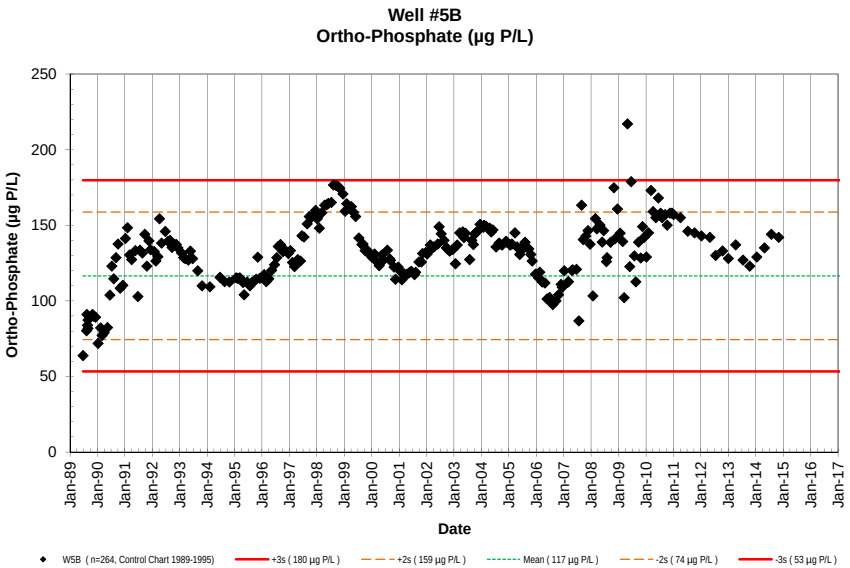
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W5B	-15.5	7/23/07	1143	-3.22	0.52	Flood	2.80	87	31.9	447	0.04	0.5	59	1663	3.09	95.7	33.6	471.0		24.3	7.49	31.34	2.54			
W5B	-15.5	8/27/07	1417	-2.82	0.52	Flood	5.27	163	80.2	1123	0.15	2.1	113	3164	4.79	148.5	79.6	1114.8		21.7	7.61	31.07	3.13			
W5B	-15.5	9/18/07	1552	-3.07	0.24	Ebb	4.54	141	73.2	1026	1.26	18	118	3313	4.69	145.3	75.2	1052.9		20.1	7.63	31.15	3.71			
W5B	-15.5	10/23/07	1430	-2.87	0.52	High	4.61	143	77.5	1086	0.29	4.1	115	3233	4.58	141.7	71.8	1006.0		19.8	7.67	30.92	4.04			
W5B	-15.5	11/20/07	1430	-3.10	0.38	Ebb	4.73	146	77.3	1082	0.06	0.8	121	3390	4.33	134.1	82.4	1154.2		19.4	7.73	30.93	3.85			
W5B	-15.5	12/19/07	1300	-3.22	0.30	High	4.44	137	87.7	1228	0.90	13	104	2924						19.7	7.58	30.65	2.75			
W5B	-15.5	1/25/08	1051	-3.05	0.24	Ebb	3.34	103	46.8	656	0.46	6.5	86	2423						20.0	7.28	30.94	2.63			
W5B	-15.5	2/26/08	1215	-3.43	0.03	Ebb	4.98	154	90.3	1265	2.27	32	117	3291						19.6	7.50	31.20	3.02			
W5B	-15.5	3/17/08	1343	-2.95	0.21	Flood	4.77	148	71.9	1007	0.06	0.8	98	2759						19.8	7.61	31.30	3.05			
W5B	-15.5	4/29/08	937	-3.35	0.09	Flood	4.85	150	79.5	1113	0.09	1.2	118	3312						19.4	7.53	31.05	3.67			
W5B	-15.5	5/28/08	1008	-3.10	0.18	Flood	4.48	139	74.0	1037	0.13	1.8	136	3833						19.9	7.66	31.42	3.35			
W5B	-15.5	6/17/08	1057	-3.28	0.00	Flood	4.73	146	76.9	1077	0.39	5.4	117	3273						19.8	7.48	31.11	4.95	0.12		
W5B	-15.5	7/22/08	1126	-3.25	0.30	Ebb	4.06	126	83.9	1175	0.42	5.9	118	3307						19.1	7.59	31.02	4.64			
W5B	-15.5	7/31/08	950	-3.58	-0.09	Low	4.15	129	81.4	1140	0.26	3.6	117	3286						21.4	7.51	30.69	2.45			
W5B	-15.5	9/16/08	1037	-2.94	0.12	Ebb	4.48	139	77.6	1087	1.08	15	120	3363						19.7	7.48	30.95	3.92			
W5B	-15.5	10/31/08	924	-3.22	0.30	Ebb	5.64	175	86.0	1205	0.25	3.5	119	3348						20.2	7.37	31.05	3.19			
W5B	-15.5	11/14/08	1149	-3.47	0.12	Ebb	4.55	141	88.4	1238	0.24	3.4	116	3254						20.7	7.70	31.01	2.94	0.35		
W5B	-15.5	12/16/08	1000	-3.15	0.61	Ebb	5.19	161	95.2	1334	0.11	1.5	127	3558						20.3	7.67	31.14	2.82			
W5B	-15.5	1/23/09	1438	-3.41	0.15	High	4.67	145	99.0	1386	0.82	12	109	3050						20.9	7.75	31.51	2.82	0.10		
W5B	-15.5	2/24/09	1554	-3.25	0.30	Flood	4.49	139	47.6	667	0.30	4.2	114	3197						20.3	7.62	31.51	2.84	0.08		
W5B	-15.5	3/16/09	1542	-3.52	0.03	Low	3.30	102	82.0	1148	0.13	1.8	94	2632						21.3	7.55	31.30	2.84	0.19		
W5B	-15.5	4/30/09	1540	-3.57	0.09	Flood	7.01	217	97.4	1364	0.58	8.1	121	3392						21.4	7.68	31.32	1.19			
W5B	-15.5	5/29/09	955	-3.33	0.21	High	3.96	123	95.8	1341	0.17	2.4	94	2638						18.6	7.76	31.59	2.30	0.04		
W5B	-15.5	6/18/09	1412	-2.99	0.61	High	5.77	179	77.1	1080	0.28	3.9	97	2737						18.6	7.72	31.30	3.18	0.03		
W5B	-15.5	7/31/09	1113	-3.07	0.52	Flood	4.19	130	94	1314	0.14	2.0	93	2601						18.8	7.69	31.44	2.82	0.07		
W5B	-15.5	8/19/09	1111	-3.49	0.09	Flood	3.64	113	80	1118	1.21	17.0	71	1997						18.9	7.61	31.45	2.26	0.08		
W5B	-15.5	9/24/09	941	-3.09	0.61	High	4.48	139	87	1215	0.23	3.2	109	3063						19.5	8.00	31.54	2.93	0.07		
W5B	-15.5	10/23/09	1411	-3.45	0.21	Ebb	4.15	128	63	884	0.88	12.3	93	2615						19.6	7.56	31.40	3.38	0.06		
W5B	-15.5	11/17/09	1026	-3.64	0.21	Ebb	4.81	149	76	1065	0.87	12.2	132	3711						19.4	7.55	31.24	3.06	0.03		
W5B	-15.5	12/8/09	1014	-3.13	0.52	Ebb	4.58	142	84	1173	1.12	15.7	147	4127						19.6	7.61	31.13	2.82	0.04		
W5B	-15.5	1/6/10	942	-3.13	0.40	Ebb	4.16	129	77	1082	1.14	16	138	3869						19.9	7.50	31.10	3.12	0.13		
W5B	-15.5	2/2/10	924	-3.47	0.24	Ebb	4.68	145	99	1382	0.71	10	126	3531						19.6	7.55	31.11	2.58	0.08		
W5B	-15.5	3/10/10	903	-3.60	0.09	Low	5.59	173	93	1303	0.43	6	146	4089						20.2	7.54	30.85	3.06	0.03		
W5B	-15.5	4/6/10	1515	-3.51	0.09	Ebb	5.13	159	86	1198	0.93	13	144	4048						20.6	7.54	31.02	3.07	0.10		
W5B	-15.5	5/12/10	844	-3.64	-0.06	Low	5.00	155	76	1060	1.00	14.0	130	3644						19.3	7.59	31.01	2.88	0.04		
W5B	-15.5	6/16/10	1109	-3.54	0.09	Ebb	5.42	168	88	1237	0.79	11.0	150	4225						20.2	7.53	31.05	2.71	0.49		
W5B	-15.5	7/14/10	842	-3.33	0.18	Ebb	5.10	158	95	1334	0.07	1.0	170	4762						18.6	7.58	31.11	3.10	0.10		
W5B	-15.5	8/3/10	1732	-3.24	0.12	Ebb	5.00	155	81	1131	0.51	7.1	144	4032						18.8	7.62	31.23	2.93	0.27		
W5B	-15.5	9/13/10	1519	-3.33	0.24	Ebb	5.07	157	77	1074	0.25	3.5	147	4129						19.5	7.51	31.41	3.16	0.12		
W5B	-15.5	10/11/10	1023	-3.11	0.46	Ebb	4.84	150	74	1034	0.06	0.9	146	4100						19.9	7.62	31.37	3.30	0.23		
W5B	-15.5	11/15/10	1145	-3.11	0.43	High	5.10	158	73	1021	0.12	1.7	143	4003						20.2	7.59	31.78	3.30	0.12		
W5B	-15.5	12/13/10	859	-3.10	0.40	High	5.10	158	78	1093	0.14	1.9	145	4071						20.2	7.61	31.54	2.79	0.12		
W5B	-15.5	1/3/11	1538	-3.45	0.21	High	5.07	157	80	1121	0.15	2.1	142	3994						20.2	7.53	31.38	2.53	0.09		
W5B	-15.5	4/4/11	1429	-3.20	0.30	Flood	5.00	155	91	1281	0.11	1.6	129	3636						19.2	7.61	31.02	3.25	0.06		
W5B	-15.5	7/11/11	1317	-3.02	0.67	Flood	4.71	146	79	1111	0.19	2.6	129	3616						19.7	7.55	31.53	4.20	0.05		
W5B	-15.5	10/10/11	1228	-3.35	0.30	Flood	4.68	145	60	842	0.05	0.7	125	3502						20.9	7.59	32.19	3.95	0.09		
W5B	-15.5	1/9/12	1303	-3.49	0.03	Low	4.62	143	76	1068	0.04	0.5	123	3453						19.5	7.60	31.38	3.56	0.07		
W5B	-15.5	4/30/12	1421	-3.17	0.27	Ebb	4.58	142	67	937	0.06	0.8	130	3645						19.9	7.56	31.89	3.27	0.02		
W5B	-15.5	7/17/12	1611	-2.87	0.73	High	4.20	130	69	965	0.16	2.3	134	3770						20.0	7.57	31.97	3.41	0.05		
W5B	-15.5	10/15/12	1243	-3.40	0.12	Flood	4.29	133	67	940	0.17	2.4	128	3601						20.3	7.64	32.05	3.41	0.05		
W5B	-15.5	1/1/13	1331	-3.29	0.24	Ebb	4.13	128	79	1106	0.23	3.2	170	4787						19.5	7.63	31.85	3.81	0.02		
W5B	-15.5	4/8/13	1140	-3.53	0.09	Flood	4.42	137	89	1245	0.24	3.4	129	3614						18.4	7.65	31.48	4.04	0.02		
W5B	-15.5	7/16/13	1525	-3.24	0.37	Ebb	4.10	127	71	993	0.14	1.9	130	3638						21.2	7.64	32.04	3.51	0.12		
W5B	-15.5	10/14/13	1532	-3.21	0.43	Ebb	3.97	123	61	855	0.44	6.2	124	3489						21.9	7.78	32.32	4.33	0.02		
W5B	-15.5	1/14/14	1422	-3.19	0.21	Flood	4.16	129	80.2	1123	0.18	2.5	127	3565						21.3	7.69	30.45	2.32	0.02		
W5B	-15.5	4/28/14	1640	-2.98	0.549	High	4.36	135	114	1594	0.50	7.0	119	3348						19.3	7.73	31.08	3.56	0.03		

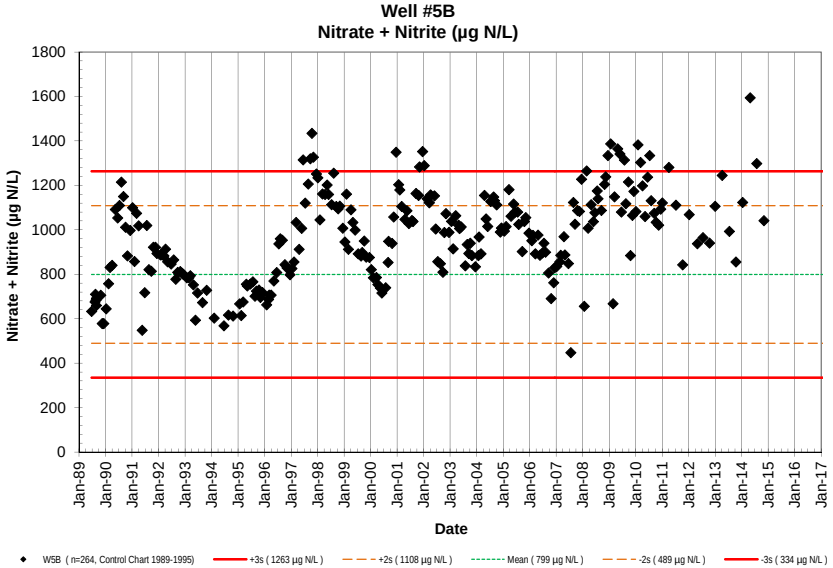
NELHA Water Quality Laboratory

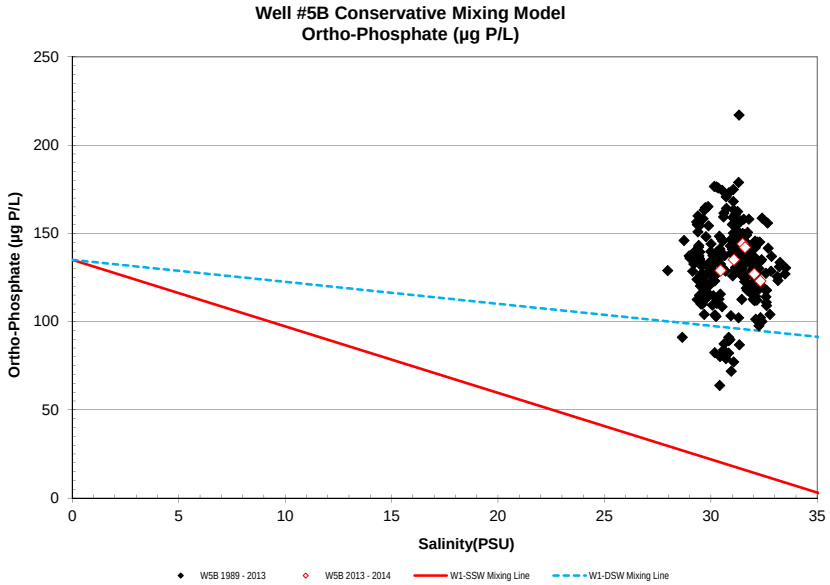
Well 5B Data Table

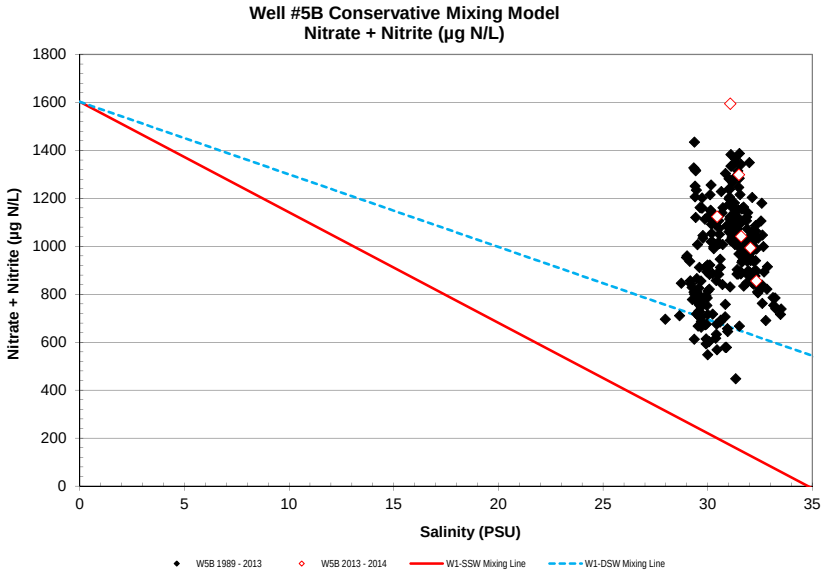
June 1989 - December 2014

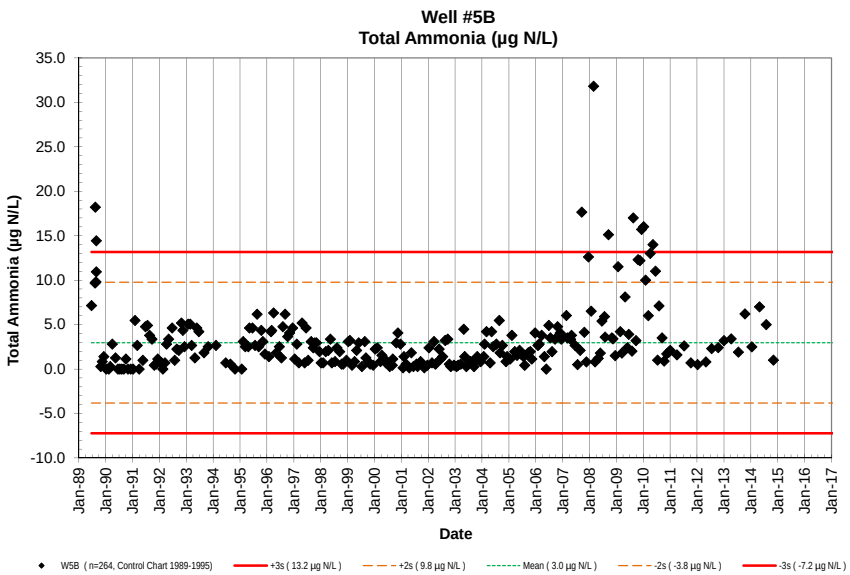
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W5B	-15.5	7/28/14	1429	-3.32	0.381	Flood	4.65	144	93	1298	0.36	5.0	121	3389						19.8	7.66	31.49	4.09	0.06		
W5B	-15.5	11/3/14	1109	-3.15	0.38	Flood	4.58	142	74	1041	0.07	1.0	116	3261						21.0	7.69	31.60	3.19	0.08		
W5B	-15.5	1/1/15																								
W5B	-15.5	4/1/15																								

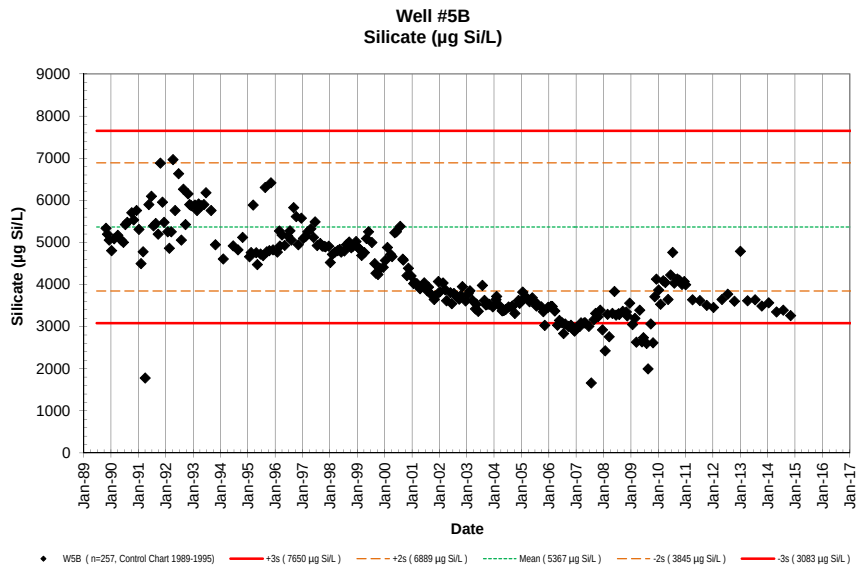

Well #5B
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W5B (n=264, Control Chart 1989-1995)
+3s (180 µg P/L)
+2s (159 µg P/L)
Mean (117 µg P/L)
-2s (74 µg P/L)
-3s (53 µg P/L)

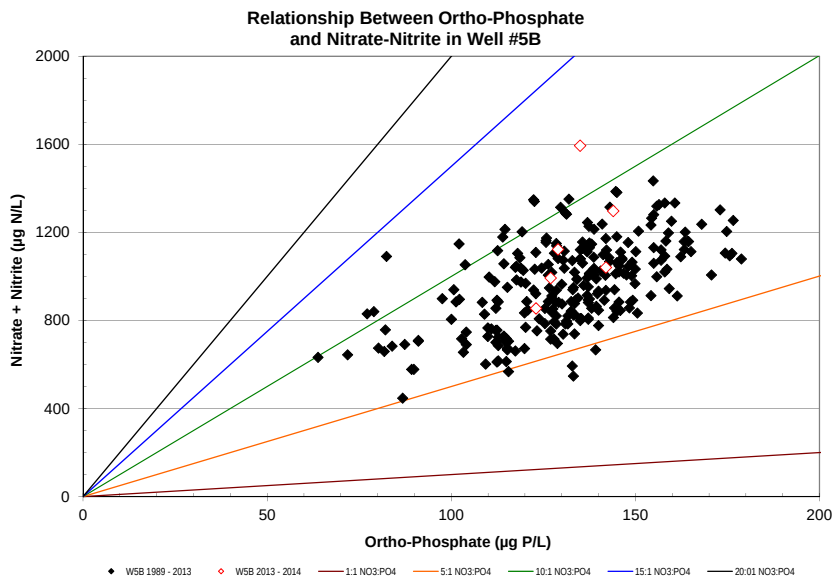

Well #5B
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W5B (n=264, Control Chart 1989-1995)
+3s (1263 µg N/L)
+2s (1108 µg N/L)
Mean (799 µg N/L)
-2s (489 µg N/L)
-3s (334 µg N/L)

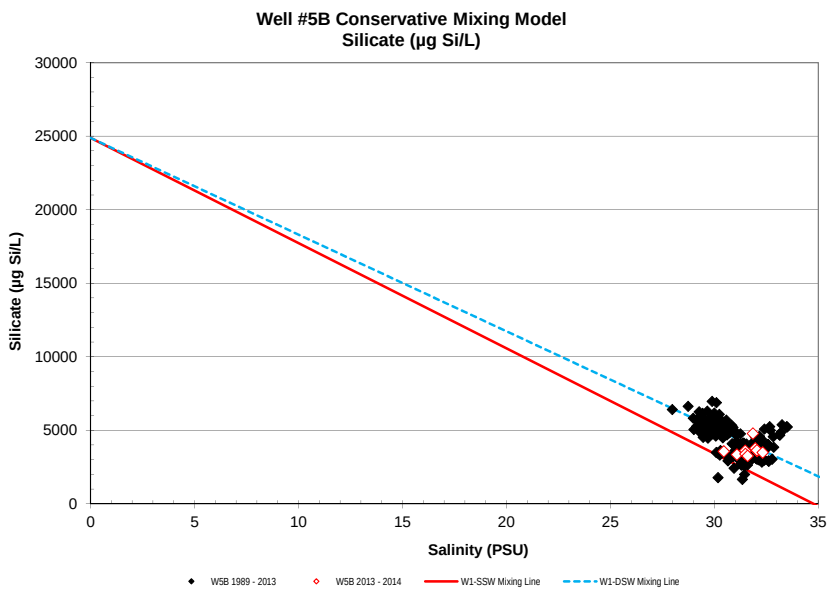

Well #5B Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity(PSU)
W5B 1989 - 2013
W5B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

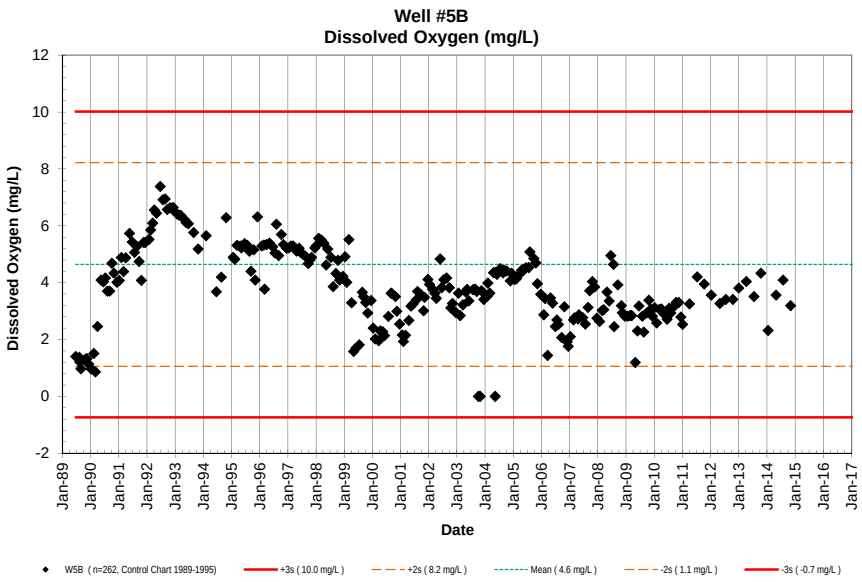

Well #5B Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W5B 1989 - 2013
W5B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

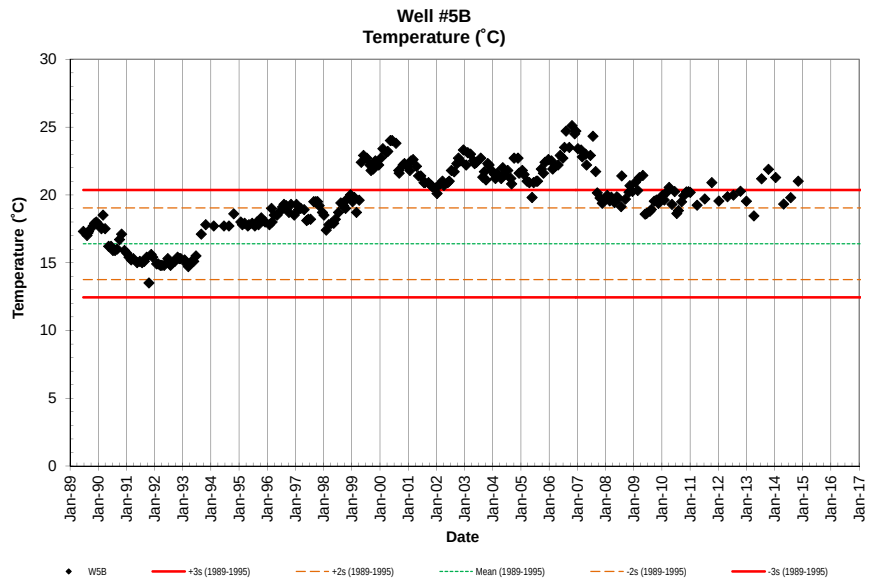

Well #5B
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W5B (n=264, Control Chart 1989-1995)
+3s (13.2 µg N/L)
+2s (9.8 µg N/L)
Mean (3.0 µg N/L)
-2s (-3.8 µg N/L)
-3s (-7.2 µg N/L)

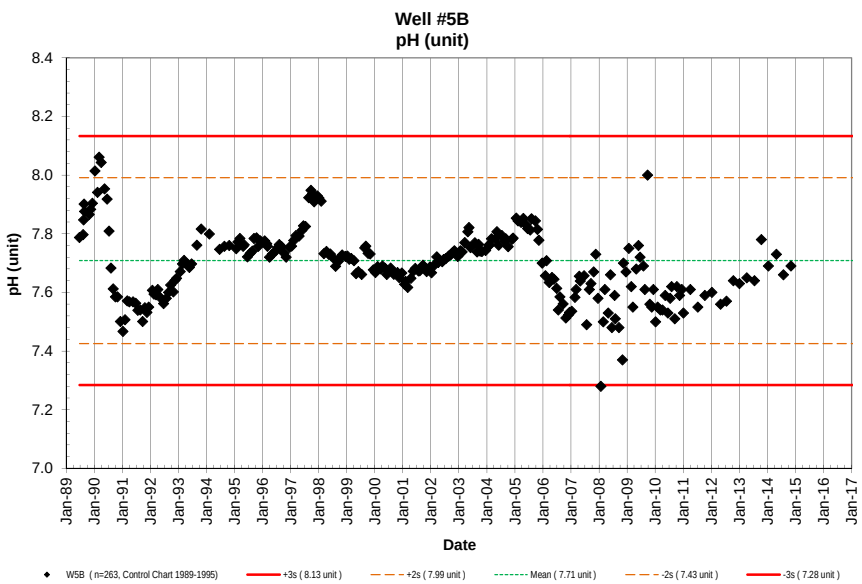

Well #5B
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W5B (n=257, Control Chart 1989-1995)
+3s (7650 µg Si/L)
+2s (6889 µg Si/L)
Mean (5367 µg Si/L)
-2s (3845 µg Si/L)
-3s (3083 µg Si/L)

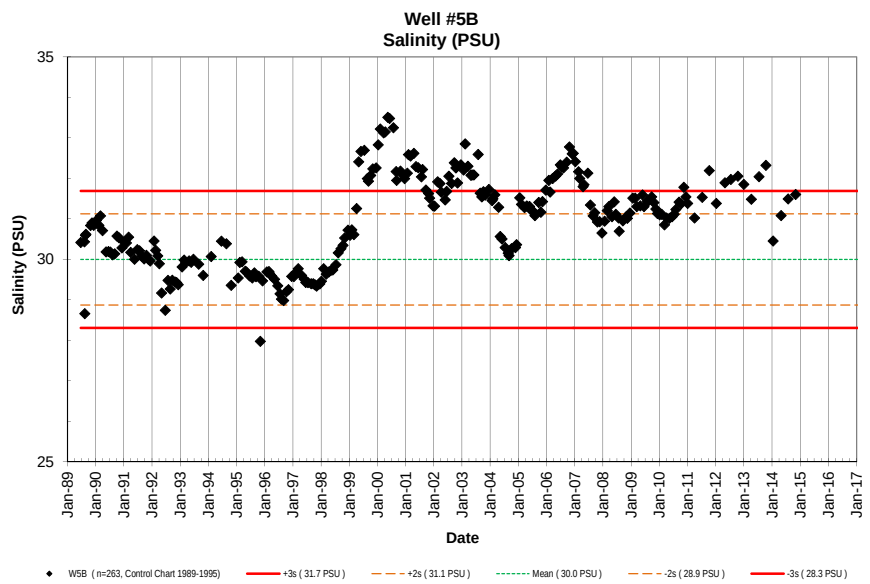

Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #5B
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W5B 1989 - 2013
W5B 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

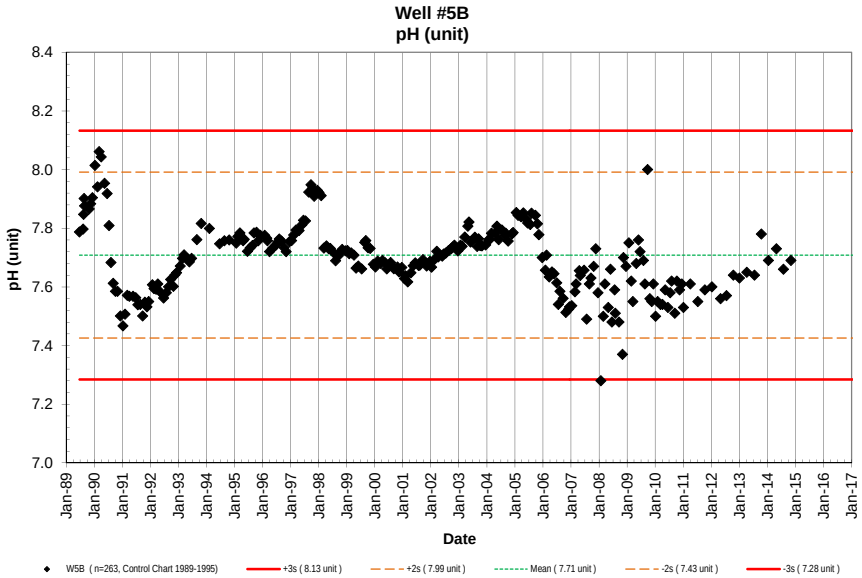

Well #5B Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W5B 1989 - 2013
W5B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

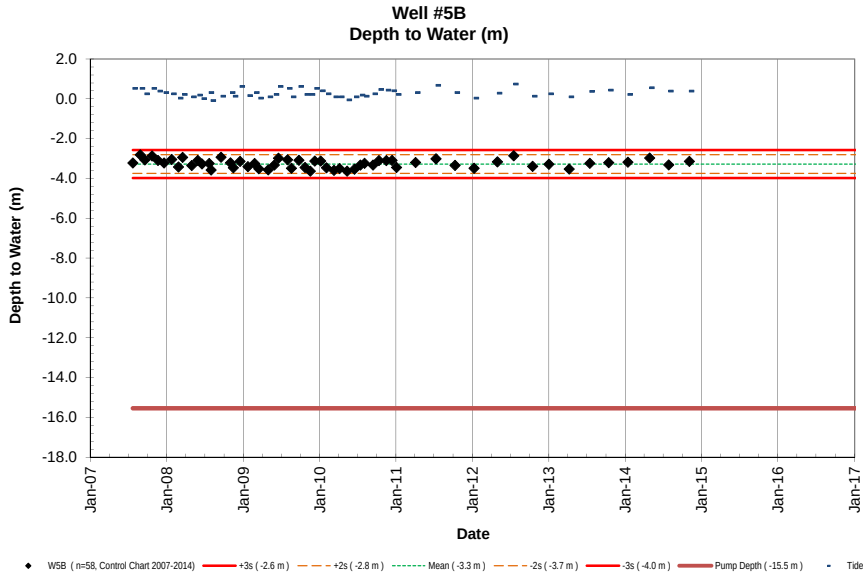

Well #5B
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W5B (n=262, Control Chart 1989-1995)
+3s (10.0 mg/L)
+2s (8.2 mg/L)
Mean (4.6 mg/L)
-2s (1.1 mg/L)
-3s (-0.7 mg/L)


Well #5B
Temperature (˚C)
Temperature (˚C)
Date
W5B
+3s (1989-1995)
+2s (1989-1995)
Mean (1989-1995)
-2s (1989-1995)
-3s (1989-1995)


Well #5B
pH (unit)
pH (unit)
Date
W5B (n=263, Control Chart 1989-1995)
+3s (8.13 unit)
+2s (7.99 unit)
Mean (7.71 unit)
-2s (7.43 unit)
-3s (7.28 unit)


Well #5B
Salinity (PSU)
Salinity (PSU)
Date
W5B (n=263, Control Chart 1989-1995)
+3s (31.7 PSU)
+2s (31.1 PSU)
Mean (30.0 PSU)
-2s (28.9 PSU)
-3s (28.3 PSU)


Well #5B
pH (unit)
pH (unit)
8.4
8.2
8.0
7.8
7.6
7.4
7.2
7.0
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W5B (n=263, Control Chart 1989-1995)
+3s (8.13 unit)
+2s (7.99 unit)
Mean (7.71 unit)
-2s (7.43 unit)
-3s (7.28 unit)


Well #5B
Depth to Water (m)
Depth to Water (m)
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
-12.0
-14.0
-16.0
-18.0
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W5B (n=58, Control Chart 2007-2014)
+3s (-2.6 m)
+2s (-2.8 m)
Mean (-3.3 m)
-2s (-3.7 m)
-3s (-4.0 m)
Pump Depth (-15.5 m)
Tide

NELHA Water Quality Laboratory

Well 6 Data Table

June 1989 - October 2013

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W6	-12.5	6/23/89					2.94	91	58.0	812	0.61	8.5								18.7	7.814	29.918	4.66		NA	NA
W6	-12.4968	8/9/89	1502				3.05	94	61.7	865	0.50	7.0								17.6	7.628	29.742	6.59		<1	NA
W6	-12.4968	8/15/89	1120				3.78	117	75.1	1052	0.67	9.4								17.3	7.529	29.041	4.97		<1	NA
W6	-12.4968	8/22/89	1100				3.42	106	72.3	1013	0.50	7.0								16.7	7.651	29.264	4.74		<1	NA
W6	-12.4968	8/28/89	1340				3.23	100	86.9	1216	0.33	4.6								16.5	7.496	28.792	3.99		<1	NA
W6	-12.4968	8/28/89	1340				4.15	129	86.9	1216	0.45	6.3													NA	NA
W6	-12.4968	10/27/89	1110				3.36	104	70.3	985	0.03	0.4	223	6263	3.61	111.8	70.3	985	0.30	18.2	7.742	30.281	4.83		<1	NA
W6	-12.4968	11/15/89	830				3.06	95	67.7	948	0.06	0.8	215	6038	3.31	102.5	73.5	1029	1.58	18.8	7.616	30.581	7.06		<1	NA
W6	-12.4968	12/8/89	1115				3.12	97	61.2	857	0.10	1.4	211	5926	3.23	100.0	70.4	986		18.6	7.836	30.535	4.94		<1	NA
W6	-12.4968	1/10/90	1012				2.15	67	77.7	1088	0.00	0.0	220	6179	2.34	72.5	78.7	1102	0.88	18.7	7.993	30.453	5.27		<1	NA
W6	-12.4968	2/13/90	1100				2.64	82	73.7	1032	0.00	0.0	196	5505	2.90	89.8	75.4	1056	1.32	18.7	7.931	30.339	5.42		<1	NA
W6	-12.4968	3/5/90	1328				2.16	67	87.3	1223	0.00	0.0	196		2.50	77.4	87.6	1227	1.09	18.4	8.040	30.157	5.52		<1	NA
W6	-12.4968	4/4/90	935				2.06	64	71.3	999	0.00	0.0	171	4803	2.21	68.5	72.5	1015	1.18	17.8	8.109	29.963	6.59		<1	NA
W6	-12.4968	5/16/90	1137				2.46	76	60.8	852	0.00	0.0	177	4971	2.60	80.5	63.3	887	0.74	16.3	7.955	29.269	7.47		<1	NA
W6	-12.4968	6/17/90	1500				3.85	119	68.3	957	0.00	0.0	199	5589	3.88	120.2	71.8	1006	1.46	16.6	7.791	29.028	6.46		<1	NA
W6	-12.4968	7/12/90	1157				5.00	155	80.5	1128	0.00	0.0	204	5729	5.17	160.1	83.1	1163	0.86	16.1	7.592	29.528	5.67		<1	NA
W6	-12.4968	8/7/90	1135				4.10	127	83.0	1163	0.56	7.8	204	5729	4.60	142.5	83.6	1171	1.00	15.8	7.585	29.212	5.92		<1	NA
W6	-12.4968	9/5/90	1326				4.79	148	84.7	1186	0.00	0.0			4.79	148.4	86.9	1217	0.48	15.7	7.443	28.690	5.92		<1	NA
W6	-12.4968	10/4/90	1412				5.04	156	82.7	1158	0.10	1.4	238	6684	5.92	183.4	83.9	1176	0.85	15.5	7.390	28.473	5.73		1	NA
W6	-12.4968	10/31/90	1117				4.01	124	72.6	1017	0.00	0.0	236	6628	5.31	164.5	93.1	1304	0.64	15.4	7.347	28.853	5.41		<1	NA
W6	-12.4968	12/7/90	1336				4.13	128	86.7	1215	0.00	0.0	211	5926	4.67	144.6	90.0	1260	0.56	15.5	7.450	29.000	5.65		<1	NA
W6	-12.4968	1/9/91	830				4.10	127	87.0	1219	0.00	0.0	199	5589	4.17	129.2	98.0	1372	0.67	14.8	7.515	29.261	5.45		<1	NA
W6	-12.4968	2/5/91	922				4.31	133	66.7	934	0.39	5.5	180	5055	4.41	136.6	67.6	947	0.78	15.1	7.540	29.117	6.16		<1	NA
W6	-12.4968	3/6/91	917				3.94	122	85.4	1196	0.13	1.8	211	5926	3.95	122.3	86.2	1207	0.80	14.4	7.576	29.135	6.14		<1	NA
W6	-12.4968	4/2/91	958				3.42	106	78.5	1100	0.50	7.0	196	5505	3.83	118.6	80.9	1133	0.81	14.4	7.556	28.962	5.87		<1	NA
W6	-12.4968	5/21/91	915				4.23	131	44.7	626	0.07	1.0	357	10027	4.43	137.2	46.5	651	0.70	14.3	7.546	29.130	5.41		<1	NA
W6	-12.4968	6/25/91	908				3.16	98	57.6	807	0.40	5.6	408	11459	3.54	109.6	59.2	829	0.64	14.3	7.587	29.191	6.03		<1	<1
W6	-12.4968	7/23/91	1011				4.24	131	66.5	931	0.35	4.9	213	5982	4.69	145.3	68.3	957	0.64	14.3	7.548	29.285	6.41		<1	<1
W6	-12.4968	8/22/91	938				4.17	129	71.8	1006	0.19	2.7	216	6066	4.41	136.6	73.8	1034	0.91	14.6	7.553	29.193	6.30		<1	<1
W6	-12.4968	9/23/91	942				4.56	141	63.4	888	0.37	5.2	216	6066	4.70	145.6	66.3	929	1.62	14.8	7.522	29.082	5.81		<1	<1
W6	-12.4968	10/22/91	1054				4.43	137	62.7	878	0.00	0.0	285	8004	4.48	138.8	65.9	923	0.65	15.0	7.513	28.950	6.85		<1	<1
W6	-12.4968	11/19/91	1041				4.76	147	60.6	849	0.06	0.8	244	6853	4.82	149.3	62.3	873	0.59	14.8	7.520	28.829	7.38		<1	<1
W6	-12.4968	12/10/91	1028				4.47	138	58.8	824	0.08	1.1	223	6263	4.53	140.3	61.2	857	0.67	14.9	7.550	29.050	6.89		<1	<1
W6	-12.4968	1/28/92	1006				4.54	141	60.2	843	0.00	0.0	217	6095	4.61	142.8	61.6	863	0.92	15.0	7.592	29.150	6.90		<1	<1
W6	-12.4968	2/18/92	939				4.17	129	58.4	818	0.00	0.0	201	5645	4.39	136.0	60.6	849	0.75	14.6	7.588	29.122	6.95		<1	<1
W6	-12.4968	3/16/92	1039				4.14	128	53.7	752	0.00	0.0	208	5842	4.33	134.1	55.1	772	0.97	15.3	7.659	28.965	7.56		<1	<1
W6	-12.4968	4/7/92	1010				4.16	129	52.4	734	0.23	3.2	241	6769	4.23	131.0	54.8	768	0.83	15.4	7.668	29.001	8.78		<1	<1
W6	-12.4968	5/5/92	1011				4.32	134	54.4	762	0.11	1.5	230	6460	4.43	137.2	57.6	807	0.99	15.8	7.668	28.824	7.25		<1	<1
W6	-12.4968	6/22/92	959				4.17	129	53.9	755	0.28	3.9	236	6628	4.30	133.2	59.1	828	1.36	14.8	7.650	28.786	6.93		<1	2
W6	-12.4968	7/28/92	938				4.12	128	59.6	834	0.07	1.0	206	5786	4.22	130.7	62.0	868	0.80	15.5	7.648	28.903	7.59		<1	<1
W6	-12.4968	8/25/92	913				4.16	129	57.5	806	0.18	2.5	247	6937	4.32	133.8	62.0	868	1.06	15.3	7.644	28.936	7.49		<1	<1
W6	-12.4968	9/21/92	936				4.06	126	58.0	812	0.13	1.8	220	6179	4.16	128.9	60.4	846	0.77	15.1	7.654	29.036	7.58		<1	9
W6	-12.4968	10/26/92	951				4.07	126	58.2	815	0.37	5.2	252	7078	4.10	127.0	62.7	879	0.66	15.1	7.607	28.897	7.70		<1	<1
W6	-12.4968	11/16/92	1009				3.92	121	58.6	820	0.32	4.5	242	6797	4.08	126.4	63.7	892	0.67	15.1	7.614	29.039	7.65		<1	<1
W6	-12.4968	12/7/92	959				4.05	125	59.9	839	0.20	2.8	236	6628	4.22	130.7	62.9	881	0.69	15.1	7.616	29.139	7.62		<1	<1
W6	-12.4968	1/25/93	956				4.03	125	59.0	827	0.32	4.5	396	11111	4.17	129.2	64.4	901	0.69	14.9	7.656	29.019	7.34		<1	<1
W6	-12.4968	2/22/93	926				4.13	128	57.3	803	0.31	4.3	236	6614	4.18	129.5	63.8	893	0.80	15.0	7.680	29.050	6.76		<1	<1
W6	-12.4968	3/15/93	922				4.13	128	54.8	767	0.18	2.5	243	6816	4.14	128.2	57.6	807	0.70	14.9	7.698	29.090	6.74		<1	<1
W6	-12.4968	4/26/93	928				4.03	125	50.9	713	0.13	1.8	238	6684	4.13	127.9	54.6	765	0.68	15.4	7.680	29.262	6.75		<1	<1
W6	-12.4968	5/24/93	943				4.08	126	51.4	719	0.32	4.5	237	6656	4.15	128.5	57.0	798	0.61	15.4	7.680	29.145	6.67		<1	<1
W6	-12.4968	6/21/93	944				3.93	122	52.0	728	0.20	2.8	156	4381	3.98	123.3	56.5	791	0.57	15.7	7.693	29.105	7.00		<1	<1
W6	-12.4968	8/30/93	1040				3.92	121	56.3	789	0.15	2.1	246	6906	3.97	123.0	42.9	601	0.70	16.3	7.676	28.527	6.86		<1	<1
W6	-12.4968	10/25/93	930				4.04	125	57.5	805	0.12	1.7	237	6656	4.10	127.0	60.7	850	0.61	16.9	7.671	28.309	6.45		<1	<1
W6	-12.4968	2/7/94	1131				4.16	129	51.5	721	0.16	2.2	354	9942	4.18	129.5	57.4	805	0.75	16.7	7.656	28.877	5.96		<1	<1
W6	-12.4968	6/20/94	912				4.31	133	52.1	729	0.04	0.6	209	5866	4.39	136.0	62.8	879	0.67	16.7	7.609	29.044	5.74		<1	<1

NELHA Water Quality Laboratory

Well 6 Data Table

June 1989 - October 2013

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W6	-12.4968	8/22/94	1023				4.49	139	52.0	728	0.05	0.7	218	6131	4.57	141.6	59.7	836	0.63	16.6	7.641	29.030	6.25		<1	<1
W6	-12.4968	10/24/94	1004				4.62	143	60.3	844	0.00	0.0	220	6184	4.69	145.3	65.7	920	0.66	17.3	7.650	28.124	6.01		<1	<1
W6	-12.4968	1/23/95	1039				4.41	137	53.9	755	0.06	0.8	207	5817	4.52	140.0	56.2	786	0.50	16.4	7.619	28.298	6.22		<1	<1
W6	-12.4968	2/13/95	1027				4.32	134	52.1	730	0.27	3.8	217	6103	4.34	134.4	56.4	790	0.57	16.2	7.612	28.358	6.15		<1	<1
W6	-12.4968	3/13/95	1104				4.29	133	55.1	772	0.13	1.8	272	7628	4.28	132.6	56.9	796	0.52	16.3	7.619	28.318	6.11		<1	<1
W6	-12.4968	4/24/95	957				3.98	123	54.5	763	0.16	2.2	221	6215	4.12	127.6	55.3	775	0.58	16.4	7.592	28.410	5.81		<1	<1
W6	-12.4968	5/8/95	952				3.99	124	55.9	783	0.32	4.5	212	5954	4.04	125.1	59.6	835	0.56	16.5	7.605	28.406	5.99		<1	<1
W6	-12.4968	6/19/95	1032				4.04	125	58.6	820	0.36	5.0	302	8476	4.09	126.7	63.8	893	0.60	16.9	7.581	28.767	6.05		<1	<1
W6	-12.4968	7/24/95	1001				3.90	121	57.5	805	0.22	3.1	218	6131	4.00	123.9	59.9	839	0.65	17.3	7.608	28.338	6.41		<1	<1
W6	-12.4968	8/21/95	1051				4.02	125	54.5	764	0.39	5.5	314	8822	4.13	127.9	69.4	972	0.60	17.2	7.599	28.240	6.29		<1	<1
W6	-12.4968	9/11/95	859				4.17	129	54.3	760	0.23	3.2	217	6093	4.20	130.1	57.2	801	0.59	16.7	7.653	28.464	6.51		<1	<1
W6	-12.4968	10/16/95	9				4.51	140	54.2	759	0.28	3.9	218	6134	4.57	141.6	57.0	799	0.80	16.8	7.697	28.514	6.27		<1	<1
W6	-12.4968	11/6/95	918				4.90	152	56.2	787	0.25	3.5	218	6111	4.93	152.7	59.9	839	0.78	16.9	7.726	28.509	6.25		<1	<1
W6	-12.4968	12/4/95	937				6.48	201	59.1	828	0.14	2.0	321	9001	6.63	205.4	71.7	1004	0.87	16.9	7.655	28.469	6.47		<1	<1
W6	-12.4968	1/29/96	1006				5.31	164	58.0	812	0.02	0.3	213	5974	5.38	166.6	68.1	954	0.59	16.9	7.654	28.628	6.15		<1	<1
W6	-12.4968	2/26/96	1009				5.27	163	68.9	965	0.23	3.2	230	6461	5.40	167.3	71.2	998	0.83	17.1	7.668	28.483	6.20		<1	<1
W6	-12.4968	3/5/96	949				5.41	168	69.9	979	0.15	2.1	212	5945	5.49	170.0	73.7	1032	0.76	17.0	7.637	28.499	6.45		<1	1
W6	-12.4968	4/1/96	1005				5.82	180	96.6	1353	0.50	7.0	215	6050	5.99	185.5	99.6	1395	0.92	16.9	7.663	28.354	6.39		<1	<1
W6	-12.4968	5/8/96	1008				6.06	188	112.9	1581	0.17	2.4	204	5721	6.20	192.0	118.3	1657	0.78	17.2	7.698	28.393	6.27		<1	<1
W6	-12.4968	6/17/96	924				6.02	186	105.2	1473	0.18	2.5	215	6030	6.00	185.8	107.3	1503	0.70	19.2	7.710	28.530	4.42		<1	<1
W6	-12.4968	7/16/96	914				5.99	186	97.7	1369	0.23	3.2	214	6002	6.26	193.9	101.3	1419	0.83	17.9	7.727	28.536	6.29		<1	<1
W6	-12.4968	8/5/96	1027				6.01	186	84.4	1183	0.35	4.9	206	5783	6.11	189.2	89.2	1249	0.78	19.0	7.743	28.754	6.15		<1	<1
W6	-12.4968	9/3/96	1006				6.11	189	88.9	1245	0.22	3.1	229	6427	6.16	190.8	91.2	1277	0.74	18.7	7.725	28.680	6.20		<1	<1
W6	-12.4968	10/8/96	1023				6.05	187	83.9	1176	0.26	3.6	278	7804	6.37	197.3	90.8	1272	0.78	17.6	7.738	28.359	5.82		<1	<1
W6	-12.4968	11/4/96	1007				5.99	186	87.3	1223	0.30	4.2	197	5533	6.14	190.2	92.2	1291	0.61	18.2	7.727	28.436	6.33		<1	<1
W6	-12.4968	12/16/96	1004				6.13	190	87.0	1219	0.30	4.2	225	6316	6.28	194.5	88.5	1240	0.68	17.8	7.758	28.541	6.30		<1	<1
W6	-12.4968	1/13/97	1045				6.06	188	86	1203	0.11	1.5	203	5693	6.20	192.0	90.8	1272	0.78	17.8	7.752	28.525	6.35		<1	<1
W6	-12.4968	2/10/97	955				5.97	185	87	1225	0.17	2.4	205	5766	6.01	186.2	91.9	1287	0.55	17.0	7.758	28.537	6.22		<1	<1
W6	-12.4968	3/10/97	959				5.90	183	101	1408	0.10	1.4	205	5758	6.0*	0.0	104.0	1456	0.67	17.0	7.780	28.310	6.45		<1	<1
W6	-12.4968	4/22/97	1035				6.42	199	98	1368	0.30	4.2	211	5926	7.11	220.2	175.4	2457	0.74	17.1	7.801	28.054	6.05		<1	<1
W6	-12.4968	5/27/97	935				5.37	166	93	1308	0.09	1.3	202	5685	6.25	193.6	100.3	1405	0.74	16.0	7.804	28.277	7.32		<1	<1
W6	-12.4968	6/16/97	950				5.42	168	76	1064	0.30	4.2	223	6260	5.57	172.5	84.8	1188	0.76	16.7	7.829	28.562	6.22		<1	<1
W6	-12.4968	7/16/97	857				5.36	166	69	966	0.10	1.4	196	5502	5.60	173.5	76.3	1069	1.00	16.9	7.823	28.691	6.13		<1	<1
W6	-12.4968	8/25/97	942				5.39	167	69	968	0.29	4.1	197	5538	5.45	168.8	87.4	1224	0.71	18.2	7.914	28.998	6.31		<1	<1
W6	-12.4968	9/22/97	944				5.14	159	62	864	0.32	4.5	192	5387	5.24	162.3	64.5	903	0.69	18.9	7.960	29.132	6.27		<1	<1
W6	-12.4968	10/14/97	937				5.62	174	73	1020	0.10	1.4	193	5409	5.74	177.8	77.2	1081	0.69	18.1	7.928	28.834	6.40		<1	<1
W6	-12.4968	11/3/97	1055				5.78	179	63.7	892	0.16	2.2	191	5364	6.13	189.9	69.6	975	0.69	17.6	7.883	28.709	6.39		<1	<1
W6	-12.4968	12/15/97	1000				5.53	171	64.5	903	0.23	3.2	194	5446	5.76	178.4	67.5	945	0.69	17.0	7.895	28.899	6.52		<1	<1
W6	-12.4968	1/5/98	1104				5.53	171	63.6	891	0.06	0.8	181	5096	5.73	177.5	68.3	957	0.70	16.7	7.887	29.052	6.49		<1	<1
W6	-12.4968	2/2/98	1008				5.41	168	65.4	916	0.07	1.0	187	5255	5.63	174.4	70.2	983	0.65	16.3	7.902	29.091	6.72		<1	<1
W6	-12.4968	3/9/98	1005				6.42	199	70.5	987	0.19	2.7	193	5429	6.68	206.9	72.9	1021	0.77	16.7	7.703	29.021	6.05		<1	<1
W6	-12.4968	4/13/98	914				6.11	189	69	966	0.15	2.1	193	5412	6.72	208.1	71.3	999	0.78	16.4	7.696	29.196	5.80		<1	2
W6	-12.4968	5/11/98	946				6.03	187	70	981	0.19	2.7	193	5406	6.24	193.3	74.0	1036	0.74	16.8	7.727	29.135	5.88		<1	<1
W6	-12.4968	6/1/98	944				6.07	188	63.1	884	0.13	1.8	194	5452	6.26	193.9	65.4	916	0.65	16.7	7.723	28.974	5.74		<1	<1
W6	-12.4968	7/13/98	950				5.55	172	58	819	0.06	0.8	201	5634	5.80	179.6	60	842	0.72	16.8	7.668	29.148	6.23		<1	6
W6	-12.4968	8/10/98	1007				5.39	167	55.8	782	0.17	2.4	197	5538	5.60	173.5	61.1	856	0.71	16.7	7.697	29.423	5.96		<1	3
W6	-12.4968	9/14/98	958				4.61	143	62.1	870	0.18	2.5	252	7080	4.87	150.8	65	907	0.73	17.5	7.668	27.061	6.06		<1	1
W6	-12.4968	10/12/98	905				4.95	153	58.7	822	0.03	0.4	191	5353	5.25	162.6	63	878	0.71	n/a	7.669	29.677	6.39		<1	<1
W6	-12.4968	11/2/98	927				4.86	151	60.3	845	0.08	1.1	189	5300	5.07	157.0	63.7	892	0.81	17.6	7.673	29.611	6.22		<1	<1
W6	-12.4968	12/15/98	928				5.78	179	91.1	1276	0.16	2.2	186	5210	5.97	184.9	94.1	1317	1.30	16.8	7.707	29.394	5.95		<1	<1
W6	-12.4968	1/11/99	945				6.08	188	102	1423	0.14	2.0	183	5145	6.29	194.8	103	1448	1.26	16.4	7.773	29.598	5.07		<1	<1
W6	-12.4968	2/2/99	940				6.24	193	118	1651	0.20	2.8	179	5033	6.44	199.5	132	1853	1.20	16.3	7.790	29.595	5.17		<1	<1
W6	-12.4968	3/1/99	945				6.95	215	103.4	1448	0.04	0.6	175	4901	7.18	222.4	107.9	1511	1.08	16.5	7.831	29.671	5.66		<1	1
W6	-12.4968	4/5/99	943				6.96	216	83.1	1164	0.09	1.3	176	4929	7.23	223.9	86.3	1209	0.82	15.9	7.780	29.959	5.46		<1	<1
W6	-12.4968	5/3/99	943				6.31	195	67.7	948	0.15	2.1	172	4836	6.56	203.2	73.1	1024	0.79	16.5	7.744	30.191	7.08		1	1
W6	-12.4968	6/1/99	935				5.88	182	64.9	909	0.30	4.2	171	4803	6.08	188.3	67.8	950	0.75	16.3	7.725	30.057	5.86		<1	<1

NELHA Water Quality Laboratory

Well 6 Data Table

June 1989 - October 2013

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W6	-12.4968	7/14/99	938				5.17	160	67.8	950	0.03	0.4	180	5044	5.26	162.9	69.1	968	0.71	17.0	7.684	30.167	5.81		<1	<1
W6	-12.4968	8/23/99	1004				5.15	160	61.6	863	0.24	3.4	105	2957	5.29	163.9	63.6	891	0.78	17.1	7.720	30.141	6.03		<1	1
W6	-12.4968	9/7/99	954				5.21	161	63.7	892	0.05	0.7	171	4805	5.50	170.4	72.3	1013	0.74	16.9	7.718	30.242	5.89		<1	TNTC
W6	-12.4968	10/5/99	943				4.83	150	60.7	850	0.07	1.0	176	4943	5.01	155.2	63.6	891	0.63	18.4	7.707	30.776	4.91		<1	1
W6	-12.4968	11/1/99	1010				4.86	151	59.8	838	0.08	1.1	163	4572	5.08	157.3	62.5	875	0.74	19.1	7.694	30.496	5.09		<1	<1
W6	-12.4968	12/14/99	1001				4.86	151	62.0	869	0.04	0.6	167	4685	5.03	155.8	64.1	898	0.94	18.3	7.640	30.845	4.66		<1	<1
W6	-12.4968	1/10/00	1027				5.22	162	65.0	910	0.15	2.1	167	4702	5.39	166.9	69.5	973	0.97	18.8	7.668	30.683	4.53		<1	<1
W6	-12.4968	2/7/00	1022				5.56	172	71.3	998	0.15	2.1	163	4567	5.74	177.8	75.5	1058	0.99	17.8	7.710	30.356	4.61		<1	<1
W6	-12.4968	3/21/00	1025				5.85	181	62.6	877	0.10	1.4	167	4687	5.87	181.8	65.0	910	0.82	16.9	7.706	30.133	5.22		<1	<1
W6	-12.4968	4/10/00	1054				5.82	180	64.0	896	0.09	1.3	164	4617	5.79	179.3	67.5	945	0.83	16.8	7.720	30.183	5.27		<1	<1
W6	-12.4968	5/15/00	1005				5.67	176	62.6	877	0.17	2.4	167	4685	5.76	178.4	66.9	937	0.79	17.1	7.714	30.384	5.57		<1	<1
W6	-12.4968	6/5/00	1006				5.59	173	60.3	845	0.09	1.3	186	5215	5.80	179.6	65.2	913	0.77	17.1	7.699	30.485	5.25		<1	<1
W6	-12.4968	7/26/00	1032				5.65	175	64.3	901	0.02	0.3	163	4581	5.89	182.4	69.4	972	1.10	18.2	7.720	30.437	5.39		<1	<1
W6	-12.4968	8/29/00	935				5.71	177	66.1	926	0.03	0.4	166	4651	5.81	180.0	68.1	954	0.90	17.7	7.647	30.529	5.36		<1	<1
W6	-12.4968	9/5/00	1001				5.63	174	69.3	971	0.07	1.0	166	4671	5.93	183.7	70.3	985	0.89	17.8	7.651	30.642	5.18		<1	<1
W6	-12.4968	10/24/00	1006				5.82	180	66.8	935	0.16	2.2	171	4803	6.06	187.7	69.9	979	n/a	18.8	7.689	30.802	5.12		<1	<1
W6	-12.4968	11/13/00	947				5.34	165	64.0	896	0.26	3.6	175	4904	5.62	174.1	70.9	993	0.88	19.0	7.657	30.915	5.01		<1	<1
W6	-12.4968	12/18/00	949				5.68	176	84.8	1188	0.18	2.5	167	4690	5.96	184.6	90.2	1263	0.89	18.7	7.656	30.686	4.95		<1	1
W6	-12.4968	1/22/01	953				5.60	173	81.3	1139	0.02	0.3	169	4755	5.75	178.1	83.8	1174	0.90	17.5	7.642	30.489	4.83		<1	<1
W6	-12.4968	2/5/01	1012				5.50	170	89.4	1251	0.20	2.8	169	4758	5.70	176.6	92.8	1300	0.86	17.5	7.661	30.388	4.78		<1	<1
W6	-12.4968	3/5/01	1003				5.48	170	73.3	1027	0.03	0.4	165	4620	5.76	178.4	77.2	1081	0.71	17.3	7.637	30.351	4.64		<1	<1
W6	-12.4968	4/17/01	947				5.40	167	77.2	1082	0.05	0.7	166	4662	5.55	171.9	85.2	1194	0.71	17.0	7.640	30.265	5.53		<1	<1
W6	-12.4968	5/15/01	931				5.25	163	79.3	1111	0.14	2.0	172	4819	5.38	166.6	83.1	1164	0.81	17.2	7.645	30.280	5.71		<1	<1
W6	-12.4968	6/12/01	1006				5.12	159	72.7	1019	0.02	0.3	165	4643	5.19	160.8	77.8	1090	0.77	17.6	7.653	30.212	5.83		<1	<1
W6	-12.4968	7/23/01	954				5.23	162	68.9	965	0.02	0.3	170	4777	5.40	167.3	76.3	1068	1.12	17.7	7.659	30.282	5.86		<1	<1
W6	-12.4968	8/8/01	945				5.20	161	67.5	945	0.05	0.7	168	4713	5.44	168.5	72.8	1019	0.70	16.6	7.666	30.275	5.92		<1	<1
W6	-12.4968	9/19/01	954				5.50	170	67.6	947	0.05	0.7	170	4783	5.68	175.9	71.7	1004	0.74	17.3	7.650	30.281	6.08		<1	<1
W6	-12.4968	10/24/01	927				5.02	155	61.8	866	0.01	0.1	168	4730	5.48	169.7	63.7	893	0.71	18.3	4.681	30.232	5.74		<1	<1
W6	-12.4968	11/7/01	945				5.50	170	65.7	921	0.07	1.0	170	4775	5.78	179.0	74.1	1038	0.71	18.4	7.675	30.290	5.53		<1	<1
W6	-12.4968	12/19/01	1004				5.26	163	67.7	949	0.12	1.7	176	4943	5.58	172.8	82.2	1151	0.75	18.4	7.671	30.298	5.85		<1	1
W6	-12.4968	1/9/02	954				5.31	164	66.3	929	0.18	2.5	186	5227	5.55	171.9	69.1	968	0.78	18.6	7.673	30.437	5.25		<1	<1
W6	-12.4968	2/19/02	1011				5.48	170	70.8	992	0.06	0.8	179	5027	5.66	175.3	74.5	1043	0.69	18.1	7.685	30.296	5.87		<1	<1
W6	-12.4968	3/20/02	1013				5.36	166	69.0	967	0.09	1.3	172	4825	5.64	174.7	73.4	1028	0.66	17.7	7.680	30.326	5.90		<1	<1
W6	-12.4968	4/8/02	1102				5.39	167	71.2	997	0.02	0.3	173	4867	5.66	175.3	77.7	1088	0.62	17.5	7.671	30.315	5.90		<1	<1
W6	-12.4968	5/29/02	1047				4.96	154	69.3	971	0.14	2.0	170	4777	5.12	158.6	74.4	1042	0.71	17.9	7.690	30.129	6.36		<1	<1
W6	-12.4968	6/17/02	1020				5.14	159	64.5	903	0.04	0.6	163	4586	5.35	165.7	69.6	975	0.64	18.1	7.680	30.200	6.14		<1	3
W6	-12.4968	7/15/02	1025				5.08	157	63.6	891	0.10	1.4	182	5098	5.30	164.2	68.2	955	0.68	17.9	7.678	30.233	6.01		<1	<1
W6	-12.4968	8/20/02	1017				4.96	154	67.0	938	0.21	2.9	170	4769	5.22	161.7	62.3	872	0.80	18.3	7.692	30.178	6.11		<1	4
W6	-12.4968	9/23/02	1034				4.86	151	70.4	986	0.21	2.9	170	4786	4.94	153.0	63.3	887	0.66	18.2	7.716	30.380	5.89		<1	<1
W6	-12.4968	10/14/02	953				4.69	145	62.2	871	0.09	1.3	171	4814	4.89	151.5	58.6	821	0.60	19.4	7.754	30.532	5.54		<1	127
W6	-12.4968	11/4/02	1003				5.08	157	86.9	1218	0.02	0.3	174	4881	5.33	165.1	68.1	954	0.87	18.9	7.723	30.236	5.24		<1	<1
W6	-12.4968	12/17/02	1031				5.30	164	80.1	1122	0.03	0.4	176	4940	5.59	173.1	83.2	1166	1.02	19.0	7.674	30.389	4.41		<1	<1
W6	-12.4968	1/21/03	1115				5.10	158	80.4	1126	0.03	0.4	167	4687	5.39	166.9	89.9	1259	0.76	17.8	7.689	30.741	4.69		<1	<1
W6	-12.4968	2/12/03	1041				5.18	160	68.1	954	0.04	0.6	174	4890	5.41	167.6	74.5	1043	0.80	17.8	7.705	30.368	4.86		<1	<1
W6	-12.4968	3/19/03	1027				5.81	180	74.6	1044	0.02	0.3	186	5235	5.98	185.2	83.5	1170	0.76	18.1	7.722	30.178	5.29		<1	<1
W6	-12.4968	4/28/03	1013				5.95	184	72.5	1015	0.07	1.0	167	4679	6.02	186.5	78.3	1097	0.57	18.0	7.745	30.024	6.19		<1	<1
W6	-12.4968	5/12/03	945				5.81	180	69.8	978	0.03	0.4	175	4915	6.08	188.3	87.1	1220	0.53	17.4	7.751	30.044	6.27		<1	<1
W6	-12.4968	6/3/03	1000				5.92	183	76.4	1070	0.29	4.1	165	4643	6.14	190.2	83.3	1167	0.55	17.6	7.789	29.998	6.38		<1	<1

NELHA Water Quality Laboratory

Well 6 Data Table

June 1989 - October 2013

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W6	-12.4968	7/29/03	1030				5.17	160	65.6	919	0.10	1.4	169	4744	5.35	165.7	69.6	975	NA	18.1	7.779	30.281	6.01		<1	1
W6	-12.4968	8/26/03	1025				5.04	156	66.6	933	0.02	0.3	167	4685	5.21	161.4	72.3	1012	NA	19.0	7.771	30.373	5.78		<1	188
W6	-12.4968	9/15/03	1014				5.03	156	74.1	1038	0.02	0.3	165	4640	5.34	165.4	97.2	1361	NA	19.8	7.755	30.183	5.95		<1	<1
W6	-12.4968	10/6/03	1008				4.84	150	75.1	1052	0.05	0.7	167	4693	5.06	156.7	79.3	1110	NA	19.7	7.775	30.356	NA		<1	<1
W6	-12.4968	10/28/03	1040				5.22	162	79.6	1115	<0.10	0.0	161	4533	5.40	167.3	85.3	1195	NA	18.9	7.733	30.103	NA		<1	<1
W6	-12.4968	11/14/03	1345																	19.4			5.50			
W6	-12.4968	12/15/03	952																	23.3	7.776					
W6	-12.4968	12/17/03	857				4.55	141	64.0	897	0.07	1.0	177	4980	4.83	149.6	67.2	941	NA	20.3	7.771	30.440	5.04		<1	<1
W6	-12.4968	1/26/04	1001				5.04	156	64.8	908	0.10	1.4	174	4876	5.28	163.5	67.5	945	NA	18.8	7.722	30.094	5.55		<1	1
W6	-12.4968	2/5/04	1002				4.74	147	74.2	1040	0.19	2.7	173	4862	5.02	155.5	83.8	1173	NA	19.0	7.734	29.898	5.67		<1	<1
W6	-12.4968	3/2/04	1051				4.74	147	82.5	1155	0.26	3.6	176	4951	4.86	150.5	91.2	1277	NA	19.1	7.737	29.895	5.38		<1	11
W6	-12.4968	4/20/04	1007				4.80	149	118	1651	0.02	0.3	176	4954	5.06	156.7	121	1689	NA	17.6	7.705	29.672	6.06		<1	<1
W6	-12.4968	5/11/04	922				4.68	145	116	1622	0.30	4.2	171	4805	4.65	144.0	116	1623	NA	17.7	7.724	29.05	5.83		<1	<1
W6	-12.4968	6/2/04	1009				3.66	113	123	1719	0.13	1.8	172	4817	3.74	115.8	125	1747	NA	20.9	7.701	28.69	3.41		<1	<1
W6	-12.4968	7/14/04	1008				4.10	127	108	1509	0.24	3.4	174	4884	4.12	127.6	119	1665	NA	19.9	7.699	29.06	4.92		<1	<1
W6	-12.4968	8/23/04	1017				3.80	118	98.0	1372	0.36	5.0	178	4991	3.92	121.4	101	1416	NA	20.5	7.697	29.30	4.37		<1	3104
W6	-12.4968	9/2/04	1037				4.19	130	103	1445	0.13	1.8	177	4960	4.28	132.6	106	1483	NA	19.6	7.689	29.27	4.61		<1	419
W6	-12.4968	10/4/04	947				4.54	141	98.9	1385	0.16	2.2	173	4848	4.43	137.2	108	1517	NA	20.2	7.685	29.47	4.57		<1	>5,000
W6	-12.4968	11/9/04	916				4.70	146	93.1	1304	0.11	1.5	178	4991	4.98	154.2	102	1428	NA	20.1	7.661	29.28	4.93		<1	>5,000
W6	-12.4968	12/6/04	945				4.58	142	97.1	1360	0.10	1.4	176	4949	4.80	148.7	112	1562	NA	20.1	7.736	29.29	4.72		<1	153
W6	-12.4968	1/10/05	911				4.82	149	104.9	1469	0.06	0.8	180	5064	4.92	152.4	109	1525	NA	19.5	7.725	30.231	5.09		<1	1
W6	-12.4968	2/9/05	913				4.91	152	100	1401	0.05	0.7	179	5030	5.20	161.1	128	1789	NA	21.1	7.728	30.198	5.35		<1	<1
W6	-12.4968	3/15/05	942				4.78	148	105	1471	0.25	3.5	178	4994	5.00	154.9	124	1735	0.63	19.4	7.739	30.305	5.35		<1	<1
W6	-12.4968	4/19/05	858				4.84	150	117	1639	0.12	1.7	175	4915	4.96	153.6	122	1712	Na	19.1	7.739	30.240	5.64		<1	<1
W6	-12.4968	5/23/05	931				4.24	131	129	1800	0.21	2.9	173	4853	4.34	134.4	131	1836	NA	19.6	7.703	30.344	4.52		<1	<1
W6	-12.4968	6/15/05	1002				4.40	136	120	1685	0.15	2.1	168	4721	4.43	137.2	134	1870	NA	19.7	7.713	30.239	4.78		<1	<1
W6	-12.4968	7/18/05	859				4.50	139	112	1569	0.12	1.7	177	4963	4.66	144.3	114	1601	0.51	21.3	7.709	30.369	5.08		<1	<1
W6	-12.4968	8/9/05	920				4.40	136	104	1461	0.22	3.1	170	4775	4.80	148.7	108	1514	0.66	20.1	7.755	30.397	5.16		<1	>2,000
W6	-12.4968	9/20/05	915				4.52	140	91.4	1280	0.23	3.2	169	4732	4.76	147.4	93.1	1304	0.57	19.6	7.750	30.231	5.73		<1	1176
W6	-12.4968	10/17/05	911				4.38	136	97.4	1365	0.13	1.8	170	4760	4.64	143.7	100	1405	NA	20.4	7.756	30.377	5.20		<1	159
W6	-12.4968	11/7/05	845				4.08	126	114	1602	0.06	0.8	168	4730	4.44	137.5	120	1686	NA	21.1	7.778	30.331	4.67		<1	<1
W6	-12.4968	12/19/05	848				4.30	133	98.6	1381	0.52	7.3	166	4654	4.40	136.3	111	1558	0.64	19.2	7.751	29.976	5.78		<1	<1
W6	-12.4968	1/23/06	859				4.28	133	103	1448	0.47	6.6	170	4777	4.40	136.3	111	1555	NA	19.0	7.759	30.043	5.56		<1	<1
W6	-12.4968	2/14/06	907				4.35	135	108	1506	0.37	5.2	169	4738	4.60	142.5	111	1553	0.59	18.4	7.746	29.887	5.40		<1	<1
W6	-12.4968	3/20/06	903				4.20	130	103	1443	0.48	6.7	162	4550	4.40	136.3	107	1499	0.57	18.5	7.789	30.027	5.46		<1	<1
W6	-12.4968	4/25/06	935				4.14	128	95.4	1336	0.19	2.7	162	4550	4.36	135.0	91.9	1287	0.55	18.4	7.77	30.044	5.48		<1	<1
W6	-12.4968	5/22/06	923				3.96	123	86.6	1213	0.23	3.2	159	4466	4.41	136.6	83.1	1165	0.62	18.2	7.749	30.055	5.58		<1	<1
W6	-12.4968	6/26/06	927				3.83	119	84.2	1179	0.08	1.1	165	4634	3.97	123.0	80.4	1126	0.70	18.7	7.765	30.130	5.50		<1	<1
W6	-12.4968	7/20/06	945				3.45	107	74.9	1049	0.23	3.2	156	4381	3.78	117.1	68.3	956	0.57	20.4	7.771	30.358	5.56		<1	<1
W6	-12.4968	8/7/06	1002				3.65	113	77.4	1084	0.21	2.9	160	4494	4.03	124.8	67.4	944	0.62	19.3	7.777	30.374	5.70		<1	<1
W6	-12.4968	9/18/06	927				3.65	113	73.5	1029	0.22	3.1	160	4494	4.03	124.8	67.6	947	0.63	19.4	7.769	30.453	5.36		<1	<1
W6	-12.4968	10/23/06	930				3.70	115	72.8	1020	0.33	4.6	163	4578	3.95	122.3	67.7	948	0.57	19.7	7.762	30.55	5.47		<1	<1
W6	-12.4968	11/27/06	914				3.66	113	86.3	1209	0.27	3.8	164	4606	3.94	122.0	79.0	1107	0.68	20.2	7.785	30.464	5.30		<1	<1
W6	-12.4968	12/11/06	1015				3.76	116	88.2	1235	0.36	5.0	164	4606	3.98	123.3	79.9	1120	0.61	21.7	7.774	30.463	5.41		<1	<1
W6	-12.4968	1/8/07	1109				3.90	121	93.1	1304	0.21	2.9	159	4466	4.10	127.0	80.6	1130	0.55	19.4	7.758	30.30	5.87		<1	<1
W6	-12.4968	2/20/07	1006				3.79	117	76.1	1066	0.39	5.5	163	4578	4.02	124.5	85.6	1200	0.61	18.9	7.728	30.16	6.01		<1	<1
W6	-12.4968	3/5/07	941				3.81	118	84.9	1189	0.32	4.5	169	4746	4.00	123.9	88.5	1240	0.62	19.2	7.724	30.073	6.01		<1	<1
W6	-12.4968	4/18/07	1005				3.85	119	74.3	1041	0.18	2.5	170	4775	3.95	122.3	65.5	917	0.53	19.5	7.746	29.90	6.29		<1	<1
W6	-12.4968	5/1/07	957				3.90	121	76.4	1070	0.20	2.8	168	4718	4.05	125.4	68.0	952	0.55	19.0	7.738	29.842	6.32		<1	<1
W6	-12.4968	6/18/07	937				3.79	117	74.2	1039	0.2	2.8	170	4775	4.12	127.6	63.9	895	0.48	19.1	7.771	29.80	6.53		<1	<1

NELHA Water Quality Laboratory

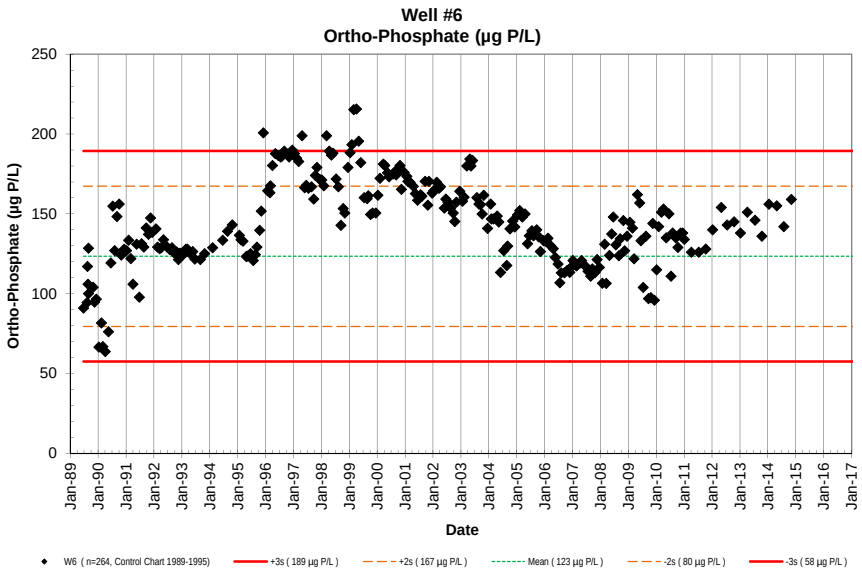
Well 6 Data Table

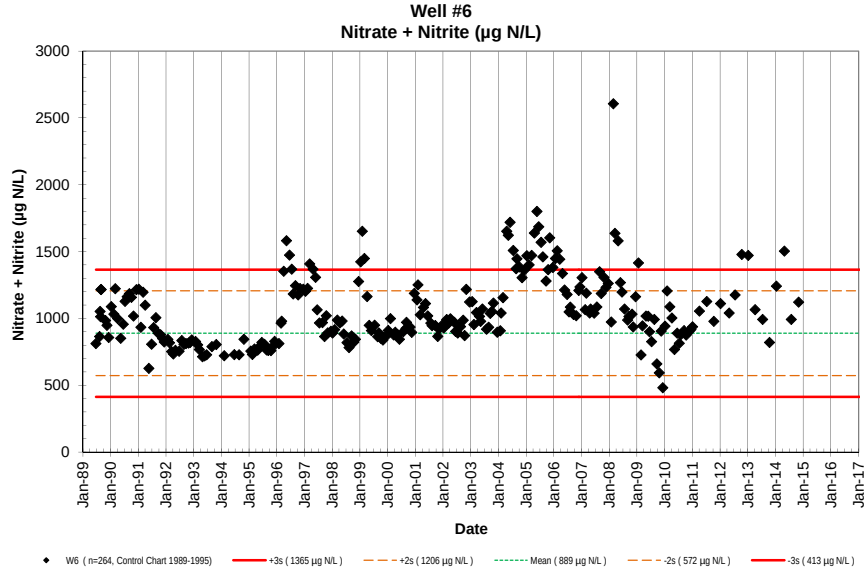
June 1989 - October 2013

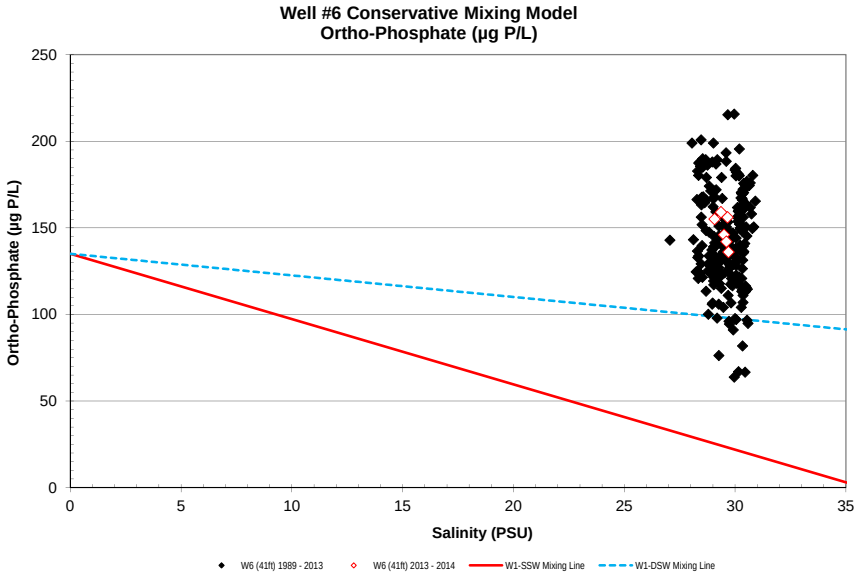
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W6	-12.4968	7/23/07	1538	-1.98	0.46	Ebb	3.68	114	77.6	1086	0.11	1.6	165	4621	3.77	116.9	74.0	1037		19.9	7.47	30.33	5.21			
W6	-12.4968	8/27/07	1528	-1.80	0.70	Flood	3.58	111	96.4	1350	0.19	2.6	164	4594	3.68	113.9	97.8	1369		21.5	7.78	30.36	4.40			
W6	-12.4968	9/18/07	1635	-2.21	0.21	Ebb	3.73	116	84.7	1186	0.08	1.2	164	4615	3.86	119.6	84.4	1183		19.7	7.76	30.50	5.17			
W6	-12.4968	10/23/07	1551	-1.83	0.46	Ebb	3.66	113	93.3	1307	0.22	3.0	151	4236	3.66	113.3	86.7	1215		19.8	7.75	30.30	5.17			
W6	-12.4968	11/20/07	1335	-1.85	0.43	Ebb	3.92	121	87.9	1231	0.14	1.9	166	4658	3.42	105.9	93.5	1310		19.5	7.73	30.20	5.43			
W6	-12.4968	12/19/07	1348	-2.34	0.24	Ebb	3.76	117	90.1	1262	0.81	11	156	4393						19.1	7.71	29.88	5.73			
W6	-12.4968	1/28/08	954	-2.16	0.27	Ebb	3.44	107	69.5	974	0.51	7.2	160	4494						18.1	7.53	29.82	5.64			
W6	-12.4968	2/26/08	1424	-2.34	0.06	Flood	4.23	131	186.0	2606	0.24	3.4	156	4393						16.8	7.64	29.57	4.91			
W6	-12.4968	3/17/08	1448	-2.01	0.24	High	3.44	107	116.8	1636	0.49	6.9	130	3649						19.4	7.59	28.99	3.06			
W6	-12.4968	4/29/08	1153	-2.59	0.24	Flood	4.00	124	112.8	1581	0.09	1.2	156	4369						17.3	7.58	29.53	4.99			
W6	-12.4968	5/28/08	1132	-2.13	0.34	High	4.44	137	90.5	1268	0.13	1.8	180	5049						17.6	7.63	29.71	5.87			
W6	-12.4968	6/17/08	1204	-2.34	0.21	Flood	4.78	148	85.5	1197	0.74	10	156	4381						18.1	7.46	29.59	5.17	0.23		
W6	-12.4968	7/22/08	1153	-2.13	0.15	Ebb	4.22	131	76.4	1070	0.91	13	181	5072						16.9	7.63	29.64	5.76			
W6	-12.4968	8/30/08	1149		0.15	Flood	4.00	124	70.5	988	0.14	1.9	165	4622						17.9	7.63	29.74	0.35			
W6	-12.4968	9/16/08	1139	-2.49	0.09	Low	4.34	134	72.4	1014	0.18	2.5	156	4375						19.3	7.49	29.42	5.82			
W6	-12.4968	10/28/08	1041	-2.46	0.15	Low	4.71	146	73.7	1032	0.18	2.5	158	4426						18.8	7.65	29.64	6.35	0.09		
W6	-12.4968	11/13/08	1132	-2.48	0.09	Low	4.10	127	66.9	937	0.26	3.6	158	4429						18.0	7.80	29.77	6.84	0.20		
W6	-12.4968	12/15/08	1435	-2.55	0.00	Low	4.39	136	83.0	1162	0.11	1.5	158	4425						18.5	7.88	29.46	6.60			
W6	-12.4968	1/22/09	1121	-2.53	0.09	Flood	4.67	145	101.0	1415	0.65	9.1	154	4328						18.4	7.68	29.46	5.95	0.10		
W6	-12.4968	2/24/09	1053	-2.64	0.06	Low	4.56	141	51.9	727	0.56	7.9	176	4946						17.6	7.59	29.33	6.29	0.08		
W6	-12.4968	3/16/09	1132	-2.60	0.06	Ebb	3.94	122	67.5	945	0.13	1.8	126	3542						17.1	7.44	29.33	6.85	0.12		
W6	-12.4968	4/30/09	1645	-2.73	0.24	Flood	5.23	162	72.6	1018	0.59	8.3	136	3829						17.9	7.93	29.01	5.64			
W6	-12.4968	5/29/09	1019	-2.42	0.21	Ebb	5.06	157	72.6	1016	0.15	2.1	128	3598						14.4	7.74	29.55	7.46	0.20		
W6	-12.4968	6/16/09	1439	-2.29	0.40	Flood	4.30	133	64.3	900	0.32	4.5	139	3897						14.6	7.65	29.33	2.53	0.06		
W6	-12.4968	7/14/09	1326	-2.36	0.37	Ebb	3.36	104	59.0	826	0.31	4.3	111	3125						18.9	7.80	29.47	4.98	0.05		
W6	-12.4968	8/19/09	1426	-1.91	0.67	Flood	4.39	136	70.9	993	1.43	20	134	3777						16.1	7.64	29.98	5.87	0.04		
W6	-12.4968	9/21/09	1617	-2.31	0.30	Flood	3.13	97	47.1	660	0.53	7.4	94	2652						16.8	8.40	30.05	6.05	0.09		
W6	-12.4968	10/22/09	1644	-2.51	0.18	Flood	3.15	98	42.3	592	0.65	9.1	73	2052						17.7	7.67	30.00	6.02	0.01		
W6	-12.4968	11/17/09	919	-2.44	0.30	Ebb	4.65	144	64.6	905	0.83	11.6	183	5130						17.4	7.64	30.05	6.40	0.03		
W6	-12.4968	12/8/09	900	-2.18	0.55	High	3.10	96	34.4	482	0.58	8.1	188	5293						18.5	7.70	29.72	5.76	0.02		
W6	-12.4968	1/6/10	832	-2.16	0.43	High	3.71	115	67.3	942	1.29	18	186	5213						17.9	7.66	29.38	6.02	0.06		
W6	-12.4968	2/2/10	830	-2.06	0.37	Ebb	4.58	142	86.1	1206	0.64	9	163	4588						17.2	7.73	29.58	5.99	0.09		
W6	-12.4968	3/10/10	822	-2.62	0.09	Low	4.88	151	77.6	1087	0.43	6	193	5418						17.9	7.70	29.27	5.92	0.02		
W6	-12.4968	4/6/10	1426	-2.61	0.12	Ebb	4.94	153	71.6	1003	0.36	5	201	5640						17.7	7.66	29.58	6.57	0.09		
W6	-12.4968	5/11/10	1501	-2.11	0.55	High	4.36	135	54.8	768	1.14	16	184	5178						18.4	7.80	29.53	5.95	0.05		
W6	-12.4968	6/16/10	950	-2.24	0.15	Ebb	4.84	150	63.5	890	0.21	3	196	5496						15.7	7.49	29.58	6.59	0.24		
W6	-12.4968	7/13/10	1442	-2.24	0.40	Flood	3.58	111	58.1	814	0.36	5	187	5254						16.0	7.74	29.69	6.49	0.09		
W6	-12.4968	8/3/10	1443	-2.19	0.40	Ebb	4.46	138	62.8	879	0.36	5	196	5503						16.0	7.57	29.75	6.49	0.17		
W6	-12.4968	9/14/10	1504	-2.28	0.30	Ebb	4.36	135	64.9	909	0.25	3.5	200	5626						16.4	7.73	29.81	7.05	0.13		
W6	-12.4968	10/12/10	1524	-2.40	0.18	Low	4.16	129	62.5	875	0.46	6.4	198	5560						16.6	7.75	29.92	6.60	0.23		
W6	-12.4968	11/16/10	1406	-2.18	0.34	Ebb	4.46	138	64.5	903	0.09	1.2	195	5466						16.5	7.70	30.02	6.87	0.19		
W6	-12.4968	12/14/10	1436	-2.36	0.15	Ebb	4.46	138	65.5	917	0.19	2.7	194	5446						16.6	7.73	29.90	6.66	0.12		
W6	-12.4968	1/4/11	1418	-2.48	0.15	Flood	4.33	134	67.0	938	0.24	3.3	188	5282						16.8	7.67	29.71	6.53	0.08		
W6	-12.4968	4/5/11	1441	-2.29	0.34	Flood	4.07	126	75.3	1055	0.09	1.3	175	4913						14.8	7.65	29.18	6.50	0.14		
W6	-12.4968	7/11/11	1143	-2.31	0.49	Flood	4.07	126	80.4	1126	0.08	1.1	196	5502						15.8	7.68	28.97	7.04	0.13		
W6	-12.4968	10/11/11	1336	-2.32	0.00	Flood	4.13	128	69.8	978	0.30	4.2	185	5205						15.2	7.59	29.77	7.03	0.17		
W6	-12.4968	1/9/12	1429	-2.53	0.15	Flood	4.52	140	79.3	1111	0.09	1.2	183	5132						15.4	7.67	29.40	3.71	0.08		
W6	-12.4968	4/30/12	1511	-2.28	0.24	Ebb	4.97	154	74.3	1040	0.21	3	186	5231						14.2	7.59	29.59	6.40	0.03		
W6	-12.4968	7/17/12	1538	-1.82	0.73	Flood	4.62	143	84.0	1176	0.28	3.9	189	5309						14.9	7.53	29.82	5.64	0.09		
W6	-12.4968	10/15/12	1316	-2.39	0.24	Flood	4.68	145	105.5	1478	0.14	2	198	5547						15.2	7.52	29.82	4.29	0.09		
W6	-12.4968	1/7/13	1435	-2.39	0.18	Ebb	4.46	138	105.0	1471	0.44	6.1	237	6662						14.8	7.56	29.76	5.11	0.02		
W6	-12.4968	4/8/13	1331	-2.29	0.37	Flood	4.88	151	76.1	1066	0.26	3.6	192	5397						14.3	7.58	29.48	6.63	0.51		
W6	-12.4968	7/16/13	1605	-2.35	0.30	Ebb	4.71	146	70.9	993	0.31	4.3	200	5610						15.5	7.50	29.50	5.32	0.02		
W6	-12.4968	10/14/13	1648	-2.37	0.18	Ebb	4.39	136	58.5	820	0.24	3.3	203	5707						15.9	7.79	29.70	4.84	0.17		
W6	-12.4968	1/14/14	1600	-2.35	0.18	Ebb	5.04	156	88.6	1241	0.38	5.3	199	5598						15.4	7.55	29.66	5.92	0.04		
W6	-12.4968	4/28/14	1536	-2.02	0.52	Flood	5.00	155	107.3	1503	0.26	3.7	193	5432						15.5	7.64	29.07	5.56	0.02		

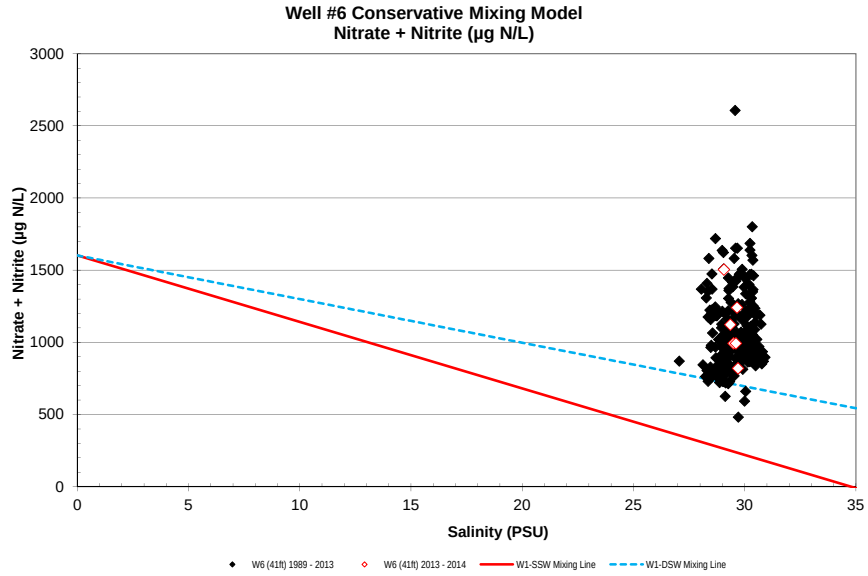
NELHA Water Quality Laboratory
Well 6 Data Table
June 1989 - October 2013

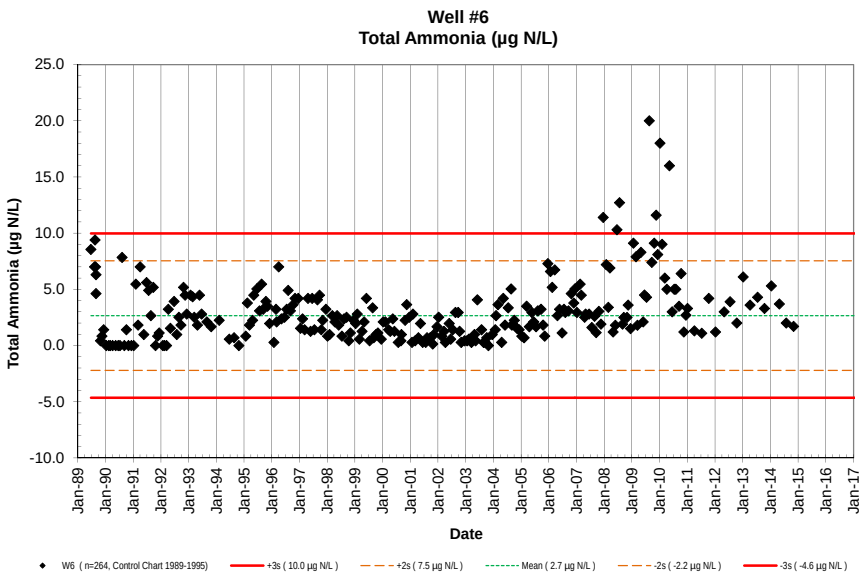
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W6	-12.4968	7/28/14	1541	-2.07	0.49	Flood	4.58	142	70.8	992	0.14	2	192	5402						16.0	7.51	29.61	4.91	0.06		
W6	-12.4968	11/3/14	1307	-2.01	0.46	High	5.13	159	80.1	1122	0.12	1.7	187	5244						17.0	7.60	29.36	4.80	0.10		
W6	-12.4968	1/1/15																								
W6	-12.4968	4/1/15																								

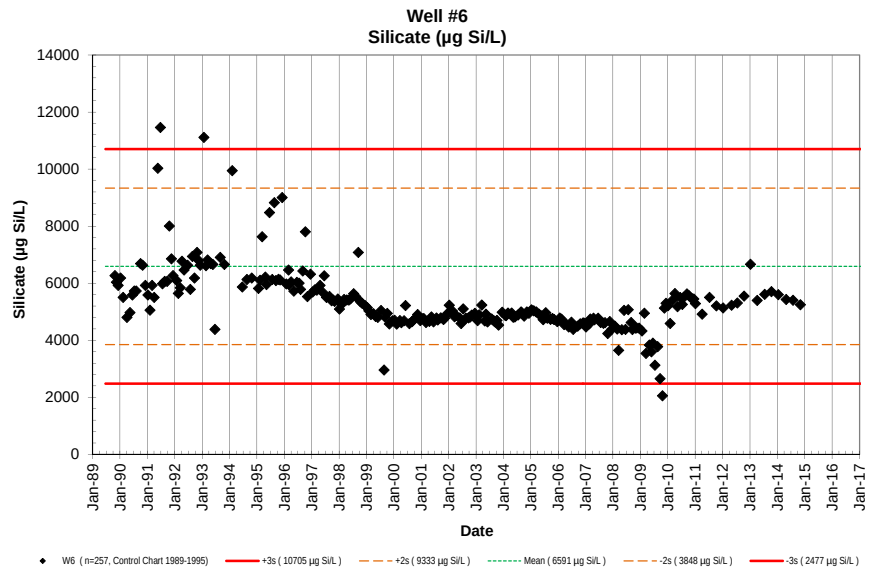

Well #6
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W6 (n=264, Control Chart 1989-1995)
+3s (189 µg P/L)
+2s (167 µg P/L)
Mean (123 µg P/L)
-2s (80 µg P/L)
-3s (58 µg P/L)

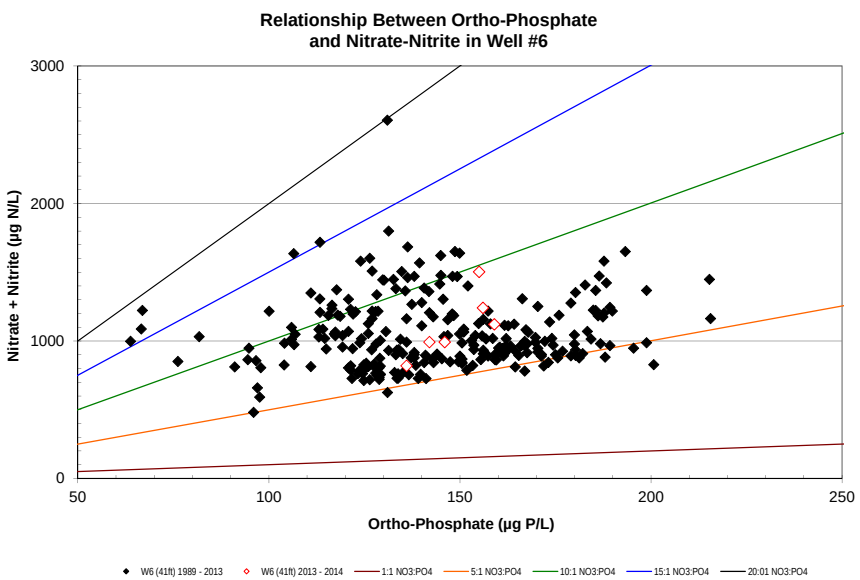

Well #6
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W6 (n=264, Control Chart 1989-1995)
+3s (1365 µg N/L)
+2s (1206 µg N/L)
Mean (889 µg N/L)
-2s (572 µg N/L)
-3s (413 µg N/L)

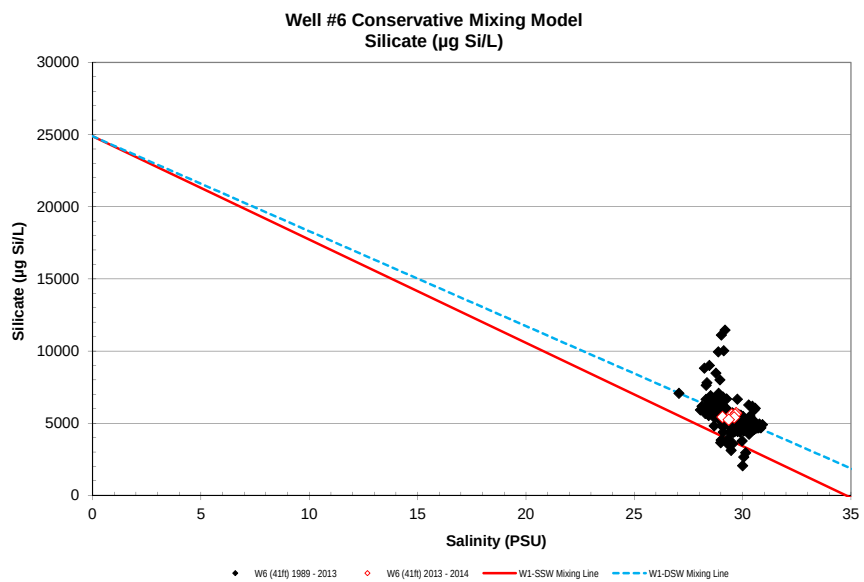

Well #6 Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W6 (41ft) 1989 - 2013
W6 (41ft) 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

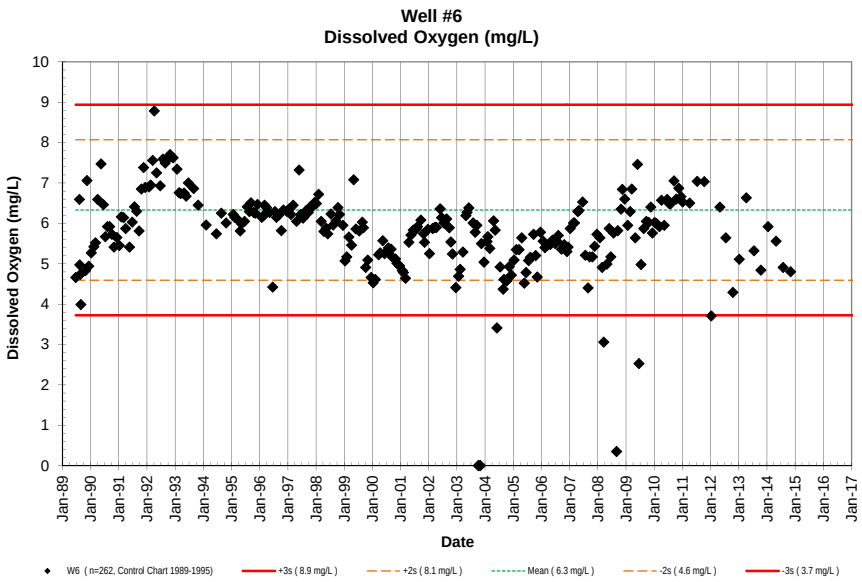

Well #6 Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W6 (41ft) 1989 - 2013
W6 (41ft) 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

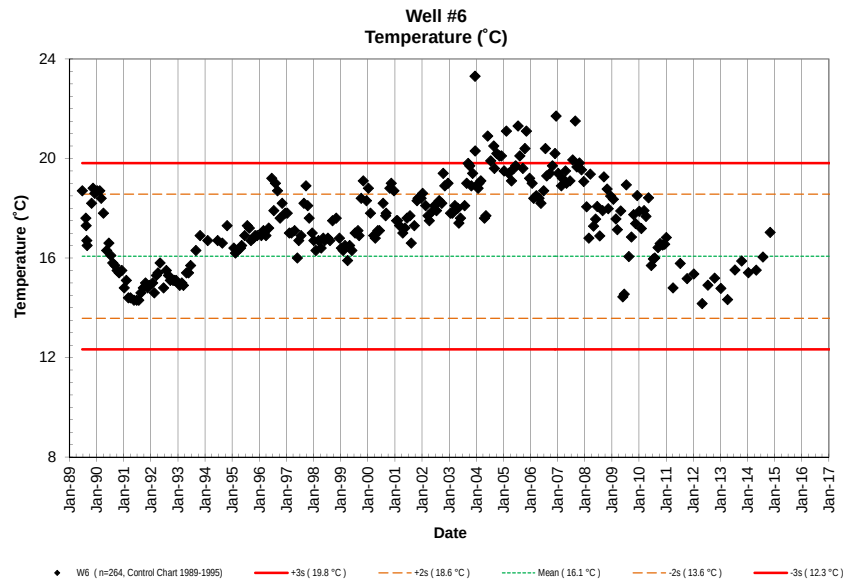

Well #6
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W6 (n=264, Control Chart 1989-1995)
+3s (10.0 µg N/L)
+2s (7.5 µg N/L)
Mean (2.7 µg N/L)
-2s (-2.2 µg N/L)
-3s (-4.6 µg N/L)

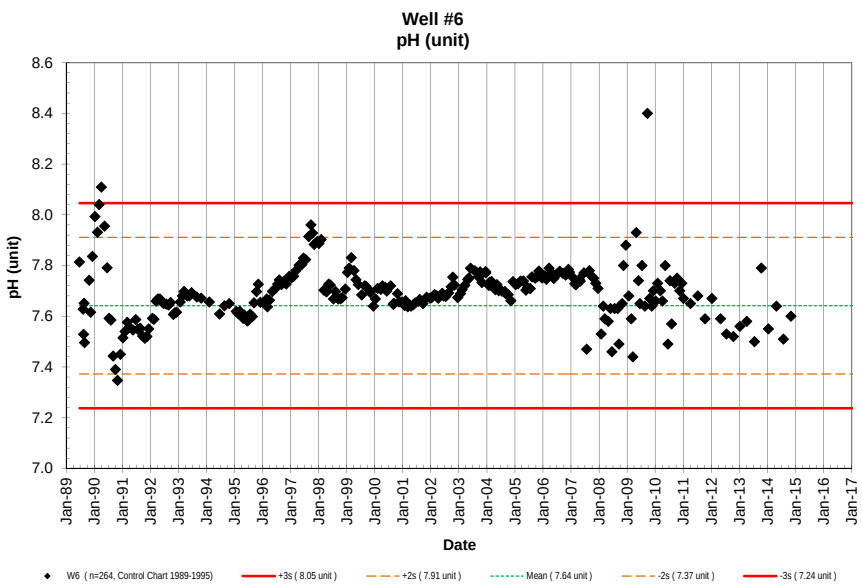

Well #6
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W6 (n=257, Control Chart 1989-1995)
+3s (10705 µg Si/L)
+2s (9333 µg Si/L)
Mean (6591 µg Si/L)
-2s (3848 µg Si/L)
-3s (2477 µg Si/L)

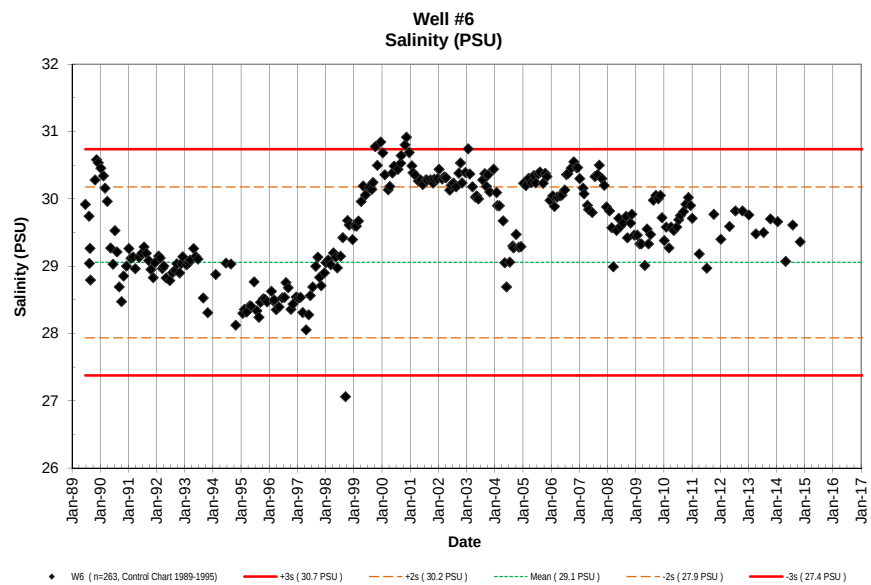

Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #6
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W6 (41ft) 1989 - 2013
W6 (41ft) 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

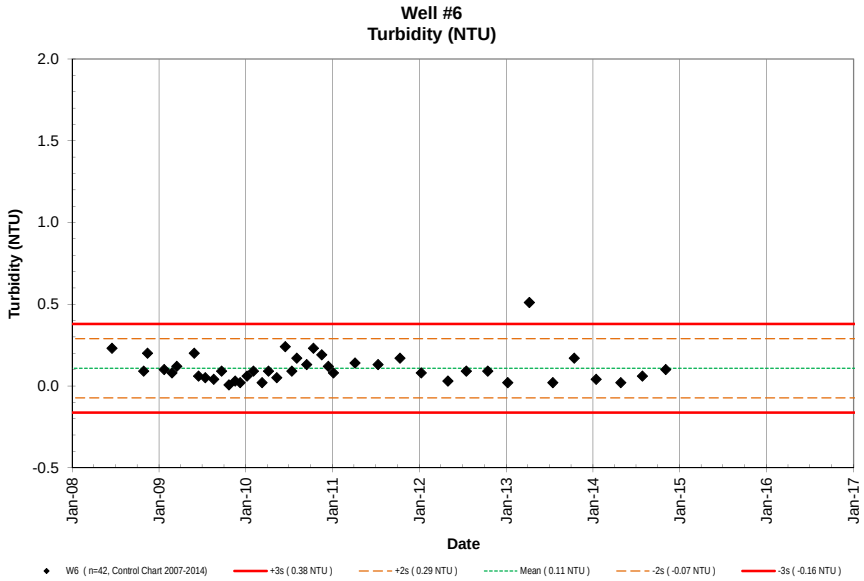

Well #6 Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W6 (41ft) 1989 - 2013
W6 (41ft) 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

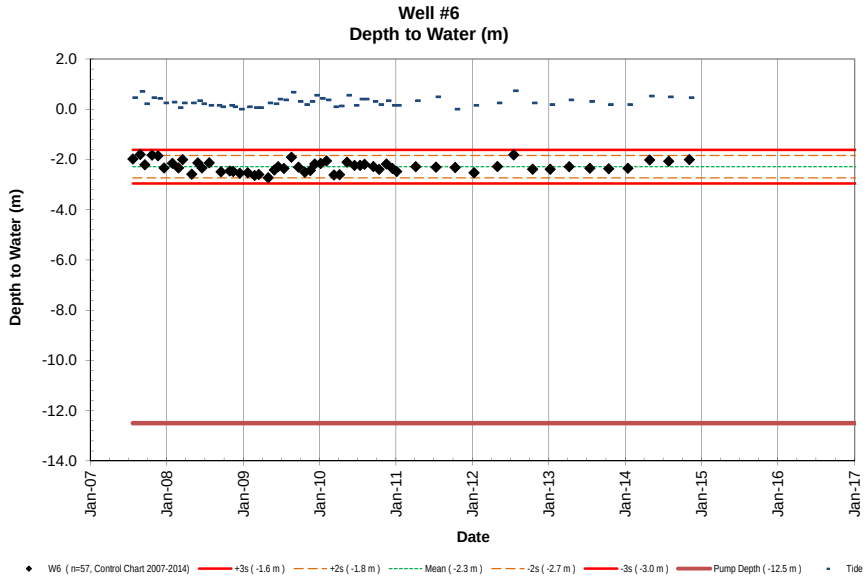

Well #6
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W6 (n=262, Control Chart 1989-1995)
+3s (8.9 mg/L)
+2s (8.1 mg/L)
Mean (6.3 mg/L)
-2s (4.6 mg/L)
-3s (3.7 mg/L)


Well #6
Temperature (˚C)
Temperature (˚C)
Date
W6 (n=264, Control Chart 1989-1995)
+3s (19.8 °C)
+2s (18.6 °C)
Mean (16.1 °C)
-2s (13.6 °C)
-3s (12.3 °C)


Well #6
pH (unit)
pH (unit)
Date
W6 (n=264, Control Chart 1989-1995)
+3s (8.05 unit)
+2s (7.91 unit)
Mean (7.64 unit)
-2s (7.37 unit)
-3s (7.24 unit)


Well #6
Salinity (PSU)
Salinity (PSU)
Date
W6 (n=263, Control Chart 1989-1995)
+3s (30.7 PSU)
+2s (30.2 PSU)
Mean (29.1 PSU)
-2s (27.9 PSU)
-3s (27.4 PSU)


Well #6
Turbidity (NTU)
Turbidity (NTU)
2.0
1.5
1.0
0.5
0.0
-0.5
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W6 (n=42, Control Chart 2007-2014)
+3s (0.38 NTU)
+2s (0.29 NTU)
Mean (0.11 NTU)
-2s (-0.07 NTU)
-3s (-0.16 NTU)


Well #6
Depth to Water (m)
Depth to Water (m)
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
-12.0
-14.0
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W6 (n=57, Control Chart 2007-2014)
+3s (-1.6 m)
+2s (-1.8 m)
Mean (-2.3 m)
-2s (-2.7 m)
-3s (-3.0 m)
Pump Depth (-12.5 m)
Tide

NELHA Water Quality Laboratory

Well 6A Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W6A	-5.1816	6/23/89					2.47	77	66.5	931	0.38	5.3								20.6	7.793	21.032	6.66		NA	NA
W6A	-5.1816	8/9/89	1428				3.17	98	70.4	986	0.50	7.0								20.5	7.698	20.623	7.22		<1	NA
W6A	-5.1816	8/15/89	1147				2.93	91	63.9	894	0.42	5.9								20.6	7.720	20.108	6.56		<1	NA
W6A	-5.1816	8/22/89	1120				3.11	96	74.7	1046	0.50	7.0								20.0	7.771	20.637	6.96		<1	NA
W6A	-5.1816	8/28/89	1405				3.17	98	65.7	921	0.50	7.0								20.2	7.743	22.593	6.97		<1	NA
W6A	-5.1816	8/28/89	1405				3.17	98	65.7	921	0.50	7.0													NA	NA
W6A	-5.1816	10/27/89	1128				3.29	102	66.4	930	0.04	0.6	431	12105	3.48	107.8	67.2	941	0.32	20.9	7.839	19.747	6.27		<1	NA
W6A	-5.1816	11/15/89	908				3.17	98	67.6	947	0.00	0.0	398	11178	3.47	107.5	74.3	1041	0.95	20.1	7.617	21.706	7.49		<1	NA
W6A	-5.1816	12/8/89	1125				2.92	90	67.9	951	0.10	1.4	408	11459	3.50	108.4	69.2	969		20.9	7.810	20.615	7.26		<1	NA
W6A	-5.1816	1/10/90	1031				2.42	75	64.4	902	0.00	0.0	441	12386	2.68	83.0	66.8	936	0.86	21.1	7.998	20.315	6.59		<1	NA
W6A	-5.1816	2/13/90	1135				2.92	90	70.3	985	0.02	0.3	374	10504	3.15	97.6	74.3	1041	0.78	21.0	7.922	20.473	6.94		<1	NA
W6A	-5.1816	3/5/90	1346				2.65	82	89.9	1259	0.05	0.7	403		3.10	96.0	91.5	1282	0.79	20.7	7.966	18.133	6.44		<1	NA
W6A	-5.1816	4/4/90	1010				3.16	98	70.9	993	0.49	6.9	454	12751	3.31	102.5	73.8	1034	0.68	20.2	8.051	20.365	6.43		<1	NA
W6A	-5.1816	5/16/90	1215				2.94	91	65.0	910	0.00	0.0	381	10701	2.98	92.3	68.6	961	0.71	21.4	7.978	20.416	6.92		<1	NA
W6A	-5.1816	6/17/90	1442				3.32	103	58.9	825	0.25	3.5	339	9521	3.50	108.4	61.8	866	1.38	21.2	8.000	23.706	5.86		<1	NA
W6A	-5.1816	7/12/90	1227				3.33	103	62.7	878	0.00	0.0	384	10785	3.47	107.5	65.3	915	1.03	22.5	7.996	21.152	6.39		<1	NA
W6A	-5.1816	8/7/90	1202				3.50	108	70.8	992	0.13	1.8	391	10981	3.51	108.7	71.2	998	1.11	22.1	7.985	20.901	6.22		<1	NA
W6A	-5.1816	9/5/90	1353				4.27	132	68.0	952	0.00	0.0			4.27	132.3	70.3	985	0.69	22.4	7.920	21.716	6.22		1	NA
W6A	-5.1816	10/4/90	1505				4.33	134	69.4	972	0.11	1.5	404	11347	5.16	159.8	69.5	974	0.85	22.2	7.898	21.585	5.72		6	NA
W6A	-5.1816	10/31/90	1205				3.73	116	67.1	940	0.09	1.3	483	13565	4.67	144.6	81.6	1143	0.49	22.1	7.873	21.818	5.68		2	NA
W6A	-5.1816	12/7/90	1425				2.17	67	59.9	839	0.00	0.0	396	11122	3.74	115.8	68.9	965	0.51	22.3	7.882	20.070	6.47		<1	NA
W6A	-5.1816	1/9/91	855				3.79	117	73.4	1028	0.05	0.7	361	10139	3.79	117.4	81.8	1146	0.64	21.4	7.860	21.958	6.18		<1	NA
W6A	-5.1816	2/5/91	940				3.91	121	62.1	870	0.36	5.0	317	8903	4.00	123.9	63.8	894	0.80	20.9	7.899	20.546	6.54		<1	NA
W6A	-5.1816	3/6/91	937				4.19	130	83.6	1171	0.11	1.5	381	10701	4.22	130.7	87.9	1231	0.72	20.6	7.936	20.770	6.59		<1	NA
W6A	-5.1816	4/2/91	1036				3.92	121	72.7	1018	0.25	3.5	354	9942	3.93	121.7	74.5	1043	0.81	20.6	7.910	20.404	6.61		<1	NA
W6A	-5.1816	5/21/91	952				3.80	118	35.9	503	0.07	1.0	254	7134	4.00	123.9	37.3	522	0.83	20.7	7.886	22.873	6.62		<1	NA
W6A	-5.1816	6/25/91	936				2.65	82	62.4	874	0.22	3.1	279	7836	3.22	99.7	66.6	933	0.54	20.9	7.923	21.009	6.62		<1	<1
W6A	-5.1816	7/23/91	1037				3.70	115	63.8	894	0.22	3.1	366	10279	4.37	135.4	66.4	930	0.88	21.0	7.914	22.036	6.55		<1	<1
W6A	-5.1816	8/22/91	905				3.74	116	77.7	1088	0.09	1.3	386	10841	3.98	123.3	78.8	1104	0.54	21.4	7.899	21.749	6.56		<1	2
W6A	-5.1816	9/23/91	1010				3.97	123	62.0	868	0.12	1.7	381	10701	4.07	126.1	67.5	945	0.57	21.8	7.888	20.602	6.50		<1	<1
W6A	-5.1816	10/22/91	1011				5.00	155	69.5	973	0.07	1.0	497	13958	5.44	168.5	73.8	1034	0.66	21.9	7.854	21.661	6.46		<1	<1
W6A	-5.1816	11/19/91	1104				4.80	149	69.7	976	0.07	1.0	410	11515	4.87	150.8	71.1	996	0.47	21.7	7.835	22.677	6.35		3	46
W6A	-5.1816	12/10/91	957				4.40	136	65.1	912	0.08	1.1	359	10083	4.45	137.8	67.9	951	0.62	21.4	7.819	23.883	6.26		<1	<1
W6A	-5.1816	1/28/92	935				4.28	133	66.8	936	0.00	0.0	340	9549	4.41	136.6	67.1	940	0.82	20.7	7.828	24.322	6.58		<1	3
W6A	-5.1816	2/18/92	905				4.02	125	67.5	945	0.00	0.0	332	9324	4.23	131.0	71.7	1004	0.62	20.7	7.836	22.691	6.50		1	5
W6A	-5.1816	3/16/92	1003				3.98	123	68.9	965	0.00	0.0	584	16402	4.12	127.6	69.7	976	0.80	20.2	7.833	22.247	6.39		3	12
W6A	-5.1816	4/7/92	931				4.01	124	66.2	927	0.13	1.8	408	11459	4.12	127.6	67.5	945	1.04	20.8	7.824	22.673	6.40		<1	<1
W6A	-5.1816	5/5/92	936				4.29	133	67.7	948	0.21	2.9	387	10869	4.38	135.7	70.7	990	0.97	20.9	7.812	22.422	6.23		1	<1
W6A	-5.1816	6/22/92	925				4.26	132	69.0	966	0.22	3.1	389	10925	4.37	135.4	71.1	996	1.37	21.5	7.752	23.151	6.23		<1	2
W6A	-5.1816	7/28/92	901				4.29	133	78.5	1100	ND	0.0	352	9886	4.90	151.8	81.4	1140	1.08	21.8	7.735	22.710	6.00		7	2
W6A	-5.1816	8/25/92	840				5.06	157	74.5	1044	0.11	1.5	414	11627	5.13	158.9	80.2	1124	0.81	21.9	7.739	22.483	5.56		3	1
W6A	-5.1816	9/21/92	903				4.72	146	77.0	1078	0.13	1.8	327	9184	4.81	149.0	85.1	1191	0.86	22.8	7.771	24.600	5.20		1	4
W6A	-5.1816	10/26/92	916				4.68	145	71.9	1007	0.23	3.2	383	10757	4.70	145.6	74.9	1049	0.64	22.8	7.711	24.278	5.48		5	11
W6A	-5.1816	11/16/92	935				4.63	143	69.6	974	0.26	3.6	360	10111	4.88	151.2	75.5	1058	0.64	22.4	7.719	24.915	5.38		3	0
W6A	-5.1816	12/7/92	927				4.72	146	73.7	1032	0.15	2.1	381	10701	4.83	149.6	76.4	1070	0.63	22.3	7.731	23.241	5.63		190	33
W6A	-5.1816	1/25/93	924				4.32	134	71.2	997	0.24	3.4	239	6698	4.48	138.8	57.9	811	0.72	21.7	7.786	23.148	5.89		<1	<1
W6A	-5.1816	2/22/93	854				4.14	128	56.6	793	0.33	4.6	272	7645	4.18	129.5	62.8	880	0.69	21.1	7.805	23.964	5.85		4	12
W6A	-5.1816	3/15/93	851				4.13	128	63.2	885	0.20	2.8	381	10709	4.18	129.5	66.1	925	0.60	21.0	7.824	23.332	6.32		1	3
W6A	-5.1816	4/26/93	856				4.03	125	62.2	872	0.01	0.1	380	10672	4.12	127.6	66.8	936	0.65	21.4	7.785	23.681	5.72		<1	6
W6A	-5.1816	5/24/93	911				3.98	123	63.2	885	0.20	2.8	403	11318	4.05	125.4	69.7	977	0.52	21.6	7.796	22.518	5.91		<1	64
W6A	-5.1816	6/21/93	913				3.90	121	63.6	890	0.12	1.7	304	8538	3.98	123.3	67.6	947	0.57	21.9	7.804	22.468	5.89		<1	<1

NELHA Water Quality Laboratory

Well 6A Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W6A	-5.1816	8/30/93	1010				3.81	118	64.7	906	0.06	0.8	420	11787	3.82	118.3	75.0	1051	0.71	22.7	7.776	21.639	5.79		<1	<1
W6A	-5.1816	10/25/93	858				3.92	121	62.4	874	0.11	1.5	375	10532	3.92	121.4	65.0	910	0.69	23.1	7.784	22.943	5.38		<1	3
W6A	-5.1816	2/7/94	1131				3.85	119	55.6	779	0.14	2.0	213	5982	3.89	120.5	61.4	860	0.67	16.7	7.656	28.877	5.49		<1	<1
W6A	-5.1816	6/20/94	840				3.74	116	58.1	813	0.04	0.6	346	9721	3.81	118.0	68.4	958	0.56	22.6	7.807	22.821	5.36		<1	<1
W6A	-5.1816	8/22/94	953				3.53	109	56.0	784	0.04	0.6	369	10373	3.60	111.5	64.0	896	0.55	22.8	7.822	23.854	5.63		<1	<1
W6A	-5.1816	10/24/94	931				3.75	116	62.0	868	0.03	0.4	322	9043	3.81	118.0	59.3	830	0.52	23.4	7.814	23.918	5.31		1	<1
W6A	-5.1816	1/23/95	1006				3.66	113	53.4	748	0.05	0.7	224	6286	3.77	116.8	56.0	784	0.52	22.5	7.810	23.375	5.53		<1	<1
W6A	-5.1816	2/13/95	956				3.65	113	53.0	742	0.29	4.1	340	9535	3.67	113.7	58.5	819	0.50	22.1	7.813	23.024	5.55		<1	1
W6A	-5.1816	3/13/95	1033				3.56	110	56.1	786	0.05	0.7	410	11507	3.62	112.1	57.4	804	0.48	21.9	7.811	23.678	5.49		<1	<1
W6A	-5.1816	4/24/95	926				3.36	104	55.8	782	0.15	2.1	326	9142	3.45	106.9	56.5	791	0.55	21.9	7.817	24.094	5.64		<1	<1
W6A	-5.1816	5/8/95	923				3.39	105	62.7	878	0.30	4.2	317	8895	3.39	105.0	67.0	939	0.59	22.2	7.841	23.292	5.63		<1	<1
W6A	-5.1816	6/19/95	1001				3.38	105	54.6	765	0.30	4.2	306	8600	3.43	106.2	60.0	841	0.58	22.6	7.779	24.769	5.98		<1	<1
W6A	-5.1816	7/24/95	931				3.18	98	59.6	834	0.23	3.2	339	9513	3.24	100.4	62.1	869	0.48	23.0	7.851	22.865	5.93		<1	<1
W6A	-5.1816	8/21/95	1019				3.17	98	54.7	766	0.40	5.6	350	9838	3.26	101.0	70.7	990	0.59	23.4	7.820	24.384	5.59		<1	5
W6A	-5.1816	9/11/95	825				3.16	98	52.0	729	0.23	3.2	313	8802	3.16	97.9	55.1	772	0.55	23.5	7.882	24.450	5.95		<1	3
W6A	-5.1816	10/16/95	900				3.23	100	54.5	764	0.30	4.2	323	9066	3.33	103.1	57.6	807	0.66	23.5	7.893	23.806	5.78		<1	<1
W6A	-5.1816	11/6/95	845				5.54	172	68.5	959	0.43	6.0	332	9319	5.55	171.9	74.0	1036	0.67	23.6	7.870	23.631	5.61		<1	43
W6A	-5.1816	12/4/95	905				6.48	201	66.6	932	0.14	2.0	321	9001	6.63	205.4	71.7	1004	0.75	23.4	7.842	23.805	5.65		<1	10
W6A	-5.1816	1/29/96	1028				5.30	164	84.6	1185	0.04	0.6	320	8996	5.35	165.7	95.7	1340	0.72	22.1	7.843	23.663	5.86		<1	1
W6A	-5.1816	2/26/96	1030				5.47	169	91.6	1283	0.23	3.2	330	9273	5.54	171.6	94.8	1327	0.73	22.4	7.826	23.743	6.02		<1	<1
W6A	-5.1816	3/5/96	916				6.94	215	101.6	1423	0.37	5.2	308	8642	7.40	229.2	113.0	1583	0.77	22.2	7.817	23.712	6.09		1	6
W6A	-5.1816	4/1/96	935				7.31	226	129.3	1811	0.41	5.7	313	8784	7.59	235.1	134.2	1880	0.66	22.2	7.813	23.118	6.01		<1	<1
W6A	-5.1816	5/8/96	936				11.71	363	129.7	1817	0.20	2.8	315	8843	12.41	384.4	144.0	2017	0.59	22.6	7.809	23.260	5.53		<1	4
W6A	-5.1816	6/17/96	934				8.09	251	125.5	1758	0.24	3.4	322	9029	8.30	257.1	128.0	1793	0.75	22.3	7.801	24.313	5.57		1	<1
W6A	-5.1816	7/16/96	922				6.76	209	112.7	1578	0.27	3.8	308	8648	7.00	216.8	116.5	1632	0.86	23.0	7.824	24.465	5.82		<1	<1
W6A	-5.1816	8/5/96	1035				5.94	184	91.1	1276	0.35	4.9	277	7782	5.96	184.6	96.2	1348	0.71	23.0	7.837	25.670	5.92		<1	<1
W6A	-5.1816	9/3/96	934				5.48	170	98.7	1382	0.19	2.7	311	8721	5.49	170.0	101.0	1415	0.71	23.6	7.837	25.544	5.84		<1	<1
W6A	-5.1816	10/8/96	953				5.49	170	113.0	1583	0.26	3.6	314	8812	5.81	180.0	115.5	1618	0.91	23.5	7.844	24.707	4.66		<1	1
W6A	-5.1816	11/4/96	1017				5.01	155	112.1	1569	0.29	4.1	267	7511	5.09	157.7	116.9	1637	1.80	23.8	7.846	25.164	4.17		<1	<1
W6A	-5.1816	12/16/96	935				5.24	162	97.0	1358	0.30	4.2	286	8026	5.29	163.9	98.1	1373	0.86	23.3	7.880	25.764	5.91		<1	<1
W6A	-5.1816	1/13/97	1009				5.54	172	109	1532	0.13	1.8	272	7625	5.68	175.9	114.9	1609	0.78	23.1	7.869	24.419	6.09		<1	1
W6A	-5.1816	2/10/97	935				5.50	170	121	1689	0.16	2.2	266	7462	5.60	173.5	124.2	1740	0.72	22.5	7.902	24.988	6.11		<1	<1
W6A	-5.1816	3/10/97	924				5.19	161	132	1846	0.22	3.1	296	8313	5.20	161.1	135.4	1897	0.54	22.2	7.912	23.826	5.71		<1	<1
W6A	-5.1816	4/22/97	1003				4.82	149	107	1495	0.34	4.8	302	8476	5.32	164.8	203.9	2856	1.10	22.5	7.923	22.722	5.90		<1	<1
W6A	-5.1816	5/27/97	925				4.85	150	108	1516	0.07	1.0	263	7398	5.56	172.2	124.4	1742	0.74	21.2	7.880	25.256	5.74		<1	<1
W6A	-5.1816	6/16/97	940				4.50	139	87	1219	0.31	4.3	287	8046	4.62	143.1	98.1	1374	0.73	21.7	7.924	24.707	5.77		<1	<1
W6A	-5.1816	7/16/97	847				4.50	139	89	1242	0.10	1.4	282	7912	4.63	143.4	96.3	1349	0.59	22.0	7.921	24.554	5.58		<1	1
W6A	-5.1816	8/25/97	932				4.04	125	67	943	0.25	3.5	261	7336	4.05	125.4	71.1	995	0.66	23.7	8.016	26.925	5.65		<1	<1
W6A	-5.1816	9/22/97	914				4.67	145	68	947	0.23	3.2	255	7173	4.72	146.2	69.6	975	0.69	24.3	8.064	25.750	5.57		<1	1
W6A	-5.1816	10/14/97	927				6.74	209	115	1605	0.34	4.8	272	7645	6.79	210.3	126.0	1765	0.71	24.3	8.019	24.686	5.64		<1	1
W6A	-5.1816	11/3/97	1045				6.14	190	79.3	1111	0.29	4.1	262	7358	6.41	198.5	98.7	1382	0.80	24.2	7.984	25.487	5.82		<1	1
W6A	-5.1816	12/15/97	950				5.59	173	83.9	1175	0.11	1.5	257	7224	5.78	179.0	88.5	1240	0.75	23.7	7.980	25.981	4.95		<1	4
W6A	-5.1816	1/5/98	1053				5.53	171	77.5	1086	0.07	1.0	225	6330	5.75	178.1	82.5	1156	0.71	23.0	7.956	27.282	5.30		<1	<1
W6A	-5.1816	2/2/98	957				6.05	187	78.2	1096	0.21	2.9	243	6828	6.43	199.2	81.1	1136	0.69	21.7	7.926	26.834	4.99		<1	1
W6A	-5.1816	3/9/98	954				7.64	237	104.0	1457	0.29	4.1	269	7561	7.78	241.0	108.0	1513	0.72	21.5	7.734	25.069	4.92		1	3
W6A	-5.1816	4/13/98	904				6.05	187	86	1203	0.15	2.1	273	7656	6.16	190.8	89.5	1253	0.67	21.5	7.777	25.358	5.21		<1	1
W6A	-5.1816	5/11/98	934				6.16	191	93	1309	0.22	3.1	273	7676	6.32	195.8	98.9	1385	0.70	21.8	7.738	24.806	4.68		<1	2
W6A	-5.1816	6/1/98	932				6.11	189	78.8	1103	0.14	2.0	267	7493	6.23	193.0	81.1	1135	0.67	21.9	7.719	25.472	5.17		<1	1
W6A	-5.1816	7/13/98	940				5.42	168	66	929	0.11	1.5	263	7372	5.70	176.6	71	996	0.74	21.5	7.690	26.168	5.22		<1	<1
W6A	-5.1816	8/10/98	957				5.45	169	71.5	1001	0.17	2.4	273	7679	5.68	175.9	77.8	1090	0.75	21.9	7.607	25.944	4.85		<1	3
W6A	-5.1816	9/14/98	948				5.06	157	56.5	791	0.16	2.2	206	5777	5.30	164.2	60	838	0.84	22.4	7.729	29.696	5.05		<1	9
W6A	-5.1816	10/12/98	855				4.55	141	61.4	860	0.04	0.6	235	6603	4.73	146.5	66	922	0.73	22.9	7.715	28.082	5.63		<1	1
W6A	-5.1816	11/2/98	917				5.26	163	78.3	1097	0.08	1.1	263	7392	5.43	168.2	83.8	1174	0.81	23.0	7.700	26.178	6.74		<1	11
W6A	-5.1816	12/15/98	918				5.09	158	81.6	1143	0.12	1.7	226	6347	5.23	162.0	84.8	1188	0.84	23.0	7.730	25.021	5.25		<1	1
W6A	-5.1816	1/11/99	935				4.56	141	79	1108	0.18	2.5	251	7035	4.72	146.2	81	1133	0.76	22.6	7.729	26.028	5.41		<1	<1
W6A	-5.1816	2/2/99	930				5.06	157	95	1331	0.21	2.9	262	7344	5.19	160.8	104	1459	0.86	21.9	7.736	25.230	5.30		<1	<1
W6A	-5.1816	3/1/99	935				5.33	165	81.3	1139	0.03	0.4	281	7884	5.50	170.4	84.8	1188	0.79	21.5	7.650	24.558	5.29		<1	<1
W6A	-5.1816	4/5/99	933				5.02	155	70.1	982	0.14	2.0	261	7328	5.23	162.0	74.4	1042	0.64	21.1	7.667	26.196	5.15		<1	<1
W6A	-5.1816	5/3/99	933				5.14	159	70.6	989	0.15	2.1	284	7968	5.29	163.9	77.7	1088	0.64	21.0	7.614	24.767	4.64		<1	<1
W6A	-5.1816	6/1/99	925				4.73	147	67.7	948	0.34	4.8	277	7780	4.84	149.9	71.4	1000	0.68	21.3	7.605	25.670	4.92		<1	1

NELHA Water Quality Laboratory

Well 6A Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W6A	-5.1816	7/14/99	928				4.89	151	81.1	1136	0.05	0.7	287	8049	5.01	155.2	84.5	1184	0.79	21.9	7.589	25.520	4.95		<1	1
W6A	-5.1816	8/23/99	954				4.98	154	75.0	1051	0.24	3.4	271	7597	5.09	157.7	79.4	1112	0.75	22.5	7.647	26.337	4..88		<1	1
W6A	-5.1816	9/7/99	944				5.10	158	76.2	1067	0.06	0.8	267	7485	5.33	165.1	89.9	1259	0.73	22.4	7.640	27.362	4.90		<1	1
W6A	-5.1816	10/5/99	933				5.36	166	83.5	1170	0.02	0.3	265	7434	5.49	170.0	87.8	1230	0.75	22.3	7.581	26.739	4.58		<1	1
W6A	-5.1816	11/1/99	1000				5.12	159	81.2	1137	0.07	1.0	265	7437	5.15	159.5	86.2	1207	0.71	22.3	7.610	26.676	4.58		<1	<1
W6A	-5.1816	12/14/99	951				6.58	204	93.5	1310	0.09	1.3	231	6496	6.70	207.5	97.8	1370	0.96	21.9	7.624	27.990	3.45		<1	<1
W6A	-5.1816	1/10/00	1017				7.71	239	95.0	1331	0.14	2.0	259	7260	7.80	241.6	105	1471	0.88	21.8	7.567	25.842	4.07		<1	<1
W6A	-5.1816	2/7/00	1012				7.72	239	96.0	1345	0.21	2.9	265	7448	7.91	245.0	102	1429	0.91	21.5	7.595	25.296	4.00		<1	5
W6A	-5.1816	3/21/00	1015				6.85	212	83.0	1163	0.09	1.3	263	7375	6.61	204.7	89.2	1249	0.86	21.2	7.638	25.729	4.30		<1	<1
W6A	-5.1816	4/10/00	1044				7.95	246	95.3	1335	0.03	0.4	257	7226	7.62	236.0	103	1443	0.91	21.1	7.627	25.762	4.23		<1	<1
W6A	-5.1816	5/15/00	955				8.01	248	94.5	1324	0.17	2.4	253	7114	7.95	246.2	104	1461	0.84	21.2	7.614	26.657	3.90		<1	1
W6A	-5.1816	6/5/00	956				7.63	236	89.3	1251	0.03	0.4	252	7080	7.69	238.2	100	1405	0.89	21.1	7.584	26.941	4.50		<1	1
W6A	-5.1816	7/26/00	1022				8.44	261	97.0	1359	0.03	0.4	243	6819	8.59	266.1	102	1431	0.74	22.7	7.580	27.217	4.19		<1	109
W6A	-5.1816	8/29/00	925				9.07	281	105	1471	0.11	1.5	254	7120	9.11	282.2	108	1513	0.84	22.1	7.494	26.571	3.73		3	<1
W6A	-5.1816	9/5/00	951				8.73	270	96.9	1357	0.06	0.8	227	6361	8.99	278.5	104	1457	0.87	22.1	7.528	28.339	3.95		<1	<1
W6A	-5.1816	10/24/00	956				9.47	293	96.8	1355	0.16	2.2	264	7403	9.79	303.2	99.6	1396	0.77	22.6	7.518	27.810	3.94		<1	1
W6A	-5.1816	11/13/00	937				8.17	253	123	1720	0.28	3.9	245	6892	8.50	263.3	133	1860	0.91	22.7	7.504	26.531	3.85		5	5
W6A	-5.1816	12/18/00	939				8.40	260	191	2668	0.20	2.8	226	6356	8.70	269.5	193	2700	0.91	22.4	7.549	27.756	3.89		1	6
W6A	-5.1816	1/22/01	943				8.24	255	115	1615	0.02	0.3	245	6881	8.46	262.0	119	1670	0.99	21.6	7.495	27.274	3.94		<1	<1
W6A	-5.1816	2/5/01	1002				7.92	245	129	1810	0.20	2.8	251	7055	8.02	248.4	134	1871	0.86	21.4	7.510	27.218	3.96		<1	1
W6A	-5.1816	3/5/01	953				7.18	222	108	1513	0.04	0.6	242	6794	7.31	226.4	110	1546	0.88	21.2	7.503	26.576	3.58		<1	1
W6A	-5.1816	4/17/01	937				7.54	234	102	1422	0.05	0.7	245	6889	7.66	237.3	107	1497	0.84	21.0	7.485	26.697	3.90		<1	<1
W6A	-5.1816	5/15/01	935				7.46	231	94.0	1317	0.16	2.2	264	7412	7.37	228.3	99.3	1391	0.77	21.0	7.495	26.297	4.69		<1	18
W6A	-5.1816	6/12/01	934				6.94	215	96.9	1358	0.07	1.0	249	7002	6.61	204.7	101	1414	0.80	21.3	7.523	26.015	4.79		<1	<1
W6A	-5.1816	7/23/01	944				6.81	211	91.1	1276	0.06	0.8	256	7198	6.60	204.4	98.0	1372	0.81	21.7	7.490	27.133	4.67		<1	6
W6A	-5.1816	8/8/01	935				6.62	205	95.2	1334	0.08	1.1	255	7156	6.68	206.9	100	1406	0.75	21.6	7.500	26.950	4.49		<1	3
W6A	-5.1816	9/19/01	944				6.92	214	81.8	1145	0.08	1.1	281	7886	7.02	217.4	87.8	1230	0.83	22.2	7.453	27.500	3.84		<1	<1
W6A	-5.1816	10/24/01	917				6.36	197	75.6	1059	0.02	0.3	246	6909	6.80	210.6	81.5	1142	0.74	22.9	7.486	27.771	4.78		<1	1
W6A	-5.1816	11/7/01	935				6.80	211	79.4	1112	0.06	0.8	236	6639	6.92	214.3	93.0	1302	0.67	23.0	7.512	28.320	3.81		<1	<1
W6A	-5.1816	12/19/01	954				5.70	177	108	1516	0.21	2.9	235	6597	5.60	173.5	140	1964	0.75	22.8	7.568	27.939	4.61		<1	2
W6A	-5.1816	1/9/02	944				5.65	175	96.1	1346	0.20	2.8	241	6769	5.68	175.9	100	1402	0.86	22.5	7.593	27.792	5.61		1	<1
W6A	-5.1816	2/19/02	1001				5.54	172	84.4	1182	0.08	1.1	236	6637	5.68	175.9	98.0	1373	0.72	21.8	7.618	27.656	4.58		<1	<1
W6A	-5.1816	3/20/02	1003				5.36	166	86.1	1206	0.14	2.0	244	6858	5.58	172.8	89.9	1259	0.69	21.8	7.587	26.862	4.28		<1	<1
W6A	-5.1816	4/8/02	1052				5.70	177	81.0	1134	0.01	0.1	231	6488	5.90	182.7	85.2	1193	0.65	21.8	7.609	27.625	4.13		1	1
W6A	-5.1816	5/29/02	1037				5.94	184	112	1567	0.16	2.2	257	7207	6.26	193.9	119	1671	0.78	22.1	7.542	28.686	4.64		<1	<1
W6A	-5.1816	6/17/02	1010				5.64	175	92.4	1294	0.03	0.4	230	6468	5.82	180.3	101	1410	0.69	22.2	7.570	28.213	QNS		<1	<1
W6A	-5.1816	7/15/02	1005				6.14	190	102	1424	0.12	1.7	247	6923	6.42	198.9	111	1549	0.74	22.6	7.564	27.638	4.50		<1	2
W6A	-5.1816	8/20/02	1007				5.70	177	86.7	1214	0.20	2.8	254	7128	5.90	182.7	83.2	1166	0.78	23.3	7.578	27.551	4.43		<1	<1
W6A	-5.1816	9/23/02	1042				5.62	174	85.7	1201	0.23	3.2	252	7083	5.76	178.4	87.0	1219	0.97	23.2	7.548	27.719	4.24		<1	<1
W6A	-5.1816	10/14/02	943				5.41	168	80.4	1126	0.11	1.5	259	7285	5.78	179.0	77.6	1088	0.73	23.2	7.545	25.360	6.59		<1	2
W6A	-5.1816	11/4/02	953				5.24	162	79.4	1112	0.03	0.4	259	7263	5.49	170.0	76.4	1071	0.81	22.9	7.588	26.430	4.75		<1	<1
W6A	-5.1816	12/17/02	1021				5.78	179	74.4	1042	0.06	0.8	236	6634	6.07	188.0	75.9	1063	0.75	23.0	7.608	27.638	3.95		<1	<1
W6A	-5.1816	1/21/03	1105				5.22	162	79.1	1108	0.02	0.3	222	6241	5.53	171.3	84.5	1184	0.73	22.6	7.646	28.180	4.70		<1	<1
W6A	-5.1816	2/12/03	1031				4.88	151	73.1	1024	0.08	1.1	240	6735	5.08	157.3	90.1	1262	0.64	22.4	7.627	27.119	4.38		<1	<1
W6A	-5.1816	3/19/03	1016				4.82	149	72.0	1008	0.11	1.5	247	6940	4.93	152.7	83.5	1170	0.70	22.3	7.656	27.594	4.86		<1	1
W6A	-5.1816	4/28/03	1003				5.00	155	78.7	1102	0.18	2.5	232	6505	5.10	158.0	83.4	1168	0.51	22.5	7.739	27.459	5.07		<1	<1
W6A	-5.1816	5/12/03	935				4.72	146	71.4	1000	0.03	0.4	231	6474	4.88	151.2	89.5	1254	0.51	22.3	7.763	28.163	5.18		<1	7
W6A	-5.1816	6/3/03	950				4.85	150	81.0	1134	0.23	3.2	235	6609	4.91	152.1	90.7	1271	0.61	22.5	7.743	27.625	5.09		<1	<1

NELHA Water Quality Laboratory

Well 6A Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W6A	-5.1816	7/29/03	1013				5.36	166	84.6	1184	0.02	0.3	238	6679	5.46	169.1	94.0	1316		22.7	7.637	27.525	4.91		<1	7
W6A	-5.1816	8/26/03	1015				4.70	146	79.5	1114	0.17	2.4	238	6682	4.95	153.3	88.0	1232		23.3	7.622	27.743	4.99		1	1
W6A	-5.1816	9/15/03	1004				4.56	141	74.0	1037	0.05	0.7	225	6316	4.82	149.3	92.4	1294		24.0	7.677	28.565	4.84		<1	1
W6A	-5.1816	10/6/03	958				4.98	154	85.3	1195	0.15	2.1	230	6471	5.16	159.8	96.9	1357		23.7	7.626	28.190	NA		<1	2
W6A	-5.1816	10/28/03	1030				5.24	162	77.9	1091	0.10	1.4	220	6190	5.36	166.0	87.0	1219		23.6	7.610	28.749			<1	3
W6A	-5.1816	11/14/03	1335																	23.6			4.98			
W6A	-5.1816	12/15/03	942																	20.7	7.610					
W6A	-5.1816	12/17/03	847				5.17	160	78.7	1102	0.54	7.6	229	6426	5.37	166.3	81.1	1136		23.1	7.611	28.071	4.35		<1	<1
W6A	-5.1816	1/26/04	951				4.56	141	95.9	1344	0.30	4.2	217	6081	4.78	148.1	108	1511		22.8	7.638	27.905	4.42		2	<1
W6A	-5.1816	2/5/04	952				4.68	145	118	1647	0.18	2.5	242	6783	4.74	146.8	134	1881		22.3	7.560	26.452	4.44		1	<1
W6A	-5.1816	3/2/04	1041				4.52	140	109	1527	0.52	7.3	224	6280	4.44	137.5	116	1626		22.8	7.643	25.172	4.14		<1	<1
W6A	-5.1816	4/20/04	957				4.76	147	156	2185	0.01	0.1	236	6620	4.60	142.5	158	2207		22.3	7.542	26.891	3.54		<1	<1
W6A	-5.1816	5/11/04	912				4.98	154	135	1895	0.26	3.6	230	6460	4.82	149.3	143	2002		22.7	7.536	26.29	4.25		<1	2
W6A	-5.1816	6/2/04	959				4.56	141	153	2144	0.14	2.0	237	6651	4.54	140.6	155	2164		22.5	7.461	26.34	3.55		<1	5
W6A	-5.1816	7/14/04	958				4.62	143	117	1632	0.22	3.1	243	6811	4.54	140.6	141	1979		22.7	7.487	27.04	2.68		<1	2
W6A	-5.1816	8/23/04	958				4.54	141	107	1495	0.37	5.2	227	6367	4.60	142.5	111	1551		23.6	7.508	27.58	3.68		<1	<1
W6A	-5.1816	9/2/04	1017				5.52	171	111	1551	0.13	1.8	246	6909	5.60	173.5	115	1607		23.8	7.444	26.86	2.66		<1	1
W6A	-5.1816	10/4/04	929				6.04	187	108	1509	0.25	3.5	223	6274	6.22	192.7	118	1658		24.1	7.497	27.91	3.44		<1	61
W6A	-5.1816	11/9/04	855				6.86	212	125	1747	0.16	2.2	242	6791	7.12	220.5	130	1821		24.1	7.464	26.65	2.58		<1	2032
W6A	-5.1816	12/6/04	935				6.20	192	113	1584	0.16	2.2	218	6109	6.48	200.7	133	1864		23.9	7.561	27.65	3.42		<1	<1
W6A	-5.1816	1/10/05	901				5.85	181	114	1598	0.20	2.8	243	6825	6.02	186.5	120	1675		23.1	7.470	24.973	3.08		1	<1
W6A	-5.1816	2/9/05	903				6.13	190	159	2227	0.36	5.0	241	6777	6.25	193.6	219	3060		22.4	7.502	25.940	2.57		<1	1
W6A	-5.1816	3/15/05	932				5.54	172	193	2705	0.27	3.8	223	6274	5.76	178.4	208	2913	0.63	22.1	7.561	27.556	2.04		<1	1
W6A	-5.1816	4/19/05	848				5.84	181	173	2418	0.12	1.7	233	6533	5.76	178.4	176	2464		22.0	7.529	27.415	2.60		<1	1
W6A	-5.1816	5/23/05	921				5.84	181	149	2081	0.30	4.2	262	7344	5.85	181.2	149	2080		22.2	7.427	26.137	2.76		1	1
W6A	-5.1816	6/15/05	952				5.05	156	117	1636	0.13	1.8	218	6120	5.36	166.0	129	1811		22.2	7.542	27.773	3.85		<1	<1
W6A	-5.1816	7/18/05	849				5.58	173	112	1565	0.11	1.5	239	6715	5.76	178.4	115	1605	0.62	22.4	7.514	26.216	4.03		2	16
W6A	-5.1816	8/9/05	910				5.60	173	108	1510	0.14	2.0	238	6687	5.94	184.0	116	1628	0.54	23.8	7.537	27.018	4.01		<1	1
W6A	-5.1816	9/20/05	905				5.54	172	96.9	1358	0.17	2.4	230	6465	5.76	178.4	102	1434	0.69	23.0	7.568	27.924	3.98		<1	1
W6A	-5.1816	10/17/05	901				5.34	165	150	2098	0.15	2.1	248	6962	5.42	167.9	150	2101		23.8	7.546	27.365	3.23		1	<1
W6A	-5.1816	11/7/05	835				4.80	149	186	2601	0.10	1.4	238	6693	4.92	152.4	198	2768		23.6	7.548	27.651	2.48		<1	5
W6A	-5.1816	12/19/05	838				4.20	130	121	1693	0.36	5.0	207	5825	4.24	131.3	139	1953	0.75	23.4	7.650	29.283	3.83		<1	<1
W6A	-5.1816	1/23/06	849				4.60	142	107	1497	0.37	5.2	231	6474	4.68	145.0	108	1518		23.0	7.640	28.182	3.90		<1	1
W6A	-5.1816	2/14/06	857				4.52	140	92.9	1302	0.29	4.1	221	6215	4.74	146.8	97.5	1366	0.68	22.8	7.671	28.109	3.63		<1	940
W6A	-5.1816	3/20/06	853				4.69	145	90.5	1268	0.38	5.3	233	6544	4.87	150.8	91.3	1279	0.64	22.7	7.695	27.25	4.53		4	220
W6A	-5.1816	4/25/06	925				4.66	144	107	1499	0.27	3.8	226	6347	4.66	144.3	95.1	1332	0.62	22.5	7.692	27.083	5.58		<1	161
W6A	-5.1816	5/22/06	913				4.42	137	91.5	1282	0.26	3.6	222	6235	5.02	155.5	81.6	1143	0.62	22.3	7.657	27.361	6.51		<1	1
W6A	-5.1816	6/26/06	917				4.42	137	89.7	1256	0.16	2.2	228	6403	4.53	140.3	85.6	1200	0.79	22.4	7.676	27.617	4.98		<1	1
W6A	-5.1816	7/20/06	919				4.53	140	84.7	1186	0.30	4.2	218	6123	4.90	151.8	78.9	1106	0.63	22.5	7.673	28.101	4.63		<1	5
W6A	-5.1816	8/7/06	943				4.59	142	81.1	1136	0.18	2.5	219	6151	4.97	153.9	73.3	1026	0.61	22.8	7.684	27.926	4.97		<1	1
W6A	-5.1816	9/18/06	917				4.72	146	82.5	1156	0.29	4.1	224	6291	5.15	159.5	73.5	1029	0.74	23.4	7.675	28.221	4.83		<1	2
W6A	-5.1816	10/23/06	920				4.47	138	76.5	1072	0.26	3.6	216	6066	4.66	144.3	70.8	991	0.69	23.6	7.685	27.490	4.55		1	1
W6A	-5.1816	11/27/06	904				4.05	125	123	1723	0.25	3.5	201	5645	4.18	129.5	112	1568	0.68	23.6	7.711	28.982	4.46		<1	<1
W6A	-5.1816	12/11/06	1005				4.39	136	125	1751	0.25	3.5	215	6038	4.44	137.5	113	1589	0.69	23.5	7.686	28.172	4.58		<1	<1
W6A	-5.1816	1/8/07	1059				4.39	136	101	1415	0.23	3.2	208	5842	4.58	141.9	92.7	1299	0.59	23.3	7.71	28.269	5.03		<1	<1
W6A	-5.1816	2/20/07	956				4.47	138	90.5	1268	0.52	7.3	224	6291	4.72	146.2	100	1407	0.67	23.0	7.694	27.164	5.62		<1	<1
W6A	-5.1816	3/5/07	931				4.37	135	121	1695	0.40	5.6	234	6572	4.61	142.8	127	1781	0.65	23.1	7.726	26.901	5.05		<1	<1
W6A	-5.1816	4/18/07	955				4.35	135	118	1653	0.22	3.1	261	7330	4.49	139.1	106	1479	0.59	23.6	7.711	25.632	5.92		<1	1
W6A	-5.1816	5/1/07	947				4.31	133	117	1639	0.96	13.4	252	7078	4.46	138.1	106	1483	0.58	23.0	7.689	26.016	6.41		<1	2
W6A	-5.1816	6/18/07	927				4.01	124	84.6	1185	0.18	2.5	244	6853	5.46	169.1	75.9	1063	1.13	23.0	7.595	26.529	4.64		2	6

NELHA Water Quality Laboratory

Well 6A Data Table

June 1989 - December 2014

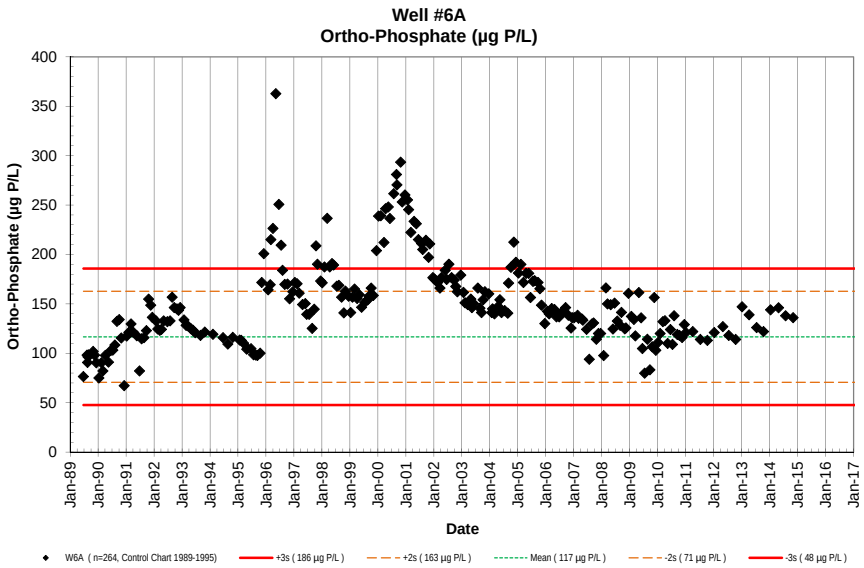
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W6A	-5.1816	7/23/07	1454	-1.78	0.46	Ebb	3.03	94	53.0	742	0.06	0.8	126	3537	3.39	104.9	54.2	759		23.0	7.47	26.20	5.80			
W6A	-5.1816	8/27/07	1459	-2.08	0.70	Flood	4.19	130	135.8	1903	0.29	4.0	221	6211	4.02	124.4	130.6	1829		23.5	7.68	28.12	6.32			
W6A	-5.1816	9/18/07	1609	-1.96	0.21	Ebb	4.22	131	151.1	2117	0.36	5.0	254	7130	4.14	128.3	130.9	1834		23.5	7.49	27.76	5.69			
W6A	-5.1816	10/23/07	1516	-1.78	0.46	Ebb	3.68	114	151.3	2120	0.16	2.2	212	5967	3.40	105.3	140.2	1964		23.7	7.36	28.37	3.52			
W6A	-5.1816	11/20/07	1324	-2.18	0.43	Ebb	3.87	120	126.9	1778	0.19	2.6	232	6525	3.29	102.0	132.1	1851		23.8	7.54	27.66	3.72			
W6A	-5.1816	12/19/07	1331	-2.29	0.24	Ebb	3.87	120	183.1	2565	29.44	412	220	6166						23.3	7.45	24.62	3.25			
W6A	-5.1816	1/28/08	855	-2.44	0.27	Ebb	3.15	98	193.2	2706	0.71	10	232	6528						22.3	7.15	25.72	3.41			
W6A	-5.1816	2/26/08	1348	-2.44	0.06	Flood	5.36	166	219.1	3069	0.35	4.9	253	7117						22.0	7.31	25.05	4.18			
W6A	-5.1816	3/17/08	1443	-1.14	0.24	High	4.84	150	150.9	2114	0.06	0.8	221	6199						21.8	7.41	25.64	5.27			
W6A	-5.1816	4/29/08	1123	-1.04	0.24	Flood	4.81	149	149.8	2099	0.09	1.2	231	6498						21.6	7.35	26.20	1.75			
W6A	-5.1816	5/28/08	1105	-2.34	0.34	High	4.02	125	168.7	2363	0.27	3.8	238	6697						22.0	7.43	25.12	2.41			
W6A	-5.1816	6/17/08	1140	-2.13	0.21	Flood	4.87	151	128.1	1795	1.62	22.7	229	6432						22.3	7.23	26.55	1.19	10.10		
W6A	-5.1816	7/22/08	1114	-2.44	0.15	Ebb	4.28	133	125.2	1754	0.24	3.3	243	6816						22.4	7.44	25.84	3.04			
W6A	-5.1816	8/30/08	1132		0.15	Flood	4.14	128	113.7	1592	2.15	30	279	7829						22.7	7.45	23.96	NA			
W6A	-5.1816	9/16/08	1110	-2.52	0.09	Low	4.57	141	106.2	1487	0.26	3.6	301	8455						23.3	7.34	22.84	1.90			
W6A	-5.1816	10/28/08	1107	-2.49	0.15	Low	4.03	125	91.5	1282	0.15	2.1	183	5133						24.6	7.38	27.52	2.92	3.46		
W6A	-5.1816	11/13/08	1109	-2.49	0.09	Low	4.06	126	103.2	1446	0.20	2.8	217	6102						24.0	7.67	26.98	3.79	3.02		
W6A	-5.1816	12/15/08	1411	-2.55	0.00	Low	5.19	161	118.2	1656	0.11	1.5	216	6079						23.9	7.76	25.60	4.20			
W6A	-5.1816	1/22/09	1055	-2.53	0.09	Flood	4.44	137	153.1	2144	0.90	13	238	6690						22.8	7.53	26.24	0.56	0.31		
W6A	-5.1816	2/24/09	1025	-2.65	0.09	Ebb	4.34	134	133.1	1865	0.74	10	288	8081						21.8	7.42	25.70	3.01	2.74		
W6A	-5.1816	3/16/09	1106	-2.60	0.09	Ebb	3.80	118	137.5	1926	0.13	1.8	210	5912						22.6	7.38	24.83	3.62	0.32		
W6A	-5.1816	4/30/09	1633	-2.70	0.24	Flood	5.21	161	121.8	1707	0.64	9	205	5768						22.0	7.97	24.73	4.03			
W6A	-5.1816	5/29/09	1028	-2.44	0.21	Ebb	4.38	136	112.8	1581	0.18	2.5	261	7318						20.1	7.69	25.95	4.91	0.39		
W6A	-5.1816	6/16/09	1417	-2.27	0.40	Flood	3.38	105	75.6	1058	0.42	5.9	165	4646						20.9	7.82	27.56	4.77	0.13		
W6A	-5.1816	7/14/09	1315	-2.36	0.37	Ebb	2.58	80	66.9	937	0.30	4.2	105	2961						21.3	7.70	27.31	4.54	0.10		
W6A	-5.1816	8/19/09	1353	-1.92	0.67	Flood	3.69	114	80.6	1130	1.32	18.5	150	4206						21.5	7.63	29.30	4.41	0.31		
W6A	-5.1816	9/21/09	1541	-2.36	0.30	Flood	2.69	83	67.8	950	0.40	5.6	136	3833						22.3	8.15	28.25	4.59	0.07		
W6A	-5.1816	10/22/09	1614	-2.53	0.18	Flood	3.44	107	77.8	1090	0.54	7.5	93	2614						22.9	7.68	27.86	4.85	0.16		
W6A	-5.1816	11/17/09	840	-2.44	0.30	Ebb	5.05	157	82.0	1149	0.94	13.2	235	6589						22.7	7.66	27.87	5.23	0.05		
W6A	-5.1816	12/8/09	927	-2.18	0.55	High	3.33	103	83.7	1172	0.94	13.2	217	6093						22.9	7.66	27.88	5.14	0.25		
W6A	-5.1816	1/6/10	825	-2.18	0.43	High	3.58	111	81.6	1143	1.29	18	211	5935						22.2	7.67	27.44	4.44	0.18		
W6A	-5.1816	2/2/10	823	-2.08	0.37	Ebb	3.87	120	101.8	1426	0.64	9	205	5749						21.8	7.74	26.85	4.85	0.18		
W6A	-5.1816	3/10/10	809	-2.62	0.09	Low	4.26	132	107.9	1512	0.36	5	263	7399						21.6	7.70	25.13	5.20	0.07		
W6A	-5.1816	4/6/10	1433	-2.55	0.12	Ebb	4.29	133	90.8	1272	0.43	6	284	7979						18.9	7.73	28.41	5.74	0.09		
W6A	-5.1816	5/11/10	1438	-1.99	0.55	High	3.55	110	61.9	867	1.21	17	229	6421						21.3	7.80	27.75	5.23	0.04		
W6A	-5.1816	6/16/10	1007	-1.84	0.15	Ebb	4.00	124	85.0	1191	0.36	5	255	7169						21.4	7.75	27.40	5.23	0.31		
W6A	-5.1816	7/13/10	1452	-2.26	0.40	Flood	3.52	109	77.5	1086	0.57	8	226	6344						21.7	7.76	28.23	5.09	0.24		
W6A	-5.1816	8/3/10	1450	-2.19	0.40	Ebb	4.46	138	62.8	879	0.38	5.3	196	5503						22.0	7.75	28.12	4.99	0.13		
W6A	-5.1816	9/14/10	1516	-2.25	0.30	Ebb	3.84	119	88.7	1242	0.47	6.6	254	7126						22.2	7.72	27.57	5.39	0.19		
W6A	-5.1816	10/12/10	1539	-2.40	0.18	Low	3.81	118	95.3	1335	0.11	1.5	242	6809						22.2	7.73	27.89	5.05	0.22		
W6A	-5.1816	11/16/10	1415	-2.19	0.34	Ebb	3.75	116	98.5	1379	0.08	1.1	232	6513						22.3	7.73	28.43	4.83	0.12		
W6A	-5.1816	12/14/10	1445	-2.42	0.12	Ebb	4.16	129	134.6	1886	0.29	4	254	7141						22.3	7.76	26.30	4.75	0.11		
W6A	-5.1816	1/4/11	1425	-2.44	0.15	Flood	3.91	121	118.3	1657	0.35	4.9	238	6697						22.1	7.68	25.89	5.02	0.12		
W6A	-5.1816	4/5/11	1447	-2.29	0.34	Flood	3.94	122	88.7	1243	0.17	2.4	229	6420						21.1	7.60	25.67	4.42	0.18		
W6A	-5.1816	7/11/11	1204	-2.20	0.49	Flood	3.68	114	110.2	1544	0.14	2	245	6883						21.8	7.66	27.27	4.91	0.19		
W6A	-5.1816	10/11/11	1340	-2.30	0.34	Flood	3.65	113	96.4	1350	0.35	4.9	246	6919						22.1	7.62	27.55	4.83	0.16		
W6A	-5.1816	1/9/12	1438	-2.57	0.15	Flood	3.91	121	106.3	1489	0.19	2.7	273	7655						21.5	7.65	25.18	4.63	0.07		
W6A	-5.1816	4/30/12	1454	-2.38	0.24	Ebb	4.10	127	93.0	1303	0.16	2.2	251	7056						20.1	7.58	27.25	3.98	0.02		
W6A	-5.1816	7/17/12	1530	-1.91	0.73	Flood	3.81	118	100.2	1404	0.26	3.7	226	6349						20.3	7.48	28.68	3.78	0.10		
W6A	-5.1816	10/15/12	1324	-2.31	0.24	Flood	3.68	114	77.0	1078	0.14	2	253	7105						20.4	7.40	28.14	1.30	0.09		
W6A	-5.1816	1/7/13	1427	-2.38	0.18	Ebb	4.75	147	91.7	1284	0.19	2.6	347	9740						20.0	7.44	25.28	4.24	0.07		
W6A	-5.1816	4/8/13	1346	-2.26	0.37	Flood	4.49	139	61.3	859	0.34	4.7	267	7496						19.1	7.51	26.62	3.19	0.13		
W6A	-5.1816	7/16/13	1615	-2.34	0.30	Ebb	4.07	126	57.5	806	0.27	3.8	287	8063						20.1	7.43	26.75	3.13	0.05		
W6A	-5.1816	10/14/13	1654	-2.36	0.18	Ebb	3.94	122	58.1	814	0.38	5.3	279	7848						20.8	7.49	26.76	3.14	0.20		
W6A	-5.1816	1/14/14	1547	-2.35	0.18	Ebb	4.65	144	94.3	1321	0.36	5	273	7676						20.6	7.52	25.78	4.22	0.03		
W6A	-5.1816	4/28/14	1543	-2.01	0.52	Flood	4.71	146	100.0	1400	0.33	4.6	239	6719						20.4	7.57	27.29	3.32	0.02		

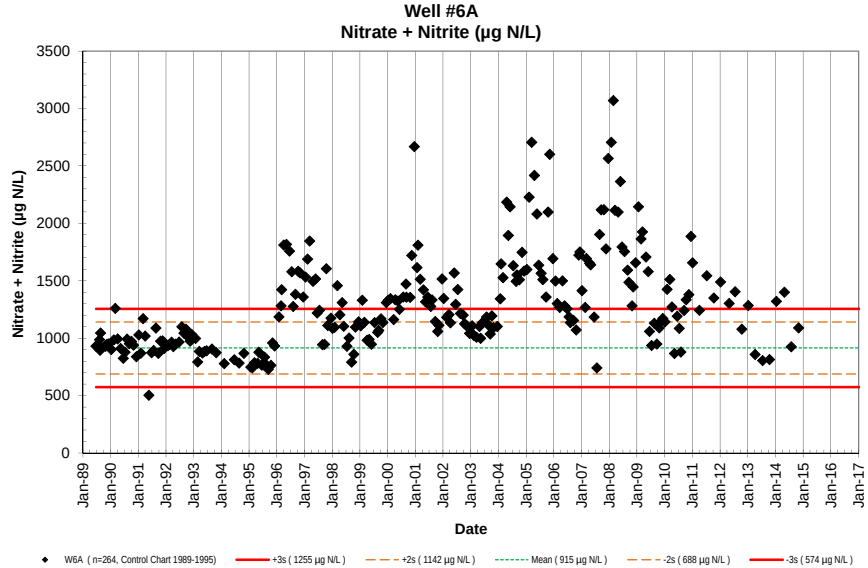
NELHA Water Quality Laboratory

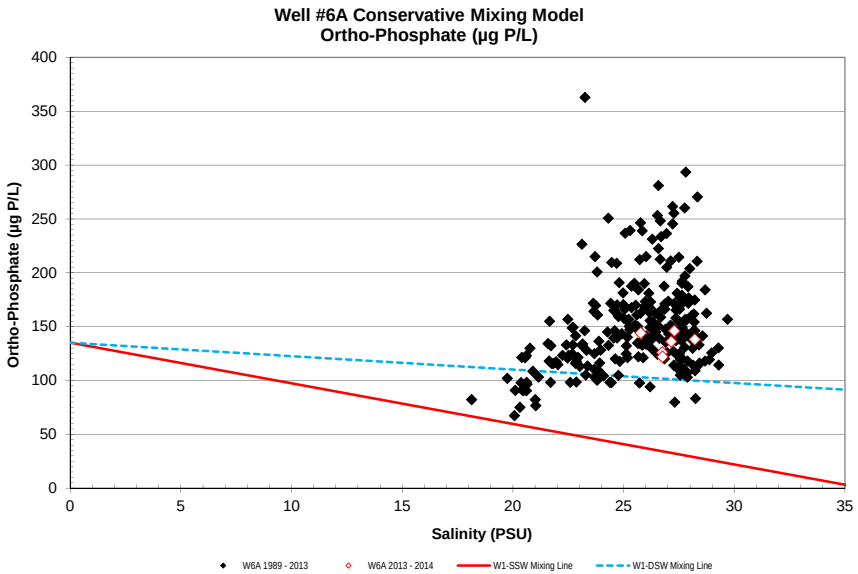
Well 6A Data Table

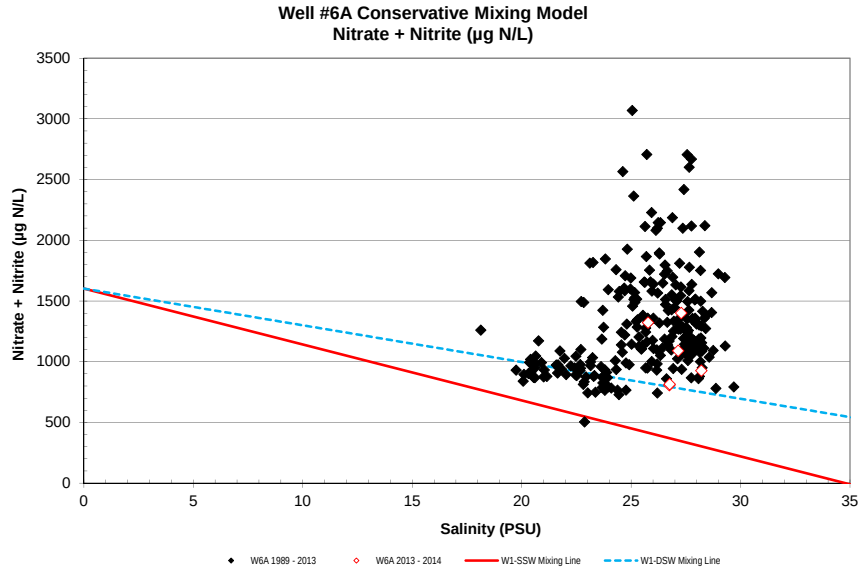
June 1989 - December 2014

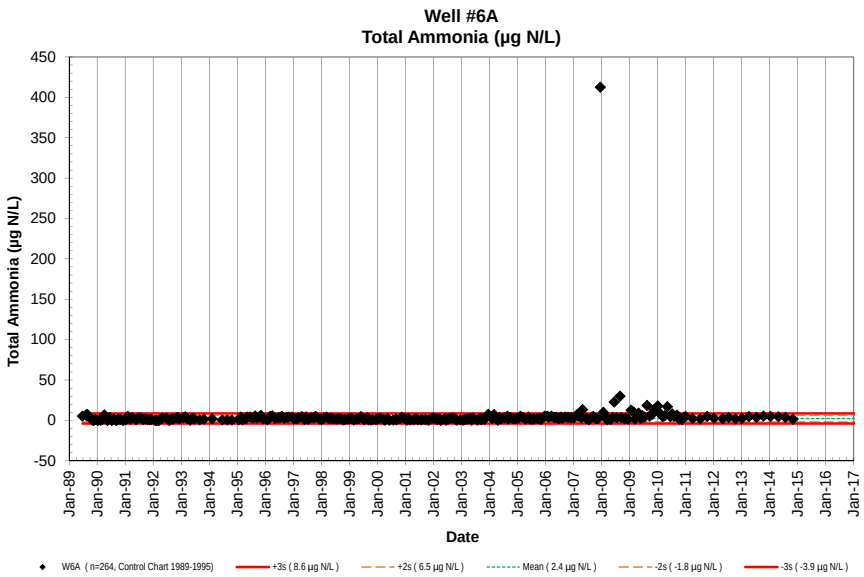
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W6A	-5.1816	7/28/14	1554	-2.05	0.49	Flood	4.46	138	66.1	926	0.29	4	239	6701						20.7	7.47	28.21	3.56	0.06		
W6A	-5.1816	11/3/14	1322	-2.01	0.46	High	4.39	136	77.8	1090	0.11	1.5	243	6821						21.8	7.51	27.15	3.88	0.24		
W6A	-5.1816	1/1/15																								
W6A	-5.1816	4/1/15																								

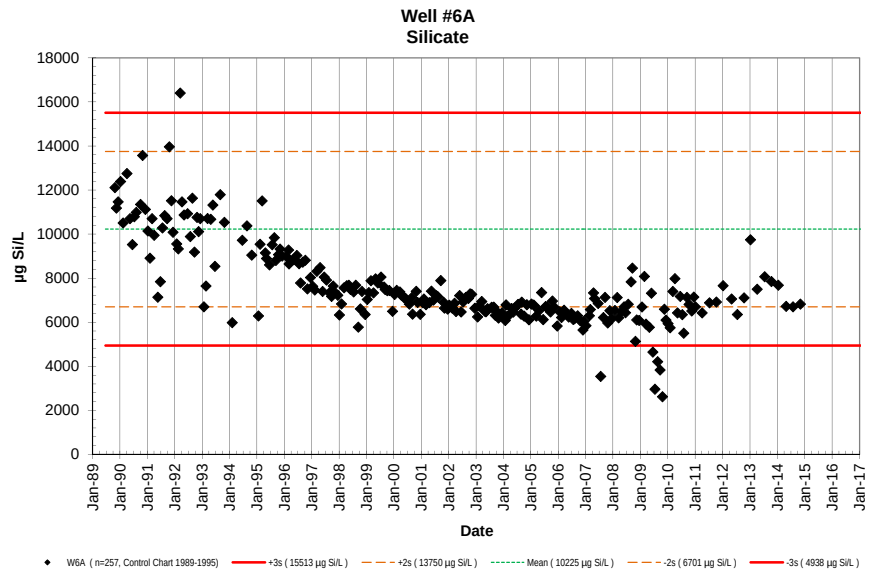

Well #6A
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W6A (n=264, Control Chart 1989-1995)
+3s (186 µg P/L)
+2s (163 µg P/L)
Mean (117 µg P/L)
-2s (71 µg P/L)
-3s (48 µg P/L)

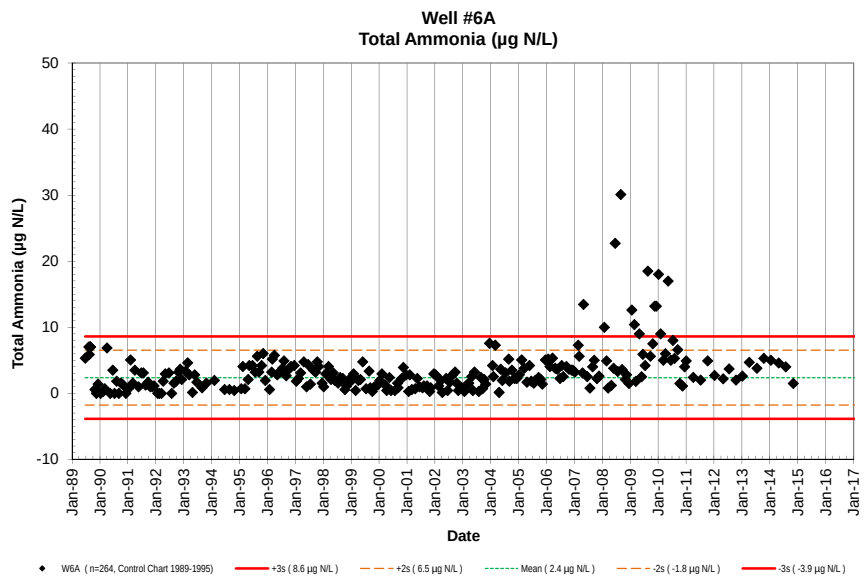

Well #6A
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W6A (n=264, Control Chart 1989-1995)
+3s (1255 µg N/L)
+2s (1142 µg N/L)
Mean (915 µg N/L)
-2s (688 µg N/L)
-3s (574 µg N/L)

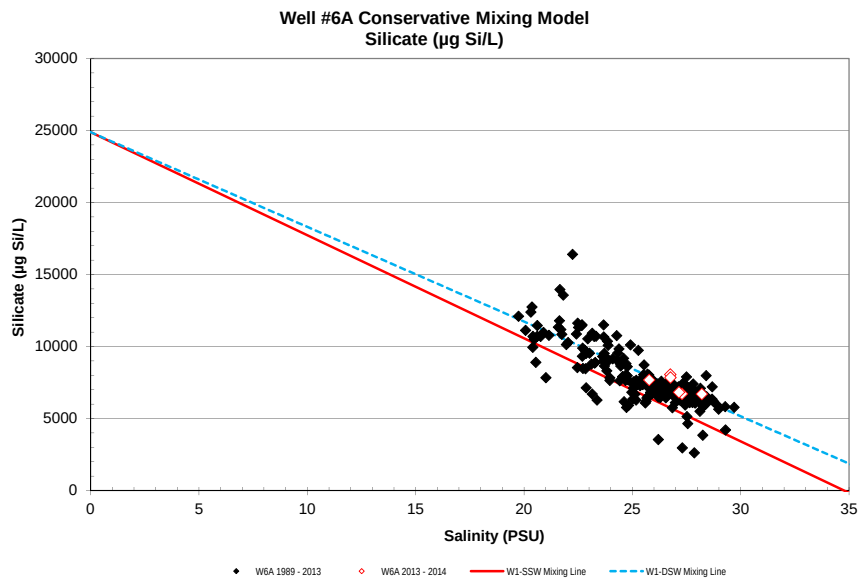

Well #6A Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W6A 1989 - 2013
W6A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

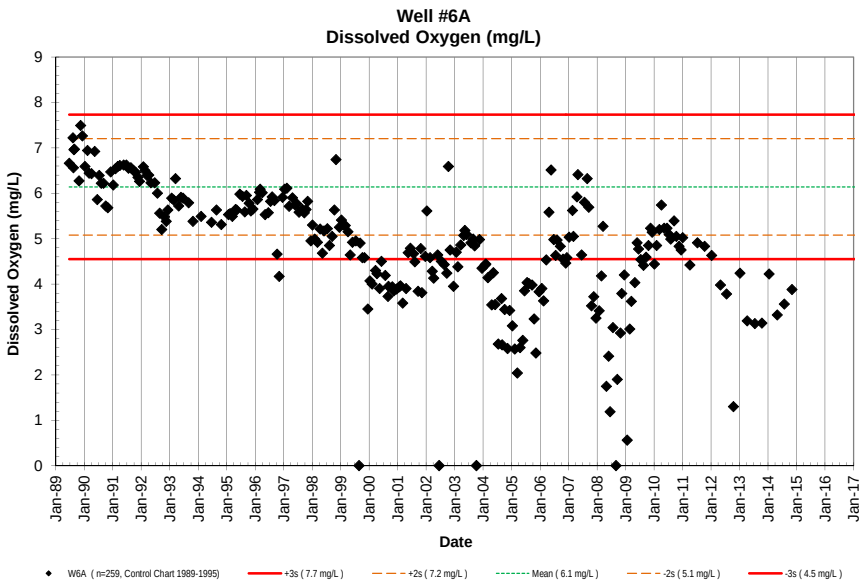

Well #6A Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W6A 1989 - 2013
W6A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

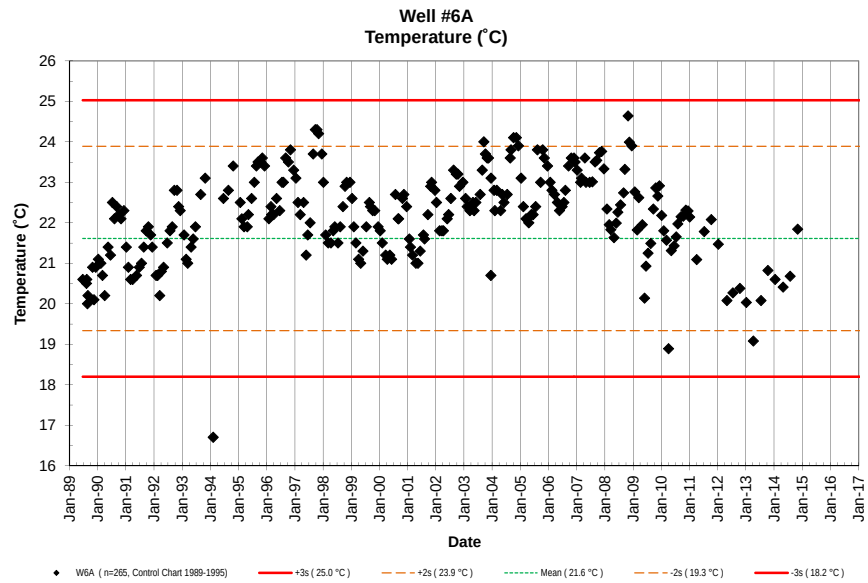

Well #6A
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W6A (n=264, Control Chart 1989-1995)
+3s (8.6 µg N/L)
+2s (6.5 µg N/L)
Mean (2.4 µg N/L)
-2s (-1.8 µg N/L)
-3s (-3.9 µg N/L)

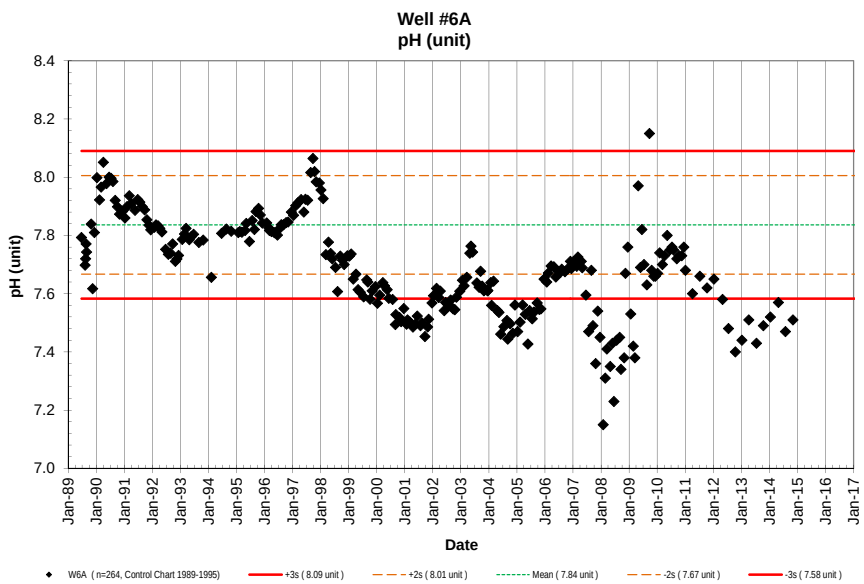

Well #6A
Silicate
µg Si/L
Date
W6A (n=257, Control Chart 1989-1995)
+3s (15513 µg Si/L)
+2s (13750 µg Si/L)
Mean (10225 µg Si/L)
-2s (6701 µg Si/L)
-3s (4938 µg Si/L)

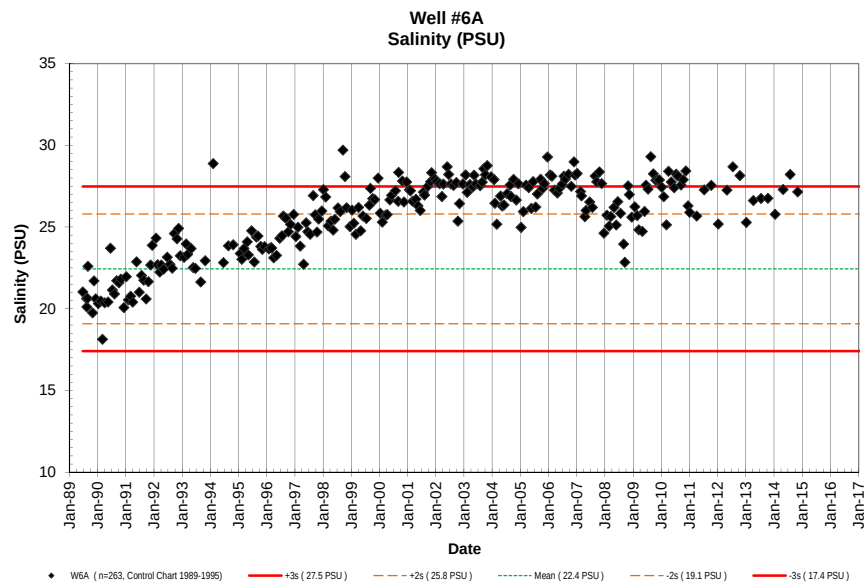

Well #6A
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W6A (n=264, Control Chart 1989-1995)
+3s (8.6 µg N/L)
+2s (6.5 µg N/L)
Mean (2.4 µg N/L)
-2s (-1.8 µg N/L)
-3s (-3.9 µg N/L)

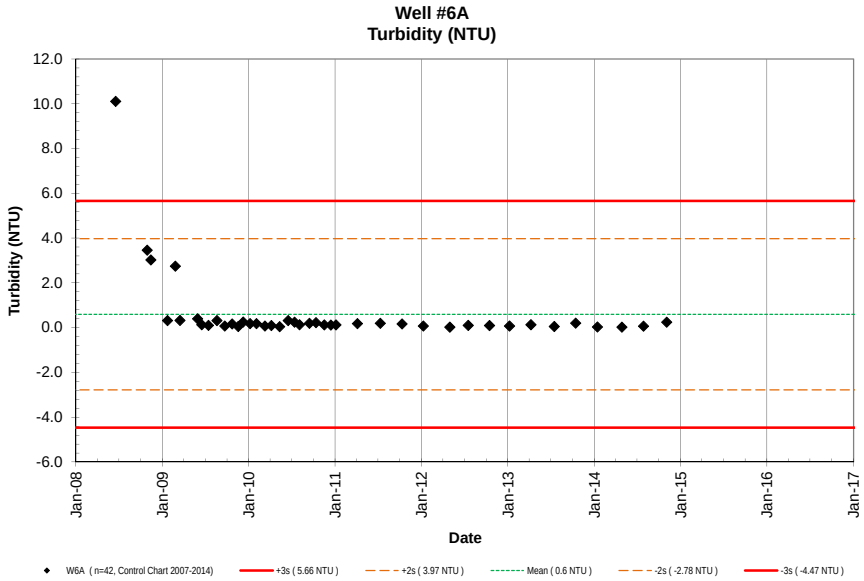

Well #6A Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W6A 1989 - 2013
W6A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

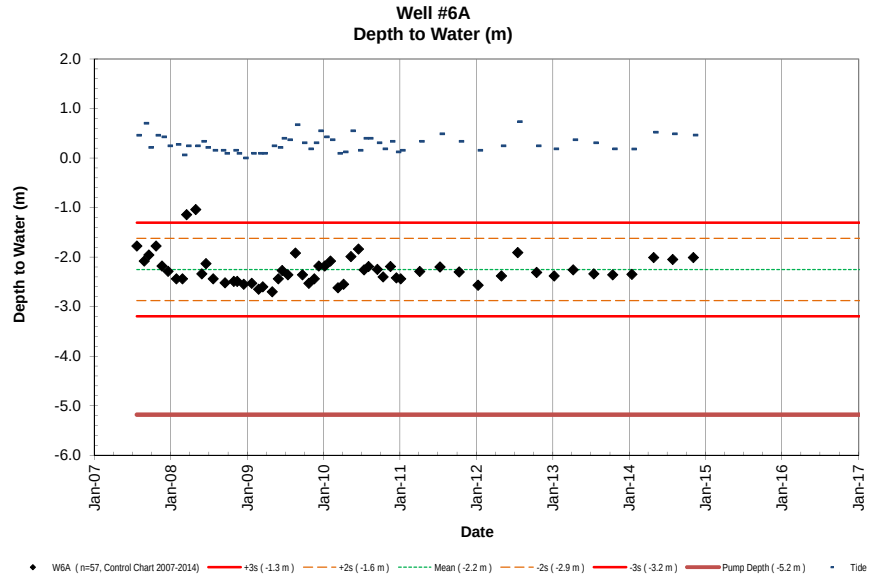

Well #6A
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W6A (n=259, Control Chart 1989-1995)
+3s (7.7 mg/L)
+2s (7.2 mg/L)
Mean (6.1 mg/L)
-2s (5.1 mg/L)
-3s (4.5 mg/L)

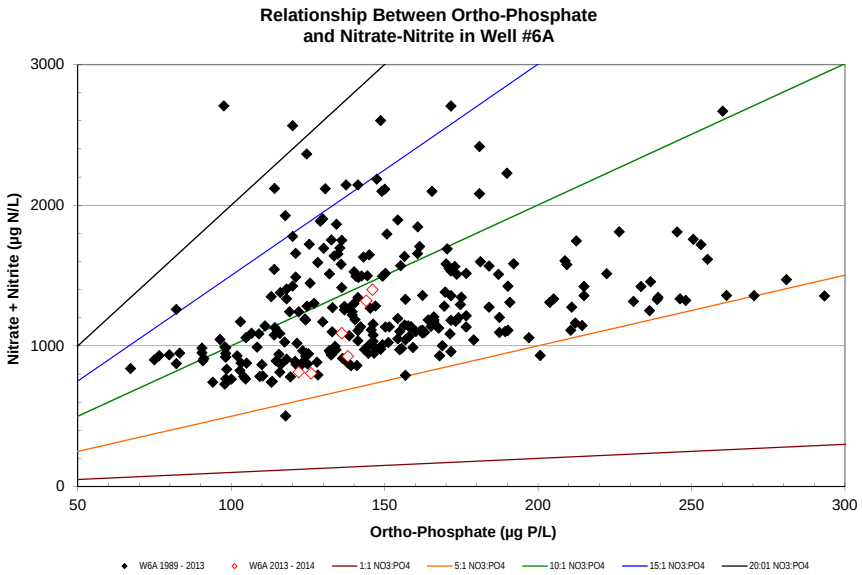

Well #6A
Temperature (˚C)
Temperature (˚C)
Date
W6A (n=265, Control Chart 1989-1995)
+3s (25.0 °C)
+2s (23.9 °C)
Mean (21.6 °C)
-2s (19.3 °C)
-3s (18.2 °C)


Well #6A
pH (unit)
pH (unit)
Date
W6A (n=264, Control Chart 1989-1995)
+3s (8.09 unit)
+2s (8.01 unit)
Mean (7.84 unit)
-2s (7.67 unit)
-3s (7.58 unit)


Well #6A
Salinity (PSU)
Salinity (PSU)
Date
W6A (n=263, Control Chart 1989-1995)
+3s (27.5 PSU)
+2s (25.8 PSU)
Mean (22.4 PSU)
-2s (19.1 PSU)
-3s (17.4 PSU)


Well #6A
Turbidity (NTU)
Turbidity (NTU)
12.0
10.0
8.0
6.0
4.0
2.0
0.0
-2.0
-4.0
-6.0
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W6A (n=42, Control Chart 2007-2014)
+3s (5.66 NTU)
+2s (3.97 NTU)
Mean (0.6 NTU)
-2s (-2.78 NTU)
-3s (-4.47 NTU)


Well #6A
Depth to Water (m)
Depth to Water (m)
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
-6.0
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W6A (n=57, Control Chart 2007-2014)
+3s (-1.3 m)
+2s (-1.6 m)
Mean (-2.2 m)
-2s (-2.9 m)
-3s (-3.2 m)
Pump Depth (-5.2 m)
Tide


Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #6A
Nitrate + Nitrite (µg N/L)
3000
2000
1000
0
50
100
150
200
250
300
Ortho-Phosphate (µg P/L)
W6A 1989 - 2013
W6A 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

NELHA Water Quality Laboratory

Well 6B Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W6B	-8.53	6/23/89					3.11	96	63.0	882	0.44	6.2								17.3	7.646	26.619	6.20		NA	NA
W6B	-8.53	8/9/89	1353				3.66	113	75.1	1052	0.50	7.0								16.8	7.538	26.193	6.57		<1	NA
W6B	-8.53	8/15/89	1213				3.72	115	72.8	1019	0.50	7.0								16.9	7.547	26.072	5.96		<1	NA
W6B	-8.53	8/22/89	1148				3.78	117	75.8	1062	0.50	7.0								16.5	7.625	26.005	5.96		<1	NA
W6B	-8.53	8/28/89	1433				4.09	127	82.7	1158	0.50	7.0								16.6	7.534	26.971	5.34		<1	NA
W6B	-8.53	8/28/89	1433				4.09	127	82.7	1158	0.50	7.0													NA	NA
W6B	-8.53	10/27/89	1141				3.86	120	82.0	1149	0.03	0.4	280	7864	4.08	126.4	32.6	457	0.29	17.3	7.638	26.852	6.80		<1	NA
W6B	-8.53	11/15/89	932				3.76	116	74.7	1046	0.14	1.9	274	7695	4.04	125.1	82.6	1157	1.12	17.6	7.671	27.053	7.32		<1	NA
W6B	-8.53	12/8/89	1151				3.92	121	81.6	1143	0.10	1.4	268	7527	4.27	132.3	82.6	1157		17.4	7.616	27.123	6.94		<1	NA
W6B	-8.53	1/10/90	1058				3.03	94	71.8	1006	0.00	0.0	294	8257	3.30	102.2	72.3	1013	0.97	17.7	7.814	26.551	6.63		<1	NA
W6B	-8.53	2/13/90	1157				3.61	112	76.0	1065	0.08	1.1	250	7021	3.77	116.8	80.6	1129	0.94	18.6	7.726	26.521	6.32		<1	NA
W6B	-8.53	3/5/90	1419				3.64	113	96.7	1354	0.35	4.9	270		3.91	121.1	97.4	1364	0.86	17.8	7.762	26.251	5.80		<1	NA
W6B	-8.53	4/4/90	1035				4.55	141	98.8	1384	0.10	1.4	294	8257	4.67	144.6	101.0	1415	1.04	17.5	7.768	27.229	5.74		<1	NA
W6B	-8.53	5/16/90	1254				3.94	122	70.8	992	0.00	0.0	252	7078	5.65	175.0	98.4	1378	0.83	17.3	7.739	26.948	6.87		<1	NA
W6B	-8.53	6/17/90	1420				4.83	150	75.2	1053	0.00	0.0	237	6656	4.86	150.5	79.1	1108	1.20	17.3	7.678	27.894	6.14		<1	NA
W6B	-8.53	7/12/90	1302				4.10	127	63.6	891	0.17	2.4	267	7499	4.40	136.3	66.5	931	0.84	17.8	7.764	26.947	6.39		<1	NA
W6B	-8.53	8/7/90	1230				3.66	113	68.2	955	0.00	0.0	261	7330	4.21	130.4	69.1	968	1.04	17.6	7.740	26.815	6.19		<1	NA
W6B	-8.53	9/5/90	1422				4.70	146	78.9	1105	0.00	0.0			4.67	144.6	80.8	1131	0.69	17.1	7.562	27.286	6.09		<1	NA
W6B	-8.53	10/4/90	1440				5.07	157	75.3	1055	0.00	0.0	282	7920	6.08	188.3	77.6	1087	1.01	16.9	7.454	26.965	5.80		<1	NA
W6B	-8.53	10/31/90	1144				3.83	119	58.9	826	0.07	1.0	280	7864	5.07	157.0	75.5	1057	1.06	17.2	7.525	26.683	6.13		<1	NA
W6B	-8.53	12/7/90	1403				3.46	107	52.7	738	0.00	0.0	325	9128	4.11	127.3	68.9	965	0.57	18.3	7.674	25.727	6.64		<1	NA
W6B	-8.53	1/9/91	905				3.96	123	58.0	813	0.06	0.8	259	7274	4.00	123.9	70.8	992	0.72	17.2	7.630	26.890	6.30		<1	NA
W6B	-8.53	2/5/91	1000				4.16	129	57.6	807	0.36	5.0	228	6403	4.27	132.3	61.2	857	0.85	17.2	7.674	26.216	7.06		<1	NA
W6B	-8.53	3/6/91	957				4.80	149	83.6	1171	0.14	2.0	324	9100	4.87	150.8	86.2	1207	0.74	16.1	7.671	26.609	6.86		<1	NA
W6B	-8.53	4/2/91	1023				4.28	133	64.0	896	0.35	4.9	247	6937	4.29	132.9	69.2	969	0.71	16.4	7.714	26.057	6.90		<1	NA
W6B	-8.53	5/21/91	935				4.26	132	36.1	506	0.09	1.3	147	4129	4.50	139.4	37.3	522	0.64	16.0	7.669	27.137	7.01		<1	NA
W6B	-8.53	6/25/91	923				2.90	90	53.1	744	0.28	3.9	279	7836	2.94	91.1	56.6	793	0.61	16.4	7.756	26.242	7.06		<1	<1
W6B	-8.53	7/23/91	1025				3.96	123	57.9	811	0.28	3.9	268	7527	4.58	141.9	60.7	850	1.00	16.7	7.740	26.710	7.37		<1	<1
W6B	-8.53	8/22/91	918				3.80	118	63.4	888	0.23	3.2	264	7415	4.03	124.8	65.2	913	0.56	17.0	7.748	26.938	7.33		<1	<1
W6B	-8.53	9/23/91	956				3.65	113	54.1	758	0.18	2.5	276	7752	4.09	126.7	58.9	825	0.52	17.4	7.755	25.982	7.10		<1	<1
W6B	-8.53	10/22/91	1030				4.57	142	59.9	839	0.00	0.0	362	10167	4.70	145.6	63.6	891	0.54	17.3	7.713	26.614	7.29		<1	<1
W6B	-8.53	11/19/91	1055				4.30	133	59.9	839	0.02	0.3	291	8173	4.37	135.4	61.0	854	0.51	16.7	7.709	27.169	7.35		<1	<1
W6B	-8.53	12/10/91	1010				4.12	128	58.6	821	0.08	1.1	266	7471	4.20	130.1	60.7	850	0.78	17.0	7.701	27.588	7.23		<1	<1
W6B	-8.53	1/28/92	948				4.15	129	60.2	843	0.00	0.0	256	7190	4.21	130.4	62.8	880	0.78	16.5	7.692	27.903	7.52		<1	<1
W6B	-8.53	2/18/92	919				3.94	122	59.9	839	0.00	0.0	246	6909	4.20	130.1	63.6	891	0.69	16.9	7.710	27.108	6.96		<1	<1
W6B	-8.53	3/16/92	1020				3.88	120	57.6	807	0.00	0.0	257	7218	4.04	125.1	60.1	842	1.04	16.8	7.739	27.347	6.96		<1	<1
W6B	-8.53	4/7/92	948				3.79	117	56.5	791	0.18	2.5	291	8173	3.91	121.1	60.0	840	0.92	17.0	7.747	27.134	7.10		<1	<1
W6B	-8.53	5/5/92	951				4.12	128	57.1	800	0.21	2.9	284	7976	4.22	130.7	34.7	486	1.03	17.4	7.729	26.927	6.60		<1	<1
W6B	-8.53	6/22/92	939				4.18	129	60.4	846	0.28	3.9	289	8117	4.33	134.1	63.0	882	1.27	17.7	7.685	27.079	7.22		<1	<1
W6B	-8.53	7/28/92	917				4.27	132	64.2	899	ND	0.0	253	7106	4.45	137.8	68.4	959	0.93	17.4	7.677	27.239	6.74		<1	<1
W6B	-8.53	8/25/92	854				4.40	136	60.3	844	0.11	1.5	297	8341	4.57	141.6	64.9	909	1.00	17.5	7.696	27.173	5.93		<1	1
W6B	-8.53	9/21/92	917				4.19	130	62.5	876	0.13	1.8	247	6937	4.29	132.9	67.9	950	0.86	18.3	7.727	27.777	6.77		1	5
W6B	-8.53	10/26/92	932				4.21	130	61.3	859	0.31	4.3	293	8229	4.32	133.8	68.3	956	0.64	17.7	7.652	27.598	6.58		<1	<1
W6B	-8.53	11/16/92	949				4.15	129	60.6	849	0.30	4.2	271	7611	4.64	143.7	65.8	922	0.65	17.1	7.664	28.201	6.85		<1	<1
W6B	-8.53	12/7/92	940				4.18	129	61.5	862	0.23	3.2	283	7948	4.34	134.4	64.6	904	0.66	17.6	7.680	27.661	6.33		<1	<1
W6B	-8.53	1/25/93	937				4.25	132	60.2	843	0.33	4.6	288	8089	4.29	132.9	68.7	963	0.75	17.6	7.705	26.995	5.97		<1	<1
W6B	-8.53	2/22/93	907				4.17	129	63.5	889	0.33	4.6	364	10220	4.23	131.0	70.4	986	0.63	17.6	7.733	27.585	5.80		<1	<1
W6B	-8.53	3/15/93	904				4.03	125	54.0	756	0.22	3.1	278	7802	4.11	127.3	57.7	809	0.64	17.7	7.758	27.585	5.87		<1	<1
W6B	-8.53	4/26/93	909				4.03	125	52.2	731	0.08	1.1	277	7780	4.24	131.3	55.2	773	0.61	17.9	7.735	27.738	5.63		<1	<1
W6B	-8.53	5/24/93	925				4.06	126	51.6	723	0.33	4.6	289	8117	4.15	128.5	57.8	810	0.60	18.0	7.741	27.225	5.50		<1	<1
W6B	-8.53	6/21/93	926				3.98	123	57.3	803	0.18	2.5	649	18227	4.09	126.7	55.8	782	0.56	18.6	7.753	27.240	5.47		<1	<1

NELHA Water Quality Laboratory

Well 6B Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W6B	-8.53	8/30/93	1023				3.72	115	50.6	709	0.15	2.1	292	8201	3.76	116.5	59.6	834	0.70	20.0	7.744	26.840	5.30		<1	<1
W6B	-8.53	10/25/93	912				3.86	120	53.8	753	0.16	2.2	273	7667	3.88	120.2	56.4	790	0.57	20.5	7.754	26.987	5.06		<1	<1
W6B	-8.53	2/7/94	1114				4.09	127	47.8	669	0.14	2.0	245	6881	4.17	129.2	57.0	798	0.68	20.2	7.707	27.384	4.85		<1	<1
W6B	-8.53	6/20/94	854				4.42	137	48.0	672	0.03	0.4	247	6945	4.48	138.8	58.0	813	0.71	19.2	7.650	27.608	4.37		<1	<1
W6B	-8.53	8/22/94	1006				3.93	122	48.2	675	0.11	1.5	266	7467	4.03	124.8	56.9	797	0.57	19.6	7.714	27.782	5.15		<1	<1
W6B	-8.53	10/24/94	945				3.90	121	55.7	780	0.07	1.0	238	6692	3.99	123.6	59.3	830	0.49	20.5	7.737	27.483	5.16		<1	<1
W6B	-8.53	1/23/95	1019				3.92	121	49.8	697	0.14	2.0	250	7030	4.01	124.2	52.3	733	0.41	19.7	7.713	26.714	5.55		<1	<1
W6B	-8.53	2/13/95	1009				3.88	120	48.1	673	0.35	4.9	254	7120	3.91	121.1	57.9	811	0.53	19.3	7.719	26.689	5.47		<1	<1
W6B	-8.53	3/13/95	1046				3.80	118	53.5	750	0.05	0.7	315	8850	3.91	121.1	54.5	763	0.60	19.0	7.723	26.759	5.90		<1	<1
W6B	-8.53	4/24/95	940				3.52	109	49.8	698	0.18	2.5	242	6794	3.65	113.1	50.9	713	0.62	19.1	7.712	27.740	5.31		<1	<1
W6B	-8.53	5/8/95	936				3.52	109	57.6	806	0.33	4.6	240	6735	3.54	109.6	55.5	777	0.56	19.6	7.734	26.814	5.55		<1	<1
W6B	-8.53	6/19/95	1015				3.49	108	51.1	716	0.36	5.0	239	6707	3.58	110.9	55.4	775	0.54	20.1	7.700	27.611	5.87		<1	<1
W6B	-8.53	7/24/95	944				3.34	103	49.1	688	0.28	3.9	245	6889	3.44	106.5	51.8	725	0.55	20.2	7.751	26.975	5.86		<1	<1
W6B	-8.53	8/21/95	1032				3.48	108	52.2	730	0.48	6.7	234	6580	3.57	110.6	67.3	943	0.69	20.1	7.725	27.113	5.95		<1	4
W6B	-8.53	9/11/95	844				3.53	109	50.4	706	0.26	3.6	246	6898	3.54	109.6	53.8	754	0.64	20.1	7.782	27.293	6.04		<1	1
W6B	-8.53	10/16/95	912				3.67	114	51.7	723	0.31	4.3	249	6999	3.85	119.2	55.2	773	0.82	20.1	7.822	27.103	5.88		<1	1
W6B	-8.53	11/6/95	858				4.23	131	60.0	840	0.24	3.4	259	7260	4.31	133.5	64.7	907	0.69	20.2	7.809	26.801	6.10		<1	1
W6B	-8.53	12/4/95	918				4.32	134	59.2	829	0.11	1.5	246	6906	4.54	140.6	62.2	871	0.68	20.2	7.784		7.63		<1	<1
W6B	-8.53	1/29/96	1018				4.38	136	67.3	942	0.02	0.3	241	6766	4.44	137.5	75.1	1052	0.62	19.5	7.790	27.471	5.78		<1	1
W6B	-8.53	2/26/96	1022				5.04	156	78.2	1095	0.25	3.5	249	6999	5.14	159.2	81.2	1137	0.75	19.9	7.765	27.547	6.12		<1	1
W6B	-8.53	3/5/96	930				5.15	160	75.6	1058	0.34	4.8	232	6528	5.17	160.1	79.4	1112	0.59	20.2	7.775	27.430	6.05		<1	<1
W6B	-8.53	4/1/96	947				5.95	184	97.6	1367	0.43	6.0	239	6721	6.04	187.1	100.6	1409	0.61	19.9	7.762	26.975	6.28		<1	<1
W6B	-8.53	5/8/96	949				6.65	206	125.8	1761	0.21	2.9	237	6644	6.79	210.3	135.0	1891	0.76	21.3	7.789	26.703	5.96		<1	<1
W6B	-8.53	6/17/96	949				6.92	214	110.2	1544	0.26	3.6	246	6913	7.20	223.0	114.9	1609	0.63	19.6	7.795	27.220	5.78		<1	<1
W6B	-8.53	7/16/96	937				5.40	167	89.1	1248	0.25	3.5	237	6651	5.67	175.6	92.9	1301	0.82	19.8	7.816	27.528	5.98		<1	<1
W6B	-8.53	8/5/96	1048				5.49	170	71.1	995	0.38	5.3	217	6093	5.53	171.3	75.6	1058	0.67	20.9	7.821	28.445	5.84		<1	<1
W6B	-8.53	9/3/96	949				5.61	174	96.7	1355	0.43	6.0	249	7001	5.63	174.4	99.3	1390	0.73	21.5	7.816	27.951	6.06		<1	<1
W6B	-8.53	10/8/96	1006				5.80	180	98.7	1382	0.22	3.1	251	7035	5.98	185.2	115.4	1616	0.81	20.5	7.814	27.442	5.66		<1	<1
W6B	-8.53	11/4/96	1029				5.36	166	110.2	1544	0.28	3.9	209	5857	5.46	169.1	115.9	1623	0.74	21.0	7.808	27.792	6.17		<1	<1
W6B	-8.53	12/16/96	947				5.21	161	78.9	1105	0.30	4.2	242	6796	5.33	165.1	83.4	1168	0.71	20.2	7.912	28.038	6.00		<1	<1
W6B	-8.53	1/13/97	1021				5.50	170	92	1287	0.12	1.7	216	6058	5.61	173.8	97.5	1365	0.87	19.8	7.833	27.101	6.44		1	<1
W6B	-8.53	2/10/97	927				5.20	161	99	1389	0.23	3.2	218	6111	5.3*	0.0	103.9	1455	0.63	19.9	7.847	27.222	6.53		<1	<1
W6B	-8.53	3/10/97	938				5.33	165	126	1759	0.02	0.3	237	6656	5.35	165.7	131.1	1836	0.85	20.1	7.876	26.709	5.92		<1	<1
W6B	-8.53	4/22/97	1017				5.09	158	94	1311	0.31	4.3	240	6735	5.50	170.4	163.9	2296	0.90	19.8	7.870	26.359	6.13		<1	<1
W6B	-8.53	5/27/97	930				5.28	164	90	1258	0.05	0.7	209	5878	5.62	174.1	107.2	1502	0.73	18.4	7.867	27.653	6.08		<1	<1
W6B	-8.53	6/16/97	945				4.56	141	76	1058	0.34	4.8	229	6426	4.76	147.4	85.7	1200	0.75	18.9	7.899	28.055	5.87		<1	<1
W6B	-8.53	7/16/97	852				4.22	131	64	901	0.12	1.7	207	5802	4.41	136.6	69.2	969	0.67	19.7	7.909	28.328	5.72		<1	<1
W6B	-8.53	8/25/97	937				3.88	120	60	846	0.27	3.8	205	5746	3.95	122.3	64.1	898	0.63	21.6	8.018	29.073	5.78		<1	<1
W6B	-8.53	9/22/97	927				3.70	115	54	751	0.26	3.6	189	5317	3.79	117.4	54.1	758	0.69	22.7	8.075	29.162	5.66		<1	1
W6B	-8.53	10/14/97	932				5.37	166	81	1129	0.18	2.5	200	5611	5.49	170.0	94.5	1324	0.74	22.3	8.037	28.390	5.92		<1	1
W6B	-8.53	11/3/97	1050				5.17	160	67.6	947	0.16	2.2	197	5536	5.44	168.5	78.4	1098	0.67	22.2	7.995	28.252	6.12		<1	<1
W6B	-8.53	12/15/97	955				4.85	150	62.6	877	0.13	1.8	204	5729	5.04	156.1	66.8	936	0.71	21.3	8.003	28.491	5.66		<1	<1
W6B	-8.53	1/5/98	1058				5.27	163	63.7	892	0.06	0.8	189	5305	5.41	167.6	68.5	959	0.73	19.9	7.968	28.594	5.53		<1	<1
W6B	-8.53	2/2/98	1002				5.43	168	64.8	908	0.10	1.4	205	5760	5.58	172.8	71.5	1001	0.69	19.2	7.936	28.350	5.63		<1	<1
W6B	-8.53	3/9/98	959				6.69	207	79.7	1116	0.15	2.1	217	6089	6.87	212.8	83.4	1168	0.72	19.9	7.761	27.927	5.44		<1	<1
W6B	-8.53	4/13/98	909				5.36	166	68	956	0.13	1.8	211	5915	5.51	170.7	72.3	1013	0.69	19.6	7.802	28.287	5.61		<1	<1
W6B	-8.53	5/11/98	939				5.50	170	74	1036	0.30	4.2	220	6168	5.66	175.3	79.5	1113	0.71	19.7	7.780	27.759	5.59		<1	1
W6B	-8.53	6/1/98	937				5.58	173	66.6	933	0.17	2.4	217	6086	5.73	177.5	69.6	975	0.73	19.3	7.739	27.735	5.67		<1	<1

NELHA Water Quality Laboratory

Well 6B Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W6B	-8.53	7/13/98	945				4.77	148	55	776	0.06	0.8	211	5932	5.03	155.8	59	833	0.72	19.0	7.723	28.493	5.79		<1	<1
W6B	-8.53	8/10/98	1002				4.60	142	59.1	828	0.17	2.4	213	5991	4.86	150.5	64.3	901	0.64	19.5	7.691	28.683	5.65		<1	3
W6B	-8.53	9/14/98	953				4.05	125	53.5	749	0.17	2.4	198	5547	4.26	131.9	57	801	0.67	20.3	7.792	29.647	5.96		<1	5
W6B	-8.53	10/12/98	900				3.96	123	55.5	777	0.03	0.4	188	5274	4.18	129.5	60	838	0.72	20.6	7.785	29.740	6.26		<1	<1
W6B	-8.53	11/2/98	922				4.09	127	57.4	804	0.05	0.7	193	5415	4.39	136.0	61.7	864	0.84	21.0	7.812	29.465	5.72		<1	<1
W6B	-8.53	12/15/98	923				4.29	133	77.1	1080	0.08	1.1	192	5390	4.46	138.1	80.4	1126	0.92	20.8	7.828	28.693	5.72		<1	<1
W6B	-8.53	1/11/99	940				4.68	145	88	1231	0.22	3.1	185	5193	4.86	150.5	90	1263	0.98	19.4	7.825	28.973	5.43		<1	1
W6B	-8.53	2/2/99	935				4.35	135	82	1151	0.25	3.5	187	5258	4.56	141.2	91	1268	0.92	19.5	7.843	28.801	5.61		<1	1
W6B	-8.53	3/1/99	940				4.90	152	72.5	1015	0.02	0.3	195	5479	5.10	158.0	76.3	1069	0.88	19.2	7.825	28.531	5.90		<1	<1
W6B	-8.53	4/5/99	938				5.33	165	72.7	1018	0.09	1.3	182	5123	5.50	170.4	76.2	1067	0.71	17.7	7.797	29.404	5.65		<1	<1
W6B	-8.53	5/3/99	938				4.56	141	62.3	873	0.18	2.5	194	5446	4.71	145.9	68.3	957	0.67	18.7	7.772	29.050	4.85		<1	<1
W6B	-8.53	6/1/99	930				4.31	133	58.7	822	0.38	5.3	182	5123	4.54	140.6	63.7	892	0.67	19.0	7.787	29.449	5.75		<1	1
W6B	-8.53	7/14/99	933				3.79	117	64.1	898	0.01	0.1	194	5435	3.84	118.9	66.7	934	0.69	20.5	7.770	29.353	5.64		<1	<1
W6B	-8.53	8/23/99	959				4.14	128	62.3	873	0.15	2.1	183	5137	4.25	131.6	65.5	917	0.71	20.2	7.816	29.650	5.73		<1	<1
W6B	-8.53	9/7/99	949				4.36	135	63.3	887	0.05	0.7	181	5078	4.59	142.2	75.3	1055	0.76	19.6	7.816	29.926	5.73		<1	<1
W6B	-8.53	10/5/99	938				4.25	132	65.6	919	0.01	0.1	185	5204	4.39	136.0	69.3	970	0.72	20.0	7.787	30.007	5.09		<1	<1
W6B	-8.53	11/1/99	1005				4.21	130	64.7	906	0.08	1.1	179	5019	4.31	133.5	69.6	975	0.71	20.3	7.799	29.712	5.26		<1	<1
W6B	-8.53	12/14/99	956				5.61	174	78.0	1093	0.06	0.8	178	5010	5.73	177.5	81.1	1136	0.94	19.8	7.710	29.858	4.66		<1	<1
W6B	-8.53	1/10/00	1022				6.08	188	78.5	1100	0.10	1.4	185	5204	6.14	190.2	85.5	1198	0.88	19.9	7.703	29.289	4.66		<1	<1
W6B	-8.53	2/7/00	1017				6.26	194	77.8	1090	0.20	2.8	194	5460	6.40	198.2	82.1	1150	0.84	19.5	7.744	28.599	5.07		<1	<1
W6B	-8.53	3/21/00	1020				5.80	180	69.9	979	0.07	1.0	189	5311	5.61	173.8	73.1	1024	0.89	18.9	7.738	29.090	5.11		<1	<1
W6B	-8.53	4/10/00	1049				6.14	190	77.2	1081	0.02	0.3	188	5269	5.79	179.3	82.9	1161	0.85	18.8	7.752	28.211	5.03		<1	<1
W6B	-8.53	5/15/00	1008				6.12	190	74.9	1049	0.18	2.5	177	4974	6.13	189.9	81.1	1136	0.82	18.9	7.746	29.714	5.03		<1	<1
W6B	-8.53	6/5/00	1001				6.01	186	73.7	1032	0.03	0.4	192	5378	6.09	188.6	80.7	1130	0.81	19.0	7.731	29.925	4.97		<1	<1
W6B	-8.53	7/26/00	1027				6.05	187	74.0	1036	0.03	0.4	172	4825	6.06	187.7	76.8	1076	0.75	20.3	7.783	30.088	4.95		<1	<1
W6B	-8.53	8/29/00	930				6.79	210	83.9	1175	0.07	1.0	175	4907	6.89	213.4	86.4	1210	0.71	20.2	7.664	29.911	4.72		8	<1
W6B	-8.53	9/5/00	956				6.25	194	78.5	1100	0.04	0.6	170	4775	6.49	201.0	77.5	1086	0.69	20.0	7.709	30.433	4.76		<1	<1
W6B	-8.53	10/24/00	1001				6.58	204	71.2	997	0.16	2.2	179	5027	6.81	210.9	76.2	1067	0.70	21.2	7.745	30.809	4.78		<1	1
W6B	-8.53	11/13/00	942				6.33	196	90.2	1263	0.29	4.1	189	5294	6.52	201.9	95.0	1331	0.72	21.4	7.685	29.752	4.65		<1	<1
W6B	-8.53	12/18/00	944				6.31	195	109	1525	0.21	2.9	177	4974	6.54	202.6	116	1626	0.80	20.1	7.695	29.722	4.70		<1	1
W6B	-8.53	1/22/01	948				6.50	201	88.8	1244	0.05	0.7	186	5215	6.90	213.7	94.1	1318	1.37	19.6	7.642	29.824	4.59		<1	<1
W6B	-8.53	2/5/01	1007				6.48	201	100	1401	0.12	1.7	185	5204	6.72	208.1	105	1471	0.72	19.7	7.651	29.823	4.75		<1	<1
W6B	-8.53	3/5/01	958				5.75	178	81.5	1142	0.03	0.4	176	4951	5.91	183.1	87.8	1230	0.73	19.8	7.660	29.425	4.56		<1	<1
W6B	-8.53	4/17/01	942				5.73	177	73.4	1028	0.02	0.3	179	5024	5.78	179.0	81.9	1147	0.77	19.6	7.671	29.623	4.93		<1	<1
W6B	-8.53	5/15/01	926				5.53	171	71.2	997	0.13	1.8	181	5081	5.53	171.3	75.2	1053	0.70	19.8	7.691	29.500	5.41		<1	<1
W6B	-8.53	6/12/01	939				5.56	172	70.0	981	0.05	0.7	177	4966	5.49	170.0	74.6	1044	0.69	19.5	7.693	29.663	5.37		<1	<1
W6B	-8.53	7/23/01	1000				5.37	166	70.8	991	0.06	0.8	181	5075	5.40	167.3	75.0	1050	0.70	19.9	7.685	29.969	5.35		2	<1
W6B	-8.53	8/8/01	952				5.26	163	70.1	981	0.07	1.0	180	5044	5.26	162.9	74.2	1039	0.69	20.2	7.718	30.007	5.18		<1	<1
W6B	-8.53	9/19/01	949				5.14	159	66.9	937	0.03	0.4	180	5043	5.14	159.2	72.8	1020	0.75	20.8	7.685	30.112	4.92		<1	<1
W6B	-8.53	10/24/01	922				4.84	150	57.0	799	0.02	0.3	176	4954	5.06	156.7	61.0	855	0.71	21.2	7.735	30.221	5.12		<1	<1
W6B	-8.53	11/7/01	940				5.62	174	58.7	822	0.06	0.8	178	5010	5.70	176.6	68.4	959	0.61	21.1	7.728	30.159	5.53		<1	<1
W6B	-8.53	12/19/01	959				4.54	141	77.1	1080	0.13	1.8	182	5112	4.56	141.2	92.9	1301	0.69	21.2	7.753	29.617	5.31		1	<1
W6B	-8.53	1/9/02	949				4.85	150	75.3	1055	0.18	2.5	188	5280	4.99	154.6	79.5	1114	0.67	20.7	7.731	29.803	5.22		<1	1
W6B	-8.53	2/19/02	1006				4.44	138	62.4	874	0.03	0.4	183	5151	4.62	143.1	74.9	1049	0.61	20.5	7.792	29.944	5.21		1	2
W6B	-8.53	3/20/02	1008				4.46	138	64.5	903	0.14	2.0	179	5019	4.58	141.9	67.5	945	0.59	20.5	7.777	29.716	5.39		<1	<1
W6B	-8.53	4/8/02	1057				4.60	142	65.8	921	0.13	1.8	174	4881	4.78	148.1	70.1	982	0.67	20.0	7.777	29.852	5.32		<1	<1
W6B	-8.53	5/29/02	1042				4.68	145	68.7	963	0.15	2.1	185	5196	4.48	138.8	72.6	1017	0.64	20.3	7.722	29.542	5.41		<1	3
W6B	-8.53	6/17/02	1015				4.67	145	65.6	919	0.09	1.3	173	4864	4.83	149.6	69.2	969	0.63	20.5	7.768	30.083	5.40		<1	<1

NELHA Water Quality Laboratory

Well 6B Data Table

June 1989 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W6B	-8.53	7/15/02	1019				4.56	141	63.3	887	0.10	1.4	181	5095	4.76	147.4	69.4	972	0.79	21.7	7.772	30.112	5.08		<1	29
W6B	-8.53	8/20/02	1012				4.72	146	67.1	940	0.21	2.9	178	5010	4.98	154.2	66.0	924	0.63	20.9	7.740	30.035	5.24		<1	3
W6B	-8.53	9/23/02	1055				4.38	136	58.9	824	0.27	3.8	181	5092	4.56	141.2	61.5	861	0.75	21.7	7.771	30.484	4.98		<1	<1
W6B	-8.53	10/14/02	948				4.29	133	58.1	814	0.05	0.7	172	4819	4.39	136.0	55.9	783	0.62	22.3	7.832	30.217	6.72		<1	63
W6B	-8.53	11/4/02	958				4.40	136	63.9	895	0.02	0.3	182	5100	4.55	140.9	61.1	856	0.79	22.3	7.800	29.668	5.02		<1	<1
W6B	-8.53	12/17/02	1026				5.17	160	62.9	881	0.06	0.8	175	4918	5.27	163.2	66.3	929	0.77	21.7	7.786	30.035	4.94		<1	1
W6B	-8.53	1/21/03	1110				5.00	155	75.0	1050	0.05	0.7	172	4817	5.14	159.2	82.7	1159	0.71	20.6	7.759	30.266	4.70		<1	1
W6B	-8.53	2/12/03	1045				4.36	135	61.5	861	0.03	0.4	193	5412	4.48	138.8	72.7	1018	0.58	20.5	7.824	30.002	5.23		<1	<1
W6B	-8.53	3/19/03	1021				4.37	135	58.7	822	0.02	0.3	188	5272	4.51	139.7	69.0	966	0.64	21.1	7.823	29.655	5.27		<1	1
W6B	-8.53	4/28/03	1008				4.43	137	60.5	847	0.14	2.0	182	5100	4.40	136.3	67.7	948	0.56	21.0	7.863	29.759	5.67		<1	<1
W6B	-8.53	5/12/03	940				4.36	135	61.1	856	0.03	0.4	178	5002	4.47	138.5	77.5	1086	0.58	20.6	7.877	29.982	5.88		<1	<1
W6B	-8.53	6/3/03	955				4.53	140	65.7	921	0.29	4.1	180	5050	4.65	144.0	74.4	1042	0.60	22.4	7.683	29.716	5.56		<1	<1
W6B	-8.53	7/29/03	1018				4.81	149	62.7	878	0.03	0.4	180	5047	4.97	153.9	81.1	1136	NA	21.4	7.842	27.947	5.34		<1	<1
W6B	-8.53	8/26/03	1020				4.00	124	59.2	829	0.02	0.3	176	4937	4.15	128.5	67.2	941	NA	22.2	7.848	30.142	5.24		<1	<1
W6B	-8.53	9/15/03	1009				4.08	126	62.8	880	0.33	4.6	178	4988	4.28	132.6	80.8	1132	NA	22.7	7.815	30.119	5.51		<1	<1
W6B	-8.53	10/6/03	1003				4.18	129	67.8	949	0.46	6.4	176	4937	4.30	133.2	72.0	1009	NA	22.1	7.816	30.211	NA		<1	TNTC
W6B	-8.53	10/28/03	1035				4.76	147	66.6	932	<0.10	0.0	181	5069	4.92	152.4	71.9	1007	NA	22.6	7.806	30.063	NA		<1	48
W6B	-8.53	11/14/03	1340																	22.6			4.79			
W6B	-8.53	12/15/03	947																	22.3	7.813					
W6B	-8.53	12/17/03	852				3.92	121	55.6	779	0.36	5.0	167	4676	4.05	125.4	59.2	829	NA	22.3	7.834	30.482	4.68		<1	<1
W6B	-8.53	1/26/04	956				4.24	131	88.7	1242	0.20	2.8	178	4994	4.40	136.3	93.3	1307	NA	21.8	7.743	29.211	5.11		<1	<1
W6B	-8.53	2/5/04	957				4.06	126	97.1	1361	0.17	2.4	183	5145	4.16	128.9	110	1544	NA	21.5	7.731	29.152	4.77		<1	<1
W6B	-8.53	3/2/04	1046				3.86	120	87.6	1227	0.40	5.6	171	4791	3.86	119.6	94.5	1324	NA	21.2	7.772	29.740	3.98		<1	<1
W6B	-8.53	4/20/04	1002				3.96	123	127	1776	0.02	0.3	176	4935	3.80	117.7	129	1808	NA	20.8	7.726	29.347	4.39		<1	<1
W6B	-8.53	5/11/04	917				3.77	117	112	1565	0.24	3.4	171	4805	3.70	114.6	116	1628	NA	20.8	7.765	28.85	5.70		<1	<1
W6B	-8.53	6/2/04	1004				4.62	143	108	1509	0.17	2.4	173	4859	4.64	143.7	109	1525	NA	17.6	7.681	28.90	5.50		<1	<1
W6B	-8.53	7/14/04	1003				3.32	103	100	1402	0.22	3.1	173	4870	3.26	101.0	112	1570	NA	21.8	7.747	29.20	4.02		<1	<1
W6B	-8.53	8/23/04	1003				3.46	107	91.8	1286	0.33	4.6	175	4923	3.58	110.9	94.6	1326	NA	22.3	7.712	29.22	4.17		<1	<1
W6B	-8.53	9/2/04	1022				3.86	120	92.5	1296	0.11	1.5	183	5126	3.87	119.9	96.2	1347	NA	22.4	7.697	29.15	4.05		<1	<1
W6B	-8.53	10/4/04	936				3.88	120	86.9	1216	0.36	5.0	169	4741	4.02	124.5	95.4	1336	NA	22.7	7.745	29.72	4.20		18	>5,000
W6B	-8.53	11/9/04	900				5.02	155	102	1422	0.38	5.3	181	5069	5.38	166.6	113	1577	NA	22.5	7.683	29.90	4.04		<1	1
W6B	-8.53	12/6/04	940				4.46	138	93.3	1307	0.18	2.5	167	4693	4.66	144.3	108	1514	NA	22.4	7.797	29.47	4.38		<1	7
W6B	-8.53	1/10/05	906				5.08	157	109	1527	0.06	0.8	185	5207	5.24	162.3	113	1581	NA	22.1	7.699	29.133	3.86		<1	<1
W6B	-8.53	2/9/05	908				5.17	160	125	1744	0.05	0.7	185	5201	5.36	166.0	165	2317	NA	18.9	7.690	28.950	4.25		<1	<1
W6B	-8.53	3/15/05	937				4.68	145	149	2083	0.26	3.6	178	4988	4.84	149.9	162	2262	0.59	20.7	7.743	29.561	3.37		<1	18
W6B	-8.53	4/19/05	853				4.74	147	137	1922	0.13	1.8	179	5013	4.78	148.1	144	2017	NA	20.5	7.735	29.531	4.07		<1	1
W6B	-8.53	5/23/05	926				4.50	139	125	1747	0.29	4.1	188	5291	4.47	138.5	124	1742	NA	20.8	7.669	28.954	4.26		<1	1
W6B	-8.53	6/15/05	957				4.15	129	103	1437	0.14	2.0	172	4834	4.24	131.3	112	1570	NA	20.8	7.713	29.631	4.55		<1	<1
W6B	-8.53	7/18/05	854				4.16	129	96.4	1350	0.09	1.3	179	5030	4.28	132.6	97.3	1363	0.56	19.7	7.715	29.866	4.54		1	2
W6B	-8.53	8/9/05	915				4.10	127	92.1	1290	0.23	3.2	172	4828	4.32	133.8	98.4	1379	0.62	21.7	7.752	29.867	4.46		<1	<1
W6B	-8.53	9/20/05	910				4.20	130	89.7	1257	0.20	2.8	178	4996	4.36	135.0	92.4	1294	0.70	21.9	7.769	29.824	4.81		<1	2
W6B	-8.53	10/17/05	906				4.00	124	125	1756	0.15	2.1	186	5224	4.10	127.0	128	1790	NA	22.7	7.774	29.913	6.77		<1	1
W6B	-8.53	11/7/05	840				3.68	114	137	1925	3.79	53.1	170	4769	3.90	120.8	153	2149	NA	22.6	7.778	30.156	3.58		<1	170
W6B	-8.53	12/19/05	843				3.62	112	109	1531	0.18	2.5	173	4856	3.68	114.0	125	1752	0.68	22.4	7.781	30.1	4.28		<1	<1
W6B	-8.53	1/23/06	854				3.68	114	99.9	1399	0.27	3.8	179	5036	3.78	117.1	106	1483	NA	21.8	7.778	30.049	4.40		<1	1
W6B	-8.53	2/14/06	902				3.65	113	90.7	1271	0.28	3.9	177	4968	3.88	120.2	92.1	1289	0.55	21.6	7.770	29.762	4.53		<1	1
W6B	-8.53	3/20/06	858				3.67	114	80.2	1123	0.26	3.6	170	4775	3.69	114.3	81.3	1139	0.57	21.4	7.815	29.867	4.81		<1	<1
W6B	-8.53	4/25/06	930				3.56	110	92.9	1301	0.22	3.1	166	4662	3.60	111.5	79.1	1108	0.57	21.2	7.826	29.706	4.97		<1	<1
W6B	-8.53	5/22/06	918				3.44	107	86.2	1207	0.21	2.9	164	4606	3.93	121.7	77.6	1087	0.62	20.9	7.792	29.729	4.59		<1	<1
W6B	-8.53	6/26/06	922				3.31	103	78.4	1098	0.20	2.8	168	4718	3.50	108.4	75.3	1055	0.96	21.7	7.797	29.904	5.07		<1	<1

NELHA Water Quality Laboratory

Well 6B Data Table

June 1989 - December 2014

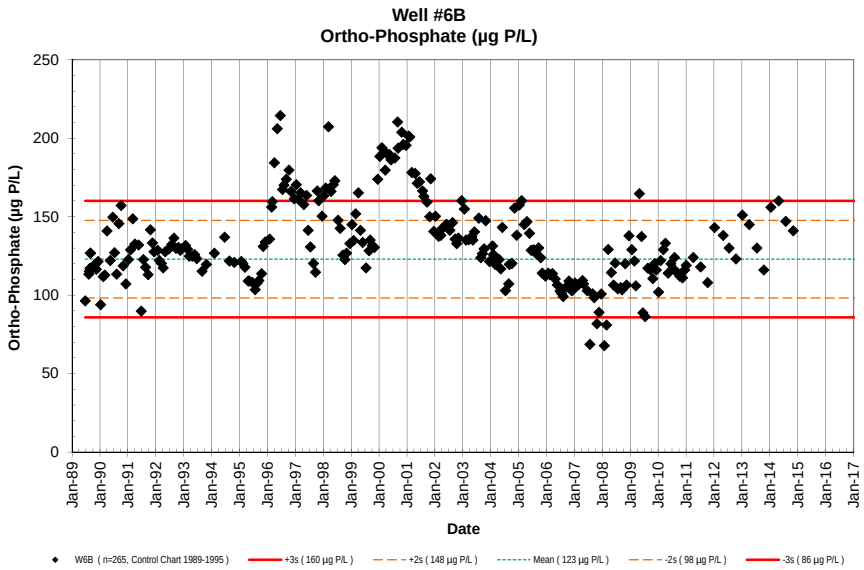
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W6B	-8.53	7/20/06	924				3.26	101	73.5	1029	0.28	3.9	159	4466	3.62	112.1	66.2	927	0.65	22.5	7.803	30.056	4.91		<1	<1
W6B	-8.53	8/7/06	948				3.20	99	71.5	1001	0.21	2.9	163	4578	3.44	106.5	63.1	884	0.57	21.9	7.822	30.321	4.88		<1	<1
W6B	-8.53	9/18/06	922				3.40	105	70.3	985	0.32	4.5	160	4494	3.66	113.4	63.9	895	0.65	21.9	7.817	30.621	4.77		<1	<1
W6B	-8.53	10/23/06	925				3.52	109	70.5	987	0.25	3.5	177	4971	3.72	115.2	67.4	943	0.66	22.5	7.787	30.225	4.81		1	<1
W6B	-8.53	11/27/06	909				3.32	103	105	1471	0.28	3.9	163	4578	3.50	108.4	96.4	1350	0.63	22.6	7.839	30.399	4.69		<1	<1
W6B	-8.53	12/11/06	1010				3.33	103	102	1429	0.34	4.8	160	4494	3.51	108.7	92.2	1292	0.61	22.4	7.837	30.594	4.72		<1	<1
W6B	-8.53	1/8/07	1104				3.48	108	92.6	1297	0.29	4.1	159	4466	3.64	112.7	85.0	1191	0.54	22.2	7.822	30.356	5.40		<1	<1
W6B	-8.53	2/20/07	1001				3.44	107	75.5	1058	0.48	6.7	166	4662	3.68	114.0	83.8	1174	0.68	22.1	7.826	29.880	5.93		<1	<1
W6B	-8.53	3/5/07	936				3.46	107	88.9	1245	0.41	5.7	172	4831	3.66	113.4	94.3	1321	0.59	22.2	7.803	29.607	5.10		<1	<1
W6B	-8.53	4/18/07	1000				3.53	109	86.5	1212	0.21	2.9	174	4887	3.69	114.3	73.9	1034	0.52	21.7	7.825	29.104	5.50		<1	<1
W6B	-8.53	5/1/07	952				3.46	107	77.7	1088	0.31	4.3	173	4859	3.63	112.4	73.1	1024	0.57	21.2	7.833	29.393	5.36		<1	<1
W6B	-8.53	6/18/07	932				3.32	103	76.5	1071	0.20	2.8	173	4859	3.49	108.1	71.2	997	0.49	21.6	7.854	29.616	5.74		<1	2
W6B	-8.53	7/23/07	1512	-2.11	0.52	Flood	2.21	69	42.5	595	0.00	0.0	101	2824	2.69	83.3	43.2	605		22.5	7.71	30.58	4.60			
W6B	-8.53	8/27/07	1510	-1.98	0.52	Flood	3.25	101	98.3	1376	0.11	1.6	156	4392	3.27	101.3	99.2	1389		22.7	7.78	30.27	4.90			
W6B	-8.53	9/18/07	1624	-2.26	0.24	Ebb	3.18	98	96.8	1356	0.05	0.7	164	4609	3.31	102.6	94.4	1323		22.6	7.75	30.52	4.45			
W6B	-8.53	10/23/07	1537	-2.06	0.52	High	2.64	82	101.5	1422	0.10	1.4	144	4052	2.69	83.4	96.3	1349		22.6	7.70	30.25	5.37			
W6B	-8.53	11/20/07	1324	-2.21	0.38	Ebb	2.87	89	91.4	1280	0.07	1.0	164	4620	2.54	78.7	96.7	1355		22.4	7.71	29.89	4.70			
W6B	-8.53	12/19/07	1340	-2.39	0.30	High	3.25	101	107.4	1504	1.57	22	161	4511						21.3	7.65	28.63	5.39			
W6B	-8.53	1/28/08	924	-2.31	0.24	Ebb	2.19	68	120.2	1683	0.14	1.9	133	3745						19.7	7.44	28.92	1.82			
W6B	-8.53	2/26/08	1401	-2.44	0.03	Ebb	2.62	81	130.3	1825	0.59	8.3	147	4121						19.4	7.54	28.76	3.42			
W6B	-8.53	3/17/08	1507	-2.44	0.21	Flood	4.17	129	129.9	1819	0.06	0.8	157	4397						16.6	7.71	29.53	4.21			
W6B	-8.53	4/29/08	1138	-2.24	0.09	Flood	3.69	114	118.4	1658	0.09	1.2	154	4319						19.9	7.54	29.49	4.60			
W6B	-8.53	5/28/08	1120	-2.18	0.18	Flood	3.44	106	96.4	1350	0.21	3.0	177	4958						20.5	7.64	29.37	3.88			
W6B	-8.53	6/17/08	1153	-2.44	0.00	Flood	3.89	120	88.2	1236	0.75	10.5	158	4424						20.9	7.43	29.17	2.61	0.13		
W6B	-8.53	7/22/08	1140	-2.46	0.30	Ebb	3.36	104	80.8	1132	0.35	4.9	161	4532						22.9	7.58	29.43	3.63			
W6B	-8.53	8/30/08	1142		-0.09	Low	3.38	105	78.5	1099	0.14	1.9	170	4763						21.1	7.62	29.33	4.25			
W6B	-8.53	9/16/08	1123	-2.54	0.12	Ebb	3.34	103	80.2	1124	0.22	3.1	168	4725						21.7	7.47	29.06	5.65			
W6B	-8.53	10/28/08	1056	-2.51	0.30	Ebb	3.87	120	86.6	1214	0.18	2.5	168	4714						20.8	7.22	31.81	3.49	0.3		
W6B	-8.53	11/13/08	1121	-2.51	0.12	Ebb	3.44	106	75.5	1057	0.16	2.2	163	4585						21.7	7.70	29.38	3.99	0.48		
W6B	-8.53	12/15/08	1423	-2.56	0.61	Ebb	4.45	138	94.3	1321	0.11	1.5	173	4857						22.0	7.80	28.77	4.72			
W6B	-8.53	1/22/09	1107	-2.54	0.15	High	4.16	129	100.0	1401	0.59	8.3	176	4956						20.2	7.61	28.67	3.39	0.16		
W6B	-8.53	2/24/09	1038	-2.66	0.06	Low	3.93	122	155.9	2183	0.49	6.9	220	6172						20.0	7.48	27.57	3.06	0.11		
W6B	-8.53	3/16/09	1117	-2.61	0.09	Ebb	3.42	106	91.7	1285	0.29	4.0	161	4526						20.2	7.39	27.68	4.32	0.12		
W6B	-8.53	4/30/09	1622	-2.72	0.24	Flood	5.31	165	85.4	1196	0.43	6.0	139	3902						19.4	7.92	28.16	4.87			
W6B	-8.53	5/29/09	1039	-2.40	0.21	Ebb	4.43	137	81.8	1146	0.21	2.9	213	5996						18.2	7.68	28.43	5.06	0.11		
W6B	-8.53	6/16/09	1427	-2.27	0.40	Flood	2.86	89	49.1	688	0.28	3.9	113	3163						18.0	8.21	28.86	5.55	0.24		
W6B	-8.53	7/14/09	1354	-2.40	0.37	Ebb	2.79	86	53.6	751	0.33	4.6	103	2895						19.4	7.74	29.08	4.65	0.24		
W6B	-8.53	8/19/09	1407	-1.93	0.67	Flood	3.78	117	73.2	1026	1.34	18.7	157	4412						19.4	7.13	29.82	4.97	0.22		
W6B	-8.53	9/21/09	1551	-2.37	0.30	Flood	3.75	116	77.7	1088	0.36	5	137	3860						20.6	8.19	29.77	4.67	0.33		
W6B	-8.53	10/22/09	1624	-2.53	0.18	Flood	3.57	111	70.4	987	0.56	7.9	92	2583						20.8	7.71	29.43	4.86	0.57		
W6B	-8.53	11/17/09	858	-2.46	0.30	Ebb	3.88	120	65.2	913	0.87	12.2	230	6474						20.8	7.70	29.33	4.92	0.07		
W6B	-8.53	12/8/09	919	-2.17	0.55	High	3.75	116	72.0	1009	1.00	14	201	5657						20.7	7.71	29.14	5.22	0.08		
W6B	-8.53	1/6/10	842	-2.20	0.43	High	3.29	102	69.8	977	1.36	19	182	5112						20.2	7.67	28.85	5.09	0.63		
W6B	-8.53	2/2/10	843	-1.98	0.37	Ebb	3.94	122	89.8	1258	0.71	10	172	4827						20.2	7.77	28.77	5.15	0.61		
W6B	-8.53	3/10/10	817	-2.64	0.09	Low	4.16	129	82.3	1153	0.43	6	204	5720						19.6	7.74	28.08	5.16	0.37		
W6B	-8.53	4/6/10	1421	-2.60	0.12	Ebb	4.29	133	71.6	1003	0.79	11	198	5562						21.4	7.75	25.94	5.70	0.12		
W6B	-8.53	5/11/10	1447	-2.04	0.55	High	3.68	114	55.4	776	1.21	17	192	5405						18.6	7.79	28.95	5.79	0.60		
W6B	-8.53	6/16/10	1014	-2.38	0.15	Ebb	3.87	120	67.2	941	1.14	16	211	5933						18.8	7.82	28.98	5.12	0.17		

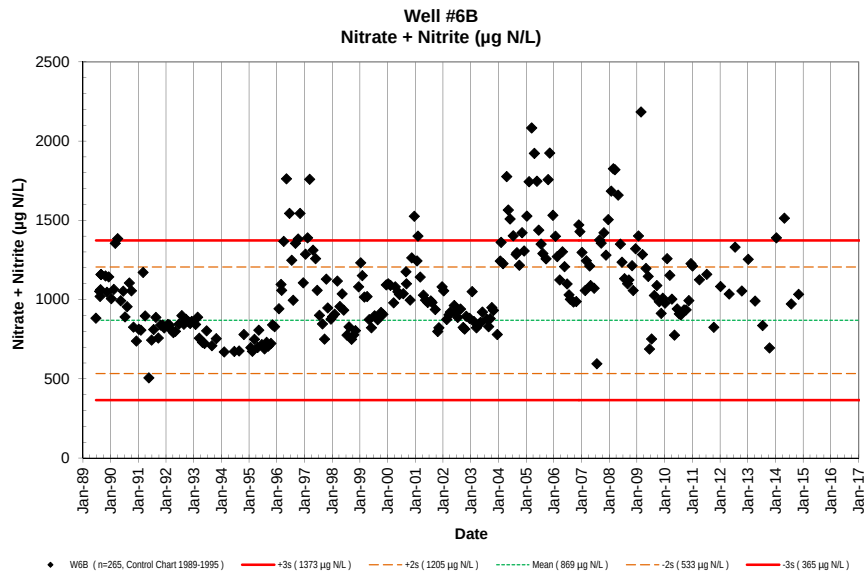
NELHA Water Quality Laboratory

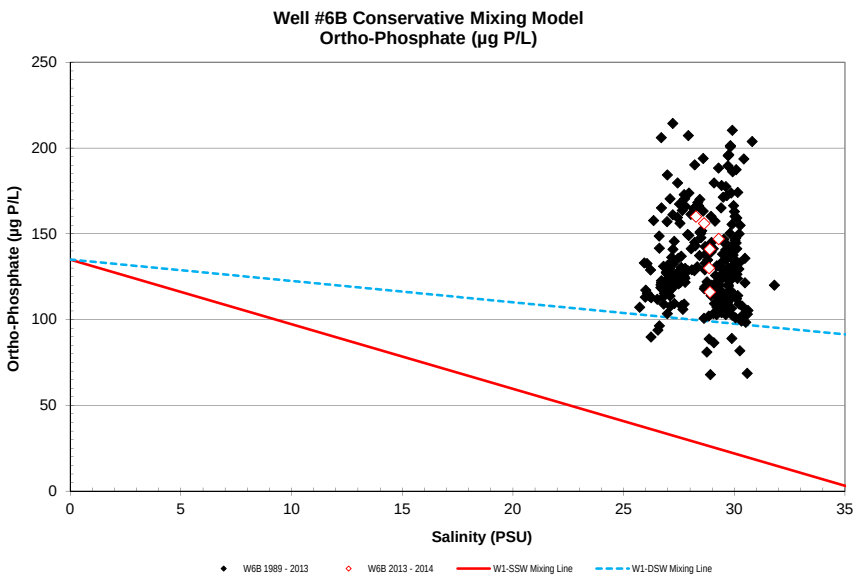
Well 6B Data Table

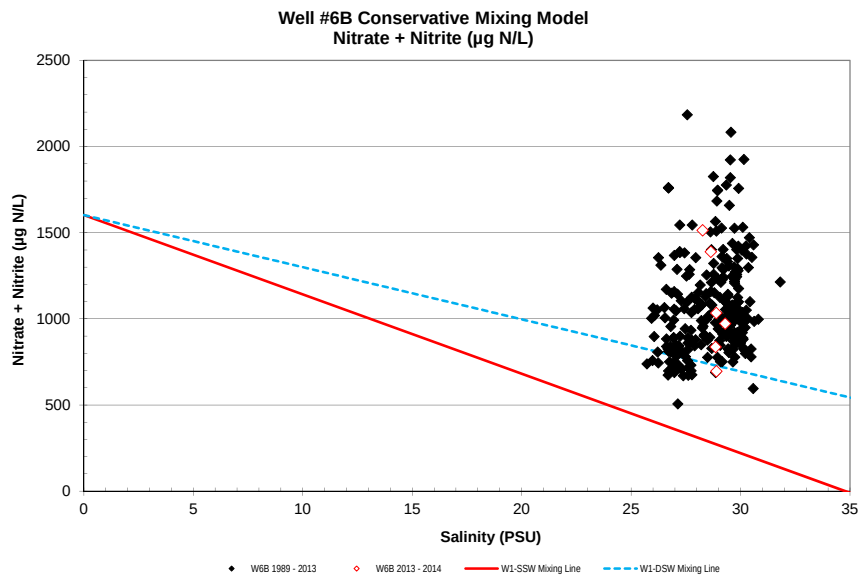
June 1989 - December 2014

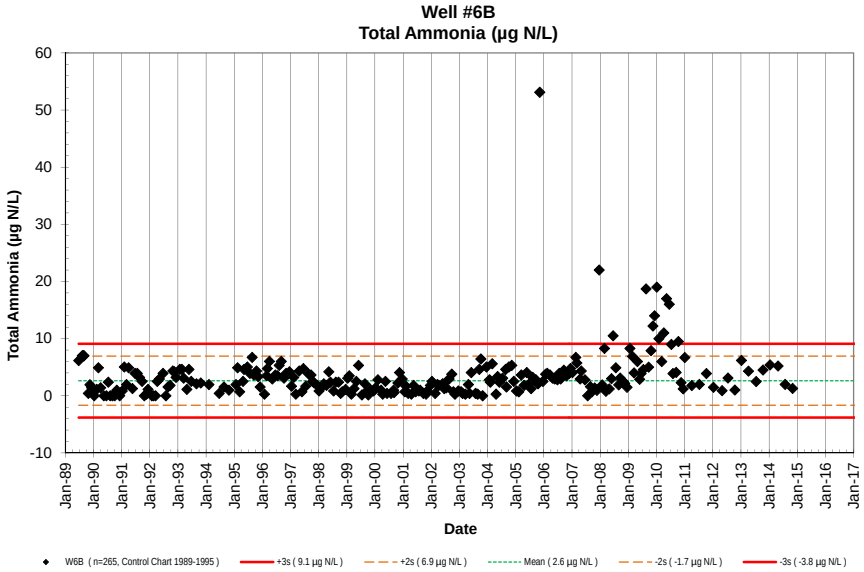
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W6B	-8.53	7/13/10	1458	-2.27	0.40	Flood	3.78	117	65.0	910	0.64	9	220	6192						19.4	7.76	29.19	5.44	0.36		
W6B	-8.53	8/3/10	1459	-2.19	0.40	Ebb	4.00	124	64.5	904	0.28	3.9	206	5780						19.5	7.78	29.39	5.62	0.30		
W6B	-8.53	9/14/10	1510	-2.34	0.30	Ebb	3.68	114	66.8	935	0.29	4.1	207	5821						19.9	7.75	29.42	5.42	0.66		
W6B	-8.53	10/12/10	1533	-2.41	0.18	Low	3.62	112	66.8	935	0.68	9.5	201	5637						19.9	7.75	29.35	5.21	0.19		
W6B	-8.53	11/16/10	1423	-2.18	0.34	Ebb	3.58	111	70.9	993	0.16	2.3	199	5597						19.9	7.75	29.74	5.42	0.28		
W6B	-8.53	12/14/10	1450	-2.45	0.12	Ebb	3.75	116	87.6	1227	0.09	1.2	175	4902						19.7	7.77	29.17	5.45	0.16		
W6B	-8.53	1/4/11	1433	-2.45	0.15	Flood	3.84	119	86.5	1211	0.48	6.7	192	5396						19.3	7.71	28.67	5.65	0.37		
W6B	-8.53	4/5/11	1452	-2.31	0.34	Flood	4.00	124	80.3	1125	0.13	1.8	192	5396						17.0	7.72	27.77	5.57	0.20		
W6B	-8.53	7/11/11	1152	-2.22	0.49	Flood	3.81	118	82.7	1159	0.14	2.0	214	5997						18.6	7.70	28.65	5.69	0.27		
W6B	-8.53	10/11/11	1336	-2.32	0.34	Flood	3.49	108	58.9	825	0.28	3.9	201	5653						19.5	7.67	29.43	4.03	0.29		
W6B	-8.53	1/9/12	1445	-2.67	0.15	Flood	4.62	143	77.2	1082	0.11	1.5	198	5569						18.9	7.70	28.24	3.32	0.11		
W6B	-8.53	4/30/12	1503	-2.36	0.24	ebb	4.46	138	73.9	1035	0.06	0.9	214	6023						17.0	7.60	28.70	4.95	0.21		
W6B	-8.53	7/17/12	1522	-1.92	0.73	Flood	4.20	130	95.0	1331	0.22	3.1	210	5890						17.6	7.47	29.40	3.58	0.51		
W6B	-8.53	10/15/12	1332	-2.37	0.24	Flood	3.97	123	75.2	1054	0.07	1.0	219	6153						17.8	7.44	29.31	2.16	0.24		
W6B	-8.53	1/7/13	1418	-2.39	0.18	Ebb	4.88	151	89.5	1254	0.44	6.2	264	7426						17.6	7.49	28.45	4.75	0.08		
W6B	-8.53	4/8/13	1339	-2.25	0.37	Flood	4.68	145	70.7	990	0.31	4.3	221	6210						16.5	7.51	28.21	4.22	0.18		
W6B	-8.53	7/16/13	1622	-2.37	0.30	Ebb	4.20	130	59.7	836	0.18	2.5	230	6449						17.7	7.44	28.86	2.84	0.30		
W6B	-8.53	10/14/13	1701	-2.37	0.18	Ebb	3.75	116	49.6	695	0.32	4.5	219	6144						18.4	7.50	28.90	3.28	0.18		
W6B	-8.53	1/14/14	1554	-2.31	0.18	Ebb	5.04	156	99.2	1389	0.39	5.4	220	6170						18.0	7.56	28.64	4.38	0.93		
W6B	-8.53	4/28/14	1551	-2.01	0.52	Flood	5.17	160	108.0	1513	0.37	5.2	206	5782						18.3	7.68	28.27	3.55	0.10		
W6B	-8.53	7/28/14	15.49	-2.07	0.49	Flood	4.75	147	69.4	972	0.14	2	207	5827						18.3	7.53	29.30	3.95	0.12		
W6B	-8.53	11/3/14	13.15	-2.04	0.46	High	4.55	141	73.8	1033	0.09	1.3	196	5512						18.9	7.55	28.89	4.57	0.21		
W6B	-8.53	1/1/15																								
W6B	-8.53	4/1/15																								

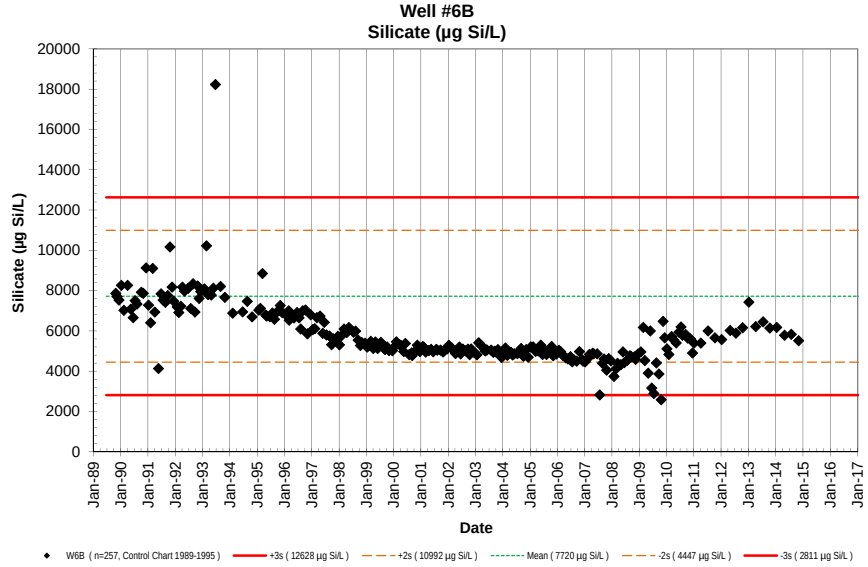

Well #6B
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W6B (n=265, Control Chart 1989-1995)
+3s (160 µg P/L)
+2s (148 µg P/L)
Mean (123 µg P/L)
-2s (98 µg P/L)
-3s (86 µg P/L)

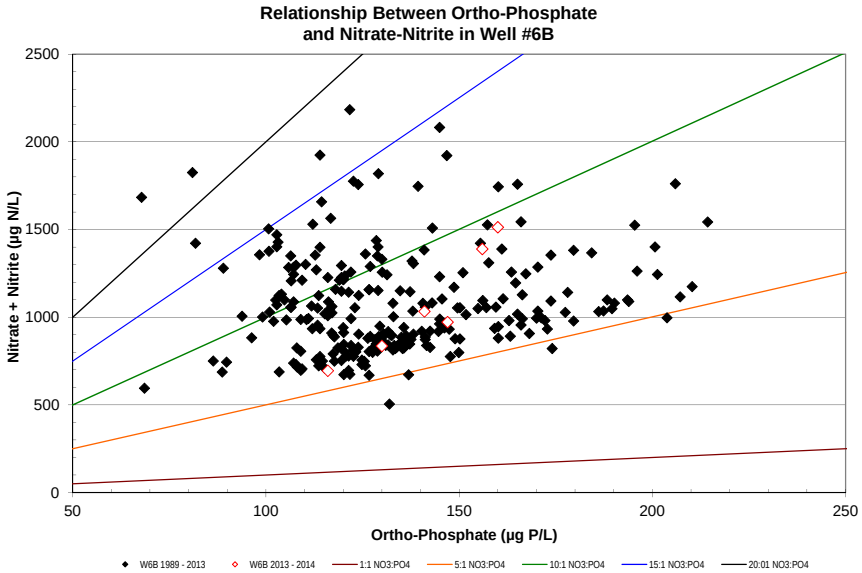

Well #6B
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W6B (n=265, Control Chart 1989-1995)
+3s (1373 µg N/L)
+2s (1205 µg N/L)
Mean (869 µg N/L)
-2s (533 µg N/L)
-3s (365 µg N/L)

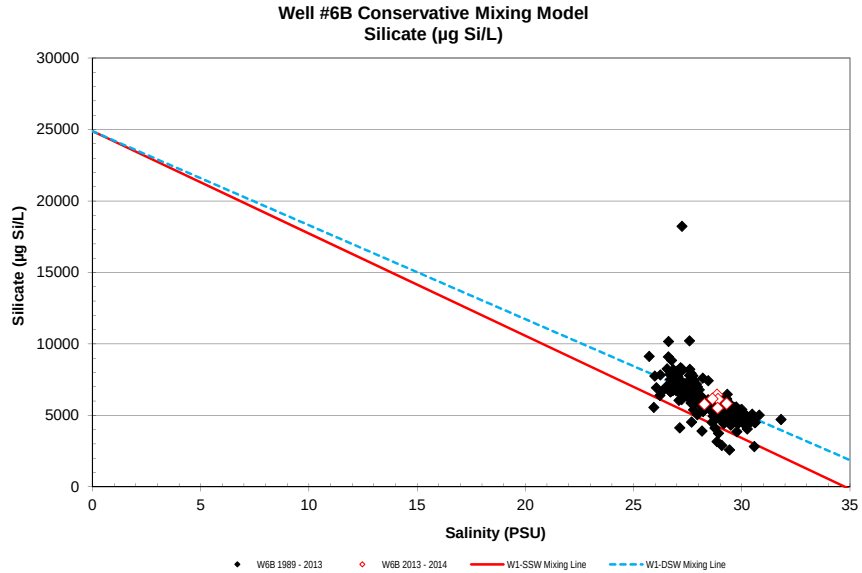

Well #6B Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W6B 1989 - 2013
W6B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

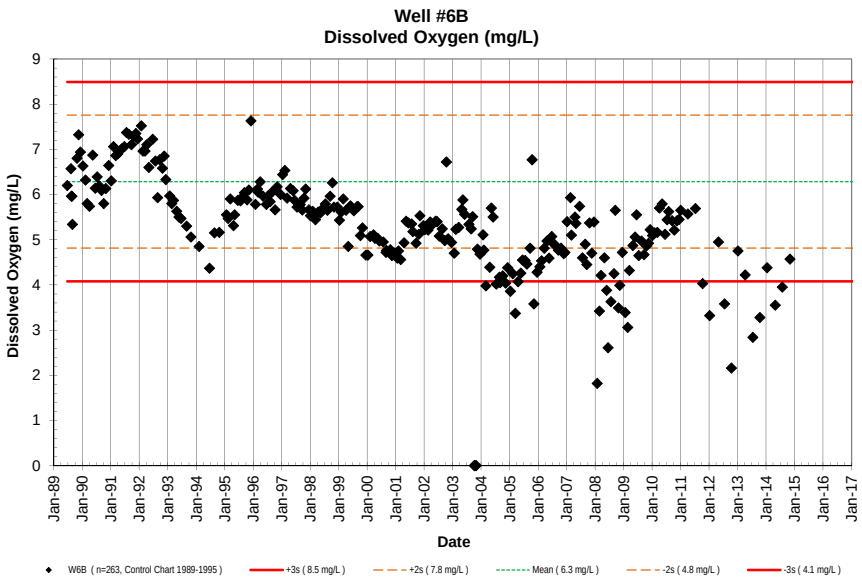

Well #6B Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W6B 1989 - 2013
W6B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

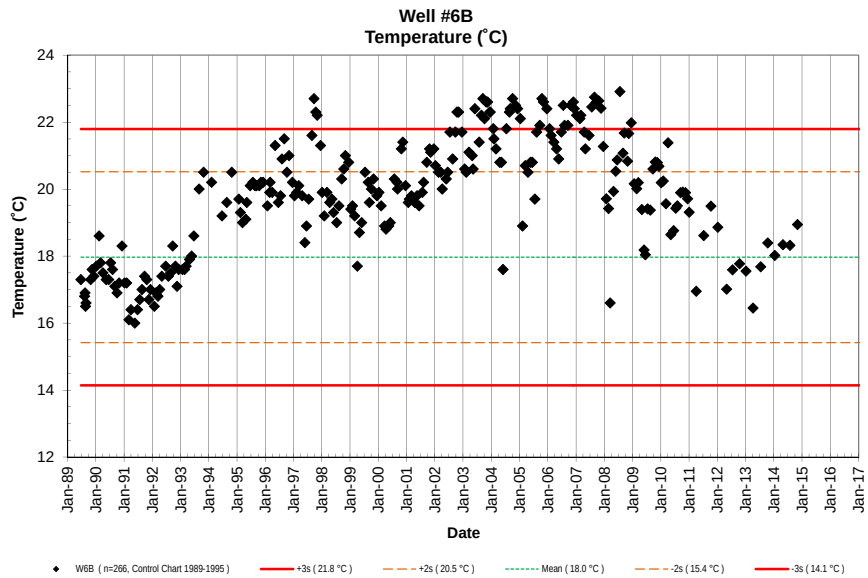

Well #6B
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W6B (n=265, Control Chart 1989-1995)
+3s (9.1 µg N/L)
+2s (6.9 µg N/L)
Mean (2.6 µg N/L)
-2s (-1.7 µg N/L)
-3s (-3.8 µg N/L)

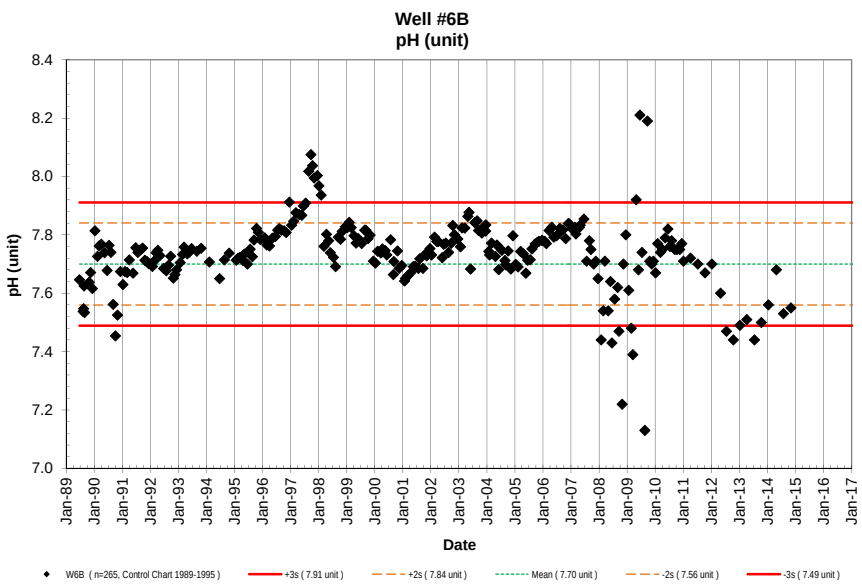

Well #6B
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W6B (n=257, Control Chart 1989-1995)
+3s (12628 µg Si/L)
+2s (10992 µg Si/L)
Mean (7720 µg Si/L)
-2s (4447 µg Si/L)
-3s (2811 µg Si/L)

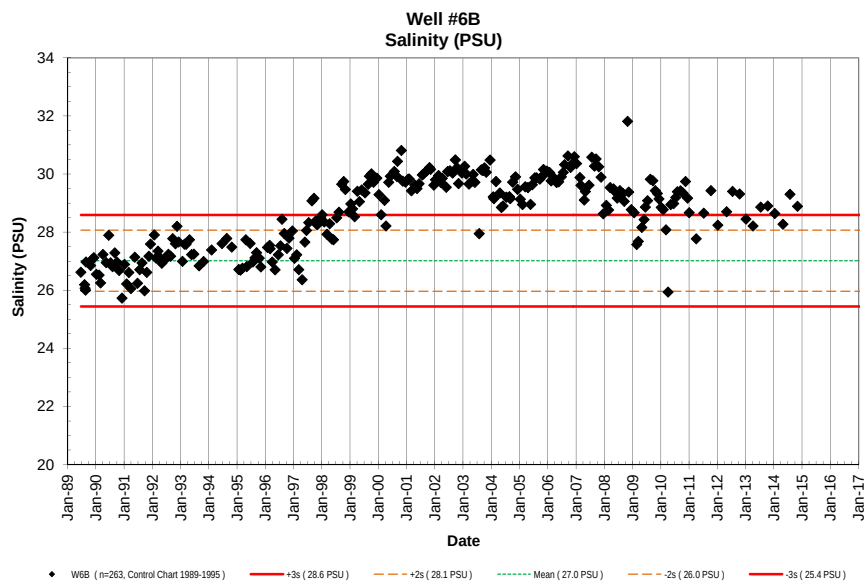

Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #6B
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W6B 1989 - 2013
W6B 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

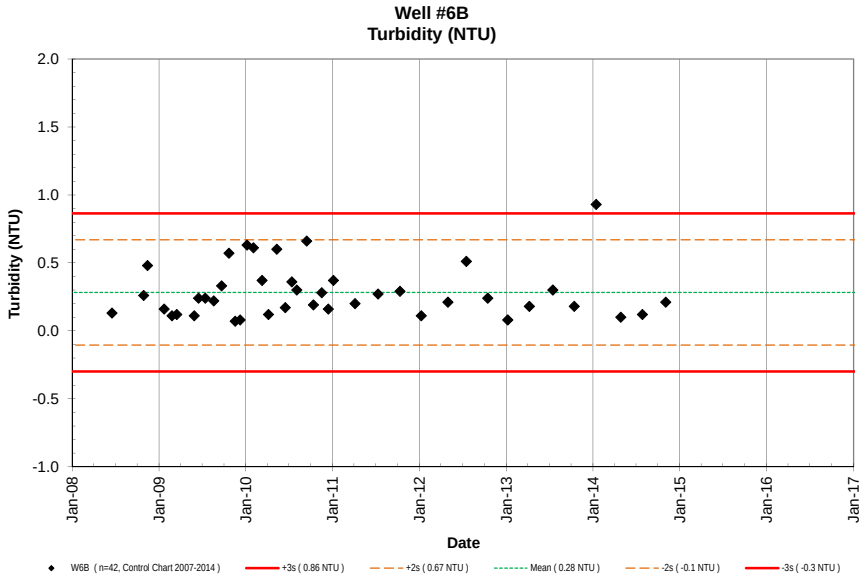

Well #6B Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W6B 1989 - 2013
W6B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

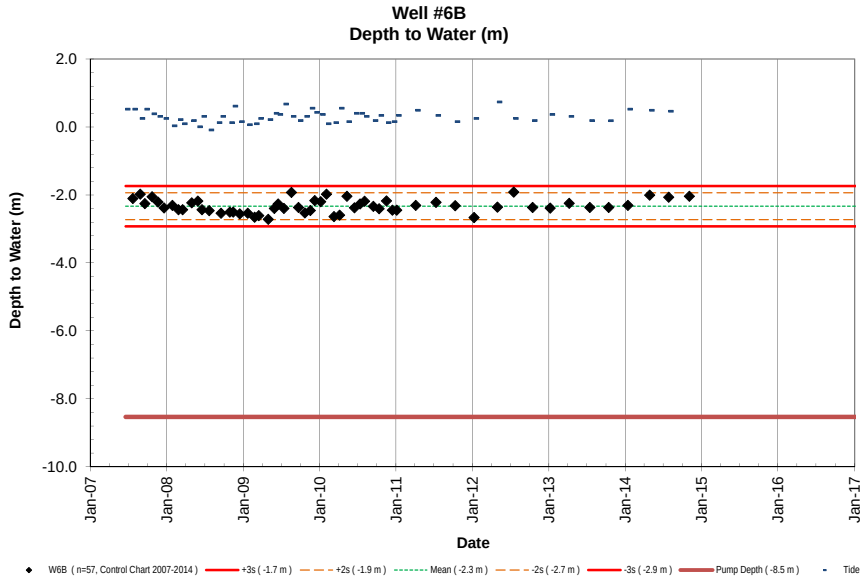

Well #6B
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W6B (n=263, Control Chart 1989-1995)
+3s (8.5 mg/L)
+2s (7.8 mg/L)
Mean (6.3 mg/L)
-2s (4.8 mg/L)
-3s (4.1 mg/L)


Well #6B
Temperature (˚C)
Temperature (˚C)
Date
W6B (n=266, Control Chart 1989-1995)
+3s (21.8 °C)
+2s (20.5 °C)
Mean (18.0 °C)
-2s (15.4 °C)
-3s (14.1 °C)


Well #6B
pH (unit)
pH (unit)
Date
W6B (n=265, Control Chart 1989-1995)
+3s (7.91 unit)
+2s (7.84 unit)
Mean (7.70 unit)
-2s (7.56 unit)
-3s (7.49 unit)


Well #6B
Salinity (PSU)
Salinity (PSU)
Date
W6B (n=263, Control Chart 1989-1995)
+3s (28.6 PSU)
+2s (28.1 PSU)
Mean (27.0 PSU)
-2s (26.0 PSU)
-3s (25.4 PSU)


Well #6B
Turbidity (NTU)
Turbidity (NTU)
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W6B (n=42, Control Chart 2007-2014)
+3s (0.86 NTU)
+2s (0.67 NTU)
Mean (0.28 NTU)
-2s (-0.1 NTU)
-3s (-0.3 NTU)


Well #6B
Depth to Water (m)
Depth to Water (m)
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W6B (n=57, Control Chart 2007-2014)
+3s (-1.7 m)
+2s (-1.9 m)
Mean (-2.3 m)
-2s (-2.7 m)
-3s (-2.9 m)
Pump Depth (-8.5 m)
Tide

NELHA Water Quality Laboratory

Well 7 Data Table

May 1992 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W7	-17.68	5/20/92	834				0.80	25	54.7	766	1.34	18.8	161	4522	0.90	27.9	55.7	780	0.74	16.6	7.877	30.780	9.30		<1	<1
W7	-17.6784	6/24/92	839				1.70	53	50.5	707	1.22	17.1	129	3623	1.87	57.9	54.4	762	1.16	16.6	7.785	30.960	8.81		<1	<1
W7	-17.6784	7/30/92	803				2.52	78	35.7	500	1.56	21.9	154	4325	2.61	80.8	38.8	544	0.93	18.5	7.711	31.458	5.74		<1	<1
W7	-17.6784	8/26/92	1006				3.14	97	57.8	810	0.21	2.9	161	4522	3.19	98.8	61.6	862	0.84	18.6	7.719	31.471	5.48		<1	<1
W7	-17.6784	9/23/92	827				2.83	88	44.0	616	0.39	5.5	164	4606	2.88	89.2	55.3	774	0.69	17.9	7.788	31.091	5.45		<1	<1
W7	-17.6784	10/28/92	902				2.80	87	56.0	784	0.28	3.9	155	4353	2.98	92.3	58.5	819	0.75	17.2	7.818	30.660	5.32		<1	<1
W7	-17.6784	11/18/92	852				2.75	85	55.5	777	0.25	3.5	152	4269	2.96	91.7	60.9	853	0.89	16.9	7.803	30.512	5.14		<1	<1
W7	-17.6784	12/9/92	843				2.70	84	57.5	805	0.24	3.4	187	5252	2.91	90.1	55.1	772	0.87	17.0	7.806	30.441	5.13		<1	<1
W7	-17.6784	1/27/93	822				2.59	80	30.9	433	0.24	3.4	161	4513	2.68	83.0	34.0	476	0.64	20.7	7.944	32.034	5.86		<1	<1
W7	-17.6784	2/24/93	807				1.98	61	14.2	199	0.36	5.0	147	4129	2.01	62.3	17.6	247	0.67	21.9	8.071	32.956	5.63		<1	<1
W7	-17.6784	3/17/93	816				2.15	67	20.1	282	0.38	5.3	142	3999	2.18	67.5	23.6	331	0.63	21.7	8.051	32.633	4.62		<1	<1
W7	-17.6784	4/28/93	808				2.28	71	31.7	444	0.32	4.5	131	3679	2.31	71.5	35.2	493	0.56	18.7	8.007	31.256	3.71		<1	<1
W7	-17.6784	5/26/93	810				2.02	63	29.4	412	0.43	6.0	260	7302	2.14	66.3	32.9	461	0.63	17.9	7.984	31.237	3.07		<1	<1
W7	-17.6784	6/29/93	823				2.18	68	28.6	400	0.24	3.4	112	3146	2.28	70.6	31.5	441	0.54	18.5	7.945	31.478	3.70		<1	<1
W7	-17.6784	9/1/93	823				2.16	67	31.3	438	0.24	3.4	153	4283	2.21	68.5	36.1	506	0.72	19.1	7.929	31.072	2.87		<1	<1
W7	-17.6784	10/27/93	816				2.15	67	30.1	421	0.18	2.5	140	3932	2.16	66.9	32.8	460	0.68	19.4	7.943	30.978	2.14		<1	<1
W7	-17.6784	3/1/94	1035				2.52	78	19.1	268	0.34	4.8	132	3707	2.48	76.8	23.6	330	0.78	21.2	7.929	31.763	3.68		<1	<1
W7	-17.6784	6/22/94	754				2.30	71	31.0	435	0.29	4.1	126	3552	2.31	71.5	35.3	495	0.59	19.0	7.918	31.095	1.97		<1	<1
W7	-17.6784	8/24/94	816				2.09	65	32.0	448	0.00	0.0	121	3387	2.14	66.3	39.0	546	0.54	19.2	7.949	30.888	2.34		<1	<1
W7	-17.6784	11/28/94	1010				2.19	68	29.5	414	0.59	8.3	120	3374	2.24	69.4	34.3	480	0.53	19.9	7.820	31.019	2.11		<1	<1
W7	-17.6784	1/25/95	851				2.20	68	29.7	416	0.00	0.0	115	3216	2.25	69.7	31.5	441	0.51	19.3	7.966	30.843	2.71		<1	<1
W7	-17.6784	2/15/94	905				2.05	63	16.8	235	0.00	0.0	121	3393	2.11	65.4	18.6	260	0.58	22.2	8.034	32.241	4.68		1	<1
W7	-17.6784	3/29/95	846				2.01	62	31.1	436	0.27	3.8	118	3300	2.06	63.8	33.1	463	0.51	20.0	8.030	30.937	1.98		<1	<1
W7	-17.6784	4/26/95	839				1.93	60	32.9	461	0.12	1.7	111	3109	1.96	60.7	33.9	475	0.55	19.4	8.003	30.836	1.74		<1	<1
W7	-17.6784	5/9/95	1023				1.96	61	34.4	482	0.29	4.1	116	3266	1.97	61.0	36.0	505	0.62	19.4	7.961	30.787	1.60		<1	<1
W7	-17.6784	6/28/95	837				2.04	63	34.0	476	0.49	6.9	121	3401	2.08	64.4	36.6	512	0.60	19.6	7.937	30.988	1.67		<1	<1
W7	-17.6784	7/26/95	1017				2.15	67	34.0	476	0.22	3.1	121	3387	2.18	67.5	36.3	508	0.55	19.7	7.973	31.382	1.59		<1	<1
W7	-17.6784	8/23/95	934				2.10	65	27.9	390	0.50	7.0	121	3396	2.14	66.3	29.5	413	0.53	20.1	7.957	30.946	2.10		<1	<1
W7	-17.6784	9/12/95	925				2.16	67	27.2	381	0.13	1.8	129	3620	2.18	67.5	29.8	418	0.51	20.2	7.970	31.292	1.61		<1	<1
W7	-17.6784	10/17/95	1108				2.07	64	25.2	353	0.21	2.9	132	3699	2.09	64.7	26.7	374	0.91	19.9	7.975	31.567	1.54		<1	<1
W7	-17.6784	11/7/95	951				2.04	63	26.6	372	0.44	6.2	128	3592	2.10	65.0	28.1	393	0.79	23.1	8.002	31.486	1.50		<1	<1
W7	-17.6784	12/6/95	1038				1.86	58	25.8	362	0.37	5.2	121	3398	2.04	63.2	28.2	394	0.90	20.2	8.018	31.478	1.78		<1	<1
W7	-17.6784	1/30/96	1130				1.65	51	16.4	230	0.13	1.8	118	3311	1.82	56.4	16.9	237	0.64	23.1	8.133	32.561	3.85		<1	<1
W7	-17.6784	2/27/96	1240				1.66	51	15.8	221	0.29	4.1	121	3396	1.79	55.4	18.7	262	0.71	23.8	8.089	32.679	4.13		<1	12
W7	-17.6784	3/13/96	1154				1.58	49	18.4	258	0.46	6.4	109	3073	1.72	53.3	20.3	284	0.72	23.4	8.049	32.184	4.92		<1	<1
W7	-17.6784	4/2/96	1038				1.55	48	20.3	284	0.22	3.1	127	3567	1.68	52.0	22.8	320	0.76	23.4	8.041	31.959	5.47		<1	<1
W7	-17.6784	5/15/96	1206				1.70	53	36.0	504	0.05	0.7	120	3380	1.73	53.6	38.5	539	0.51	22.6	8.056	31.501	2.49		<1	<1
W7	-17.6784	6/18/96	1141				1.59	49	47.6	666	0.12	1.7	106	2981	1.62	50.2	50.6	708	0.57	20.6	8.059	30.850	2.95		<1	<1
W7	-17.6784	7/17/96	1200				1.53	47	47.5	665	0.22	3.1	102	2857	1.61	49.9	54.9	769	0.63	20.3	8.055	30.570	3.13		<1	<1
W7	-17.6784	8/6/96	1216				1.39	43	49.7	696	0.58	8.1	103	2880	1.47	45.5	52.5	736	0.65	20.4	8.032	30.425	3.23		<1	<1
W7	-17.6784	9/4/96	1202				1.51	47	55.9	783	0.48	6.7	106	2989	1.53	47.4	58.4	818	0.69	20.2	8.003	30.355	2.69		<1	1
W7	-17.6784	10/9/96	1256				1.79	55	45.3	635	0.49	6.9	125	3508	1.92	59.5	47.9	671	0.68	20.9	7.957	30.756	2.60		<1	<1
W7	-17.6784	11/6/96	1201				1.96	61	34.9	489	0.19	2.7	120	3378	2.06	63.8	39.6	554	0.69	21.3	7.908	31.067	1.87		<1	<1
W7	-17.6784	12/17/96	1243				1.89	59	22.4	313	0.29	4.1	126	3535	1.99	61.6	26.7	374	0.93	24.2	8.076	31.910	5.63		<1	<1
W7	-17.6784	1/14/97	1215				2.00	62	30.0	420	0.69	9.7	136	3820	2.06	63.8	33.8	473	0.80	23.5	7.973	31.491	4.06		<1	1
W7	-17.6784	2/11/97	1050				1.65	51	40.5	567	0.24	3.4	126	3550	1.74	53.9	42.8	600	0.88	23.9	8.037	31.752	5.39		<1	<1
W7	-17.6784	3/11/97	928				1.76	55	37.8	529	0.44	6.2	131	3690	2.01	62.3	39.8	557	0.75	23.5	8.067	31.957	4.40		<1	<1
W7	-17.6784	4/23/97	1209				1.95	60	94.2	1320	0.46	6.4	115	3219	1.98	61.3	117.8	1650	0.72	21.3	8.031	30.787	2.25		<1	<1
W7	-17.6784	5/28/97	1040				2.36	73	94.8	1328	0.13	1.8	128	3595	2.65	82.1	108.1	1514	0.68	20.4	8.013	30.900	1.79		<1	<1
W7	-17.6784	6/17/97	1121				2.27	70	72.1	1010	0.29	4.1	119	3351	2.36	73.1	78.5	1100	0.71	20.1	8.024	30.878	1.77		<1	<1

NELHA Water Quality Laboratory

Well 7 Data Table

May 1992 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W7	-17.6784	7/15/97	1115				2.56	79	83.7	1172	0.06	0.8	114	3210	2.70	83.6	92.1	1289	0.60	19.7	8.037	30.686	1.87		<1	<1
W7	-17.6784	8/26/97	1147				2.50	77	89.2	1249	0.35	4.9	127	3561	2.50	77.4	93.3	1306	0.64	21.4	8.102	30.724	1.01		<1	<1
W7	-17.6784	9/23/97	1015				2.55	79	147.5	2066	0.25	3.5	123	3449	2.55	79.0	157.8	2210	0.64	21.1	8.121	30.792	0.47		<1	<1
W7	-17.6784	10/14/97	1050				2.68	83	186.4	2611	0.21	2.9	120	3370	2.68	83.0	203	2842	0.52	21.0	8.130	30.728	0.69		<1	<1
W7	-17.6784	11/4/97	919				2.58	80	195.5	2738	0.10	1.4	125	3513	2.64	81.8	248	3471	0.64	20.1	8.146	30.896	0.90		<1	<1
W7	-17.6784	12/16/97	1120				2.64	82	71.5	1001	0.15	2.1	132	3699	2.74	84.9	76.4	1070	0.58	21.3	8.105	31.156	1.62		<1	<1
W7	-17.6784	1/5/98	942				2.73	85	56.2	787	0.03	0.4	124	3469	2.83	87.7	62.0	868	0.66	21.7	8.091	31.466	2.63		<1	<1
W7	-17.6784	2/3/98	911				2.15	67	22.4	314	0.08	1.1	118	3306	2.38	73.7	25.5	358	0.72	23.7	8.202	32.728	5.38		<1	<1
W7	-17.6784	3/10/98	942				2.50	77	25.5	357	0.27	3.8	128	3598	2.64	81.8	28.0	392	0.59	23.6	8.006	32.592	4.94		<1	<1
W7	-17.6784	4/14/98	1113				2.55	79	32.2	451	0.01	0.1	126	3536	2.61	80.8	33.7	472	0.52	23.5	8.010	32.481	4.71		<1	<1
W7	-17.6784	5/12/98	942				2.39	74	51.7	725	0.09	1.3	123	3440	2.54	78.7	54.9	769	0.57	23.4	8.031	32.514	3.39		<1	<1
W7	-17.6784	6/2/98	943				2.39	74	93.0	1303	0.09	1.3	119	3332	2.48	76.8	95.7	1340	0.67	22.5	8.036	31.925	1.02		<1	<1
W7	-17.6784	7/14/98	935				2.31	72	96.2	1348	0.23	3.2	120	3373	2.45	75.9	98.1	1374	0.69	21.4	7.974	31.463	0.11		<1	<1
W7	-17.6784	8/11/98	958				2.62	81	103.1	1444	0.05	0.7	118	3323	2.72	84.2	111.0	1555	0.63	21.1	7.924	31.501	0.16		<1	<1
W7	-17.6784	9/15/98	949				2.71	84	73.5	1030	0.01	0.1	123	3463	2.79	86.4	73.1	1024	0.66	21.1	7.888	31.555	1.70		<1	<1
W7	-17.6784	10/13/98	849				2.87	89	67.7	948	0.05	0.7	128	3601	2.92	90.4	70.3	985	0.71	21.3	7.887	31.487	1.75		<1	<1
W7	-17.6784	11/4/98	942				2.92	90	69.3	970	0.07	1.0	128	3603	3.07	95.1	73.7	1032	0.81	21.2	7.886	31.461	1.21		3	21
W7	-17.6784	12/16/98	932				3.05	94	104.4	1462	0.09	1.3	131	3674	3.19	98.8	108.9	1525	0.93	21.5	7.866	31.575	0.30		<1	<1
W7	-17.6784	1/12/99	1003				2.85	88	78.6	1101	0.08	1.1	133	3724	2.94	91.1	80.0	1120	0.79	21.7	7.854	31.853	1.88		<1	<1
W7	-17.6784	2/3/99	955				2.74	85	89.8	1258	0.17	2.4	131	3665	2.90	89.8	96.3	1348	0.76	21.3	7.847	30.075	0.62		<1	<1
W7	-17.6784	3/2/99	952				3.03	94	85.8	1202	0.06	0.8	132	3710	3.17	98.2	89.9	1259	0.78	21.3	7.857	31.700	0.46		<1	<1
W7	-17.6784	4/6/99	939				3.04	94	79.7	1116	0.01	0.1	132	3710	3.16	97.9	82.4	1154	0.80	21.0	7.858	31.731	0.22		<1	<1
W7	-17.6784	5/4/99	948				3.03	94	74.4	1042	0.06	0.8	126	3525	3.15	97.6	78.3	1097	0.65	20.6	7.868	31.819	0.67		<1	<1
W7	-17.6784	6/2/99	938				2.86	89	46.9	657	0.09	1.3	130	3651	3.04	94.2	47.4	664	0.66	20.3	7.873	31.843	3.86		<1	<1
W7	-17.6784	7/7/99	1016				3.08	95	43.9	615	0.09	1.3	129	3629	3.16	97.9	46.0	644	0.59	19.8	7.897	31.628	3.78		<1	<1
W7	-17.6784	8/25/99	940				3.00	93	47.1	660	0.06	0.8	128	3592	3.22	99.7	50.2	703	0.62	20.3	7.940	31.624	3.23		<1	<1
W7	-17.6784	9/8/99	951				3.03	94	47.9	671	0.02	0.3	129	3623	3.24	100.4	53.2	745	0.59	19.9	7.938	31.611	3.29		<1	<1
W7	-17.6784	10/6/99	957				2.98	92	78.3	1097	0.04	0.6	134	3752	3.05	94.5	80.9	1133	0.66	20.7	7.888	31.955	1.12		<1	<1
W7	-17.6784	11/3/99	1012				2.26	70	46.9	657	0.13	1.8	143	4025	2.53	78.4	49.8	698	0.59	22.4	7.846	32.588	3.11		<1	<1
W7	-17.6784	12/15/99	1031				2.85	88	41.1	576	0.04	0.6	140	3929	2.98	92.3	43.8	613	0.66	21.5	7.834	32.074	3.53		<1	<1
W7	-17.6784	1/11/00	1007				2.60	81	45.4	635	0.18	2.5	132	3710	2.75	85.2	49.2	689	0.71	20.8	7.855	32.002	3.40		<1	<1
W7	-17.6784	2/14/00	1006				2.81	87	44.4	622	0.03	0.4	130	3662	2.95	91.4	49.0	686	0.61	20.5	7.875	31.978	3.63		<1	<1
W7	-17.6784	3/22/00	1023				2.88	89	67.1	940	0.07	1.0	130	3654	2.75	85.2	69.2	969	0.71	20.4	7.878	31.762	2.75		<1	<1
W7	-17.6784	4/12/00																								
W7	-17.6784	5/17/00																								
W7	-17.6784	6/6/00	1015				2.79	86	67.3	943	0.03	0.4	231	6496	2.82	87.3	71.9	1007	0.76	22.4	7.818	32.493	0.33		<1	<1
W7	-17.6784	7/31/00	959				3.22	100	37.7	528	0.10	1.4	148	4159	3.36	104.1	39.6	555	0.76	23.8	7.769	33.704	0.20		<1	<1
W7	-17.6784	8/30/00	1010				3.34	103	47.4	664	0.02	0.3	150	4202	3.44	106.5	49.3	691	0.71	23.9	7.727	33.648	0.41		<1	<1
W7	-17.6784	9/6/00	942				3.31	103	48.2	675	0.01	0.1	150	4213	3.47	107.5	51.1	716	0.84	23.9	7.727	33.584	0.23		<1	<1
W7	-17.6784	10/25/00	1129				3.51	109	42.3	592	0.16	2.2	168	4718	3.67	113.7	48.0	672	0.69	24.4	7.727	33.645	1.45		<1	<1
W7	-17.6784	11/14/00	1011				3.42	106	49.2	689	0.24	3.4	163	4570	3.60	111.5	53.1	744	0.64	24.0	7.728	33.341	0.63		<1	1
W7	-17.6784	12/19/00	945				3.58	111	79.7	1116	0.15	2.1	163	4564	3.83	118.6	81.8	1146	0.67	23.4	7.747	32.645	0.82		<1	<1
W7	-17.6784	1/24/01	935				3.10	96	64.4	902	0.14	2.0	162	4536	3.32	102.8	68.8	964	0.66	23.0	7.750	32.597	2.16		<1	<1
W7	-17.6784	2/7/01	953				3.33	103	91.8	1286	0.07	1.0	151	4230	3.40	105.3	95.0	1331	0.66	22.6	7.814	32.435	0.92		<1	<1
W7	-17.6784	3/12/01	942				3.29	102	106	1486	0.01	0.1	150	4218	3.44	106.5	107	1499	0.76	22.2	7.752	32.494	0.53		<1	<1
W7	-17.6784	4/18/01	931				3.10	96	92.1	1290	0.03	0.4	153	4306	3.23	100.0	95.1	1332	0.76	22.1	7.715	32.708	0.15		<1	<1
W7	-17.6784	5/14/01	1048				3.16	98	79.4	1112	0.19	2.7	159	4474	3.16	97.9	80.6	1129	0.61	22.9	7.695	33.002	0.17		<1	<1
W7	-17.6784	6/13/01	955				3.10	96	73.3	1027	0.02	0.3	165	4631	3.08	95.4	75.1	1051	0.62	23.0	7.672	33.264	0.15		<1	<1
W7	-17.6784	7/24/01	958				3.06	95	55.1	771	0.04	0.6	173	4848	3.17	98.2	57.9	811	0.75	24.0	7.646	33.793	0.23		<1	<1
W7	-17.6784	8/22/01	958				3.38	105	44.7	627	0.01	0.1	173	4848	3.60	111.5	47.1	660	0.74	24.6	7.625	34.020	0.15		<1	<1
W7	-17.6784	9/17/01	1049				3.42	106	46.7	654	0.05	0.7	175	4901	3.60	111.5	49.2	689	0.74	24.8	7.655	33.958	0.20		<1	<1
W7	-17.6784	10/22/01	1028				3.34	103	43.9	615	0.03	0.4	170	4786	3.58	110.9	47.0	659	0.70	24.6	7.676	33.638	1.27		<1	<1
W7	-17.6784	11/5/01	1100				3.44	107	46.0	644	0.04	0.6	172	4831	3.54	109.6	50.5	707	0.66	24.0	7.675	33.651	1.03		<1	<1
W7	-17.6784	12/12/01	1053				3.36	104	58.9	825	0.05	0.7	179	5036	3.47	107.5	93.1	1303	0.60	23.9	7.700	33.382	0.17		<1	<1
W7	-17.6784	1/7/02	1043				3.48	108	95.4	1336	0.21	2.9	168	4721	3.67	113.7	114	1597	0.57	23.5	7.711	32.505	0.90		<1	<1
W7	-17.6784	2/25/02	1003				3.50	108	107	1499	0.04	0.6	168	4707	3.60	111.5	115	1608	0.56	22.9	7.731	32.668	0.51		<1	732
W7	-17.6784	3/18/02	1028				3.54	110	87.4	1225	0.30	4.2	171	4797	3.70	114.6	85.7	1200	0.56	22.9	7.740	32.749	0.54		<1	1
W7	-17.6784	4/10/02	1034				3.34	103	104	1450	0.05	0.7	165	4645	3.48	107.8	108	1506	0.56	22.8	7.724	32.625	0.66		<1	<1
W7	-17.6784	5/22/02	1042				3.26	101	106	1488	0.16	2.2	167	4676	3.33	103.1	107	1495	0.55	22.5	7.749	32.490	0.82		<1	<1
W7	-17.6784	6/19/02	1127				3.32	103	100	1406	0.10	1.4	162	4550	3.42	105.9	108	1511	0.63	22.3	7.764	32.167	1.13		<1	<1

NELHA Water Quality Laboratory

Well 7 Data Table

May 1992 - December 2014

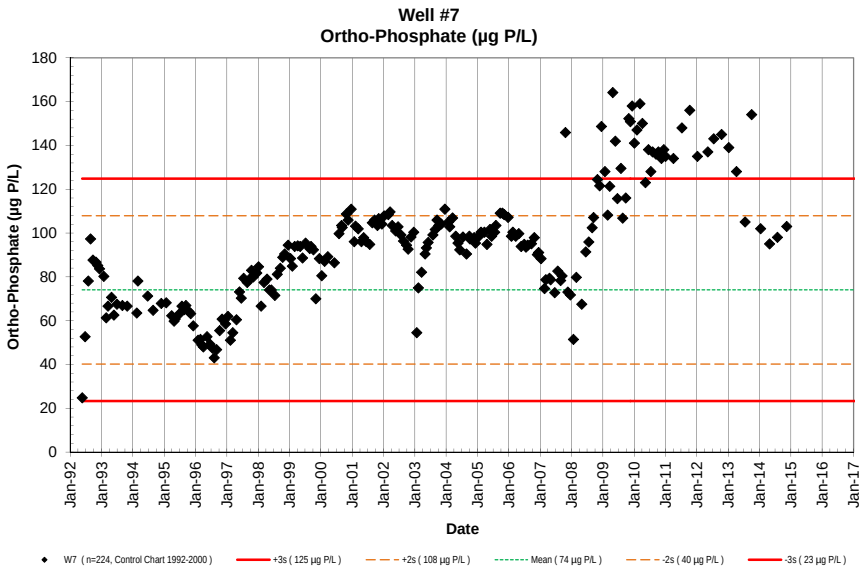
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W7	-17.6784	7/22/02	1110				3.20	99	106	1479	0.06	0.8	155	4353	3.36	104.1	111	1559	0.69	21.6	7.799	31.956	0.85		<1	<1
W7	-17.6784	8/21/02	1150				3.11	96	111	1553	0.21	2.9	153	4300	3.26	101.0	118	1651	0.64	21.2	7.781	31.872	0.56		<1	<1
W7	-17.6784	9/25/02	1017				3.05	94	109	1527	0.28	3.9	160	4494	3.18	98.5	107	1492	0.56	21.4	7.794	31.894	0.65		<1	<1
W7	-17.6784	10/15/02	1055				2.99	93	103	1444	0.15	2.1	156	4387	3.19	98.8	98.5	1380	0.54	21.8	7.763	32.034	0.57		<1	1
W7	-17.6784	11/17/02	1031				3.17	98	100	1401	0.36	5.0	158	4449	3.29	101.9	94.3	1321	0.64	21.9	7.742	31.978	0.65		<1	<1
W7	-17.6784	12/18/02	1057				3.24	100	57.7	809	0.03	0.4	161	4527	3.34	103.5	51.7	724	0.55	23.6	7.742	32.468	2.58		<1	22
W7	-17.6784	1/23/03	1040				1.76	55	12.6	176	0.04	0.6	94.6	2657	2.00	61.9	21.1	296	0.70	24.4	8.039	34.175	5.84		<1	<1
W7	-17.6784	2/11/03	1100				2.42	75	28.1	394	0.07	1.0	117	3286	3.44	106.5	35.9	503	0.57	24.3	7.984	33.406	4.42		<1	<1
W7	-17.6784	3/20/03	1141				2.65	82	87.7	1228	0.06	0.8	137	3839	2.87	88.9	109	1525	0.63	23.2	7.937	32.699	0.02		<1	<1
W7	-17.6784	4/30/03	1028				2.92	90	90.1	1262	0.12	1.7	144	4036	3.06	94.8	110	1539	0.65	23.2	7.859	34.827	0.12		<1	<1
W7	-17.6784	5/14/03	932				3.01	93	87.2	1221	0.08	1.1	146	4109	3.04	94.2	86.7	1214	0.59	22.8	7.821	32.883	0.15		<1	<1
W7	-17.6784	6/4/03	1020				3.09	96	83.6	1171	0.05	0.7	147	4131	3.25	100.7	89.4	1252	0.62	23.2	7.780	34.957	0.12		<1	<1
W7	-17.6784	7/30/03	951				3.20	99	94.7	1326	0.03	0.4	154	4336	3.35	103.8	109	1527	NA	23.2	7.836	32.851	0.42		<1	<1
W7	-17.6784	8/28/03	945				3.28	102	99.9	1400	0.02	0.3	152	4277	3.42	105.9	136	1906	NA	23.8	7.769	32.710	0.02		<1	<1
W7	-17.6784	9/16/03	1006				3.42	106	93.9	1316	0.15	2.1	155	4348	3.48	107.8	127	1777	NA	23.1	7.771	32.477	0.32		<1	<1
W7	-17.6784	10/8/03	938				3.34	103	105	1476	0.10	1.4	155	4339	3.56	110.3	129	1801	NA	22.9	7.780	32.383	NA		<1	<1
W7	-17.6784	11/5/03	1007				3.36	104	101	1415	0.39	5.5	154	4328	3.56	110.3	104	1457	NA	22.7	7.771	32.234	NA		<1	<1
W7	-17.6784	11/14/03	1015																	23.0			0.12			
W7	-17.6784	12/17/03	1036				3.58	111	75.3	1055	0.16	2.2	169	4732	3.72	115.2	78.2	1095	NA	23.6	7.821	32.528	2.13		<1	<1
W7	-17.6784	1/28/04	1100				3.39	105	42.8	600	0.78	10.9	139	3893	3.56	110.3	41.3	578	0.69	23.7	7.873	32.470	4.02		<1	<1
W7	-17.6784	2/11/04	938				3.32	103	70.5	987	0.40	5.6	141	3954	3.56	110.3	75.6	1059	0.91	22.9	7.832	32.310	2.53		<1	<1
W7	-17.6784	3/16/04	1025				3.45	107	41.7	584	0.14	2.0	135	3777	3.84	118.9	48.2	675	NA	24.5	7.917	34.865			<1	<1
W7	-17.6784	3/30/04	936																	23.5			1.40			
W7	-17.6784	4/22/04	1011				3.18	98	105	1471	0.22	3.1	138	3867	3.38	104.7	113	1584	NA	22.5	7.893	31.863	0.40		<1	<1
W7	-17.6784	5/18/04	1006				3.08	95	102	1424	0.20	2.8	132	3704	3.18	98.5	107	1503	NA	22.0	7.856	30.91	0.41		<1	<1
W7	-17.6784	6/8/04	1043				2.98	92	99.3	1391	0.11	1.5	131	3679	3.12	96.6	105	1464	NA	22.3	7.587	30.75	0.18		<1	<1
W7	-17.6784	7/15/04	1005				3.17	98	95.1	1333	0.20	2.8	137	3851	3.12	96.6	113	1584	NA	21.8	7.792	30.70	0.53		<1	<1
W7	-17.6784	8/25/04	1046				2.92	90	98.2	1375	0.13	1.8	143	4016	3.06	94.8	101	1408	NA	21.7	7.778	30.55	0.79		<1	<1
W7	-17.6784	9/27/04	1157				3.18	98	97.9	1371	0.15	2.1	152	4275	3.26	101.0	100	1401	NA	21.5	7.765	30.52	2.55		<1	<1
W7	-17.6784	10/4/04	1116				3.14	97	98.0	1373	0.20	2.8	142	3991	3.40	105.3	105	1465	NA	21.6	7.779	30.51	1.04		<1	<1
W7	-17.6784	11/23/04	1123				3.16	98	112	1570	0.10	1.4	151	4238	3.38	104.7	159	2221	NA	21.8	7.797	30.37	1.11		<1	<1
W7	-17.6784	12/8/04	947				3.08	95	105	1470	0.07	1.0	150	4207	3.20	99.1	137	1915	NA	22.6	7.794	30.42	1.06		<1	<1
W7	-17.6784	1/18/05	946				3.18	98	19.9	279	0.09	1.3	126	3550	3.38	104.7	25.2	354	NA	23.9	7.883	33.227	5.49		<1	<1
W7	-17.6784	2/10/05	930				3.24	100	53.7	752	0.27	3.8	139	3910	3.32	102.8	79.8	1118	NA	23.9	7.908	32.486	3.03		<1	<1
W7	-17.6784	3/22/05	935				3.24	100	106	1478	0.12	1.7	144	4039	3.50	108.4	116	1625	0.85	22.8	7.879	31.763	0.63		<1	<1
W7	-17.6784	4/20/05	929				3.06	95	111	1560	0.14	2.0	141	3966	3.08	95.4	112	1567	NA	22.3	7.869	31.606	0.47		<1	<1
W7	-17.6784	5/25/05	947				3.28	102	115	1605	0.12	1.7	144	4056	3.30	102.2	124	1741	NA	20.9	7.841	31.523	0.25		<1	<1
W7	-17.6784	6/14/05	948				3.18	98	109	1526	0.12	1.7	142	3980	3.18	98.5	117	1636	NA	22.2	7.839	31.438	0.28		<1	<1
W7	-17.6784	7/19/05	939				3.24	100	107	1493	0.11	1.5	141	3963	3.46	107.2	112	1563	0.51	21.7	7.836	31.390	0.31		<1	<1
W7	-17.6784	8/3/05	1009				3.34	103	96.5	1352	0.06	0.8	141	3960	3.46	107.2	100	1402	0.47	22.0	7.876	31.382	0.43		<1	<1
W7	-17.6784	9/22/05	931				3.52	109	122	1705	0.14	2.0	144	4039	3.68	114.0	123	1720	0.54	22.1	7.848	31.353	0.37		<1	<1
W7	-17.6784	10/19/05	943				3.52	109	114	1593	0.06	0.8	144	4033	3.72	115.2	122	1710	NA	22.9	7.847	31.374	0.37		<1	<1
W7	-17.6784	11/8/05	929				3.50	108	114	1590	0.09	1.3	142	3994	3.66	113.4	122	1713	NA	22.5	7.841	31.394	0.37		<1	1
W7	-17.6784	12/22/05	901				3.46	107	67.2	941	0.32	4.5	143	4013	3.64	112.7	69.3	970	NA	23.3	7.805	32.011	2.48		<1	<1
W7	-17.6784	1/31/06	928				3.18	98	93.4	1308	0.33	4.6	139	3907	3.30	102.2	94.3	1321	NA	23.2	7.841	31.665	0.93		<1	<1
W7	-17.6784	2/16/06	925				3.24	100	95.4	1336	0.27	3.8	142	3977	3.82	118.3	99.5	1394	0.60	22.5	7.851	31.353	0.53		<1	<1
W7	-17.6784	3/22/06	916				3.18	98	97.7	1368	0.31	4.3	144	4044	3.28	101.6	103	1443	0.53	22.2	7.799	31.580	0.52		<1	<1
W7	-17.6784	4/27/06	1009				3.22	100	97.5	1366	0.23	3.2	141	3960	3.39	105.0	91.8	1286	0.58	21.9	7.802	31.677	0.74		<1	<1
W7	-17.6784	5/24/06	1022				3.03	94	95.5	1338	<0.05	0.0	149	4185	3.22	99.7	90.0	1261	0.64	21.9	7.798	31.622	1.12		<1	<1
W7	-17.6784	6/28/06	1022				3.06	95	103	1443	0.29	4.1	139	3904	3.28	101.6	99.3	1391	0.50	21.9	7.797	31.531	0.82		<1	<1
W7	-17.6784	7/19/06	944				3.02	94	101	1415	0.21	2.9	142	3988	3.11	96.3	87.6	1227	0.51	21.8	7.788	31.456	1.20		1	<1
W7	-17.6784	8/9/06	1050				3.05	94	101	1415	0.15	2.1	145	4072	3.16	97.9	93.4	1309	0.51	21.4	7.797	31.436	1.40		<1	<1
W7	-17.6784	9/20/06	1055				3.07	95	79.6	1115	0.15	2.1	150	4213	3.26	101.0	73.3	1026	0.53	23.2	7.768	32.067	0.89		<1	<1
W7	-17.6784	10/25/06	1014				3.16	98	87.7	1228	0.28	3.9	150	4213	3.20	99.1	85.2	1194	0.69	21.9	7.773	31.898	0.73		<1	<1
W7	-17.6784	11/29/06	1102				2.91	90	89.0	1247	0.21	2.9	151	4241	2.97	92.0	76.1	1066	0.50	22.9	7.722	32.017	0.80		<1	<1
W7	-17.6784	12/13/06	1052				2.94	91	85.7	1200	0.19	2.7	149	4185	3.09	95.7	79.6	1115	0.47	22.5	7.727	31.913	0.82		<1	<1
W7	-17.6784	1/10/07	1045				2.85	88	70.6	989	0.22	3.1	148	4157	3.00	92.9	71.5	1001	0.56	23.3	7.682	32.363	0.74		<1	<1
W7	-17.6784	2/21/07	1110				2.41	75	45.6	639	0.39	5.5	147	4129	2.53	78.4	51.4	720	0.58	24.5	7.654	32.869	1.38		<1	<1
W7	-17.6784	3/7/07	1104				2.54	79	44.6	625	0.30	4.2	150	4213	2.68	83.0	45.0	630	0.62	24.7	7.495	32.863	2.48		<1	<1
W7	-17.6784	4/19/07	1102				2.56	79	60.6	849	0.29	4.1	141	3960	2.62	81.2	52.4	733	0.52	23.7	7.743	32.019	0.32		<1	<1
W7	-17.6784	5/2/07	1051				2.54	79	65.4	916	0.32	4.5	141	3960	2.75	85.2	63.6	890	0.54	23.2	7.717	31.988	0.65		<1	<1
W7	-17.6784	6/20/07	1055				2.35	73	53.3	746	0.23	3.2	139	3904	2.56	79.3				22.9	7.700	32.164	0.16		<1	<1

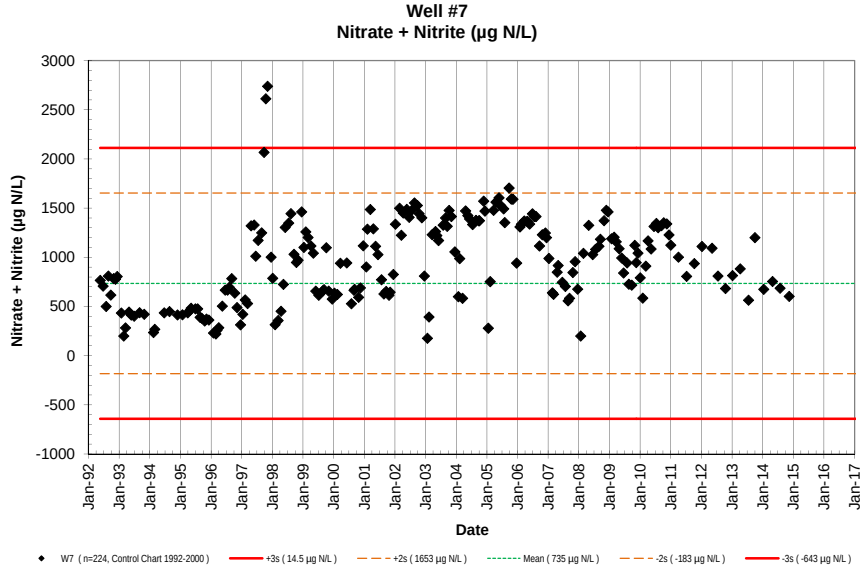
NELHA Water Quality Laboratory

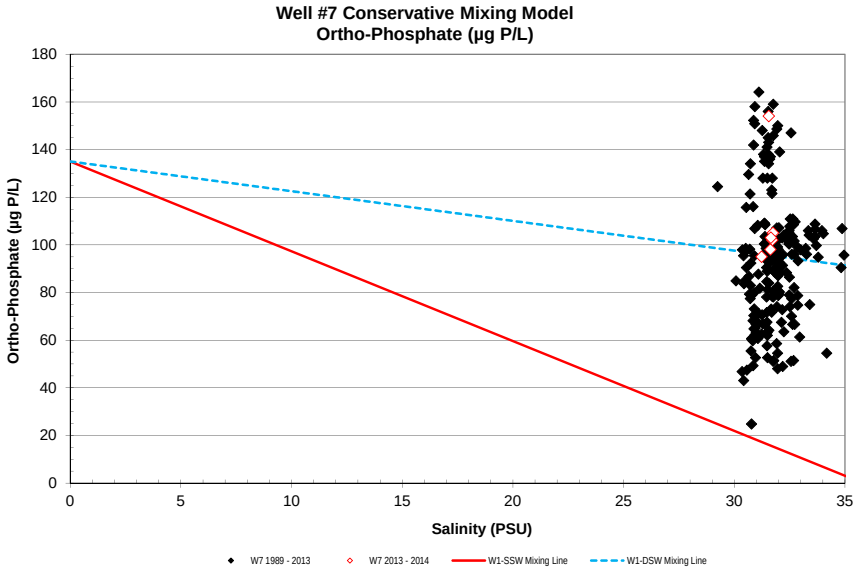
Well 7 Data Table

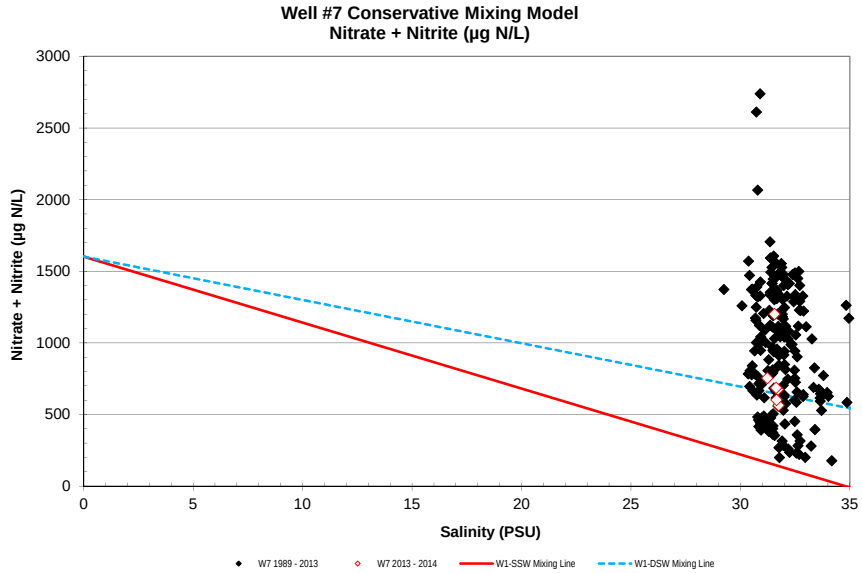
May 1992 - December 2014

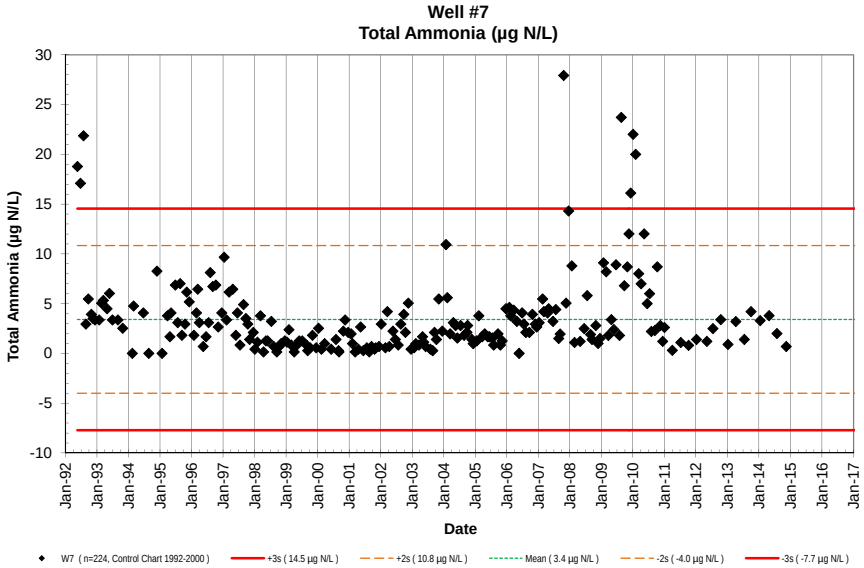
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W7	-17.6784	7/25/07	1249		0.55	Flood	2.67	83	50.2	704	0.31	4.4	135	3788	2.75	85.1	50.4	706		22.1	7.55	31.96	0.12			
W7	-17.6784	8/27/07	1215		0.24	Flood	2.53	78	39.8	558	0.11	1.5	111	3104	2.62	81.2	42.7	598		22.1	7.63	31.72	0.12			
W7	-17.6784	9/13/07	1540		0.40	Flood	2.60	80	41.7	584	0.14	2.0	138	3881	2.87	88.8	45.4	636		21.4	7.64	31.74	0.08			
W7	-17.6784	10/23/07	1157		0.38	Flood	4.71	146	60.4	846	1.99	27.9	275	7712	4.71	145.9	59.2	829		21.5	7.62	31.76	0.10			
W7	-17.6784	11/20/07	1202		0.43	Flood	2.36	73	68.2	955	0.36	5.1	126	3546	2.13	65.9	74.9	1049		22.3	7.61	31.67	0.11			
W7	-17.6784	12/19/07	1152		0.30	High	2.31	72	48.2	676	1.02	14.3	123	3468						20.8	7.67	31.69	0.10			
W7	-17.6784	1/25/08	905		0.43	Ebb	1.66	51	14.2	199	0.63	8.8	86	2405						21.1	7.32	31.78	0.20			
W7	-17.6784	2/26/08	1100		0.09	Ebb	2.58	80	74.3	1040	0.08	1.1	123	3446						20.9	7.48	32.00	0.06			
W7	-17.6784	3/17/08			Well bladder Pump Air Line Leak No Sample																					
W7	-17.6784	4/30/08	1209		0.27	Flood	2.18	68	94.6	1325	0.09	1.2	126	3538						23.3	7.36	32.13	0.41			
W7	-17.6784	5/15/08			Well bladder Pump Air Line Leak No Sample																					
W7	-17.6784	6/16/08	1226		0.30	Flood	2.95	91	73.4	1028	0.18	2.5	141	3954						21.2	7.47	32.18	3.25			
W7	-17.6784	7/21/08	1145		0.09	Low	3.10	96	77.2	1082	0.41	5.8	128	3586						20.7	6.61	32.20	0.93	0.09		
W7	-17.6784	8/30/08	1448		0.58	Flood	3.31	102	79.4	1112	0.14	1.9	68	1896						20.4	7.49	32.02	0.75	0.11		
W7	-17.6784	9/15/08	1208		0.12	Flood	3.46	107	84.4	1183	0.10	1.4	129	3632						21.9	7.46	31.92	0.91			
W7	-17.6784	10/30/08	1025		0.15	Low	4.02	124	98.0	1372	0.20	2.8	127	3580						22.7	7.46	29.25	3.49	0.11		
W7	-17.6784	11/25/08	1000		0.15	Low	3.92	122	105.5	1477	0.07	1.0	294	8244						20.7	7.33	31.70	0.17	0.07		
W7	-17.6784	12/16/08	1043		0.40	Ebb	4.80	149	104.3	1461	0.11	1.5	135	3786						20.4	7.61	31.92	0.72			
W7	-17.6784	1/26/09	1436		0.15	Flood	4.13	128	84.9	1189	0.65	9.1	116	3254						20.2	7.70	31.49	4.63	0.13		
W7	-17.6784	2/26/09	1104		0.03	Low	3.49	108	86.0	1204	0.59	8.2	120	3359						19.3	7.59	31.06	4.58	0.15		
W7	-17.6784	3/23/09	1039		0.06	Flood	3.92	121	82.6	1157	0.13	1.8	115	3219						18.0	7.53	30.71	4.67	1.41		
W7	-17.6784	4/27/09	1050		-0.1	Low	5.30	164	77.6	1087	0.24	3.4	114	3208						18.7	7.65	31.11	4.77	0.16		
W7	-17.6784	5/27/09	1422		0.24	Flood	4.58	142	70.9	993	0.17	2.4	96	2683						18.5	7.77	30.87	4.64	0.11		
W7	-17.6784	6/19/09	1120		0.46	Flood	3.74	116	59.9	840	0.64	8.9	105	2957						17.8	7.26	30.54	4.97	0.06		
W7	-17.6784	7/31/09	1030		0.46	Flood	4.18	130	67.3	943	0.13	1.8	91	2555						18.1	7.63	30.65	5.07	0.04		
W7	-17.6784	8/20/09	1133		0.09	Flood	3.45	107	51.8	726	1.69	23.7	90	2524						20.4	7.64	30.92	3.95	0.03		
W7	-17.6784	9/24/09	1043		0.52	Ebb	3.75	116	51.1	716	0.49	6.8	74	2076						18.3	8.26	30.85	4.49	0.03		
W7	-17.6784	10/30/09	1029		0.21	Flood	4.91	152	80.0	1121	0.62	8.7	165	4625						19.1	7.54	30.87	4.57	0.02		
W7	-17.6784	11/17/09	1133		0.12	Low	4.87	151	67.6	947	0.86	12.0	119	3339						18.1	7.56	30.92	3.61	0.03		
W7	-17.6784	12/8/09	1440		0.09	Ebb	5.10	158	74.4	1042	1.15	16.1	150	4216						19.3	7.55	30.93	1.26	0.02		
W7	-17.6784	1/4/10	1459		0.0	Low	4.55	141	56.5	792	1.57	22.0	154	4313						21.7	7.44	31.48	1.30	0.07		
W7	-17.6784	2/2/10	1419		-0.1	Low	4.75	147	41.8	585	1.43	20.0	138	3885						23.7	7.65	32.56	2.41	0.16		
W7	-17.6784	3/10/10	1339		0.21	High	5.13	159	65.0	911	0.57	8.0	163	4571						23.4	7.64	31.76	0.78	0.11		
W7	-17.6784	4/7/10	1234		0.21	High	4.84	150	83.3	1167	0.50	7.0	166	4673						20.4	7.57	31.96	1.01	0.24		
W7	-17.6784	5/12/10	1344		0.46	Flood	3.97	123	77.5	1085	0.86	12.0	155	4361						20.4	7.63	31.69	0.91	0.05		
W7	-17.6784	6/16/10	1159		0.09	Low	4.46	138	93.7	1313	0.36	5.0	171	4814						21.7	7.62	31.54	1.66	0.08		
W7	-17.6784	7/14/10	949		0.15	Ebb	4.13	128	96.0	1344	0.43	6.0	176	4939						20.5	7.54	31.72	0.93	0.07		
W7	-17.6784	8/4/10	1025		0.52	Flood	4.42	137	92.9	1301	0.16	2.2	164	4619						20.5	7.60	31.55	0.80	0.13		
W7	-17.6784	9/13/10	1606		0.21	Low	4.39	136	94.4	1322	0.16	2.3	165	4623						20.2	7.57	31.60	0.73	0.11		
W7	-17.6784	10/11/10	1130		0.34	Ebb	4.42	137	96.5	1351	0.62	8.7	159	4468						20.9	7.63	31.36	0.72	0.36		
W7	-17.6784	11/15/10	1234		0.43	High	4.33	134	95.6	1339	0.20	2.8	159	4455						20.5	7.56	31.55	0.76	0.04		
W7	-17.6784	12/13/10	1015		0.40	High	4.46	138	87.6	1227	0.09	1.2	158	4439						19.9	7.51	31.32	0.67	0.09		
W7	-17.6784	1/3/11	1430		0.15	Flood	4.36	135	80.2	1123	0.19	2.6	150	4214						20.5	7.56	31.36	0.93	0.04		
W7	-17.6784	4/4/11	1506		0.34	Flood	4.33	134	71.5	1002	0.02	0.3	131	3672						19.3	7.56	30.73	3.80	0.15		
W7	-17.6784	7/11/11	1429		0.73	High	4.78	148	57.5	806	0.08	1.1	143	4005						20.3	7.59	31.26	3.58	0.07		
W7	-17.6784	10/10/11	1326		0.37	Flood	5.04	156	66.9	937	0.06	0.8	139	3908						19.6	7.63	31.53	2.93	0.11		
W7	-17.6784	1/9/12	1348		0.06	Flood	4.36	135	79.2	1110	0.10	1.4	137	3847						20.8	7.64	31.47	1.69	0.03		
W7	-17.6784	5/8/12	1444		0.30	Flood	4.42	137	78.0	1092	0.09	1.2	146	4104						20.5	7.56	31.63	3.18	0.23		
W7	-17.6784	7/17/12	1400		0.61	Flood	4.62	143	57.8	810	0.18	2.5	138	3862						19.4	7.59	31.55	4.29	0.14		
W7	-17.6784	10/15/12	1202		0.06	Flood	4.68	145	48.8	683	0.24	3.4	134	3751						19.1	7.60	31.53	4.05	0.02		
W7	-17.6784	1/7/13	1256		0.24	High	4.49	139	58.1	814	0.06	0.9	174	4899						20.1	7.67	32.05	3.96	0.06		
W7	-17.6784	4/8/13	1235		0.18	Flood	4.13	128	63.0	882	0.23	3.2	122	3418						18.7	7.80	31.29	4.51	0.06		
W7	-17.6784	7/16/13	1446		0.37	Ebb	3.39	105	40.3	564	0.10	1.4	122	3433						19.8	7.74	31.75	4.45	0.11		
W7	-17.6784	10/1/13	1610		0.30	Ebb	4.97	154	85.7	1200	0.30	4.2	149	4175						19.1	7.79	31.56	5.14	0.05		
W7	-17.6784	1/14/14	1506		0.70	High	3.29	102	48.1	674	0.24	3.3	128	3605						19.6	7.76	31.72	4.41	0.02		
W7	-17.6784	4/28/14	1714		0.58	High	3.07	95	53.8	754	0.27	3.8	125	3522						20.9	7.76	31.23	5.77	0.07		
W7	-17.6784	7/28/14	1502		0.49	Flood	3.16	98	49.0	686	0.14	2.0	119	3355						20.0	7.67	31.63	4.55	0.02		
W7	-17.6784	11/13/14	1154		0.37	Flood	3.33	103	43.0	602	0.05	0.7	124	3484						20.9	7.74	31.65	4.15	0.03		
W7	-17.6784	1/1/15																								
W7	-17.6784	4/1/15																								

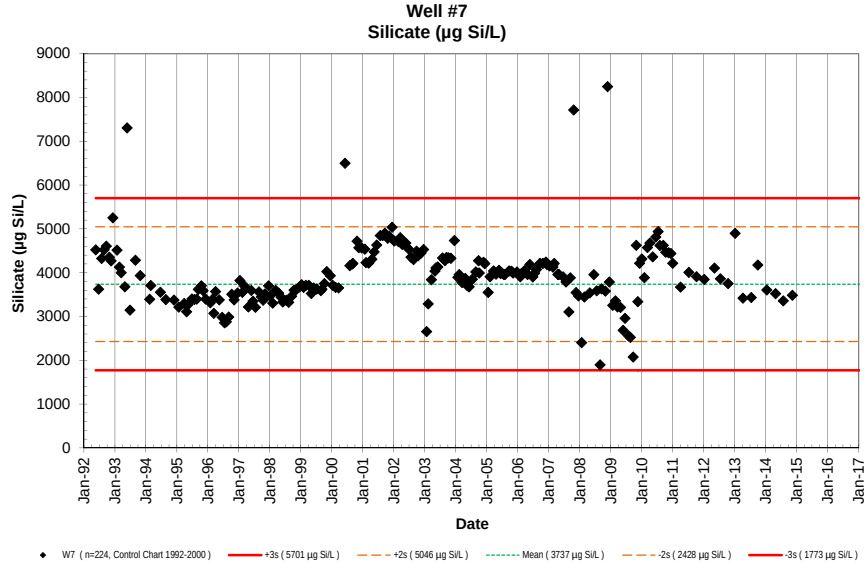

Well #7
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W7 (n=224, Control Chart 1992-2000)
+3s (125 µg P/L)
+2s (108 µg P/L)
Mean (74 µg P/L)
-2s (40 µg P/L)
-3s (23 µg P/L)

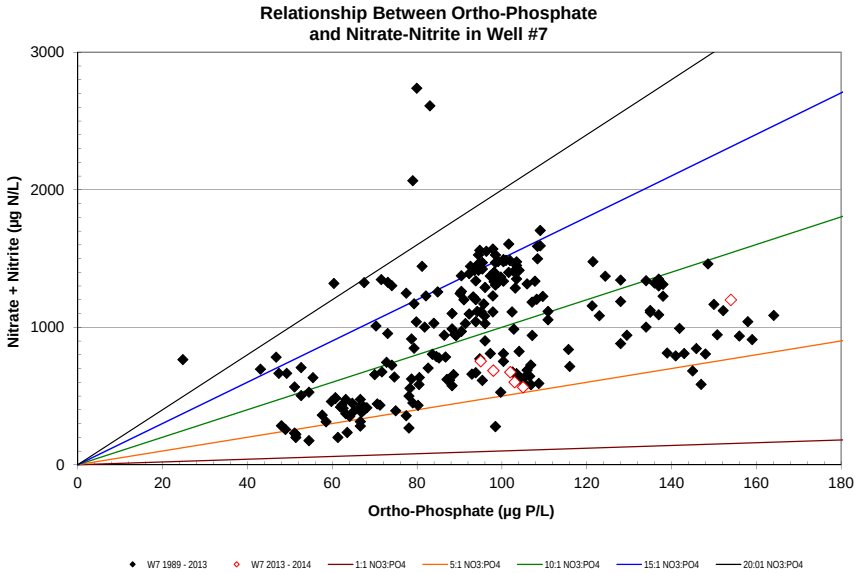

Well #7
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W7 (n=224, Control Chart 1992-2000)
+3s (14.5 µg N/L)
+2s (1653 µg N/L)
Mean (735 µg N/L)
-2s (-183 µg N/L)
-3s (-643 µg N/L)

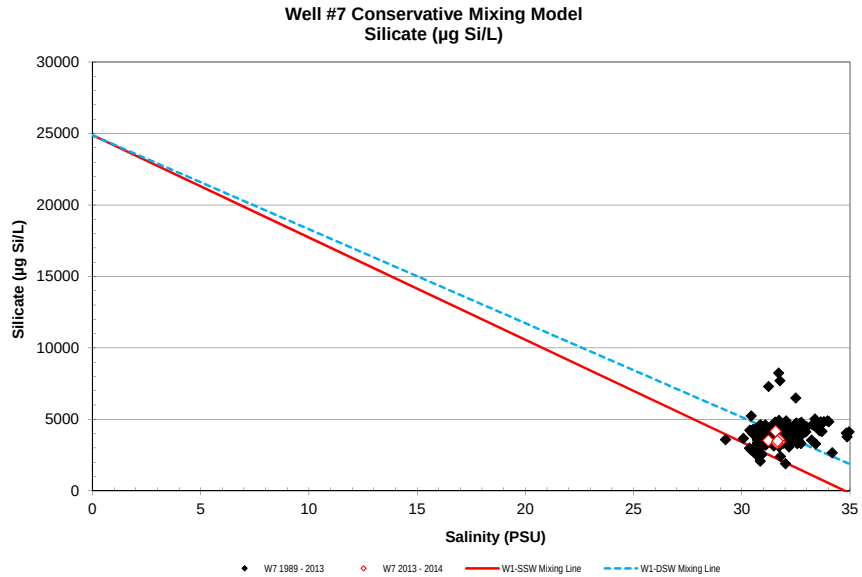

Well #7 Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W7 1989 - 2013
W7 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

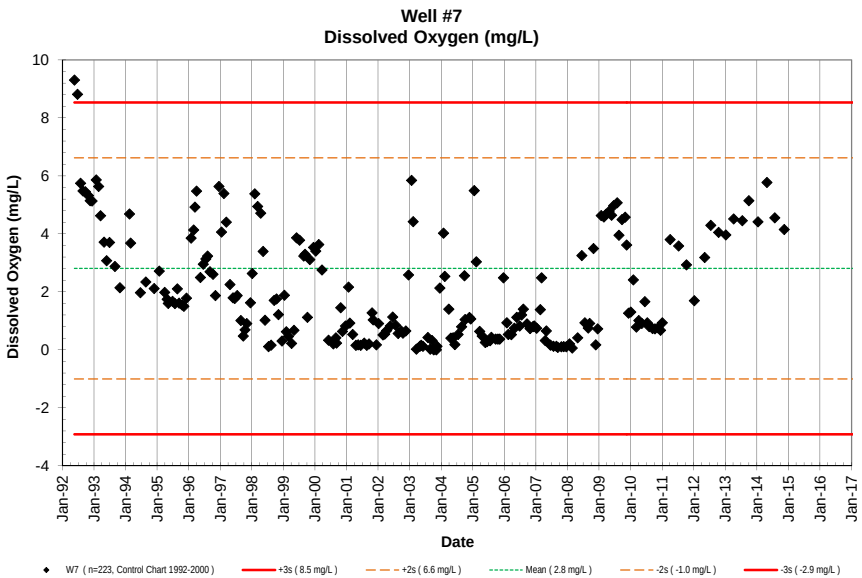

Well #7 Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W7 1989 - 2013
W7 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

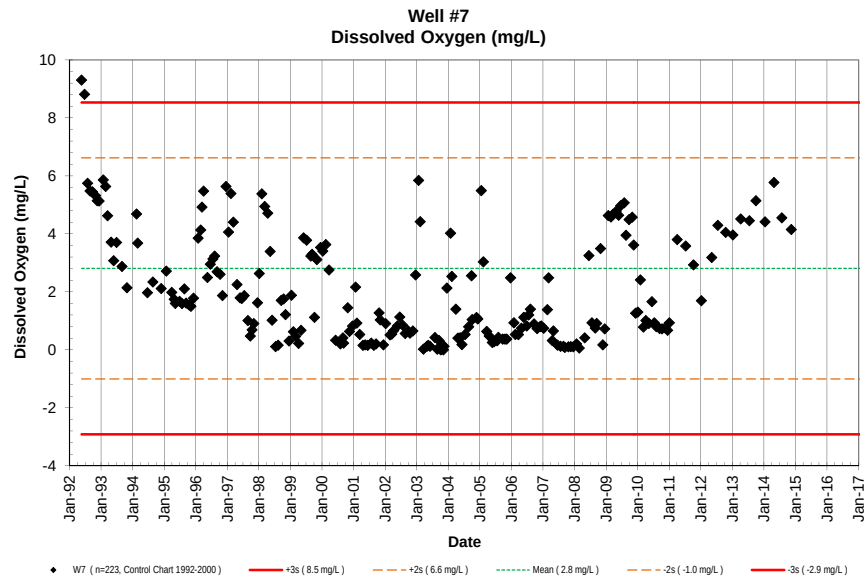

Well #7
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W7 (n=224, Control Chart 1992-2000)
+3s (14.5 µg N/L)
+2s (10.8 µg N/L)
Mean (3.4 µg N/L)
-2s (-4.0 µg N/L)
-3s (-7.7 µg N/L)

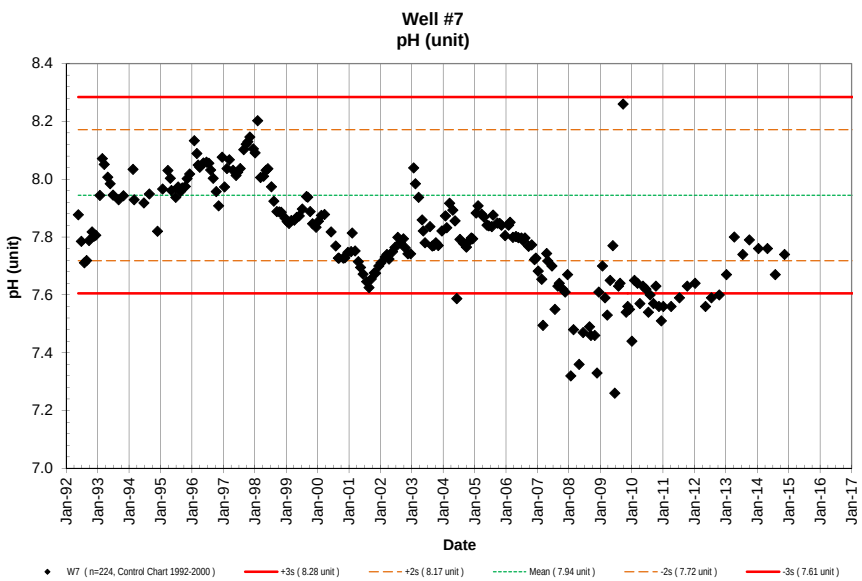

Well #7
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W7 (n=224, Control Chart 1992-2000)
+3s (5701 µg Si/L)
+2s (5046 µg Si/L)
Mean (3737 µg Si/L)
-2s (2428 µg Si/L)
-3s (1773 µg Si/L)

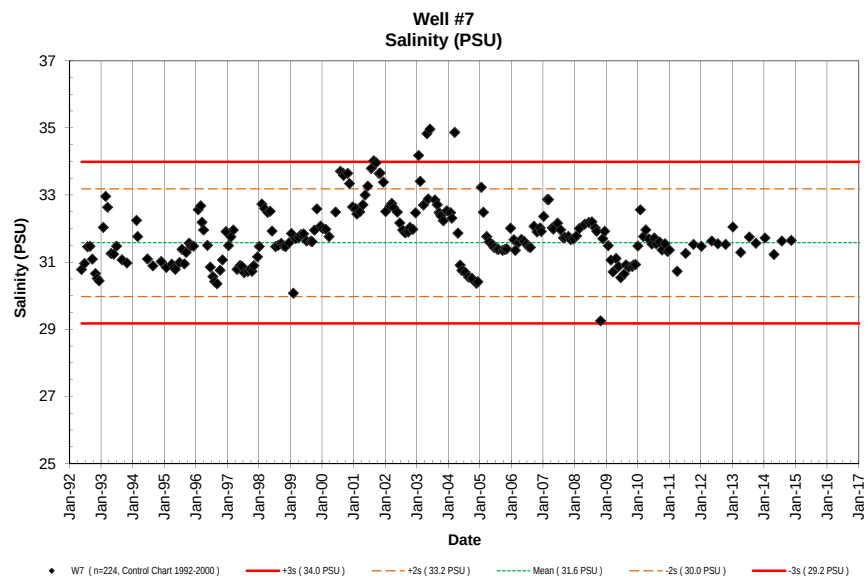

Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #7
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W7 1989 - 2013
W7 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

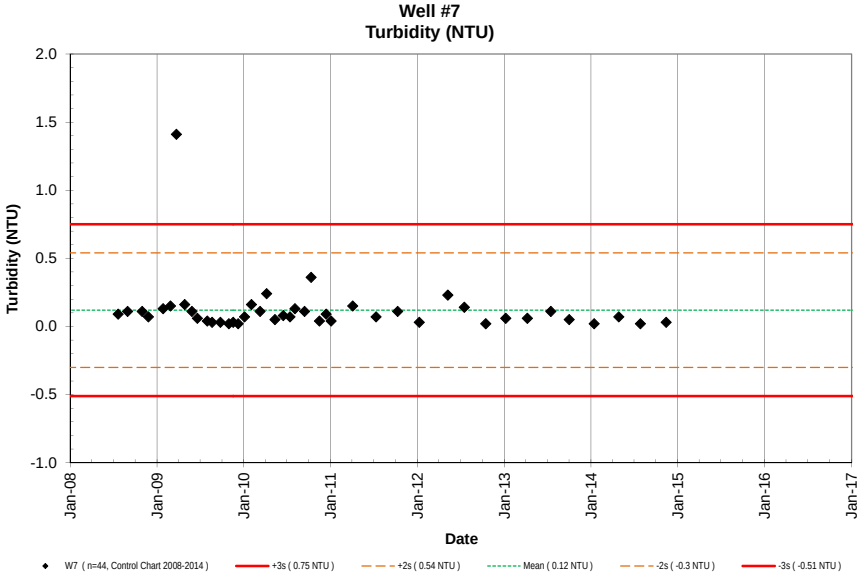

Well #7 Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W7 1989 - 2013
W7 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line


Well #7
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W7 (n=223, Control Chart 1992-2000)
+3s (8.5 mg/L)
+2s (6.6 mg/L)
Mean (2.8 mg/L)
-2s (-1.0 mg/L)
-3s (-2.9 mg/L)


Well #7
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W7 (n=223, Control Chart 1992-2000)
+3s (8.5 mg/L)
+2s (6.6 mg/L)
Mean (2.8 mg/L)
-2s (-1.0 mg/L)
-3s (-2.9 mg/L)


Well #7
pH (unit)
pH (unit)
Date
W7 (n=224, Control Chart 1992-2000)
+3s (8.28 unit)
+2s (8.17 unit)
Mean (7.94 unit)
-2s (7.72 unit)
-3s (7.61 unit)


Well #7
Salinity (PSU)
Salinity (PSU)
Date
W7 (n=224, Control Chart 1992-2000)
+3s (34.0 PSU)
+2s (33.2 PSU)
Mean (31.6 PSU)
-2s (30.0 PSU)
-3s (29.2 PSU)


Well #7
Turbidity (NTU)
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
Turbidity (NTU)
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W7 (n=44, Control Chart 2008-2014)
+3s (0.75 NTU)
+2s (0.54 NTU)
Mean (0.12 NTU)
-2s (-0.3 NTU)
-3s (-0.51 NTU)

NELHA Water Quality Laboratory

Well 7A Data Table

May 1992 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W7A	-10.36	5/20/92	815				3.87	120	58.3	817	0.35	4.9	253	7106	3.95	122.3	59.5	833	0.71	15.1	7.506	28.256	6.98		<1	<1
W7A	-10.36	6/24/92	820				3.55	110	53.7	752	0.72	10.1	217	6095	3.66	113.4	56.6	793	1.13	16.7	7.622	29.313	6.72		<1	<1
W7A	-10.36	7/30/92	744				3.21	99	50.4	706	1.22	17.1	189	5308	3.32	102.8	53.6	751	0.90	19.6	7.779	29.578	6.61		31	22
W7A	-10.36	8/26/92	948				4.22	131	60.4	846	0.18	2.5	229	6432	4.24	131.3	32.6	457	0.78	16.5	7.648	28.509	6.56		<1	<1
W7A	-10.36	9/23/92	807				3.93	122	51.4	720	0.31	4.3	248	6965	3.97	123.0	57.8	809	0.73	16.6	7.648	28.346	6.51		<1	<1
W7A	-10.36	10/28/92	842				3.59	111	53.8	754	0.21	2.9	230	6460	3.68	114.0	56.3	788	0.73	17.3	7.685	28.800	5.86		<1	<1
W7A	-10.36	11/18/92	833				3.77	117	59.9	839	0.21	2.9	248	6965	4.23	131.0	65.8	921	0.79	16.7	7.620	27.953	6.14		<1	<1
W7A	-10.36	12/9/92	825				3.56	110	53.3	747	0.20	2.8	235	6600	3.70	114.6	56.5	792	0.80	16.8	7.682	28.598	6.40		<1	<1
W7A	-10.36	1/27/93	801				2.09	65	30.5	427	0.29	4.1	183	5137	2.32	71.9	33.7	473	0.76	20.8	7.986	30.356	5.71		<1	<1
W7A	-10.36	2/24/93	749				2.86	89	44.8	628	0.35	4.9	208	5847	2.89	89.5	47.2	661	0.69	21.9	8.071	28.986	5.05		<1	<1
W7A	-10.36	3/17/93	756				3.19	99	47.8	669	0.38	5.3	226	6336	3.24	100.4	51.2	717	0.61	21.7	8.051	28.120	5.21		<1	<1
W7A	-10.36	4/28/93	748				2.92	90	40.1	562	0.32	4.5	209	5870	2.95	91.4	43.0	602	0.58	18.7	7.901	28.551	4.73		<1	<1
W7A	-10.36	5/26/93	752				2.57	80	38.4	537	0.24	3.4	260	7302	2.67	82.7	42.9	601	0.61	18.8	7.932	28.719	4.52		<1	<1
W7A	-10.36	6/29/93	805				2.82	87	41.7	584	0.21	2.9	208	5842	2.93	90.8	45.6	638	0.58	18.7	7.878	28.528	4.65		<1	<1
W7A	-10.36	9/1/93	805				3.42	106	53.5	749	0.23	3.2	268	7527	3.51	108.7	63.9	895	0.66	19.1	7.763	26.930	3.74		<1	<1
W7A	-10.36	10/27/93	758				3.26	101	42.9	600	0.17	2.4	234	6572	3.31	102.5	46.1	645	0.68	19.8	7.846	27.248	1.65		<1	<1
W7A	-10.36	3/1/94	1018				3.40	105	39.2	549	0.25	3.5	224	6291	3.35	103.8	45.6	639	0.71	19.6	7.809	26.547	1.77		<1	<1
W7A	-10.36	6/22/94	737				2.98	92	27.9	390	0.29	4.1	195	5485	2.99	92.6	32.0	448	0.65	19.4	7.824	27.780	0.96		<1	<1
W7A	-10.36	8/24/94	759				2.99	93	37.0	518	0.00	0.0	168	4727	3.05	94.5	44.5	624	0.67	19.4	7.817	29.064	2.52		<1	<1
W7A	-10.36	11/28/94	952				2.87	89	53.7	752	0.43	6.0	387	10878	2.92	90.4	52.1	730	0.55	20.4	7.750	26.527	1.43		<1	<1
W7A	-10.36	1/25/95	830				2.71	84	42.2	591	0.00	0.0	197	5538	2.75	85.2	44.9	628	0.55	19.6	7.897	27.646	2.47		<1	<1
W7A	-10.36	2/15/94	848				2.62	81	46.4	650	0.00	0.0	188	5280	2.64	81.8	53.6	751	0.57	20.2	7.934	27.924	2.03		<1	<1
W7A	-10.36	3/29/95	828				2.81	87	47.7	669	0.30	4.2	210	5895	2.83	87.7	50.7	710	0.55	19.9	7.926	26.852	1.83		<1	<1
W7A	-10.36	4/26/95	822				3.01	93	56.3	788	0.08	1.1	195	5488	3.15	97.6	60.3	845	0.64	20.0	7.919	27.178	1.88		<1	<1
W7A	-10.36	5/9/95	1005				3.31	103	56.1	786	0.27	3.8	232	6510	3.31	102.5	58.7	821	0.58	20.3	7.864	26.112	1.28		<1	<1
W7A	-10.36	6/28/95	820				3.12	97	49.5	694	0.51	7.1	213	5977	3.13	96.9	52.1	730	0.58	20.2	7.846	26.409	2.17		<1	<1
W7A	-10.36	7/26/95	1000				3.03	94	42.9	601	0.21	2.9	215	6041	3.09	95.7	45.4	636	0.55	20.7	7.884	26.609	2.34		<1	<1
W7A	-10.36	8/23/95	914				2.54	79	35.6	498	0.44	6.2	169	4741	2.64	81.8	37.1	520	0.57	20.7	7.891	28.595	2.01		<1	<1
W7A	-10.36	9/12/95	907				2.73	85	37.1	520	0.14	2.0	191	5359	2.80	86.7	39.8	558	0.51	20.5	7.896	27.584	1.93		<1	<1
W7A	-10.36	10/17/95	10				2.79	86	49.1	688	0.17	2.4	375	10529	2.95	91.4	50.7	711	0.69	20.6	7.888	28.393	2.78		<1	<1
W7A	-10.36	11/7/95	1005				2.47	77	34.8	487	0.44	6.2	178	5010	2.48	76.8	36.3	508	0.67	20.5	7.952	28.312	2.52		<1	<1
W7A	-10.36	12/6/95	1019				2.12	66	31.8	446	0.38	5.3	165	4645	2.34	72.5	34.4	481	0.71	21.1	7.989	28.931	2.52		<1	<1
W7A	-10.36	1/30/96	1106				2.93	91	43.7	612	0.11	1.5	208	5850	3.12	96.6	44.9	629	0.57	21.0	7.936	26.655	2.45		<1	<1
W7A	-10.36	2/27/96	1220				3.15	98	60.9	852	0.21	2.9	199	5586	3.29	101.9	64.1	898	0.74	20.8	7.918	26.682	2.52		<1	<1
W7A	-10.36	2/27/96	1135				3.51	109	80.2	1123	0.40	5.6	206	5780	3.59	111.2	83.3	1166	0.73	21.2	7.849	26.247	2.39		<1	<1
W7A	-10.36	4/2/96	1020				3.71	115	86.1	1206	0.20	2.8	224	6282	3.84	118.9	91.8	1285	0.78	21.0	7.829	26.749	2.54		<1	<1
W7A	-10.36	5/15/96	1148				3.77	117	76.4	1070	0.05	0.7	203	5713	3.83	118.6	81.7	1144	0.58	20.8	7.855	27.670	2.75		<1	<1
W7A	-10.36	6/18/96	1116				3.67	114	64.2	899	0.11	1.5	195	5483	3.71	114.9	67.8	950	0.59	20.5	7.875	23.773	2.77		<1	<1
W7A	-10.36	7/17/96	1143				4.64	144	117.7	1649	125	1756	197	5531	4.60	142.5	197.2	2763	0.80	21.0	7.929	27.469	0.34		<1	<1
W7A	-10.36	8/6/96	1159				4.21	130	90.6	1269	0.46	6.4	206	5778	4.27	132.3	96.3	1348	0.70	21.8	7.764	27.690	1.93		<1	<1
W7A	-10.36	9/4/96	1145				3.86	120	69.5	974	0.42	5.9	195	5481	3.87	119.9	72.4	1014	0.72	22.1	7.807	28.271	2.61		<1	<1
W7A	-10.36	10/9/96	1239				3.05	94	45.4	636	0.47	6.6	197	5529	3.23	100.0	49.6	694	0.66	21.5	7.877	28.926	3.92		<1	<1
W7A	-10.36	11/6/96	1143				3.18	98	49.5	693	0.20	2.8	181	5091	3.33	103.1	54.8	768	0.71	21.3	7.842	28.254	2.73		<1	<1
W7A	-10.36	12/17/96	1204				2.90	90	54.6	764	0.21	2.9	170	4764	2.99	92.6	59.8	838	0.47	22.3	7.889	28.486	3.19		<1	1
W7A	-10.36	1/14/97	1157				3.18	98	74.8	1048	0.21	2.9	192	5401	3.23	100.0	79.3	1111	0.67	22.1	7.890	27.845	2.63		<1	<1
W7A	-10.36	2/11/97	1021				2.46	76	75.3	1054	0.21	2.9	173	4856	2.47	76.5	78.4	1098	0.84	22.7	7.973	29.586	4.14		<1	<1
W7A	-10.36	3/11/97	909				3.45	107	138.0	1933	0.22	3.1	189	5300	3.69	114.3	141.1	1976	0.71	21.4	7.938	28.416	2.46		<1	<1
W7A	-10.36	4/23/97	1147				3.38	105	150.7	2111	0.34	4.8	170	4783	3.60	111.5	169.8	2378	0.92	21.3	7.987	28.442	1.93		<1	<1
W7A	-10.36	5/28/97	1034				3.61	112	147.5	2066	0.02	0.3	178	5005	4.13	127.9	171.5	2402	0.75	20.5	7.975	28.503	1.84		<1	<1
W7A	-10.36	6/17/97	1115				4.27	132	123.4	1728	0.21	2.9	174	4881	4.31	133.5	149.5	2094	0.71	20.7	7.963	28.724	1.61		<1	<1

NELHA Water Quality Laboratory

Well 7A Data Table

May 1992 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W7A	-10.36	7/15/97	1110				5.55	172	154.1	2158	0.14	2.0	173	4862	5.58	172.8	159.4	2233	0.64	21.0	7.903	28.524	0.41		<1	<1
W7A	-10.36	8/26/97	1142				5.94	184	164.2	2300	0.29	4.1	186	5230	5.94	184.0	176.8	2476	0.66	23.2	7.925	29.156	0.50		<1	<1
W7A	-10.36	9/23/97	957				5.85	181	121.5	1702	0.23	3.2	189	5294	5.85	181.2	125.3	1755	0.69	22.9	7.940	28.498	0.91		<1	<1
W7A	-10.36	10/14/97	1045				5.12	159	85.5	1198	0.21	2.9	189	5303	5.12	158.6	96.5	1352	0.65	22.3	7.932	28.419	1.90		<1	<1
W7A	-10.36	11/4/97	914				4.41	137	75.9	1063	0.22	3.1	182	5112	4.59	142.2	89.0	1247	0.67	21.4	7.993	28.698	1.78		<1	<1
W7A	-10.36	12/16/97	1115				5.14	159	104.6	1465	0.08	1.1	193	5409	5.32	164.8	107.0	1499	0.69	21.9	7.898	28.709	1.32		<1	<1
W7A	-10.36	1/5/98	938				4.50	139	81.8	1146	0.02	0.3	168	4714	4.64	143.7	88.3	1237	0.63	21.9	7.972	29.479	2.32		<1	<1
W7A	-10.36	2/3/98	906				3.84	119	68.5	959	0.04	0.6	171	4814	4.06	125.8	73.6	1031	0.64	22.4	8.028	29.549	2.83		<1	<1
W7A	-10.36	3/10/98	935				5.11	158	83.7	1172	0.11	1.5	198	5555	5.33	165.1	89.0	1246	0.77	21.8	7.741	28.274	2.04		1	1
W7A	-10.36	4/14/98	1103				5.04	156	100.5	1408	0.01	0.1	190	5342	5.21	161.4	103.1	1444	0.73	22.0	7.780	29.041	1.94		<1	<1
W7A	-10.36	5/12/98	937				4.80	149	109.3	1531	0.09	1.3	191	5356	4.89	151.5	110.9	1553	0.71	21.9	7.778	28.920	2.44		<1	<1
W7A	-10.36	6/2/98	938				4.66	144	110.3	1545	0.10	1.4	191	5369	4.80	148.7	114.0	1597	0.68	21.8	7.773	28.861	2.06		<1	<1
W7A	-10.36	7/14/98	930				4.77	148	110.1	1542	0.18	2.5	186	5235	4.93	152.7	110.8	1552	0.62	22.4	7.684	29.583	1.76		<1	<1
W7A	-10.36	8/11/98	952				3.98	123	76.3	1068	0.09	1.3	175	4912	4.16	128.9	84.5	1184	0.85	21.6	7.774	29.845	2.22		<1	<1
W7A	-10.36	9/15/98	944				3.90	121	67.8	949	0.05	0.7	171	4797	3.97	123.0	69.5	973	0.85	21.3	7.749	30.350	1.59		<1	<1
W7A	-10.36	10/13/98	844				4.60	142	95.2	1333	0.06	0.8	176	4937	4.61	142.8	99.5	1394	0.71	22.4	7.704	30.368	1.19		<1	<1
W7A	-10.36	11/4/98	937				4.38	136	84.4	1182	0.10	1.4	176	4932	4.52	140.0	89.3	1251	1.12	23.1	7.724	30.295	1.13		<1	<1
W7A	-10.36	12/16/98	927				4.65	144	82.4	1154	0.09	1.3	173	4853	4.83	149.6	88.9	1245	0.86	23.2	7.698	29.843	1.77		1	<1
W7A	-10.36	1/12/99	958				4.20	130	76.4	1070	0.07	1.0	181	5078	4.36	135.0	78.9	1105	0.89	22.9	7.712	30.024	2.24		<1	<1
W7A	-10.36	2/3/99	950				4.34	134	97.4	1364	0.48	6.7	164	4603	4.45	137.8	103.6	1451	0.85	22.7	7.695	30.096	2.25		<1	<1
W7A	-10.36	3/2/99	947				4.31	133	89.2	1249	0.04	0.6	165	4640	4.48	138.8	91.1	1276	0.79	22.6	7.724	30.075	2.70		<1	<1
W7A	-10.36	4/6/99	934				4.19	130	89.8	1258	0.02	0.3	164	4592	4.28	132.6	93.4	1308	0.63	22.3	7.701	30.596	2.09		<1	<1
W7A	-10.36	5/4/99	943				3.78	117	72.4	1014	0.04	0.6	155	4364	3.88	120.2	78.9	1105	0.69	21.2	7.759	30.276	2.73		<1	<1
W7A	-10.36	6/2/99	933				3.20	99	58.7	822	0.10	1.4	150	4213	3.37	104.4	61.4	860	0.66	20.6	7.768	30.459	2.77		<1	<1
W7A	-10.36	7/7/99	1011				3.53	109	59.8	838	0.07	1.0	150	4224	3.61	111.8	62.4	874	0.69	21.2	7.758	30.340	2.73		<1	<1
W7A	-10.36	8/25/99	935				3.80	118	76.2	1067	0.15	2.1	147	4129	3.92	121.4	81.9	1147	0.76	23.2	7.703	30.791	1.77		<1	<1
W7A	-10.36	9/8/99	946				3.88	120	77.8	1089	0.06	0.8	153	4303	4.07	126.1	89.9	1259	0.76	22.9	7.705	30.838	1.36		<1	<1
W7A	-10.36	10/6/99	952				3.45	107	55.3	775	0.01	0.1	146	4109	3.61	111.8	58.7	822	0.66	22.0	7.738	30.699	2.95		<1	<1
W7A	-10.36	11/3/99	1007				3.04	94	55.8	782	0.13	1.8	150	4210	3.26	101.0	59.9	839	0.65	21.7	7.783	30.485	2.74		<1	<1
W7A	-10.36	12/15/99	1026				3.50	108	60.3	845	0.03	0.4	148	4162	3.93	121.7	72.4	1014	0.72	22.6	7.712	30.849	2.87		<1	<1
W7A	-10.36	1/11/00	1002				3.62	112	73.9	1035	0.15	2.1	149	4176	3.69	114.3	81.4	1140	0.74	22.3	7.715	30.096	2.33		<1	<1
W7A	-10.36	2/14/00	1001				4.02	125	73.2	1025	0.06	0.8	145	4081	4.15	128.5	88.2	1235	0.81	22.6	7.720	30.349	2.31		<1	<1
W7A	-10.36	3/22/00	1018				3.94	122	73.5	1029	0.05	0.7	146	4100	3.86	119.6	75.7	1060	0.76	22.3	7.739	30.235	2.48		<1	<1
W7A	-10.36	4/12/00	1008				4.07	126	66.4	930	0.03	0.4	150	4210	3.98	123.3	70.1	982	0.78	22.2	7.767	29.897	2.50		<1	<1
W7A	-10.36	5/17/00	948				3.95	122	69.6	975	0.02	0.3	147	4123	4.10	127.0	75.2	1053	0.80	21.9	7.718	29.977	2.10		<1	<1
W7A	-10.36	6/6/00	1010				4.16	129	72.9	1021	0.03	0.4	200	5609	4.29	132.9	79.6	1115	0.75	21.9	7.687	29.871	1.93		<1	<1
W7A	-10.36	7/31/00	954				4.31	133	71.1	996	0.11	1.5	167	4679	4.35	134.7	73.3	1027	0.82	22.5	7.677	29.921	1.75		<1	<1
W7A	-10.36	8/30/00	955				4.00	124	74.9	1049	0.01	0.1	158	4423	4.10	127.0	75.9	1063	1.33	23.3	7.576	30.513	1.29		<1	<1
W7A	-10.36	9/6/00	937				3.90	121	75.7	1060	0.04	0.6	157	4409	4.10	127.0	79.0	1107	0.79	23.4	7.545	30.773	1.01		<1	<1
W7A	-10.36	10/25/00	1124				4.05	125	73.4	1028	0.10	1.4	158	4449	4.21	130.4	81.0	1135	0.76	24.4	7.525	31.003	1.56		<1	<1
W7A	-10.36	11/14/00	959				3.90	121	82.7	1158	0.27	3.8	154	4322	4.18	129.5	88.5	1240	0.85	24.2	7.545	30.909	1.34		<1	<1
W7A	-10.36	12/19/00	935				3.89	120	100	1405	0.11	1.5	151	4235	4.33	134.1	102	1429	0.76	23.6	7.609	30.101	1.16		<1	<1
W7A	-10.36	1/24/01	922				3.75	116	72.4	1014	0.11	1.5	170	4775	3.90	120.8	76.2	1067	0.71	23.3	7.618	30.788	1.09		<1	<1
W7A	-10.36	2/7/01	948				3.60	112	75.2	1053	0.08	1.1	150	4221	3.63	112.4	77.2	1081	0.71	23.2	7.682	30.786	0.67		<1	<1
W7A	-10.36	3/12/01	928				3.96	123	79.8	1118	0.01	0.1	156	4381	4.14	128.2	81.4	1140	0.79	22.7	7.542	30.234	0.63		<1	<1
W7A	-10.36	4/18/01	916				4.73	147	75.8	1062	0.03	0.4	143	4019	4.80	148.7	76.6	1073	0.73	22.0	7.548	30.327	1.53		<1	<1
W7A	-10.36	5/14/01	1050				4.94	153	78.6	1101	0.18	2.5	147	4117	4.98	154.2	80.8	1131	0.64	21.9	7.589	30.169	1.67		<1	<1
W7A	-10.36	6/13/01	942				4.88	151	80.2	1124	0.02	0.3	148	4159	4.88	151.2	81.9	1147	0.61	21.9	7.593	30.316	1.46		<1	<1
W7A	-10.36	7/24/01	1002				4.24	131	80.7	1130	0.06	0.8	154	4314	4.22	130.7	83.9	1175	0.76	22.4	7.597	30.530	0.90		<1	<1
W7A	-10.36	8/22/01	1001				4.34	134	88.6	1241	0.01	0.1	148	4143	4.28	132.6	90.4	1266	0.91	22.8	7.586	30.572	0.82		<1	<1
W7A	-10.36	9/17/01	1035				4.32	134	86.5	1212	0.02	0.3	153	4289	4.36	135.0	93.9	1315	0.89	23.6	7.621	30.523	0.91		<1	<1
W7A	-10.36	10/22/01	1023				4.12	128	82.6	1157	0.02	0.3	149	4196	4.24	131.3	85.6	1199	0.71	23.4	7.631	30.478	1.31		<1	<1
W7A	-10.36	11/5/01	1055				4.16	129	88.1	1234	0.02	0.3	150	4213	4.22	130.7	102	1434	0.72	23.3	7.622	30.409	1.30		<1	<1
W7A	-10.36	12/12/01	1039				4.24	131	86.6	1213	0.03	0.4	155	4359	4.31	133.5	97.5	1366	0.75	22.8	7.642	29.943	1.70		<1	<1
W7A	-10.36	1/7/02	1038				2.80	87	47.4	664	0.26	3.6	133	3741	3.18	98.5	55.8	782	0.74	23.3	7.848	31.262	4.33		<1	1
W7A	-10.36	2/25/02	958				4.58	142	97.1	1361	0.05	0.7	158	4429	4.62	143.1	104	1462	0.68	22.1	7.692	30.216	1.78		<1	<1
W7A	-10.36	3/18/02	1023				4.90	152	97.4	1364	0.28	3.9	147	4129	5.04	156.1	102	1431	0.70	21.9	7.727	30.218	1.36		<1	<1
W7A	-10.36	4/10/02	1029				5.56	172	126	1761	2.97	41.6	150	4224	5.66	175.3	136	1898	1.51	22.0	7.780	30.104	0.37		<1	89
W7A	-10.36	5/22/02	1037				6.94	215	79.1	1108	0.14	2.0	157	4415	7.11	220.2	93.5	1310	0.84	22.1	7.862	29.592	0.19		<1	2
W7A	-10.36	6/19/02	1122				6.62	205	73.3	1027	0.11	1.5	156	4379	6.76	209.4	78.6	1101	0.74	22.4	7.778	30.000	0.40		<1	2

NELHA Water Quality Laboratory

Well 7A Data Table

May 1992 - December 2014

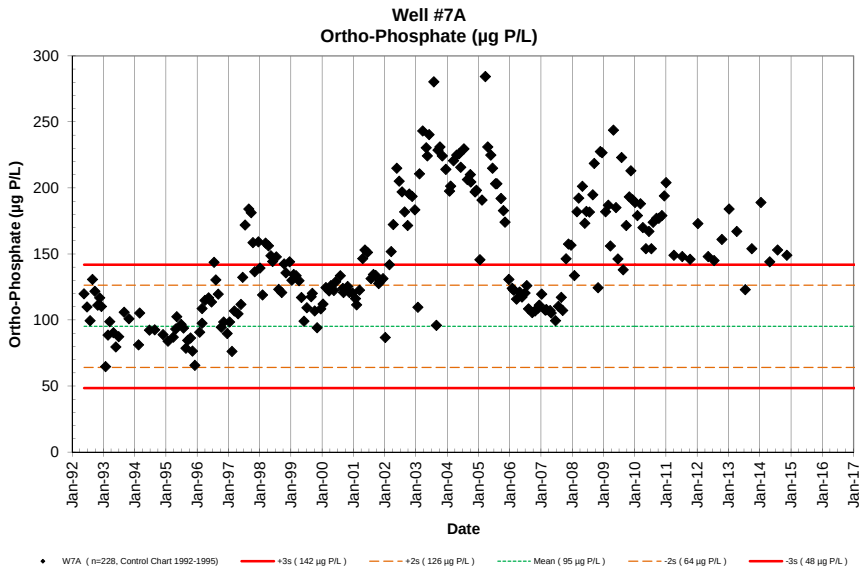
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W7A	-10.36	7/22/02	1105				6.36	197	59.9	839	0.15	2.1	159	4468	6.66	206.3	64.7	906	0.76	23.2	7.727	30.064	0.81		<1	2
W7A	-10.36	8/21/02	1133				5.87	182	54.8	767	0.22	3.1	159	4454	6.02	186.5	58.3	816	0.79	23.4	7.656	30.380	0.61		<1	1
W7A	-10.36	9/25/02	1039				5.54	172	60.7	850	0.26	3.6	171	4794	5.76	178.4	58.9	825	0.78	23.4	7.622	30.531	0.42		<1	<1
W7A	-10.36	10/15/02	1050				6.31	195	61.1	856	0.25	3.5	158	4429	6.68	206.9	62.7	878	0.87	23.9	7.637	30.344	0.27		<1	<1
W7A	-10.36	11/17/02	1018				6.25	194	72.5	1015	0.36	5.0	163	4567	6.27	194.2	69.6	974	0.88	24.1	7.634	30.244	0.26		<1	<1
W7A	-10.36	12/18/02	1042				5.92	183	68.9	965	0.05	0.7	161	4511	6.12	189.6	64.4	902	0.67	23.8	7.690	29.967	0.82		<1	27
W7A	-10.36	1/23/03	1050				3.54	110	50.7	710	0.02	0.3	123	3446	3.68	114.0	56.9	797	0.74	24.1	7.854	32.297	4.16		<1	<1
W7A	-10.36	2/11/03	1107				6.80	211	97.3	1363	0.07	1.0	153	4291	7.00	216.8	106	1478	0.97	23.1	7.718	30.150	0.53		<1	<1
W7A	-10.36	3/20/03	1136				7.85	243	149.4	2093	0.09	1.3	157	4409	7.84	242.8	151	2118	1.18	23.9	7.793	29.848	0.58		<1	<1
W7A	-10.36	4/30/03	1013				7.44	230	102.5	1436	0.16	2.2	156	4387	7.74	239.7	124	1740	1.28	22.7	7.835	30.083	0.61		<1	1
W7A	-10.36	5/14/03	918				7.24	224	86.3	1208	0.04	0.6	153	4291	7.35	227.7	88.2	1235	1.36	22.6	7.815	30.195	0.19		<1	1
W7A	-10.36	6/4/03	1001				7.76	240	62.3	873	1.07	15.0	152	4272	8.04	249.0	79.1	1107	1.56	22.9	7.803	30.290	0.37		<1	7636
W7A	-10.36	7/30/03	934				9.05	280	47.7	667	7.28	102.0	156	4384	9.38	290.5	67.3	943		23.0	7.836	30.056	0.42		<1	1
W7A	-10.36	8/28/03	938				3.10	96	70.4	986	0.15	2.1	151	4249	8.38	259.6	97.6	1366		23.9	7.748	30.199	0.77		<1	6
W7A	-10.36	9/16/03	946				7.38	229	65.1	912	0.08	1.1	152	4255	7.56	234.2	102	1422		23.6	7.709	30.344	0.41		19	TNTC
W7A	-10.36	10/8/03	933				7.46	231	51.4	720	0.86	12.0	155	4353	7.82	242.2	65.8	922		23.5	7.685	30.257	NA		<1	TNTC
W7A	-10.36	11/5/03	946				7.24	224	51.9	727	2.09	29.3	166	4662	7.60	235.4	56.1	786		23.7	7.684	29.795			<1	TNTC
W7A	-10.36	11/14/03	959																	23.3			0.16			
W7A	-10.36	12/17/03	1154				6.91	214	72.0	1008	1.12	15.7	162	4541	7.91	245.0	87.9	1231		24.7	7.646	29.984	0.60		<1	2
W7A	-10.36	1/28/04	1037				6.38	198	73.8	1034	0.73	10.2	177	4968	6.54	202.6	86.0	1204	0.74	24.0	7.662	29.374	0.72		<1	<1
W7A	-10.36	2/11/04	933				6.50	201	90.8	1271	0.13	1.8	160	4480	6.72	208.1	96.0	1344	1.35	23.0	7.600	29.503	0.73		<1	<1
W7A	-10.36	3/16/04	1020				7.12	221	94.7	1326	0.16	2.2	165	4620	7.80	241.6	104	1458		23.3	7.621	29.295	0.54		<1	<1
W7A	-10.36	4/22/04	1006				7.26	225	96.7	1355	0.28	3.9	162	4558	7.52	232.9	107	1504		22.5	7.705	29.299	1.30		<1	1
W7A	-10.36	5/18/04	1001				7.29	226	83.0	1162	0.20	2.8	163	4572	7.31	226.4	86.0	1205		22.2	7.591	28.74	0.94		<1	<1
W7A	-10.36	6/8/04	1038				6.96	216	84.2	1180	0.15	2.1	165	4620	7.36	228.0	87.6	1228		22.3	7.587	28.85	1.20		<1	<1
W7A	-10.36	7/15/04	951				7.41	230	88.2	1235	0.18	2.5	165	4637	7.36	228.0	100	1403		22.5	7.537	28.67	1.06		<1	<1
W7A	-10.36	8/25/04	1027				6.66	206	93.1	1304	0.18	2.5	162	4561	6.80	210.6	99.0	1387		22.6	7.540	28.90	1.05		<1	<1
W7A	-10.36	9/27/04	1139				6.78	210	95.7	1340	0.22	3.1	173	4859	6.92	214.3	100	1395		22.8	7.524	29.20	0.78		<1	<1
W7A	-10.36	10/4/04	1058				6.60	204	86.6	1214	0.20	2.8	156	4384	6.96	215.6	96.2	1347		22.8	7.551	29.36	1.02		<1	<1
W7A	-10.36	11/23/04	932				6.36	197	64.1	898	0.08	1.1	174	4892	6.74	208.8	85.9	1203		23.3	7.494	29.24	1.26		<1	<1
W7A	-10.36	12/8/04	942				6.40	198	61.6	863	0.92	12.9	170	4769	6.68	206.9	75.1	1052		23.9	7.492	29.53	0.47		<1	<1
W7A	-10.36	1/18/05	941				4.70	146	46.3	649	0.06	0.8	141	3952	4.86	150.5	49.5	694		23.7	7.764	31.050	3.15		<1	<1
W7A	-10.36	2/10/05	925				6.16	191	62.7	878	0.24	3.4	159	4463	6.46	200.1	79.8	1118		23.1	7.641	29.914	0.66		<1	<1
W7A	-10.36	3/22/05	930				9.18	284	75.4	1056	0.13	1.8	153	4289	9.52	294.9	78.0	1092	1.16	23.1	7.832	29.829	0.36		<1	<1
W7A	-10.36	4/20/05	930				7.46	231	85.9	1203	0.09	1.3	146	4100	7.70	238.5	88.2	1236		22.9	7.782	30.257	1.21		<1	<1
W7A	-10.36	5/25/05	942				7.26	225	68.8	963	0.15	2.1	150	4202	7.48	231.7	78.3	1097		21.8	7.699	30.109	1.21		<1	<1
W7A	-10.36	6/14/05	943				6.94	215	65.0	910	0.10	1.4	150	4218	7.22	223.6	70.8	991		23.4	7.687	30.170	0.48		<1	<1
W7A	-10.36	7/19/05	934				6.56	203	69.0	967	0.09	1.3	150	4207	6.86	212.5	74.5	1044	0.65	23.1	7.674	30.298	1.64		<1	<1
W7A	-10.36	8/3/05	1004				6.56	203	60.0	841	0.06	0.8	153	4286	6.82	211.2	61.1	856	0.62	24.1	7.711	30.287	1.32		<1	<1
W7A	-10.36	9/22/05	926				6.20	192	61.0	854	0.14	2.0	156	4370	6.42	198.9	65.5	917	0.53	24.4	7.719	30.378	1.80		<1	<1
W7A	-10.36	10/19/05	938				5.90	183	74.7	1046	0.11	1.5	158	4432	6.08	188.3	101	1416		24.9	7.703	30.340	1.42		<1	<1
W7A	-10.36	11/8/05	924				5.62	174	73.2	1025	0.12	1.7	141	3952	5.86	181.5	77.4	1084		24.5	7.710	30.095	1.14		<1	<1
W7A	-10.36	12/22/05	856				4.22	131	52.3	732	0.32	4.5	141	3946	4.36	135.0	54.9	769		24.3	7.767	31.121	2.45		<1	<1
W7A	-10.36	1/31/06	923				4.00	124	68.6	961	0.35	4.9	144	4036	4.24	131.3	77.7	1088		24.4	7.595	30.715	1.41		<1	<1
W7A	-10.36	2/16/06	920				3.96	123	67.7	949	0.27	3.8	141	3954	4.34	134.4	69.2	969	0.92	23.9	7.605	30.729	1.53		<1	<1
W7A	-10.36	3/22/06	911				3.74	116	69.5	973	0.29	4.1	135	3792	3.96	122.7	71.5	1001	0.75	23.6	7.478	30.627	0.33		<1	<1
W7A	-10.36	4/27/06	957				3.91	121	68.6	961	0.10	1.4	129	3623	4.06	125.8	65.4	915	0.63	24.1	7.524	30.766	1.82		<1	<1
W7A	-10.36	5/24/06	1017				3.79	117	63.6	891	<0.05	0.0	133	3735	3.91	121.1	60.6	848	0.67	24.6	7.522	30.594	3.19		<1	<1
W7A	-10.36	6/28/06	1001				3.89	120	57.8	810	0.19	2.7	125	3511	4.11	127.3	53.6	751	0.60	24.9	7.547	30.894	2.18		<1	1
W7A	-10.36	7/19/06	939				4.07	126	60.1	842	0.21	2.9	137	3848	4.38	135.7	51.1	716	0.62	24.7	7.55	30.275	2.82		<1	1
W7A	-10.36	8/9/06	1034				3.50	108	53.1	744	0.19	2.7	127	3567	3.79	117.4	51.4	719	0.62	25.8	7.536	31.424	1.28		<1	<1
W7A	-10.36	9/20/06	1050				3.41	106	44.0	616	4.6	64.4	123	3455	3.63	112.4	44.5	623	0.70	25.7	7.428	31.270	0.47		<1	<1
W7A	-10.36	10/25/06	1009				3.45	107	43.1	604	0.94	13.2	127	3567	3.67	113.7	42.0	588	0.81	26.2	7.429	31.277	0.81		<1	<1
W7A	-10.36	11/29/06	1047				3.52	109	45.5	637	0.31	4.3	124	3483	3.67	113.7	40.9	573	0.69	25.9	7.43	31.394	0.57		<1	<1
W7A	-10.36	12/13/06	1037				3.59	111	46.3	649	0.24	3.4	120	3370	3.76	116.5	42.6	596	0.69	25.7	7.455	31.509	0.64		<1	<1
W7A	-10.36	1/10/07	1040				3.86	120	45.9	643	0.22	3.1	118	3314	3.97	123.0	47.7	668	0.62	24.5	7.483	31.381	1.28		<1	<1
W7A	-10.36	2/21/07	1105				3.47	107	43.2	605	0.51	7.1	115	3230	3.71	114.9	50.7	710	0.63	24.7	7.624	30.830	1.84		<1	<1
W7A	-10.36	3/7/07	1059				3.48	108	55.4	776	0.30	4.2	120	3370	3.61	111.8	55.3	774	0.64	24.1	7.602	31.127	1.39		<1	<1
W7A	-10.36	4/19/07	1043				3.46	107	55.0	770	0.25	3.5	124	3483	3.69	114.3	46.6	652	0.59	24.9	7.541	31.039	0.85		<1	<1
W7A	-10.36	5/2/07	1046				3.40	105	45.4	636	0.25	3.5	119	3342	3.74	115.8	44.4	622	0.60	24.6	7.536	31.372	0.86		<1	<1
W7A	-10.36	6/20/07	1050				3.21	99	36.5	511	0.27	3.8	113	3174	3.37	104.4		0		25.3	7.509	31.574	0.80		<1	<1

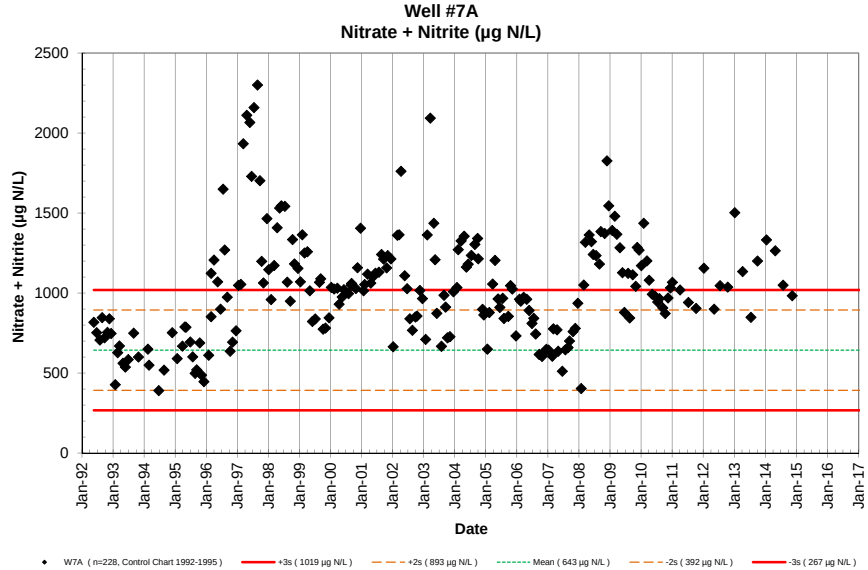
NELHA Water Quality Laboratory

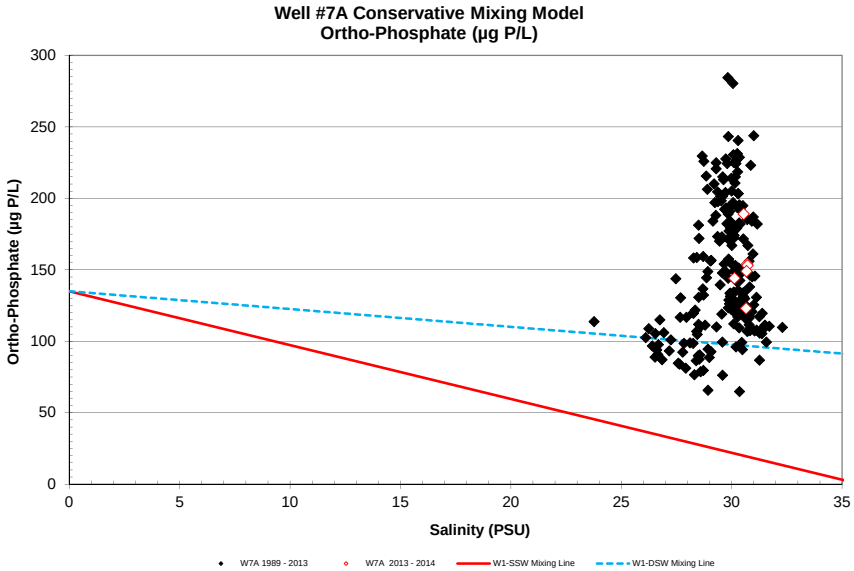
Well 7A Data Table

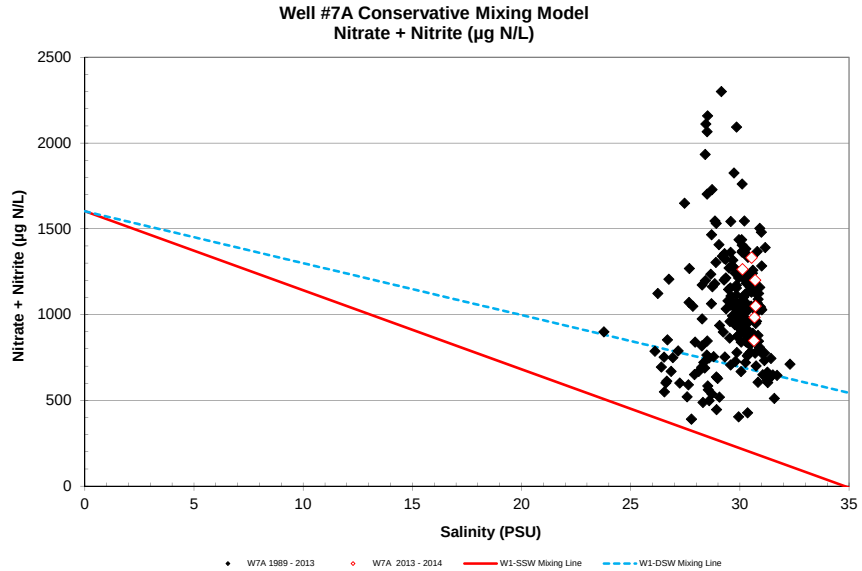
May 1992 - December 2014

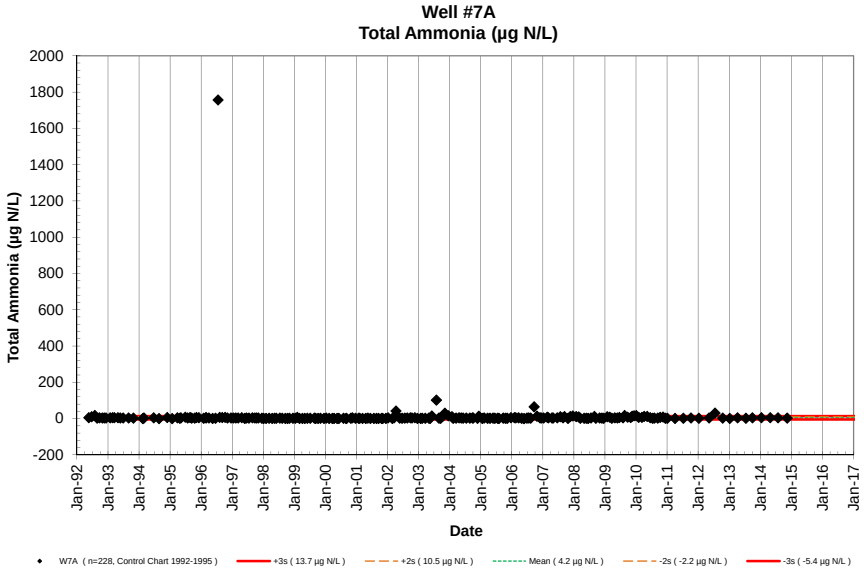
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W7A	-10.36	7/25/07	1211		1.8	Flood	3.56	110	46.0	645	0.76	10.6	106	2966	3.53	109.4	50.0	700.7		25.2	7.46	31.70	1.15			
W7A	-10.36	8/27/07	1200		0.8	Flood	3.78	117	47.1	660	0.31	4.4	99	2777	3.80	117.8	50.5	707.9		25.8	7.52	31.25	2.98			
W7A	-10.36	9/13/07	1613		1.3	Flood	3.46	107	50.0	700	0.81	11.4	117	3286	3.90	120.7	53.6	750.7		25.0	7.49	30.74	0.60			
W7A	-10.36	10/23/07	1143		1.25	Flood	4.72	146	54.2	759	0.01	0.2	142	3986	4.73	146.5	50.3	704.3		22.8	7.39	30.34	0.14			
W7A	-10.36	11/20/07	1151		1.4	Flood	5.08	157	55.6	779	0.79	11.1	159	4468	4.74	146.7	62.7	877.7		23.0	7.38	29.86	2.67			
W7A	-10.36	12/19/07	1143		1	High	5.06	157	66.8	936	1.06	14.8	155	4364						22.5	7.39	29.07	1.36			
W7A	-10.36	1/28/08	854		1.4	Ebb	4.31	134	28.8	404	0.80	11.2	138	3880						22.6	7.22	29.94	0.87			
W7A	-10.36	2/26/08	1037		0.3	Ebb	5.87	182	74.9	1050	0.67	9.4	151	4237						22.1	7.42	29.89	0.72			
W7A	-10.36	3/17/08	1237		0.6	Flood	6.21	192	94.0	1316	0.09	1.2	193	5423						22.5	7.49	29.68	3.78			
W7A	-10.36	4/30/08	1153		0.9	Flood	6.50	201	97.3	1363	0.09	1.2	155	4344						21.0	7.25	29.58	1.88			
W7A	-10.36	5/27/08	1147		0.8	High	5.59	173	94.3	1321	0.09	1.2	183	5147						20.3	7.35	29.36	6.47			
W7A	-10.36	6/16/08	1211		1	Flood	5.88	182	88.6	1241	0.02	0.3	164	4595						21.0	7.38	29.78	5.87			
W7A	-10.36	7/21/08	1134		0.3	Low	5.87	182	88.1	1234	0.20	2.8	144	4058						21.1	7.27	30.29	1.62	0.21		
W7A	-10.36	8/30/08	1448		1.9	Flood	6.29	195	84.3	1181	0.89	12.4	149	4175						22.6	7.38	30.51	1.01	0.14		
W7A	-10.36	9/15/08	1201		0.4	Flood	7.05	219	98.8	1383	0.10	1.4	145	4069						22.3	7.36	30.27	2.54			
W7A	-10.36	10/30/08	1045		0.5	Low	4.02	124	98.0	1372	0.20	2.8	127	3580						21.2	7.14	30.13	0.10	0.37		
W7A	-10.36	11/25/08	1015		0.5	Low	7.34	228	130.3	1826	0.18	2.5	168	4717						21.1	7.33	29.73	0.16	0.23		
W7A	-10.36	12/16/08	1033		1.3	Ebb	7.32	227	110.3	1545	0.11	1.5	155	4367						20.7	7.48	30.21	1.66			
W7A	-10.36	1/26/09	1420		0.5	Flood	5.88	182	99.3	1391	0.71	10.0	125	3510						20.6	7.57	31.16	2.94	0.18		
W7A	-10.36	2/26/09	1052		0.1	Low	6.03	187	105.7	1480	0.53	7.4	143	4006						20.6	7.39	30.98	2.28	0.06		
W7A	-10.36	3/23/09	1023		0.2	Flood	5.04	156	97.6	1367	0.13	1.8	133	3748						20.1	7.34	30.79	1.78	0.15		
W7A	-10.36	4/27/09	1025		-0.2	Low	7.87	244	91.6	1283	0.29	4.1	129	3627						20.8	7.46	31.00	1.69	0.07		
W7A	-10.36	5/27/09	1405		0.6	Flood	5.98	185	80.5	1127	0.24	3.3	111	3130						20.8	7.42	30.70	1.64	0.03		
W7A	-10.36	6/19/09	1044		1.3	Flood	4.72	146	62.7	879	0.39	5.5	107	2997						20.4	7.45	30.83	1.91	0.05		
W7A	-10.36	7/31/09	1002		1.5	Flood	7.20	223	80.2	1123	0.30	4.2	105	2954						22.3	7.46	30.86	1.70	0.06		
W7A	-10.36	8/20/09	1121		0.3	Flood	4.46	138	60.3	845	1.22	17.1	107	2992						21.6	7.46	30.81	1.00	0.02		
W7A	-10.36	9/24/09	1025		1.7	Ebb	5.54	172	79.5	1114	0.51	7.2	114	3198						20.1	8.21	29.84	0.46	0.02		
W7A	-10.36	10/30/09	1050		0.7	Flood	6.24	193	74.4	1042	0.40	5.6	112	3147						21.5	7.37	29.75	0.32	0.02		
W7A	-10.36	11/17/09	1114		0.4	Low	6.88	213	91.7	1285	0.92	12.9	157	4413						21.4	7.39	29.63	0.51	0.04		
W7A	-10.36	12/8/09	1505		0.3	Ebb	6.17	191	90.5	1268	1.12	15.7	169	4738						21.8	7.40	29.78	1.04	0.16		
W7A	-10.36	1/4/10	1516		-0.1	Low	6.10	189	83.6	1171	1.14	16.0	172	4829						21.1	7.50	29.84	2.35	0.02		
W7A	-10.36	2/2/10	1516		-0.2	Low	5.78	179	102.5	1436	0.50	7.0	150	4203						23.7	7.58	29.96	2.03	0.15		
W7A	-10.36	3/10/10	1355		0.7	High	6.07	188	85.7	1201	0.50	7.0	181	5078						22.8	7.59	29.28	2.70	0.11		
W7A	-10.36	4/7/10	1217		0.7	High	5.49	170	77.1	1080	0.86	12.0	181	5095						19.2	7.65	29.45	3.88	0.18		
W7A	-10.36	5/12/10	1337		1.5	Flood	4.97	154	70.8	992	0.86	12.0	164	4605						20.1	7.70	29.66	4.10	0.07		
W7A	-10.36	6/16/10	1153		0.3	Low	5.39	167	69.9	979	0.36	5.0	174	4880						20.5	7.65	30.01	3.36	0.21		
W7A	-10.36	7/14/10	936		0.5	Ebb	4.97	154	67.4	944	0.07	1.0	180	5045						20.0	7.62	30.00	3.01	0.09		
W7A	-10.36	8/4/10	1017		1.7	Flood	5.62	174	68.9	965	0.18	2.5	176	4938						19.7	7.67	30.11	3.46	0.14		
W7A	-10.36	9/13/10	1555		0.7	Low	5.71	177	64.8	907	0.17	2.4	174	4876						20.0	7.61	30.10	2.85	0.11		
W7A	-10.36	10/11/10	1110		1.3	Ebb	5.71	177	62.3	872	0.49	6.8	174	4891						20.2	7.65	29.88	2.98	0.07		
W7A	-10.36	11/15/10	1223		1.3	High	5.78	179	69.2	969	0.61	8.6	173	4848						20.5	7.62	30.23	3.05	0.08		
W7A	-10.36	12/13/10	1002		1.3	High	6.26	194	73.7	1032	0.09	1.3	158	4439						20.1	7.56	29.90	2.16	0.07		
W7A	-10.36	1/3/11	1418		0.5	Flood	6.59	204	76.2	1067	0.13	1.8	173	4849						20.7	7.55	29.72	1.84	0.06		
W7A	-10.36	4/4/11	1459		1.3	Flood	4.81	149	72.8	1019	0.04	0.6	151	4233						19.5	7.58	30.11	3.11	0.02		
W7A	-10.36	7/11/11	1419		2.4	High	4.78	148	67.2	941	0.12	1.7	165	4647						20.3	7.63	29.77	3.64	0.05		
W7A	-10.36	10/10/11	1315		1.1	Flood	4.71	146	64.5	904	0.21	3.0	158	4449						20.6	7.66	30.29	3.94	0.08		
W7A	-10.36	1/9/12	1338		0.2	Flood	5.59	173	82.5	1155	0.10	1.4	170	4771						21.2	7.59	29.56	2.08	0.08		
W7A	-10.36	5/8/12	1437		0.8	Flood	4.78	148	64.2	899	0.25	3.5	167	4694						20.0	7.66	30.26	3.90	0.09		
W7A	-10.36	7/17/12	1348		2.1	Flood	4.68	145	74.7	1046	2.16	30.3	153	4293						19.9	7.60	30.93	3.35	0.68		
W7A	-10.36	10/15/12	1147		0.2	Flood	5.20	161	74.0	1037	0.16	2.2	153	4288						20.6	7.54	30.96	2.44	0.02		
W7A	-10.36	1/7/13	1244		0.8	High	5.94	184	107.2	1502	0.05	0.7	187	5264						20.0	7.59	30.91	2.71	0.09		
W7A	-10.36	4/8/13	1225		0.6	Flood	5.39	167	81.0	1134	0.27	3.8	143	4015						19.8	7.66	30.73	2.78	0.06		
W7A	-10.36	7/16/13	1434		1.2	Ebb	3.97	123	60.5	848	0.11	1.5	139	3894						19.9	7.66	30.65	3.77	0.10		
W7A	-10.36	10/1/13	1602		1.0	Ebb	4.97	154	85.7	1200	0.30	4.2	149	4175						20.2	7.54	30.70	2.57	0.12		
W7A	-10.36	1/14/14	1459		0.7	High	6.10	189	95.1	1332	0.36	5.1	156	4376						20.1	7.55	30.54	2.47	0.02		
W7A	-10.36	4/28/14	1720		0.58	High	4.65	144	90.2	1264	0.34	4.7	143	4019						20.2	7.64	30.12	4.47	0.42		
W7A	-10.36	7/28/14	1454		0.49	Flood	4.94	153	74.9	1049	0.29	4.0	146	4113						20.8	7.54	30.72	2.78	0.05		
W7A	-10.36	11/13/14	1146		0.37	Flood	4.81	149	70.2	983	0.18	2.5	140	3938						21.6	7.82	30.67	2.62	0.05		
W7A	-10.36	1/1/15																								
W7A	-10.36	4/1/15																								

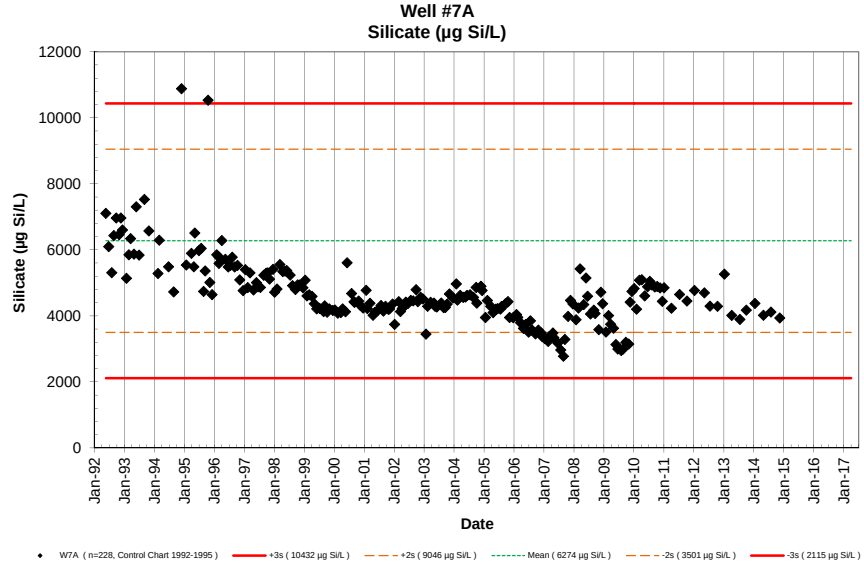

Well #7A
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W7A (n=228, Control Chart 1992-1995)
+3s (142 µg P/L)
+2s (126 µg P/L)
Mean (95 µg P/L)
-2s (64 µg P/L)
-3s (48 µg P/L)

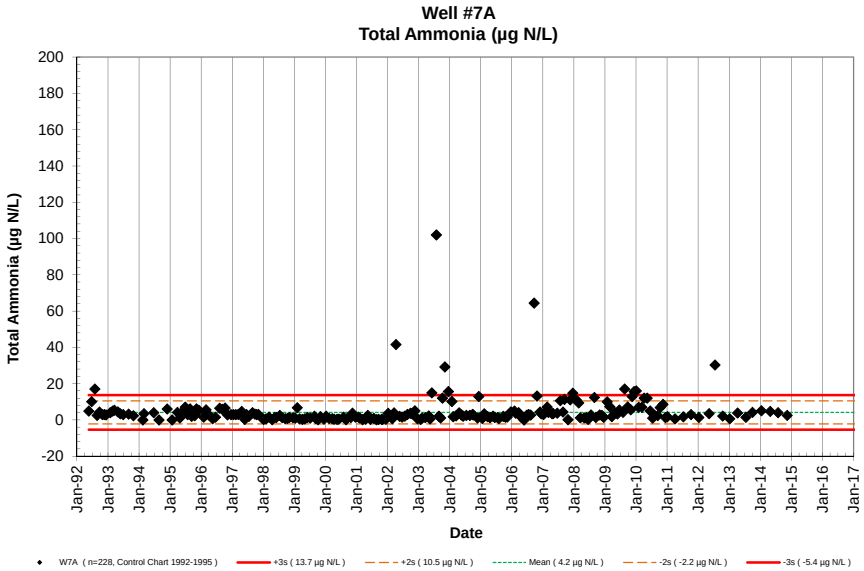

Well #7A
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W7A (n=228, Control Chart 1992-1995)
+3s (1019 µg N/L)
+2s (893 µg N/L)
Mean (643 µg N/L)
-2s (392 µg N/L)
-3s (267 µg N/L)

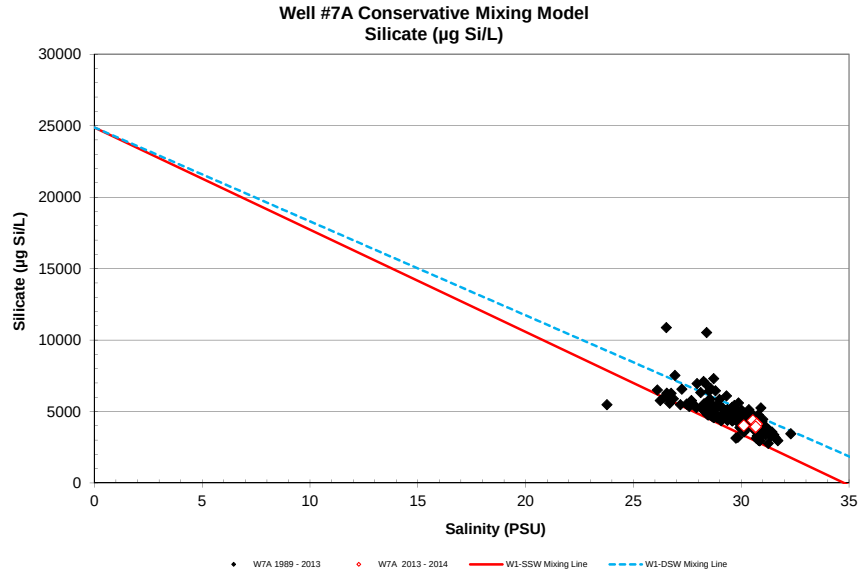

Well #7A Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W7A 1989 - 2013
W7A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

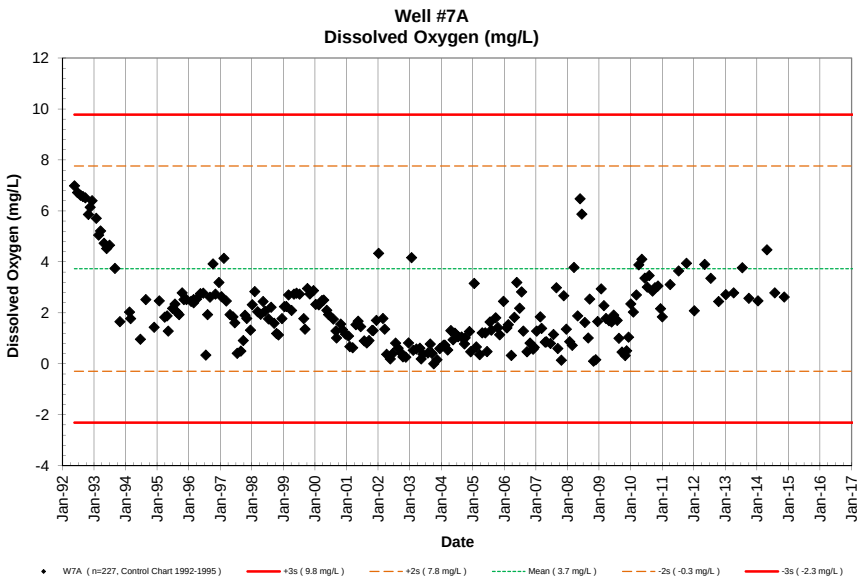

Well #7A Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W7A 1989 - 2013
W7A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

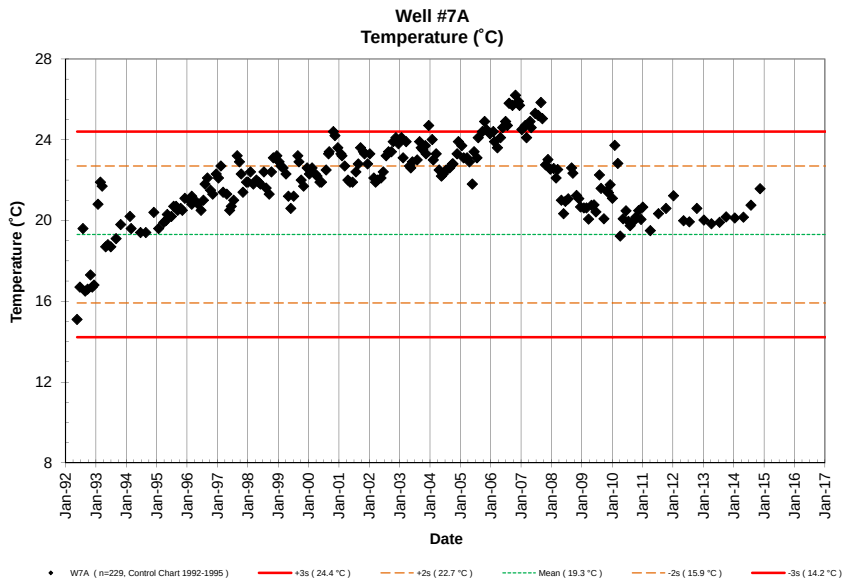

Well #7A
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W7A (n=228, Control Chart 1992-1995)
+3s (13.7 µg N/L)
+2s (10.5 µg N/L)
Mean (4.2 µg N/L)
-2s (-2.2 µg N/L)
-3s (-5.4 µg N/L)

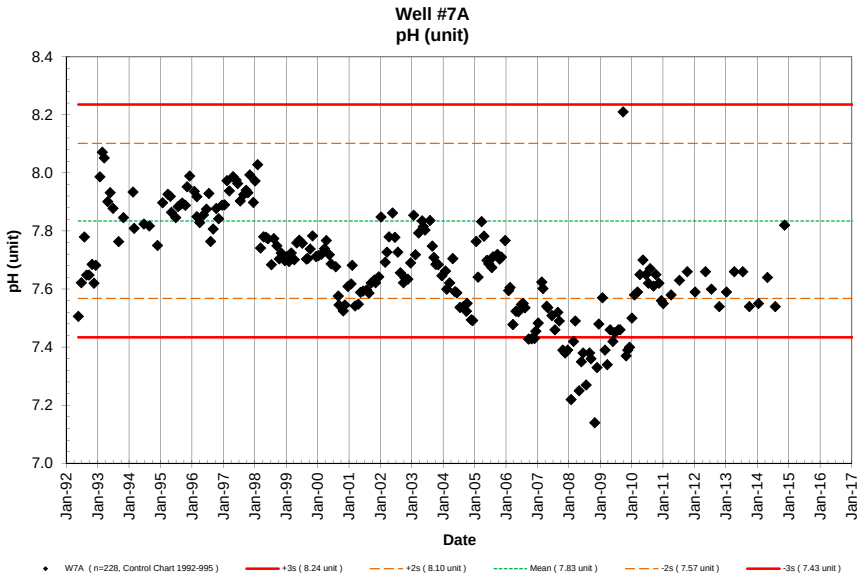

Well #7A
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W7A (n=228, Control Chart 1992-1995)
+3s (10432 µg Si/L)
+2s (9046 µg Si/L)
Mean (6274 µg Si/L)
-2s (3501 µg Si/L)
-3s (2115 µg Si/L)

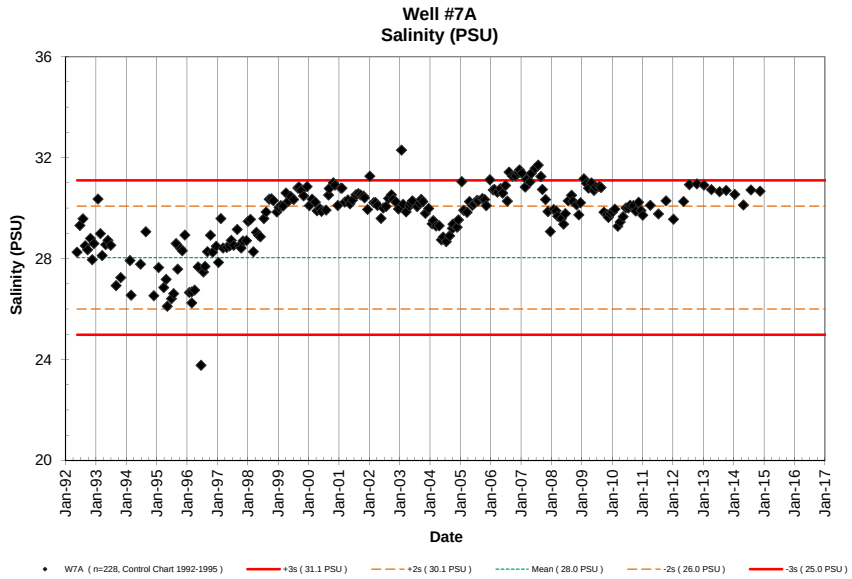

Well #7A
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W7A (n=228, Control Chart 1992-1995)
+3s (13.7 µg N/L)
+2s (10.5 µg N/L)
Mean (4.2 µg N/L)
-2s (-2.2 µg N/L)
-3s (-5.4 µg N/L)

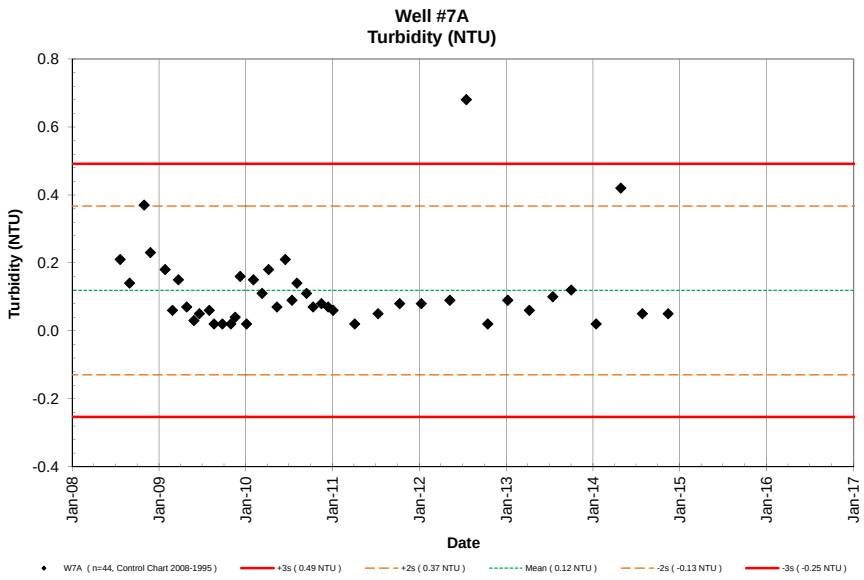

Well #7A Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W7A 1989 - 2013
W7A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

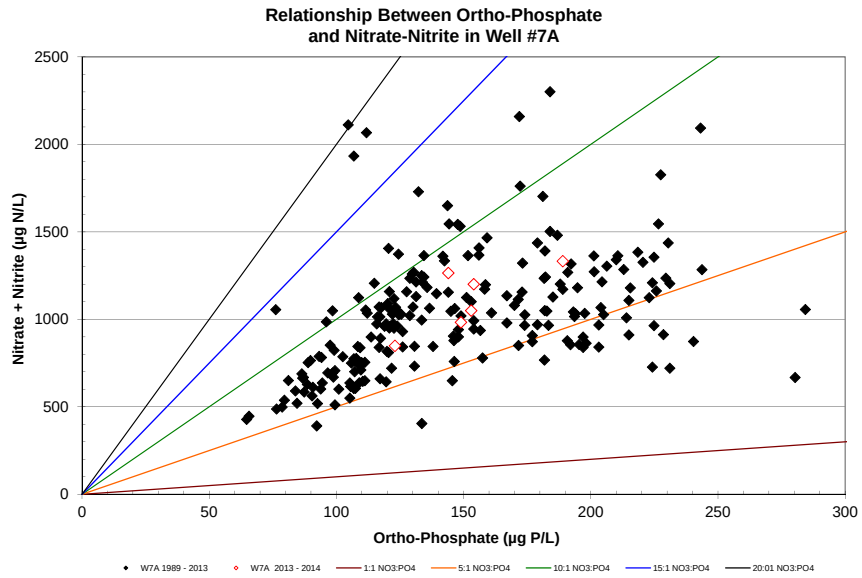

Well #7A
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W7A (n=227, Control Chart 1992-1995)
+3s (9.8 mg/L)
+2s (7.8 mg/L)
Mean (3.7 mg/L)
-2s (-0.3 mg/L)
-3s (-2.3 mg/L)


Well #7A
Temperature (˚C)
Temperature (˚C)
Date
W7A (n=229, Control Chart 1992-1995)
+3s (24.4 °C)
+2s (22.7 °C)
Mean (19.3 °C)
-2s (15.9 °C)
-3s (14.2 °C)


Well #7A
pH (unit)
pH (unit)
Date
W7A (n=228, Control Chart 1992-995)
+3s (8.24 unit)
+2s (8.10 unit)
Mean (7.83 unit)
-2s (7.57 unit)
-3s (7.43 unit)


Well #7A
Salinity (PSU)
Salinity (PSU)
Date
W7A (n=228, Control Chart 1992-1995)
+3s (31.1 PSU)
+2s (30.1 PSU)
Mean (28.0 PSU)
-2s (26.0 PSU)
-3s (25.0 PSU)


Well #7A
Turbidity (NTU)
Turbidity (NTU)
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W7A (n=44, Control Chart 2008-1995)
+3s (0.49 NTU)
+2s (0.37 NTU)
Mean (0.12 NTU)
-2s (-0.13 NTU)
-3s (-0.25 NTU)


Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #7A
Nitrate + Nitrite (µg N/L)
2500
2000
1500
1000
500
0
0
50
100
150
200
250
300
Ortho-Phosphate (µg P/L)
W7A 1989 - 2013
W7A 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

NELHA Water Quality Laboratory

Well 7B Data Table

May 1992 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W7B	-6.1	5/20/92	801				2.91	90	53.3	747	0.31	4.3	461	12947	2.99	92.6	54.3	761	0.54	19.5	7.591	21.101	5.30		<1	1
W7B	-6.1	6/24/92	806				2.99	93	50.3	705	0.47	6.6	446	12526	3.09	95.7	52.1	730	0.93	19.6	7.662	21.911	5.14		<1	<1
W7B	-6.1	7/30/92	730				2.81	87	49.3	690	0.81	11.3	455	12779	2.85	88.3	51.1	716	0.91	20.5	7.543	21.081	5.15		<1	<1
W7B	-6.1	8/26/92	933				3.10	96	58.5	820	0.04	0.6	502	14099	3.14	97.3	31.8	445	0.85	21.1	7.519	19.776	5.00		5	<1
W7B	-6.1	9/23/92	754				2.98	92	52.1	729	0.17	2.4	474	13313	3.02	93.5	57.9	811	0.52	21.8	7.638	21.440	4.89		<1	<1
W7B	-6.1	10/28/92	827				3.21	99	51.4	719	0.14	2.0	399	11206	3.28	101.6	54.1	758	0.64	21.0	7.592	24.433	5.17		<1	<1
W7B	-6.1	11/18/92	819				3.16	98	53.4	748	0.16	2.2	404	11347	3.63	112.4	58.7	822	0.63	20.1	7.730	23.377	5.64		<1	<1
W7B	-6.1	12/9/92	812				3.15	98	56.5	792	0.09	1.3	442	12414	3.30	102.2	59.5	833	0.67	20.6	7.550	22.467	5.44		1	1
W7B	-6.1	1/27/93	748				2.79	86	46.7	655	0.16	2.2	302	8485	2.90	89.8	51.8	726	0.75	20.9	7.812	26.470	5.45		<1	<1
W7B	-6.1	2/24/93	736				2.89	90	50.4	706	0.32	4.5	355	9976	2.89	89.5	52.6	737	0.66	20.8	7.804	25.057	4.88		<1	2
W7B	-6.1	3/17/93	744				2.80	87	52.0	728	0.32	4.5	441	12372	2.85	88.3	55.7	780	0.60	20.2	7.775	21.213	5.09		2	1
W7B	-6.1	4/28/93	734				2.94	91	50.1	702	0.23	3.2	434	12175	2.97	92.0	53.8	753	0.48	19.9	7.736	21.386	4.93		<1	<1
W7B	-6.1	5/26/93	739				2.80	87	49.5	693	0.37	5.2	493	13832	2.87	88.9	55.2	773	0.54	20.2	7.720	21.039	4.95		<1	<1
W7B	-6.1	6/29/93	752				2.66	82	54.6	765	0.12	1.7	475	13349	2.80	86.7	59.1	828	0.58	20.5	7.616	19.668	4.88		<1	<1
W7B	-6.1	9/1/93	752				2.77	86	53.8	754	0.15	2.1	562	15778	2.87	88.9	70.4	986	0.68	21.6	7.490	16.516	5.48		<1	6
W7B	-6.1	10/27/93	744				2.88	89	82.3	1152	0.02	0.3	514	14436	2.96	91.7	87.1	1219	1.09	21.8	7.561	16.879	4.90		221	161
W7B	-6.1	3/1/94	1005				3.20	99	74.6	1045	0.36	5.0	404	11347	3.22	99.7	99.7	1396	0.59	21.4	7.815	19.054	4.28		1	2
W7B	-6.1	6/22/94	722				2.90	90	54.1	757	0.16	2.2	558	15667	2.77	85.8	56.6	793	0.55	21.9	7.625	17.769	4.97		1	2
W7B	-6.1	8/24/94	746				2.81	87	47.1	660	0.08	1.1	389	10914	2.87	88.9	54.9	769	0.60	22.3	7.731	21.547	3.13		<1	<1
W7B	-6.1	11/28/94	938				2.87	89	53.7	752	0.43	6.0	387	10878	2.92	90.4	59.2	829	0.46	22.9	7.740	20.071	3.72		1	<1
W7B	-6.1	1/25/95	817				2.94	91	52.5	735	0.00	0.0	339	9524	2.94	91.1	56.2	787	0.48	22.2	7.835	23.232	2.93		<1	<1
W7B	-6.1	2/15/94	835				3.07	95	61.9	868	0.00	0.0	374	10507	3.08	95.4	72.3	1013	0.58	22.4	7.845	21.411	3.65		<1	<1
W7B	-6.1	3/29/95	815				2.88	89	61.8	866	0.25	3.5	432	12130	2.88	89.2	66.5	932	0.60	21.9	7.857	18.604	4.91		<1	<1
W7B	-6.1	4/26/95	808				2.95	91	82.5	1156	0.11	1.5	461	12956	3.14	97.3	86.3	1209	0.73	22.1	7.825	16.284	5.04		6	11
W7B	-6.1	5/9/95	952				2.96	92	68.9	965	0.20	2.8	392	11007	2.96	91.7	72.7	1019	0.62	22.1	7.887	19.885	4.06		<1	<1
W7B	-6.1	6/28/95	807				3.12	97	71.2	997	0.44	6.2	462	12961	3.18	98.5	74.7	1046	0.58	22.4	7.793	16.661	5.46		<1	<1
W7B	-6.1	7/26/95	947				3.04	94	70.1	981	0.13	1.8	479	13447	3.25	100.7	73.2	1026	0.50	22.8	7.785	15.944	4.97		3	2
W7B	-6.1	8/23/95	900				3.02	94	58.0	812	0.47	6.6	421	11835	3.11	96.3	59.8	837	0.59	22.8	7.741	18.942	4.28		<1	<1
W7B	-6.1	9/12/95	854				3.07	95	56.9	797	0.12	1.7	435	12206	3.10	96.0	59.8	837	0.51	23.3	7.768	18.648	3.95		<1	<1
W7B	-6.1	10/17/95	1036				2.94	91	49.1	688	0.17	2.4	375	10531	2.95	91.4	50.7	711	0.68	23.1	7.812	21.261	3.45		<1	<1
W7B	-6.1	11/7/95	1021				3.04	94	59.3	831	0.41	5.7	434	12181	3.06	94.8	62.8	879	0.70	20.1	7.811	18.369	4.54		1	1
W7B	-6.1	12/6/95	1005				2.89	90	54.6	765	0.35	4.9	423	11891	3.09	95.7	57.1	800	0.60	22.9	7.779	19.435	4.01		1	1
W7B	-6.1	1/30/96	1048				2.88	89	63.4	888	0.07	1.0	395	11097	3.05	94.5	65.5	917	0.57	22.8	7.916	19.571	4.23		15	77
W7B	-6.1	2/27/96	1207				3.06	95	84.2	1180	0.16	2.2	360	10114	3.14	97.3	87.9	1231	0.74	20.8	7.868	20.286	3.98		<1	1
W7B	-6.1	3/13/96	1122				3.33	103	83.1	1164	0.37	5.2	344	9653	3.41	105.6	86.2	1207	0.66	22.6	7.861	20.738	3.74		<1	1
W7B	-6.1	4/2/96	1006				3.78	117	101.7	1424	0.19	2.7	415	11649	3.93	121.7	101.1	1416	0.69	22.5	7.804	18.642	4.44		<1	<1
W7B	-6.1	5/15/96	1136				4.32	134	105.0	1470	0.05	0.7	393	11036	4.35	134.7	107.0	1499	0.62	23.0	7.756	20.735	3.05		<1	<1
W7B	-6.1	6/18/96	1123				3.64	113	75.9	1063	0.12	1.7	433	12149	3.69	114.3	80.1	1121	0.58	23.0	7.756	19.186	6.36		<1	1
W7B	-6.1	7/17/96	1130				4.23	131	108.9	1525	27	373	446	12531	3.69	114.3	113.0	1583	0.71	23.1	7.676	18.528	3.22		<1	1
W7B	-6.1	8/6/96	1146				3.84	119	97.9	1371	0.46	6.4	366	10280	3.87	119.9	103.3	1447	0.64	23.1	7.753	22.145	1.89		<1	1
W7B	-6.1	9/4/96	1133				3.84	119	75.7	1061	0.38	5.3	400	11226	3.86	119.6	78.6	1101	0.57	23.8	7.739	21.550	2.69		<1	1
W7B	-6.1	10/9/96	1227				3.70	115	57.5	806	0.31	4.3	345	9679	3.85	119.2	61.0	855	0.62	23.7	7.782	24.590	2.81		<1	<1
W7B	-6.1	11/6/96	1131				3.48	108	57.1	800	0.27	3.8	348	9763	3.60	111.5	61.3	859	0.59	23.8	7.751	23.119	3.32		<1	<1
W7B	-6.1	12/17/96	1147				3.19	99	63.4	888	0.18	2.5	255	7163	3.27	101.3	67.8	950	0.90	24.2	7.821	25.843	2.24		<1	<1
W7B	-6.1	1/14/97	1144				3.18	98	93.9	1315	0.08	1.1	278	7813	3.23	100.0	98.8	1384	0.78	23.3	7.862	24.544	3.09		<1	<1
W7B	-6.1	2/11/97	1008				2.96	92	98.4	1378	0.10	1.4	214	6010	3.06	94.8	101.6	1423	0.79	22.7	7.902	27.342	3.47		<1	<1
W7B	-6.1	3/11/97	855				3.92	121	134.2	1880	0.17	2.4	381	10696	4.16	128.9	136.3	1908	0.58	22.4	7.837	20.612	3.64		<1	<1
W7B	-6.1	4/23/97	1132				3.75	116	130.3	1825	0.26	3.6	385	10802	3.69	114.3	162.1	2270	0.72	22.9	7.832	21.704	2.85		<1	<1
W7B	-6.1	5/28/97	1029				3.24	100	108.8	1524	0.06	0.8	357	10015	3.85	119.2	118.0	1653	0.70	22.0	7.848	22.582	3.19		<1	<1
W7B	-6.1	6/17/97	1110				3.67	114	88.3	1237	0.22	3.1	344	9661	3.80	117.7	105.4	1476	0.67	21.9	7.829	21.979	4.70		<1	<1

NELHA Water Quality Laboratory

Well 7B Data Table

May 1992 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W7B	-6.1	7/15/97	1105				4.18	129	96.5	1352	0.14	2.0	341	9577	4.33	134.1	104.8	1468	0.61	22.2	7.838	26.629	2.17		<1	<1
W7B	-6.1	8/26/97	1137				4.80	149	100.6	1409	0.23	3.2	316	8881	4.80	148.7	105.1	1472	0.66	23.7	7.883	24.584	0.41		<1	<1
W7B	-6.1	9/23/97	945				4.89	151	80.8	1132	0.40	5.6	337	9470	4.96	153.6	89.0	1247	0.63	23.9	7.884	23.139	1.10		<1	1
W7B	-6.1	10/14/97	1040				4.68	145	66.2	927	0.17	2.4	356	9996	4.68	145.0	78.3	1097	0.65	23.8	7.877	22.428	1.87		<1	<1
W7B	-6.1	11/4/97	909				4.42	137	71.5	1001	0.19	2.7	333	9338	4.57	141.6	81.5	1142	0.54	23.9	7.877	23.683	1.65		<1	<1
W7B	-6.1	12/16/97	1110				4.34	134	74.3	1041	0.10	1.4	380	10667	4.51	139.7	78.8	1104	0.60	23.4	7.893	21.688	3.65		<1	<1
W7B	-6.1	1/5/98	932				4.55	141	73.5	1029	0.02	0.3	277	7793	4.70	145.6	78.4	1098	0.62	22.7	7.890	25.829	1.62		<1	<1
W7B	-6.1	2/3/98	901				4.09	127	67.9	950	0.01	0.1	237	6651	4.32	133.8	72.6	1017	0.60	23.2	7.959	27.470	2.45		<1	<1
W7B	-6.1	3/10/98	929				4.53	140	66.6	932	0.23	3.2	339	9515	4.69	145.3	71.2	997	0.57	22.9	7.752	23.127	3.76		<1	<1
W7B	-6.1	4/14/98	1055				4.39	136	79.3	1111	0.05	0.7	326	9145	4.58	141.9	81.5	1142	0.59	22.9	7.760	23.986	4.39		<1	<1
W7B	-6.1	5/12/98	932				4.15	129	76.6	1073	0.05	0.7	364	10223	4.22	130.7	79.7	1116	0.53	22.8	7.752	22.171	4.48		<1	<1
W7B	-6.1	6/2/98	933				3.96	123	80.7	1131	0.08	1.1	346	9730	4.05	125.4	83.7	1172	0.49	22.9	7.823	22.707	4.20		<1	<1
W7B	-6.1	7/14/98	925				4.06	126	94.3	1321	0.12	1.7	316	8867	4.18	129.5	95.3	1335	0.55	23.2	7.720	24.842	2.95		<1	<1
W7B	-6.1	8/11/98	947				3.98	123	84.7	1186	0.18	2.5	339	9521	4.06	125.8	90.8	1272	0.71	23.2	7.663	24.589	2.70		<1	<1
W7B	-6.1	9/15/98	940				3.91	121	79.8	1118	0.06	0.8	318	8928	3.99	123.6	81.8	1146	0.65	23.4	7.670	25.357	1.80		<1	<1
W7B	-6.1	10/13/98	839				4.07	126	82.0	1149	0.04	0.6	310	8712	4.17	129.2	85.8	1202	0.64	23.6	7.709	25.822	1.29		<1	6
W7B	-6.1	11/4/98	932				4.31	133	89.9	1259	0.09	1.3	386	10835	4.48	138.8	95.7	1340	0.84	23.8	7.713	22.578	2.05		1	3
W7B	-6.1	12/16/98	922				4.70	146	82.7	1158	0.12	1.7	383	10768	4.87	150.8	87.9	1231	0.72	24.0	7.772	21.999	3.12		2	1
W7B	-6.1	1/12/99	953				4.20	130	76.4	1070	0.07	1.0	302	8493	4.36	135.0	78.9	1105	0.79	23.8	7.771	25.346	2.83		<1	<1
W7B	-6.1	2/3/99	945				4.02	125	76.7	1074	0.16	2.2	346	9715	4.17	129.2	83.5	1169	0.69	23.7	7.744	23.220	3.84		<1	<1
W7B	-6.1	3/2/99	942				4.03	125	78.9	1105	0.02	0.3	351	9850	4.23	131.0	80.2	1123	0.71	23.8	7.752	22.694	4.51		<1	<1
W7B	-6.1	4/6/99	929				4.10	127	74.9	1049	0.09	1.3	322	9046	4.17	129.2	77.6	1087	0.67	23.6	7.726	24.888	2.72		<1	<1
W7B	-6.1	5/4/99	938				3.85	119	78.0	1093	0.04	0.6	350	9841	3.95	122.3	82.5	1156	0.57	23.4	7.739	22.700	3.43		<1	<1
W7B	-6.1	6/2/99	928				3.64	113	70.0	980	0.12	1.7	370	10392	3.74	115.8	73.2	1025	0.55	23.0	7.722	23.686	3.35		<1	<1
W7B	-6.1	7/7/99	1006				4.02	125	71.8	1006	0.14	2.0	321	9004	4.12	127.6	73.3	1027	0.64	22.9	7.754	24.188	2.38		<1	<1
W7B	-6.1	8/25/99	930				4.19	130	75.6	1059	0.11	1.5	341	9588	4.33	134.1	81.9	1147	0.66	23.3	7.798	23.105	3.17		<1	<1
W7B	-6.1	9/8/99	941				4.15	129	75.3	1054	0.02	0.3	341	9580	4.33	134.1	84.2	1179	0.65	23.3	7.801	23.637	3.27		<1	<1
W7B	-6.1	10/6/99	947				4.00	124	67.8	950	0.04	0.6	315	8844	4.08	126.4	70.9	993	0.54	23.7	7.775	24.448	2.99		<1	<1
W7B	-6.1	11/3/99	1002				3.62	112	67.8	950	0.15	2.1	315	8850	3.86	119.6	72.0	1008	0.57	23.7	7.801	24.448	3.13		<1	13
W7B	-6.1	12/15/99	1021				3.83	119	69.8	978	0.03	0.4	271	7611	3.93	121.7	72.4	1014	0.66	23.6	7.737	27.126	2.86		<1	6
W7B	-6.1	1/11/00	957				3.93	122	80.9	1133	0.15	2.1	293	8232	3.97	123.0	87.2	1221	0.63	23.5	7.748	24.900	3.35		<1	15
W7B	-6.1	2/14/00	956				4.14	128	81.5	1142	0.03	0.4	280	7850	4.11	127.3	88.2	1235	0.65	23.1	7.792	25.188	2.09		<1	<1
W7B	-6.1	3/22/00	1013				3.93	122	81.4	1140	0.08	1.1	375	10524	3.70	114.6	85.0	1191	0.79	23.3	7.808	21.397	3.76		<1	<1
W7B	-6.1	4/12/00					well plugged - unable to collect																			
W7B	-6.1	5/17/00	947				3.84	119	76.7	1074	0.04	0.6	396	11113	3.82	118.3	88.7	1242	0.65	23.3	7.739	21.054	3.72		<1	<1
W7B	-6.1	6/6/00	1011				3.85	119	77.7	1088	0.02	0.3	407	11428	3.95	122.3	83.6	1171	0.63	23.5	7.707	22.363	3.33		<1	<1
W7B	-6.1	7/31/00	949				3.78	117	78.5	1100	0.23	3.2	417	11703	3.80	117.7	79.5	1114	0.74	23.7	7.687	19.512	4.33		<1	<1
W7B	-6.1	8/30/00	950				3.65	113	76.6	1073	0.05	0.7	430	12077	3.68	114.0	79.1	1108	0.69	24.1	7.564	19.730	3.69		<1	10
W7B	-6.1	9/6/00	932				4.08	126	78.1	1094	0.08	1.1	316	8861	4.21	130.4	81.4	1140	0.60	24.0	7.646	24.804	1.79		<1	<1
W7B	-6.1	10/25/00	1119				4.18	129	83.8	1174	0.15	2.1	340	9560	4.26	131.9	89.1	1248	0.66	24.3	7.641	24.654	2.17		<1	<1
W7B	-6.1	11/14/00	954				3.92	121	100	1400	0.21	2.9	382	10734	4.15	128.5	106	1488	0.80	24.4	7.622	21.812	2.97		1	2
W7B	-6.1	12/19/00	930				4.36	135	122	1709	0.09	1.3	313	8796	4.52	140.0	124	1733	0.71	24.4	7.660	25.164	1.92		<1	<1
W7B	-6.1	1/24/01	917				3.94	122	86.6	1212	0.11	1.5	327	9176	3.94	122.0	88.5	1240	0.61	24.2	7.674	24.632	2.75		<1	<1
W7B	-6.1	2/7/01	957				3.82	118	79.7	1116	0.08	1.1	357	10032	3.84	118.9	83.3	1167	0.60	24.1	7.719	22.900	2.81		<1	<1
W7B	-6.1	3/12/01	923				3.91	121	77.2	1081	0.01	0.1	293	8229	4.05	125.4	79.2	1109	0.59	23.7	7.647	25.534	2.47		<1	<1
W7B	-6.1	4/18/01	911				4.14	128	79.5	1114	0.05	0.7	387	10875	4.26	131.9	81.6	1143	0.50	23.4	7.631	21.183	3.74		<1	<1
W7B	-6.1	5/14/01	1038				5.00	155	78.7	1102	0.13	1.8	296	8313	5.03	155.8	79.2	1109	0.46	23.3	7.632	22.278	3.41		<1	<1
W7B	-6.1	6/13/01	937				4.60	142	76.2	1068	0.06	0.8	351	9864	4.60	142.5	78.3	1097	0.50	23.2	7.639	23.367	3.06		<1	<1
W7B	-6.1	7/24/01	948				4.10	127	75.1	1052	0.07	1.0	346	9704	4.01	124.2	78.8	1103	0.72	23.3	7.629	23.688	3.49		<1	1
W7B	-6.1	8/22/01	948				4.12	128	86.0	1205	0.04	0.6	368	10333	3.92	121.4	89.6	1255	0.97	23.5	7.581	21.975	3.35		<1	1
W7B	-6.1	9/17/01	1030				4.12	128	81.1	1136	0.05	0.7	384	10788	4.12	127.6	83.7	1173	0.83	23.9	7.622	21.911	3.51		<1	2
W7B	-6.1	10/22/01	1018				4.08	126	71.2	998	0.08	1.1	306	8586	4.28	132.6	75.5	1058	0.80	24.3	7.641	21.602	2.04		<1	2
W7B	-6.1	11/5/01	1050				3.86	120	73.5	1029	0.06	0.8	363	10181	3.90	120.8	82.5	1155	0.58	24.3	7.614	23.039	3.27		<1	2
W7B	-6.1	12/12/01	1034				3.76	116	82.3	1153	0.15	2.1	377	10577	3.71	114.9	92.0	1289	0.67	24.1	7.668	21.540	3.64		<1	1
W7B	-6.1	1/7/02	1033				3.20	99	63.2	886	0.21	2.9	245	6889	3.60	111.5	69.0	967	0.76	23.9	7.756	27.481	4.00		<1	1
W7B	-6.1	2/25/02	953				4.24	131	86.8	1216	0.05	0.7	325	9131	4.28	132.6	91.6	1284	0.56	23.6	7.707	24.101	3.02		<1	<1
W7B	-6.1	3/18/02	1018				4.28	133	101	1419	0.25	3.5	375	10532	4.37	135.4	103	1438	0.69	23.1	7.727	21.569	3.30		2	2
W7B	-6.1	4/10/02	1024				4.96	154	115	1609	0.02	0.3	83.6	2348	4.92	152.4	119	1660	0.91	23.3	7.769	23.840	1.43		<1	tntc
W7B	-6.1	5/22/02	1032				6.12	190	104	1456	0.16	2.2	312	8765	6.15	190.5	109	1531	0.82	23.3	7.853	23.995	0.96		<1	1
W7B	-6.1	6/19/02	1117				6.58	204	75.4	1057	0.10	1.4	299	8384	6.64	205.7	79.9	1119	0.67	23.4	7.848	24.648	0.71		<1	<1

NELHA Water Quality Laboratory

Well 7B Data Table

May 1992 - December 2014

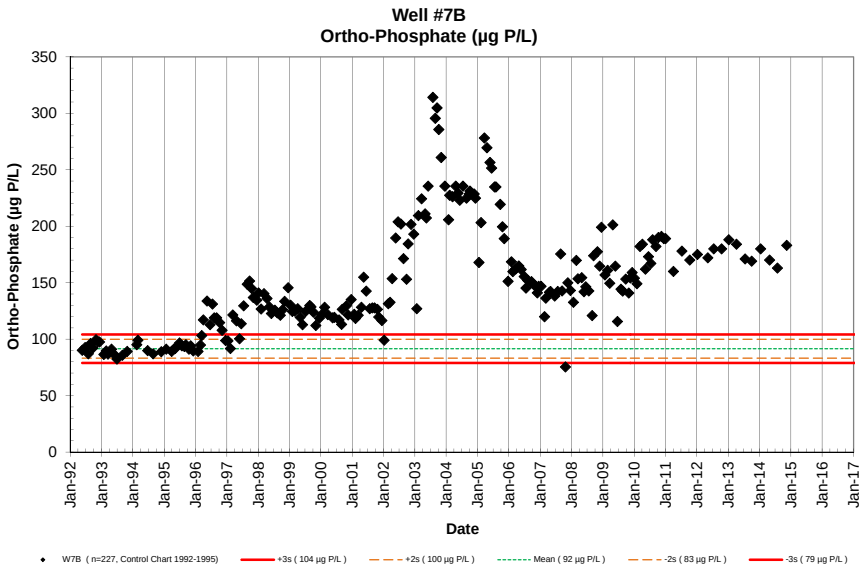
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W7B	-6.1	7/22/02	1100				6.52	202	64.5	903	0.06	0.8	338	9501	6.82	211.2	66.6	933	0.81	23.9	7.813	23.058	1.44		<1	<1
W7B	-6.1	8/21/02	1122				5.53	171	65.5	918	0.16	2.2	386	10847	5.64	174.7	67.0	939	0.60	23.0	7.710	21.886	2.34		<1	<1
W7B	-6.1	9/25/02	1047				4.94	153	73.5	1029	0.22	3.1	434	12189	5.12	158.6	69.6	975	0.62	24.4	7.638	20.161	3.10		<1	1
W7B	-6.1	10/15/02	1045				5.95	184	75.5	1058	0.45	6.3	358	10063	6.13	189.9	70.6	989	0.68	24.3	7.730	23.621	1.40		<1	1
W7B	-6.1	11/17/02	1013				6.51	202	87.2	1221	0.05	0.7	391	10973	6.71	207.8	83.0	1163	1.03	24.6	7.647	22.130	1.47		<1	<1
W7B	-6.1	12/18/02	1037				6.23	193	81.0	1134	0.06	0.8	312	8765	6.38	197.6	73.6	1031	0.72	24.6	7.752	24.753	1.23		<1	<1
W7B	-6.1	1/23/03	1034				4.10	127	61.2	857	<0.02	0.0	193	5421	4.32	133.8	67.8	950	0.86	24.6	7.834	30.322	2.04		<1	<1
W7B	-6.1	2/11/03	1052				6.76	209	104	1459	0.21	2.9	281	7878	6.80	210.6	124	1731	0.84	24.2	7.790	25.636	1.25		<1	<1
W7B	-6.1	3/20/03	1131				7.24	224	172	2406	0.02	0.3	350	9830	7.20	223.0	185	2595	0.95	23.7	7.821	22.310	2.82		<1	3
W7B	-6.1	4/30/03	1008				6.81	211	136	1899	0.26	3.6	389	10931	6.93	214.6	161	2255	1.10	23.5	7.827	20.387	3.14		<1	1
W7B	-6.1	5/14/03	913				6.69	207	112	1567	0.31	4.3	318	8931	6.71	207.8	116	1630	1.08	23.5	7.810	20.551	3.06		<1	15
W7B	-6.1	6/4/03	956				7.60	235	85.5	1198	0.36	5.0	330	9265	7.77	240.7	97.2	1362	1.37	23.7	7.805	23.216	1.54		1	680
W7B	-6.1	7/30/03	941				10.14	314	97.3	1363	5.72	80.1	405	11361	10.54	326.5	120	1681		23.7	7.817	19.712	2.09		<1	TNTC
W7B	-6.1	8/28/03	933				9.54	295	85.3	1195	4.72	66.1	365	10260	9.74	301.7	126	1762		24.2	7.817	21.395	1.44		<1	TNTC
W7B	-6.1	9/16/03	941				9.84	305	58.2	815	3.33	46.6	313	8802	10.2	317.2	91.1	1276		24.5	7.864	24.320	1.13		<1	10
W7B	-6.1	10/8/03	928				9.22	286	65.5	917	0.67	9.4	310	8695	9.48	293.6	80.5	1128		24.2	7.858	24.221	NA		<1	<1
W7B	-6.1	11/5/03	941				8.42	261	66.6	933	0.82	11.5	308	8645	8.68	268.9	71.6	1003		24.2	7.842	24.384			<1	TNTC
W7B	-6.1	11/14/03	1527																	24.3			0.69			
W7B	-6.1	12/17/03	1122				7.60	235	82.8	1160	<0.10	0.0	261	7330	7.91	245.0	87.9	1231		24.9	7.779	26.065	0.28		<1	<1
W7B	-6.1	1/28/04	1015				6.64	206	92.2	1291	0.73	10.2	231	6496	6.78	210.0	94.6	1324	0.77	24.4	7.773	26.919	0.56		<1	<1
W7B	-6.1	2/11/04	928				7.34	227	135	1891	0.27	3.8	261	7339	7.72	239.1	142	1989	0.89	24.2	7.751	25.512	0.43		<1	<1
W7B	-6.1	3/16/04	1035				7.30	226	125	1751	0.17	2.4	251	7052	7.76	240.4	146	2048		27.9	7.813	25.968			<1	<1
W7B	-6.1	3/30/04	931																	25.1			0.71			
W7B	-6.1	4/22/04	1001				7.60	235	150	2095	0.35	4.9	282	7920	7.64	236.6	140	1964		24.0	7.824	24.765	0.59		<1	26
W7B	-6.1	5/18/04	956				7.40	229	128	1794	0.19	2.7	318	8917	7.54	233.5	133	1861		24.3	7.801	22.87	1.12		<1	<1
W7B	-6.1	6/8/04	1033				7.20	223	105	1474	0.14	2.0	288	8083	7.44	230.4	111	1551	NA	24.2	7.745	24.47	0.91		<1	<1
W7B	-6.1	7/15/04	946				7.60	235	97.4	1364	0.15	2.1	309	8687	7.76	240.4	115	1608		24.2	7.738	23.11	0.99		<1	<1
W7B	-6.1	8/25/04	1022				7.26	225	90.1	1263	0.16	2.2	287	8046	7.48	231.7	93.9	1315		24.5	7.702	24.75	0.88		<1	<1
W7B	-6.1	9/27/04	1134				7.38	229	89.2	1249	0.24	3.4	320	8982	7.50	232.3	95.2	1333		24.9	7.681	24.18	0.91		<1	<1
W7B	-6.1	10/4/04	1053				7.46	231	83.8	1173	0.19	2.7	285	8004	7.76	240.4	88.2	1235		24.6	7.691	24.98	0.70		<1	<1
W7B	-6.1	11/23/04	927				7.38	229	78.5	1099	0.13	1.8	290	8136	7.68	237.9	101	1415		24.1	7.692	25.09	0.73		<1	<1
W7B	-6.1	12/8/04	927				7.26	225	78.9	1105	0.13	1.8	298	8378	7.44	230.4	97.4	1364		25.4	7.700	24.93	0.70		<1	<1
W7B	-6.1	1/18/05	950				5.42	168	60.4	846	0.06	0.8	199	5595	5.58	172.8	60.9	853		24.7	7.769	29.005	2.99		<1	<1
W7B	-6.1	2/10/05	920				6.56	203	96.5	1351	0.28	3.9	240	6735	6.84	211.9	124	1742		24.6	7.768	26.655	0.74		<1	<1
W7B	-6.1	3/22/05	945				8.98	278	105	1464	0.12	1.7	249	6999	9.18	284.3	118	1651	1.76	24.9	7.924	26.100	0.49		<1	<1
W7B	-6.1	4/20/05	930				8.70	269	89.4	1252	0.09	1.3	256	7201	9.06	280.6	90.4	1266		25.0	7.962	25.595	0.79		<1	<1
W7B	-6.1	5/25/05	954				8.28	256	92.7	1299	0.24	3.4	291	8176	8.34	258.3	101	1410		24.3	7.943	23.600	2.24		<1	<1
W7B	-6.1	6/14/05	952				8.12	252	81.2	1137	0.16	2.2	266	7465	8.32	257.7	87.6	1226		25.7	7.929	25.198	1.59		<1	<1
W7B	-6.1	7/19/05	941				7.58	235	90.8	1272	0.15	2.1	291	8176	7.94	245.9	94.9	1329	0.62	24.9	7.936	23.665	1.84		<1	<1
W7B	-6.1	8/3/05	1013				7.58	235	87.0	1218	0.13	1.8	294	8260	7.86	243.5	88.4	1238	0.66	25.2	7.978	23.995	2.05		<1	<1
W7B	-6.1	9/22/05	935				7.08	219	67.2	941	0.17	2.4	256	7193	7.32	226.7	75.2	1054	0.49	26.2	7.935	26.326	2.05		<1	<1
W7B	-6.1	10/19/05	948				6.44	199	77.1	1080	0.14	2.0	265	7445	6.68	206.9	82.0	1148		26.4	7.938	26.019	2.39		<1	<1
W7B	-6.1	11/8/05	932				6.10	189	74.5	1043	0.08	1.1	236	6614	6.32	195.8	77.8	1090		26.0	7.944	26.897	1.78		<1	<1
W7B	-6.1	12/22/05	906				4.88	151	55.6	778	0.32	4.5	183	5126	5.04	156.1	57.0	799		25.8	7.782	30.232	2.13		<1	1
W7B	-6.1	1/31/06	931				5.44	168	67.5	945	0.29	4.1	224	6288	5.58	172.8	69.5	973		25.1	7.732	28.208	0.99		<1	<1
W7B	-6.1	2/16/06	931				5.16	160	70.7	990	0.24	3.4	211	5932	5.48	169.7	72.7	1018	0.69	24.8	7.731	28.837	1.18		<1	<1
W7B	-6.1	3/22/06	927				5.24	162	79.1	1108	0.29	4.1	239	6712	5.38	166.6	82.5	1156	0.50	24.0	7.697	27.211	0.82		<1	<1
W7B	-6.1	4/27/06	1004				5.32	165	79.9	1119	0.16	2.2	263	7386	5.61	173.8	73.8	1033	0.53	24.1	7.712	26.195	1.49		<1	<1
W7B	-6.1	5/24/06	1024				5.22	162	74.1	1038	<0.05	0.0	261	7330	5.63	174.4	68.6	960	0.60	24.1	7.696	26.330	1.13		<1	<1
W7B	-6.1	6/28/06	1007				5.02	155	68.6	961	0.30	4.2	258	7246	5.18	160.4	64.9	908	0.48	24.5	7.693	26.699	1.70		<1	<1
W7B	-6.1	7/19/06	934				4.69	145	62.8	880	0.27	3.8	228	6403	4.88	151.2	52.5	735	0.54	25.1	7.684	27.543	1.56		<1	<1
W7B	-6.1	8/9/06	1032				4.91	152	65.8	922	0.18	2.5	268	7527	5.05	156.4	61.9	867	0.49	24.8	7.682	26.584	1.75		<1	<1
W7B	-6.1	9/20/06	1102				4.87	151	61.6	863	0.18	2.5	257	7218	5.16	159.8	57.1	800	0.53	24.6	7.696	27.123	1.20		<1	<1
W7B	-6.1	10/25/06	1012				4.77	148	57.3	803	0.33	4.6	242	6797	4.98	154.2	56.3	788	0.60	25.6	7.658	27.770	1.31		<1	1
W7B	-6.1	11/29/06	1042				4.55	141	57.3	803	0.24	3.4	233	6544	4.78	148.1	52.9	740	0.59	24.6	7.625	28.169	0.93		<1	<1
W7B	-6.1	12/13/06	1032				4.74	147	56.3	789	0.25	3.5	236	6628	4.96	153.6	52.2	731	0.50	25.0	7.642	28.235	0.84		<1	<1
W7B	-6.1	1/10/07	1048				4.74	147	55.4	776	0.23	3.2	228	6403	4.81	149.0	57.3	802	0.52	24.4	7.642	28.472	1.14		<1	<1
W7B	-6.1	2/21/07	1100				3.87	120	50.9	713	0.46	6.4	211	5926	4.21	130.4	56.8	795	0.60	24.4	7.671	27.963	1.87		<1	<1
W7B	-6.1	3/7/07	1054				4.40	136	55.6	779	0.33	4.6	229	6432	4.58	141.9	56.5	791	0.59	25.8	7.761	27.817	1.91		<1	<1
W7B	-6.1	4/19/07	1047				4.57	142	68.0	952	0.25	3.5	257	7218	4.73	146.5	57.8	809	0.45	25.6	7.705	26.363	2.02		<1	<1
W7B	-6.1	5/2/07	1050				4.59	142	62.4	874	0.26	3.6	262	7358	5.01	155.2	59.4	832	0.44	24.0	7.693	26.395	1.79		<1	<1
W7B	-6.1	6/20/07	1050				4.46	138	54.3	761	0.28	3.9	249	6993	4.66	144.3		0		24.7	7.687	27.289	1.47		<1	<1

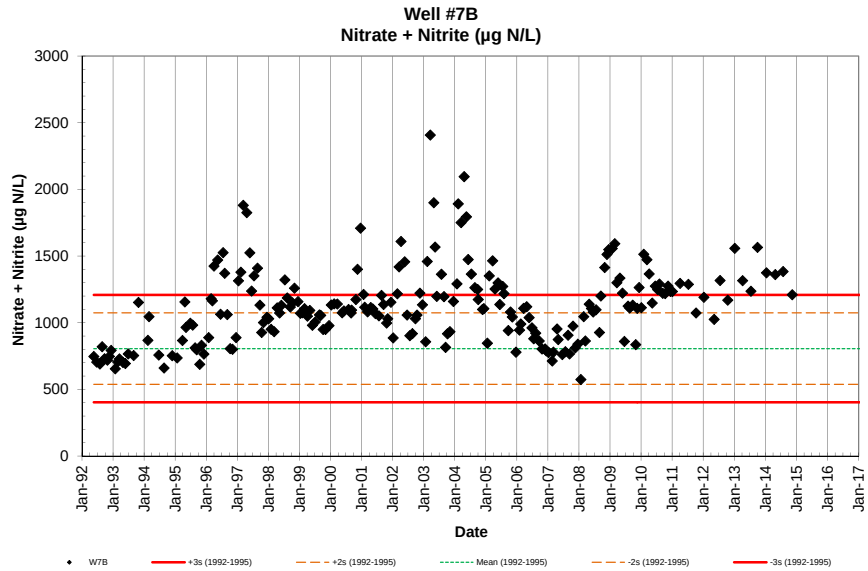
NELHA Water Quality Laboratory

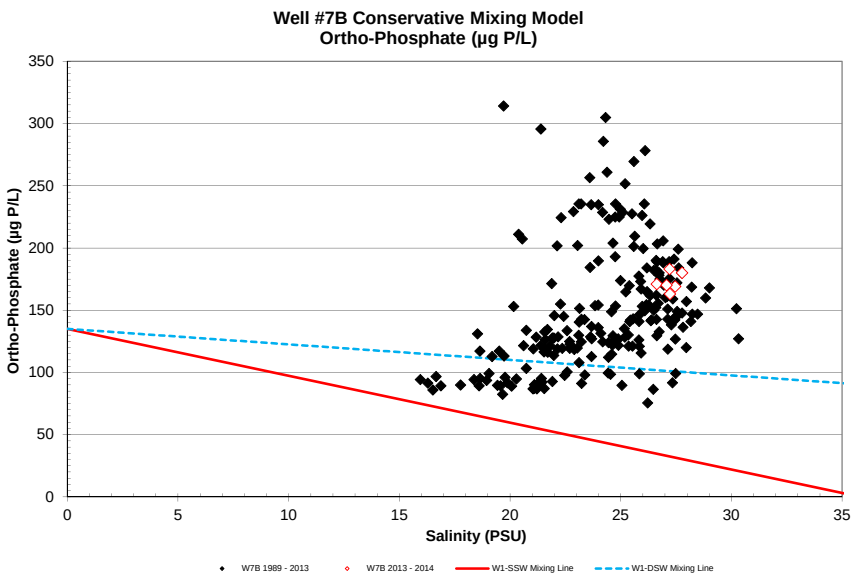
Well 7B Data Table

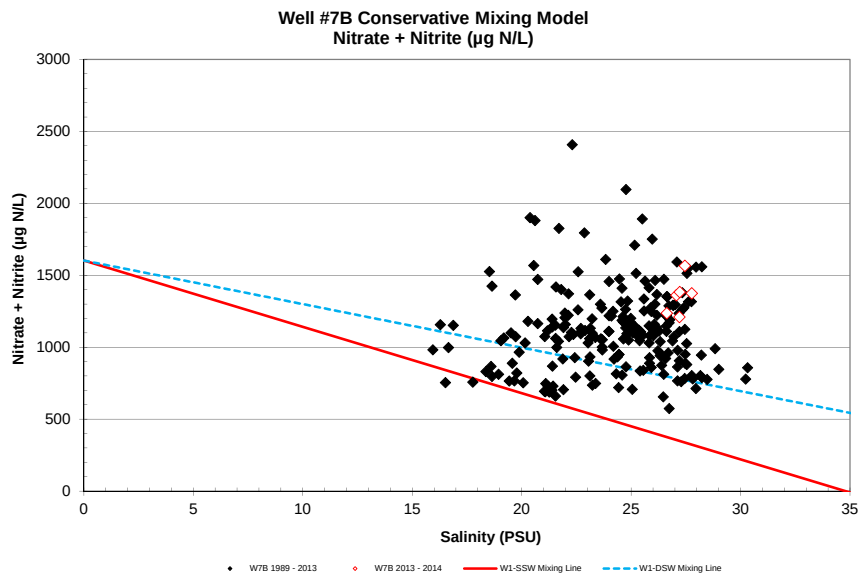
May 1992 - December 2014

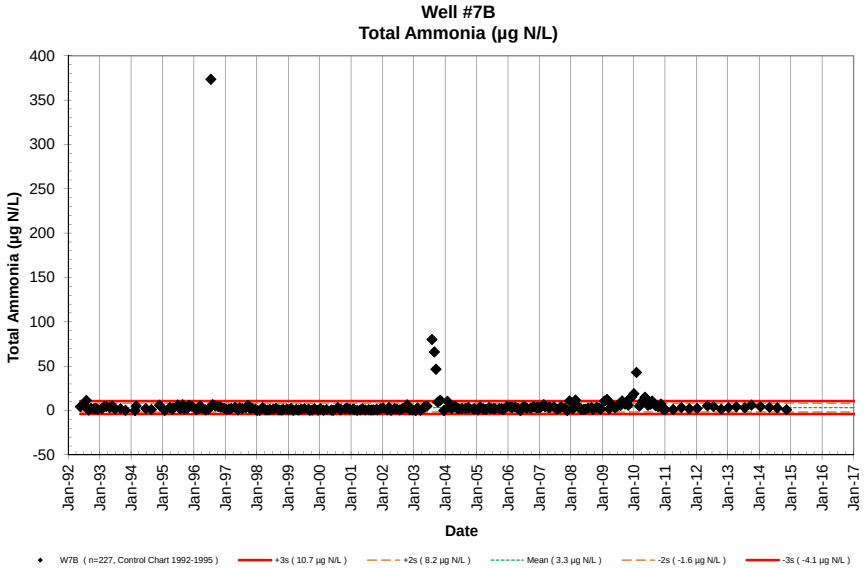
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (ppt)	DO (ppm)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W7B	-6.1	7/25/07	1234		1.8	Flood	4.59	142	55.8	782	0.10	1.4	255	7166	4.57	141.5	55.8	782.1		24.8	7.51	27.45	2.04			
W7B	-6.1	8/27/07	1152		0.8	Flood	5.66	175	64.7	906	0.21	2.9	275	7728	5.35	165.6	67.3	942.3		25.0	7.57	27.20	1.53			
W7B	-6.1	9/13/07	1608		1.3	Flood	4.61	143	54.7	766	0.29	4.0	266	7480	4.92	152.3	61.7	863.9		24.8	7.55	27.12	1.30			
W7B	-6.1	10/23/07	1103		1.25	Flood	2.44	75	69.6	975	0.19	2.6	112	3146	2.47	76.5	65.7	920.1		24.5	7.54	26.22	1.56			
W7B	-6.1	11/20/07	1141		1.4	Flood	4.84	150	58.0	812	0.00	0.1	265	7443	4.48	138.7	64.0	896.2		25.2	7.57	26.49	1.68			
W7B	-6.1	12/19/07	1132		1	High	4.62	143	59.9	839	0.78	10.9	252	7079						24.1	7.56	25.56	1.89			
W7B	-6.1	1/25/08	826		1.4	Ebb	4.28	133	40.9	573	0.14	1.9	228	6400						23.4	7.50	26.74	1.21			
W7B	-6.1	2/26/08	1017		0.3	Ebb	5.48	170	74.6	1045	0.84	11.8	273	7665						23.2	7.53	25.39	1.61			
W7B	-6.1	3/17/08	1224		0.6	Flood	4.95	153	61.6	864	0.39	5.4	291	8169						23.3	7.64	24.77	3.32			
W7B	-6.1	4/30/08	1143		0.9	Flood	4.98	154	81.3	1139	0.09	1.2	240	6741						23.9	7.47	26.16	1.78			
W7B	-6.1	5/27/08	1129		0.8	High	4.58	142	79.0	1106	0.09	1.2	290	8140						22.7	7.59	25.44	1.90			
W7B	-6.1	6/16/08	1157		1	Flood	4.73	146	77.1	1080	0.11	1.5	264	7404						23.4	7.66	25.85	2.15			
W7B	-6.1	7/21/08	1126		0.3	Low	4.61	143	78.3	1097	0.20	2.8	311	8722						24.4	7.60	23.23	4.51	0.12		
W7B	-6.1	8/30/08	1424		1.9	Flood	3.90	121	66.2	927	0.24	3.3	221	6209						22.7	7.58	25.84	1.43	0.32		
W7B	-6.1	9/15/08	1145		0.4	Flood	5.61	174	85.7	1200	0.10	1.4	282	7929						26.3	7.58	24.99	2.27			
W7B	-6.1	10/30/08	1057		0.5	Low	5.73	177	100.9	1413	0.24	3.4	280	7877						23.9	7.37	25.82	1.22	0.09		
W7B	-6.1	11/25/08	1030		0.5	Low	5.32	165	108.0	1512	0.19	2.7	294	8244						23.3	7.65	25.23	1.73	0.15		
W7B	-6.1	12/16/08	1023		1.3	Ebb	6.42	199	110.5	1547	0.11	1.5	225	6315						23.6	7.65	27.60	1.58			
W7B	-6.1	1/26/09	1401		0.5	Flood	5.07	157	111.1	1556	0.76	10.7	231	6499						24.1	7.73	27.97	2.39	0.22		
W7B	-6.1	2/26/09	1040		0.1	Low	5.19	161	113.7	1592	0.89	12.4	262	7359						23.8	7.55	27.09	2.51	0.27		
W7B	-6.1	3/23/09	1004		0.2	Flood	4.83	150	92.7	1299	0.13	1.8	267	7486						23.3	7.44	26.09	1.88	0.54		
W7B	-6.1	4/27/09	1010		-0.2	Ebb	6.50	201	95.3	1335	0.42	5.9	242	6811						24.0	7.62	25.59	1.89	0.16		
W7B	-6.1	5/27/09	1352		0.5	Flood	5.32	165	87.3	1222	0.22	3.1	368	10344						24.0	7.72	26.18	3.35	0.14		
W7B	-6.1	6/19/09	1014		0.9	Flood	3.73	116	61.3	859	0.31	4.3	211	5912						24.8	7.71	25.92	1.88	0.10		
W7B	-6.1	7/31/09	950		1.5	Flood	4.66	144	80.2	1124	0.40	5.6	180	5047						23.9	7.62	27.46	2.28	0.21		
W7B	-6.1	8/20/09	1103		0.3	Flood	4.60	143	79.2	1110	0.78	10.9	245	6880						26.4	7.62	26.62	1.31	0.37		
W7B	-6.1	9/24/09	1003		1.7	Ebb	4.94	153	80.8	1132	0.51	7.2	232	6503						24.9	8.27	25.97	1.79	0.12		
W7B	-6.1	10/30/09	1117		0.7	Flood	4.55	141	59.6	835	0.42	5.9	104	2916						26.2	7.55	25.41	0.32	0.12		
W7B	-6.1	11/17/09	1103		0.4	Low	4.98	154	79.1	1108	0.96	13.4	292	8192						23.8	7.60	23.99	2.70	0.10		
W7B	-6.1	12/8/09	1530		0.3	Ebb	5.13	159	90.2	1263	1.08	15.1	256	7200						24.9	7.78	27.35	2.12	0.10		
W7B	-6.1	1/4/10	1530		-0.1	Low	4.97	154	79.4	1112	1.36	19.0	271	7623						23.5	7.57	26.28	3.50	0.07		
W7B	-6.1	2/2/10	1550		-0.2	Low	4.81	149	108.0	1513	3.07	43.0	226	6354						24.9	7.67	27.55	2.22	0.43		
W7B	-6.1	3/10/10	1419		0.7	High	5.88	182	105.1	1472	0.36	5.0	271	7610						24.4	7.68	26.50	2.88	0.22		
W7B	-6.1	4/7/10	1210		0.7	High	5.94	184	97.5	1366	0.71	10.0	276	7741						24.0	7.71	26.18	4.31	0.93		
W7B	-6.1	5/12/10	1330		1.5	Flood	5.23	162	81.9	1147	1.07	15.0	307	8609						23.8	7.66	26.61	3.40	0.11		
W7B	-6.1	6/16/10	1145		0.3	Low	5.59	173	91.0	1274	0.43	6.0	321	9007						24.2	7.67	25.90	2.90	0.24		
W7B	-6.1	7/14/10	929		0.5	Ebb	5.39	167	89.1	1248	0.50	7.0	312	8776						24.1	7.65	25.92	7.12	0.17		
W7B	-6.1	8/4/10	1008		1.6	Flood	6.07	188	92.1	1290	0.76	10.6	274	7690						24.0	7.71	26.93	2.68	0.18		
W7B	-6.1	9/13/10	1542		0.7	Low	5.88	182	87.1	1220	0.39	5.4	302	8472						23.6	7.64	26.62	1.89	0.21		
W7B	-6.1	10/11/10	1053		1.4	Ebb	6.13	190	87.0	1218	0.33	4.6	292	8208						24.0	7.74	26.60	1.53	0.18		
W7B	-6.1	11/15/10	1211		1.3	High	6.17	191	91.0	1274	0.52	7.3	273	7657						24.3	7.68	27.41	1.68	0.25		
W7B	-6.1	12/13/10	948		1.3	High	6.10	189	88.2	1235	0.09	1.3	284	7967						22.7	7.62	27.19	1.31	0.16		
W7B	-6.1	1/3/11	1404		0.5	Flood	6.10	189	88.1	1234	0.07	1.0	275	7726						23.7	7.62	26.64	1.67	0.16		
W7B	-6.1	4/4/11	1450		1.1	Flood	5.17	160	92.5	1295	0.09	1.2	216	6064						22.7	7.63	27.02	1.93	0.19		
W7B	-6.1	7/11/11	1405		2.4	High	5.75	178	91.9	1287	0.24	3.3	266	7484						26.4	7.61	26.73	1.54	0.12		
W7B	-6.1	10/10/11	1301		1.1	Flood	5.49	170	76.6	1073	0.14	2.0	272	7634						24.5	7.59	26.95	1.73	0.12		
W7B	-6.1	1/9/12	1331		0.2	Flood	5.65	175	85.0	1190	0.16	2.3	262	7351						24.8	7.63	26.77	2.41	0.17		
W7B	-6.1	5/8/12	1426		0.8	Flood	5.55	172	73.2	1025	0.37	5.2	276	7742						23.9	7.60	27.54	3.60	0.26		
W7B	-6.1	7/17/12	1333		1.9	Flood	5.81	180	94.0	1316	0.32	4.5	251	7056						23.8	7.57	27.76	1.79	0.18		
W7B	-6.1	10/15/12	1134		0.2	Flood	5.81	180	83.5	1169	0.11	1.5	279	7848						23.8	7.55	26.74	1.57	0.11		
W7B	-6.1	1/7/13	1233		0.8	High	6.07	188	111.2	1558	0.23	3.2	290	8143						23.6	7.58	28.23	4.62	0.14		
W7B	-6.1	4/8/13	1209		0.5	Flood	5.94	184	93.9	1315	0.29	4.1	253	7096						22.9	7.64	27.62	2.80	0.18		
W7B	-6.1	7/16/13	1426		1.2	Ebb	5.52	171	88.2	1236	0.22	3.1	276	7738						23.8	7.62	26.63	4.93	0.28		
W7B	-6.1	10/1/13	1552		1.0	Ebb	5.46	169	111.7	1565	0.44	6.2	264	7407						23.8	7.61	27.46	4.44	0.14		
W7B	-6.1	1/14/14	1450		0.7	High	5.81	180	98.1	1374	0.31	4.3	244	6853						24.1	7.67	27.77	6.05	0.38		
W7B	-6.1	4/28/14	1728		0.6	High	5.49	170	97.2	1361	0.26	3.6	250	7020						22.6	7.70	27.07	2.96	0.03		
W7B	-6.1	7/28/14	1448		0.5	Flood	5.26	163	98.7	1383	0.21	3.0	249	7004						24.2	7.57	27.22	1.98	0.18		
W7B	-6.1	11/13/14	1138		0.4	Flood	5.91	183	86.3	1209	0.07	1.0	244	6845						25.1	7.61	27.21	3.10	0.37		
W7B	-6.1	1/1/15																								
W7B	-6.1	4/1/15																								

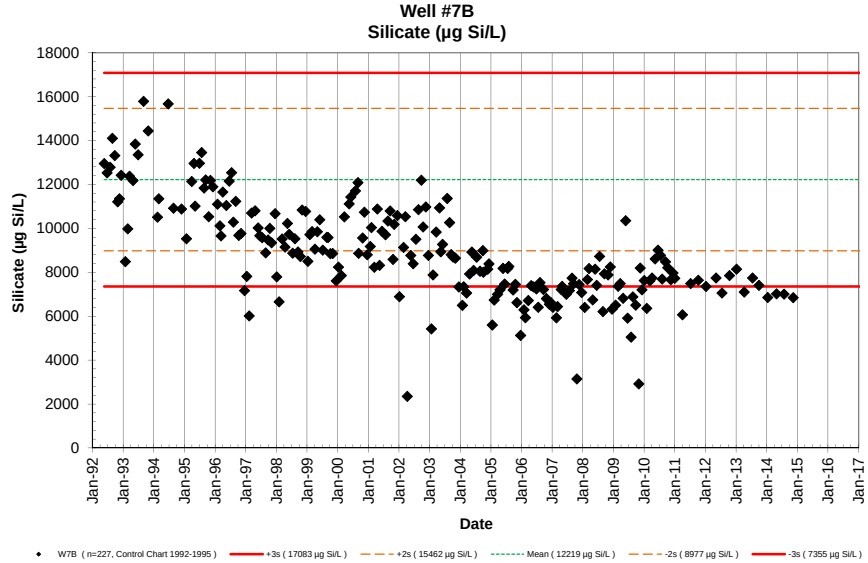

Well #7B
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W7B (n=227, Control Chart 1992-1995)
+3s (104 µg P/L)
+2s (100 µg P/L)
Mean (92 µg P/L)
-2s (83 µg P/L)
-3s (79 µg P/L)

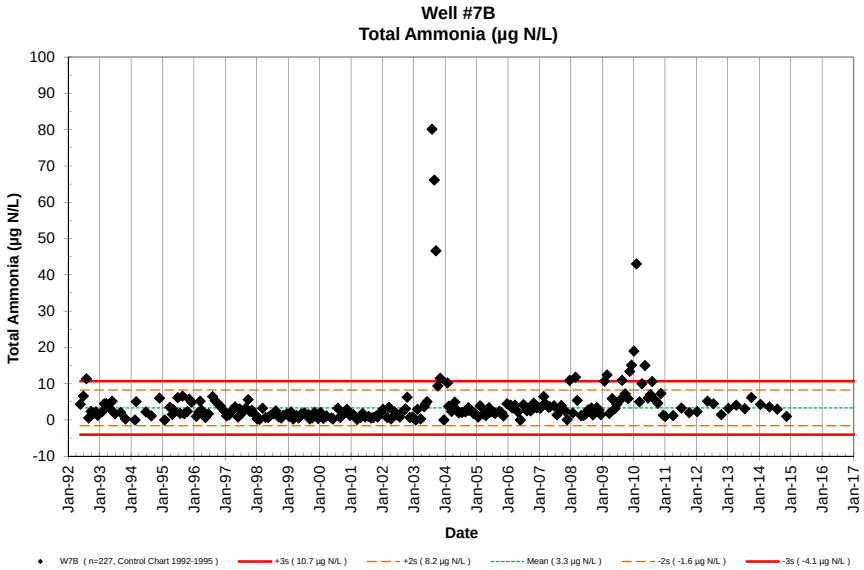

Well #7B
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W7B
+3s (1992-1995)
+2s (1992-1995)
Mean (1992-1995)
-2s (1992-1995)
-3s (1992-1995)

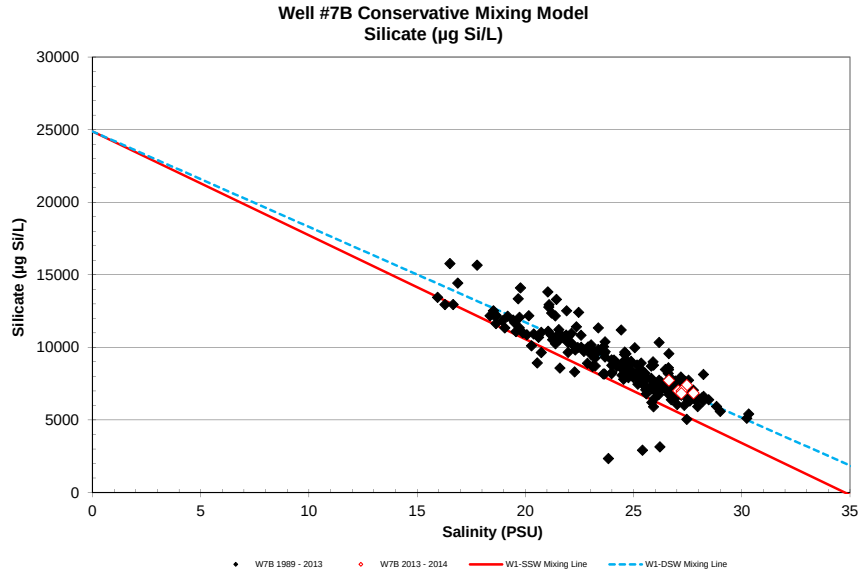

Well #7B Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W7B 1989 - 2013
W7B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

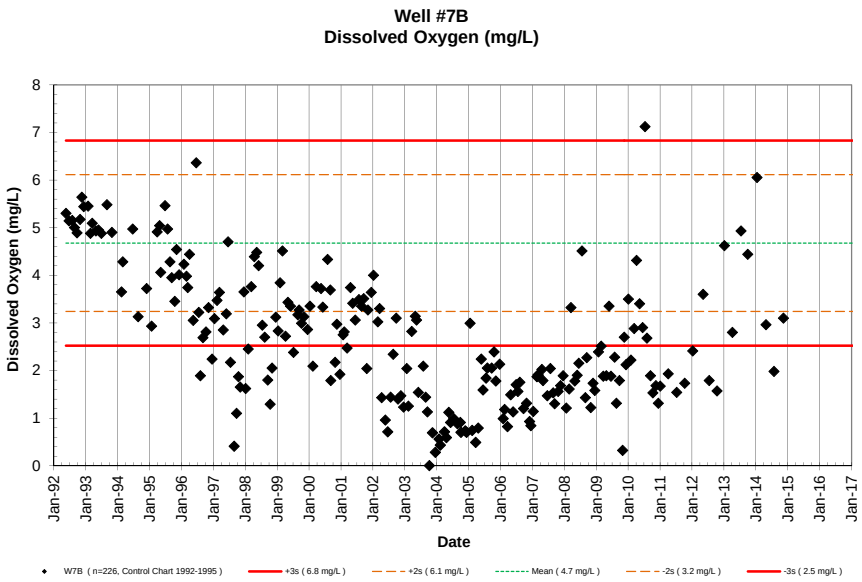

Well #7B Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W7B 1989 - 2013
W7B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

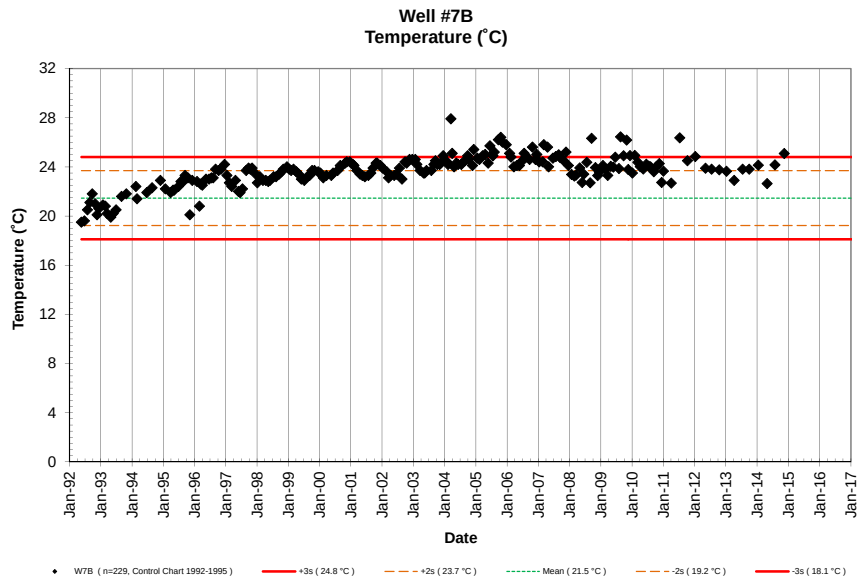

Well #7B
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W7B (n=227, Control Chart 1992-1995)
+3s (10.7 µg N/L)
+2s (8.2 µg N/L)
Mean (3.3 µg N/L)
-2s (-1.6 µg N/L)
-3s (-4.1 µg N/L)

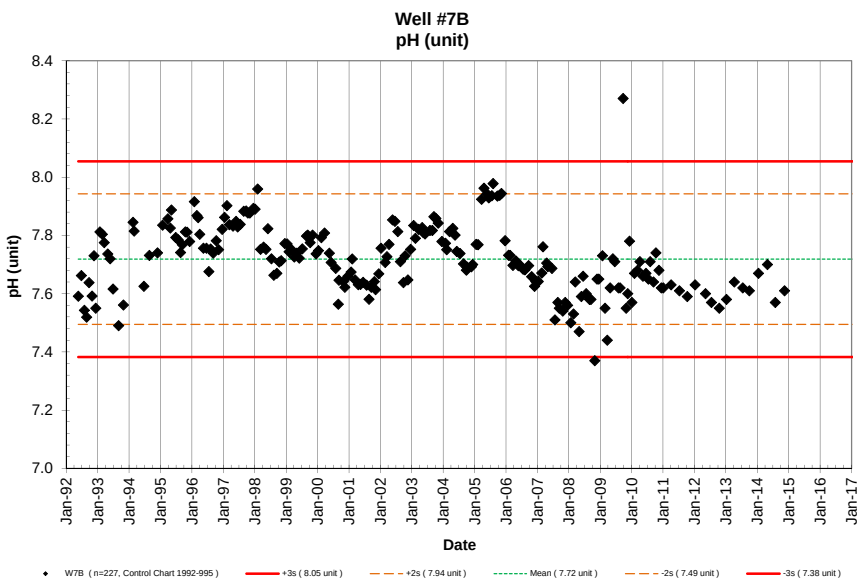

Well #7B
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W7B (n=227, Control Chart 1992-1995)
+3s (17083 µg Si/L)
+2s (15462 µg Si/L)
Mean (12219 µg Si/L)
-2s (8977 µg Si/L)
-3s (7355 µg Si/L)

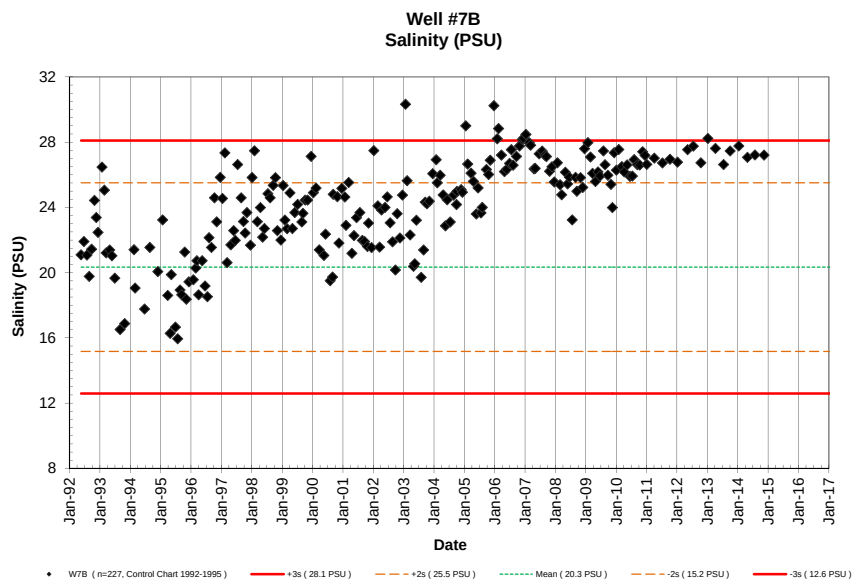

Well #7B
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W7B (n=227, Control Chart 1992-1995)
+3s (10.7 µg N/L)
+2s (8.2 µg N/L)
Mean (3.3 µg N/L)
-2s (-1.6 µg N/L)
-3s (-4.1 µg N/L)

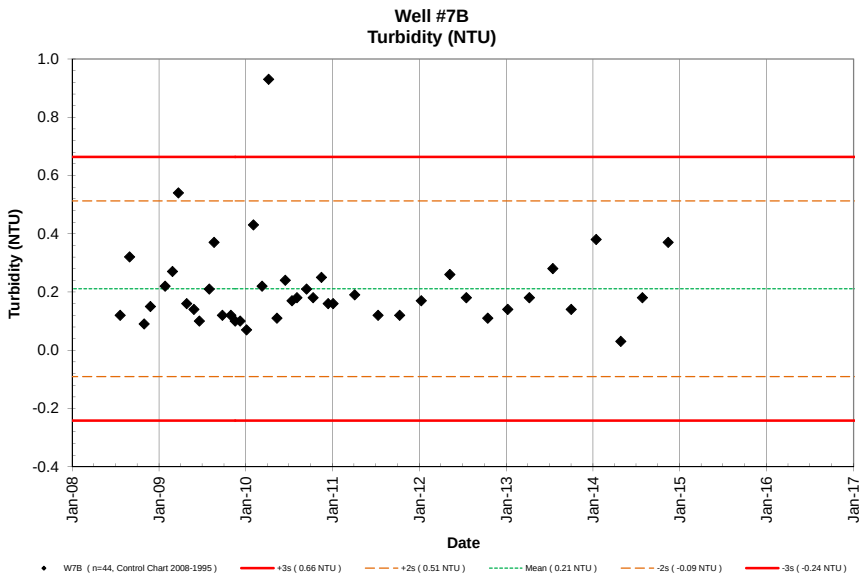

Well #7B Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W7B 1989 - 2013
W7B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

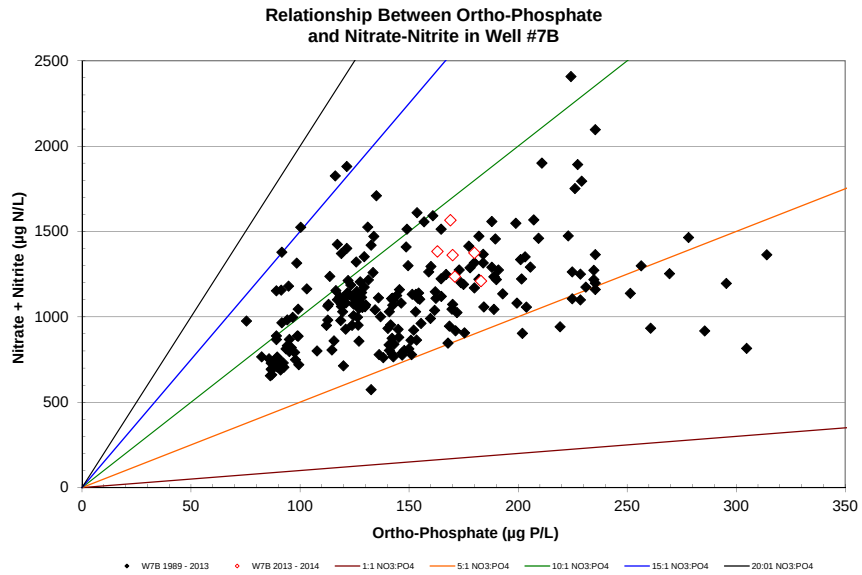

Well #7B
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W7B (n=226, Control Chart 1992-1995)
+3s (6.8 mg/L)
+2s (6.1 mg/L)
Mean (4.7 mg/L)
-2s (3.2 mg/L)
-3s (2.5 mg/L)


Well #7B
Temperature (˚C)
Temperature (˚C)
Date
W7B (n=229, Control Chart 1992-1995)
+3s (24.8 °C)
+2s (23.7 °C)
Mean (21.5 °C)
-2s (19.2 °C)
-3s (18.1 °C)


Well #7B
pH (unit)
pH (unit)
Date
W7B (n=227, Control Chart 1992-995)
+3s (8.05 unit)
+2s (7.94 unit)
Mean (7.72 unit)
-2s (7.49 unit)
-3s (7.38 unit)


Well #7B
Salinity (PSU)
Salinity (PSU)
Date
W7B (n=227, Control Chart 1992-1995)
+3s (28.1 PSU)
+2s (25.5 PSU)
Mean (20.3 PSU)
-2s (15.2 PSU)
-3s (12.6 PSU)


Well #7B
Turbidity (NTU)
Turbidity (NTU)
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W7B (n=44, Control Chart 2008-1995)
+3s (0.66 NTU)
+2s (0.51 NTU)
Mean (0.21 NTU)
-2s (-0.09 NTU)
-3s (-0.24 NTU)


Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #7B
Nitrate + Nitrite (µg N/L)
2500
2000
1500
1000
500
0
0
50
100
150
200
250
300
350
Ortho-Phosphate (µg P/L)
W7B 1989 - 2013
W7B 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

NELHA Water Quality Laboratory

Well 8 Data Table

May 1992 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W8	-18.9	5/20/92	957				5.71	177	54.2	759	0.18	2.5	195	5477	5.84	180.9	63.1	884	0.69	14.0	7.395	30.048	6.38		<1	<1
W8	-18.9	6/24/92	938				5.13	159	51.0	714	0.72	10.1	197	5533	5.22	161.7	53.6	751	1.18	14.7	7.440	30.278	6.03		<1	<1
W8	-18.9	7/30/92	858				4.81	149	51.3	718	1.17	16.4	187	5252	5.09	157.7	53.8	754	0.81	14.0	7.535	29.812	7.04		<1	<1
W8	-18.9	8/31/92	916																0.77	15.4	7.623	30.317	7.36		<1	<1
W8	-18.9	9/23/92	946				4.33	134	44.1	617	0.33	4.6	203	5701	4.41	136.6	52.4	734	0.80	14.7	7.652	29.924	7.09		<1	<1
W8	-18.9	10/28/92	1010				4.15	129	48.6	681	0.29	4.1	211	5926	4.27	132.3	52.5	735	0.67	15.4	7.647	29.595	6.78		<1	<1
W8	-18.9	11/18/92	1039				4.13	128	55.5	777	0.23	3.2	207	5814	4.47	138.5	61.5	861	0.69	15.0	7.617	29.284	6.28		<1	<1
W8	-18.9	12/9/92	941				3.84	119	59.2	829	0.11	1.5	207	5814	4.11	127.3	62.0	869	0.86	14.0	7.615	28.951	6.57		<1	<1
W8	-18.9	1/27/93	925				3.95	122	58.3	816	0.27	3.8	208	5836	4.05	125.4	63.5	890	0.66	14.1	7.588	29.261	6.60		<1	<1
W8	-18.9	2/24/93	909				4.15	129	63.4	888	0.09	1.3	217	6106	4.17	129.2	65.3	915	0.75	13.9	7.584	29.252	6.71		<1	<1
W8	-18.9	3/17/93	933				4.06	126	64.6	905	0.40	5.6	212	5960	4.13	127.9	68.9	965	0.84	13.8	7.561	29.090	6.71		<1	<1
W8	-18.9	4/28/93	903				4.20	130	60.9	854	0.32	4.5	205	5752	4.25	131.6	56.6	793	0.61	13.7	7.562	29.099	6.84		<1	<1
W8	-18.9	5/26/93	905				4.18	129	59.1	828	0.37	5.2	245	6881	4.30	133.2	65.7	921	0.77	13.4	7.555	29.201	6.92		<1	<1
W8	-18.9	6/29/93	918				4.22	131	58.3	817	0.17	2.4	203	5701	4.30	133.2	63.2	885	0.54	13.7	7.542	29.218	6.33		<1	<1
W8	-18.9	9/1/93	920				5.02	155	47.5	666	0.22	3.1	240	6741	5.20	161.1	57.6	807	0.97	15.2	7.517	29.111	3.74		<1	<1
W8	-18.9	10/27/93	915				5.31	164	46.8	656	0.13	1.8	224	6291	5.39	166.9	50.5	707	0.74	16.1	7.540	29.172	3.53		<1	<1
W8	-18.9	3/1/94	1128				5.96	185	57.7	808	0.27	3.8	199	5589	5.96	184.6	60.2	843	0.77	17.6	7.551	29.583	1.46		<1	<1
W8	-18.9	6/22/94	853				5.70	177	40.1	562	0.19	2.7	195	5471	5.75	178.1	44.7	626	0.91	18.1	7.548	30.096	0.41		<1	<1
W8	-18.9	8/24/94	935				5.71	177	31.2	437	0.04	0.6	190	5326	5.81	180.0	39.2	550	0.83	18.3	7.558	30.297	0.15		<1	<1
W8	-18.9	11/28/94	1115				6.07	188	8.7	121	0.57	8.0	200	5619	6.17	191.1	13.2	184	0.86	19.7	7.530	30.232	0.14		<1	<1
W8	-18.9	1/25/95	946				6.16	191	10.0	140	0.00	0.0	188	5277	6.32	195.8	13.5	189	0.89	19.6	7.590	30.304	0.10		<1	<1
W8	-18.9	2/15/94	959				6.14	190	12.9	181	0.00	0.0	193	5429	6.25	193.6		0	0.92	19.5	7.589	30.310	0.09		<1	<1
W8	-18.9	3/29/95	945				6.12	190	16.8	235	0.27	3.8	199	5600	6.21	192.3	18.9	265	1.07	19.7	7.574	30.288	0.18		<1	<1
W8	-18.9	4/26/95	936				5.99	186	21.8	305	0.17	2.4	190	5333	6.30	195.1	24.6	345	0.86	19.6	7.586	30.340	0.15		<1	<1
W8	-18.9	5/9/95	1115				5.20	161	20.0	281	0.31	4.3	207	5814	6.34	196.4	22.1	310	0.76	20.0	7.573	30.373	0.20		<1	<1
W8	-18.9	6/28/95	932				6.22	193	28.6	401	0.48	6.7	200	5611	6.31	195.4	31.4	440	0.80	20.0	7.551	30.438	0.10		<1	<1
W8	-18.9	7/26/95	1114				6.45	200	30.3	424	0.39	5.5	201	5631	6.49	201.0	33.2	466	0.92	20.1	7.606	30.478	0.10		<1	<1
W8	-18.9	8/23/95	1030				5.95	184	33.0	462	0.53	7.4	188	5269	6.11	189.2	35.6	498	0.77	19.8	7.591	30.482	0.81		<1	<1
W8	-18.9	9/12/95	1016				6.10	189	32.4	454	0.19	2.7	193	5421	6.26	193.9	35.4	495	0.72	19.8	7.639	30.482	0.32		<1	<1
W8	-18.9	10/17/95	1203				6.04	187	34.2	479	0.16	2.2	193	5426	6.10	188.9	36.4	510	0.92	19.9	7.642	30.541	0.25		<1	<1
W8	-18.9	11/7/95	1114				5.79	179	33.0	463	0.39	5.5	188	5274	5.90	182.7	35.6	499	1.07	20.0	7.692	30.658	0.47		<1	<1
W8	-18.9	12/6/95	1128				5.46	169	32.5	455	0.40	5.6	182	5098	5.60	173.5	34.6	485	0.78	20.2	7.718	30.678	0.70		<1	<1
W8	-18.9	1/30/96	912				6.08	188	36.8	515	0.51	7.1	197	5519	6.19	191.7	41.1	576	0.78	20.0	7.700	30.448	0.32		<1	<1
W8	-18.9	2/27/96	1125				6.03	187	39.9	558	0.25	3.5	188	5286	6.23	193.0	42.2	592	0.69	20.5	7.657	30.394	0.41		<1	<1
W8	-18.9	3/13/96	1241				6.19	192	41.8	586	0.48	6.7	186	5217	6.47	200.4	45.1	631	0.79	20.6	7.650	30.317	0.46		<1	<1
W8	-18.9	4/2/96	1133				6.32	196	44.4	622	0.13	1.8	205	5745	6.61	204.7	51.3	719	0.95	20.6	7.630	31.193	0.76		<1	<1
W8	-18.9	5/15/96	1119				6.30	195	43.7	613	0.40	5.6	199	5601	6.52	201.9	46.6	653	0.59	20.5	7.612	30.161	1.12		<1	<1
W8	-18.9	6/18/96	1054				6.10	189	42.9	601	0.14	2.0	191	5377	6.46	200.1	50.7	710	0.64	20.5	7.635	30.263	1.22		<1	<1
W8	-18.9	7/17/96	1114				6.79	210	48.5	679	0.19	2.7	186	5234	7.04	218.1	51.5	721	0.72	20.3	7.630	29.881	1.39		<1	<1
W8	-18.9	8/6/96	1128				6.96	216	59.2	829	0.46	6.4	189	5295	7.19	222.7	63.0	882	0.66	23.2	7.610	29.594	2.65		<1	<1
W8	-18.9	9/4/96	1116				6.40	198	54.8	767	0.57	8.0	194	5441	6.50	201.3	57.9	811	0.77	21.1	7.648	30.127	3.42		<1	<1
W8	-18.9	10/9/96	1212				6.13	190	61.5	862	0.44	6.2	205	5757	6.38	197.6	65.2	914	0.79	21.1	7.638	30.205	3.03		<1	<1
W8	-18.9	11/6/96	1115				6.16	191	60.3	845	0.18	2.5	185	5201	6.53	202.3	66.0	925	0.79	21.0	7.611	30.158	4.40		<1	<1
W8	-18.9	12/17/96	1107				6.00	186	50.5	708	0.20	2.8	181	5090	6.09	188.6	53.3	746	0.83	20.8	7.644	30.293	5.12		<1	<1
W8	-18.9	1/14/97	1107				5.66	175	53.7	752	0.16	2.2	190	5331	5.67	175.6	56.3	789	0.78	21.0	7.668	30.202	5.21		<1	<1
W8	-18.9	2/11/97	952				5.40	167	70.7	990	0.19	2.7	192	5378	5.5*	0.0	72.3	1012	0.79	21.0	7.675	30.008	4.95		<1	<1
W8	-18.9	3/11/97	1016				5.31	164	103.3	1447	0.20	2.8	260	7288	5.52	171.0	106.1	1486	0.91	20.7	7.720	29.976	4.83		<1	<1
W8	-18.9	4/23/97	1115				5.51	171	152.6	2137	0.37	5.2	251	7052	5.54	171.6	179.9	2520	0.75	20.5	7.738	30.053	4.07		<1	<1
W8	-18.9	5/28/97	1008				5.22	162	240.7	3371	0.02	0.3	177	4978	5.46	169.1	232.8	3260	0.97	20.0	7.776	30.143	3.08		<1	<1
W8	-18.9	6/17/97	1050				5.69	176	187.0	2619	0.23	3.2	180	5055	5.73	177.5	209.1	2929	1.41	20.6	7.808	30.287	3.08		<1	<1

NELHA Water Quality Laboratory

Well 8 Data Table

May 1992 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W8	-18.9	7/15/97	1044				6.58	204	120.0	1681	0.12	1.7	174	4873	6.72	208.1	138.3	1937	0.68	21.3	7.876	30.717	3.46		<1	<1
W8	-18.9	8/26/97	1111				5.86	182	58.7	822	0.28	3.9	201	5656	5.93	183.7	59.3	831	0.73	22.8	7.948	31.132	4.44		<1	<1
W8	-18.9	9/23/97	927				4.02	125	58.6	821	0.33	4.6	159	4467	4.12	127.6	67.6	947	0.71	21.5	8.023	30.737	4.13		<1	<1
W8	-18.9	10/14/97	1021				3.55	110	46.9	657	0.20	2.8	153	4289	3.63	112.4	55.7	780	0.71	21.3	8.022	30.697	3.98		<1	<1
W8	-18.9	11/4/97	850				3.32	103	50.3	705	0.11	1.5	148	4154	3.55	110.0	56.2	788	0.71	21.1	8.023	30.789	3.91		<1	<1
W8	-18.9	12/16/97	1051				3.45	107	56.6	793	0.09	1.3	152	4280	3.64	112.7	60.4	846	0.86	21.5	7.960	31.013	3.65		<1	<1
W8	-18.9	1/5/98	912				3.64	113	53.6	750	0.02	0.3	138	3870	3.91	121.1	57.9	811	0.88	21.6	7.961	31.095	3.79		<1	<1
W8	-18.9	2/3/98	751				4.05	125	61.0	854	0.04	0.6	150	4207	4.38	135.7	66.3	929	0.79	21.3	7.961	31.044	3.76		<1	<1
W8	-18.9	3/10/98	908				4.33	134	85.3	1195	0.26	3.6	146	4103	4.48	138.8	89.3	1251	0.82	21.4	7.825	30.886	2.78		<1	<1
W8	-18.9	4/14/98	1033				3.98	123	92.0	1289	0.03	0.4	143	4008	4.17	129.2	93.8	1314	0.87	21.5	7.833	30.805	2.49		<1	<1
W8	-18.9	5/12/98	910				3.81	118	98.8	1384	0.08	1.1	143	4011	3.93	121.7	100.1	1402	0.81	21.5	7.824	30.868	2.14		<1	<1
W8	-18.9	6/2/98	912				3.75	116	99.3	1391	0.10	1.4	144	4046	3.84	118.9	104.0	1457	0.80	21.8	7.807	30.939	2.06		<1	<1
W8	-18.9	7/14/98	904				3.89	120	90.3	1265	0.16	2.2	147	4120	4.11	127.3	94.3	1321	0.82	22.2	7.721	31.035	2.05		<1	<1
W8	-18.9	8/11/98	928				3.86	120	78.2	1096	0.07	1.0	151	4230	4.05	125.4	87.7	1228	0.93	23.1	7.645	31.810	0.87		<1	<1
W8	-18.9	9/15/98	916				3.42	106	77.8	1089	0.06	0.8	154	4317	3.51	108.7	83.4	1168	0.90	24.4	7.622	32.438	2.02		<1	<1
W8	-18.9	10/13/98	822				3.37	104	59.8	838	0.06	0.8	149	4182	3.56	110.3	63.0	882	0.90	25.1	7.641	32.710	0.52		<1	<1
W8	-18.9	11/4/98	914				3.41	106	64.2	899	0.10	1.4	149	4176	3.55	110.0	68.0	952	0.97	24.9	7.654	32.597	1.02		<1	<1
W8	-18.9	12/16/98	905				3.35	104	65.4	916	0.11	1.5	141	3960	3.48	107.8	69.5	973	0.95	24.7	7.665	32.546	0.82		<1	<1
W8	-18.9	1/12/99	936				3.45	107	77.7	1088	0.10	1.4	142	3980	3.55	110.0	81.4	1140	0.85	24.0	7.681	32.241	0.96		<1	<1
W8	-18.9	2/3/99	918				3.22	100	56.2	788	0.11	1.5	132	3693	3.42	105.9	60.6	849	0.94	23.8	7.671	32.260	2.97		<1	<1
W8	-18.9	3/2/99	917				3.01	93	66.5	931	0.06	0.8	123	3452	3.23	100.0	69.7	976	0.91	23.7	7.650	32.190	2.91		<1	<1
W8	-18.9	4/6/99	911				2.79	86	64.9	909	0.05	0.7	120	3367	2.93	90.8	69.1	968	0.82	23.2	7.613	32.414	1.80		<1	<1
W8	-18.9	5/4/99	920				2.64	82	62.6	877	0.08	1.1	104	2915	2.82	87.3	64.2	899	0.78	23.6	7.541	32.901	1.70		<1	<1
W8	-18.9	6/2/99	901				2.73	85	55.7	780	0.10	1.4	101	2837	2.95	91.4	60.4	846	0.81	23.9	7.516	33.086	1.71		<1	<1
W8	-18.9	7/7/99	949				3.18	98	51.9	727	0.02	0.3	90.6	2545	3.22	99.7	54.8	768	0.86	24.6	7.567	33.377	2.25		<1	<1
W8	-18.9	8/25/99	912				2.73	85	55.8	782	0.11	1.5	84.9	2384	2.88	89.2	60.5	847	0.89	25.2	7.675	33.535	2.01		<1	<1
W8	-18.9	9/8/99	924				2.46	76	67.3	942	0.06	0.8	85.8	2410	2.67	82.7	77.4	1084	0.81	25.2	7.665	33.556	1.23		<1	<1
W8	-18.9	10/6/99	919				1.73	54	60.3	844	0.02	0.3	83.1	2333	1.84	57.0	62.4	875	0.77	25.5	7.549	33.633	0.78		<1	<1
W8	-18.9	11/3/99	942				2.16	67	43.7	612	0.11	1.5	74.9	2104	2.30	71.2	46.5	651	0.81	25.2	7.593	33.335	2.78		<1	<1
W8	-18.9	12/15/99	1002				3.05	94	53.9	755	0.04	0.6	84.8	2382	3.24	100.4	57.4	804	0.79	25.0	7.643	33.431	1.68		<1	<1
W8	-18.9	1/11/00	941				2.81	87	56.5	791	0.16	2.2	76.1	2137	2.94	91.1	62.2	871	0.80	24.3	7.659	33.116	2.18		<1	<1
W8	-18.9	2/14/00	934				2.83	88	56.8	796	0.06	0.8	75.0	2106	2.90	89.8	62.2	871	0.81	23.6	7.666	32.658	2.63		<1	<1
W8	-18.9	3/22/00	953				3.98	123	43.3	606	0.05	0.7	88.1	2474	4.05	125.4	46.5	651	0.91	23.3	7.750	32.531	3.55		<1	<1
W8	-18.9	4/12/00	932				4.54	141	49.8	698	0.06	0.8	78.4	2202	4.56	141.2	53.7	752	1.03	23.3	7.810	32.463	3.11		<1	<1
W8	-18.9	5/17/00	923				3.64	113	73.1	1024	0.02	0.3	70.3	1974	3.67	113.7	76.2	1067	0.85	21.2	7.816	31.388	2.43		<1	<1
W8	-18.9	6/6/00	940				3.50	108	67.5	945	0.02	0.3	72.0	2022	3.55	110.0	75.6	1059	0.89	20.2	7.737	31.194	1.43		<1	<1
W8	-18.9	7/31/00	930				3.60	112	57.5	805	0.08	1.1	90.1	2531	3.73	115.5	60.4	846	0.97	22.1	7.698	31.952	2.64		<1	<1
W8	-18.9	8/30/00	925				2.93	91	61.4	860	0.02	0.3	95.5	2682	3.05	94.5	64.7	906	0.86	25.7	7.563	33.579	0.89		<1	<1
W8	-18.9	9/6/00	915				2.52	78	65.0	910	0.07	1.0	97.6	2741	2.71	83.9	69.0	966	1.01	25.9	7.519	33.643	0.35		<1	<1
W8	-18.9	10/25/00	923				1.92	59	63.6	891	0.13	1.8	88.5	2486	2.03	62.9	67.4	944	0.83	26.2	7.430	33.631	0.94		<1	1
W8	-18.9	11/14/00	936				2.26	70	47.5	665	0.21	2.9	82.9	2328	2.42	75.0	51.6	723	0.84	25.8	7.468	33.796	1.85		<1	<1
W8	-18.9	12/19/00	913				2.76	85	56.0	784	0.13	1.8	68.6	1927	3.01	93.2	58.8	824	0.81	24.9	7.588	33.459	0.92		<1	<1
W8	-18.9	1/24/01	857				2.30	71	53.5	750	0.08	1.1	71.6	2011	2.50	77.4	57.9	811	0.78	24.2	7.514	33.100	0.54		<1	<1
W8	-18.9	2/7/01	928				2.16	67	49.3	691	0.03	0.4	73.3	2059	2.28	70.6	53.0	742	0.76	24.3	7.532	33.247	0.37		<1	<1
W8	-18.9	3/12/01	905				2.23	69	53.4	748	0.01	0.1	74.0	2078	2.45	75.9	58.0	813	0.78	23.3	7.444	32.906	0.18		<1	<1
W8	-18.9	4/18/01	853				3.20	99	41.7	584	0.04	0.6	74.1	2081	3.28	101.6	43.8	613	0.73	23.6	7.461	33.044	1.61		<1	<1
W8	-18.9	5/14/01	1017				4.44	138	36.6	512	0.18	2.5	66.8	1876	4.50	139.4	39.4	552	0.72	23.8	7.614	34.250	2.18		<1	<1
W8	-18.9	6/13/01	921				4.76	147	37.3	523	0.01	0.1	72.3	2031	4.88	151.2	40.5	567	0.74	23.8	7.707	33.239	2.28		<1	<1
W8	-18.9	7/24/01	921				4.04	125	59.5	834	0.03	0.4	75.6	2123	4.11	127.3	61.7	864	0.83	24.3	7.756	33.061	1.77		<1	<1
W8	-18.9	8/22/01	929				4.24	131	75.7	1060	0.03	0.4	69.8	1961	4.46	138.1	78.8	1104	0.83	23.5	7.766	32.468	1.11		<1	<1
W8	-18.9	9/17/01	1007				3.60	112	82.0	1149	0.02	0.3	71.7	2014	3.76	116.5	86.3	1209	0.85	23.5	7.803	32.337	1.40		<1	<1
W8	-18.9	10/22/01	1002				2.54	79	89.6	1255	0.10	1.4	71.8	2017	2.60	80.5	97.8	1370	0.80	22.9	7.671	32.105	1.15		<1	<1
W8	-18.9	11/5/01	1031				2.52	78	94.2	1319	0.02	0.3	74.3	2087	2.56	79.3	106	1489	0.76	22.2	7.642	31.850	1.81		<1	<1
W8	-18.9	12/12/01	1014				3.36	104	76.9	1077	0.15	2.1	85.4	2399	3.49	108.1	82.7	1158	0.85	23.7	7.648	32.538	2.36		<1	<1
W8	-18.9	1/7/02	953				4.48	139	89.5	1254	0.21	2.9	92.3	2592	4.68	145.0	91.0	1274	0.82	23.2	7.660	32.137	2.53		<1	<1
W8	-18.9	2/25/02	922				4.14	128	49.3	691	0.07	1.0	94.1	2643	4.26	131.9	51.5	721	0.70	23.2	7.743	32.522	3.00		<1	<1
W8	-18.9	3/18/02	957				4.14	128	87.2	1221	0.35	4.9	80.0	2247	4.34	134.4	91.3	1278	0.86	21.9	7.742	31.850	1.80		<1	<1
W8	-18.9	4/10/02	958				4.02	125	75.3	1055	0.01	0.1	80.1	2250	4.08	126.4	78.6	1101	1.01	22.5	7.746	32.163	1.75		<1	<1
W8	-18.9	5/22/02	1015				4.74	147	92.8	1300	0.18	2.5	87.0	2443	4.97	153.9	92.9	1302	0.93	23.3	7.812	32.283	0.77		<1	<1
W8	-18.9	6/19/02	1046				3.90	121	57.4	804	0.08	1.1	85.5	2401	4.08	126.4	62.6	876	0.79	23.1	7.858	32.151	1.98		<1	<1

NELHA Water Quality Laboratory

Well 8 Data Table

May 1992 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W8	-18.9	7/22/02	1040				5.52	171	32.5	455	0.12	1.7	134	3772	5.90	182.7	30.2	423	0.86	25.3	7.839	33.235	2.88		<1	<1
W8	-18.9	8/21/02	1049				3.75	116	43.4	608	0.16	2.2	87.7	2464	3.94	122.0	45.8	641	0.90	25.9	7.814	33.388	1.15		<1	<1
W8	-18.9	9/25/02	929				2.44	76	41.5	581	0.27	3.8	89.0	2498	2.58	79.9	40.1	561	0.74	26.1	7.730	33.675	0.54		2	<1
W8	-18.9	10/15/02	1001				2.18	68	38.3	536	0.17	2.4	98.3	2761	2.29	70.9	40.3	565	0.68	26.1	7.727	33.616	1.08		<1	<1
W8	-18.9	11/17/02	951				2.96	92	44.0	616	0.01	0.1	89.8	2523	3.07	95.1	45.8	641	0.90	25.9	7.745	33.539	1.71		<1	<1
W8	-18.9	12/18/02	1005				2.61	81	32.8	459	0.02	0.3	78.6	2208	2.73	84.6	34.3	481	0.75	25.3	7.796	33.363	1.41		<1	<1
W8	-18.9	1/23/03	954				2.56	79	48.7	682	<0.02	0.0	86.2	2421	2.66	82.4	52.7	738	0.89	24.9	7.819	33.270	1.63		<1	<1
W8	-18.9	2/11/03	1008				2.00	62	48.3	677	0.19	2.7	88.7	2491	3.58	110.9	56.8	796	0.98	24.3	7.783	32.968	0.07		<1	<1
W8	-18.9	3/20/03	1110				2.92	90	71.4	1000	0.04	0.6	85.0	2387	2.96	91.7	79.7	1116	0.79	24.1	7.805	32.898	0.76		<1	<1
W8	-18.9	4/30/03	943				3.17	98	48.6	681	0.04	0.6	80.8	2269	3.27	101.3	55.5	777	0.75	24.5	7.876	34.445	2.17		<1	<1
W8	-18.9	5/14/03	855				3.09	96	44.5	624	0.09	1.3	78.6	2208	3.16	97.9	48.1	674	0.91	24.5	7.896	33.190	2.08		<1	<1
W8	-18.9	6/4/03	932				3.15	98	41.6	582	0.01	0.1	82.8	2324	3.33	103.1	48.0	672	1.10	24.5	7.854	33.068	1.26		<1	<1
W8	-18.9	7/30/03	919				3.00	93	54.2	759	0.03	0.4	85.0	2386	3.18	98.5	65.3	915	NA	24.3	7.849	32.649	0.27		<1	<1
W8	-18.9	8/28/03	908				2.52	78	56.1	786	1.59	22	75.7	2126	2.64	81.8	82.4	1154	NA	23.1	7.818	31.922	0.15		<1	<1
W8	-18.9	9/16/03	902				2.00	62	94.8	1328	3.53	49	81.3	2283	1.96	60.7	92.8	1299	NA	23.0	7.713	31.718	0.19		<1	<1
W8	-18.9	10/8/03	902				2.62	81	58.6	821	1.80	25	88.1	2474	2.86	88.6	75.6	1059	NA	23.9	7.679	32.363	NA		<1	<1
W8	-18.9	11/5/03	909				4.48	139	20.8	291	40.2	563	97.6	2741	4.82	149.3	69.2	969	NA	24.1	7.607	32.476	NA		<1	<1
W8	-18.9	12/17/03	945				4.41	137	37.9	530	23.0	322	100	2804	4.66	144.3	65.6	919	NA	23.6	7.553	32.351	0.15		<1	<1
W8	-18.9	1/28/04	949				4.96	154	76.0	1064	6.55	92	102	2853	5.12	158.6	87.4	1224	1.11	22.8	7.508	31.682	0.05		<1	<1
W8	-18.9	2/11/04	901				5.06	157	83.5	1170	2.27	32	98.9	2778	5.42	167.9	92.4	1294	0.87	21.8	7.477	31.369	0.17		<1	<1
W8	-18.9	3/16/04	951				5.84	181	71.8	1006	7.03	98	101	2845	6.23	193.0	87.8	1229	NA	22.3	7.524	31.469	0.11		<1	<1
W8	-18.9	4/22/04	935				6.13	190	74.9	1050	44.6	625	101	2831	6.22	192.7	90.9	1273	NA	22.1	7.583	31.389	0.14		<1	<1
W8	-18.9	5/18/04	915				6.28	195	61.5	861	5.90	83	104	2924	6.64	205.7	75.9	1062	NA	22.0	7.522	30.54	1.70		<1	<1
W8	-18.9	6/8/04	917				6.68	207	45.7	639	8.23	115	105	2949	7.16	221.8	62.8	880	NA	22.5	7.514	30.74	0.25		<1	<1
W8	-18.9	7/19/04	1017				6.58	204	69.3	971	3.9	54	104	2921	6.74	208.8	75.1	1052	NA	22.4	7.504	30.56	0.15		<1	<1
W8	-18.9	8/25/04	958				7.14	221	76.8	1075	0.15	2.1	106	2980	7.38	228.6	81.9	1147	NA	22.1	7.444	30.29	2.50		<1	<1
W8	-18.9	9/27/04	1114				6.54	203	31.2	436	0.19	2.7	118	3303	6.86	212.5	34.7	486	NA	22.4	7.459	30.50	0.29		<1	<1
W8	-18.9	10/4/04	1033				7.02	217	66.8	936	0.35	4.9	117	3280	7.44	230.4	74.1	1038	NA	23.1	7.449	30.79	0.13		<1	1
W8	-18.9	11/23/04	930				6.02	186	58.3	817	5.0	70	126	3547	6.16	190.8	83.0	1163	NA	24.3	7.458	31.23	0.36		<1	<1
W8	-18.9	12/8/04	1017				5.94	184	72.0	1009	4.1	57	123	3440	6.16	190.8	91.1	1276	NA	24.4	7.439	31.05	0.30		<1	<1
W8	-18.9	1/18/05	1024				6.22	193	48.2	675	6.0	85	116	3252	6.52	201.9	63.6	891	NA	23.5	7.487	31.901	0.17		<1	<1
W8	-18.9	2/10/05	1011				5.96	185	35.1	492	7.2	101	113	3176	6.18	191.4	54.2	759	NA	23.0	7.508	31.867	0.30		<1	<1
W8	-18.9	3/22/05	1017				8.18	253	42.3	593	6.3	88	112	3134	8.68	268.9	50.6	708	1.55	21.7	7.637	31.818	0.28		<1	<1
W8	-18.9	4/20/05	1010				8.45	262	42.4	594	16.5	231	106	2969	9.00	278.8	57.3	802	NA	21.9	7.675	31.779	0.22		<1	<1
W8	-18.9	5/25/05	1033				8.79	272	32.6	457	10.7	149	107	3008	9.48	293.6	49.8	698	NA	22.4	7.686	32.204	0.24		<1	<1
W8	-18.9	6/14/05	1026				9.36	290	39.8	557	8.5	119	108	3022	9.72	301.1	53.3	747	NA	24.0	7.667	32.146	0.18		<1	<1
W8	-18.9	7/19/05	1015				7.98	247	31.7	444	9.4	131	107	3008	8.38	259.6	43.4	608	0.88	24.2	7.648	32.263	0.16		<1	<1
W8	-18.9	8/3/05	1053				7.84	243	39.6	554	9.3	130	109	3047	8.02	248.4	53.9	755	0.83	24.3	7.664	32.284	0.24		<1	<1
W8	-18.9	9/22/05	1009				7.22	224	26.8	376	12.0	169	119	3339	7.52	232.9	41.1	575	0.79	25.8	7.579	32.909	0.21		<1	<1
W8	-18.9	10/19/05	1018				7.28	225	38.0	532	14.8	207	114	3210	7.66	237.3	59.2	829	NA	25.4	7.606	32.621	0.25		<1	<1
W8	-18.9	11/8/05	1003				6.68	207	45.6	639	22.7	318	104	2912	6.92	214.3	76.0	1064	NA	25.0	7.612	32.583	0.13		<1	<1
W8	-18.9	12/22/05	934				6.22	193	53.8	753	18.2	255	108	3042	6.48	200.7	76.6	1073	NA	23.7	7.614	32.050	0.13		<1	<1
W8	-18.9	1/31/06	1002				5.70	177	61.3	858	8.5	118	105	2955	5.86	181.5	72.9	1021	NA	22.9	7.754	31.828	0.17		<1	<1
W8	-18.9	2/16/06	1003				5.62	174	46.5	652	5.8	81	108	3039	6.02	186.5	54.0	756	0.92	22.8	7.563	31.845	0.25		<1	<1
W8	-18.9	3/22/06	1002				5.06	157	96.6	1353	0.25	3.5	107	3005	5.32	164.8	99.9	1399	0.68	21.5	7.530	31.465	0.46		<1	<1
W8	-18.9	4/27/06	1040				5.49	170	109	1527	0.16	2.2	103	2893	5.63	174.4	99.6	1395	0.68	21.1	7.512	31.296	0.25		<1	<1
W8	-18.9	5/24/06	1105				5.83	181	65.3	915	2.38	33.3	110	3089	6.12	189.6	63.9	894	0.82	21.3	7.554	31.354	0.25		<1	<1
W8	-18.9	6/28/06	1052				6.00	186	75.3	1055	0.33	4.6	106	2977	6.34	196.4	71.4	1000	0.62	21.7	7.559	31.446	0.25		<1	<1
W8	-18.9	7/19/06	1024				5.76	178	46.9	657	8.4	117	110	3089	6.02	186.5	50.9	712	0.83	22.2	7.596	31.707	0.26		<1	<1
W8	-18.9	8/9/06	1006				5.89	182	65.4	916	1.07	15.0	117	3286	6.24	193.3	63.4	888	0.68	23.0	7.547	31.998	0.46		<1	<1
W8	-18.9	9/20/06	1015				5.96	185	27.5	385	17.0	238	124	3483	6.36	197.0	42.9	601	0.81	23.5	7.58	32.429	0.21		<1	<1
W8	-18.9	10/25/06	1053				5.70	177	54.5	763	0.81	11.3	129	3623	5.88	182.1	54.4	761	0.78	24.8	7.517	32.796	0.25		<1	<1
W8	-18.9	11/29/06	1020				4.83	150	24.6	345	0.76	10.6	125	3511	5.06	156.7	28.3	396	0.86	24.4	7.478	32.542	0.22		<1	<1
W8	-18.9	12/13/06	1013				4.91	152	55.8	782	0.23	3.2	117	3286	5.14	159.2	55.1	771	0.70	24.0	7.464	32.383	0.03		<1	<1
W8	-18.9	1/10/07	1015				5.54	172	53.0	742	0.32	4.5	117	3286	5.84	180.9	55.6	779	0.71	23.4	7.498	32.283	0.18		<1	<1
W8	-18.9	2/21/07	1036				4.85	150	56.7	794	0.47	6.6	107	3005	5.41	167.6	66.1	925	0.74	22.4	7.475	31.925	0.45		<1	<1
W8	-18.9	3/7/07	1028				4.52	140	48.1	674	0.30	4.2	106	2977	4.71	145.9	49.4	692	0.79	22.2	7.699	31.870	0.25		<1	<1
W8	-18.9	4/19/07	1011				3.50	108	42.8	599	0.23	3.2	113	3174	3.69	114.3	35.9	502	0.69	23.2	7.44	32.196	0.31		<1	<1
W8	-18.9	5/2/07	1023				3.45	107	44.5	623	0.36	5.0	114	3202	3.75	116.2	42.9	600	0.70	22.7	7.396	32.135	0.18		<1	<1
W8	-18.9	6/20/07	1023				3.33	103	25.2	353	0.28	3.9	117	3286	3.53	109.3				24.0	7.368	32.665	0.26		<1	<1

NELHA Water Quality Laboratory

Well 8 Data Table

May 1992 - December 2014

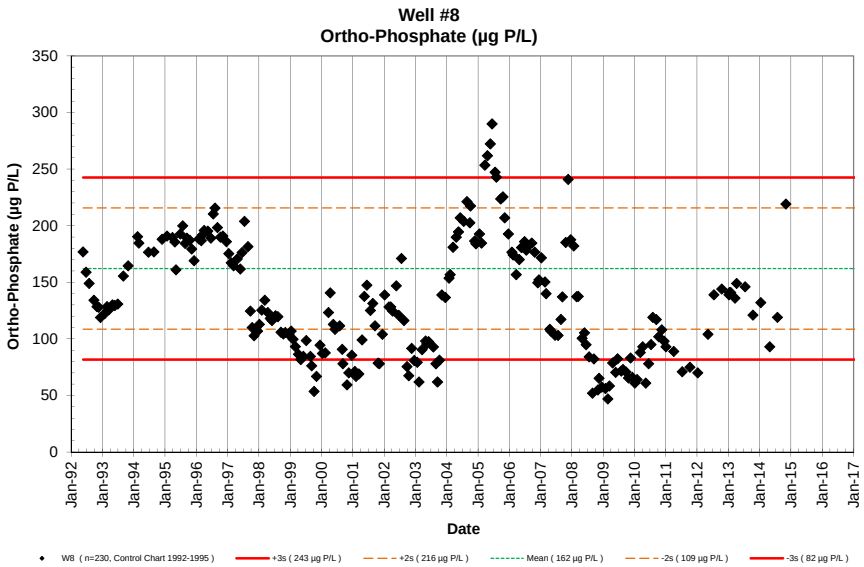
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W8	-18.9	7/25/07	1132	-3.96	0.46	Flood	3.33	103	21.7	304	5.00	70	110	3100	3.48	107.9	28.8	403.9		24.3	7.23	32.83	0.09			
W8	-18.9	8/27/07	1110		0.06	Flood	3.78	117	47.2	661	0.32	5	99	2778	4.11	127.3	39.7	555.9		24.6	7.37	32.96	0.13			
W8	-18.9	9/13/07	1530	-3.58	0.4	Flood	4.43	137	14.9	209	20.63	289	127	3573	4.74	146.9	40.7	570.5		25.0	7.36	33.31	0.06			
W8	-18.9	10/23/07	1030	-4.22	0.24	Flood	5.98	185	3.8	53	36.80	515	96	2710	6.36	197.1	43.0	601.7		26.2	7.38	34.01	1.00			
W8	-18.9	11/20/07	1102	-3.96	0.4	Flood	7.78	241	18.9	265	1.93	27	98	2747	7.41	229.6	28.0	391.7		25.5	7.56	33.82	0.38			
W8	-18.9	12/19/07	1045	-3.96	0.3	High	6.06	188	19.1	268	0.78	11	82	2298						24.8	7.67	33.47	2.34			
W8	-18.9	1/24/08	1445	-3.63	0.06	Flood	5.88	182	23.9	335	0.64	8.9	79	2224						24.3	7.69	33.39	2.21			
W8	-18.9	2/26/08	934	-3.96	0.18	Ebb	4.43	137	22.4	314	1.14	16	74	2083						23.5	7.81	33.10	2.67			
W8	-18.9	3/17/08	1115	-4.01	0.06	Flood	4.44	138	20.1	282	0.08	1.1	71	1994						23.5	7.81	32.77	2.11			
W8	-18.9	4/30/08	1111	-3.66	0.21	Flood	3.24	101	17.7	249	0.09	1.2	75	2102						23.9	7.77	33.16	2.87			
W8	-18.9	5/27/08	1055	-4.17	0.24	High	3.40	105	14.6	205	0.66	9.2	95	2662						23.9	7.72	33.38	0.81			
W8	-18.9	6/16/08	1120	-3.61	0.24	Flood	3.06	95	14.3	200	0.18	2.5	92	2585						24.1	7.82	33.51	3.09			
W8	-18.9	7/21/08	1027	-4.11	0.12	Ebb	2.72	84	21.4	300	0.20	2.8	77	2162						24.6	7.84	33.74	2.40	0.08		
W8	-18.9	8/30/08	1352		0.46	Flood	1.68	52	11.4	159	0.20	2.8	62	1752						25.1	7.83	34.19	2.55	0.08		
W8	-18.9	9/15/08	1117	-4.44	0.09	Low	2.66	82	21.1	296	0.10	1.4	82	2293						25.2	7.81	33.93	1.97			
W8	-18.9	10/31/08	1031	-4.18	0.3	Ebb	1.77	55	14.7	206	0.38	5.3	78	2195						28.1	7.63	34.01	2.05			
W8	-18.9	11/14/08	1041	-4.13	0.15	Ebb	2.11	65	38.1	534	0.00	0.0	75	2093						27.0	7.86	34.01	1.24	0.83		
W8	-18.9	12/15/08	1353	-4.36	0.03	Low	1.85	57	36.7	514	0.11	1.5	77	2161						26.4	7.93	33.60	2.60			
W8	-18.9	1/27/09	856	-4.07	0.3	Ebb	1.81	56	44.1	617	0.36	5.0	73	2053						25.6	7.82	34.77	1.41	0.38		
W8	-18.9	2/24/09	1330	-4.33	0.15	Flood	1.52	47	34.4	482	0.42	5.9	76	2127						25.5	7.72	33.72	2.19	0.10		
W8	-18.9	3/16/09	1335	-4.59	0.03	Low	1.89	58	16.8	236	0.13	1.8	70	1967						25.9	7.59	33.49	2.60	0.30		
W8	-18.9	4/22/09	1119	-4.40	0.18	Flood	2.54	79	35.2	492	0.07	1.0	68	1896						24.9	8.09	33.00	2.53	0.94		
W8	-18.9	5/27/09	1130	-4.27	0	Low	2.27	70	22.8	319	0.17	2.4	66	1842						23.2	7.81	33.25	1.91	0.02		
W8	-18.9	6/19/09	1453	-3.82	0.73	High	2.66	83	47.1	660	0.20	2.8	73	2039						23.4	7.95	32.95	1.26	0.02		
W8	-18.9	7/31/09	1305	-3.81	0.67	High	2.31	72	39.4	552	0.21	3.0	61	1703						24.5	7.85	33.37	1.06	0.06		
W8	-18.9	8/20/09	1335	-3.98	0.46	Flood	2.35	73	52.1	730	0.71	10.0	79	2232						23.9	7.85	33.09	0.67	0.05		
W8	-18.9	9/24/09	1528	-4.21	0.21	Ebb	2.29	71	38.2	535	0.49	6.8	58	1618						23.8	8.29	33.13	0.19	0.03		
W8	-18.9	10/23/09	1119	-4.05	0.43	Ebb	2.11	66	31.1	436	0.37	5.2	83	2324						24.8	7.75	33.32	0.40	0.08		
W8	-18.9	11/17/09	1634	-4.20	0.37	High	2.68	83	40.9	573	0.86	12.0	136	3807						24.7	7.69	33.43	1.08	0.02		
W8	-18.9	12/8/09	1058	-4.00	0.52	Ebb	2.13	66	34.8	488	1.11	15.5	82	2290						25.8	7.71	33.55	1.33	0.02		
W8	-18.9	1/6/10	1022	-4.05	0.3	Ebb	1.97	61	43.5	609	1.29	18.0	89	2489						24.7	7.73	32.80	1.33	0.11		
W8	-18.9	2/2/10	1008	-4.10	0.15	Ebb	2.07	64	52.3	732	0.64	9.0	79	2232						24.9	7.76	32.97	1.10	0.25		
W8	-18.9	3/10/10	952	-4.40	0.09	Flood	2.84	88	37.3	523	0.36	5.0	89	2501						25.8	7.80	33.02	1.09	0.16		
W8	-18.9	4/7/10	938	-4.32	0.12	Flood	3.00	93	37.6	526	0.86	12.0	82	2307						25.6	7.74	32.81	1.00	0.25		
W8	-18.9	5/12/10	924	-4.48	-0.03	Flood	1.97	61	38.6	541	0.64	9.0	84	2350						24.3	7.79	32.71	1.11	0.08		
W8	-18.9	6/16/10	1523	-4.28	0.24	Flood	2.52	78	43.9	615	0.29	4.0	92	2593						23.1	7.81	32.55	0.86	0.10		
W8	-18.9	7/13/10	1530	-3.93	0.49	Flood	3.07	95	29.7	416	0.07	1.0	95	2673						23.8	7.78	32.82	1.44	0.09		
W8	-18.9	8/3/10	1533	-4.01	0.37	Ebb	3.84	119	39.6	554	0.24	3.3	98	2762						24.4	7.77	33.18	1.33	0.08		
W8	-18.9	9/14/10	1540	-4.11	0.21	Ebb	3.78	117	37.6	526	0.01	0.1	96	2699						25.0	7.79	33.32	1.29	0.18		
W8	-18.9	10/12/10	1602	-4.17	0.18	Low	3.29	102	30.3	425	0.06	0.8	95	2661						24.8	7.80	32.24	0.92	0.09		
W8	-18.9	11/16/10	1446	-4.00	0.3	Ebb	3.49	108	26.6	373	0.28	3.9	97	2718						25.4	7.74	33.59	0.79	0.30		
W8	-18.9	12/14/10	1512	-4.23	0.12	Ebb	3.16	98	26.2	367	0.09	1.3	98	2764						25.4	7.73	33.25	0.46	0.09		
W8	-18.9	1/4/11	1456	-4.22	0.15	Flood	3.00	93	24.8	348	0.19	2.6	94	2626						25.4	7.72	33.49	1.22	0.08		
W8	-18.9	4/5/11	1513	-4.02	0.37	Flood	2.87	89	37.1	519	0.05	0.7	80	2239						24.2	7.71	32.94	1.71	0.13		
W8	-18.9	7/12/11	1505	-3.78	0.73	High	2.29	71	26.2	367	11.18	157	89	2513						24.9	7.77	33.34	0.09	0.18		
W8	-18.9	10/11/11	1407	-4.03	0.34	Flood	2.42	75	28.4	398	8.79	123	82	2291						23.5	7.73	32.88	0.02	0.07		
W8	-18.9	1/10/12	1531	-4.27	0.18	Flood	2.26	70	44.6	625	0.07	1.0	85	2395						23.3	7.66	32.19	0.76	0.07		
W8	-18.9	5/8/12	1329	-4.34	0.06	Flood	3.36	104	49.5	694	0.21	2.9	89	2499						21.0	7.56	31.61	0.67	0.08		
W8	-18.9	7/17/12	1441	-3.70	0.7	Flood	4.49	139	13.5	189	0.14	2.0	106	2965						23.3	7.50	32.77	0.15	0.55		
W8	-18.9	10/15/12	1358	-4.00	0.3	Flood	4.65	144	36.4	510	0.15	2.1	99	2784						23.1	7.57	32.71	0.57	0.02		
W8	-18.9	1/7/13	1519	-4.25	0.12	Ebb	4.49	139	75.7	1060	0.10	1.4	138	3886						21.7	7.50	32.04	0.51	0.02		
W8	-18.9	1/14/13	1008	-3.94	0.24	Ebb	4.55	141	71.8	1006	0.32	4.5	104	2920						21.5	7.61	32.00	0.54	0.19		
W8	-18.9	1/29/13	1426	-4.05	0.09	Flood	4.55	141	92.5	1296	0.81	11.4	100	2808						21.3	7.44	31.72	0.68			
W8	-18.9	3/20/13	1025	-4.24	0.18	High	4.39	136	83.8	1174	1.00	14.0	99	2775						21.4	7.60	31.62	0.67	0.19		
W8	-18.9	4/8/13	1456	-4.03	0.49	Flood	4.81	149	54.8	767	0.13	1.8	103	2897						22.4	7.55	32.30	0.36	0.02		

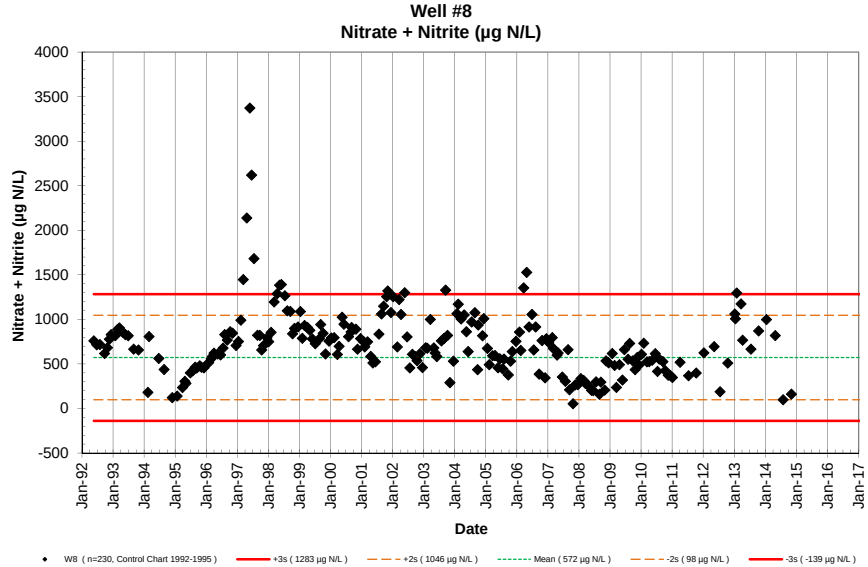
NELHA Water Quality Laboratory

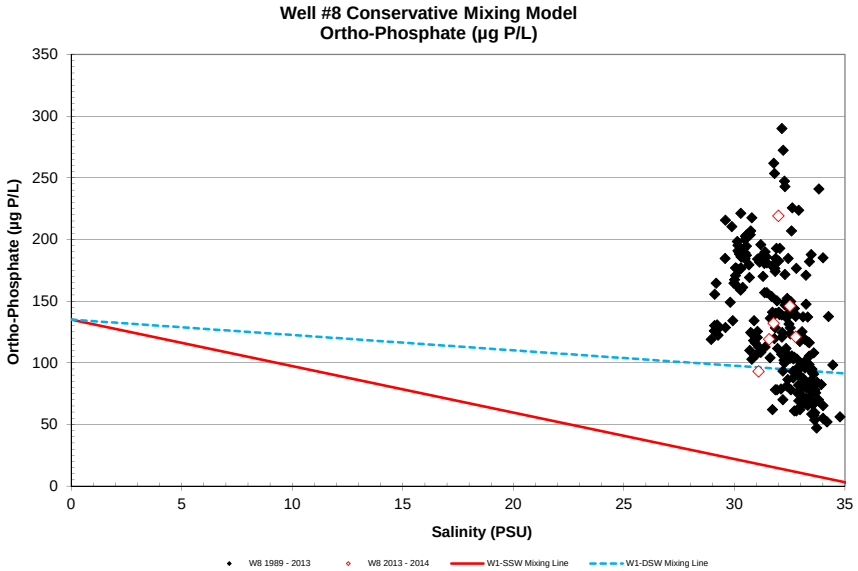
Well 8 Data Table

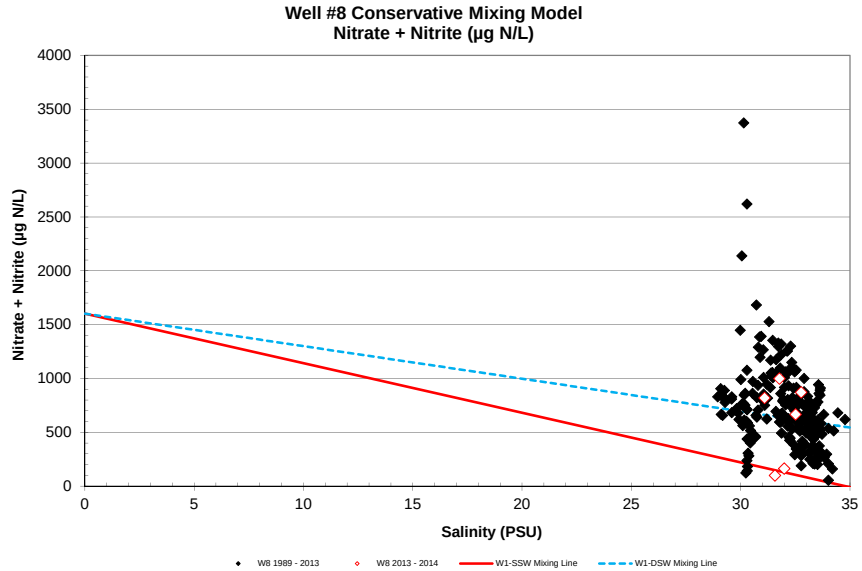
May 1992 - December 2014

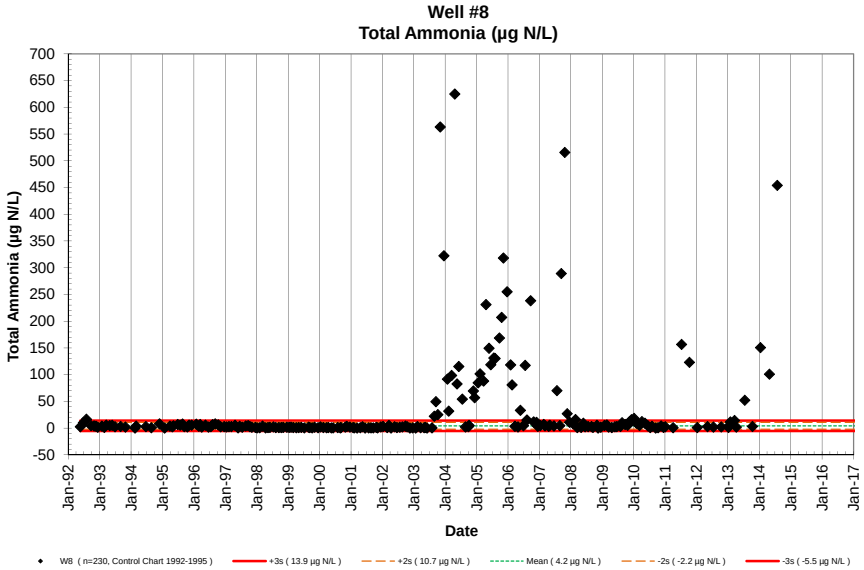
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W8	-18.9	7/16/13	1643	-4.17	0.24	Ebb	4.71	146	47.5	666	3.72	52	104	2920						22.8	7.52	32.51	0.10	0.29		
W8	-18.9	10/14/13	1721	-4.20	0.12	Ebb	3.91	121	62.1	870	0.23	3.2	106	2986						23.1	7.52	32.77	0.29	0.02		
W8	-18.9	1/14/14	1525	-4.13	0.18	High	4.26	132	71.3	998	10.75	151	108	3027						20.4	7.49	31.77	0.49	0.22		
W8	-18.9	4/28/14	1456	-3.90	0.55	Flood	3.00	93	58.5	819	7.21	101	103	2902						20.0	8.03	31.09	0.99	0.02		
W8	-18.9	7/28/14	1617	-3.86	0.55	Flood	3.84	119	7.0	98	32.41	454	121	3400						20.6	7.43	31.57	0.62	0.09		
W8	-18.9	11/3/14	1341	-3.79	0.46	Flood	7.07	219	11.5	161	51.53	722	131	3679						21.9	7.36	31.99	0.47	0.15		
W8	-18.9	1/1/15																								
W8	-18.9	4/1/15																								

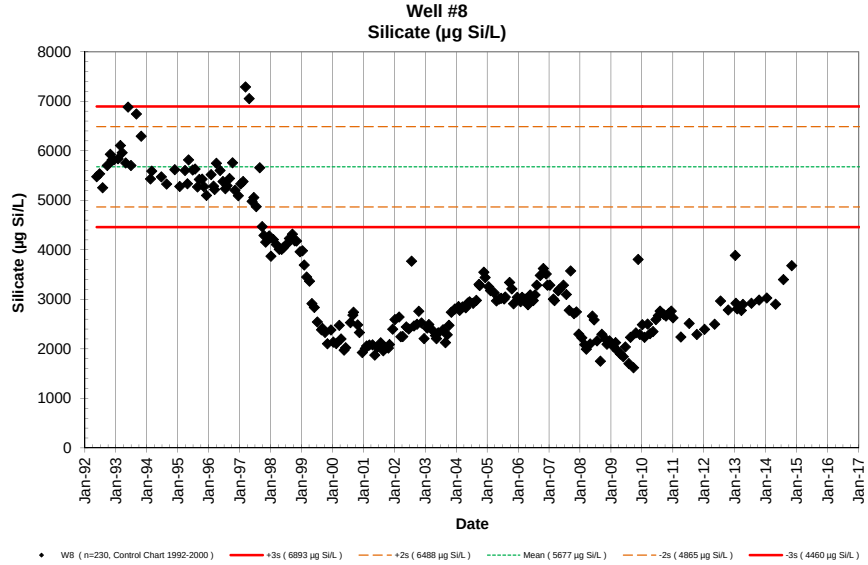

Well #8
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W8 (n=230, Control Chart 1992-1995)
+3s (243 µg P/L)
+2s (216 µg P/L)
Mean (162 µg P/L)
-2s (109 µg P/L)
-3s (82 µg P/L)

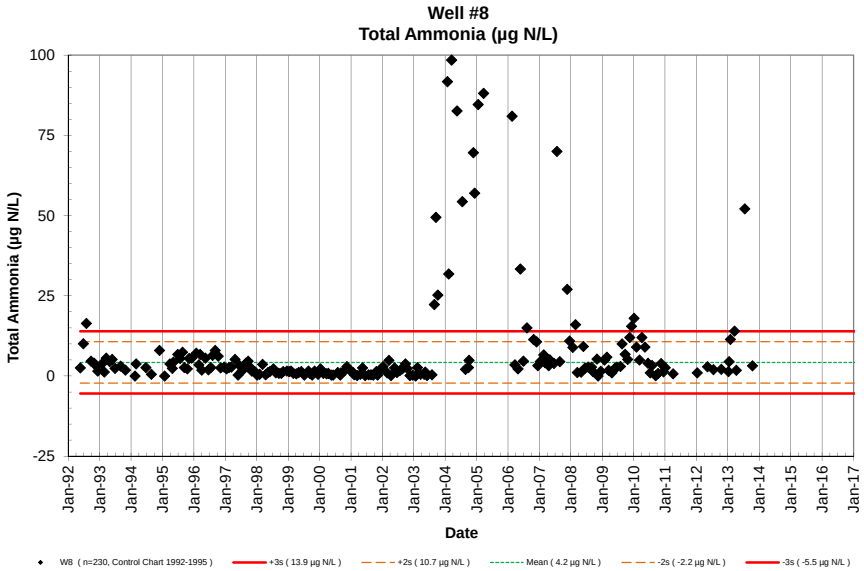

Well #8
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W8 (n=230, Control Chart 1992-1995)
+3s (1283 µg N/L)
+2s (1046 µg N/L)
Mean (572 µg N/L)
-2s (98 µg N/L)
-3s (-139 µg N/L)

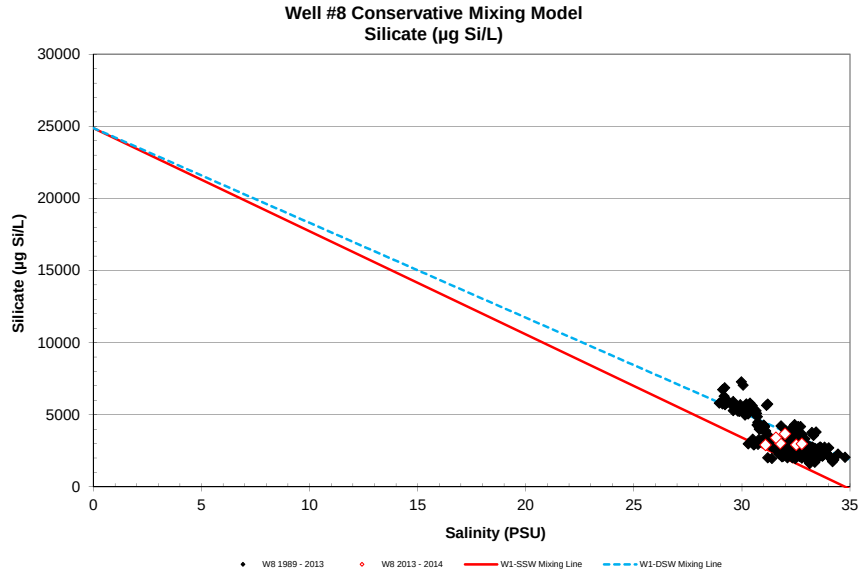

Well #8 Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W8 1989 - 2013
W8 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

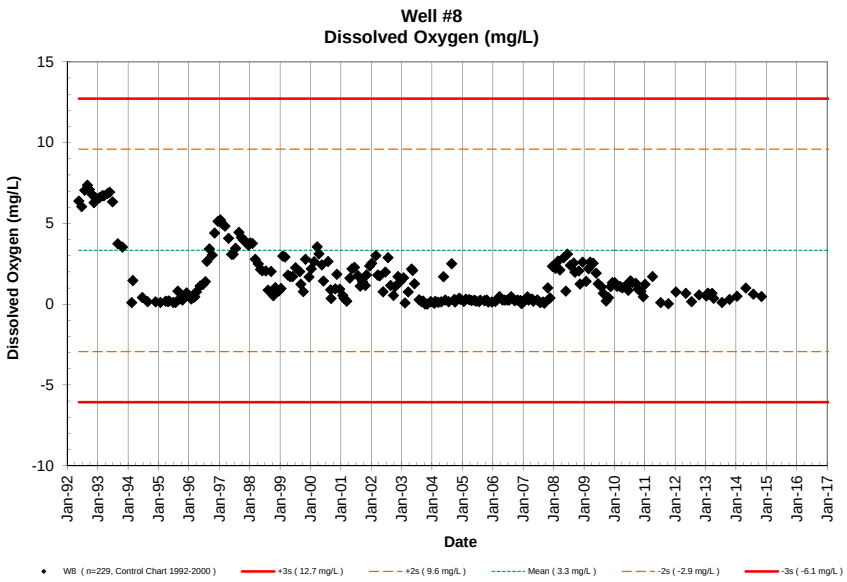

Well #8 Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W8 1989 - 2013
W8 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

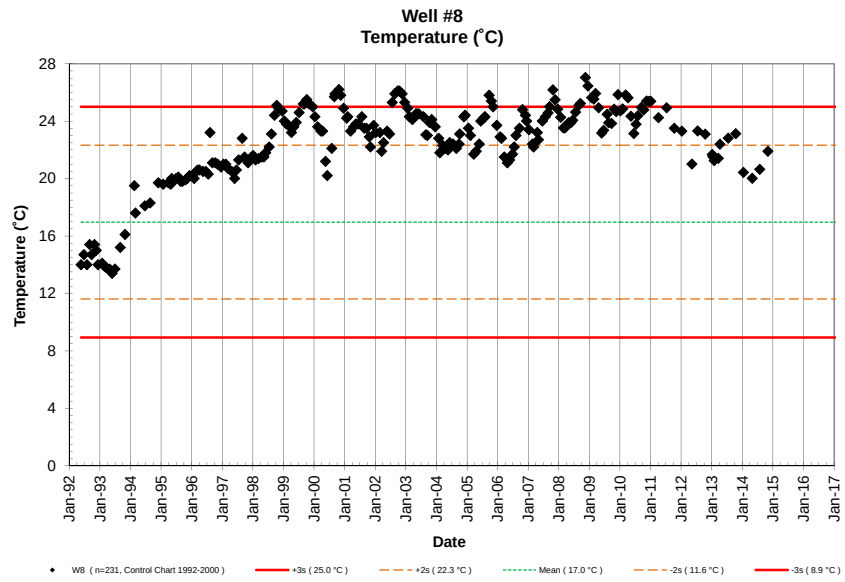

Well #8
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W8 (n=230, Control Chart 1992-1995)
+3s (13.9 µg N/L)
+2s (10.7 µg N/L)
Mean (4.2 µg N/L)
-2s (-2.2 µg N/L)
-3s (-5.5 µg N/L)

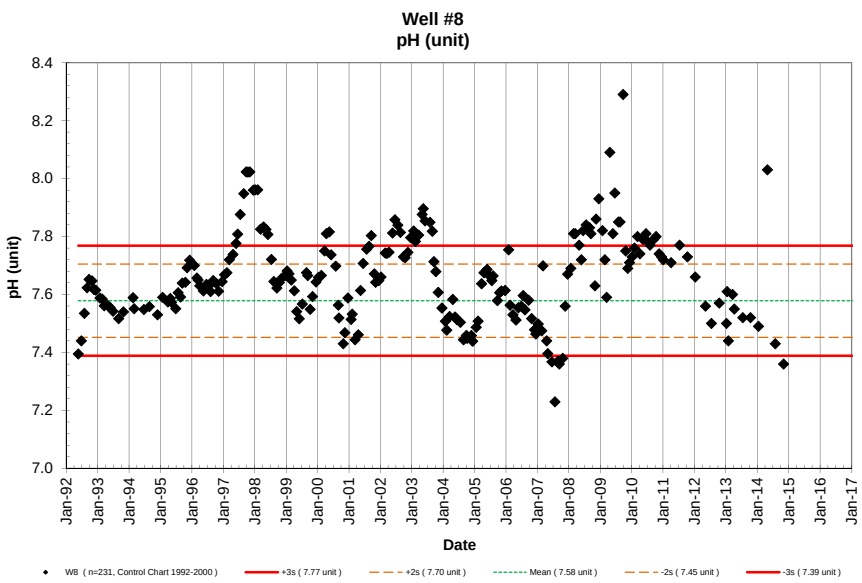

Well #8
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W8 (n=230, Control Chart 1992-2000)
+3s (6893 µg Si/L)
+2s (6488 µg Si/L)
Mean (5677 µg Si/L)
-2s (4865 µg Si/L)
-3s (4460 µg Si/L)

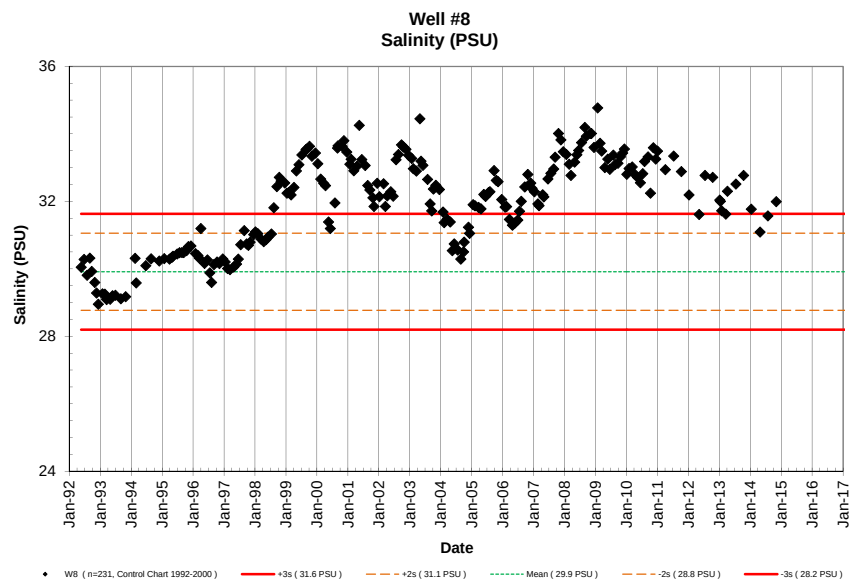

Well #8
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W8 (n=230, Control Chart 1992-1995)
+3s (13.9 µg N/L)
+2s (10.7 µg N/L)
Mean (4.2 µg N/L)
-2s (-2.2 µg N/L)
-3s (-5.5 µg N/L)

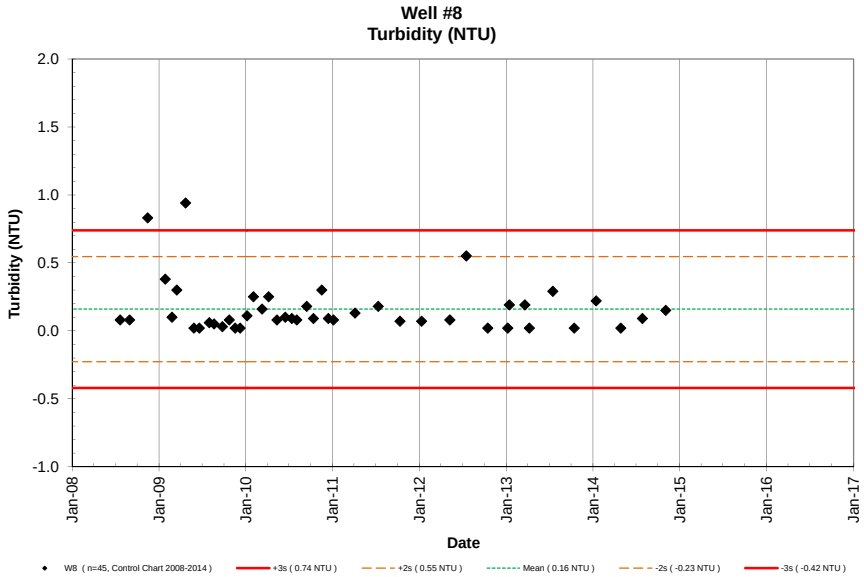

Well #8 Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W8 1989 - 2013
W8 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

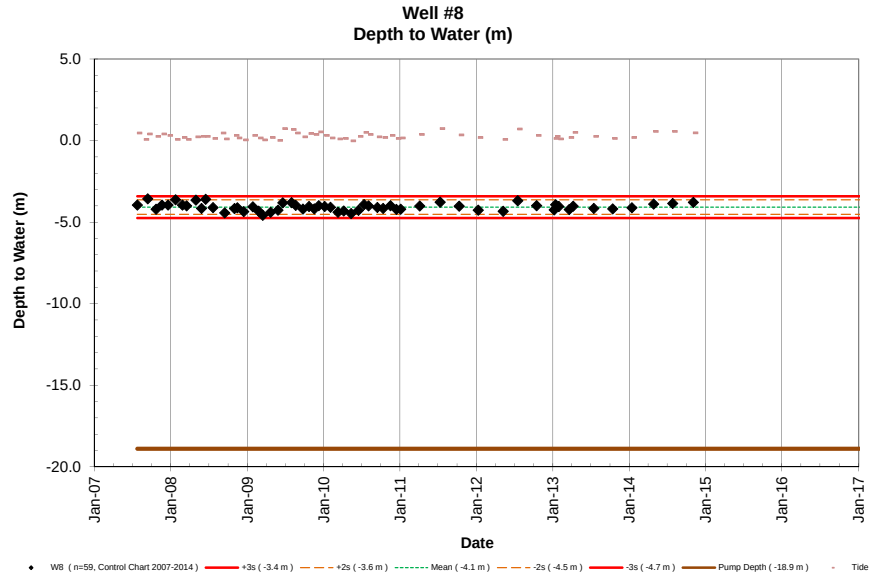

Well #8
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W8 (n=229, Control Chart 1992-2000)
+3s (12.7 mg/L)
+2s (9.6 mg/L)
Mean (3.3 mg/L)
-2s (-2.9 mg/L)
-3s (-6.1 mg/L)

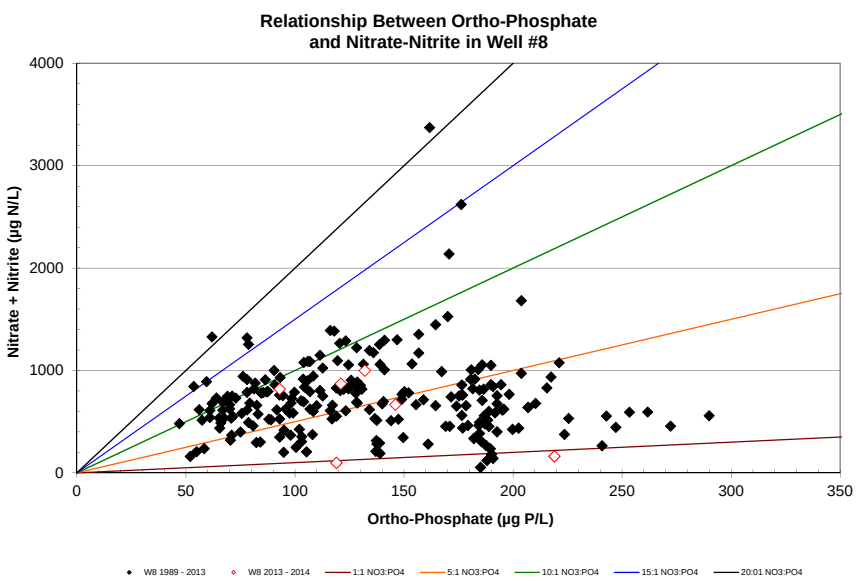

Well #8
Temperature (˚C)
Temperature (˚C)
Date
W8 (n=231, Control Chart 1992-2000)
+3s (25.0 °C)
+2s (22.3 °C)
Mean (17.0 °C)
-2s (11.6 °C)
-3s (8.9 °C)


Well #8
pH (unit)
pH (unit)
Date
W8 (n=231, Control Chart 1992-2000)
+3s (7.77 unit)
+2s (7.70 unit)
Mean (7.58 unit)
-2s (7.45 unit)
-3s (7.39 unit)


Well #8
Salinity (PSU)
Salinity (PSU)
Date
W8 (n=231, Control Chart 1992-2000)
+3s (31.6 PSU)
+2s (31.1 PSU)
Mean (29.9 PSU)
-2s (28.8 PSU)
-3s (28.2 PSU)


Well #8
Turbidity (NTU)
Turbidity (NTU)
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W8 (n=45, Control Chart 2008-2014)
+3s (0.74 NTU)
+2s (0.55 NTU)
Mean (0.16 NTU)
-2s (-0.23 NTU)
-3s (-0.42 NTU)


Well #8
Depth to Water (m)
Depth to Water (m)
5.0
0.0
-5.0
-10.0
-15.0
-20.0
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W8 (n=59, Control Chart 2007-2014)
+3s (-3.4 m)
+2s (-3.6 m)
Mean (-4.1 m)
-2s (-4.5 m)
-3s (-4.7 m)
Pump Depth (-18.9 m)
Tide


Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #8
Nitrate + Nitrite (µg N/L)
4000
3000
2000
1000
0
0
50
100
150
200
250
300
350
Ortho-Phosphate (µg P/L)
W8 1989 - 2013
W8 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

NELHA Water Quality Laboratory

Well 8A Data Table

May 1992 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W8A	-11.0	5/20/92	938				4.02	125	59.9	839	0.31	4.3	283	7948	4.23	131.0	62.2	871	0.64	14.7	7.486	27.588	7.07		<1	<1
W8A	-11.0	6/24/92	920				3.99	124	53.3	747	0.63	8.8	260	7302	4.12	127.6	55.8	782	1.14	15.4	7.533	28.335	6.56		<1	<1
W8A	-11.0	7/30/92	838				4.13	128	53.1	744	1.17	16	254	7134	4.25	131.6	56.1	786	0.78	15.2	7.583	28.140	6.67		<1	<1
W8A	-11.0	8/31/92	856																1.10	15.9	7.606	27.870	6.75		<1	<1
W8A	-11.0	9/23/92	928				4.23	131	54.7	766	0.32	4.5	279	7836	4.31	133.5	62.1	870	0.65	15.9	7.570	27.866	6.44		<1	<1
W8A	-11.0	10/28/92	950				4.22	131	62.1	870	0.20	2.8	294	8257	4.30	133.2	64.7	906	0.69	15.2	7.495	27.436	6.69		<1	<1
W8A	-11.0	11/18/92	932				4.43	137	61.8	866	0.21	2.9	279	7836	4.63	143.4	37.5	526	0.70	14.7	7.474	27.767	6.52		<1	<1
W8A	-11.0	12/9/92	923				4.29	133	61.3	859	0.09	1.3	288	8089	4.46	138.1	63.9	895	0.64	15.1	7.524	27.022	6.68		<1	<1
W8A	-11.0	1/27/93	907				4.30	133	58.3	816	0.22	3.1	302	8485	4.49	139.1	66.3	929	0.85	16.1	7.631	26.821	5.45		<1	<1
W8A	-11.0	2/24/93	850				4.34	134	56.3	788	0.05	0.7	297	8341	4.34	134.4	58.6	820	0.65	16.6	7.744	27.111	5.32		<1	<1
W8A	-11.0	3/17/93	915				4.08	126	47.2	661	0.36	5.0	309	8676	4.18	129.5	50.6	709	0.57	17.1	7.772	25.983	5.08		<1	<1
W8A	-11.0	4/28/93	845				4.34	134	48.9	685	0.28	3.9	293	8229	4.41	136.6	53.2	745	0.60	17.4	7.733	26.791	4.99		<1	<1
W8A	-11.0	5/26/93	848				4.22	131	46.1	645	0.24	3.4	330	9268	4.33	134.1	52.2	731	0.58	17.3	7.737	26.692	4.92		<1	<1
W8A	-11.0	6/29/93	901				4.27	132	46.0	644	0.15	2.1	294	8257	4.38	135.7	50.5	707	0.60	17.6	7.732	26.985	4.61		<1	<1
W8A	-11.0	9/1/93	903				4.77	148	60.5	847	0.24	3.4	360	10100	4.91	152.1	74.5	1043	0.88	19.5	7.559	25.037	1.37		<1	<1
W8A	-11.0	10/27/93	858				4.67	145	39.4	552	0.15	2.1	344	9661	4.78	148.1	47.9	671	0.67	21.2	7.640	25.499	0.64		<1	<1
W8A	-11.0	3/1/94	1110				4.10	127	45.3	634	0.37	5.2	234	6572	4.11	127.3	53.6	750	0.75	21.0	7.675	24.469	1.27		<1	<1
W8A	-11.0	6/22/94	835				3.26	101	23.1	324	0.29	4.1	312	8776	3.26	101.0	27.4	383	0.67	21.9	7.789	26.346	0.97		<1	<1
W8A	-11.0	8/24/94	918				3.99	124	33.2	464	0.00	0.0	287	8052	4.09	126.7	40.5	568	0.67	21.7	7.649	26.288	1.49		<1	<1
W8A	-11.0	11/28/94	1058				3.24	100	49.0	686	0.46	6.4	304	8538	3.31	102.5	55.1	772	0.59	22.7	7.680	24.534	1.27		<1	<1
W8A	-11.0	1/25/95	929				3.65	113	49.8	697	0.00	0.0	288	8080	3.70	114.6	53.7	752	0.92	21.8	7.830	25.102	1.06		<1	<1
W8A	-11.0	2/15/94	943				4.45	138	73.4	1028	0.04	0.6	289	8108	4.46	138.1	88.8	1244	0.86	21.4	7.858	25.029	1.13		<1	<1
W8A	-11.0	3/29/95	928				4.16	129	65.4	916	0.33	4.6	303	8510	4.20	130.1	71.6	1003	0.80	21.7	7.856	24.858	0.80		<1	<1
W8A	-11.0	4/26/95	919				4.24	131	62.9	881	0.10	1.4	288	8097	4.40	136.3	67.4	944	0.60	21.6	7.818	25.309	0.73		<1	<1
W8A	-11.0	5/9/95	1057				3.30	102	49.7	697	0.28	3.9	330	9263	4.10	127.0	53.2	745	0.66	21.8	7.747	24.386	0.65		<1	<1
W8A	-11.0	6/28/95	915				4.11	127	43.2	605	0.49	6.9	328	9198	4.17	129.2	46.6	653	0.57	21.6	7.506	24.031	0.90		<1	<1
W8A	-11.0	7/26/95	1056				4.30	133	36.8	515	0.25	3.5	340	9538	4.41	136.6	39.9	558	0.55	21.4	7.436	23.863	0.85		<1	<1
W8A	-11.0	8/23/95	1023				4.32	134	37.0	518	0.56	7.8	335	9409	4.46	138.1	38.9	544	0.75	21.3	7.465	24.582	BOTTLE BROKE		<1	<1
W8A	-11.0	9/12/95	957				4.26	132	35.7	500	0.18	2.5	332	9336	4.31	133.5	38.0	532	0.48	21.1	7.511	24.207	1.38		<1	<1
W8A	-11.0	10/17/95	1145				4.99	155	45.2	633	0.19	2.7	350	9841	5.03	155.8	47.1	660	0.66	21.1	7.469	23.660	1.19		<1	<1
W8A	-11.0	11/7/95	1057				4.70	146	41.3	579	0.41	5.7	328	9220	4.73	146.5	43.8	613	0.60	21.0	7.595	24.380	1.64		<1	<1
W8A	-11.0	12/6/95	1110				4.80	149	47.8	670	0.35	4.9	320	8993	4.88	151.2	50.2	703	0.66	21.2	7.611	24.435	1.49		<1	<1
W8A	-11.0	1/30/96	854				5.68	176	55.0	770	0.22	3.1	340	9543	5.73	177.5	63.2	886	0.55	21.0	7.642	24.038	1.41		<1	1
W8A	-11.0	2/27/96	1106				6.13	190	90.3	1265	0.21	2.9	315	8844	6.21	192.3	93.3	1307	0.63	21.3	7.627	24.025	1.41		<1	<1
W8A	-11.0	2/27/96	1224				7.12	221	158.8	2224	0.40	5.6	307	8630	7.43	230.1	198.0	2773	0.88	21.6	7.662	23.711	0.65		<1	<1
W8A	-11.0	4/2/96	1115				7.30	226	158.0	2213	0.16	2.2	318	8918	7.51	232.6	166.2	2328	0.84	21.5	7.735	24.124	1.33		<1	<1
W8A	-11.0	5/15/96	1102				7.00	217	102.0	1429	0.07	1.0	310	8707	7.12	220.5	108.3	1516	0.66	22.5	7.893	24.343	0.95		<1	<1
W8A	-11.0	6/18/96	1035				6.75	209	76.7	1074	0.14	2.0	292	8205	6.80	210.6	84.4	1182	0.66	21.6	7.866	25.418	1.10		<1	<1
W8A	-11.0	7/17/96	1057				6.30	195	67.1	939	0.14	2.0	273	7670	6.51	201.6	69.7	976	0.75	22.3	7.851	26.121	1.74		<1	<1
W8A	-11.0	8/6/96	1119				5.57	173	65.2	913	0.47	6.6	255	7167	5.74	177.8	68.9	966	0.84	23.6	7.853	26.635	2.34		<1	<1
W8A	-11.0	9/4/96	1059				5.83	181	60.1	841	0.48	6.7	267	7496	5.95	184.3	63.2	886	0.72	23.5	7.810	26.330	1.98		<1	<1
W8A	-11.0	10/9/96	1154				5.33	165	51.4	719	0.34	4.8	279	7835	5.49	170.0	54.9	770	0.71	23.5	7.790	26.385	3.04		<1	<1
W8A	-11.0	11/6/96	1041				6.07	188	60.5	847	0.17	2.4	284	7964	6.37	197.3	66.3	929	0.67	23.5	7.727	25.347	1.76		<1	<1
W8A	-11.0	12/17/96	1120				5.06	157	78.6	1100	0.20	2.8	272	7637	5.12	158.6	85.2	1193	0.82	23.1	7.759	25.827	1.66		<1	<1
W8A	-11.0	1/14/97	1119				5.90	183	111.1	1555	0.11	1.5	269	7541	6.0*	0.0	114.0	1597	0.76	22.7	7.764	25.269	1.84		<1	<1
W8A	-11.0	2/11/97	934				6.10	189	222.1	3111	0.26	3.6	247	6948	6.2*	0.0	225.0	3152	0.99	22.3	7.915	26.227	2.12		<1	<1
W8A	-11.0	3/11/97	958				6.04	187	262.7	3679	0.20	2.8	260	7288	6.23	193.0	270.0	3782	1.01	22.3	8.022	26.018	0.94		<1	<1
W8A	-11.0	4/23/97	1056				5.34	165	158.6	2221	0.33	4.6	335	9409	5.65	175.0	186.1	2607	0.83	22.5	7.889	25.613	1.68		<1	<1
W8A	-11.0	5/28/97	1003				5.78	179	91.5	1282	0.02	0.3	248	6960	5.95	184.3	104.1	1458	0.85	21.9	7.887	26.434	2.69		<1	<1
W8A	-11.0	6/17/97	1045				5.82	180	77.6	1087	0.25	3.5	245	6873	5.83	180.6	93.1	1304	0.80	22.0	7.886	26.342	2.18		<1	<1

NELHA Water Quality Laboratory

Well 8A Data Table

May 1992 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W8A	-11.0	7/15/97	1039				6.91	214	76.3	1069	0.42	5.9	252	7080	7.11	220.2	88.1	1234	0.67	21.9	7.830	25.791	0.40		<1	<1
W8A	-11.0	8/26/97	1106				5.80	180	64.2	899	0.43	6.0	237	6651	5.93	183.7	75.5	1058	0.64	23.0	7.952	27.557	2.16		<1	<1
W8A	-11.0	9/23/97	910				6.20	192	52.4	734	0.25	3.5	255	7173	6.39	197.9	61.5	861	0.58	21.9	7.870	25.819	0.73		<1	<1
W8A	-11.0	10/14/97	1016				6.10	189	44.2	619	0.14	2.0	266	7468	6.14	190.2	53.8	754	0.54	21.7	7.840	25.769	0.96		<1	<1
W8A	-11.0	11/4/97	845				6.04	187	57.0	798	0.12	1.7	263	7389	6.28	194.5	66.0	924	0.54	21.6	7.915	25.707	1.24		<1	<1
W8A	-11.0	12/16/97	1044				5.82	180	59.4	832	0.07	1.0	242	6808	6.09	188.6	62.4	874	0.63	21.7	7.965	26.989	2.59		<1	<1
W8A	-11.0	1/5/98	907				5.55	172	60.1	842	0.02	0.3	218	6118	5.76	178.4	64.5	903	0.69	21.6	7.993	27.373	2.95		<1	<1
W8A	-11.0	2/3/98	755				5.45	169	62.8	880	0.01	0.1	240	6729	5.73	177.5	67.6	947	0.66	21.2	7.949	26.562	2.30		<1	<1
W8A	-11.0	3/10/98	903				5.95	184	96.8	1356	0.14	2.0	243	6828	6.17	191.1	104.4	1462	0.89	21.3	7.852	26.403	2.56		<1	<1
W8A	-11.0	4/14/98	1025				5.02	155	94.6	1325	0.02	0.3	226	6339	5.24	162.3	96.5	1352	0.79	21.7	7.863	27.802	2.71		<1	1
W8A	-11.0	5/12/98	905				4.39	136	123.1	1724	0.08	1.1	239	6707	4.50	139.4	127.3	1783	0.75	21.7	7.865	27.301	2.54		<1	<1
W8A	-11.0	6/2/98	907				4.02	125	114.5	1604	0.08	1.1	234	6583	4.13	127.9	120.4	1686	0.72	21.8	7.850	27.218	2.07		<1	<1
W8A	-11.0	7/14/98	859				4.61	143	93.3	1306	0.16	2.2	194	5457	4.84	149.9	97.2	1361	0.80	22.5	7.785	29.033	2.84		<1	<1
W8A	-11.0	8/11/98	923				4.91	152	99.9	1399	0.08	1.1	198	5569	5.01	155.2	105.8	1482	0.82	22.4	7.798	29.001	1.86		<1	<1
W8A	-11.0	9/15/98	911				4.47	138	86.4	1211	0.12	1.7	181	5069	4.52	140.0	92.1	1290	0.90	23.3	7.774	29.777	3.22		<1	<1
W8A	-11.0	10/13/98	817				4.72	146	84.6	1185	0.04	0.6	170	4786	4.88	151.2	90.0	1261	0.90	24.1	7.731	29.893	1.40		<1	<1
W8A	-11.0	11/4/98	909				5.07	157	83.1	1164	0.04	0.6	190	5345	5.30	164.2	89.4	1252	0.85	23.7	7.749	29.408	1.74		<1	<1
W8A	-11.0	12/16/98	900				5.57	173	82.5	1156	0.12	1.7	207	5800	5.77	178.7	88.1	1234	0.80	22.4	7.776	27.739	2.79		<1	<1
W8A	-11.0	1/12/99	931				5.10	158	82.2	1151	0.18	2.5	208	5831	5.24	162.3	86.2	1207	0.82	22.1	7.795	27.800	3.57		<1	<1
W8A	-11.0	2/3/99	913				5.16	160	103.0	1442	0.08	1.1	190	5325	5.33	165.1	112.2	1572	0.96	22.2	7.839	28.288	2.78		<1	<1
W8A	-11.0	3/2/99	912				5.05	156	80.7	1131	0.02	0.3	204	5735	5.19	160.8	84.1	1178	0.85	21.8	7.818	27.791	3.34		<1	<1
W8A	-11.0	4/6/99	906				4.66	144	80.2	1123	0.09	1.3	182	5123	4.82	149.3	85.4	1196	0.83	22.1	7.788	29.212	2.77		<1	<1
W8A	-11.0	5/4/99	915				4.72	146	77.2	1081	0.06	0.8	191	5362	4.88	151.2	80.0	1121	0.79	21.8	7.814	28.491	2.12		<1	<1
W8A	-11.0	6/2/99	856				4.38	136	59.9	839	0.10	1.4	166	4662	4.55	140.9	64.6	905	0.78	22.8	7.748	29.859	2.63		<1	<1
W8A	-11.0	7/7/99	944				4.52	140	67.9	951	0.01	0.1	176	4937	4.67	144.6	71.4	1000	0.76	22.8	7.803	29.037	2.50		<1	<1
W8A	-11.0	8/25/99	907				4.56	141	68.7	962	0.10	1.4	181	5086	4.73	146.5	74.8	1048	0.80	23.2	7.812	28.967	2.27		<1	<1
W8A	-11.0	9/8/99	919				4.39	136	67.4	945	0.07	1.0	171	4789	4.59	142.2	77.1	1080	0.82	23.6	7.753	29.759	2.19		<1	<1
W8A	-11.0	10/6/99	914				4.41	137	57.0	798	0.02	0.3	154	4311	4.55	140.9	60.4	846	0.73	23.8	7.747	30.082	2.50		<1	<1
W8A	-11.0	11/3/99	937				4.01	124	52.2	731	0.10	1.4	141	3966	4.16	128.9	61.8	866	0.74	23.9	7.797	30.134	2.99		<1	<1
W8A	-11.0	12/15/99	957				4.85	150	79.5	1114	0.05	0.7	160	4505	5.02	155.5	84.9	1189	0.82	23.2	7.751	29.213	2.42		<1	<1
W8A	-11.0	1/11/00	936				5.30	164	94.7	1326	0.16	2.2	177	4982	5.32	164.8	97.5	1366	1.03	22.6	7.744	28.117	2.30		<1	<1
W8A	-11.0	2/14/00	929				5.20	161	73.4	1028	0.05	0.7	186	5232	5.24	162.3	79.1	1108	0.78	22.3	7.823	28.201	3.26		<1	<1
W8A	-11.0	3/22/00	948				4.89	151	71.6	1003	0.09	1.3	188	5280	4.72	146.2	73.3	1027	0.88	22.6	7.813	28.502	2.03		<1	<1
W8A	-11.0	4/12/00	927				5.04	156	63.2	885	0.05	0.7	197	5533	4.97	153.9	68.7	962	0.79	22.5	7.798	28.309	2.17		<1	<1
W8A	-11.0	5/17/00	918				5.01	155	63.6	891	0.02	0.3	188	5286	5.06	156.7	67.7	948	0.82	22.5	7.772	28.486	1.76		<1	<1
W8A	-11.0	6/6/00	935				4.87	151	63.9	895	0.03	0.4	178	4991	5.02	155.5	71.7	1004	0.92	22.4	7.721	29.139	1.88		<1	<1
W8A	-11.0	7/31/00	925				5.10	158	78.3	1097	0.09	1.3	206	5791	5.12	158.6	83.3	1167	0.93	22.9	7.698	18.876	1.67		<1	<1
W8A	-11.0	8/30/00	920				4.63	143	74.2	1039	0.02	0.3	185	5204	4.81	149.0	78.3	1097	0.78	23.7	7.559	20.540	1.38		<1	<1
W8A	-11.0	9/6/00	910				4.73	147	72.0	1008	0.01	0.1	181	5095	4.92	152.4	74.8	1048	0.82	23.8	7.537	20.976	1.03		<1	<1
W8A	-11.0	10/25/00	918				4.40	136	77.8	1090	0.13	1.8	170	4777	4.70	145.6	74.4	1042	0.78	24.1	7.540	29.836	1.89		<1	1
W8A	-11.0	11/14/00	931				4.53	140	118	1654	0.23	3.2	156	4393	4.96	153.6	128	1787	1.16	23.8	7.615	29.677	1.71		<1	<1
W8A	-11.0	12/19/00	908				5.13	159	109	1532	0.13	1.8	184	5173	5.43	168.2	118	1650	0.85	21.6	7.719	27.824	1.77		<1	<1
W8A	-11.0	1/24/01	852				4.83	150	82.8	1159	0.12	1.7	181	5083	5.03	155.8	88.8	1243	0.79	22.0	7.604	28.656	1.20		<1	<1
W8A	-11.0	2/7/01	923				5.03	156	77.9	1091	0.07	1.0	186	5224	5.20	161.1	82.1	1150	0.73	21.6	7.706	28.458	1.46		<1	<1
W8A	-11.0	3/12/01	900				5.74	178	78.9	1105	0.03	0.4	188	5272	6.14	190.2	88.5	1240	1.05	20.9	7.590	28.375	0.37		<1	<1
W8A	-11.0	4/18/01	848				6.36	197	81.3	1139	0.02	0.3	212	5951	6.48	200.7	84.4	1182	0.77	20.5	7.649	27.341	1.87		<1	<1
W8A	-11.0	5/14/01	1021				6.29	195	75.6	1058	0.18	2.5	210	5895	6.29	194.8	78.6	1101	0.61	20.7	7.671	27.398	1.98		<1	<1
W8A	-11.0	6/13/01	906				5.84	181	65.9	923	0.02	0.3	200	5628	5.82	180.3	68.5	959	0.64	21.3	7.688	28.362	2.17		<1	<1
W8A	-11.0	7/24/01	927				4.80	149	77.7	1089	0.04	0.6	182	5123	4.76	147.4	80.5	1127	0.88	22.6	7.714	28.988	1.65		<1	<1
W8A	-11.0	8/22/01	924				4.54	141	75.7	1060	0.03	0.4	146	4109	4.50	139.4	79.9	1119	0.91	23.1	7.711	29.782	1.64		<1	<1
W8A	-11.0	9/17/01	1003				4.44	138	75.5	1058	0.02	0.3	168	4724	4.44	137.5	75.0	1050	0.85	23.6	7.718	29.576	1.51		<1	<1
W8A	-11.0	10/22/01	957				4.44	138	73.0	1022	0.12	1.7	163	4578	4.62	143.1	79.7	1116	0.82	23.2	7.677	29.298	1.80		<1	<1
W8A	-11.0	11/5/01	1026				4.54	141	75.4	1056	0.01	0.1	167	4696	4.66	144.3	87.1	1220	0.80	23.0	7.675	29.254	2.04		<1	<1
W8A	-11.0	12/12/01	1009				5.19	161	79.8	1118	0.31	4.3	204	5732	5.27	163.2	90.2	1263	0.76	22.2	7.730	28.055	2.07		<1	<1
W8A	-11.0	1/7/02	948				5.46	169	96.3	1349	0.25	3.5	204	5718	5.40	167.3	102	1429	0.84	22.6	7.732	28.377	2.44		<1	<1
W8A	-11.0	2/25/02	917				5.82	180	116	1618	0.08	1.1	183	5128	6.02	186.5	125	1755	1.14	21.7	7.867	28.358	1.08		<1	1
W8A	-11.0	3/18/02	952				6.04	187	88.3	1237	0.33	4.6	182	5103	6.32	195.8	92.8	1300	0.82	21.5	7.923	28.137	1.14		<1	<1
W8A	-11.0	4/10/02	953				9.16	284	173	2423	29.2	409	180	5041	9.50	294.3	225	3154	2.87	21.5	8.233	28.054	0.59		<1	<1
W8A	-11.0	5/22/02	1010				10.3	318	52.1	730	1.80	25	191	5373	10.5	326.2	57.5	806	1.01	22.1	7.977	28.452	0.31		<1	<1
W8A	-11.0	6/19/02	1041				7.92	245	45.4	636	0.16	2.2	168	4730	8.16	252.7	51.9	726	0.87	23.1	7.803	29.573	0.76		<1	<1

NELHA Water Quality Laboratory

Well 8A Data Table

May 1992 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W8A	-11.0	7/22/02	1035				7.82	242	40.6	568	0.11	1.5	207	5817	8.10	250.9	44.9	630	1.04	22.9	7.775	28.136	0.85		<1	<1
W8A	-11.0	8/21/02	1101				7.01	217	40.4	566	0.28	3.9	202	5670	7.32	226.7	45.3	635	1.06	22.8	7.645	29.237	0.48		<1	<1
W8A	-11.0	9/25/02	942				8.54	265	61.0	854	0.26	3.6	202	5659	8.88	275.0	64.5	903	1.32	23.9	7.708	28.890	0.28		<1	1
W8A	-11.0	10/15/02	956				9.34	289	60.3	845	0.19	2.7	188	5280	9.72	301.1	64.0	896	1.12	23.5	7.816	28.605	0.21		<1	1
W8A	-11.0	11/17/02	946				8.12	252	64.5	903	0.03	0.4	176	4937	8.50	263.3	66.6	933	1.10	23.6	7.751	29.275	0.20		<1	<1
W8A	-11.0	12/18/02	1000				8.58	266	69.4	972	0.07	1.0	195	5471	8.69	269.2	66.3	928	0.91	22.8	7.724	27.979	0.26		1	<1
W8A	-11.0	1/23/03	949				9.56	296	94.8	1328	<0.02	0.0	169	4741	9.80	303.5	109	1521	1.51	22.6	7.792	29.628	0.02		<1	<1
W8A	-11.0	2/11/03	1014				13.3	411	171	2390	0.10	1.4	191	5373	13.4	415.7	198	2776	2.00	22.0	7.981	27.728	0.14		<1	<1
W8A	-11.0	3/20/03	1105				12.7	393	206	2885	0.06	0.8	188	5291	13.1	405.8	251	3521	2.03	22.1	8.117	28.004	0.12		<1	<1
W8A	-11.0	4/30/03	938				11.6	359	81.6	1143	0.12	1.7	194	5451	11.9	368.6	107	1503	2.14	22.5	8.075	27.836	1.21		1	<1
W8A	-11.0	5/14/03	850				12.3	382	49.8	697	3.36	47	185	5199	12.8	396.2	67.0	939	2.36	22.5	8.082	28.635	1.31		<1	<1
W8A	-11.0	6/4/03	927				15.1	469	25.2	354	22.1	309	188	5274	15.79	489.1	61.4	861	2.88	22.9	8.101	28.684	0.09		<1	<1
W8A	-11.0	7/30/03	922				12.15	376	24.6	344	6.73	94	194	5437	12.57	389.3	50.1	702	1.52	22.8	8.056	27.924	0.07		<1	<1
W8A	-11.0	8/28/03	901				9.90	307	41.3	578	3.04	43	196	5513	12.78	395.8	57.8	810		23.3	7.852	28.292	0.09		<1	<1
W8A	-11.0	9/16/03	857				9.42	292	26.7	374	0.23	3.2	195	5482	9.52	294.9	43.5	610		23.8	7.774	28.800	0.15		<1	1
W8A	-11.0	10/8/03	857				8.80	273	39.7	556	2.70	38	209	5859	9.22	285.6	52.2	731		23.6	7.726	28.033	NA		<1	<1
W8A	-11.0	11/5/03	904				9.04	280	36.8	515	4.63	65	222	6232	9.42	291.8	46.9	657		22.8	7.687	27.378			<1	<1
W8A	-11.0	11/14/03	1512																	22.9			0.22			
W8A	-11.0	12/17/03	940				9.46	293	70.0	980	1.50	21	218	6117	9.59	297.0	76.9	1077		22.5	7.624	27.566	0.24		<1	<1
W8A	-11.0	1/28/04	944				8.12	252	74.3	1041	0.55	7.7	239	6715	8.40	260.2	77.7	1089	1.52	21.6	7.611	26.511	0.32		<1	<1
W8A	-11.0	2/11/04	856				9.28	287	73.1	1024	0.21	2.9	198	5569	10.1	314.1	80.9	1134	1.10	22.0	7.591	27.720	0.39		<1	2
W8A	-11.0	3/16/04	946				8.65	268	75.0	1051	0.17	2.4	215	6041	9.25	286.5	84.8	1187		21.9	7.632	27.410	0.86		<1	<1
W8A	-11.0	4/22/04	930				8.10	251	65.9	923	0.27	3.8	216	6055	8.14	252.1	73.8	1034		22.1	7.634	27.348	1.22		<1	<1
W8A	-11.0	5/18/04	910				7.20	223	66.4	930	0.15	2.1	219	6154	7.45	230.8	70.5	987		22.0	7.558	26.65	3.29		<1	2
W8A	-11.0	6/8/04	912				7.48	232	63.6	891	0.12	1.7	220	6168	7.82	242.2	66.8	936		22.3	7.525	27.09	0.83		<1	<1
W8A	-11.0	7/19/04	1006				6.94	215	70.8	992	0.19	2.7	208	5828	6.98	216.2	72.1	1010		21.9	7.489	26.98	1.57		<1	6
W8A	-11.0	8/25/04	942				6.84	212	65.4	915	0.15	2.1	222	6243	7.00	216.8	69.2	969		21.6	7.483	26.74	1.60		5	1
W8A	-11.0	9/27/04	1101				7.68	238	51.8	725	0.19	2.7	224	6280	7.92	245.3	57.7	808		23.4	7.462	27.75	0.77		<1	<1
W8A	-11.0	10/4/04	1020				7.56	234	47.3	663	0.26	3.6	194	5454	7.98	247.2	55.3	774		24.0	7.452	27.99	0.69		<1	<1
W8A	-11.0	11/23/04	1014				6.96	216	37.6	526	2.55	35.7	207	5822	7.10	219.9	51.3	719		23.8	7.629	27.69	0.82		<1	<1
W8A	-11.0	12/8/04	1012				6.68	207	40.4	566	0.34	4.8	199	5583	6.86	212.5	48.7	682		23.9	7.411	27.90	0.69		<1	<1
W8A	-11.0	1/18/05	1019				6.7	209	59.4	832	0.07	1.0	213	5991	6.92	214.3	65.4	915		22.5	7.513	27.565	0.71		<1	<1
W8A	-11.0	2/10/05	1006				10.4	322	70.9	994	0.56	7.8	187	5249	10.8	335.8	91.9	1287		22.2	7.959	27.675	0.28		<1	<1
W8A	-11.0	3/22/05	1012				14.0	433	74.6	1044	0.13	1.8	198	5572	14.5	450.4	80.6	1128	1.54	21.8	8.114	27.106	0.19		<1	<1
W8A	-11.0	4/20/05	1005				8.52	264	56.9	797	0.14	2.0	182	5106	9.00	278.8	57.8	810		22.4	7.906	28.296	0.49		<1	<1
W8A	-11.0	5/25/05	1028				8.52	264	66.9	937	0.15	2.1	208	5828	9.04	280.0	75.3	1054		21.1	7.910	27.315	1.25		<1	<1
W8A	-11.0	6/14/05	1021				7.66	237	52.5	735	0.13	1.8	201	5645	7.90	244.7	55.4	776		22.8	7.823	27.828	0.56		<1	<1
W8A	-11.0	7/19/05	1010				7.64	237	34.0	477	1.85	26	191	5359	7.64	236.6	42.5	595	0.90	24.1	7.674	28.560	0.42		<1	<1
W8A	-11.0	8/3/05	1048				8.3	256	38.3	536	0.29	4.1	200	5628	8.46	262.0	41.9	587	0.84	24.1	7.734	28.175	0.48		<1	<1
W8A	-11.0	9/22/05	1004				7.46	231	56.0	784	0.17	2.4	212	5957	7.62	236.0	59.5	833	0.68	24.6	7.674	27.973	0.60		<1	<1
W8A	-11.0	10/19/05	1013				6.36	197	99.6	1395	0.13	1.8	216	6064	6.50	201.3	106	1482		23.7	7.641	27.665	0.43		<1	<1
W8A	-11.0	11/8/05	958				6.49	201	57.7	809	0.04	0.6	222	6235	6.68	206.9	61.7	865		22.8	7.614	27.349	0.71		<1	<1
W8A	-11.0	12/22/05	929				6.90	214	42.1	590	0.34	4.8	236	6628	7.02	217.4	43.8	614		22.2	7.632	27.427	0.62		<1	<1
W8A	-11.0	1/31/06	957				6.74	209	62.8	879	0.24	3.4	242	6808	6.82	211.2	63.5	890		21.6	7.637	27.351	0.84		<1	<1
W8A	-11.0	2/16/06	958				6.50	201	61.9	866	0.12	1.7	239	6707	6.84	211.9	62.9	881	0.71	21.4	7.663	27.318	1.01		<1	1
W8A	-11.0	3/22/06	957				6.18	191	87.4	1224	0.23	3.2	254	7134	6.28	194.5	89.0	1247	0.55	20.9	7.629	26.818	1.67		<1	<1
W8A	-11.0	4/27/06	1035				6.01	186	71.0	994	0.10	1.4	238	6684	6.16	190.8	63.1	883	0.54	20.5	7.653	27.354	2.11		<1	<1
W8A	-11.0	5/24/06	1100				5.87	182	71.8	1006	<0.05	0.0	257	7218	6.12	189.6	65.6	919	0.59	20.6	7.64	26.968	2.71		<1	<1
W8A	-11.0	6/28/06	1047				5.67	176	58.3	817	0.26	3.6	244	6853	5.93	183.7	55.9	783	0.61	21.2	7.605	27.529	2.29		<1	<1
W8A	-11.0	7/19/06	1019				5.60	173	65.1	912	0.19	2.7	253	7106	5.74	177.8	59.2	829	0.57	20.8	7.605	27.227	2.81		<1	<1
W8A	-11.0	8/9/06	1001				5.57	173	53.2	745	0.11	1.5	260	7302	5.85	181.2	50.3	704	0.58	21.5	7.597	27.471	2.39		<1	<1
W8A	-11.0	9/20/06	1010				5.54	172	54.8	768	0.09	1.3	254	7134	5.84	180.9	51.2	717	0.58	21.7	7.579	27.507	2.34		<1	<1
W8A	-11.0	10/25/06	1048				5.42	168	55.1	772	0.21	2.9	238	6684	5.70	176.6	53.9	755	0.68	23.3	7.579	27.475	1.44		<1	<1
W8A	-11.0	11/29/06	1015				5.46	169	54.3	761	0.23	3.2	227	6375	5.55	171.9	52.5	735	0.66	22.3	7.612	27.603	1.53		<1	<1
W8A	-11.0	12/13/06	1007				5.45	169	49.9	699	0.21	2.9	225	6319	5.59	173.1	47.4	663	0.58	22.3	7.606	27.557	1.48		<1	<1
W8A	-11.0	1/10/07	1010				5.72	177	57.3	803	0.28	3.9	250	7021	5.95	184.3	59.0	826	0.56	21.2	7.581	26.652	2.08		<1	<1
W8A	-11.0	2/21/07	1031				5.49	170	51.4	720	0.40	5.6	262	7358	5.86	181.5	56.9	797	0.59	20.5	7.576	26.432	1.93		<1	1
W8A	-11.0	3/7/07	1023				5.46	169	53.5	749	0.18	2.5	264	7415	5.64	174.7	52.6	737	0.61	20.6	7.587	26.300	2.01		<1	<1
W8A	-11.0	4/19/07	1006				5.32	165	61.7	864	0.18	2.5	272	7639	5.49	170.0	53.8	753	0.49	21.2	7.586	26.363	2.19		<1	1
W8A	-11.0	5/2/07	1018				5.26	163	55.5	777	0.27	3.8	272	7639	5.77	178.7	52.4	733	0.48	20.8	7.592	26.363	2.27		<1	<1
W8A	-11.0	6/20/07	1018				5.11	158			0.17	2.4	258	7246	5.40	167.3	48.0	672		21.7	7.635	26.967	2.00		<1	<1

NELHA Water Quality Laboratory

Well 8A Data Table

May 1992 - December 2014

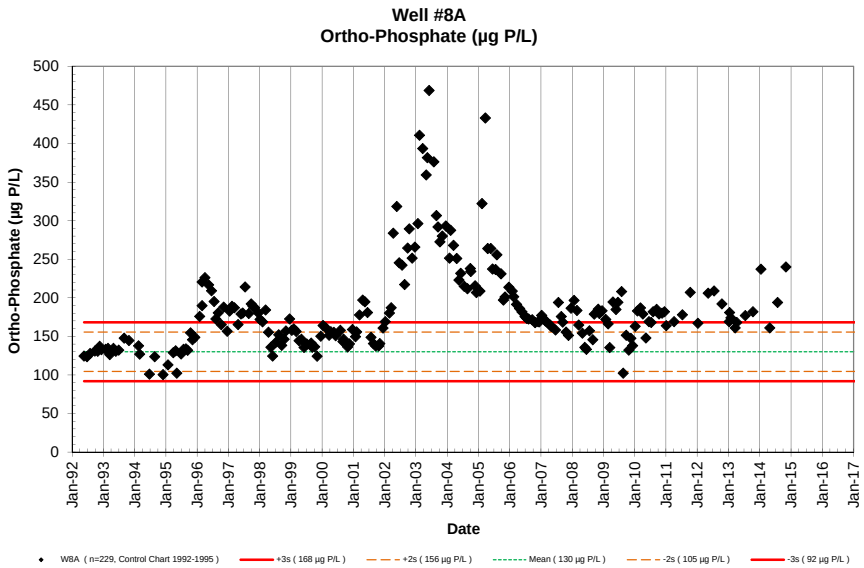
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W8A	-11.0	7/25/07	1046	-4.06	0.46	Flood	6.26	194	57.0	798	0.61	8.5	273	7657	5.52	171.1	55.2	773		21.4	7.46	27.07	2.48			
W8A	-11.0	8/27/07	1054		0.06	Flood	5.68	176	64.7	906	0.16	2.3	276	7747	5.40	167.2	54.1	758		22.1	7.52	27.11	2.60			
W8A	-11.0	9/13/07	1515	-4.14	0.4	Flood	5.44	169	46.4	650	0.21	2.9	265	7430	5.70	176.5	49.9	699		21.7	7.56	27.67	2.39			
W8A	-11.0	10/23/07	1015	-2.87	0.24	Flood	5.02	156	53.1	744	0.02	0.3	239	6699	6.16	190.7	92.2	1291		22.3	7.41	27.54	2.16			
W8A	-11.0	11/20/07	1050	-3.30	0.4	Flood	4.88	151	56.8	795	0.04	0.5	256	7189	4.57	141.4	62.2	872		21.6	7.42	27.21	2.49			
W8A	-11.0	12/19/07	1035	-3.96	0.3	High	6.02	187	57.8	810	6.22	87	227	6377						21.3	7.55	27.02	1.83			
W8A	-11.0	1/24/08	1428	-3.33	0.06	Flood	6.35	197	72.9	1021	0.76	11	218	6120						21.1	7.53	26.71	1.63			
W8A	-11.0	2/26/08	904	-4.19	0.18	Ebb	5.93	184	66.0	925	0.42	5.9	251	7045						20.4	7.53	26.23	2.39			
W8A	-11.0	3/17/08	1102	-1.93	0.06	Flood	5.32	165	60.8	852	0.06	0.8	247	6928						20.5	7.47	26.30	2.56			
W8A	-11.0	4/30/08	1101	-2.44	0.21	Flood	4.98	154	50.7	711	0.09	1.2	222	6243						21.2	7.49	27.20	2.22			
W8A	-11.0	5/27/08	1037	-3.96	0.24	High	4.38	136	58.5	819	0.09	1.2	256	7184						20.6	7.55	26.35	3.05			
W8A	-11.0	6/16/08	1101	-3.35	0.24	Flood	4.30	133	55.1	771	0.16	2.3	257	7220						21.1	7.56	26.68	4.63			
W8A	-11.0	7/21/08	957	-5.82	0.12	Ebb	5.08	157	55.4	776	0.29	4.0	228	6408						22.4	7.58	26.93	3.34	0.02		
W8A	-11.0	8/30/08	1352		0.46	Flood	4.70	146	58.1	814	0.31	4.4	227	6375						21.2	7.57	27.84	2.35	0.16		
W8A	-11.0	9/15/08	1107	-4.50	0.09	Low	5.77	179	80.5	1128	0.13	1.8	227	6374						21.0	7.54	27.32	2.27			
W8A	-11.0	10/31/08	1041	-4.29	0.3	Ebb	5.98	185	69.7	977	0.22	3.1	246	6902												
W8A	-11.0	11/14/08	1024	-4.23	0.15	Ebb	5.80	180	90.1	1262	0.01	0.2	231	6487						22.6	7.65	26.40	3.62	0.29		
W8A	-11.0	12/15/08	1337	-4.45	0.03	Low	5.91	183	86.7	1215	0.11	1.5	227	6377						22.8	7.73	26.45	3.09			
W8A	-11.0	1/27/09	837	-4.15	0.3	Ebb	5.55	172	172.0	2409	0.66	9.3	274	7692						21.8	7.60	25.87	2.60	1.93		
W8A	-11.0	2/24/09	1313	-4.41	0.15	Flood	5.37	166	135.4	1897	1.04	14.5	267	7491						21.3	7.55	26.16	2.78	0.17		
W8A	-11.0	3/16/09	1324	-4.56	0.03	Low	4.37	135	69.0	966	0.13	1.8	212	5965						21.9	7.39	24.67	3.46	0.32		
W8A	-11.0	4/22/09	1133	-4.47	0.18	Flood	6.28	195	95.8	1342	0.32	4.5	241	6770						22.1	7.66	25.67	3.33	2.06		
W8A	-11.0	5/27/09	1114	-4.33	0	Low	5.97	185	106.2	1488	0.24	3.4	491	13802						20.4	7.69	23.68	2.98	0.12		
W8A	-11.0	6/19/09	1438	-3.88	0.73	High	6.27	194	61.8	866	0.44	6.1	193	5413						21.1	7.61	28.10	3.06	0.06		
W8A	-11.0	7/31/09	1246	-3.91	0.67	High	6.72	208	66.1	926	0.68	9.5	140	3927						21.0	7.58	28.30	3.29	0.04		
W8A	-11.0	8/20/09	1319	-4.07	0.46	Flood	3.30	102	36.5	511	0.27	3.8	94	2642						21.3	7.67	28.29	2.52	0.04		
W8A	-11.0	9/24/09	1503	-4.30	0.21	Ebb	4.89	152	70.5	987	0.59	8.3	186	5236						20.5	8.20	26.93	3.54	3.57		
W8A	-11.0	10/23/09	1056	-4.17	0.43	Ebb	4.27	132	50.9	712	0.56	7.8	102	2863						21.1	7.53	27.24	2.97	0.08		
W8A	-11.0	11/17/09	1618	-4.39	0.37	High	4.76	148	59.9	839	0.97	13.6	223	6250						20.2	7.52	26.90	3.63	0.07		
W8A	-11.0	12/8/09	1110	-4.12	0.52	Ebb	4.46	138	82.2	1152	1.04	14.5	307	8619						20.4	7.53	25.90	3.50	0.21		
W8A	-11.0	1/6/10	1039	-4.15	0.3	Ebb	5.26	163	103.7	1453	1.29	18.0	265	7438						21.2	7.63	26.20	2.50	2.59		
W8A	-11.0	2/2/10	1016	-4.21	0.15	Ebb	5.91	183	124.2	1739	0.57	8.0	244	6861						20.9	7.66	25.96	2.54	0.61		
W8A	-11.0	3/10/10	950	-4.50	0.09	Flood	6.04	187	90.0	1261	0.36	5.0	280	7874						20.1	7.65	25.39	3.57	0.05		
W8A	-11.0	4/7/10	931	-4.44	0.12	Flood	5.78	179	80.1	1122	1.07	15	276	7744						19.9	7.66	25.89	3.58	0.03		
W8A	-11.0	5/12/10	929	-4.57	-0.03	Flood	4.78	148	59.5	834	1.21	17	216	6056						20.3	7.71	27.31	3.40	0.04		
W8A	-11.0	6/16/10	1513	-4.38	0.24	Flood	5.46	169	72.9	1021	0.43	6.0	276	7742						20.3	7.69	27.27	3.38	0.06		
W8A	-11.0	7/13/10	1537	-4.06	0.49	Flood	5.42	168	67.3	942	0.14	2.0	264	7413						20.1	7.74	27.38	3.26	0.13		
W8A	-11.0	8/3/10	1542	-4.13	0.37	Ebb	5.88	182	67.0	938	0.44	6.2	276	7758						20.2	7.73	27.20	3.49	0.07		
W8A	-11.0	9/14/10	1548	-4.22	0.21	Ebb	5.97	185	65.8	922	0.18	2.5	273	7654						20.5	7.66	27.24	3.43	0.10		
W8A	-11.0	10/12/10	1611	-4.26	0.18	Low	5.78	179	63.1	884	0.17	2.4	277	7777						20.2	7.63	27.18	3.19	0.07		
W8A	-11.0	11/16/10	1453	-4.14	0.3	Ebb	5.81	180	66.5	932	0.31	4.4	272	7652						21.0	7.57	27.29	2.80	0.18		
W8A	-11.0	12/14/10	1520	-4.33	0.12	Ebb	5.88	182	71.3	999	0.19	2.7	265	7448						21.8	7.53	27.06	1.93	0.10		
W8A	-11.0	1/4/11	1503	-4.32	0.15	Flood	5.29	164	81.0	1135	0.28	3.9	263	7373						21.3	7.48	26.69	2.63	0.08		
W8A	-11.0	4/5/11	1518	-4.14	0.37	Flood	5.46	169	91.7	1285	0.07	1.0	240	6739						21.1	7.59	26.77	2.10	0.03		
W8A	-11.0	7/12/11	1457	-3.89	0.73	High	5.75	178	69.5	973	0.25	3.5	239	6725						20.9	7.95	27.46	2.31	0.05		
W8A	-11.0	10/11/11	1426	-4.12	0.34	Flood	6.68	207	43.8	614	5.04	71	236	6636						21.2	7.64	27.79	0.02	0.05		
W8A	-11.0	1/10/12	1538	-4.36	0.18	Flood	5.39	167	46.1	646	0.35	4.9	303	8498						20.4	7.75	25.59	2.49	0.04		
W8A	-11.0	5/8/12	1338	-4.45	0.06	Flood	6.65	206	60.3	845	0.30	4.2	269	7567						20.4	7.66	27.51	1.96	0.10		
W8A	-11.0	7/17/12	1450	-3.86	0.7	Flood	6.75	209	67.8	949	0.31	4.4	237	6645						20.4	7.58	28.15	2.28	0.18		
W8A	-11.0	10/15/12	1406	-4.21	0.3	Flood	6.20	192	66.8	936	0.46	6.4	253	7119						20.1	7.61	27.62	0.70	0.02		
W8A	-11.0	1/7/13	1511	-4.35	0.12	Ebb	5.46	169	62.8	879	0.13	1.8	341	9581						20.0	7.57	26.22	1.66	0.15		
W8A	-11.0	1/14/13	958	-4.03	0.24	Ebb	5.84	181	63.3	887	0.20	2.8	298	8358						20.5	7.67	26.73	1.56	0.11		
W8A	-11.0	1/29/13	1434	-4.30	0.09	Flood	5.62	174	62.2	871	0.99	14	292	8192						20.4	7.55	26.47	1.77			
W8A	-11.0	3/20/13	1035	-4.33	0.18	High	5.20	161	61.0	855	1.14	16	289	8114						20.4	7.64	25.88	2.82	0.04		
W8A	-11.0	4/8/13	1505	-4.08	0.49	Flood	5.42	168	74.4	1042	0.39	5.5	269	7552						20.3	7.61	26.62	2.25	0.02		
W8A	-11.0	7/16/13	1652	-4.29	0.24	Ebb	5.71	177	60.2	843	0.22	3.1	294	8262						20.7	7.54	26.34	2.31	0.10		
W8A	-11.0	10/14/13	1728	-4.30	0.12	Ebb	5.88	182	60.3	844	2.98	42	272	7640						20.3	7.51	26.81	2.49	0.02		
W8A	-11.0	1/14/14	1533	-4.24	0.18	High	7.65	237	42.2	591	10.24	143	313	8788						22.2	7.48	23.21	0.33	0.02		
W8A	-11.0	4/28/14	1504	-4.02	0.55	Flood	5.20	161	76.9	1077	0.49	6.8	264	7418						20.1	7.73	26.41	3.21	0.02		

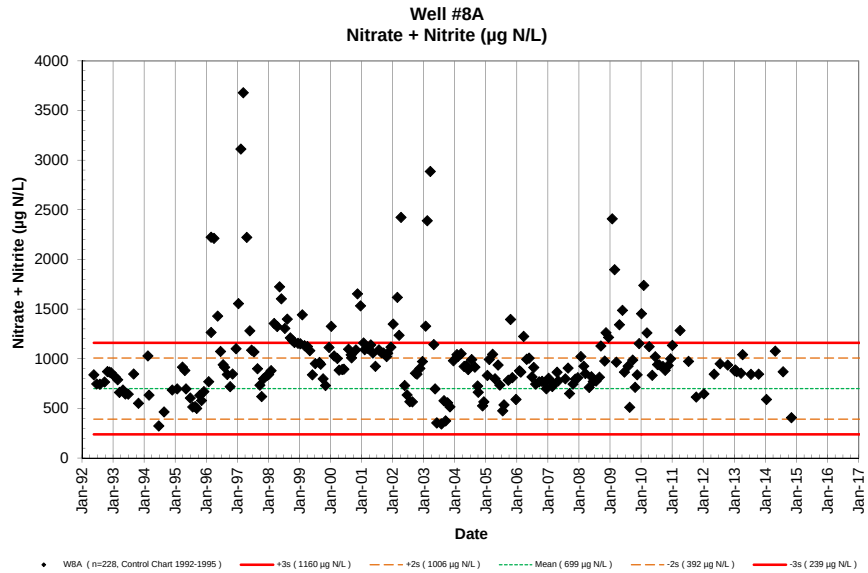
NELHA Water Quality Laboratory

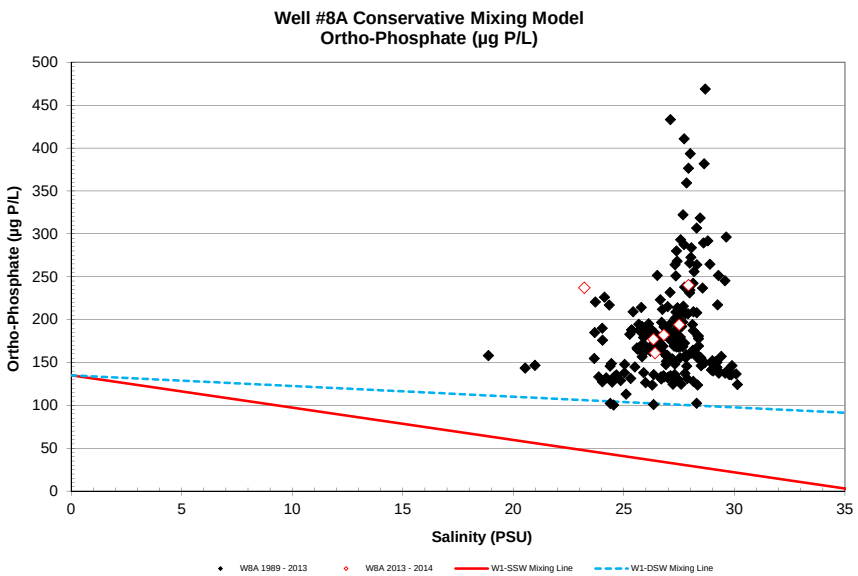
Well 8A Data Table

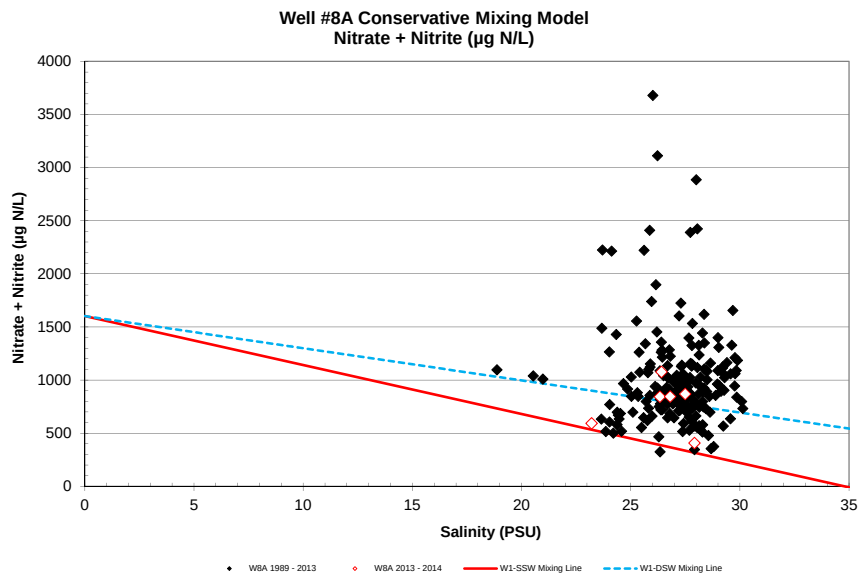
May 1992 - December 2014

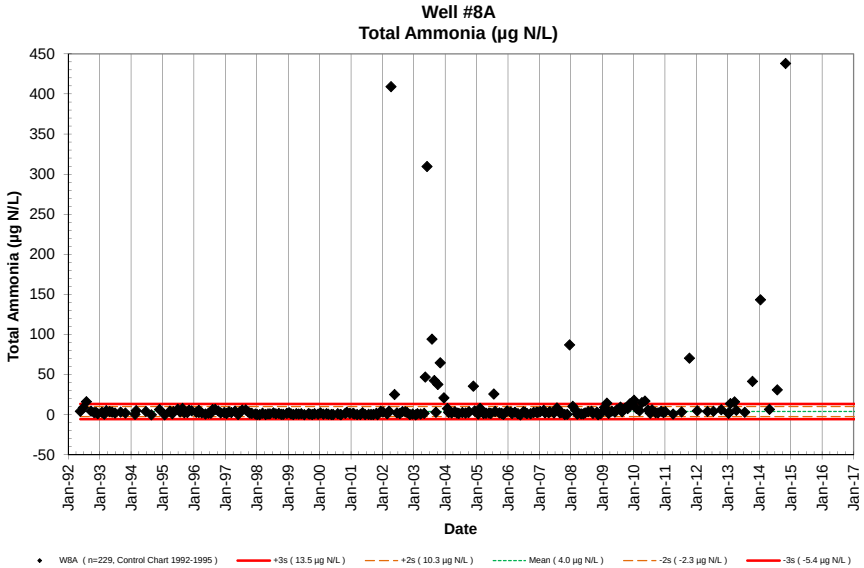
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W8A	-11.0	7/28/14	1623	-4.01	0.55	Flood	6.26	194	62.0	869	2.21	31	241	6769						21.5	7.38	27.50	0.83	0.06		
W8A	-11.0	11/3/14	1349	-3.92	0.46	Flood	7.75	240	29.0	406	31.27	438	236	6615						22.6	7.40	27.92	0.08	0.10		
W8A	-11.0	1/1/15																								
W8A	-11.0	4/1/15																								

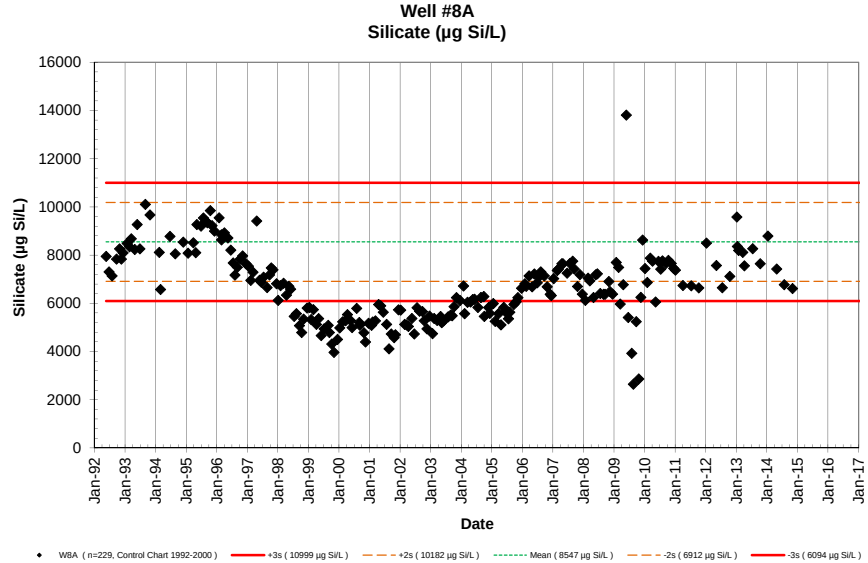

Well #8A
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W8A (n=229, Control Chart 1992-1995)
+3s (168 µg P/L)
+2s (156 µg P/L)
Mean (130 µg P/L)
-2s (105 µg P/L)
-3s (92 µg P/L)

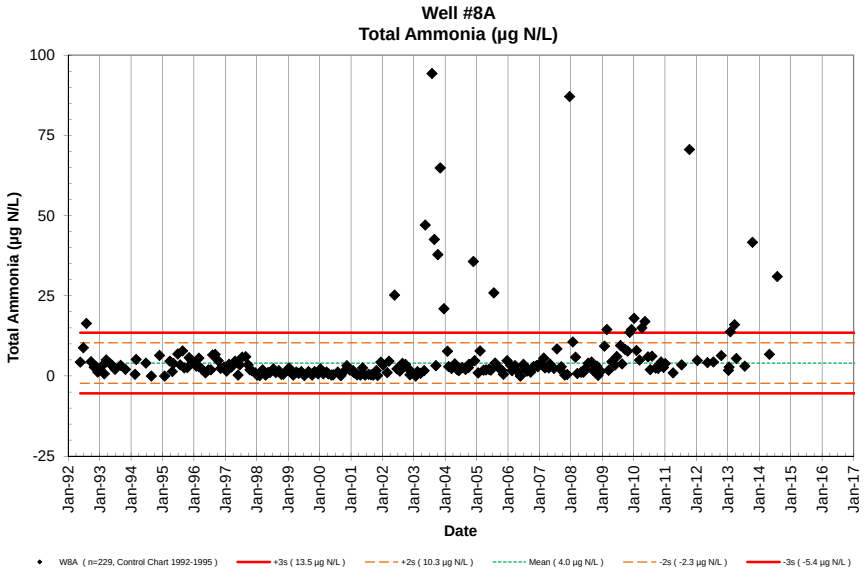

Well #8A
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W8A (n=228, Control Chart 1992-1995)
+3s (1160 µg N/L)
+2s (1006 µg N/L)
Mean (699 µg N/L)
-2s (392 µg N/L)
-3s (239 µg N/L)

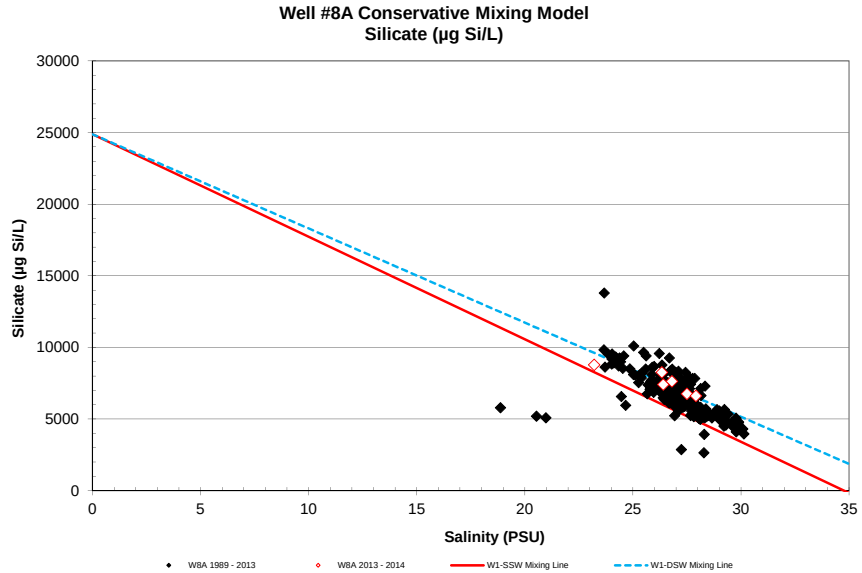

Well #8A Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W8A 1989 - 2013
W8A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

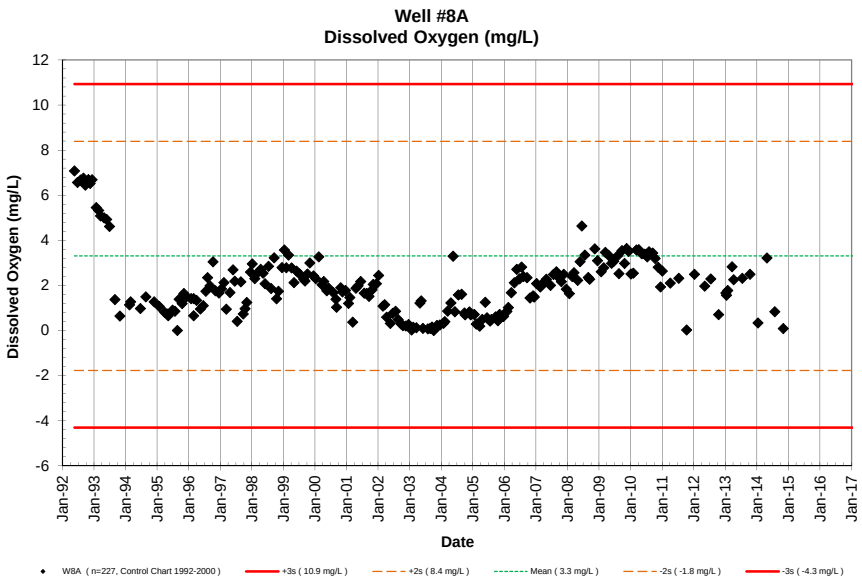

Well #8A Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W8A 1989 - 2013
W8A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

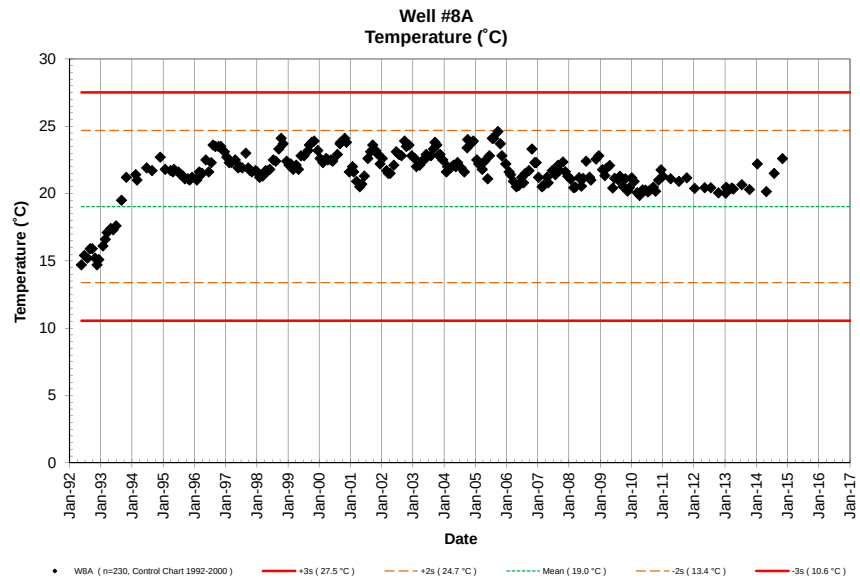

Well #8A
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W8A (n=229, Control Chart 1992-1995)
+3s (13.5 µg N/L)
+2s (10.3 µg N/L)
Mean (4.0 µg N/L)
-2s (-2.3 µg N/L)
-3s (-5.4 µg N/L)

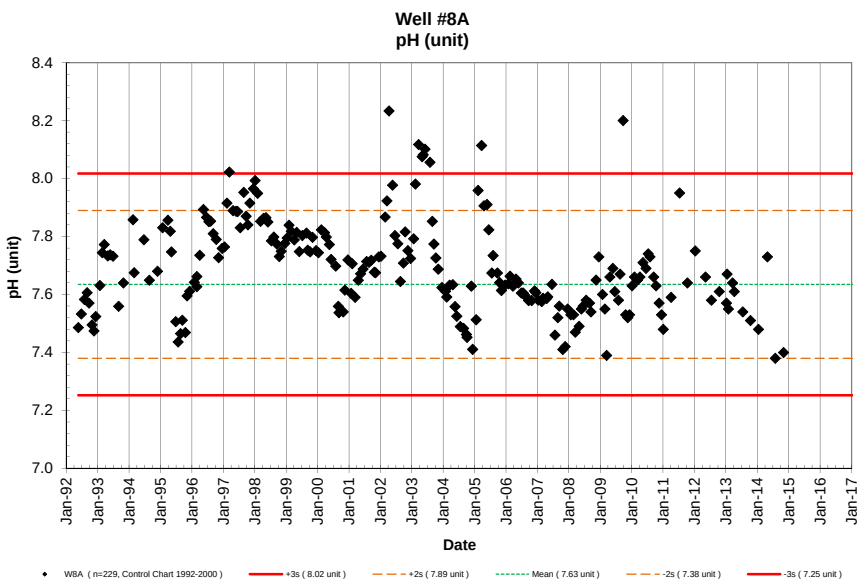

Well #8A
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W8A (n=229, Control Chart 1992-2000)
+3s (10999 µg Si/L)
+2s (10182 µg Si/L)
Mean (8547 µg Si/L)
-2s (6912 µg Si/L)
-3s (6094 µg Si/L)

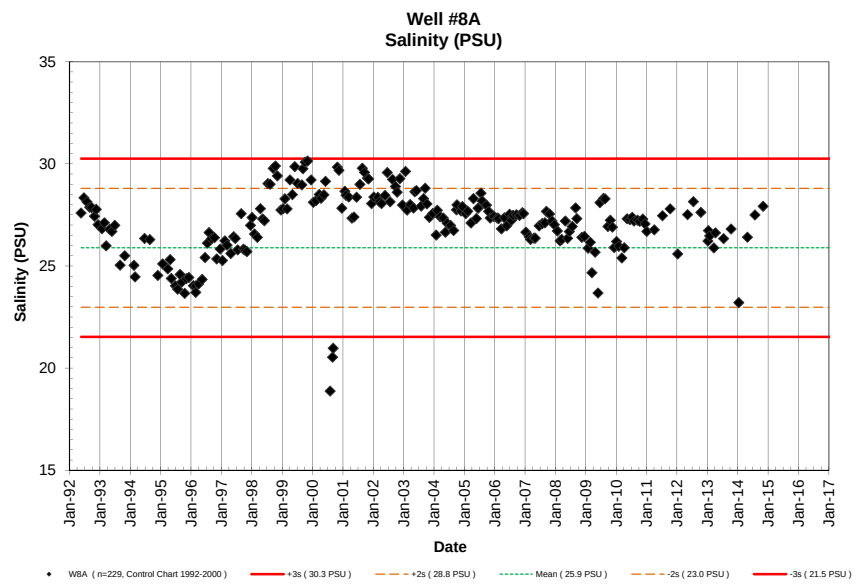

Well #8A
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W8A (n=229, Control Chart 1992-1995)
+3s (13.5 µg N/L)
+2s (10.3 µg N/L)
Mean (4.0 µg N/L)
-2s (-2.3 µg N/L)
-3s (-5.4 µg N/L)

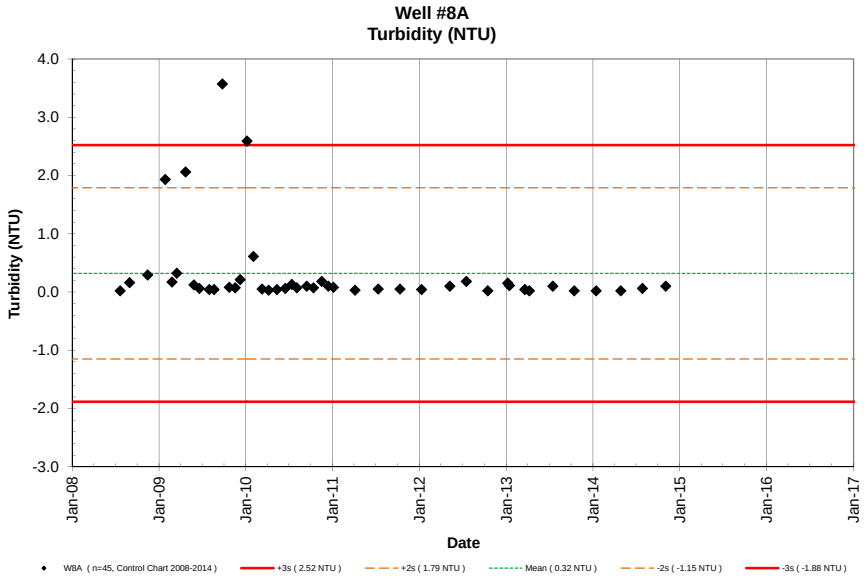

Well #8A Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W8A 1989 - 2013
W8A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

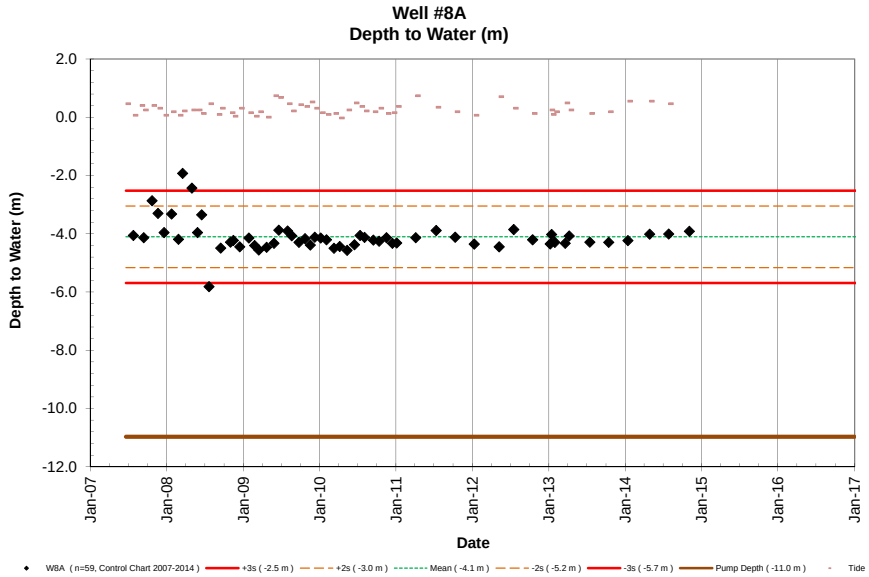

Well #8A
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W8A (n=227, Control Chart 1992-2000)
+3s (10.9 mg/L)
+2s (8.4 mg/L)
Mean (3.3 mg/L)
-2s (-1.8 mg/L)
-3s (-4.3 mg/L)

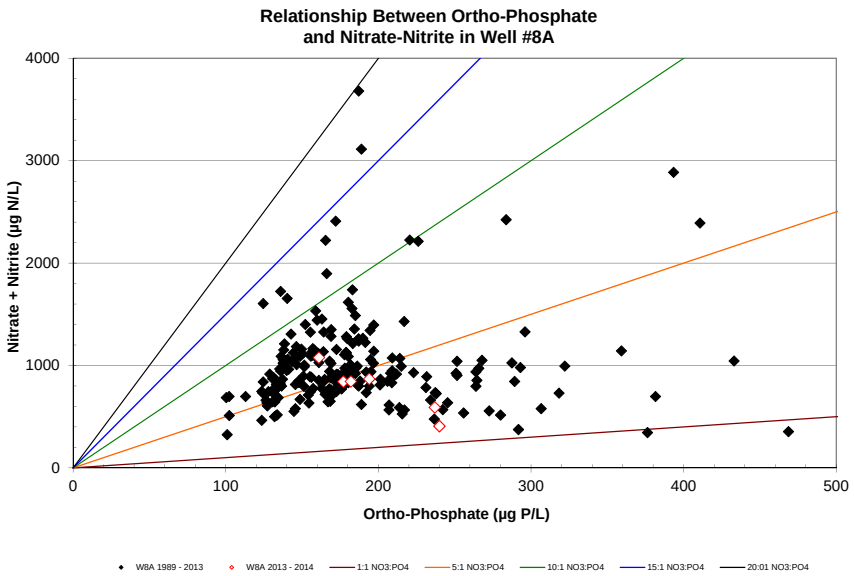

Well #8A
Temperature (˚C)
Temperature (˚C)
Date
W8A (n=230, Control Chart 1992-2000)
+3s (27.5 °C)
+2s (24.7 °C)
Mean (19.0 °C)
-2s (13.4 °C)
-3s (10.6 °C)


Well #8A
pH (unit)
pH (unit)
Date
W8A (n=229, Control Chart 1992-2000)
+3s (8.02 unit)
+2s (7.89 unit)
Mean (7.63 unit)
-2s (7.38 unit)
-3s (7.25 unit)


Well #8A
Salinity (PSU)
Salinity (PSU)
Date
W8A (n=229, Control Chart 1992-2000)
+3s (30.3 PSU)
+2s (28.8 PSU)
Mean (25.9 PSU)
-2s (23.0 PSU)
-3s (21.5 PSU)


Well #8A
Turbidity (NTU)
Turbidity (NTU)
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W8A (n=45, Control Chart 2008-2014)
+3s (2.52 NTU)
+2s (1.79 NTU)
Mean (0.32 NTU)
-2s (-1.15 NTU)
-3s (-1.88 NTU)


Well #8A
Depth to Water (m)
Depth to Water (m)
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
-12.0
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W8A (n=59, Control Chart 2007-2014)
+3s (-2.5 m)
+2s (-3.0 m)
Mean (-4.1 m)
-2s (-5.2 m)
-3s (-5.7 m)
Pump Depth (-11.0 m)
Tide


Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #8A
Nitrate + Nitrite (µg N/L)
4000
3000
2000
1000
0
0
100
200
300
400
500
Ortho-Phosphate (µg P/L)
W8A 1989 - 2013
W8A 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

NELHA Water Quality Laboratory

Well 8B Data Table

May 1992 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W8B	-7.01	5/20/92	923				3.09	96	58.5	819	0.26	3.6	496	13930	3.17	98.2	64.9	909	0.50	19.9	7.66	20.05	4.66		<1	<1
W8B	-7.01	6/24/92	904				2.91	90	49.3	691	0.50	7.0	477	13397	3.03	93.9	51.4	720	0.99	20.2	7.69	20.94	4.48		<1	<1
W8B	-7.01	7/30/92	824				3.03	94	49.3	690	0.76	10.6	472	13256	3.12	96.6	50.6	708	0.60	20.3	7.71	20.20	4.67		<1	<1
W8B	-7.01	8/31/92	842																0.55	20.4	7.72	20.55	4.79		<1	<1
W8B	-7.01	9/23/92	915				2.90	90	46.7	654	0.17	2.4	279	7836	2.99	92.6	42.6	597	0.49	20.4	7.75	20.53	4.65		<1	<1
W8B	-7.01	10/28/92	936				3.06	95	51.2	718	0.13	1.8	483	13565	3.17	98.2	54.6	765	0.50	20.6	7.74	21.31	5.09		<1	<1
W8B	-7.01	11/18/92	919				3.73	116	39.0	546	0.12	1.7	481	13509	3.99	123.6	41.0	575	0.57	19.4	7.59	20.12	6.23		<1	<1
W8B	-7.01	12/9/92	910				3.55	110	63.9	895	0.01	0.1	497	13958	3.73	115.5	66.9	936	0.60	19.2	7.65	20.34	6.76		<1	<1
W8B	-7.01	1/27/93	854				2.66	82	62.1	870	0.13	1.8	510	14321	2.84	88.0	68.0	952	0.62	20.3	7.80	19.52	4.88		<1	<1
W8B	-7.01	2/24/93	838				2.51	78	59.6	835	0.27	3.8	502	14102	2.60	80.5	50.7	711	0.50	16.6	7.74	20.20	4.85		<1	<1
W8B	-7.01	3/17/93	903				2.64	82	59.3	831	0.29	4.1	545	15312	2.70	83.6	63.2	885	0.55	20.9	7.88	17.55	5.64		<1	<1
W8B	-7.01	4/28/93	832				2.65	82	55.2	773	0.19	2.7	527	14801	2.71	83.9	58.9	825	0.44	21.0	7.87	18.41	7.05		<1	<1
W8B	-7.01	5/26/93	836				2.67	83	55.8	781	0.06	0.8	565	15868	2.75	85.2	61.8	865	0.33	21.0	7.88	17.89	5.60		<1	<1
W8B	-7.01	6/29/93	848				2.68	83	60.1	841	0.09	1.3	557	15644	2.80	86.7	63.4	888	0.45	21.2	7.88	17.08	5.76		<1	<1
W8B	-7.01	9/1/93	850				3.06	95	67.1	940	0.27	3.8	602	16907	3.06	94.8	78.6	1101	0.54	21.9	7.90	14.99	5.86		<1	<1
W8B	-7.01	10/27/93	845				3.32	103	68.8	964	0.17	2.4	574	16121	3.39	105.0	71.3	998	0.54	22.4	7.90	14.64	5.94		<1	<1
W8B	-7.01	3/1/94	1057				3.59	111	91.4	1280	0.30	4.2	546	15335	3.59	111.2	119.5	1673	0.69	22.3	7.84	14.42	5.74		<1	<1
W8B	-7.01	6/22/94	821				3.18	98	68.0	953	0.26	3.6	457	12835	3.19	98.8	70.5	987	0.59	22.6	7.91	14.97	6.12		<1	<1
W8B	-7.01	8/24/94	906				3.36	104	62.1	870	0.00	0.0	487	13676	3.44	106.5	71.8	1005	0.54	22.8	7.77	17.67	3.62		<1	<1
W8B	-7.01	11/28/94	1043				3.32	103	64.3	901	0.34	4.8	488	13717	3.51	108.7	70.3	985	0.40	23.2	7.75	17.04	4.68		<1	<1
W8B	-7.01	1/25/95	916				4.54	141	83.6	1171	0.00	0.0	467	13124	4.54	140.6	90.0	1261	0.51	22.7	7.98	17.74	4.50		<1	<1
W8B	-7.01	2/15/95	930				4.71	146	87.7	1228	0.05	0.7	480	13484	4.71	145.9	105.2	1473	0.54	22.5	8.03	17.02	4.79		<1	<1
W8B	-7.01	3/29/95	915				3.91	121	84.3	1181	0.29	4.1	504	14147	3.91	121.1	92.3	1292	0.83	22.3	8.00	16.18	5.15		<1	1
W8B	-7.01	4/26/95	905				4.19	130	97.1	1360	0.05	0.7	531	14913	4.27	132.3	104.9	1469	0.48	22.4	8.03	13.93	5.78		<1	<1
W8B	-7.01	5/9/95	1045				4.13	128	94.7	1326	0.15	2.1	513	14399	4.18	129.5	98.2	1375	0.54	22.5	7.93	16.03	4.54		<1	4
W8B	-7.01	6/28/95	902				4.42	137	84.9	1190	0.42	5.9	524	14703	4.48	138.8	89.1	1248	0.50	22.7	7.87	14.56	5.26		<1	<1
W8B	-7.01	7/26/95	1043				4.29	133	79.9	1120	0.19	2.7	537	15088	4.32	133.8	83.9	1175	0.41	22.7	7.88	14.27	5.41		<1	<1
W8B	-7.01	8/23/95	957				4.15	129	66.4	929	0.44	6.2	502	14090	4.29	132.9	68.4	958	0.51	22.7	7.76	16.35	4.35		<1	<1
W8B	-7.01	9/12/95	945				4.01	124	70.4	986	0.15	2.1	510	14321	4.03	124.8	73.1	1024	0.48	22.6	7.82	15.79	5.48		<1	<1
W8B	-7.01	10/17/95	1131				3.99	124	71.6	1003	0.20	2.8	519	14571	4.05	125.4	73.0	1022	0.84	22.7	7.83	15.86	4.71		<1	<1
W8B	-7.01	11/7/95	1045				3.96	123	73.2	1025	0.33	4.6	526	14776	3.98	123.3	76.8	1076	0.65	22.7	7.90	15.18	5.48		<1	<1
W8B	-7.01	12/6/95	1057				4.02	125	75.7	1060	0.28	3.9	512	14388	4.05	125.4	77.7	1088	0.63	22.7	7.89	15.63	5.19		<1	<1
W8B	-7.01	1/30/96	841				4.10	127	86.2	1207	0.14	2.0	562	15787	4.13	127.9	96.8	1356	0.55	22.1	7.98	13.20	6.50		2	1
W8B	-7.01	2/27/96	1053				4.44	138	110.2	1544	0.20	2.8	509	14307	4.45	137.8	109.4	1532	0.60	22.6	7.88	15.61	5.18		<1	<1
W8B	-7.01	3/13/96	1212				4.59	142	119.3	1671	0.27	3.8	498	13997	4.72	146.2	121.5	1702	0.67	22.8	7.85	15.01	5.16		<1	<1
W8B	-7.01	4/2/96	1102				4.72	146	111.0	1555	0.15	2.1	525	14740	4.81	149.0	115.1	1613	0.70	22.6	7.86	14.39	5.56		<1	<1
W8B	-7.01	5/15/96	1049				4.71	146	105.2	1473	0.05	0.7	518	14536	4.81	149.0			0.64	23.8	7.92	14.71	5.36		<1	<1
W8B	-7.01	6/18/96	1022				4.50	139	89.8	1258	0.11	1.5	522	14673	4.59	142.2	92.4	1294	0.47	22.7	7.93	16.24	5.12		<1	<1
W8B	-7.01	7/17/96	1044				4.21	130	87.9	1232	0.10	1.4	512	14386	4.28	132.6	90.9	1273	0.55	22.8	7.91	16.21	5.18		<1	<1
W8B	-7.01	8/6/96	1106				4.40	136	83.7	1172	0.36	5.0	480	13495	4.52	140.0	88.8	1243	0.54	20.4	7.86	17.79	3.91		<1	<1
W8B	-7.01	9/4/96	1047				4.38	136	78.4	1097	0.35	4.9	493	13846	4.41	136.6	81.7	1144	0.57	23.3	7.82	17.85	4.42		1	<1
W8B	-7.01	10/9/96	1142				3.79	117	69.6	975	0.37	5.2	475	13347	3.88	120.2	73.2	1026	0.59	23.2	7.80	18.13	5.10		<1	<1
W8B	-7.01	11/6/96	1041				3.88	120	77.1	1079	0.18	2.5	477	13402	4.03	124.8	82.6	1156	0.43	23.1	7.74	18.03	4.89		<1	<1
W8B	-7.01	12/17/96	1129				4.69	145	240.7	3372	0.14	2.0	469	13169	4.57	141.6	225.9	3164	0.97	23.2	7.94	17.69	3.46		2	<1
W8B	-7.01	1/14/97	1126				5.53	171	223.9	3136	0.09	1.3	454	12748	5.80	179.6	226.0	3166	0.74	23.3	7.97	16.98	4.01		<1	<1
W8B	-7.01	2/11/97	919				5.64	175	213.2	2986	0.35	4.9	443	12436	5.92	183.4	218.0	3053	0.78	23.0	8.03	17.24	3.96		<1	<1
W8B	-7.01	3/11/97	944				5.59	173	229.5	3215	0.09	1.3	457	12829	5.66	175.3	240.0	3362	0.60	22.9	8.09	16.60	4.21		<1	<1
W8B	-7.01	4/23/97	1043				4.80	149	150.5	2108	0.21	2.9	483	13571	5.66	175.3	193.0	2703	0.64	22.8	7.96	15.40	4.93		<1	<1
W8B	-7.01	5/28/97	958				4.26	132	106.1	1486	0.04	0.6	437	12276	4.85	150.2	112.4	1574	0.66	22.0	7.85	17.85	4.77		<1	<1
W8B	-7.01	6/17/97	1040				4.54	141	103.2	1445	0.21	2.9	438	12304	4.59	142.2	106.4	1490	0.60	22.1	7.84	16.93	4.66		<1	<1

NELHA Water Quality Laboratory

Well 8B Data Table

May 1992 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W8B	-7.01	7/15/97	1034				6.69	207	142.9	2002	1.74	24.4	463	12995	6.78	210.0	165.4	2317	0.84	21.9	7.61	16.85	0.93		<1	<1
W8B	-7.01	8/26/97	1101				6.03	187	106.5	1492	0.29	4.1	460	12905	6.05	187.4	116.9	1637	0.54	22.9	7.59	18.93	0.69		<1	<1
W8B	-7.01	9/23/97	857				5.87	182	96.9	1357	0.19	2.7	473	13290	5.89	182.4	106.9	1497	0.57	22.9	7.59	16.88	1.58		<1	<1
W8B	-7.01	10/14/97	1011				5.93	184	105.3	1475	0.15	2.1	506	14206	5.96	184.6	123.2	1726	0.58	23.1	7.60	15.73	2.35		<1	<1
W8B	-7.01	11/4/97	840				6.12	190	115.9	1623	0.05	0.7	462	12978	6.37	197.3	134.7	1887	0.60	22.8	7.69	17.61	2.43		<1	<1
W8B	-7.01	12/16/97	1036				5.05	156	90.5	1268	0.08	1.1	465	13051	5.26	162.9	94.8	1328	0.67	22.8	7.74	18.14	3.87		<1	<1
W8B	-7.01	1/5/98	902				4.86	151	78.4	1099	0.01	0.1	418	11731	4.98	154.2	82.9	1161	0.58	22.5	7.75	19.91	3.39		<1	<1
W8B	-7.01	2/3/98	741				4.46	138	74.9	1049	0.01	0.1	442	12411	4.69	145.3	79.9	1119	0.58	22.0	7.82	19.09	4.08		<1	<1
W8B	-7.01	3/10/98	857				4.37	135	84.8	1188	0.13	1.8	460	12914	4.51	139.7	90.9	1273	0.58	22.1	7.77	18.14	5.03		<1	<1
W8B	-7.01	4/14/98	1016				3.73	116	77.0	1079	0.03	0.4	459	12883	3.94	122.0	79.0	1107	0.54	22.2	7.75	18.97	5.03		<1	<1
W8B	-7.01	5/12/98	901				3.56	110	83.5	1170	0.08	1.1	469	13172	3.66	113.4	86.7	1214	0.51	22.2	7.81	18.33	5.27		<1	<1
W8B	-7.01	6/2/98	902				3.40	105	79.3	1111	0.07	1.0	459	12883	3.51	108.7	83.2	1165	0.44	22.2	7.75	18.74	5.05		<1	<1
W8B	-7.01	7/14/98	854				4.06	126	96.2	1347	0.13	1.8	430	12063	4.28	132.6	99.1	1388	0.55	22.2	7.76	20.59	3.06		<1	<1
W8B	-7.01	8/11/98	918				4.76	147	98.1	1374	0.06	0.8	423	11889	4.91	152.1	108.0	1513	1.12	22.2	7.75	20.83	3.22		<1	<1
W8B	-7.01	9/15/98	906				4.91	152	108.0	1513	0.07	1.0	415	11647	5.01	155.2	118.0	1653	0.80	22.4	7.82	20.81	2.69		<1	<1
W8B	-7.01	10/13/98	812				7.03	218	141.9	1988	10.38	145.4	387	10866	7.30	226.1	160.1	2242	1.43	22.8	8.21	20.87	0.45		<1	<1
W8B	-7.01	11/4/98	904				7.77	241	132.3	1853	0.11	1.5	418	11740	7.88	244.1	150.6	2109	0.89	22.9	8.08	20.47	1.38		<1	<1
W8B	-7.01	12/16/98	855				5.90	183	93.8	1314	0.15	2.1	420	11807	6.14	190.2	99.1	1388	0.77	22.4	7.89	20.05	3.61		<1	2
W8B	-7.01	1/12/99	926				4.95	153	89.5	1254	0.10	1.4	417	11706	5.04	156.1	95.0	1330	0.70	22.2	7.82	20.40	4.31		<1	1
W8B	-7.01	2/3/99	908				4.56	141	96.1	1345	0.17	2.4	408	11462	4.86	150.5	105.9	1483	0.77	22.0	7.81	20.45	4.26		<1	<1
W8B	-7.01	3/2/99	907				4.28	133	84.2	1179	0.04	0.6	425	11934	4.44	137.5	88.5	1240	0.65	21.9	7.80	20.09	5.13		<1	<1
W8B	-7.01	4/6/99	901				5.09	158	95.5	1338	0.01	0.1	392	11004	5.21	161.4	103	1448	0.77	21.7	7.89	21.41	1.97		<1	<1
W8B	-7.01	5/4/99	910				4.80	149	107	1503	0.07	1.0	400	11220	4.87	150.8	111	1558	0.68	21.8	7.77	20.67	2.39		<1	<1
W8B	-7.01	6/2/99	851				4.79	148	83.3	1167	0.14	2.0	393	11038	4.98	154.2	89.7	1256	1.05	21.9	7.81	21.39	3.87		<1	<1
W8B	-7.01	7/7/99	939				6.34	196	108	1511	0.02	0.3	369	10352	6.43	199.2	113	1587	1.23	22.1	7.98	20.52	2.61		<1	<1
W8B	-7.01	8/25/99	902				5.22	162	91.1	1276	0.11	1.5	377	10597	5.42	167.9	102	1427	0.82	22.2	7.95	20.61	4.19		<1	<1
W8B	-7.01	9/8/99	914				5.18	160	90.7	1270	0.17	2.4	390	10951	5.32	164.8	103	1441	0.81	22.2	7.92	20.65	4.00		<1	<1
W8B	-7.01	10/6/99	909				5.10	158	84.7	1186	0.08	1.1	368	10321	5.33	165.1	92.0	1289	0.74	22.3	7.84	20.73	4.12		<1	<1
W8B	-7.01	11/3/99	932				5.45	169	96.3	1349	0.10	1.4	375	10529	5.53	171.3	104	1450	0.74	22.5	7.85	20.61	4.59		<1	<1
W8B	-7.01	12/15/99	952				5.22	162	103	1447	0.02	0.3	362	10175	5.32	164.8	109	1523	0.65	22.3	7.77	22.02	3.99		<1	<1
W8B	-7.01	1/11/00	931				5.44	168	130	1821	0.14	2.0	359	10091	5.41	167.6	134	1877	0.76	22.0	7.76	21.15	3.55		<1	<1
W8B	-7.01	2/14/00	924				5.79	179	111	1555	0.09	1.3	365	10251	5.59	173.1	118	1653	0.76	21.8	7.84	20.10	1.17		<1	<1
W8B	-7.01	3/22/00	943				5.24	162	109	1523	0.12	1.7	370	10380	4.66	144.3	116	1625	0.74	22.1	7.67	20.00	2.69		<1	<1
W8B	-7.01	4/12/00	922				5.05	156	104	1458	0.08	1.1	414	11636	4.77	147.7	110	1539	0.68	22.0	7.65	19.61	3.52		<1	<1
W8B	-7.01	5/17/00	913				4.90	152	102	1431	0.06	0.8	415	11641	4.87	150.8	104	1457	0.81	22.3	7.66	19.87	3.80		<1	<1
W8B	-7.01	6/6/00	930				4.87	151	103	1444	0.04	0.6	409	11490	4.89	151.5	113	1580	0.67	22.4	7.63	20.42	3.24		<1	<1
W8B	-7.01	7/31/00	918				4.89	151	103	1447	0.04	0.6	422	11855	4.83	149.6	117	1639	0.64	23.0	7.73	27.90	4.27		<1	1
W8B	-7.01	8/30/00	915				4.69	145	99.3	1391	0.11	1.5	401	11257	4.78	148.1	101	1409	0.63	22.6	7.59	29.21	3.56		<1	<1
W8B	-7.01	9/6/00	905				4.95	153	105	1468	0.11	1.5	395	11094	5.03	155.8	107	1496	0.70	22.7	7.57	29.34	3.38		<1	<1
W8B	-7.01	10/25/00	913				5.45	169	139	1946	0.11	1.5	408	11470	5.61	173.8	150	2107	0.87	23.0	7.76	19.07	3.89		<1	<1
W8B	-7.01	11/14/00	926				5.59	173	166	2318	0.19	2.7	395	11097	5.84	180.9	169	2367	0.93	22.8	7.76	19.19	3.45		1	<1
W8B	-7.01	12/19/00	903				4.86	151	127	1773	0.13	1.8	393	11024	5.08	157.3	133	1859	0.81	22.1	7.79	19.68	3.22		<1	<1
W8B	-7.01	1/24/01	847				4.22	131	91.0	1275	0.13	1.8	403	11327	4.44	137.5	96.3	1349	0.75	21.6	7.70	21.31	3.23		<1	<1
W8B	-7.01	2/7/01	918				4.32	134	87.8	1230	0.12	1.7	425	11948	4.48	138.8	90.4	1266	0.70	21.7	7.77	20.08	3.21		<1	<1
W8B	-7.01	3/12/01	855				4.78	148	83.1	1164	0.13	1.8	422	11863	5.01	155.2	87.2	1221	0.71	21.5	7.63	20.31	2.70		<1	<1
W8B	-7.01	4/18/01	843				4.72	146	101	1420	0.04	0.6	422	11846	4.70	145.6	105	1468	0.66	21.4	7.61	18.91	3.75		<1	<1
W8B	-7.01	5/14/01	1007				5.66	175	109	1531	0.16	2.2	421	11824	5.70	176.6	114	1595	0.77	21.2	7.66	19.10	4.06		<1	<1
W8B	-7.01	6/13/01	901				4.98	154	98.6	1381	0.04	0.6	408	11448	4.62	143.1	103	1448	0.88	21.2	7.70	19.94	4.13		<1	<1
W8B	-7.01	7/24/01	911				4.70	146	120	1683	0.06	0.8	387	10858	4.44	137.5	127	1774	1.10	21.8	7.76	20.12	3.77		<1	<1
W8B	-7.01	8/22/01	919				4.76	147	114	1597	0.02	0.3	359	10088	4.80	148.7	117	1639	0.91	22.2	7.73	20.25	4.07		<1	<1
W8B	-7.01	9/17/01	957				4.18	129	99.7	1396	0.06	0.8	412	11568	4.14	128.2	104	1451	0.70	22.5	7.74	19.35	4.52		<1	<1
W8B	-7.01	10/22/01	952				4.30	133	107	1504	0.18	2.5	385	10810	5.96	184.6	117	1632	0.74	22.2	7.63	20.73	3.43		<1	<1
W8B	-7.01	11/5/01	1021				4.16	129	92.5	1295	0.06	0.8	395	11105	4.33	134.1	109	1526	0.64	22.5	7.60	20.77	3.40		<1	<1
W8B	-7.01	12/12/01	1004				5.24	162	128	1786	0.31	4.3	417	11720	5.50	170.4	148	2077	1.01	22.7	7.69	19.53	3.68		<1	1
W8B	-7.01	1/7/02	943				5.36	166	142	1989	0.12	1.7	396	11111	5.08	157.3	143	2007	0.89	22.4	7.75	20.74	3.21		<1	<1
W8B	-7.01	2/25/02	912				6.72	208	248	3474	8.74	122.4	363	10195	6.74	208.8	284	3981	2.84	21.9	8.22	20.09	0.67		<1	<1
W8B	-7.01	3/18/02	947				7.68	238	140	1954	0.25	3.5	377	10577	7.87	243.8	146	2044	0.95	21.6	8.09	19.58	1.63		<1	<1
W8B	-7.01	4/10/02	948				21.6	669	429	6002	121	1691	287	8046	25.4	786.7	573	8023	8.59	22.2	8.59	19.73	2.92		<1	<1
W8B	-7.01	5/22/02	1005				15.7	487	92.6	1298	14.5	203.5	360	10119	16.3	504.9	110	1541	1.26	22.0	8.22	19.64	0.37		<1	<1
W8B	-7.01	6/19/02	1036				16.3	505	28.3	396	19.0	266.1	360	10100	16.6	515.4	56.2	787	1.73	22.5	8.13	20.68	0.19		<1	<1

NELHA Water Quality Laboratory

Well 8B Data Table

May 1992 - December 2014

Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W8B	-7.01	7/22/02	1030				13.7	424	42.6	596	13.7	191.6	415	11664	14.7	455.3	60.2	844	1.40	23.2	7.90	19.43	0.16		<1	<1
W8B	-7.01	8/21/02	1108				9.83	304	50.0	700	0.30	4.2	427	11990	10.2	315.3	54.7	766	1.09	22.4	7.67	20.51	0.85		<1	<1
W8B	-7.01	9/25/02	951				11.3	351	63.1	884	0.24	3.4	411	11546	11.6	358.7	67.0	938	1.38	23.9	7.65	21.43	0.33		<1	<1
W8B	-7.01	10/15/02	951				11.8	365	90.1	1262	0.15	2.1	376	10560	12.4	382.5	96.0	1345	1.64	23.8	7.83	21.07	0.41		1	<1
W8B	-7.01	11/17/02	941				11.8	365	96.9	1357	0.09	1.3	357	10027	12.2	378.5	101	1408	1.90	23.9	7.91	20.92	0.55		<1	<1
W8B	-7.01	12/18/02	955				8.68	269	110	1544	0.09	1.3	349	9791	8.81	272.9	102	1422	1.03	23.5	7.79	21.31	0.86		<1	<1
W8B	-7.01	1/23/03	944				9.82	304	123	1716	0.11	1.5	329	9243	9.88	306.0	138	1933	1.37	22.7	7.80	23.41	2.14		<1	<1
W8B	-7.01	2/11/03	958				9.70	300	174	2443	1.14	16.0	345	9689	9.70	300.4	213	2989	1.44	22.4	7.83	21.93	0.89		<1	<1
W8B	-7.01	3/20/03	1110				10.4	323	254	3556	0.13	1.8	368	10335	10.4	323.1	270	3786	1.28	22.3	7.99	20.40	1.57		<1	<1
W8B	-7.01	4/30/03	933				10.5	325	163	2279	0.12	1.7	380	10672	10.6	328.3	248	3474	1.56	22.4	7.95	19.55	1.67		<1	1
W8B	-7.01	5/14/03	845				12.7	392	115.2	1614	0.57	8.0	390	10951	12.8	395.8	120	1675	1.54	22.7	7.95	19.79	1.28		<1	<1
W8B	-7.01	6/4/03	922				17.9	554	59.5	833	27.6	386.0	362	10164	17.8	550.1	104	1452	2.44	22.9	8.14	20.66	0.17		<1	<1
W8B	-7.01	7/30/03	909				33.7	1045	22.4	314	216	3023	315	8836	36.3	1124.0	352	4932	NA	23.0	8.46	18.75	0.27		<1	<1
W8B	-7.01	8/28/03	855				28.7	889	36.4	509	116	1622	320	8996	26.9	833.2	162	2269	NA	24.2	8.17	19.95	0.45		<1	<1
W8B	-7.01	9/16/03	852				24.3	753	21.4	300	3.45	48.3	316	8875	24.1	746.8	150	2101	NA	23.6	8.07	21.41	0.19		<1	<1
W8B	-7.01	10/8/03	852				24.9	771	54.6	765	54.0	756.4	341	9583	25.3	783.6	149	2087	NA	23.5	8.07	19.83	NA		<1	<1
W8B	-7.01	11/5/03	859				22.4	694	70.9	993	43.6	610.7	364	10215	22.6	700.0	154	NA	NA	23.1	8.03	19.47	NA		<1	<1
W8B	-7.01	11/14/03	928																	23.3			0.19			
W8B	-7.01	12/17/03	935				21.0	651	92.0	1288	33.0	462.2	341	9569	22.0	682.7	135	1891	NA	22.9	8.02	20.53	0.17		<1	<1
W8B	-7.01	1/28/04	939				18.0	556	150	2097	1.20	16.8	333	9361	20.7	640.5	177	2476	1.64	22.6	7.99	20.40	0.04		<1	<1
W8B	-7.01	2/11/04	851				17.4	540	181	2536	0.40	5.6	325	9114	17.7	548.2	222	3104	1.77	22.5	8.02	20.51	0.26		<1	<1
W8B	-7.01	3/16/04	941				21.9	677	141	1969	0.21	2.9	336	9434	23.3	721.7	160	2238	NA	22.4	8.13	18.31	0.07		<1	<1
W8B	-7.01	4/22/04	925				16.6	513	180	2521	0.17	2.4	346	9720	19.6	607.1	211	2961	NA	22.3	8.07	18.54	0.64		<1	<1
W8B	-7.01	5/18/04	905				14.7	455	142	1988	0.16	2.2	368	10347	14.7	456.6	147	2062	NA	22.3	8.01	17.03	2.96		<1	<1
W8B	-7.01	6/8/04	907				15.6	484	109	1524	0.08	1.1	358	10055	16.3	504.9	116	1630	NA	22.4	7.86	18.66	0.75		<1	<1
W8B	-7.01	7/19/04	1001				16.2	503	105	1464	0.13	1.8	377	10595	16.2	503.0	114	1593	NA	22.3	7.81	17.82	0.98		<1	<1
W8B	-7.01	8/25/04	937				15.7	485	91.2	1277	0.19	2.7	384	10779	16.0	495.9	106	1479	NA	22.2	7.77	18.90	0.30		<1	<1
W8B	-7.01	9/27/04	1056				23.7	734	25.7	361	24	331.1	456	12799	23.8	737.2	58.4	817	NA	22.9	7.70	17.68	0.16		<1	<1
W8B	-7.01	10/4/04	1015				21.1	654	14.2	199	20	283.9	403	11304	21.8	675.2	48.5	679	NA	23.0	7.67	19.31	0.19		<1	<1
W8B	-7.01	11/23/04	1009				15.9	492	25.5	357	14.2	198.3	454	12740	16.3	505.5	52.5	735	NA	23.0	7.43	17.97	0.39		<1	<1
W8B	-7.01	12/8/04	1007				16.2	501	16.8	236	16.7	233.5	442	12414	16.6	515.4	43.8	613	NA	23.2	7.61	18.24	0.19		<1	<1
W8B	-7.01	1/18/05	1014				14.0	435	58.7	822	0.24	3.4	396	11127	14.9	462.7	69.1	968	NA	22.6	7.80	18.86	0.67		<1	<1
W8B	-7.01	2/10/05	1001				18.2	563	179	2513	65.1	911.8	238	6676	18.8	583.5	260	3643	NA	21.9	8.68	18.40	1.24		<1	<1
W8B	-7.01	3/22/05	1007				12.3	382	151	2112	30.3	424.3	222	6235	13.0	402.7	185	2591	3.19	23.0	8.56	18.44	0.70		<1	<1
W8B	-7.01	4/20/05	1000				13.8	427	89.8	1257	1.34	18.8	258	7246	14.3	442.9	93.0	1302	NA	23.0	8.40	19.04	0.20		<1	<1
W8B	-7.01	5/25/05	1023				13.7	425	95.8	1342	0.13	1.8	338	9493	14.1	435.5	110	1546	NA	20.9	8.32	17.79	1.49		<1	4
W8B	-7.01	6/14/05	1016				13.8	426	76.6	1072	0.16	2.2	294	8243	13.9	429.3	83.0	1162	NA	22.4	8.28	19.66	0.44		<1	<1
W8B	-7.01	7/19/05	1005				19.1	592	83.2	1165	0.19	2.7	332	9324	19.6	608.3	87.9	1231	1.21	23.9	8.16	18.09	0.28		<1	<1
W8B	-7.01	8/3/05	1043				24.0	743	41.4	580	0.65	9.1	312	8749	25.4	786.7	49.1	688	1.71	23.3	8.22	18.42	0.39		<1	<1
W8B	-7.01	9/22/05	959				15.2	470	74.4	1042	0.24	3.4	317	8897	15.6	482.6	79.6	1115	0.84	24.0	8.10	20.90	0.31		<1	<1
W8B	-7.01	10/19/05	1008				13.4	415	115	1607	0.21	2.9	328	9218	13.9	430.5	120	1684	NA	24.1	8.08	20.01	0.49		<1	1
W8B	-7.01	11/8/05	953				11.5	356	89.6	1255	0.05	0.7	317	8892	17.8	551.3	97.3	1363	NA	23.4	8.00	21.50	0.60		<1	1
W8B	-7.01	12/22/05	924				10.0	311	62.4	874	0.23	3.2	324	9111	10.2	316.6	68.5	959	NA	22.4	8.01	21.88	0.59		<1	<1
W8B	-7.01	1/31/06	952				9.62	298	75.2	1053	0.26	3.6	360	10097	9.86	305.4	78.2	1095	NA	22.3	8.01	20.41	1.49		<1	<1
W8B	-7.01	2/16/06	953				9.24	286	69.5	973	0.12	1.7	352	9895	9.64	298.6	69.6	975	0.72	22.1	8.03	21.11	1.19		<1	<1
W8B	-7.01	3/22/06	952				8.75	271	72.4	1014	0.19	2.7	366	10279	8.95	277.2	79.1	1108	0.62	21.7	7.98	19.89	0.77		<1	<1
W8B	-7.01	4/27/06	1030				10.9	338	104	1457	<0.05	0.0	379	10644	11.0	340.7	93.4	1308	0.78	22.0	7.92	18.98	2.25		<1	<1
W8B	-7.01	5/24/06	1055				10.2	316	76.0	1065	<0.05	0.0	380	10672	10.5	325.2	68.6	961	0.70	22.0	7.89	20.11	1.68		<1	6
W8B	-7.01	6/28/06	1042				8.50	263	71.9	1007	0.19	2.7	374	10504	8.78	271.9	65.5	917	0.60	22.2	7.86	20.69	1.81		<1	<1
W8B	-7.01	7/19/06	1014				8.92	276	72.2	1011	0.21	2.9	354	9942	9.20	285.0	63.4	888	0.68	22.1	7.79	21.68	0.96		<1	<1
W8B	-7.01	8/9/06	956				8.04	249	66.7	934	0.10	1.4	383	10757	8.36	258.9	61.9	866	0.58	22.3	7.82	20.66	1.75		<1	<1
W8B	-7.01	9/20/06	1005				8.45	262	66.2	927	0.18	2.5	388	10897	8.93	276.6	60.9	852	0.66	22.2	7.79	21.02	0.60		<1	<1
W8B	-7.01	10/25/06	1043				7.45	231	72.2	1011	0.19	2.7	386	10841	7.71	238.8	72.6	1017	0.72	22.5	7.78	20.56	0.93		<1	<1
W8B	-7.01	11/29/06	1010				7.92	245	66.8	936	0.24	3.4	360	10111	8.37	259.3	57.0	798	0.74	22.0	7.79	21.39	0.65		<1	<1
W8B	-7.01	12/13/06	1003				7.32	227	53.8	754	0.22	3.1	342	9605	7.64	236.6	52.4	733	0.63	21.9	7.78	21.66	0.62		<1	<1
W8B	-7.01	1/10/07	1005				8.00	248	56.3	789	0.32	4.5	357	10027	8.22	254.6	57.9	810	0.65	21.4	7.75	21.31	1.06		<1	<1
W8B	-7.01	2/21/07	1026				7.76	240	56.5	791	0.52	7.3	376	10560	8.08	250.3	63.5	889	0.66	21.2	7.75	20.73	1.27		<1	<1
W8B	-7.01	3/7/07	1018				7.30	226	54.1	758	0.15	2.1	369	10364	7.54	233.5	54.5	763	0.66	21.3	7.70	21.21	1.06		<1	<1
W8B	-7.01	4/19/07	1001				6.80	211	68.3	957	0.18	2.5	379	10644	7.18	222.4	58.9	824	0.58	21.8	7.77	20.77	1.67		<1	<1
W8B	-7.01	5/2/07	1013				6.70	208	57.3	803	0.35	4.9	382	10729	7.16	221.8	53.9	754	0.57	21.7	7.77	20.84	1.04		<1	<1
W8B	-7.01	6/20/07	1013				5.79	179	48.3	677	0.19	2.7	368	10335	5.91	183.1	n/a	n/a		22.0	7.77	21.38	1.51		<1	<1

NELHA Water Quality Laboratory

Well 8B Data Table

May 1992 - December 2014

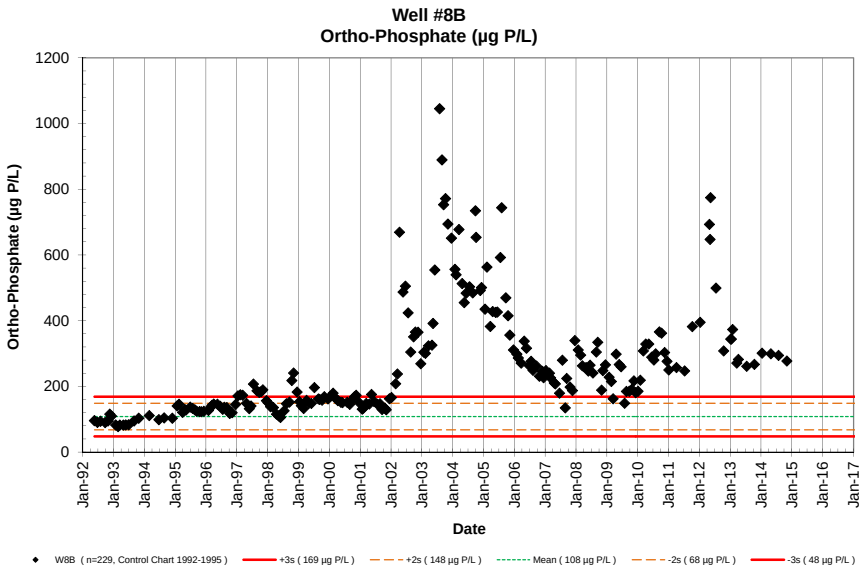
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W8B	-7.01	7/25/07	1104	-4.11	0.46	Flood	9.02	279	68.8	964	0.04	0.5	480	13477	8.66	268.2	69.1	968		21.8	7.54	20.60	0.72			
W8B	-7.01	8/27/07	1039		0.06	Flood	4.35	135	20.8	292	14.71	206.0	108	3037	7.89	244.5	80.2	1123		22.1	7.65	19.63	2.02			
W8B	-7.01	9/13/07	1505	-4.17	0.40	Flood	7.24	224	73.1	1023	0.37	5.3	425	11931	7.43	230.1	76.0	1064		22.1	7.67	20.91	2.22			
W8B	-7.01	10/23/07	951	-4.17	0.24	Flood	6.39	198	83.4	1168	0.04	0.5	395	11106	5.08	157.5	50.5	707		22.1	7.64	19.75	2.50			
W8B	-7.01	11/20/07	1037	-3.89	0.40	Flood	6.05	187	77.2	1081	0.04	0.5	426	11977	5.54	171.7	84.6	1185		21.7	7.62	19.99	2.39			
W8B	-7.01	12/19/07	1008	-2.44	0.30	High	10.97	340	79.3	1111	1.88	26.3	330	9264						21.6	8.02	17.94	0.33			
W8B	-7.01	1/28/08	1400	-4.47	0.06	Flood	10.04	311	110.6	1549	1.03	14.4	345	9677						21.3	7.81	18.80	2.19			
W8B	-7.01	2/26/08	851	-4.34	0.18	Ebb	9.53	295	87.2	1221	0.65	9.1	379	10637						20.9	7.71	19.41	2.07			
W8B	-7.01	3/17/08	1049	-3.84	0.06	Flood	8.48	263	83.4	1168	0.06	0.8	361	10131						21.1	7.70	19.55	2.39			
W8B	-7.01	4/30/08	1044	-4.17	0.21	Flood	8.30	257	81.8	1146	0.09	1.2	353	9919						21.3	7.54	20.40	2.83			
W8B	-7.01	5/27/08	1021	-4.22	0.24	High	7.96	247	86.6	1213	0.09	1.2	414	11636						20.9	7.64	19.83	7.76			
W8B	-7.01	6/16/08	1054	-4.27	0.24	Flood	8.54	265	78.7	1103	0.28	3.9	410	11519						21.2	7.64	19.49	5.22			
W8B	-7.01	7/21/08	945	-4.34	0.12	Ebb	7.77	241	87.5	1226	0.56	7.9	352	9878						22.0	7.64	20.85	3.53	0.10		
W8B	-7.01	8/30/08	1341		0.46	Flood	9.83	305	87.4	1225	0.44	6.1	379	10656						20.7	7.67	20.83	3.51			
W8B	-7.01	9/15/08	1053	-4.42	0.09	Low	10.79	334	123.8	1734	0.20	2.8	376	10549						22.3	7.58	19.94	3.07	0.12		
W8B	-7.01	10/31/08	1104	-4.25	0.30	Ebb	6.09	189	1.2	17	0.22	3.1	374	10500						22.6	7.56	20.09	3.52			
W8B	-7.01	11/14/08	1003	-4.17	0.15	Ebb	8.00	248	140.6	1969	0.18	2.5	338	9483						22.3	7.54	20.06	4.13	0.32		
W8B	-7.01	12/15/08	1320	-4.40	0.03	Low	8.57	265	136.0	1905	0.11	1.5	377	10575						22.2	7.93	18.75	4.44			
W8B	-7.01	1/27/09	824	-4.09	0.30	Ebb	7.36	228	193.1	2704	0.73	10.2	341	9590						21.9	7.65	20.48	2.31	0.19		
W8B	-7.01	2/24/09	1302	-4.37	0.15	Flood	6.93	215	151.1	2117	0.69	9.7	386	10844						22.0	7.65	19.91	2.48	0.25		
W8B	-7.01	3/16/09	1311	-4.51	0.03	Low	5.24	162	51.7	725	0.13	1.8	259	7266						23.9	7.50	18.64	2.94	0.58		
W8B	-7.01	4/22/09	1145	-4.35	0.18	Flood	9.63	298	125.9	1763	0.41	5.8	389	10931						22.9	7.78	19.87	1.59	0.96		
W8B	-7.01	5/27/09	1104	-4.29	0.00	Low	8.60	266	127.3	1784	0.27	3.8	532	14928						21.1	7.66	19.89	3.13	0.23		
W8B	-7.01	6/19/09	1427	-3.81	0.73	High	8.38	260	98.7	1382	0.54	7.6	192	5399						21.3	7.56	21.85	2.42	0.05		
W8B	-7.01	7/31/09	1237	-3.26	0.67	High	4.81	149	61.8	866	0.35	4.9	204	5717						22.5	7.57	22.23	2.51	0.19		
W8B	-7.01	8/20/09	1308	-4.02	0.46	Flood	5.96	185	93.0	1303	0.59	8.3	310	8717						21.6	8.29	21.85	2.64	0.26		
W8B	-7.01	9/24/09	1449	-4.24	0.21	Ebb	5.99	185	92.5	1296	0.59	8.3	195	5482						21.7	8.39	20.61	2.87	0.12		
W8B	-7.01	10/23/09	1040	-4.13	0.43	Ebb	6.17	191	72.9	1021	0.46	6.5	150	4202						21.9	7.66	21.17	2.37	0.12		
W8B	-7.01	11/17/09	1605	-4.34	0.37	High	7.00	217	71.5	1002	0.94	13.2	397	11150						21.6	7.56	20.57	2.55	0.09		
W8B	-7.01	12/8/09	1050	-4.06	0.52	Ebb	5.84	181	88.8	1244	0.91	12.7	415	11647						21.5	7.56	21.17	2.83	0.03		
W8B	-7.01	1/6/10	1036	-4.12	0.30	Ebb	5.97	185	133.9	1876	1.64	23.0	370	10381						22.1	7.79	21.23	1.97	0.22		
W8B	-7.01	2/2/10	1000	-4.18	0.15	Ebb	7.07	219	149.3	2091	0.57	8.0	324	9087						21.9	7.81	21.49	2.95	0.13		
W8B	-7.01	3/10/10	940	-4.46	0.09	Flood	9.94	308	124.7	1746	0.36	5.0	407	11437						21.7	8.03	19.11	2.51	0.22		
W8B	-7.01	4/7/10	924	-4.39	0.12	Flood	10.62	329	123.7	1732	0.07	1.0	387	10856						21.3	7.89	19.11	2.27	0.10		
W8B	-7.01	5/12/10	917	-4.53	-0.03	Flood	10.62	329	118.4	1658	2.07	29.0	302	8475						21.4	7.75	17.74	2.67	0.03		
W8B	-7.01	6/16/10	1503	-4.33	0.24	Flood	9.33	289	107.2	1502	0.43	6.0	446	12522						21.4	7.85	19.61	2.94	0.26		
W8B	-7.01	7/13/10	1543	-4.03	0.49	Flood	9.04	280	85.5	1197	0.79	11.0	419	11756						21.3	7.76	21.10	2.26	0.09		
W8B	-7.01	8/3/10	1551	-4.18	0.34	Ebb	9.65	299	86.3	1209	0.44	6.1	434	12185						21.5	7.74	21.25	1.75	0.13		
W8B	-7.01	9/14/10	1555	-4.18	0.21	Ebb	11.82	366	93.5	1310	0.33	4.6	462	12983						21.3	7.65	20.36	1.61	0.11		
W8B	-7.01	10/12/10	1621	-4.22	0.18	Low	11.69	362	84.6	1185	0.44	6.1	458	12855						21.2	7.65	20.47	1.72	0.05		
W8B	-7.01	11/16/10	1500	-4.12	0.30	Ebb	9.78	303	88.5	1240	0.30	4.2	430	12084						21.2	7.61	21.46	1.62	0.11		
W8B	-7.01	12/14/10	1526	-4.28	0.12	Ebb	8.91	276	98.6	1381	0.28	3.9	451	12654						21.3	7.65	19.88	2.18	0.12		
W8B	-7.01	1/4/11	1510	-4.28	0.15	Flood	8.07	250	105.3	1475	0.27	3.8	424	11914						21.3	7.59	19.99	2.69	0.10		
W8B	-7.01	4/5/11	1525	-4.12	0.37	Flood	8.30	257	133.8	1874	0.22	3.1	358	10053						21.0	7.62	20.47	1.69	0.09		
W8B	-7.01	7/12/11	1449	-3.85	0.73	High	7.97	247	116.7	1634	0.20	2.8	398	11185						21.3	7.70	20.39	1.67	0.37		
W8B	-7.01	10/11/11	1434	-4.06	0.34	Flood	12.33	382	69.3	971	0.09	1.2	340	9549						21.8	8.01	20.41	0.06	0.02		
W8B	-7.01	1/10/12	1547	-4.31	0.18	Flood	12.75	395	84.0	1177	0.51	7.1	380	10672						21.8	8.01	18.53	2.11	0.11		
W8B	-7.01	4/30/12	1550	-4.16	0.21	Ebb	22.37	693	27.6	386	40.41	566.0	373	10485						21.6	8.16	20.83	0.08	0.07		
W8B	-7.01	5/8/12	1348	-4.47	0.40	Flood	20.89	647	68.0	953	19.48	272.8	379	10651						21.9	8.10	19.78	0.03	0.11		
W8B	-7.01	5/14/12	1350	-4.04	0.43	Ebb	24.99	774	33.9	475	35.70	500.0	344	9673						21.9	8.18	21.28	0.08	0.10		
W8B	-7.01	7/17/12	1400	-3.82	0.70	Flood	16.11	499	35.4	496	8.81	123.4	336	9429						21.8	7.99	22.01	1.80	0.12		
W8B	-7.01	10/15/12	1413	-4.17	0.30	Flood	9.94	308	65.7	920	0.46	6.4	388	10905						22.1	7.90	20.59	1.02	0.02		
W8B	-7.01	1/7/13	1502	-4.31	0.12	Ebb	11.11	344	304.1	4260	0.48	6.7	409	11496						21.8	8.13	19.44	1.50	0.03		
W8B	-7.01	1/14/13	949	-4.03	0.24	Ebb	11.11	344	249.4	3494	0.93	13.0	376	10568						21.9	8.11	19.39	2.21	0.47		
W8B	-7.01	1/29/13	1442	-4.31	0.09	Flood	12.04	373	296.8	4158	1.26	17.7	364	10220						21.9	8.11	19.39	2.21	0.47		
W8B	-7.01	3/20/13	1143	-4.31	0.18	High	8.75	271	116.2	1627	1.93	27.0	354	9946						22.0	7.98	19.88	5.24	0.09		
W8B	-7.01	4/8/13	1513	-4.04	0.49	Flood	9.10	282	143.9	2015	0.44	6.2	363	10196						21.9	7.94	20.25	1.34	0.12		

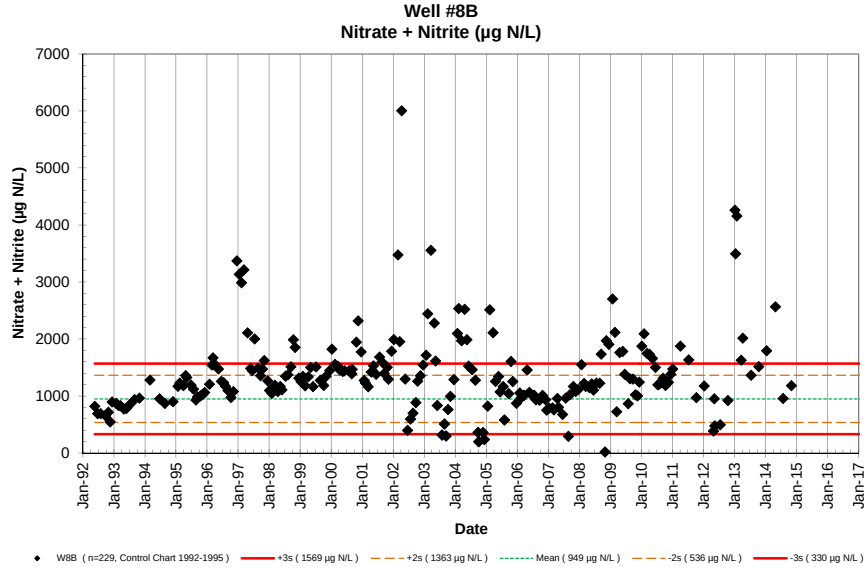
NELHA Water Quality Laboratory

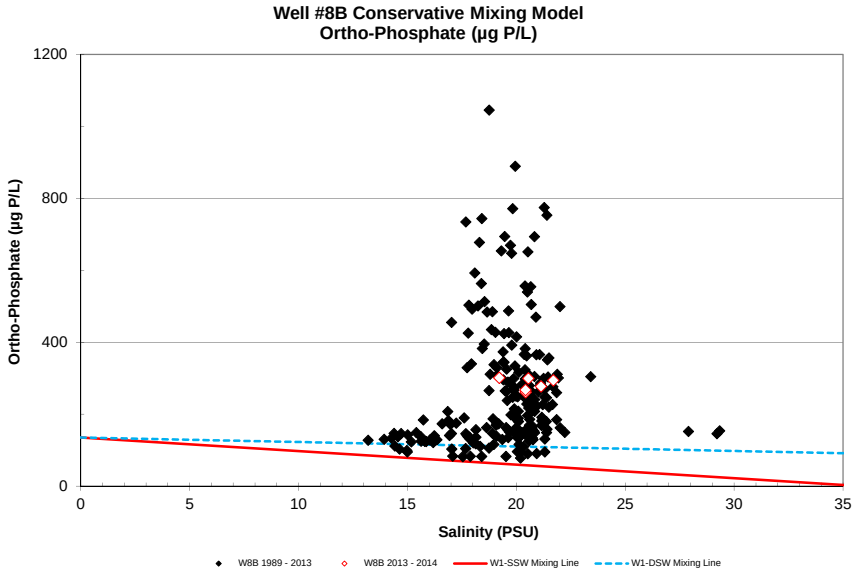
Well 8B Data Table

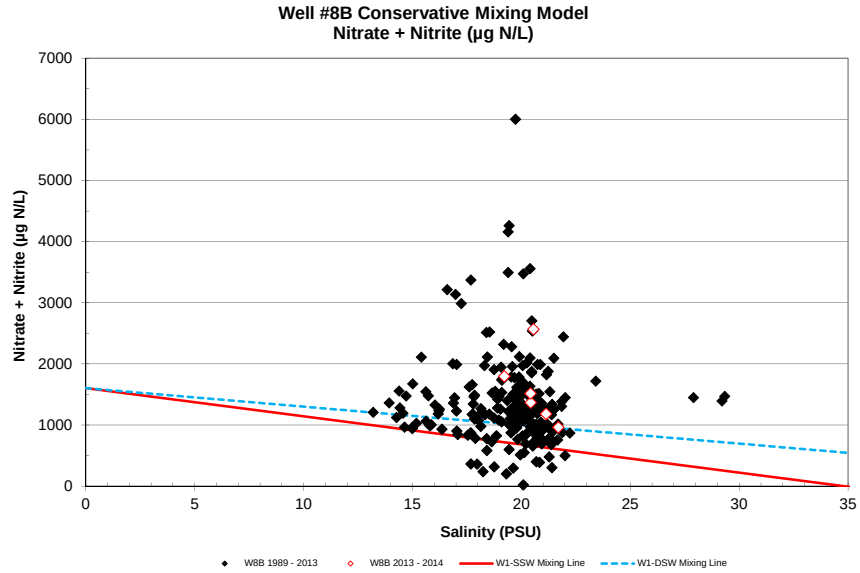
May 1992 - December 2014

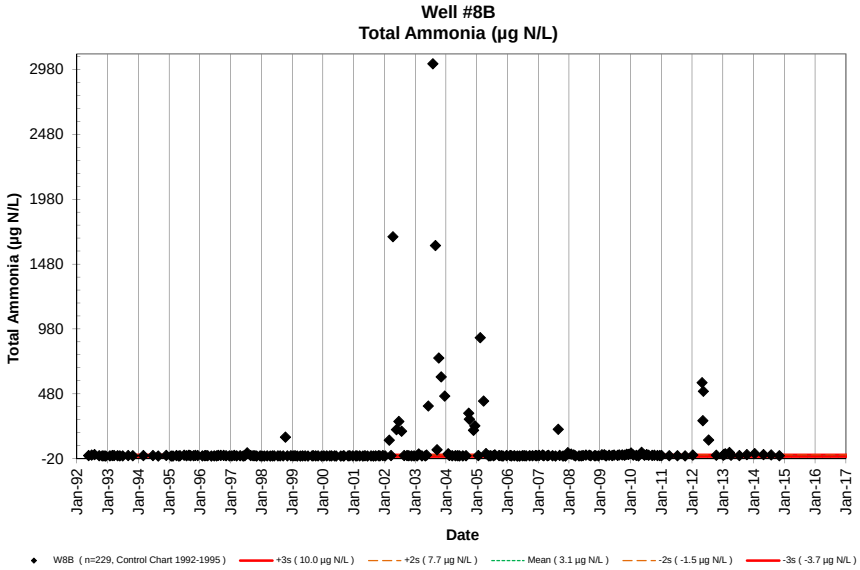
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (°C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W8B	-7.01	7/16/13	1658	-4.24	0.24	Ebb	8.43	261	97.5	1365	0.26	3.6	366	10271						22.2	7.87	20.43	1.64	0.08		
W8B	-7.01	10/14/13	1736	-4.27	0.12	Ebb	8.62	267	108.2	1515	0.77	10.8	368	10339						20.2	7.76	20.42	1.69	0.44		
W8B	-7.01	1/14/14	1540	-4.19	0.18	High	9.72	301	128.2	1795	1.32	18.5	358	10057						22.4	7.73	19.22	1.23	0.04		
W8B	-7.01	4/28/14	1512	-3.97	0.55	Flood	9.65	299	183.1	2565	0.76	10.7	317	8908						22.5	7.86	20.55	1.21	0.06		
W8B	-7.01	7/28/14	1630	-3.93	0.55	Flood	9.49	294	68.5	959	0.64	8.9	316	8882						23.3	7.59	21.70	0.63	0.21		
W8B	-7.01	11/3/14	1357	-3.87	0.46	Flood	8.94	277	84.3	1181	0.18	2.5	320	8978						22.9	7.61	21.13	0.47	0.14		
W8B	-7.01	1/1/15																								
W8B	-7.01	4/1/15																								

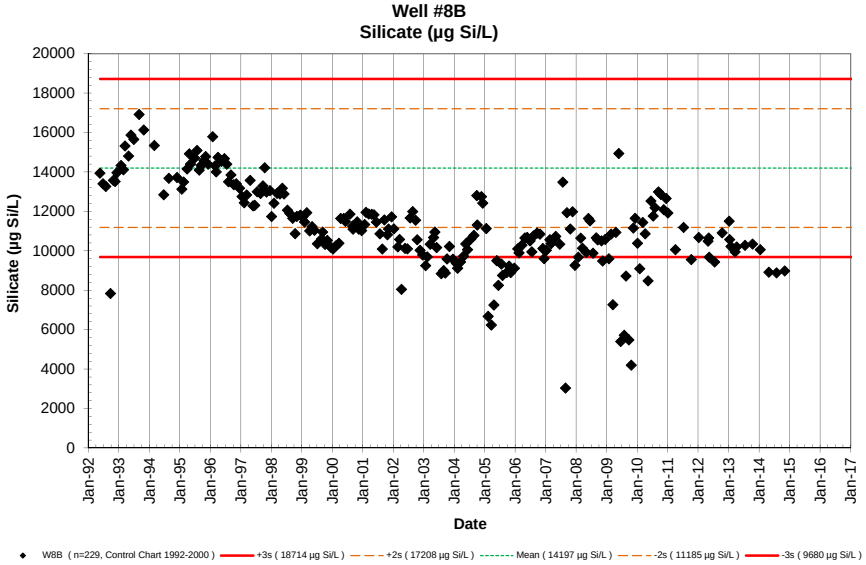

Well #8B
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W8B (n=229, Control Chart 1992-1995)
+3s (169 µg P/L)
+2s (148 µg P/L)
Mean (108 µg P/L)
-2s (68 µg P/L)
-3s (48 µg P/L)

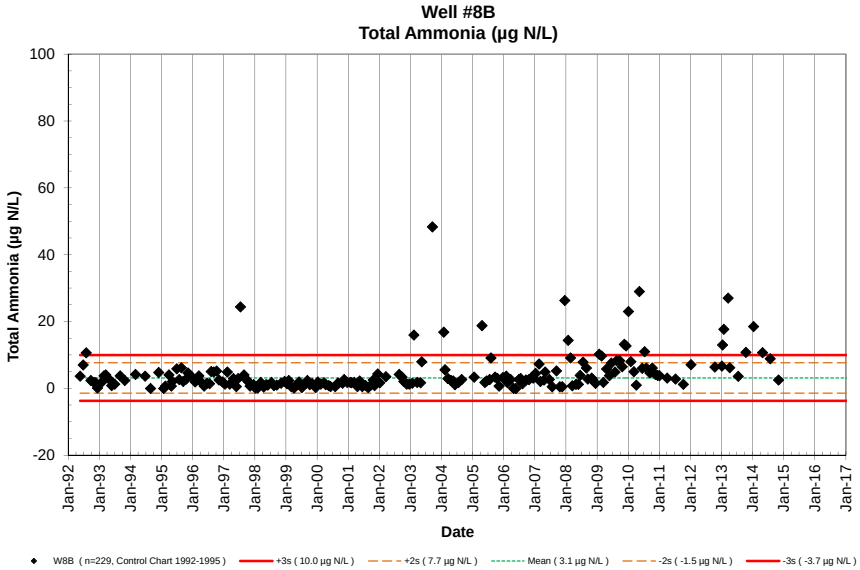

Well #8B
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W8B (n=229, Control Chart 1992-1995)
+3s (1569 µg N/L)
+2s (1363 µg N/L)
Mean (949 µg N/L)
-2s (536 µg N/L)
-3s (330 µg N/L)

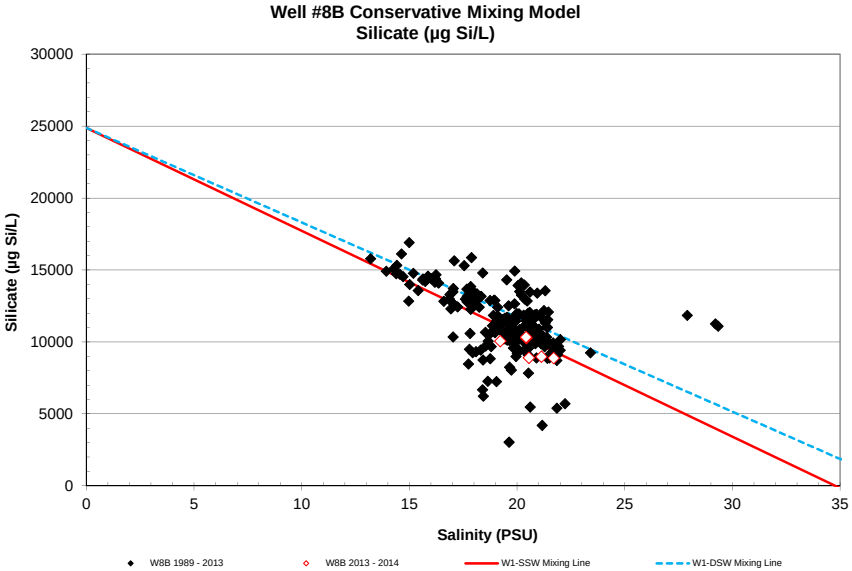

Well #8B Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W8B 1989 - 2013
W8B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

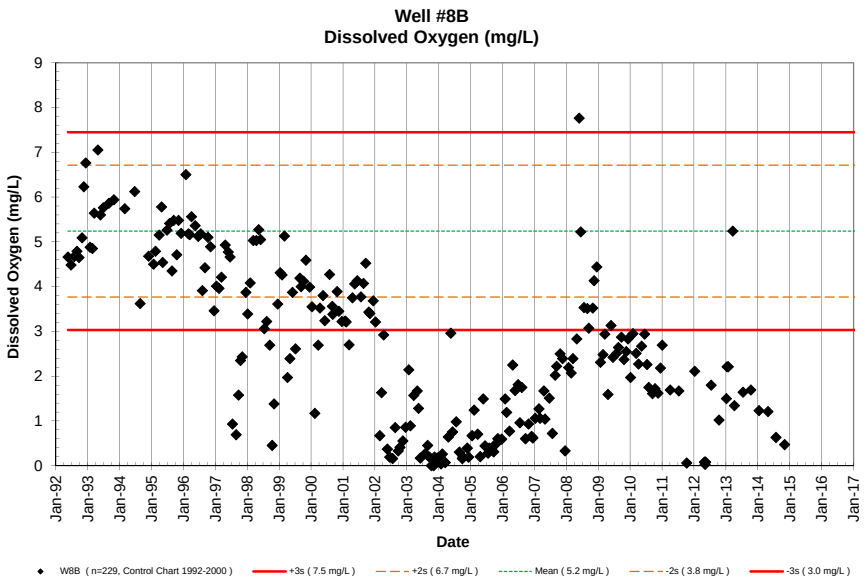

Well #8B Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W8B 1989 - 2013
W8B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

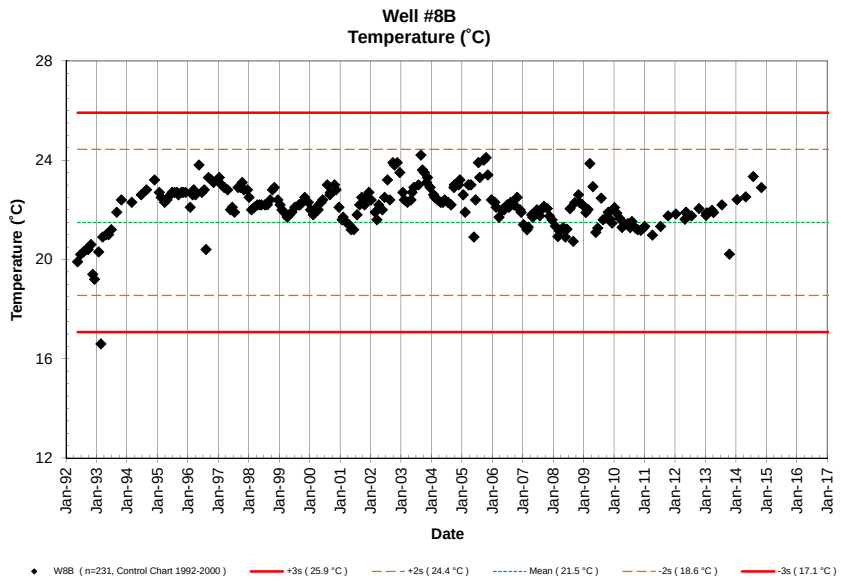

Well #8B
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W8B (n=229, Control Chart 1992-1995)
+3s (10.0 µg N/L)
+2s (7.7 µg N/L)
Mean (3.1 µg N/L)
-2s (-1.5 µg N/L)
-3s (-3.7 µg N/L)

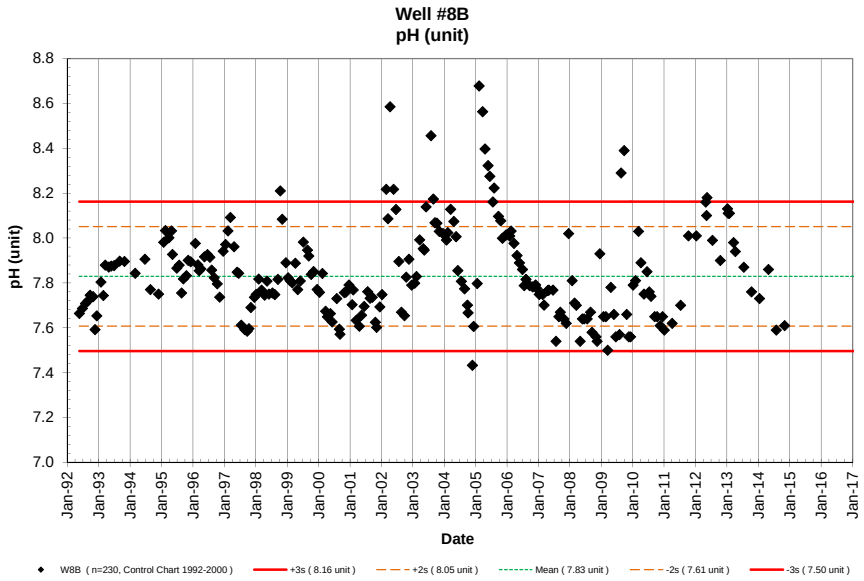

Well #8B
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W8B (n=229, Control Chart 1992-2000)
+3s (18714 µg Si/L)
+2s (17208 µg Si/L)
Mean (14197 µg Si/L)
-2s (11185 µg Si/L)
-3s (9680 µg Si/L)

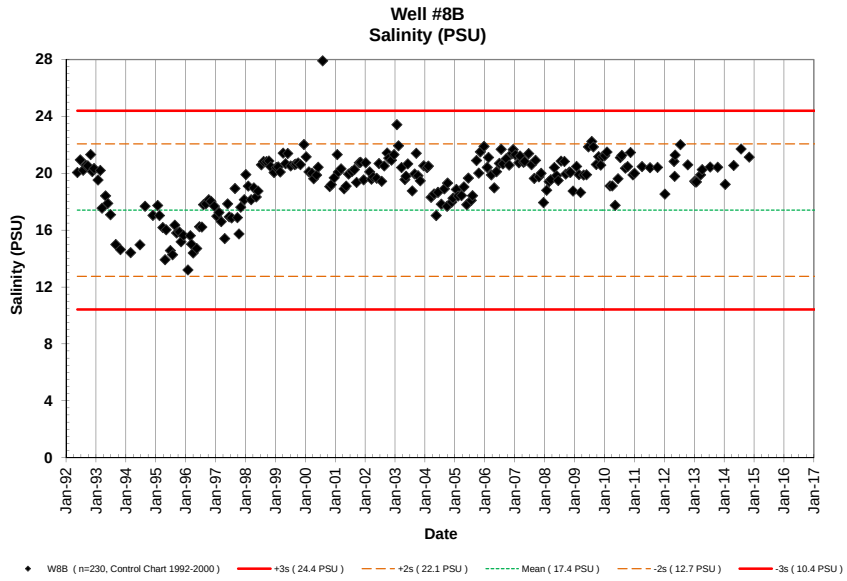

Well #8B
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W8B (n=229, Control Chart 1992-1995)
+3s (10.0 µg N/L)
+2s (7.7 µg N/L)
Mean (3.1 µg N/L)
-2s (-1.5 µg N/L)
-3s (-3.7 µg N/L)

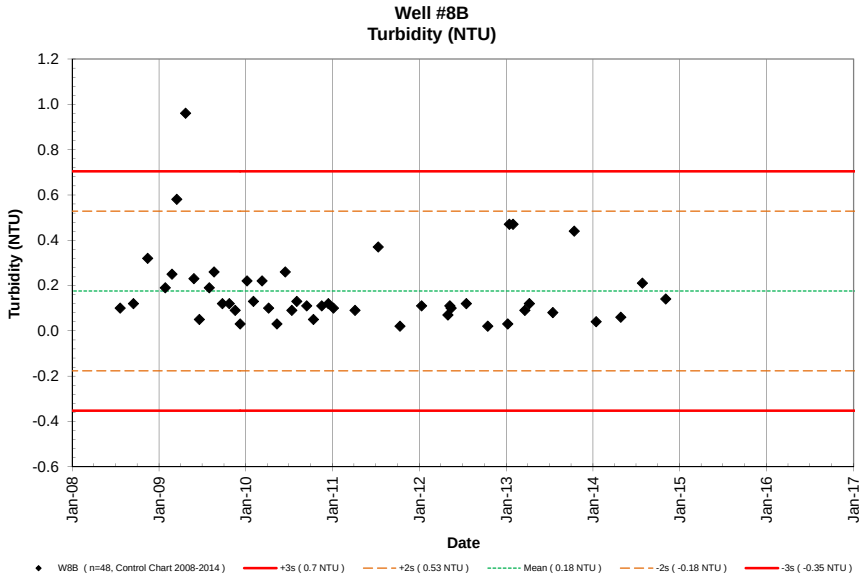

Well #8B Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W8B 1989 - 2013
W8B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

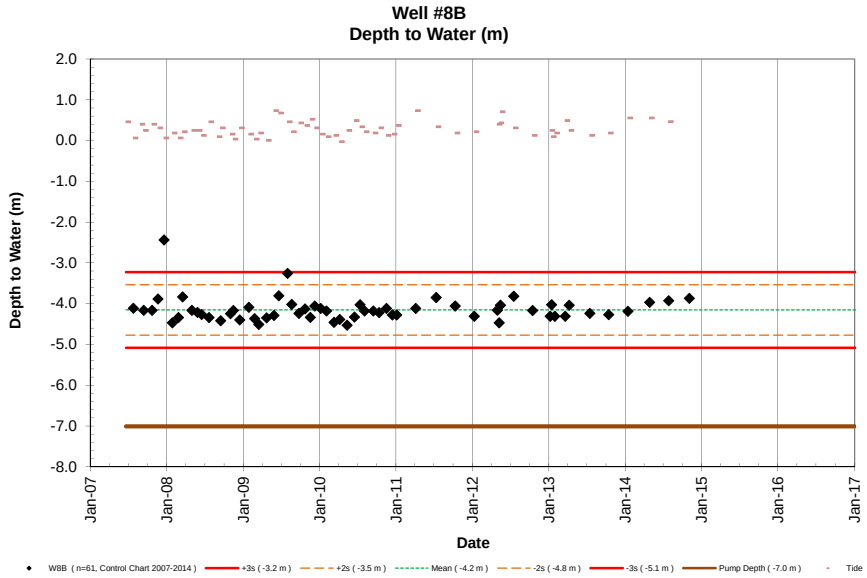

Well #8B
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W8B (n=229, Control Chart 1992-2000)
+3s (7.5 mg/L)
+2s (6.7 mg/L)
Mean (5.2 mg/L)
-2s (3.8 mg/L)
-3s (3.0 mg/L)

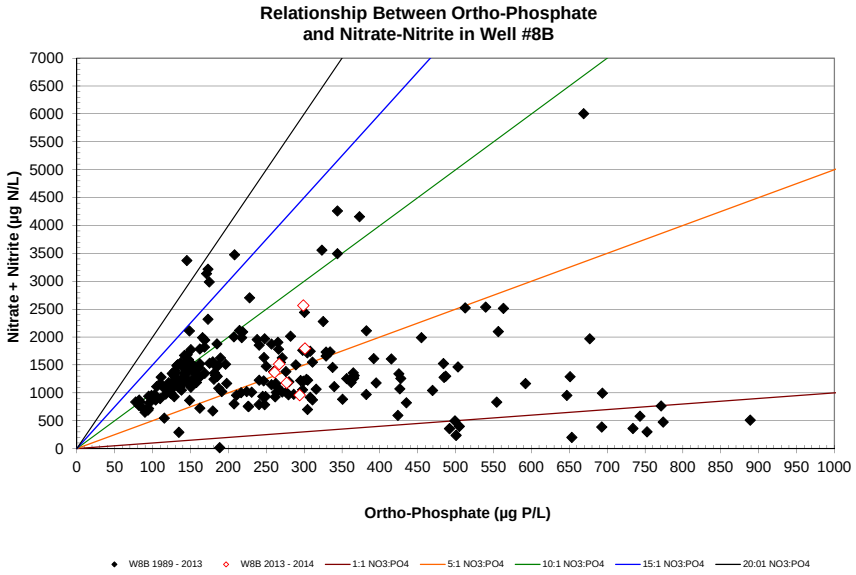

Well #8B
Temperature (˚C)
Temperature (˚C)
Date
W8B (n=231, Control Chart 1992-2000)
+3s (25.9 °C)
+2s (24.4 °C)
Mean (21.5 °C)
-2s (18.6 °C)
-3s (17.1 °C)


Well #8B
pH (unit)
pH (unit)
Date
W8B (n=230, Control Chart 1992-2000)
+3s (8.16 unit)
+2s (8.05 unit)
Mean (7.83 unit)
-2s (7.61 unit)
-3s (7.50 unit)


Well #8B
Salinity (PSU)
Salinity (PSU)
Date
W8B (n=230, Control Chart 1992-2000)
+3s (24.4 PSU)
+2s (22.1 PSU)
Mean (17.4 PSU)
-2s (12.7 PSU)
-3s (10.4 PSU)


Well #8B
Turbidity (NTU)
Turbidity (NTU)
Date
W8B (n=48, Control Chart 2008-2014)
+3s (0.7 NTU)
+2s (0.53 NTU)
Mean (0.18 NTU)
-2s (-0.18 NTU)
-3s (-0.35 NTU)


Well #8B
Depth to Water (m)
Depth to Water (m)
Date
W8B (n=61, Control Chart 2007-2014)
+3s (-3.2 m)
+2s (-3.5 m)
Mean (-4.2 m)
-2s (-4.8 m)
-3s (-5.1 m)
Pump Depth (-7.0 m)
Tide

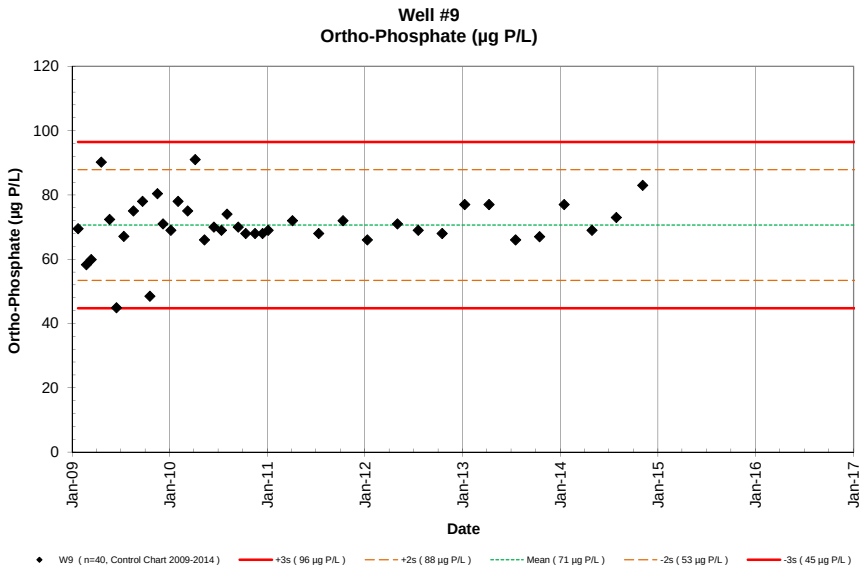

Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #8B
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W8B 1989 - 2013
W8B 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

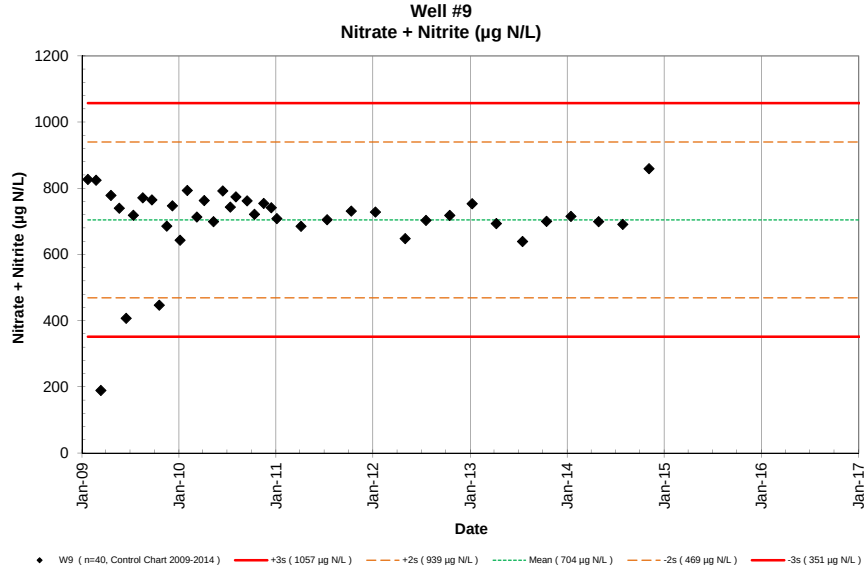
NELHA Water Quality Laboratory

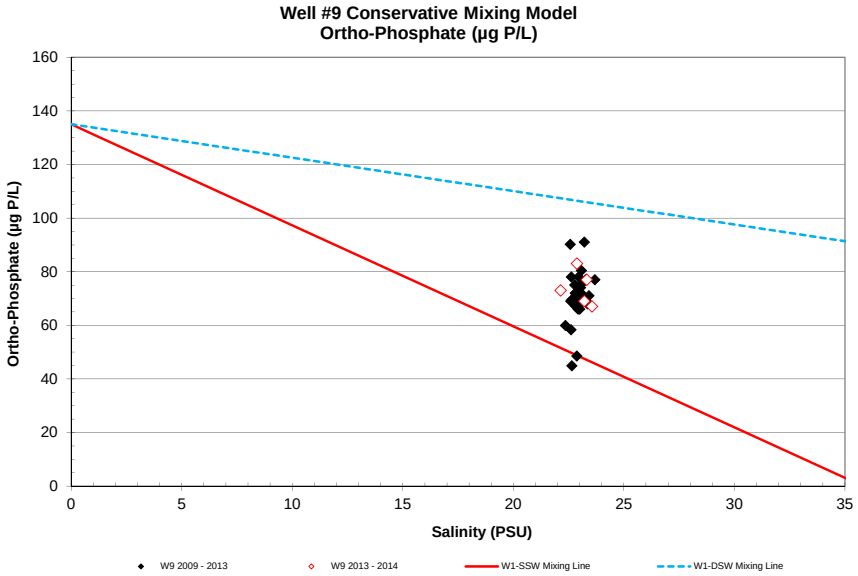
Well 9 Data Table

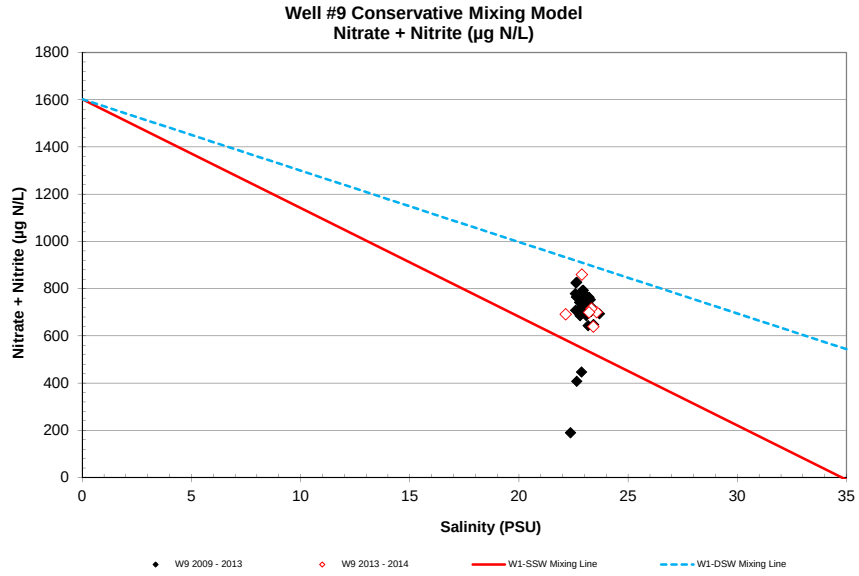
January 2009 - December 2014

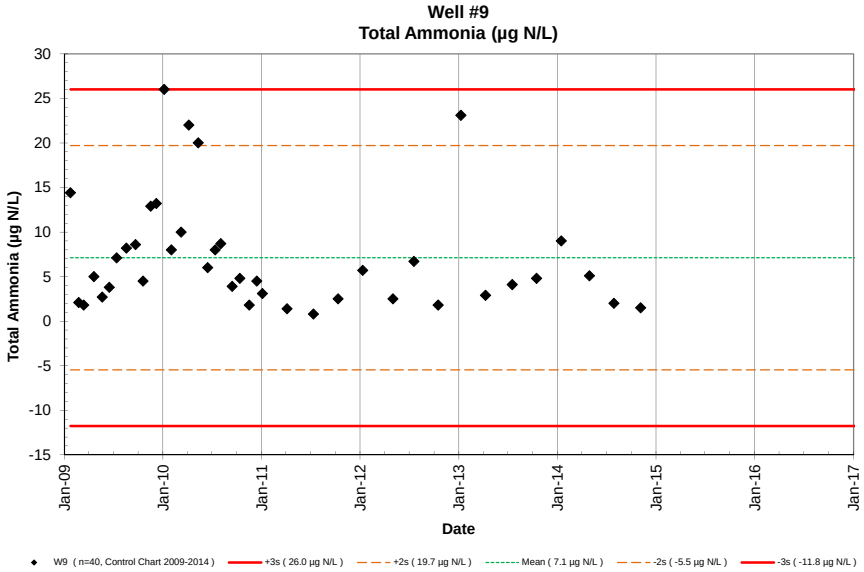
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W9	-25.908	1/23/09	1145	-8.50	0.09	Low	2.24	70	59.0	826	1.03	14.4	340	9561						20.4	7.90	22.65	6.21	5.75		
W9	-25.908	2/23/09	1355	-9.11	0.09	Ebb	1.88	58	58.8	824	0.15	2.1	367	10305						20.4	7.75	22.61	6.17	2.91		
W9	-25.908	3/13/09	1354	-9.36	0.09	Flood	1.93	60	13.5	189	0.13	1.8	274	7700						20.8	7.81	22.36	6.33	0.30		
W9	-25.908	4/20/09	1058	-9.32	0.21	Flood	2.91	90	55.6	778	0.36	5.0	272	7648						19.3	7.71	22.58	6.58	0.41		
W9	-25.908	5/21/09	1352	-9.35	0.55	Flood	2.34	72	52.8	740	0.19	2.7	506	14206						18.1	7.90	23.00	6.57	1.30		
W9	-25.908	6/16/09	1030	-9.14	0.40	Flood	1.45	45	29.1	407	0.27	3.8	93	2611						17.8	7.22	22.65	6.20	0.09		
W9	-25.908	7/13/09	1343	-9.15	0.21	Low	2.17	67	51.3	719	0.51	7.1	100	2795						17.6	7.91	22.82	6.18	0.23		
W9	-25.908	8/18/09	1333	-8.99	0.61	Flood	2.42	75	55.0	771	0.59	8.2	321	9023						17.8	7.80	22.78	6.47	0.18		
W9	-25.908	9/21/09	1220	-9.17	0.15	Low	2.52	78	54.6	765	0.61	8.6	185	5207						18.0	8.38	22.63	6.36	0.18		
W9	-25.908	10/19/09	1457	-9.26	0.21	Flood	1.57	49	31.9	447	0.32	4.5	115	3224						18.0	8.16	22.87	5.92	0.25		
W9	-25.908	11/16/09	1212	-9.30	0.09	Low	2.60	80	48.9	686	0.92	12.9	359	10093						18.4	7.93	23.08	5.86	0.12		
W9	-25.908	12/7/09	1045	-9.03	0.46	Ebb	2.29	71	53.3	747	0.94	13.2	359	10088						18.9	7.85	23.13	5.65	0.42		
W9	-25.908	1/5/10	815	-8.94	0.49	High	2.23	69	45.9	643	1.86	26.0	355	9975						18.9	7.58	23.17	5.47	0.12		
W9	-25.908	2/1/10	1018	-9.04	0.12	Ebb	2.52	78	56.6	793	0.57	8.0	316	8862						18.9	7.94	22.95	5.94	0.39		
W9	-25.908	3/9/10	951	-9.32	0.12	Flood	2.42	75	50.9	713	0.71	10.0	376	10563						18.9	7.92	23.04	5.79	0.18		
W9	-25.908	4/6/10	918	-9.33	0.12	Flood	2.94	91	54.5	763	1.57	22.0	381	10706						19.9	7.88	23.21	6.22	0.50		
W9	-25.908	5/11/10	936	-9.39	0.00	Flood	2.13	66	49.9	699	1.43	20.0	304	8545						19.1	7.99	22.93	6.67	0.21		
W9	-25.908	6/15/10	1035	-9.36	0.06	Ebb	2.26	70	56.5	792	0.43	6.0	402	11277						19.7	7.93	22.91	6.30	0.13		
W9	-25.908	7/13/10	948	-9.31	0.06	Ebb	2.23	69	53.0	743	0.57	8.0	391	10975						19.5	7.90	22.81	6.10	0.28		
W9	-25.908	8/3/10	940	-9.03	0.49	Flood	2.39	74	55.3	774	0.62	8.7	393	11036						19.7	7.91	23.04	6.01	0.94		
W9	-25.908	9/14/10	939	-8.92	0.58	High	2.26	70	54.4	762	0.28	3.9	404	11335						19.4	7.87	22.95	6.32	0.44		
W9	-25.908	10/12/10	945	-8.86	0.58	Ebb	2.20	68	51.5	721	0.34	4.8	406	11410						19.4	7.88	23.00	6.02	0.38		
W9	-25.908	11/16/10	913	-9.12	0.02	Flood	2.20	68	53.8	754	0.13	1.8	396	11119						19.5	7.88	22.94	6.10	0.27		
W9	-25.908	12/14/10	936	-9.07	0.34	Flood	2.20	68	52.9	741	0.32	4.5	402	11288						19.4	7.88	22.78	6.01	0.61		
W9	-25.908	1/4/11	938	-9.09	0.12	Ebb	2.23	69	50.5	708	0.22	3.1	371	10411						19.3	7.81	22.60	6.03	0.84		
W9	-25.908	4/5/11	1013	-9.26	-0.1	Low	2.32	72	48.9	685	0.10	1.4	352	9888						19.8	7.76	22.80	5.07	0.27		
W9	-25.908	7/12/11	929	-9.44	0.37	Flood	2.20	68	50.3	705	0.06	0.8	390	10958						19.4	7.84	22.81	5.73	0.26		
W9	-25.908	10/11/11	948	-9.18	0.12	Low	2.32	72	52.2	731	0.18	2.5	378	10619						19.2	7.81	23.06	6.48	0.42		
W9	-25.908	1/10/12	947	-9.11	0.21	Ebb	2.13	66	52.0	728	0.41	5.7	369	10358						18.9	7.88	23.00	6.55	0.61		
W9	-25.908	5/1/12	1004	-9.22	0.18	Flood	2.29	71	46.3	648	0.18	2.5	373	10485						18.8	7.88	23.42	5.93	0.09		
W9	-25.908	7/18/12	919	-9.34	0.00	Low	2.23	69	50.2	703	0.48	6.7	382	10736						17.8	7.92	23.31	6.33	0.18		
W9	-25.908	10/16/12	1000	-9.15	0.18	Ebb	2.20	68	51.3	718	0.13	1.8	379	10654						18.0	7.85	23.36	5.95	0.04		
W9	-25.908	1/8/13	1022	-9.20	0.12	Flood	2.49	77	53.8	753	1.65	23.1	428	12016						17.9	7.83	23.27	6.17	0.06		
W9	-25.908	4/9/13	956	-9.37	-0.1	Low	2.49	77	49.5	693	0.21	2.9	374	10491						18.2	7.87	23.69	0.86	0.06		
W9	-25.908	7/17/13	1017	-9.17	0.49	Flood	2.13	66	45.6	639	0.29	4.1	373	10469						17.9	7.79	23.41	5.66	0.22		
W9	-25.908	10/15/13	945	-9.20	0.27	Flood	2.16	67	50.0	700	0.34	4.8	367	10304						17.9	7.83	23.56	6.12	0.25		
W9	-25.908	1/15/14	922	-9.15	0.15	Ebb	2.49	77	51.0	715	0.64	9.0	361	10138						17.9	7.89	23.32	6.12	0.02		
W9	-25.908	4/29/14	1037	-9.45	0.00	Flood	2.23	69	49.9	699	0.36	5.1	359	10074						18.1	7.85	23.21	6.61	0.02		
W9	-25.908	7/29/14	1012	-9.25	0.12	Ebb	2.36	73	49.3	691	0.14	2.0	368	10331						17.8	7.80	22.14	6.37	0.04		
W9	-25.908	11/5/14	1013	-9.17	0.12	Low	2.68	83	61.3	859	0.11	1.5	351	9866						17.8	7.87	22.88	7.36	0.04		
W9	-25.908	1/1/15																								
W9	-25.908	4/1/15																								

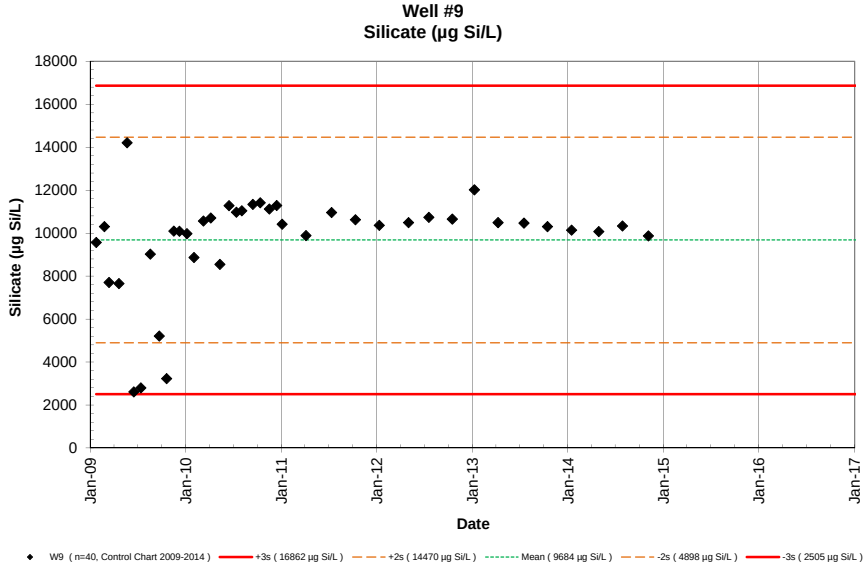

Well #9
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W9 (n=40, Control Chart 2009-2014)
+3s (96 µg P/L)
+2s (88 µg P/L)
Mean (71 µg P/L)
-2s (53 µg P/L)
-3s (45 µg P/L)

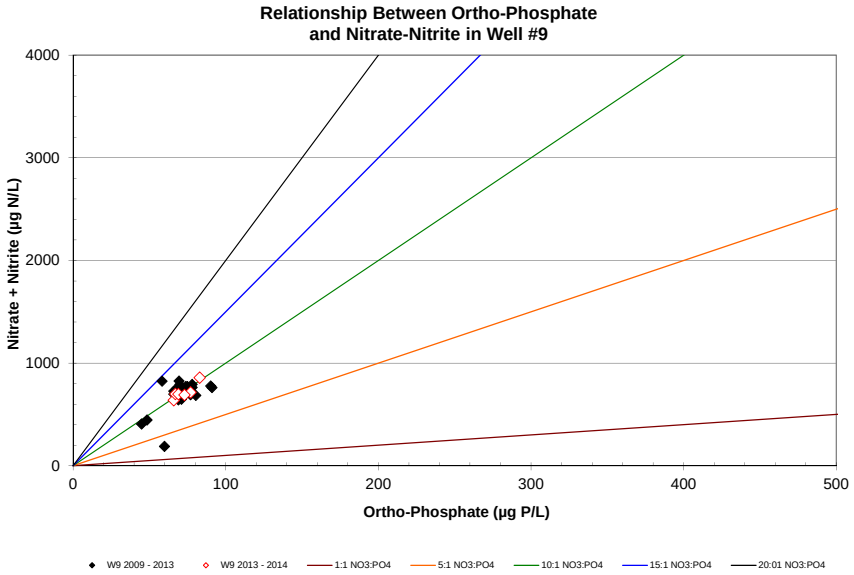

Well #9
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W9 (n=40, Control Chart 2009-2014)
+3s (1057 µg N/L)
+2s (939 µg N/L)
Mean (704 µg N/L)
-2s (469 µg N/L)
-3s (351 µg N/L)

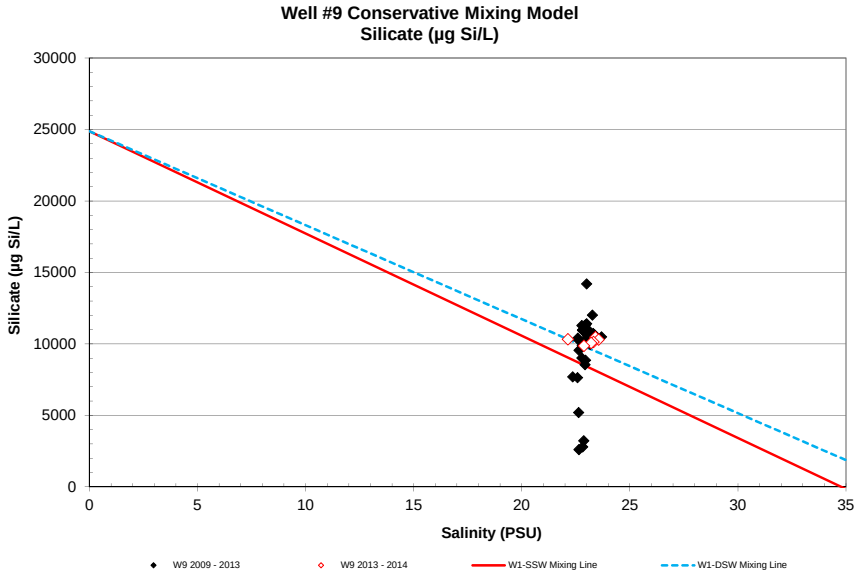

Well #9 Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W9 2009 - 2013
W9 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

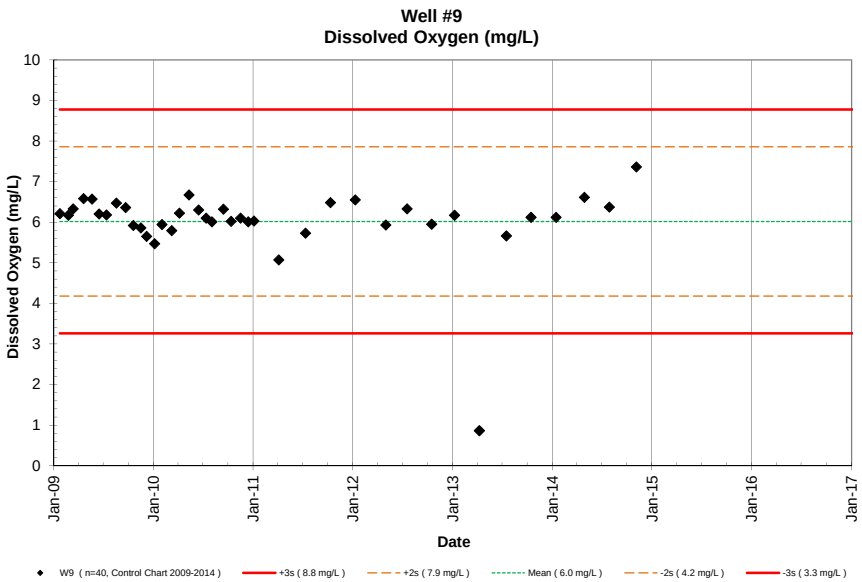

Well #9 Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W9 2009 - 2013
W9 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

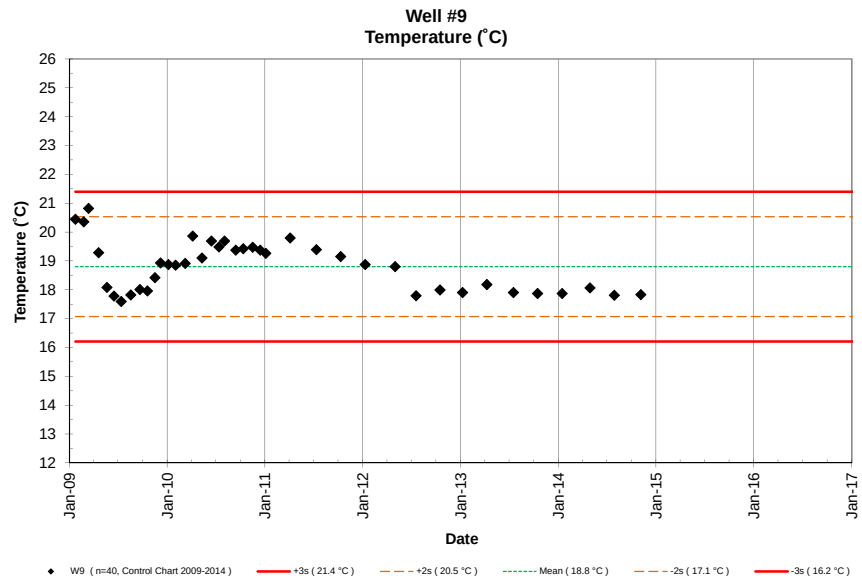

Well #9
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W9 (n=40, Control Chart 2009-2014)
+3s (26.0 µg N/L)
+2s (19.7 µg N/L)
Mean (7.1 µg N/L)
-2s (-5.5 µg N/L)
-3s (-11.8 µg N/L)

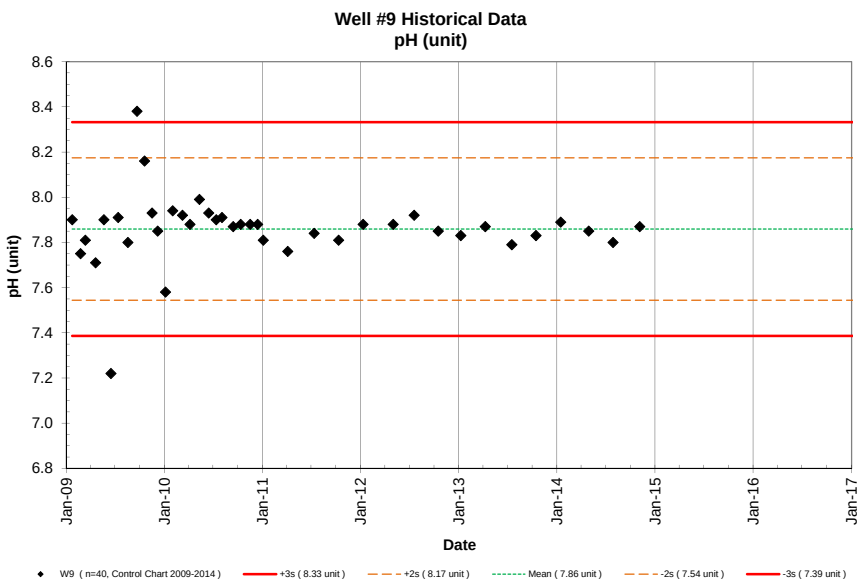

Well #9
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W9 (n=40, Control Chart 2009-2014)
+3s (16862 µg Si/L)
+2s (14470 µg Si/L)
Mean (9684 µg Si/L)
-2s (4898 µg Si/L)
-3s (2505 µg Si/L)

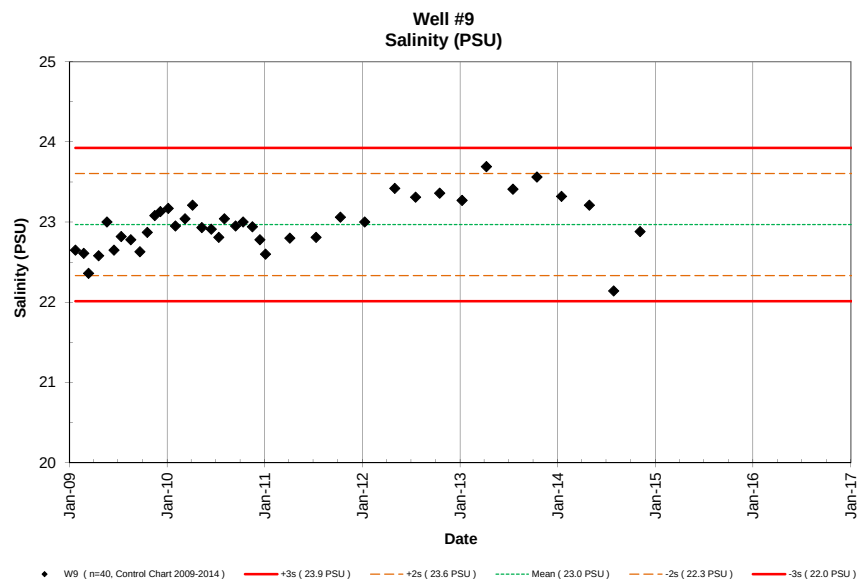

Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #9
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W9 2009 - 2013
W9 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

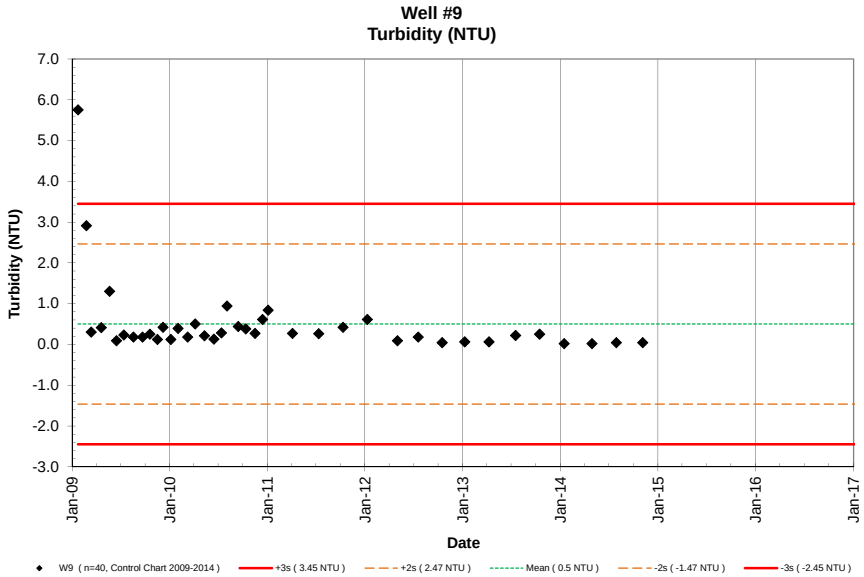

Well #9 Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W9 2009 - 2013
W9 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

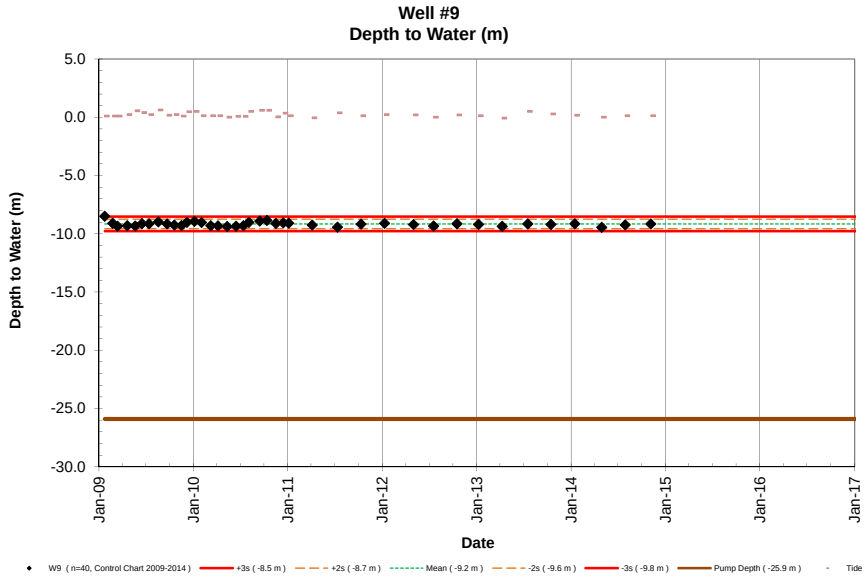

Well #9
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W9 (n=40, Control Chart 2009-2014)
+3s (8.8 mg/L)
+2s (7.9 mg/L)
Mean (6.0 mg/L)
-2s (4.2 mg/L)
-3s (3.3 mg/L)


Well #9
Temperature (˚C)
Temperature (˚C)
Date
W9 (n=40, Control Chart 2009-2014)
+3s (21.4 °C)
+2s (20.5 °C)
Mean (18.8 °C)
-2s (17.1 °C)
-3s (16.2 °C)


Well #9 Historical Data
pH (unit)
pH (unit)
Date
W9 (n=40, Control Chart 2009-2014)
+3s (8.33 unit)
+2s (8.17 unit)
Mean (7.86 unit)
-2s (7.54 unit)
-3s (7.39 unit)


Well #9
Salinity (PSU)
Salinity (PSU)
Date
W9 (n=40, Control Chart 2009-2014)
+3s (23.9 PSU)
+2s (23.6 PSU)
Mean (23.0 PSU)
-2s (22.3 PSU)
-3s (22.0 PSU)


Well #9
Turbidity (NTU)
Turbidity (NTU)
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W9 (n=40, Control Chart 2009-2014)
+3s (3.45 NTU)
+2s (2.47 NTU)
Mean (0.5 NTU)
-2s (-1.47 NTU)
-3s (-2.45 NTU)

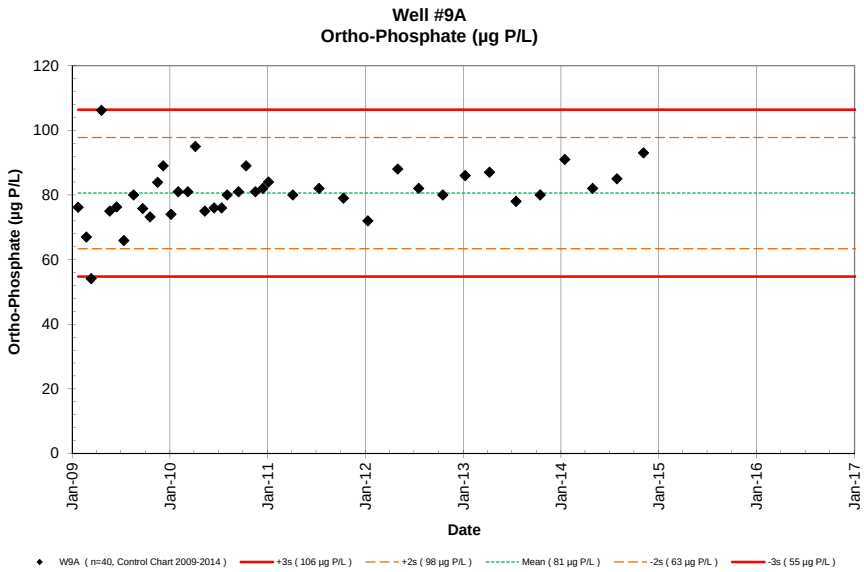

Well #9
Depth to Water (m)
Depth to Water (m)
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W9 (n=40, Control Chart 2009-2014)
+3s (-8.5 m)
+2s (-8.7 m)
Mean (-9.2 m)
-2s (-9.6 m)
-3s (-9.8 m)
Pump Depth (-25.9 m)
Tide

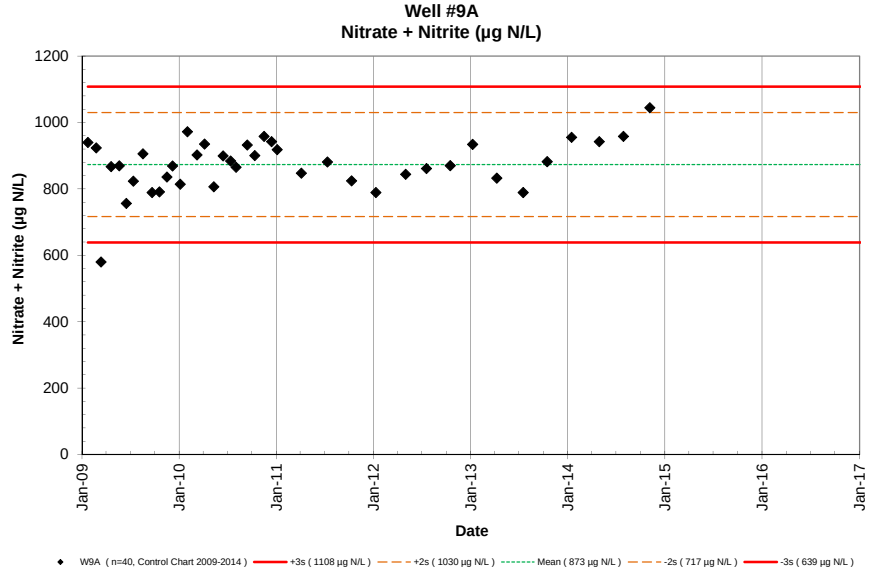
NELHA Water Quality Laboratory

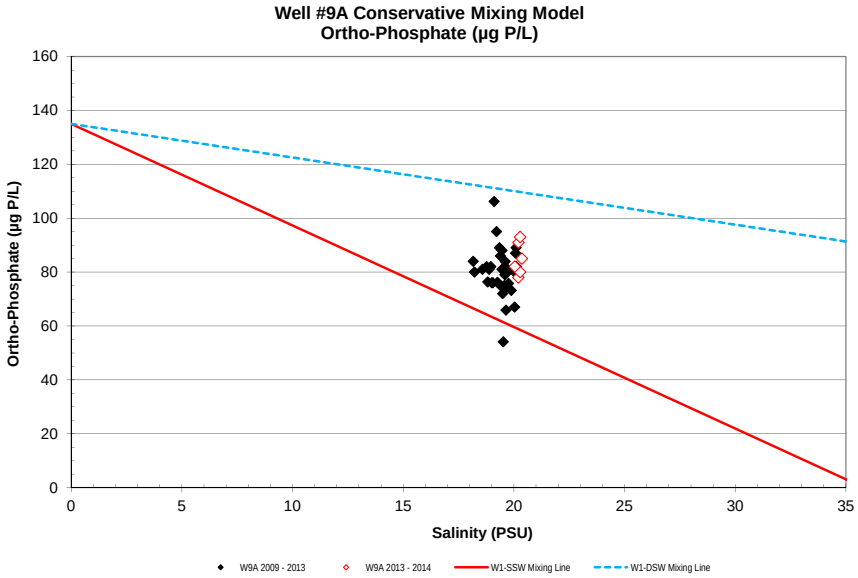
Well 9A Data Table

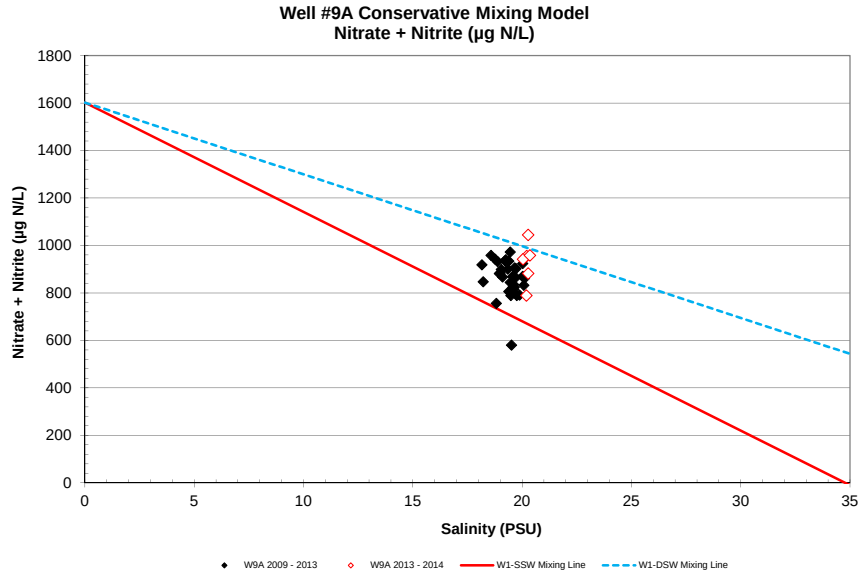
January 2009 - December 2014

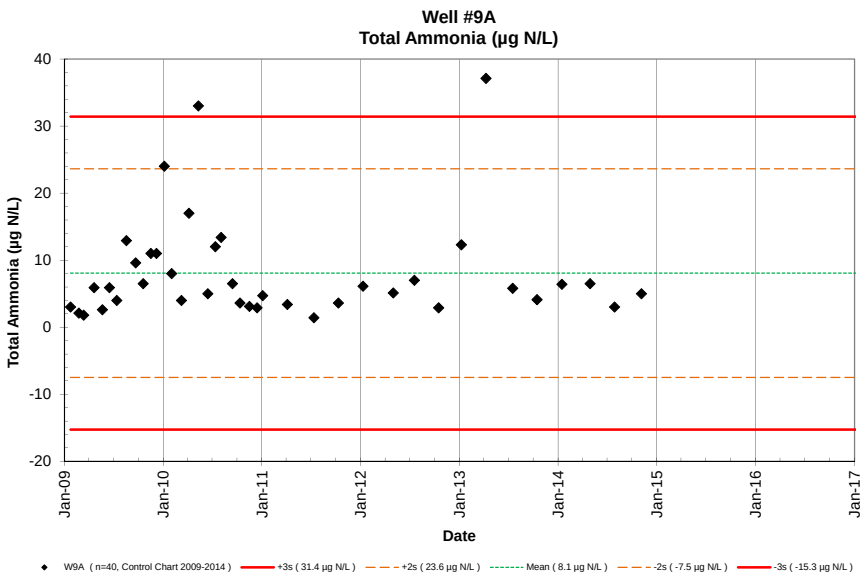
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W9A	-19.812	1/23/09	1130	-9.88	0.09	Low	2.46	76	67.1	940	0.21	3.0	405	11371						20.4	7.90	19.26	6.17	1.03		
W9A	-19.812	2/23/09	1340	-9.15	0.09	Ebb	2.16	67	65.9	923	0.15	2.1	408	11468						20.0	7.74	20.03	6.50	8.11		
W9A	-19.812	3/13/09	1338	-9.36	0.09	Flood	1.75	54	41.4	580	0.13	1.8	331	9286						21.0	7.82	19.52	6.63	1.08		
W9A	-19.812	4/20/09	1120	-9.24	0.21	Flood	3.43	106	61.9	867	0.42	5.9	368	10333						19.9	7.67	19.11	6.48	19.1		
W9A	-19.812	5/21/09	1057	-9.36	0.55	Flood	2.42	75	62.1	869	0.19	2.6	534	14987						21.7	7.89	19.57	5.95	1.26		
W9A	-19.812	6/16/09	1013	-9.07	0.40	Flood	2.46	76	54.0	756	0.42	5.9	242	6803						18.4	7.79	18.82	6.21	0.97		
W9A	-19.812	7/13/09	1322	-9.15	0.21	Low	2.13	66	58.8	823	0.29	4.0	147	4116						18.4	7.78	19.64	6.40	1.80		
W9A	-19.812	8/18/09	1315	-8.90	0.61	Flood	2.58	80	64.6	906	0.92	12.9	351	9866						18.6	7.84	19.66	6.86	0.48		
W9A	-19.812	9/21/09	1133	-9.10	0.15	Low	2.45	76	56.3	789	0.69	9.6	173	4862						18.8	8.38	19.76	6.23	0.38		
W9A	-19.812	10/19/09	1411	-9.18	0.21	Flood	2.36	73	56.5	791	0.46	6.5	206	5786						18.8	8.16	19.88	6.32	0.81		
W9A	-19.812	11/16/09	1140	-9.21	0.09	Low	2.71	84	59.7	836	0.79	11.0	414	11633						20.4	7.92	19.61	5.05	0.14		
W9A	-19.812	12/7/09	1142	-8.97	0.46	Ebb	2.87	89	62.0	869	0.79	11.0	434	12181						19.6	7.85	20.10	6.64	0.70		
W9A	-19.812	1/5/10	851	-8.91	0.49	High	2.39	74	58.1	814	1.71	24.0	429	12052						19.0	7.91	19.62	6.22	2.26		
W9A	-19.812	2/1/10	1035	-9.07	0.12	Ebb	2.62	81	69.4	972	0.57	8.0	405	11386						19.0	7.93	19.46	6.26	1.66		
W9A	-19.812	3/9/10	1008	-9.28	0.12	Flood	2.62	81	64.4	902	0.29	4.0	444	12477						19.4	7.90	19.72	6.32	0.62		
W9A	-19.812	4/6/10	936	-9.26	0.12	Flood	3.07	95	66.8	935	1.21	17.0	428	12015						20.3	7.87	19.22	6.36	3.21		
W9A	-19.812	5/11/10	1001	-9.32	0.00	Flood	2.42	75	57.5	806	2.36	33.0	453	12718						20.3	7.98	19.39	6.84	2.03		
W9A	-19.812	6/15/10	1043	-9.28	0.06	Ebb	2.45	76	64.2	899	0.36	5.0	456	12815						18.5	7.94	19.05	6.65	0.26		
W9A	-19.812	7/13/10	1002	-9.23	0.03	Ebb	2.45	76	63.1	884	0.86	12.0	479	13462						20.2	7.90	19.00	6.43	3.01		
W9A	-19.812	8/3/10	955	-8.94	0.49	Flood	2.58	80	61.8	865	0.96	13.4	457	12847						20.2	7.92	19.71	6.58	3.61		
W9A	-19.812	9/14/10	949	-8.87	0.58	High	2.62	81	66.5	932	0.46	6.5	488	13709						18.8	7.88	18.88	6.34	0.35		
W9A	-19.812	10/12/10	958	-8.16	0.58	Ebb	2.87	89	64.3	900	0.26	3.6	486	13641						18.4	7.89	19.35	6.52	0.13		
W9A	-19.812	11/16/10	919	-8.99	0.24	Flood	2.62	81	68.4	958	0.22	3.1	485	13622						18.5	7.88	18.58	6.40	0.08		
W9A	-19.812	12/14/10	948	-8.93	0.34	High	2.65	82	67.3	942	0.21	2.9	483	13558						18.3	7.87	18.77	6.47	0.21		
W9A	-19.812	1/4/11	946	-9.02	0.12	Ebb	2.71	84	65.5	918	0.34	4.7	468	13153						18.5	7.80	18.16	6.28	0.12		
W9A	-19.812	4/5/11	1023	-9.21	-0.1	Low	2.58	80	60.5	847	0.24	3.4	443	12436						18.6	7.82	18.22	5.47	0.12		
W9A	-19.812	7/12/11	941	-9.39	0.37	Flood	2.65	82	62.9	881	0.10	1.4	467	13107						18.3	7.86	18.96	6.37	0.08		
W9A	-19.812	10/11/11	1007	-9.10	0.12	Low	2.55	79	58.8	824	0.26	3.6	435	12220						18.2	7.81	19.59	6.65	0.12		
W9A	-19.812	1/10/12	956	-9.04	0.15	Ebb	2.32	72	56.3	789	0.44	6.1	420	11795						18.5	7.84	19.49	6.19	0.09		
W9A	-19.812	5/1/12	1014	-9.14	0.18	Flood	2.84	88	60.3	844	0.36	5.1	472	13252						17.9	7.89	19.46	6.56	0.06		
W9A	-19.812	7/18/12	931	-9.25	0.00	Low	2.65	82	61.5	861	0.50	7.0	443	12431						18.2	7.95	20.11	6.83	0.57		
W9A	-19.812	10/16/12	1008	-9.07	0.18	Ebb	2.58	80	62.1	870	0.21	2.9	441	12389						18.6	7.85	20.03	6.41	0.55		
W9A	-19.812	1/8/13	1029	-9.13	0.12	Flood	2.78	86	66.7	934	0.88	12.3	507	14246						18.3	7.81	19.39	6.49	0.13		
W9A	-19.812	4/9/13	1010	-9.30	-0.1	Low	2.81	87	59.4	832	2.65	37.1	434	12177						18.4	7.86	20.08	7.09	0.66		
W9A	-19.812	7/17/13	1043	-9.09	0.49	Flood	2.52	78	56.3	789	0.41	5.8	441	12398						18.8	7.80	20.20	6.33	0.18		
W9A	-19.812	10/15/13	952	-9.15	0.27	Flood	2.58	80	63.0	882	0.29	4.1	424	11914						18.4	7.84	20.28	7.11	0.05		
W9A	-19.812	1/15/14	929	-9.08	0.15	Ebb	2.94	91	68.2	955	0.46	6.4	411	11533						18.2	7.86	20.21	7.14	0.11		
W9A	-19.812	4/29/14	1045	-9.36	0.00	Flood	2.65	82	67.3	942	0.46	6.5	408	11467						18.6	7.82	20.04	7.21	0.13		
W9A	-19.812	7/29/14	1031	-9.17	0.12	Ebb	2.74	85	68.4	958	0.21	3.0	408	11457						18.6	7.75	20.36	7.58	0.31		
W9A	-19.812	11/5/14	1023	-9.07	0.12	Low	3.00	93	74.5	1044	0.36	5.0	403	11319						18.5	7.83	20.28	7.81	0.24		
W9A	-19.812	1/1/15																								
W9A	-19.812	4/1/15																								

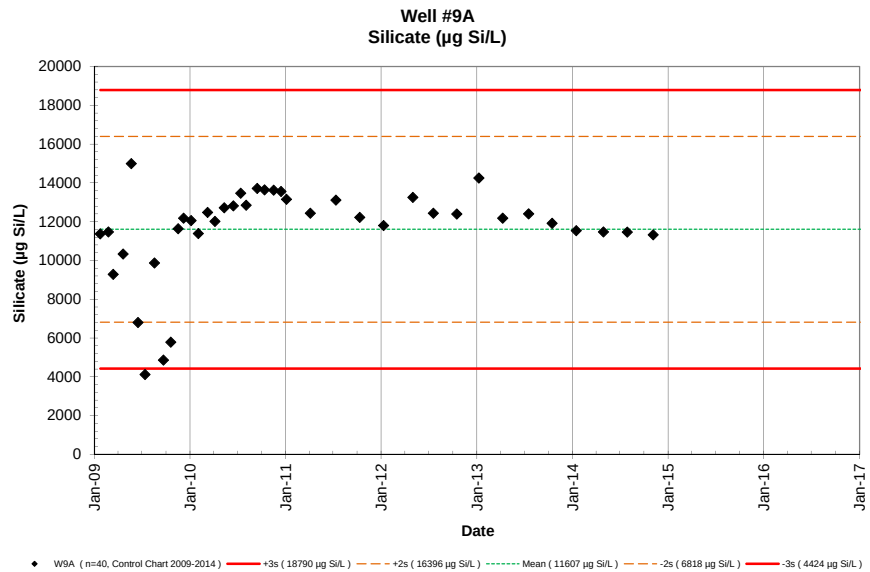

Well #9A
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W9A (n=40, Control Chart 2009-2014)
+3s (106 µg P/L)
+2s (98 µg P/L)
Mean (81 µg P/L)
-2s (63 µg P/L)
-3s (55 µg P/L)

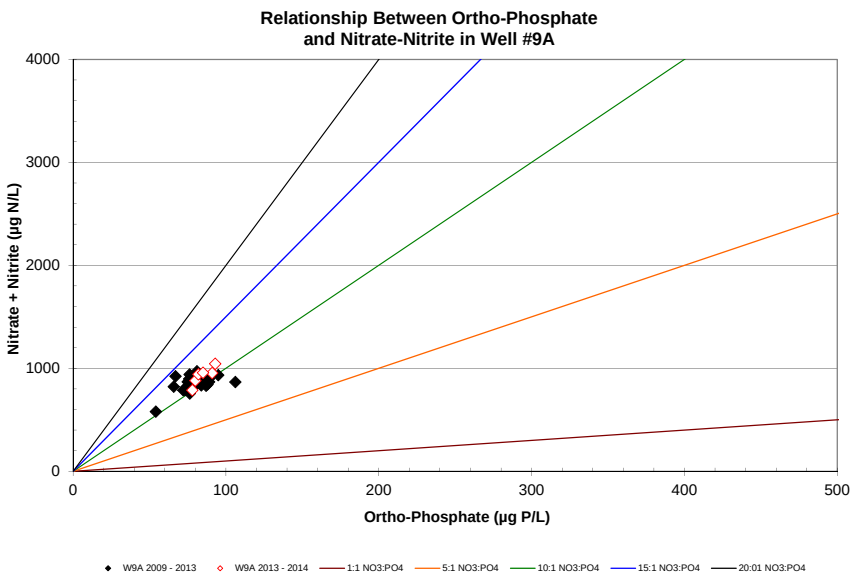

Well #9A
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W9A (n=40, Control Chart 2009-2014)
+3s (1108 µg N/L)
+2s (1030 µg N/L)
Mean (873 µg N/L)
-2s (717 µg N/L)
-3s (639 µg N/L)

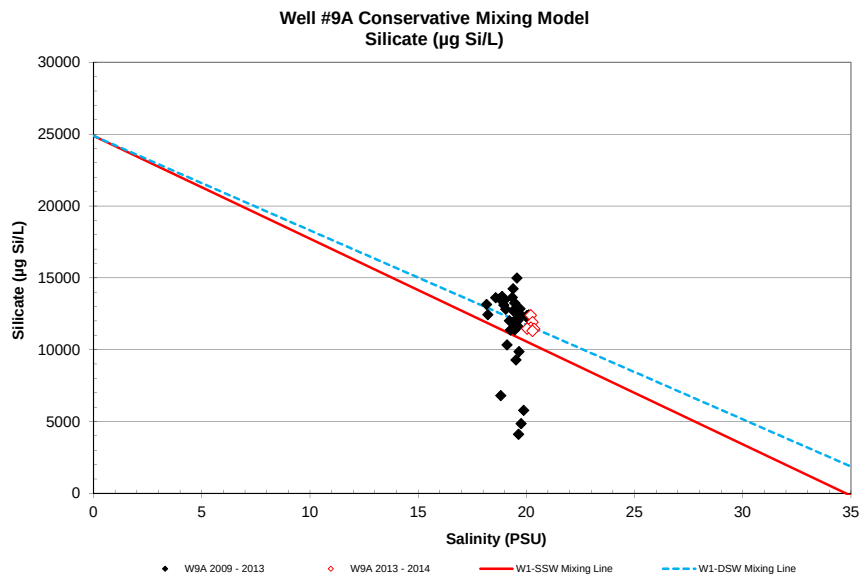

Well #9A Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W9A 2009 - 2013
W9A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

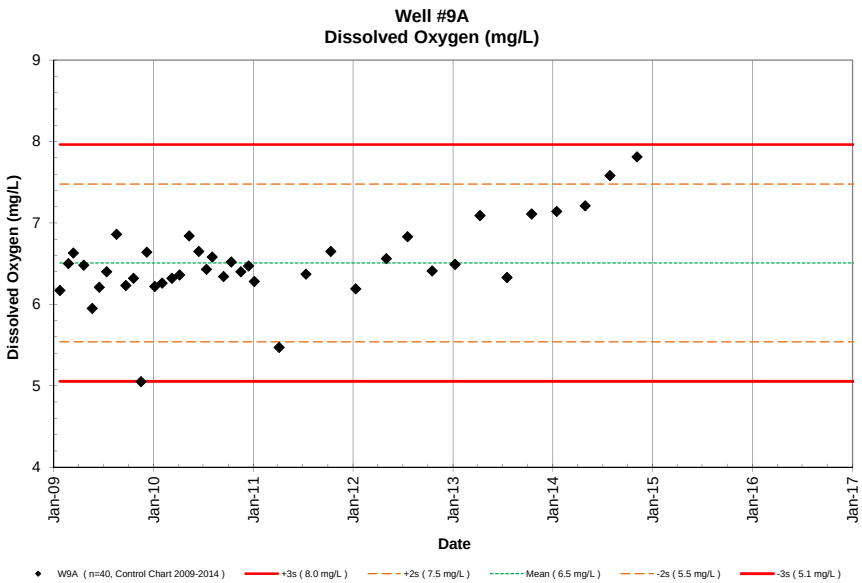

Well #9A Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W9A 2009 - 2013
W9A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

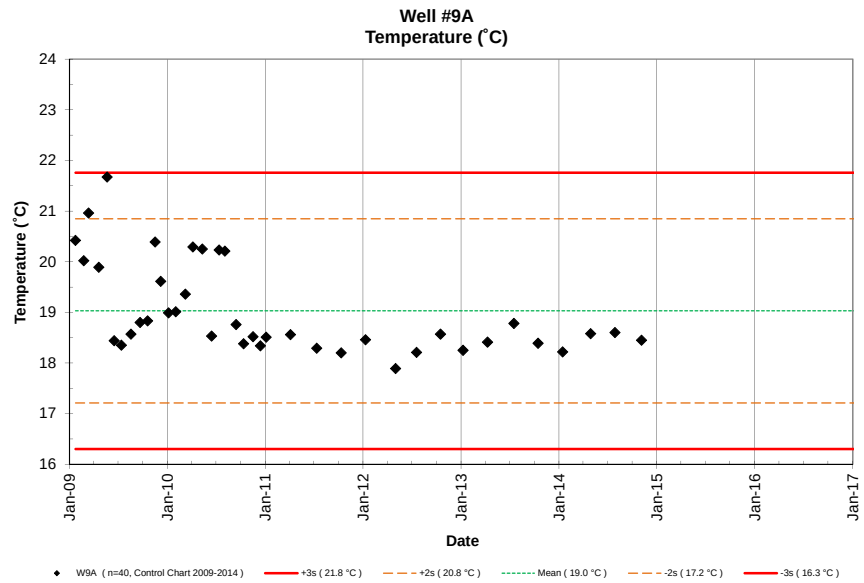

Well #9A
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
40
30
20
10
0
-10
-20
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W9A (n=40, Control Chart 2009-2014)
+3s (31.4 µg N/L)
+2s (23.6 µg N/L)
Mean (8.1 µg N/L)
-2s (-7.5 µg N/L)
-3s (-15.3 µg N/L)

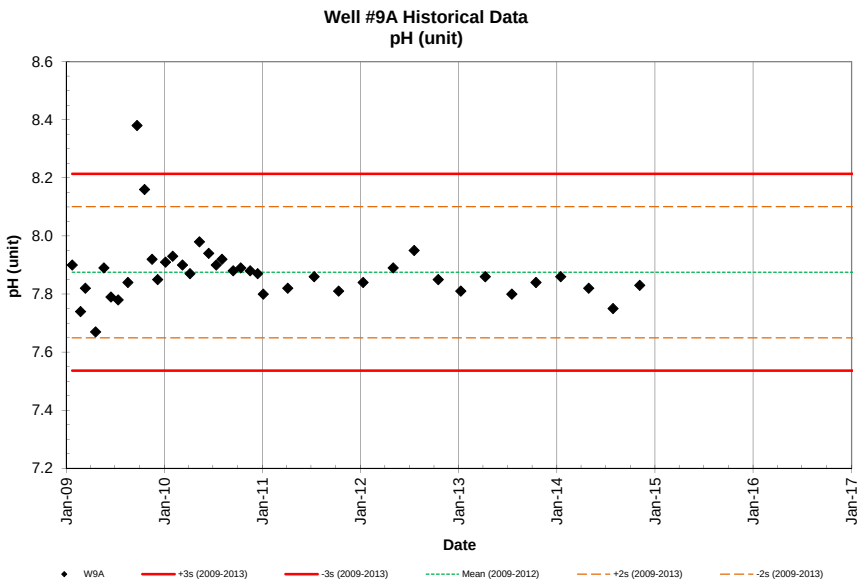

Well #9A
Silicate (µg Si/L)
Silicate (µg Si/L)
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W9A (n=40, Control Chart 2009-2014)
+3s (18790 µg Si/L)
+2s (16396 µg Si/L)
Mean (11607 µg Si/L)
-2s (6818 µg Si/L)
-3s (4424 µg Si/L)

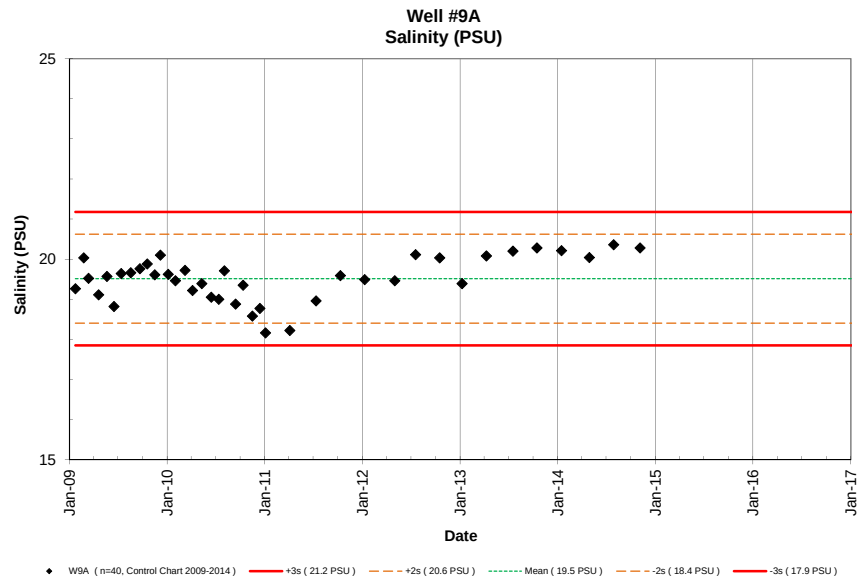

Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #9A
Nitrate + Nitrite (µg N/L)
4000
3000
2000
1000
0
0
100
200
300
400
500
Ortho-Phosphate (µg P/L)
W9A 2009 - 2013
W9A 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

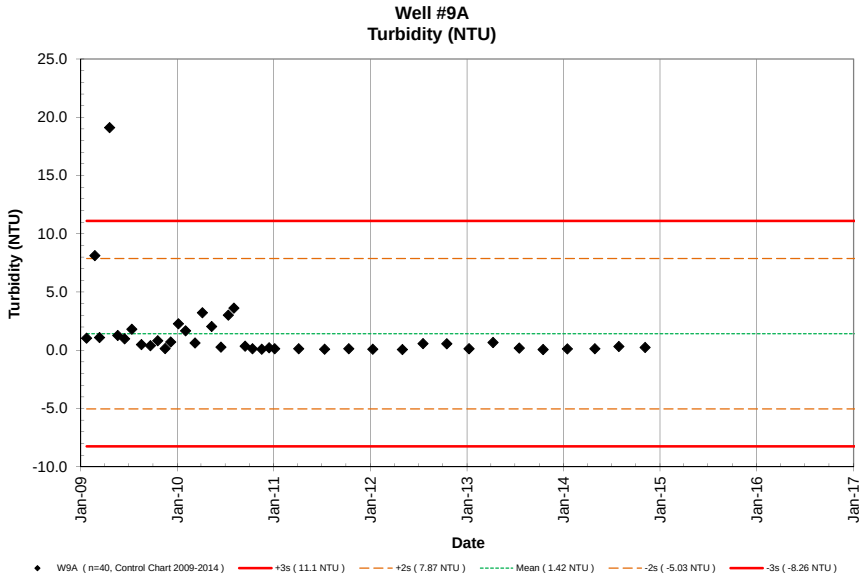

Well #9A Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
30000
25000
20000
15000
10000
5000
0
0
5
10
15
20
25
30
35
Salinity (PSU)
W9A 2009 - 2013
W9A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

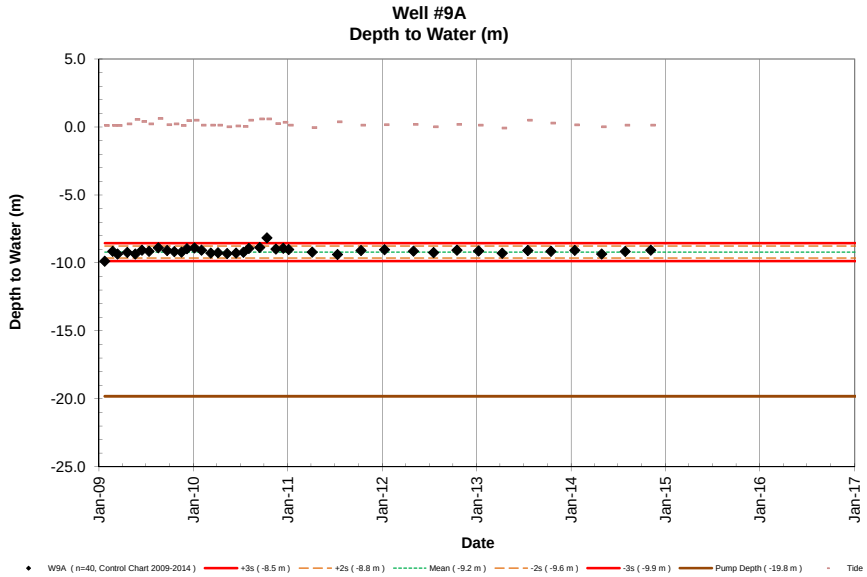

Well #9A
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W9A (n=40, Control Chart 2009-2014)
+3s (8.0 mg/L)
+2s (7.5 mg/L)
Mean (6.5 mg/L)
-2s (5.5 mg/L)
-3s (5.1 mg/L)


Well #9A
Temperature (˚C)
Temperature (˚C)
Date
W9A (n=40, Control Chart 2009-2014)
+3s (21.8 °C)
+2s (20.8 °C)
Mean (19.0 °C)
-2s (17.2 °C)
-3s (16.3 °C)


Well #9A Historical Data
pH (unit)
pH (unit)
Date
W9A
+3s (2009-2013)
-3s (2009-2013)
Mean (2009-2012)
+2s (2009-2013)
-2s (2009-2013)


Well #9A
Salinity (PSU)
Salinity (PSU)
Date
W9A (n=40, Control Chart 2009-2014)
+3s (21.2 PSU)
+2s (20.6 PSU)
Mean (19.5 PSU)
-2s (18.4 PSU)
-3s (17.9 PSU)


Well #9A
Turbidity (NTU)
Turbidity (NTU)
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W9A (n=40, Control Chart 2009-2014)
+3s (11.1 NTU)
+2s (7.87 NTU)
Mean (1.42 NTU)
-2s (-5.03 NTU)
-3s (-8.26 NTU)

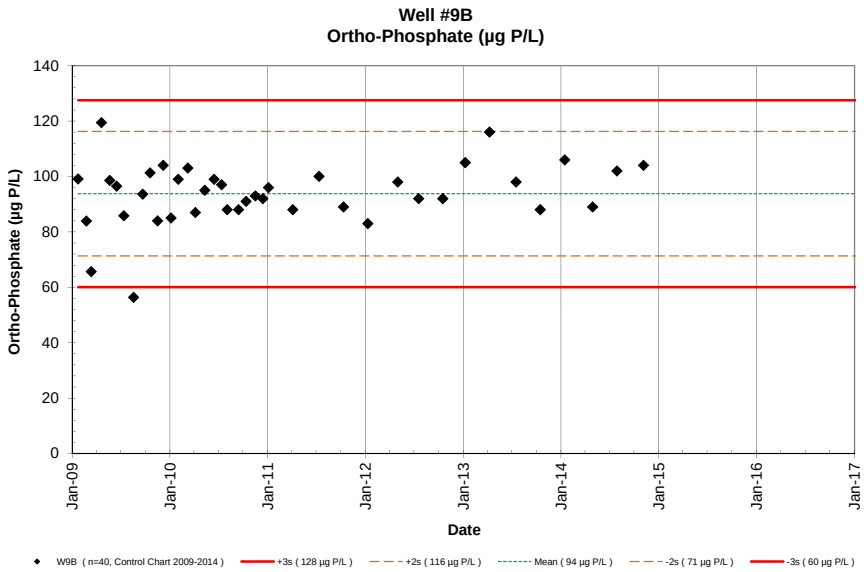

Well #9A
Depth to Water (m)
Depth to Water (m)
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W9A (n=40, Control Chart 2009-2014)
+3s (-8.5 m)
+2s (-8.8 m)
Mean (-9.2 m)
-2s (-9.6 m)
-3s (-9.9 m)
Pump Depth (-19.8 m)
Tide

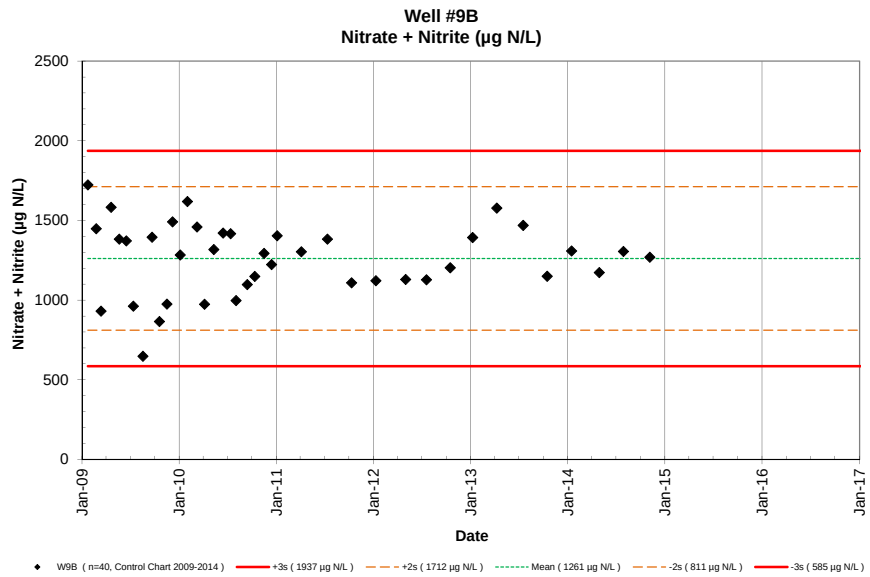
NELHA Water Quality Laboratory

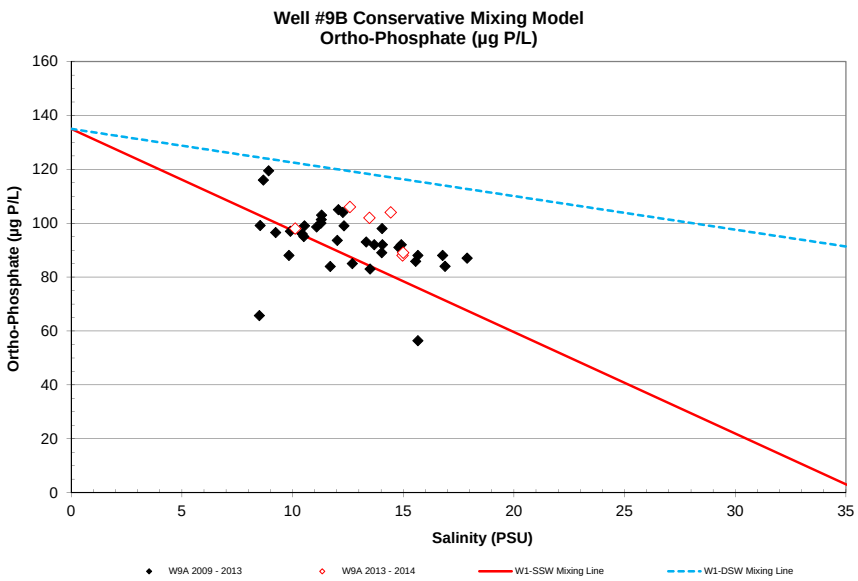
Well 9B Data Table

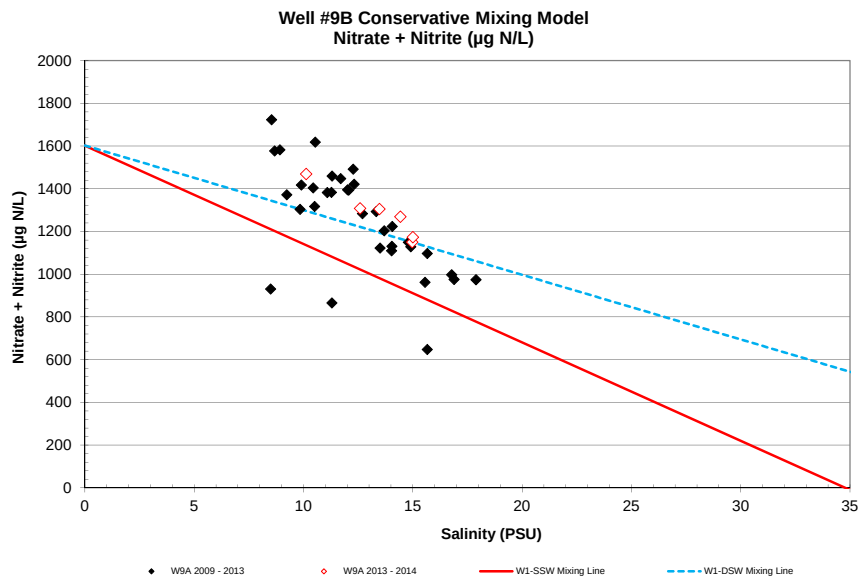
January 2009 - December 2014

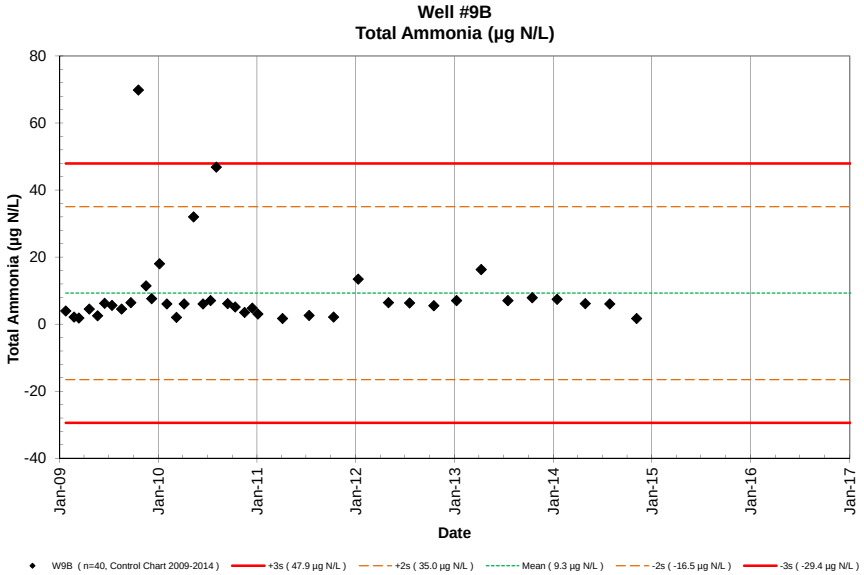
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W9B	-13.716	1/23/09	1115	-9.24	0.09	Low	3.20	99	123.0	1723	0.28	3.9	560	15730						21.9	8.03	8.54	7.44	1.62		
W9B	-13.716	2/23/09	1328	-9.15	0.09	Ebb	2.71	84	103.3	1447	0.15	2.1	560	15726						21.9	7.78	11.70	7.30	0.16		
W9B	-13.716	3/13/09	1313	-9.33	0.09	Flood	2.12	66	66.4	931	0.13	1.8	423	11887						23.0	7.91	8.50	7.54	0.40		
W9B	-13.716	4/20/09	1131	-9.22	0.21	Flood	3.85	119	112.9	1582	0.32	4.5	525	14757						21.7	7.85	8.92	7.06	1.93		
W9B	-13.716	5/21/09	1033	-9.26	0.55	Flood	3.18	99	98.7	1382	0.18	2.5	381	10712						22.4	7.98	11.09	6.97	0.16		
W9B	-13.716	6/16/09	1001	-9.14	0.40	Flood	3.12	97	97.9	1371	0.44	6.2	300	8415						20.0	7.98	9.24	7.71	0.04		
W9B	-13.716	7/13/09	1307	-9.17	0.21	Low	2.77	86	68.7	962	0.40	5.6	259	7270						19.7	7.95	15.56	6.40	0.12		
W9B	-13.716	8/18/09	1302	-8.93	0.61	Flood	1.82	56	46.2	648	0.32	4.5	366	10266						20.3	7.87	15.66	6.21	0.06		
W9B	-13.716	9/21/09	1101	-9.11	0.15	Low	3.02	94	99.6	1395	0.46	6.4	238	6674						20.3	8.44	12.02	7.14	0.07		
W9B	-13.716	10/19/09	1346	-9.21	0.21	Flood	3.27	101	61.8	865	4.98	69.8	255	7152						20.9	8.19	11.30	7.50	0.16		
W9B	-13.716	11/16/09	1105	-9.29	0.09	Low	2.71	84	69.6	975	0.81	11.4	608	17071						21.5	7.89	16.89	4.85	0.21		
W9B	-13.716	12/7/09	1128	-9.02	0.46	Ebb	3.36	104	106.4	1491	0.54	7.6	582	16342						20.3	7.88	12.27	7.47	0.02		
W9B	-13.716	1/5/10	902	-8.96	0.49	High	2.74	85	91.6	1283	1.29	18.0	467	13104						20.3	7.95	12.70	6.80	0.65		
W9B	-13.716	2/1/10	1029	-9.03	0.12	Ebb	3.20	99	115.5	1618	0.43	6.0	461	12938						19.5	8.00	10.54	7.52	0.10		
W9B	-13.716	3/9/10	940	-9.30	0.12	Flood	3.33	103	104.2	1459	0.14	2.0	558	15660						19.9	7.95	11.31	6.79	0.03		
W9B	-13.716	4/6/10	927	-9.29	0.12	Flood	2.81	87	69.5	974	0.43	6.0	525	14739						18.9	7.87	17.89	6.49	0.09		
W9B	-13.716	5/11/10	946	-9.33	0.00	Flood	3.07	95	94.0	1317	2.28	32.0	683	19181						19.8	8.05	10.51	7.70	0.02		
W9B	-13.716	6/15/10	1026	-9.28	0.06	Ebb	3.20	99	101.5	1421	0.43	6.0	610	17139						19.7	8.00	12.32	7.39	0.02		
W9B	-13.716	7/13/10	956	-9.27	0.03	Ebb	3.13	97	101.2	1417	0.50	7.0	613	17228						19.9	7.95	9.90	7.55	0.09		
W9B	-13.716	8/3/10	945	-8.97	0.49	Flood	2.84	88	71.2	997	3.34	46.8	525	14756						19.4	7.92	16.78	6.54	0.13		
W9B	-13.716	9/14/10	1000	-8.90	0.58	High	2.84	88	78.3	1097	0.44	6.1	558	15685						19.6	7.91	15.66	6.86	0.11		
W9B	-13.716	10/12/10	1010	-8.80	0.58	Ebb	2.94	91	82.0	1149	0.36	5.1	577	16194						19.5	7.90	14.80	6.79	0.11		
W9B	-13.716	11/16/10	929	-9.06	0.24	Flood	3.00	93	92.3	1293	0.25	3.5	588	16524						19.5	7.91	13.33	7.05	0.05		
W9B	-13.716	12/14/10	1009	-8.99	0.34	High	2.97	92	87.3	1223	0.34	4.8	574	16113						19.4	7.90	14.06	6.92	0.11		
W9B	-13.716	1/4/11	958	-9.04	0.12	Ebb	3.10	96	100.2	1404	0.21	3.0	576	16176						19.6	7.90	10.44	7.37	0.05		
W9B	-13.716	4/5/11	1032	-9.22	-0.1	Low	2.84	88	93.0	1303	0.12	1.7	525	14744						19.6	7.89	9.84	6.56	0.08		
W9B	-13.716	7/12/11	957	-9.37	0.37	Flood	3.23	100	98.7	1383	0.19	2.6	605	16998						19.6	7.95	11.28	7.28	0.05		
W9B	-13.716	10/11/11	1015	-9.11	0.12	Low	2.87	89	79.2	1109	0.15	2.1	542	15234						19.5	7.85	14.03	6.90	0.03		
W9B	-13.716	1/10/12	1007	-9.07	0.15	Ebb	2.68	83	80.1	1122	0.96	13.4	529	14857						19.6	7.86	13.50	6.96	0.07		
W9B	-13.716	5/1/12	1022	-9.17	0.18	Flood	3.16	98	80.7	1130	0.46	6.4	585	16440						19.6	7.96	14.04	6.86	0.04		
W9B	-13.716	7/18/12	927	-9.28	0.00	Low	2.97	92	80.5	1128	0.45	6.3	545	15302						19.2	7.99	14.91	7.00	0.30		
W9B	-13.716	10/16/12	1016	-9.11	0.18	Ebb	2.97	92	85.9	1203	0.39	5.5	556	15616						19.5	7.92	13.69	6.87	0.23		
W9B	-13.716	1/8/13	1036	-9.15	0.12	Flood	3.39	105	99.5	1393	0.50	7.0	620	17409						19.5	7.89	12.07	7.22	0.35		
W9B	-13.716	4/9/13	1003	-9.32	-0.1	Low	3.75	116	112.6	1577	1.16	16.3	652	18302						19.9	7.98	8.68	8.42	0.04		
W9B	-13.716	7/17/13	1028	-9.14	0.49	Flood	3.16	98	104.9	1469	0.50	7.0	566	15889						19.8	7.92	10.12	7.58	0.08		
W9B	-13.716	10/15/13	1001	-9.16	0.27	Flood	2.84	88	82.1	1150	0.56	7.9	530	14872						19.5	7.86	14.97	7.08	0.06		
W9B	-13.716	1/15/14	938	-9.09	0.15	Ebb	3.42	106	93.4	1308	0.53	7.4	516	14506						19.6	7.91	12.59	7.90	1.27		
W9B	-13.716	4/29/14	1052	-9.38	0.00	Flood	2.87	89	83.7	1173	0.44	6.1	490	13775						19.8	7.85	15.00	7.34	0.04		
W9B	-13.716	7/29/14	1031	-9.17	0.12	Ebb	3.29	102	93.2	1305	0.43	6.0	542	15222						19.4	7.82	13.47	7.53	0.06		
W9B	-13.716	11/5/14	1031	-9.12	0.12	Low	3.36	104	90.6	1269	0.12	1.7	500	14029						19.7	7.88	14.43	7.57	0.05		
W9B	-13.716	1/1/15																								
W9B	-13.716	4/1/15																								

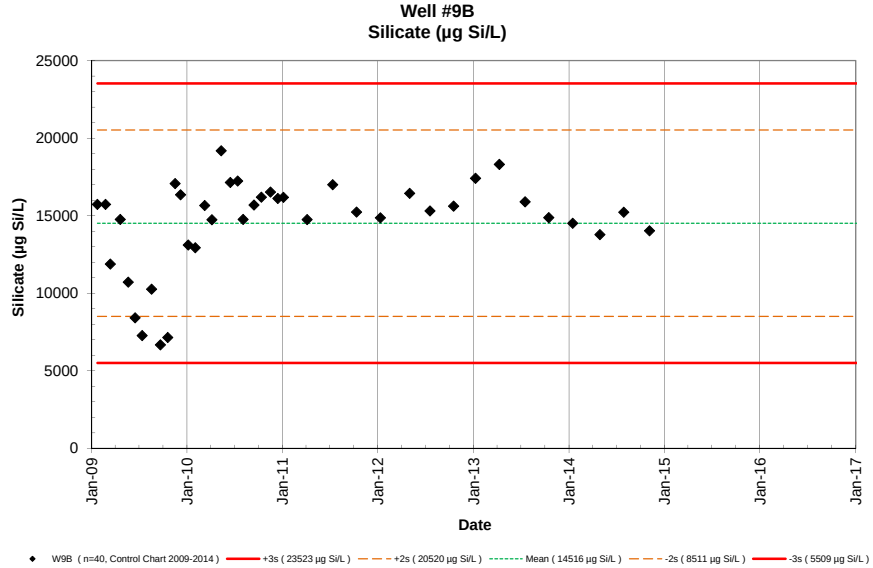

Well #9B
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W9B (n=40, Control Chart 2009-2014)
+3s (128 µg P/L)
+2s (116 µg P/L)
Mean (94 µg P/L)
-2s (71 µg P/L)
-3s (60 µg P/L)

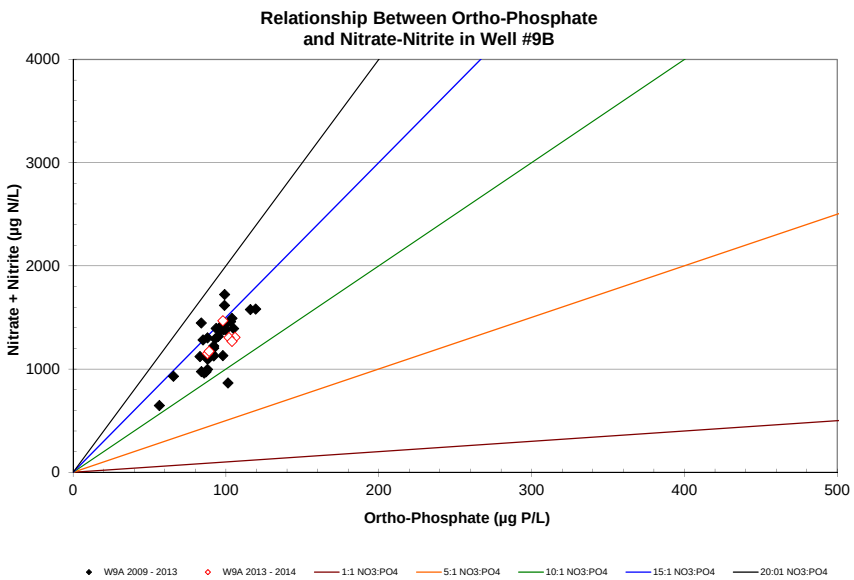

Well #9B
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W9B (n=40, Control Chart 2009-2014)
+3s (1937 µg N/L)
+2s (1712 µg N/L)
Mean (1261 µg N/L)
-2s (811 µg N/L)
-3s (585 µg N/L)

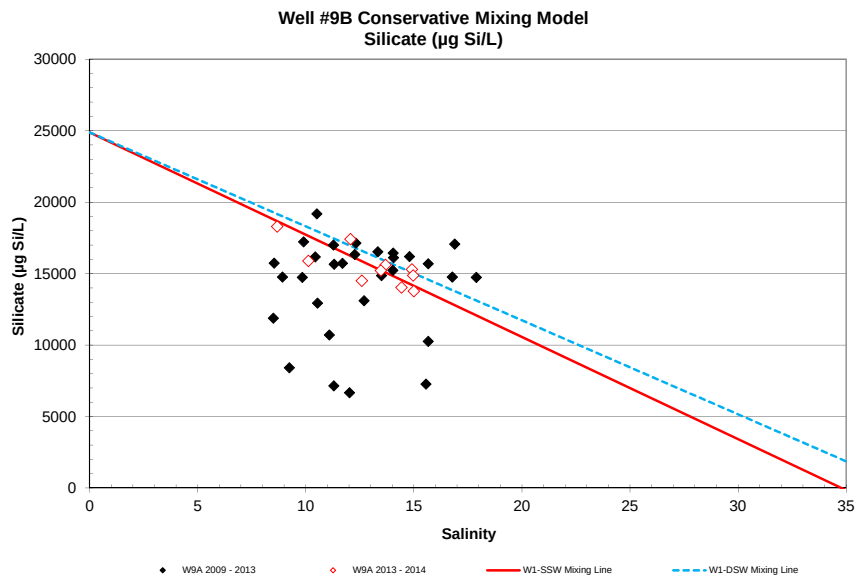

Well #9B Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W9A 2009 - 2013
W9A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

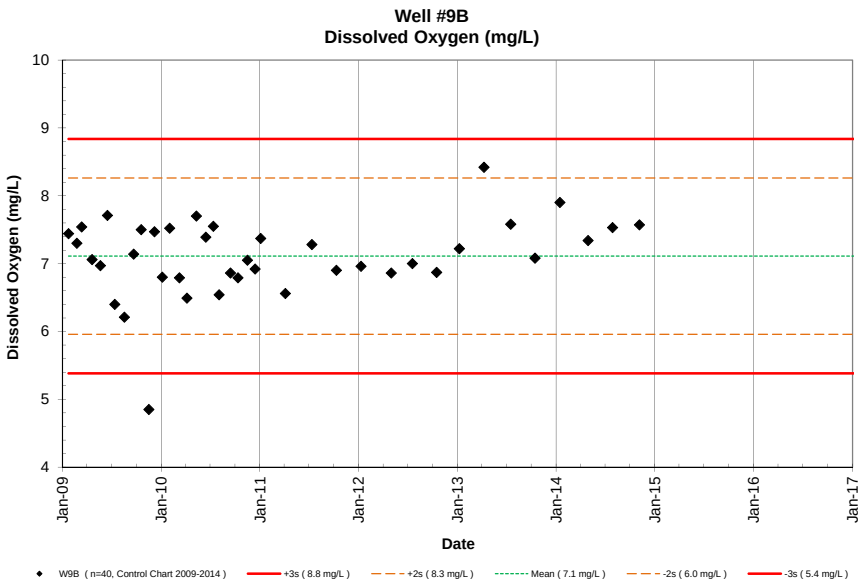

Well #9B Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W9A 2009 - 2013
W9A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

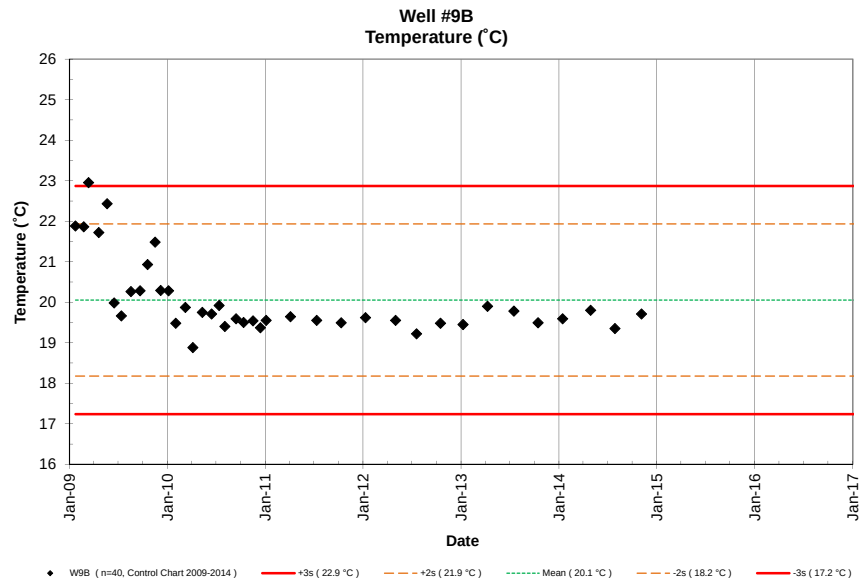

Well #9B
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
80
60
40
20
0
-20
-40
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W9B (n=40, Control Chart 2009-2014)
+3s (47.9 µg N/L)
+2s (35.0 µg N/L)
Mean (9.3 µg N/L)
-2s (-16.5 µg N/L)
-3s (-29.4 µg N/L)

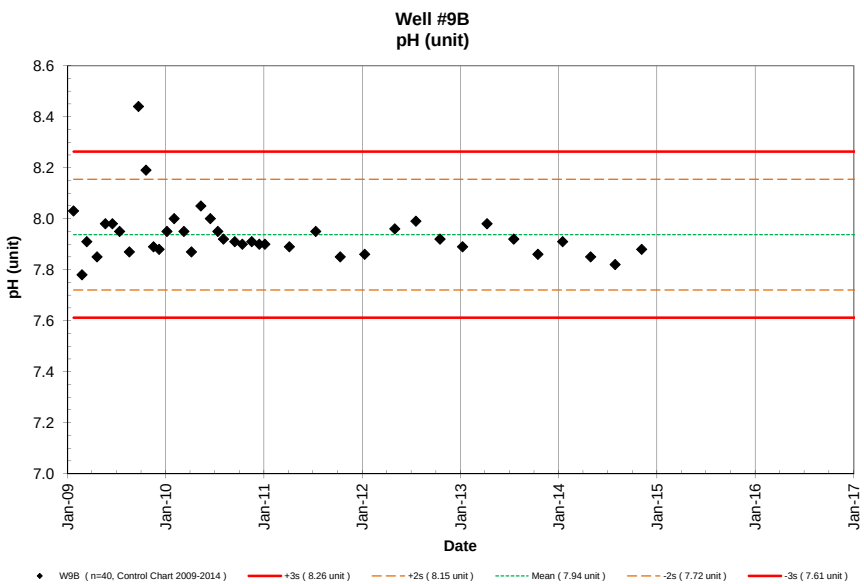

Well #9B
Silicate (µg Si/L)
Silicate (µg Si/L)
25000
20000
15000
10000
5000
0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W9B (n=40, Control Chart 2009-2014)
+3s (23523 µg Si/L)
+2s (20520 µg Si/L)
Mean (14516 µg Si/L)
-2s (8511 µg Si/L)
-3s (5509 µg Si/L)

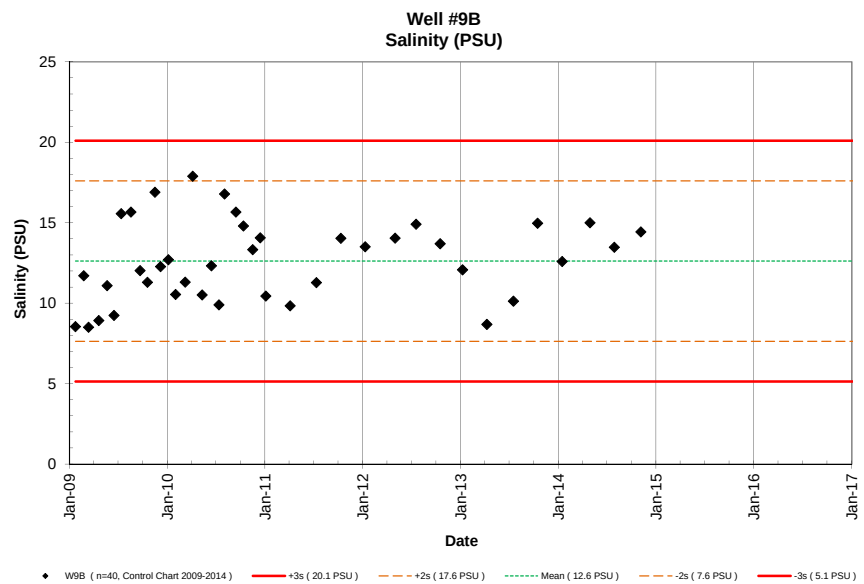

Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #9B
Nitrate + Nitrite (µg N/L)
4000
3000
2000
1000
0
0
100
200
300
400
500
Ortho-Phosphate (µg P/L)
W9A 2009 - 2013
W9A 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

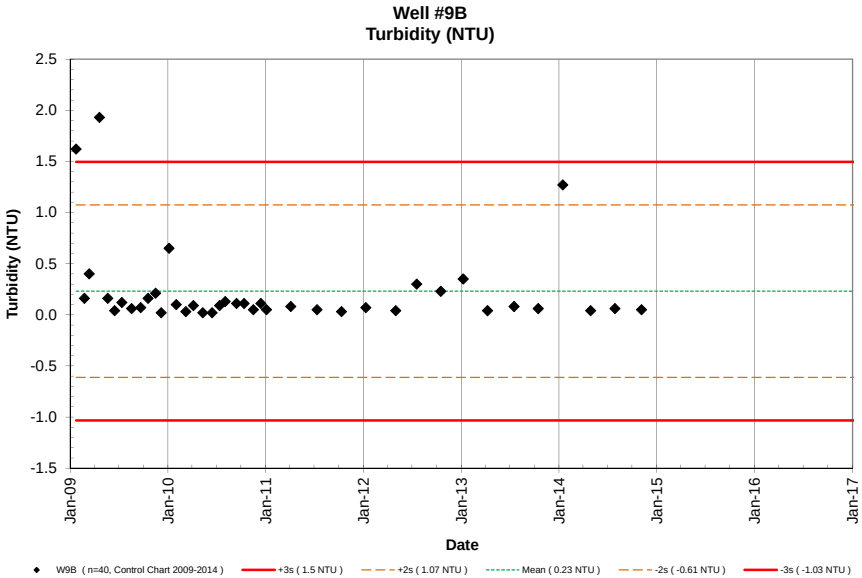

Well #9B Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
30000
25000
20000
15000
10000
5000
0
0
5
10
15
20
25
30
35
Salinity
W9A 2009 - 2013
W9A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

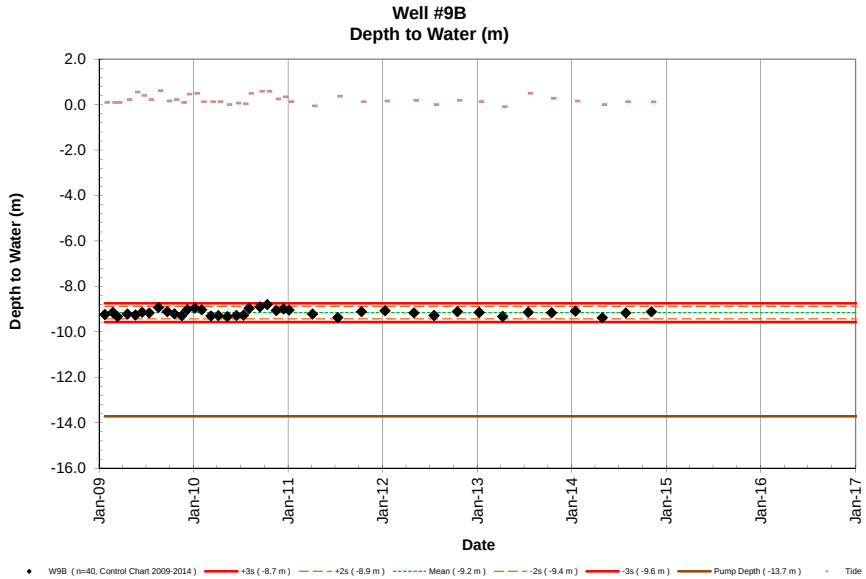

Well #9B
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W9B (n=40, Control Chart 2009-2014)
+3s (8.8 mg/L)
+2s (8.3 mg/L)
Mean (7.1 mg/L)
-2s (6.0 mg/L)
-3s (5.4 mg/L)


Well #9B
Temperature (˚C)
Temperature (˚C)
Date
W9B (n=40, Control Chart 2009-2014)
+3s (22.9 °C)
+2s (21.9 °C)
Mean (20.1 °C)
-2s (18.2 °C)
-3s (17.2 °C)


Well #9B
pH (unit)
pH (unit)
Date
W9B (n=40, Control Chart 2009-2014)
+3s (8.26 unit)
+2s (8.15 unit)
Mean (7.94 unit)
-2s (7.72 unit)
-3s (7.61 unit)


Well #9B
Salinity (PSU)
Salinity (PSU)
Date
W9B (n=40, Control Chart 2009-2014)
+3s (20.1 PSU)
+2s (17.6 PSU)
Mean (12.6 PSU)
-2s (7.6 PSU)
-3s (5.1 PSU)


Well #9B
Turbidity (NTU)
Turbidity (NTU)
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W9B (n=40, Control Chart 2009-2014)
+3s (1.5 NTU)
+2s (1.07 NTU)
Mean (0.23 NTU)
-2s (-0.61 NTU)
-3s (-1.03 NTU)

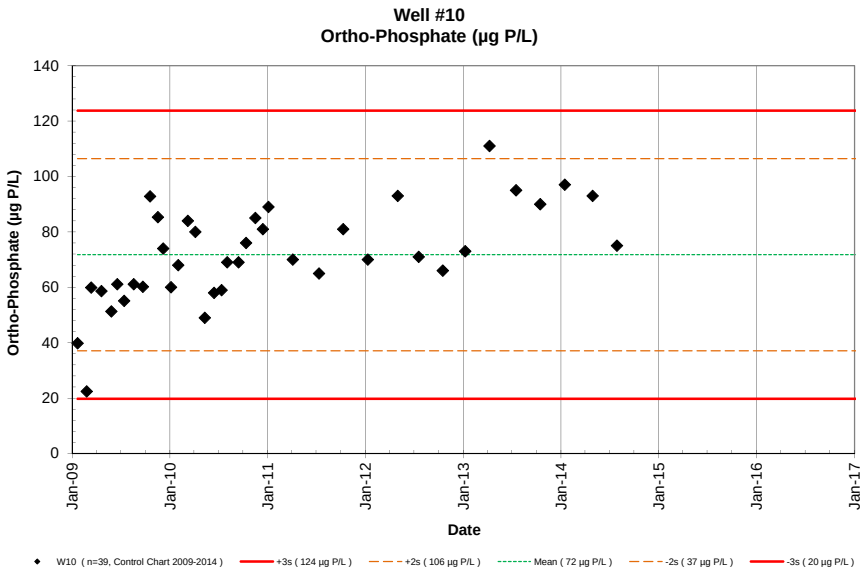

Well #9B
Depth to Water (m)
Depth to Water (m)
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
-12.0
-14.0
-16.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W9B (n=40, Control Chart 2009-2014)
+3s (-8.7 m)
+2s (-8.9 m)
Mean (-9.2 m)
-2s (-9.4 m)
-3s (-9.6 m)
Pump Depth (-13.7 m)
Tide

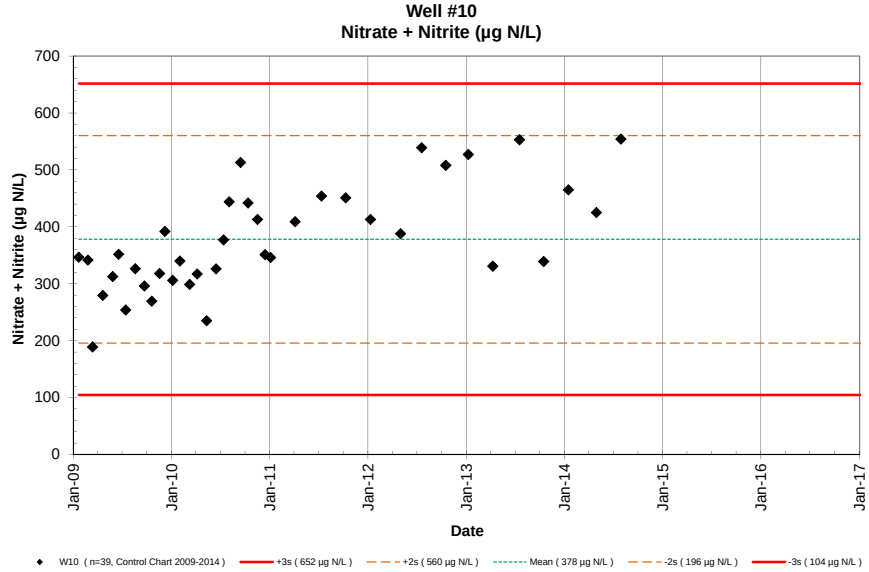
NELHA Water Quality Laboratory

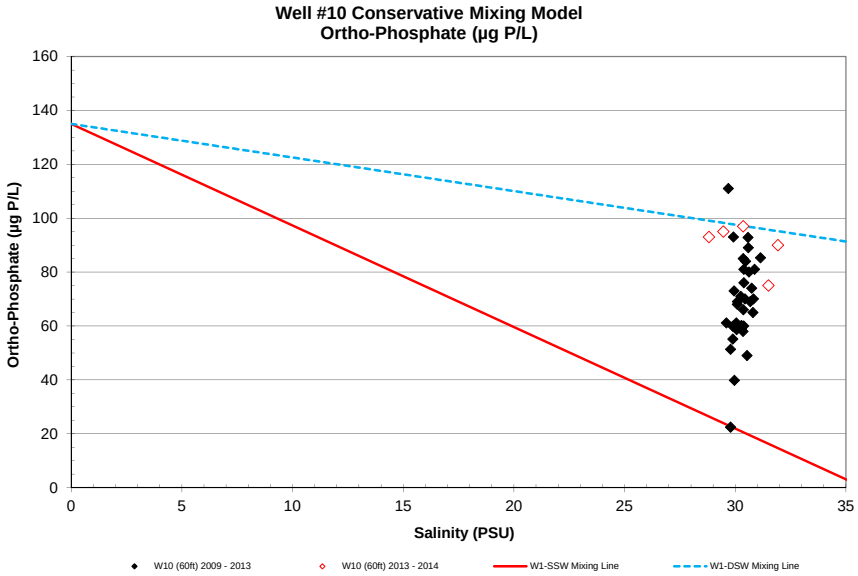
Well 10 Data Table

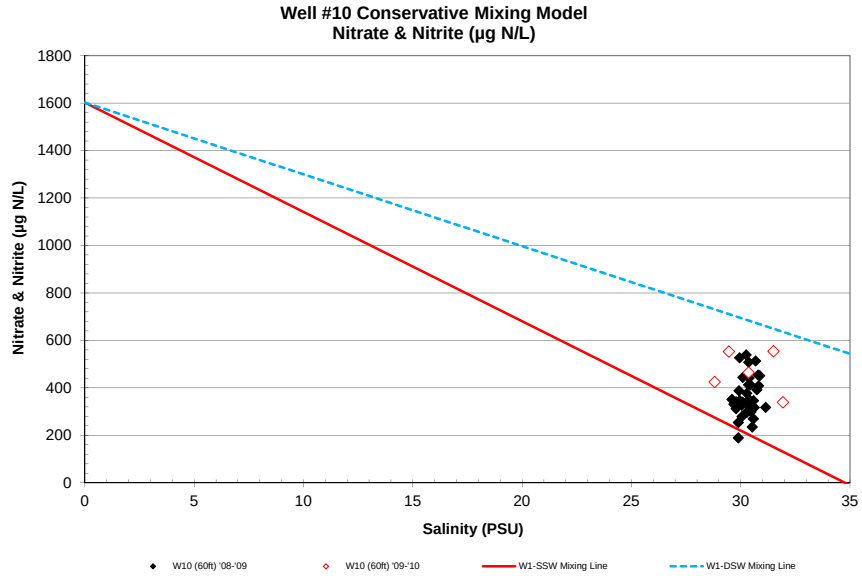
January 2009 - December 2014

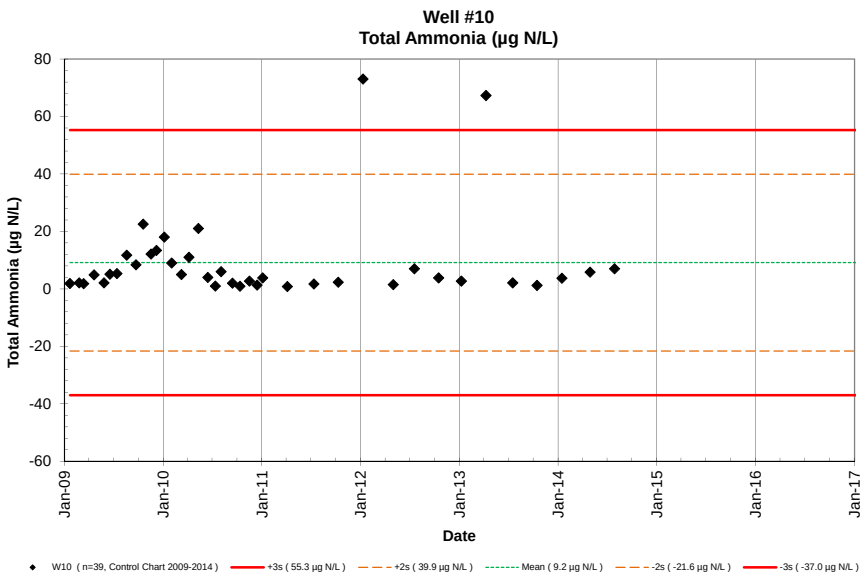
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W10	-18.288	1/21/09	1118	-2.02	0.12	Flood	1.28	40	24.7	347	0.14	1.9	135	3801						23.9	8.02	29.96	2.50	2.39		
W10	-18.288	2/24/09	1239	-2.40	0.09	Flood	0.72	22	24.4	342	0.15	2.1	143	4018						23.6	7.95	29.79	2.07	2.77		
W10	-18.288	3/13/09	1555	-2.23	0.37	Flood	1.93	60	13.5	189	0.13	1.8	274	7700						23.3	7.91	29.89	2.48	1.50		
W10	-18.288	4/20/09	1535	-2.09	0.37	Flood	1.89	59	20.0	280	0.35	4.9	123	3447						24.9	7.79	30.06	2.91	2.42		
W10	-18.288	5/27/09	827	-2.28	0.12	Ebb	1.66	51	22.3	313	0.15	2.1	120	3372						22.5	7.91	29.79	2.88	0.67		
W10	-18.288	6/18/09	931	-2.21	0.21	Flood	1.97	61	25.1	352	0.36	5.1	147	4121						22.5	8.03	29.60	3.25	0.48		
W10	-18.288	7/14/09	1017	-2.10	0.43	High	1.78	55	18.1	254	0.38	5.3	94	2638						22.3	8.06	29.89	3.39	0.34		
W10	-18.288	8/19/09	825	-2.45	0.03	Ebb	1.97	61	23.3	327	0.84	11.7	114	3190						22.3	7.98	30.05	3.57	0.49		
W10	-18.288	9/22/09	834	-2.00	0.58	Ebb	1.94	60	21.1	296	0.60	8.4	101	2827						22.5	7.94	30.28	2.65	0.48		
W10	-18.288	10/19/09	1608	-2.27	0.27	Flood	3.00	93	19.2	269	1.61	22.5	85	2388						23.1	8.22	30.58	2.71	0.90		
W10	-18.288	11/17/09	1411	-2.50	0.15	Flood	2.75	85	22.7	318	0.86	12.1	108	3022						23.4	7.90	31.14	1.87	0.33		
W10	-18.288	12/7/09	1449	-2.55	0.09	Ebb	2.39	74	28.0	392	0.96	13.4	166	4660						24.0	7.83	30.74	1.07	0.21		
W10	-18.288	1/5/10	1257	-2.45	0.09	Ebb	1.94	60	21.8	306	1.29	18.0	150	4206						24.1	7.88	30.38	2.75	0.64		
W10	-18.288	2/1/10	1426	-2.33	0.00	Flood	2.20	68	24.3	340	0.64	9.0	143	4025						23.1	7.90	30.09	2.82	0.20		
W10	-18.288	3/9/10	1343	-2.44	0.15	High	2.71	84	21.3	299	0.36	5.0	156	4370						24.2	7.92	30.47	3.69	0.55		
W10	-18.288	4/6/10	1143	-2.40	0.15	High	2.58	80	22.6	317	0.79	11.0	150	4204						25.1	7.97	30.62	3.67	0.44		
W10	-18.288	5/11/10	1214	-2.18	0.30	Flood	1.58	49	16.8	235	1.50	21.0	124	3469						24.6	8.09	30.53	3.62	0.46		
W10	-18.288	6/15/10	1325	-2.52	0.09	Flood	1.87	58	23.3	326	0.29	4.0	158	4434						22.4	8.08	30.35	3.40	0.14		
W10	-18.288	7/13/10	1155	-2.57	0.09	Flood	1.90	59	26.9	377	0.07	1.0	155	4346						22.1	7.98	30.28	2.28	0.63		
W10	-18.288	8/3/10	1153	-1.97	0.55	High	2.23	69	31.7	444	0.43	6.0	159	4458						22.0	7.95	30.10	1.48	0.61		
W10	-18.288	9/14/10	1152	-1.97	0.52	Ebb	2.23	69	36.6	513	0.14	2.0	170	4765						22.5	7.82	30.68	1.00	0.17		
W10	-18.288	10/12/10	1205	-2.07	0.40	Ebb	2.45	76	31.6	442	0.06	0.9	173	4847						22.6	7.82	30.39	1.47	0.23		
W10	-18.288	11/16/10	1118	-2.05	0.37	Flood	2.74	85	29.5	413	0.19	2.7	174	4874						22.6	7.79	30.36	2.40	0.13		
W10	-18.288	12/14/10	1156	-2.11	0.30	Ebb	2.62	81	25.1	351	0.09	1.3	180	5064						22.6	7.81	30.39	2.28	0.17		
W10	-18.288	1/4/11	1146	-2.49	0.03	Low	2.87	89	24.7	346	0.27	3.8	171	4813						23.0	7.74	30.59	2.56	0.13		
W10	-18.288	4/5/11	1211	-2.46	0.00	Flood	2.26	70	29.2	409	0.06	0.8	141	3967						23.4	7.90	30.82	2.34	0.06		
W10	-18.288	7/12/11	1201	-2.22	0.43	Flood	2.10	65	32.4	454	0.12	1.7	156	4391						22.6	7.56	30.80	0.39	0.67		
W10	-18.288	10/10/11	1416	-2.02	0.43	Flood	2.62	81	32.2	451	0.16	2.3	155	4345						22.7	7.57	30.87	0.18	0.27		
W10	-18.288	1/10/12	1202	-2.50	0.00	Low	2.26	70	29.5	413	5.21	73	153	4290						22.9	7.54	30.44	0.10	0.10		
W10	-18.288	5/1/12	1220	-2.07	0.40	Flood	3.00	93	27.7	388	0.11	1.5	159	4475						20.1	7.78	29.92	3.89	0.10		
W10	-18.288	7/18/12	1108	-2.42	0.09	Flood	2.29	71	38.5	539	0.50	7.0	167	4695						22.0	7.83	30.25	4.43	0.15		
W10	-18.288	10/16/12	1211	-2.39	0.09	Low	2.13	66	36.3	508	0.27	3.8	166	4649						22.1	7.72	30.37	3.86	0.14		
W10	-18.288	1/8/13	1215	-2.25	0.18	Flood	2.36	73	37.6	527	0.19	2.7	196	5492						22.2	7.77	29.95	3.94	0.08		
W10	-18.288	4/9/13	1410	-2.12	0.43	Flood	3.58	111	23.6	331	4.80	67.3	180	5059						20.7	7.60	29.69	1.68	0.13		
W10	-18.288	7/17/13	1411	-1.97	0.58	Ebb	3.07	95	39.5	553	0.15	2.1	144	4036						19.5	7.70	29.46	3.69	0.29		
W10	-18.288	10/15/13	1143	-2.11	0.46	Flood	2.91	90	24.2	339	0.09	1.2	164	4595						23.0	7.53	31.93	0.57	0.09		
W10	-18.288	1/15/14	1141	-2.40	0.00	Low	3.13	97	33.2	465	0.26	3.7	146	4105						21.6	7.69	30.36	1.61	0.13		
W10	-18.288	4/29/14	1415	-2.21	0.40	Flood	3.00	93	30.3	425	0.41	5.8	176	4937						18.8	7.53	28.81	1.73	0.06		
W10	-18.288	7/29/14	1224	-2.36	0.12	Flood	2.42	75	39.6	554	0.50	7.0	142	3994						23.0	7.48	31.50	3.77	0.23		
W10	-18.288	10/1/14																								
W10	-18.288	1/1/15																								
W10	-18.288	4/1/15																								

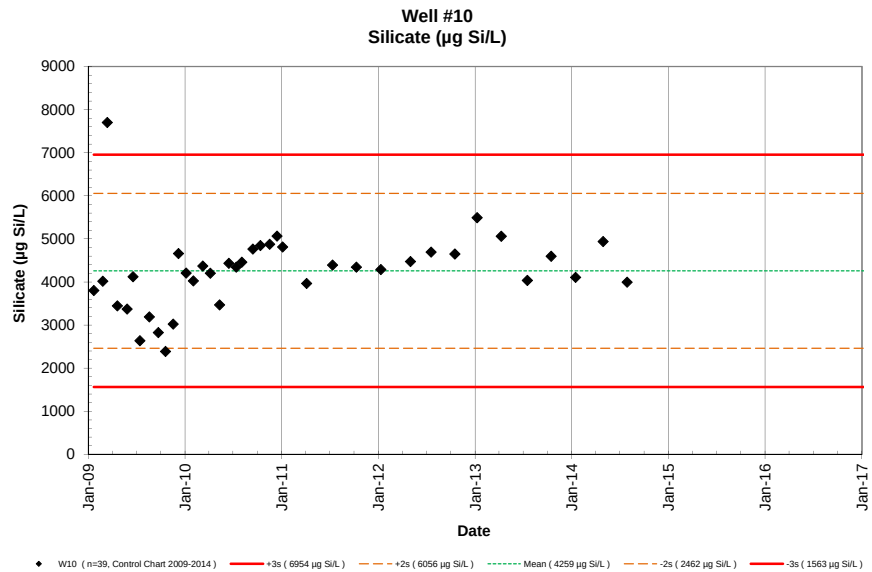

Well #10
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W10 (n=39, Control Chart 2009-2014)
+3s (124 µg P/L)
+2s (106 µg P/L)
Mean (72 µg P/L)
-2s (37 µg P/L)
-3s (20 µg P/L)

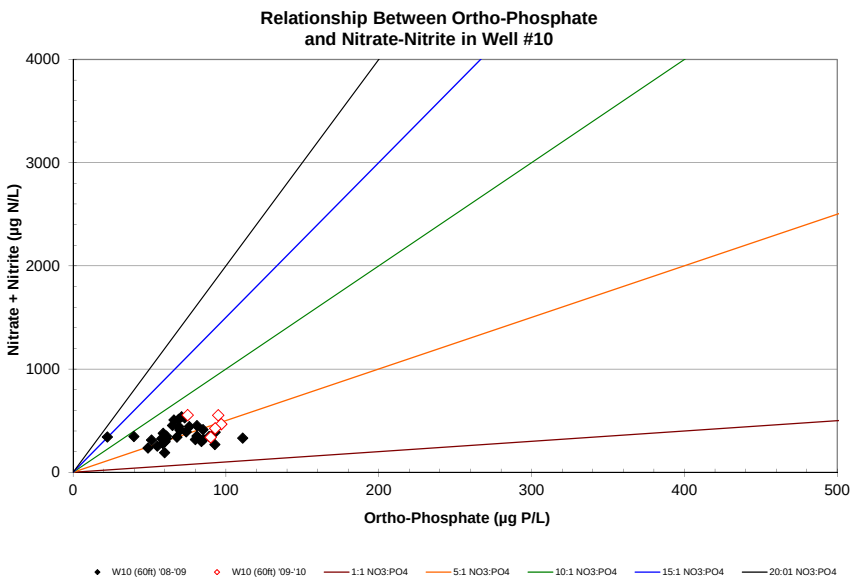

Well #10
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W10 (n=39, Control Chart 2009-2014)
+3s (652 µg N/L)
+2s (560 µg N/L)
Mean (378 µg N/L)
-2s (196 µg N/L)
-3s (104 µg N/L)

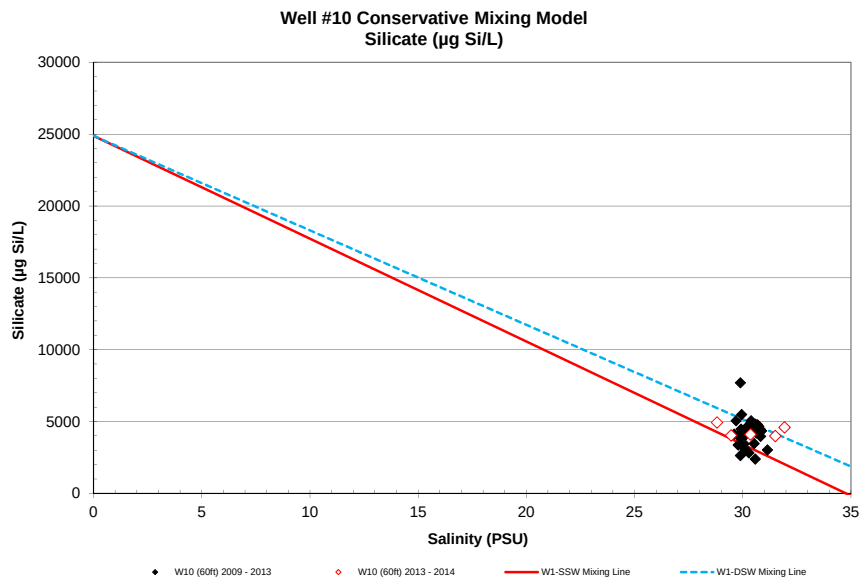

Well #10 Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W10 (60ft) 2009 - 2013
W10 (60ft) 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

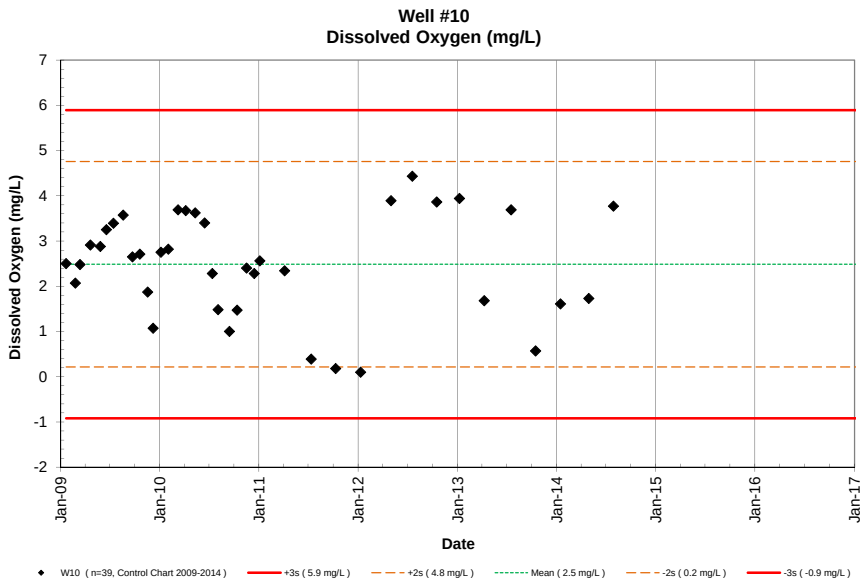

Well #10 Conservative Mixing Model
Nitrate & Nitrite (µg N/L)
Nitrate & Nitrite (µg N/L)
Salinity (PSU)
W10 (60ft) '08-'09
W10 (60ft) '09-'10
W1-SSW Mixing Line
W1-DSW Mixing Line

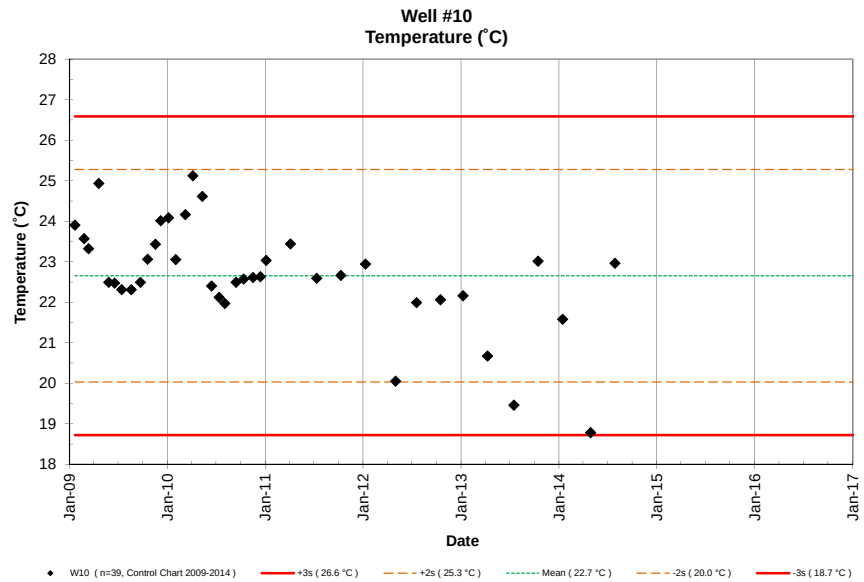

Well #10
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
80
60
40
20
0
-20
-40
-60
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W10 (n=39, Control Chart 2009-2014)
+3s (55.3 µg N/L)
+2s (39.9 µg N/L)
Mean (9.2 µg N/L)
-2s (-21.6 µg N/L)
-3s (-37.0 µg N/L)

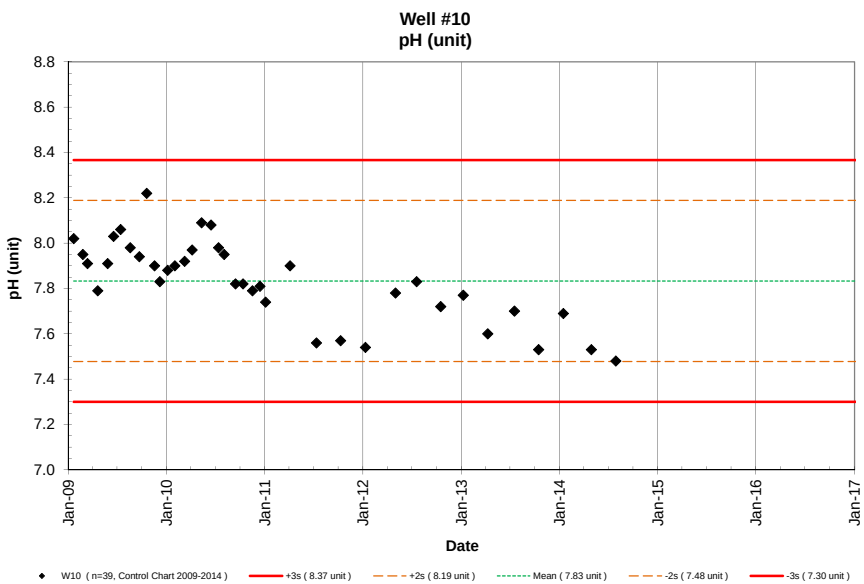

Well #10
Silicate (µg Si/L)
Silicate (µg Si/L)
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W10 (n=39, Control Chart 2009-2014)
+3s (6954 µg Si/L)
+2s (6056 µg Si/L)
Mean (4259 µg Si/L)
-2s (2462 µg Si/L)
-3s (1563 µg Si/L)

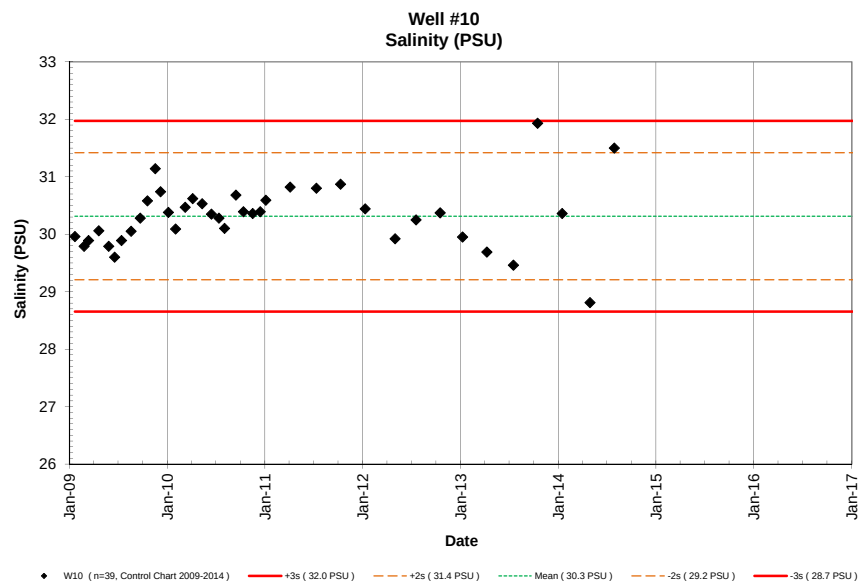

Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #10
Nitrate + Nitrite (µg N/L)
4000
3000
2000
1000
0
0
100
200
300
400
500
Ortho-Phosphate (µg P/L)
W10 (60ft) '08-'09
W10 (60ft) '09-'10
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

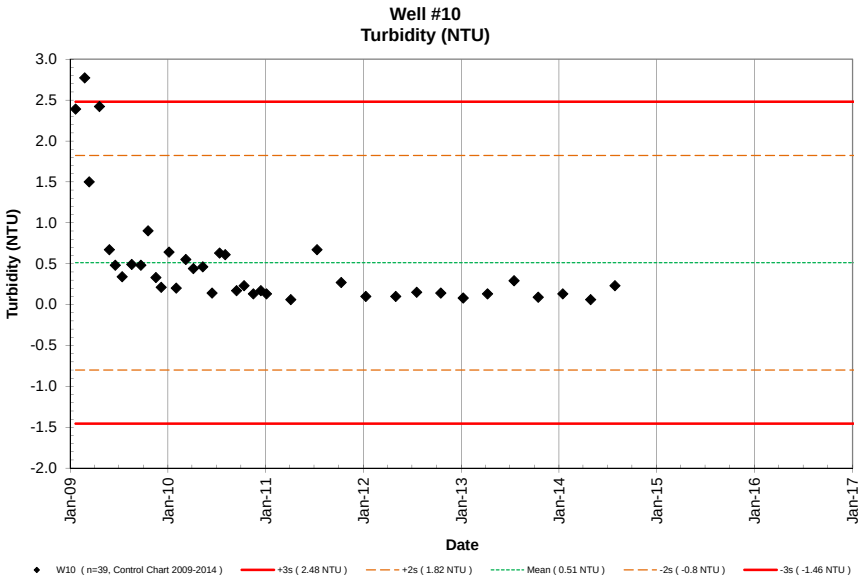

Well #10 Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
30000
25000
20000
15000
10000
5000
0
0
5
10
15
20
25
30
35
Salinity (PSU)
W10 (60ft) 2009 - 2013
W10 (60ft) 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

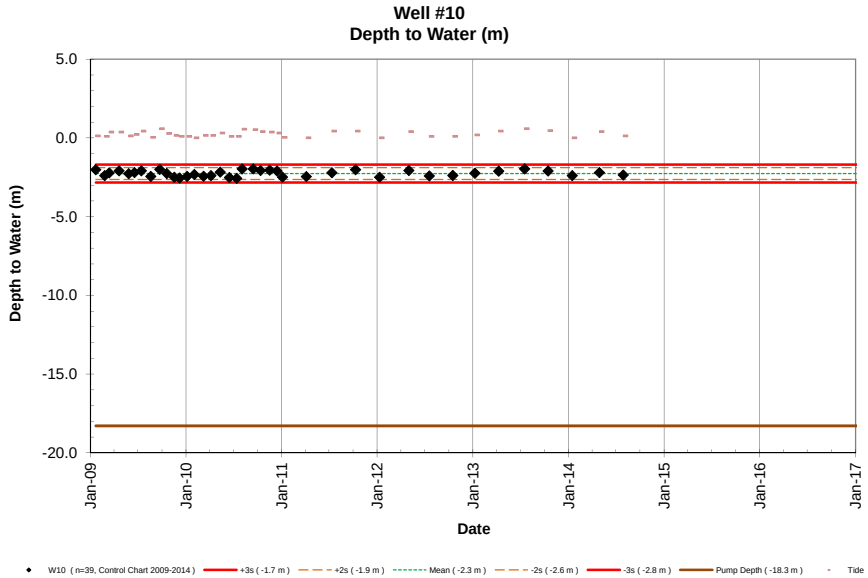

Well #10
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W10 (n=39, Control Chart 2009-2014)
+3s (5.9 mg/L)
+2s (4.8 mg/L)
Mean (2.5 mg/L)
-2s (0.2 mg/L)
-3s (-0.9 mg/L)


Well #10
Temperature (˚C)
Temperature (˚C)
Date
W10 (n=39, Control Chart 2009-2014)
+3s (26.6 °C)
+2s (25.3 °C)
Mean (22.7 °C)
-2s (20.0 °C)
-3s (18.7 °C)


Well #10
pH (unit)
pH (unit)
Date
W10 (n=39, Control Chart 2009-2014)
+3s (8.37 unit)
+2s (8.19 unit)
Mean (7.83 unit)
-2s (7.48 unit)
-3s (7.30 unit)


Well #10
Salinity (PSU)
Salinity (PSU)
Date
W10 (n=39, Control Chart 2009-2014)
+3s (32.0 PSU)
+2s (31.4 PSU)
Mean (30.3 PSU)
-2s (29.2 PSU)
-3s (28.7 PSU)


Well #10
Turbidity (NTU)
Turbidity (NTU)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W10 (n=39, Control Chart 2009-2014)
+3s (2.48 NTU)
+2s (1.82 NTU)
Mean (0.51 NTU)
-2s (-0.8 NTU)
-3s (-1.46 NTU)

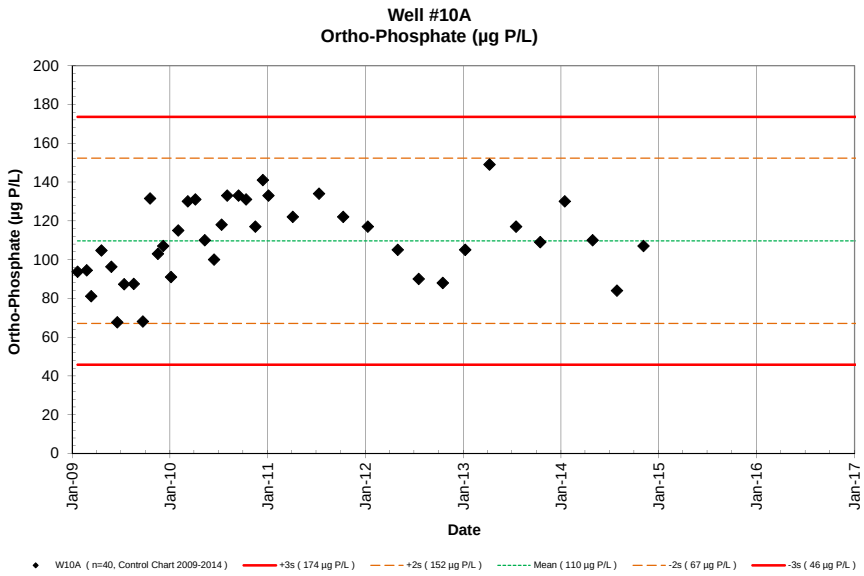

Well #10
Depth to Water (m)
Depth to Water (m)
5.0
0.0
-5.0
-10.0
-15.0
-20.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W10 (n=39, Control Chart 2009-2014)
+3s (-1.7 m)
+2s (-1.9 m)
Mean (-2.3 m)
-2s (-2.6 m)
-3s (-2.8 m)
Pump Depth (-18.3 m)
Tide

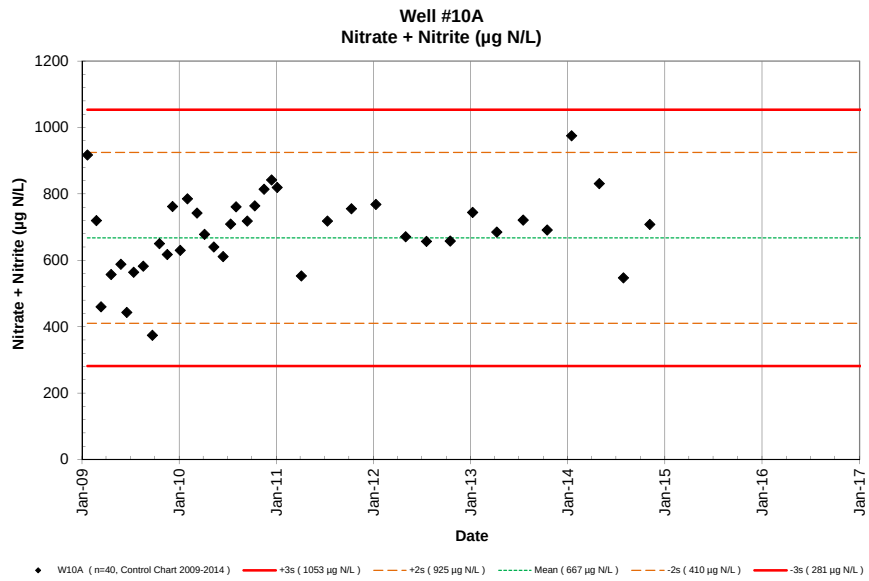
NELHA Water Quality Laboratory

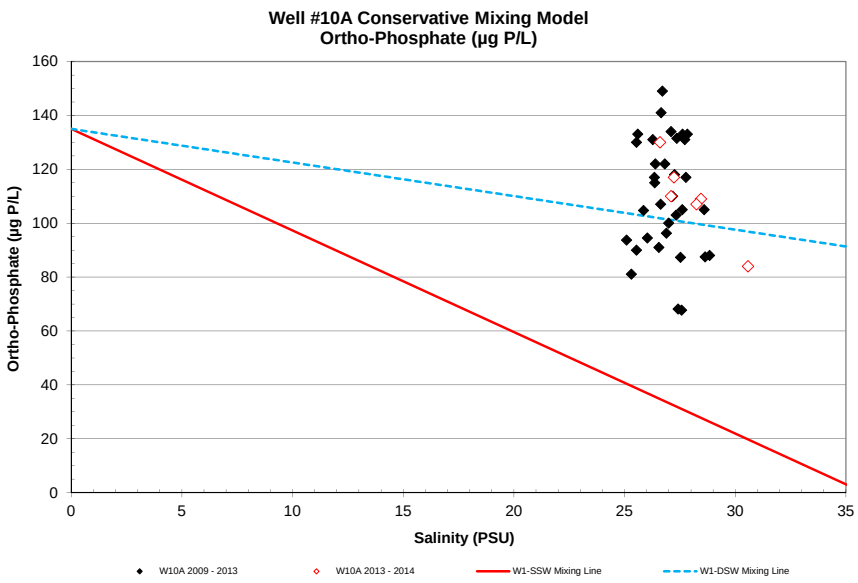
Well 10A Data Table

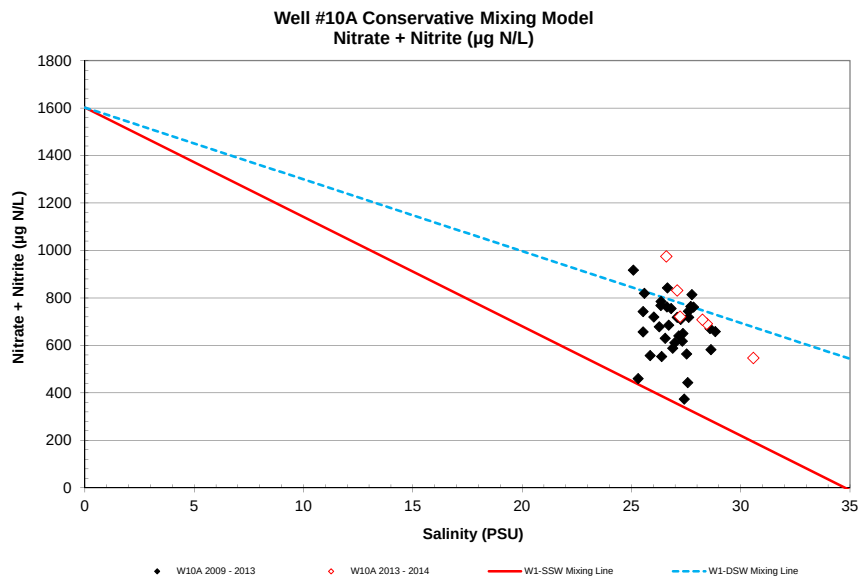
January 2009 - December 2014

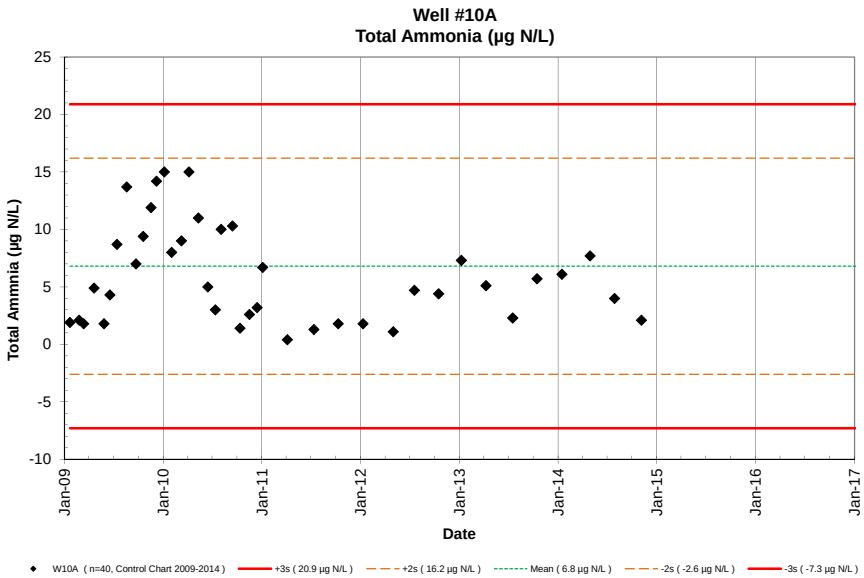
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W10A	-12.192	1/21/09	1104	-2.97	0.12	Flood	3.03	94	65.5	917	0.14	1.9	252	7090						21.6	7.68	25.09	5.16	1.70		
W10A	-12.192	2/24/09	1224	-2.46	0.09	Flood	3.05	95	51.4	720	0.15	2.1	257	7224						21.6	7.65	26.03	5.06	3.03		
W10A	-12.192	3/13/09	1539	-2.23	0.37	Flood	2.62	81	32.8	460	0.13	1.8	198	5561						21.2	7.64	25.31	4.79	0.42		
W10A	-12.192	4/20/09	1551	-2.23	0.37	Flood	3.38	105	39.8	557	0.35	4.9	183	5145						22.5	7.67	25.86	5.01	15.1		
W10A	-12.192	5/27/09	840	-2.37	0.12	Ebb	3.11	96	42.0	588	0.13	1.8	377	10600						21.1	7.83	26.89	4.40	0.53		
W10A	-12.192	6/18/09	915	-2.31	0.21	Flood	2.19	68	31.6	443	0.31	4.3	158	4426						21.3	7.72	27.58	5.11	0.81		
W10A	-12.192	7/14/09	953	-2.16	0.43	High	2.82	87	40.3	564	0.62	8.7	137	3854						21.3	7.79	27.53	5.04	0.35		
W10A	-12.192	8/19/09	814	-2.44	0.03	Ebb	2.82	88	41.6	582	0.98	13.7	164	4619						21.6	7.83	28.64	4.83	0.21		
W10A	-12.192	9/22/09	817	-1.97	0.58	Ebb	2.20	68	26.7	374	0.50	7.0	112	3140						20.9	8.20	27.42	4.49	0.13		
W10A	-12.192	10/19/09	1543	-2.30	0.27	Flood	4.25	132	46.4	650	0.67	9.4	87	2450						20.7	7.91	27.36	4.93	3.98		
W10A	-12.192	11/17/09	1350	-2.49	0.15	Flood	3.33	103	44.1	618	0.85	11.9	149	4177						20.6	7.59	27.33	4.82	0.16		
W10A	-12.192	12/7/09	1458	-2.55	0.09	Ebb	3.45	107	54.4	762	1.01	14.2	254	7136						20.9	7.64	26.63	4.88	0.04		
W10A	-12.192	1/5/10	1323	-2.43	0.09	Ebb	2.94	91	45.0	630	1.07	15.0	245	6891						21.1	7.67	26.55	4.25	1.62		
W10A	-12.192	2/1/10	1451	-2.36	0.00	Flood	3.71	115	56.0	785	0.57	8.0	224	6288						21.1	7.68	26.36	4.49	1.44		
W10A	-12.192	3/9/10	1354	-2.41	0.15	High	4.20	130	53.0	742	0.64	9.0	269	7553						22.0	7.70	25.54	4.84	5.89		
W10A	-12.192	4/6/10	1138	-2.38	0.15	High	4.23	131	48.4	678	1.07	15.0	259	7283						20.6	7.68	26.28	4.84	0.30		
W10A	-12.192	5/11/10	1210	-2.17	0.30	Flood	3.55	110	45.7	640	0.79	11.0	233	6544						21.2	7.81	27.17	4.72	0.28		
W10A	-12.192	6/15/10	1338	-2.38	0.09	Flood	3.23	100	43.6	611	0.36	5.0	236	6626						20.6	7.74	26.99	4.29	0.17		
W10A	-12.192	7/13/10	1206	-2.50	0.09	Flood	3.81	118	50.6	709	0.21	3.0	265	7437						20.6	7.67	27.26	4.18	0.10		
W10A	-12.192	8/3/10	1202	-2.03	0.55	High	4.29	133	54.3	761	0.71	10.0	245	6883						20.9	7.66	27.84	4.09	0.20		
W10A	-12.192	9/14/10	1202	-1.98	0.52	Ebb	4.29	133	51.3	718	0.74	10.3	256	7201						20.6	7.62	27.62	3.58	0.24		
W10A	-12.192	10/12/10	1214	-2.11	0.40	Ebb	4.23	131	54.5	764	0.10	1.4	250	7013						20.9	7.61	27.72	4.49	0.09		
W10A	-12.192	11/16/10	1126	-2.06	0.37	Flood	3.78	117	58.1	814	0.19	2.6	229	6445						21.6	7.67	27.77	4.93	0.12		
W10A	-12.192	12/14/10	1205	-2.11	0.30	Ebb	4.55	141	60.1	842	0.23	3.2	251	7038						21.0	7.66	26.65	4.47	0.28		
W10A	-12.192	1/4/11	1154	-2.39	0.03	Low	4.29	133	58.5	819	0.48	6.7	270	7592						20.8	7.50	25.60	3.32	0.18		
W10A	-12.192	4/5/11	1217	-2.37	0.00	Flood	3.94	122	39.5	553	0.03	0.4	232	6520						21.2	7.64	26.39	2.36	0.19		
W10A	-12.192	7/12/11	1152	-2.23	0.43	Flood	4.33	134	51.3	718	0.09	1.3	270	7584						20.8	7.50	27.10	2.47	0.47		
W10A	-12.192	10/10/11	1426	-2.03	0.43	Flood	3.94	122	53.9	755	0.13	1.8	275	7726						19.8	7.55	26.82	3.99	0.35		
W10A	-12.192	1/10/12	1213	-2.50	0.00	Low	3.78	117	54.8	768	0.13	1.8	249	7000						20.5	7.39	26.35	2.53	0.42		
W10A	-12.192	5/1/12	1227	-2.05	0.40	Flood	3.39	105	47.9	671	0.08	1.1	228	6403						20.5	7.75	28.60	4.84	0.20		
W10A	-12.192	7/18/12	1114	-2.45	0.21	Flood	2.91	90	46.9	657	0.34	4.7	209	5873						20.5	7.81	25.54	5.69	0.23		
W10A	-12.192	10/16/12	1204	-2.37	0.09	Low	2.84	88	47.0	658	0.31	4.4	214	6000						20.6	7.68	28.84	4.92	0.33		
W10A	-12.192	1/8/13	1230	-2.24	0.18	Flood	3.39	105	53.1	744	0.52	7.3	271	7625						20.5	7.58	27.61	4.31	0.67		
W10A	-12.192	4/9/13	1422	-2.12	0.43	Flood	4.81	149	48.9	685	0.36	5.1	270	7573						19.0	7.51	26.71	3.80	2.41		
W10A	-12.192	7/17/13	1422	-1.96	0.58	Ebb	3.78	117	51.5	721	0.16	2.3	256	7203						19.0	7.50	27.23	5.07	0.54		
W10A	-12.192	10/15/13	1153	-2.10	0.46	Flood	3.52	109	49.3	691	0.41	5.7	244	6840						19.9	7.47	28.45	3.99	0.59		
W10A	-12.192	1/15/14	1148	-2.43	0.00	Low	4.20	130	69.6	975	0.44	6.1	260	7303						18.6	7.49	26.60	4.68	0.73		
W10A	-12.192	4/29/14	1415	-2.21	0.40	Flood	3.55	110	59.3	831	0.55	7.7	245	6878						18.0	7.46	27.10	5.57	0.11		
W10A	-12.192	7/29/14	1224	-2.38	0.12	Flood	2.71	84	39.1	547	0.29	4.0	158	4441						22.4	7.59	30.58	4.70	0.71		
W10A	-12.192	11/5/14	1220	-2.17	0.15	Flood	3.45	107	50.5	708	0.15	2.1	207	5819						21.6	7.57	28.25	3.32	0.72		
W10A	-12.192	1/1/15																								
W10A	-12.192	4/1/15																								

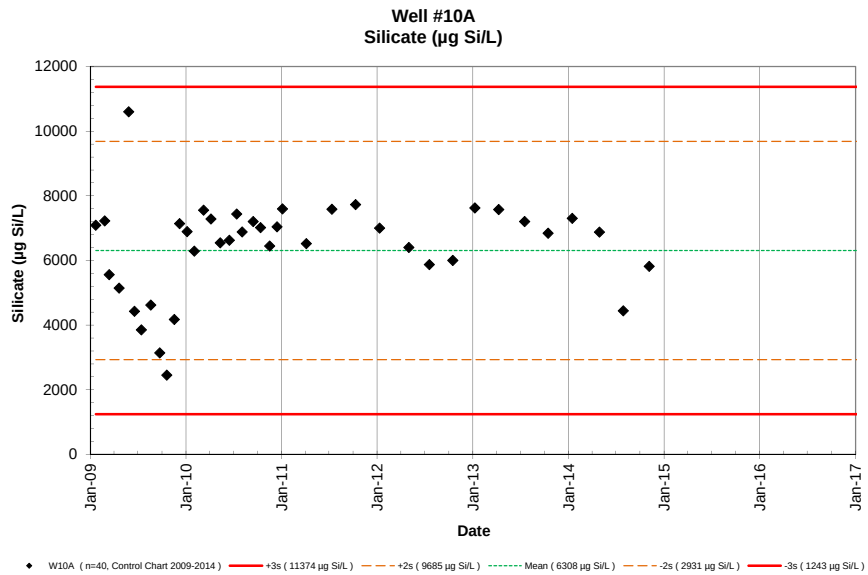

Well #10A
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W10A (n=40, Control Chart 2009-2014)
+3s (174 µg P/L)
+2s (152 µg P/L)
Mean (110 µg P/L)
-2s (67 µg P/L)
-3s (46 µg P/L)

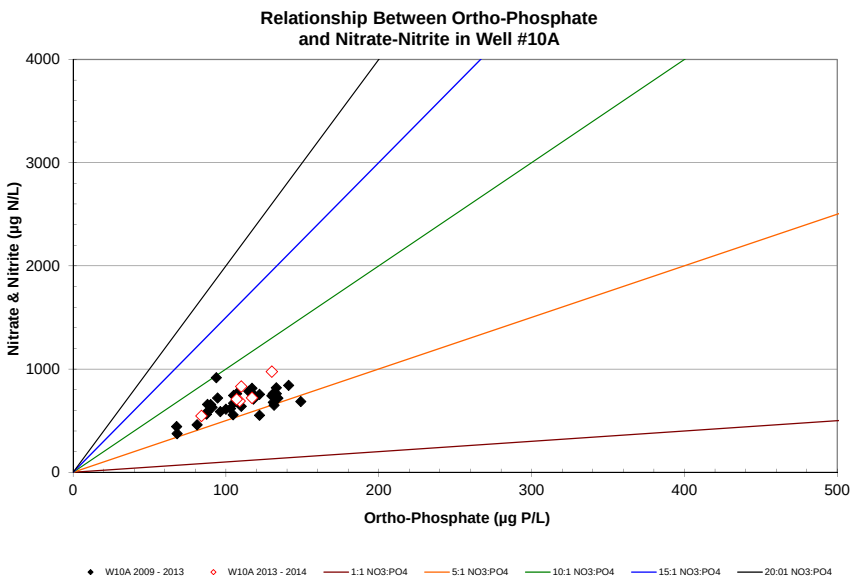

Well #10A
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W10A (n=40, Control Chart 2009-2014)
+3s (1053 µg N/L)
+2s (925 µg N/L)
Mean (667 µg N/L)
-2s (410 µg N/L)
-3s (281 µg N/L)

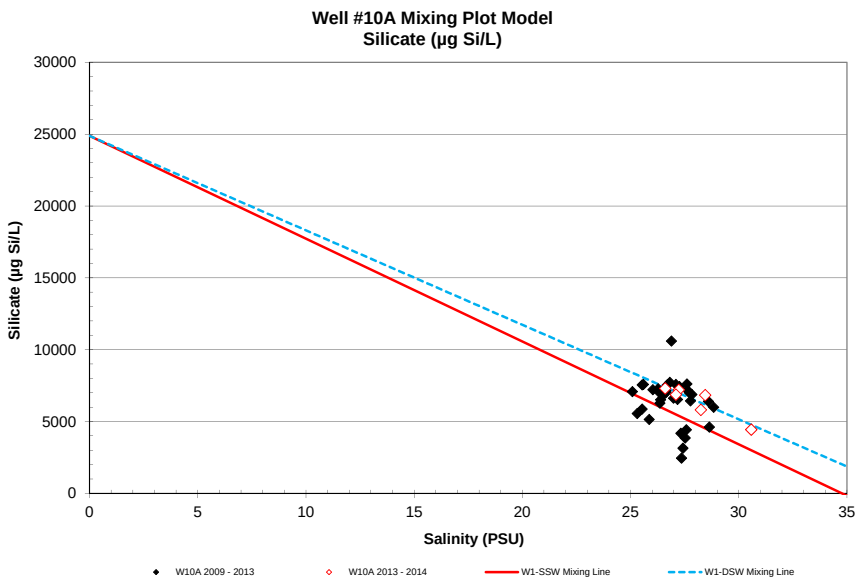

Well #10A Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W10A 2009 - 2013
W10A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

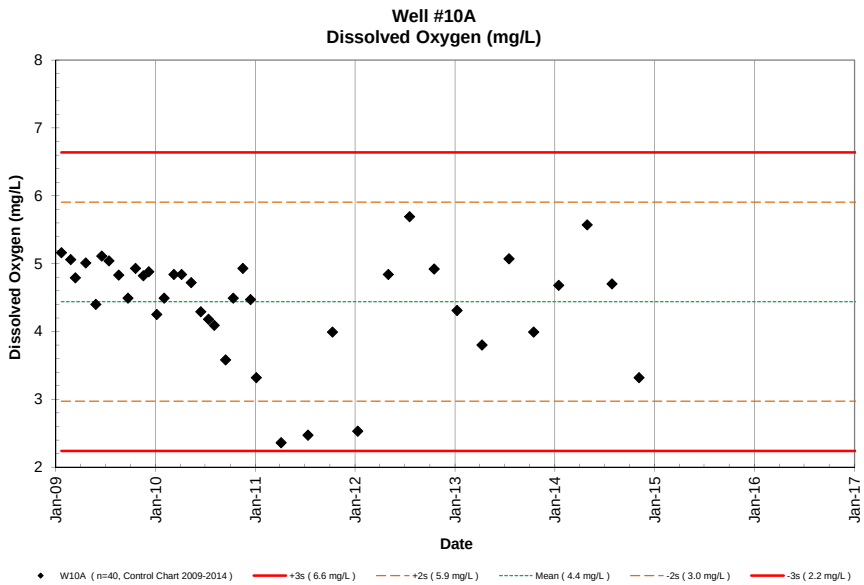

Well #10A Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W10A 2009 - 2013
W10A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

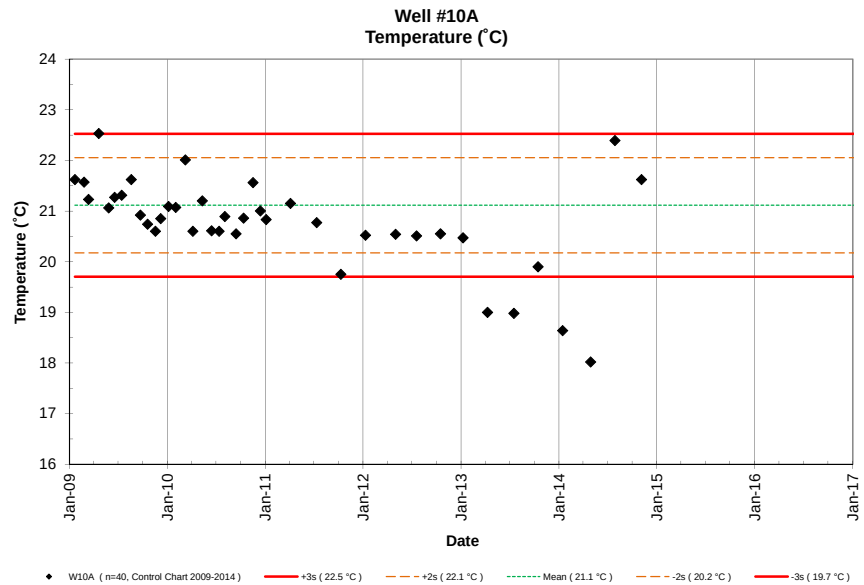

Well #10A
Total Ammonia (µg N/L)
Total Ammnia (µg N/L)
Date
W10A (n=40, Control Chart 2009-2014)
+3s (20.9 µg N/L)
+2s (16.2 µg N/L)
Mean (6.8 µg N/L)
-2s (-2.6 µg N/L)
-3s (-7.3 µg N/L)

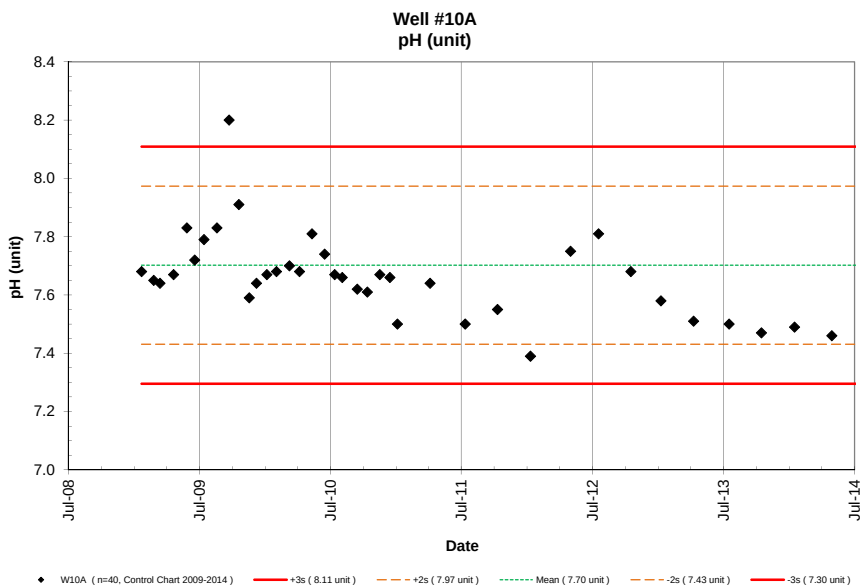

Well #10A
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W10A (n=40, Control Chart 2009-2014)
+3s (11374 µg Si/L)
+2s (9685 µg Si/L)
Mean (6308 µg Si/L)
-2s (2931 µg Si/L)
-3s (1243 µg Si/L)

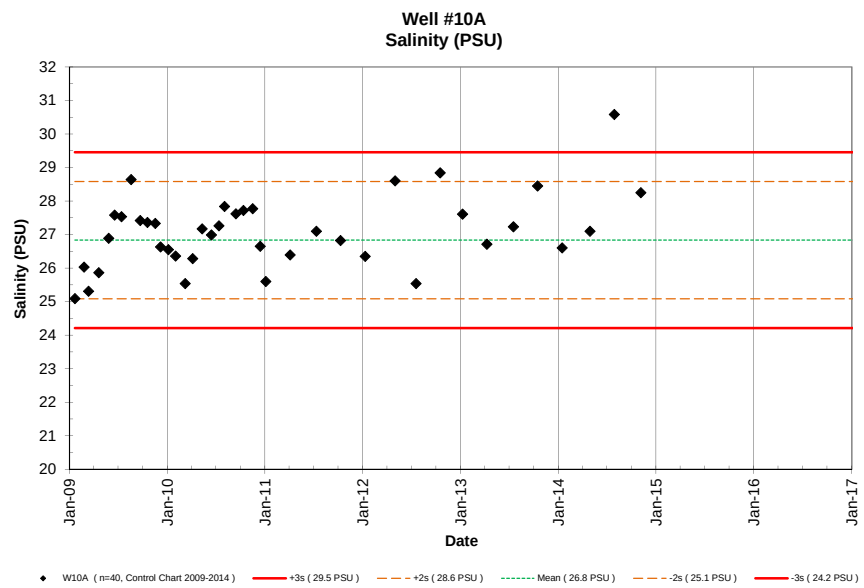

Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #10A
Nitrate & Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W10A 2009 - 2013
W10A 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

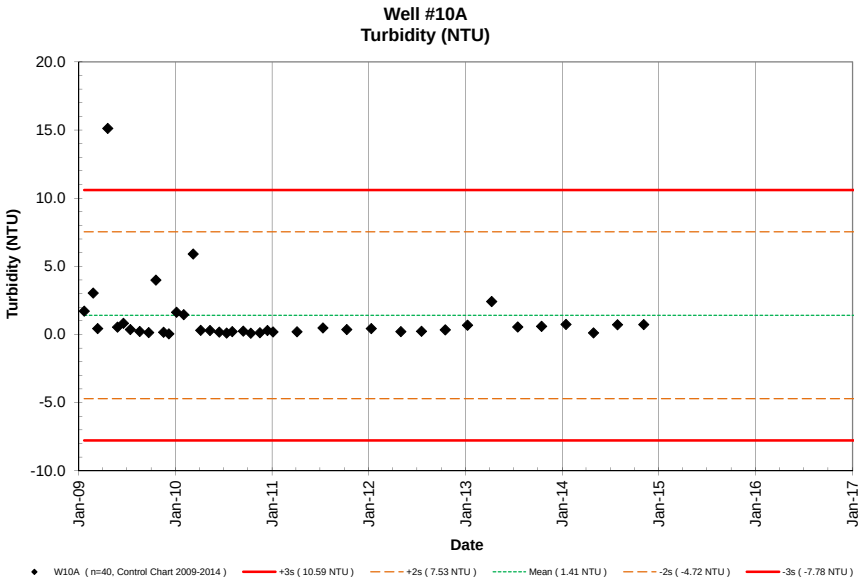

Well #10A Mixing Plot Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W10A 2009 - 2013
W10A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

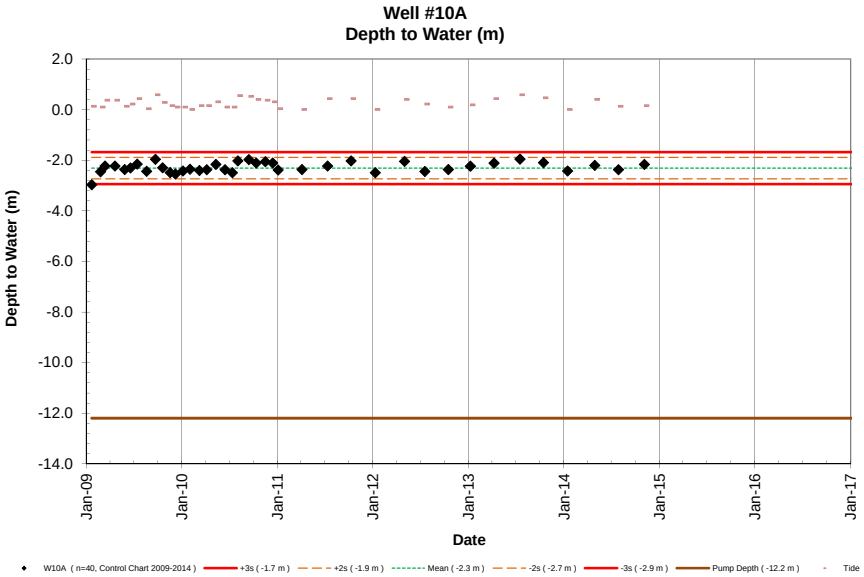

Well #10A
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W10A (n=40, Control Chart 2009-2014)
+3s (6.6 mg/L)
+2s (5.9 mg/L)
Mean (4.4 mg/L)
-2s (3.0 mg/L)
-3s (2.2 mg/L)


Well #10A
Temperature (˚C)
Temperature (˚C)
Date
W10A (n=40, Control Chart 2009-2014)
+3s (22.5 °C)
+2s (22.1 °C)
Mean (21.1 °C)
-2s (20.2 °C)
-3s (19.7 °C)


Well #10A
pH (unit)
pH (unit)
Date
W10A (n=40, Control Chart 2009-2014)
+3s (8.11 unit)
+2s (7.97 unit)
Mean (7.70 unit)
-2s (7.43 unit)
-3s (7.30 unit)


Well #10A
Salinity (PSU)
Salinity (PSU)
Date
W10A (n=40, Control Chart 2009-2014)
+3s (29.5 PSU)
+2s (28.6 PSU)
Mean (26.8 PSU)
-2s (25.1 PSU)
-3s (24.2 PSU)


Well #10A
Turbidity (NTU)
Turbidity (NTU)
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W10A (n=40, Control Chart 2009-2014)
+3s (10.59 NTU)
+2s (7.53 NTU)
Mean (1.41 NTU)
-2s (-4.72 NTU)
-3s (-7.78 NTU)

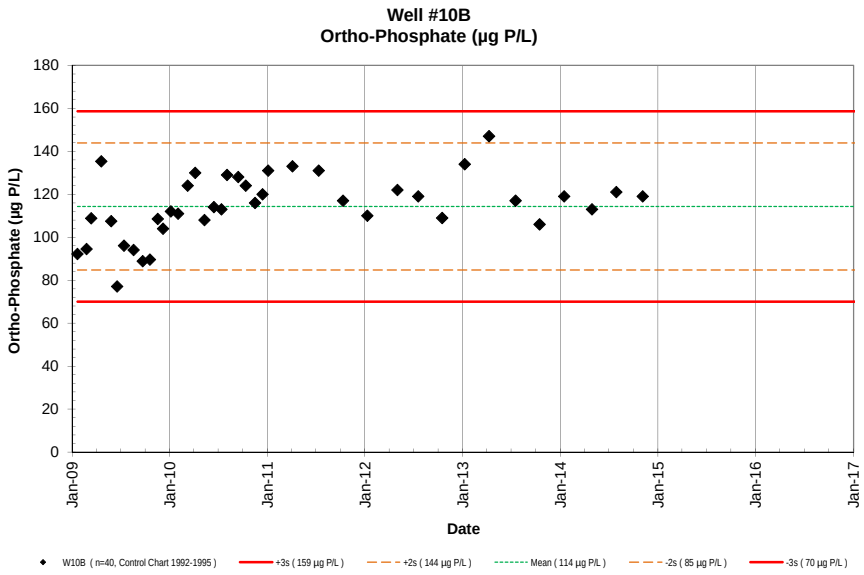

Well #10A
Depth to Water (m)
Depth to Water (m)
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
-12.0
-14.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W10A (n=40, Control Chart 2009-2014)
+3s (-1.7 m)
+2s (-1.9 m)
Mean (-2.3 m)
-2s (-2.7 m)
-3s (-2.9 m)
Pump Depth (-12.2 m)
Tide

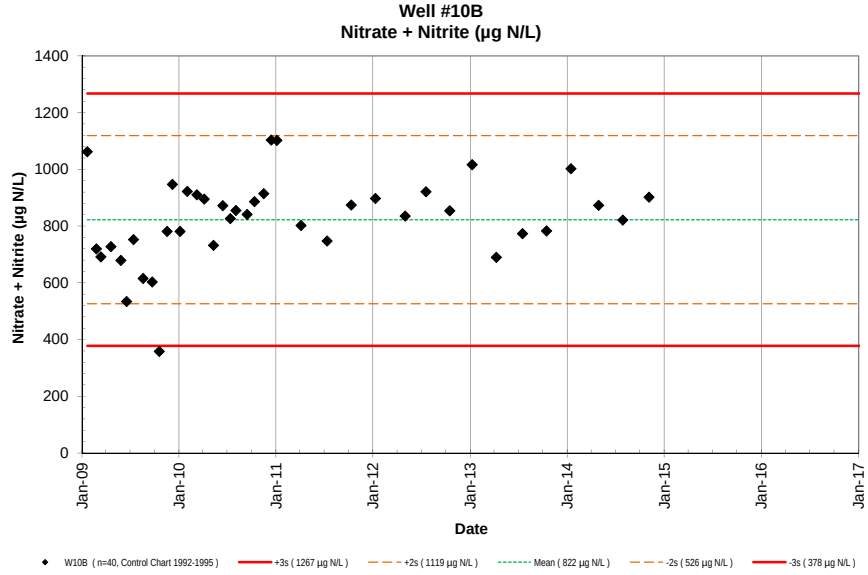
NELHA Water Quality Laboratory

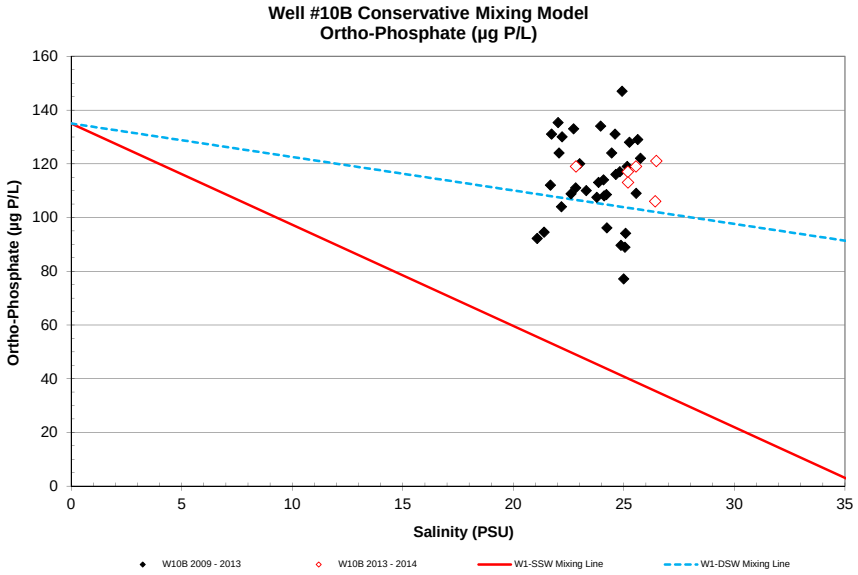
Well 10B Data Table

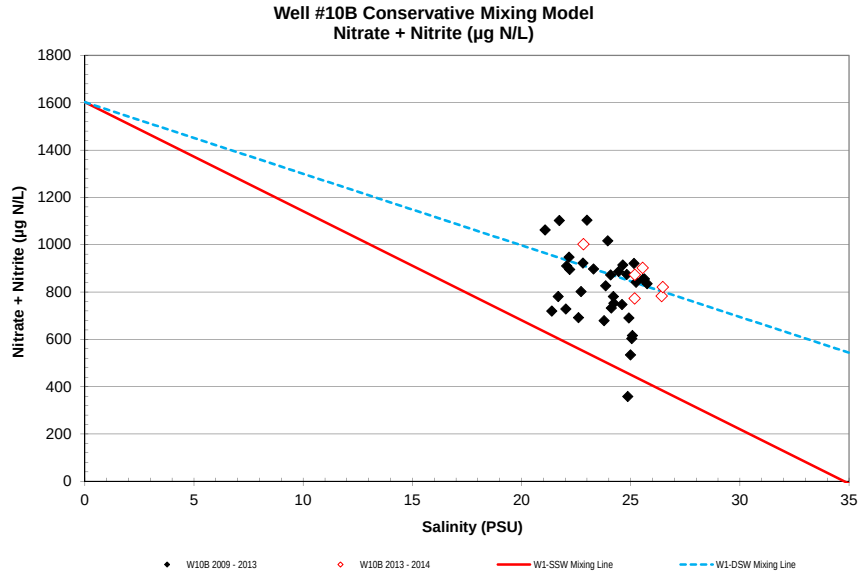
January 2009 - December 2014

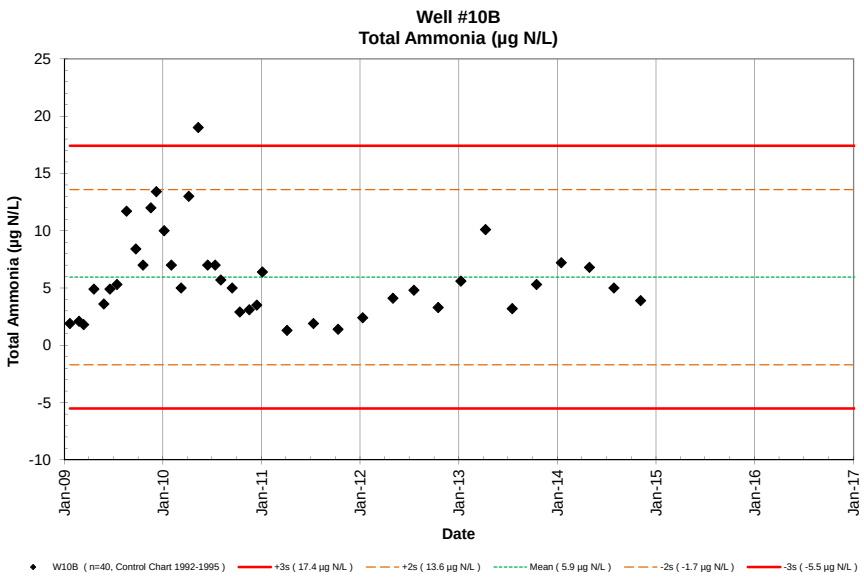
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W10B	-4.572	01/21/09	1050	-2.44	0.12	Flood	2.98	92	75.8	1062	0.14	1.9	343	9647						22.0	7.71	21.08	5.23	8.13		
W10B	-4.572	02/24/09	1213	-2.50	0.09	Flood	3.05	95	51.4	720	0.15	2.1	257	7224						22.2	7.55	21.39	4.89	2.01		
W10B	-4.572	03/13/09	1521	-2.26	0.37	Flood	3.51	109	49.4	692	0.13	1.8	304	8533						21.6	7.64	22.61	4.65	37.40		
W10B	-4.572	04/20/09	1602	-2.19	0.37	Flood	4.37	135	52.0	728	0.35	4.9	298	8363						22.8	7.64	22.03	4.26	24.70		
W10B	-4.572	05/27/09	848	-2.44	0.12	Ebb	3.47	108	48.5	679	0.26	3.6	517	14533						21.8	7.74	23.78	4.18	1.72		
W10B	-4.572	06/18/09	901	-2.36	0.21	Flood	2.49	77	38.1	534	0.35	4.9	104	2930						21.2	7.56	24.99	5.58	0.76		
W10B	-4.572	07/14/09	922	-2.20	0.43	High	3.10	96	53.7	753	0.38	5.3	185	5206						21.5	7.81	24.23	5.34	0.13		
W10B	-4.572	08/19/09	758	-2.50	0.03	Ebb	3.04	94	43.9	616	0.84	11.7	224	6295						21.8	7.70	25.08	3.74	1.96		
W10B	-4.572	09/22/09	759	-2.02	0.58	Ebb	2.87	89	43.1	603	0.60	8.4	183	5127						22.2	8.20	25.05	4.93	0.23		
W10B	-4.572	10/19/09	1525	-2.29	0.27	Flood	2.89	90	25.6	358	0.50	7.0	63	1778						22.5	7.16	24.87	5.34	0.12		
W10B	-4.572	11/17/09	1334	-2.52	0.15	Flood	3.50	109	55.8	781	0.86	12.0	290	8152						21.7	7.68	24.21	5.62	0.28		
W10B	-4.572	12/07/09	1445	-2.60	0.09	Ebb	3.36	104	67.6	947	0.96	13.4	344	9648						21.1	7.72	22.18	5.42	0.10		
W10B	-4.572	01/05/10	1308	-2.51	0.09	Ebb	3.62	112	55.8	781	0.71	10.0	311	8741						21.3	7.70	21.68	4.86	0.13		
W10B	-4.572	02/01/10	1435	-2.41	0.00	Flood	3.58	111	65.8	922	0.50	7.0	292	8192						20.0	7.67	22.82	4.99	0.30		
W10B	-4.572	03/09/10	1347	-2.38	0.15	High	4.00	124	65.0	910	0.36	5.0	346	9717						20.2	7.67	22.07	5.21	0.17		
W10B	-4.572	04/06/10	1134	-2.43	0.15	High	4.20	130	63.9	895	0.93	13.0	352	9887						20.0	7.67	22.21	5.30	0.26		
W10B	-4.572	05/11/10	1200	-2.22	0.30	Flood	3.49	108	52.3	732	1.36	19.0	344	9656						20.2	7.70	24.11	5.46	0.17		
W10B	-4.572	06/15/10	1347	-2.57	0.09	Flood	3.68	114	62.3	872	0.50	7.0	344	9662						20.4	7.72	24.08	5.27	0.12		
W10B	-4.572	07/13/10	1217	-2.55	0.09	Flood	3.65	113	59.0	826	0.50	7.0	353	9906						20.5	7.65	23.86	4.77	0.23		
W10B	-4.572	08/03/10	1210	-2.00	0.55	High	4.16	129	61.0	855	0.41	5.7	316	8868						20.4	7.64	25.63	4.70	0.28		
W10B	-4.572	09/14/10	1212	-2.03	0.52	Ebb	4.13	128	60.0	841	0.36	5.0	333	9359						20.4	7.65	25.25	4.29	0.44		
W10B	-4.572	10/12/10	1220	-2.14	0.40	Ebb	4.00	124	63.3	886	0.21	2.9	339	9530						20.5	7.61	24.45	4.82	0.19		
W10B	-4.572	11/16/10	1135	-2.15	0.37	Flood	3.75	116	65.3	914	0.22	3.1	324	9112						21.0	7.66	24.64	5.25	0.11		
W10B	-4.572	12/14/10	1211	-2.11	0.30	Ebb	3.87	120	78.7	1103	0.25	3.5	348	9765						21.1	7.64	23.00	5.16	0.18		
W10B	-4.572	01/04/11	1202	-2.45	0.03	Low	4.23	131	78.7	1102	0.46	6.4	355	9976						20.8	7.48	21.73	4.87	0.38		
W10B	-4.572	04/05/11	1223	-2.49	0.00	Flood	4.29	133	57.3	802	0.09	1.3	323	9081						21.1	7.59	22.73	3.59	0.24		
W10B	-4.572	07/12/11	1145	-2.28	0.43	Flood	4.23	131	53.3	747	0.14	1.9	341	9590						20.6	7.56	24.60	4.65	0.50		
W10B	-4.572	10/11/11	1434	-2.07	0.43	Flood	3.78	117	62.4	874	0.10	1.4	326	9148						20.2	7.59	24.82	5.09	2.62		
W10B	-4.572	01/10/12	1220	-2.54	0.00	Low	3.55	110	64.0	897	0.17	2.4	311	8723						20.2	7.47	23.30	4.95	0.31		
W10B	-4.572	5/1/12	1237	-2.12	0.40	Flood	3.94	122	59.6	835	0.29	4.1	322	9044						20.1	7.57	25.75	4.51	0.09		
W10B	-4.572	7/18/12	1123	-2.51	0.09	Flood	3.84	119	65.8	921	0.34	4.8	328	9209						20.1	7.66	25.15	5.98	3.02		
W10B	-4.572	10/16/12	1156	-2.46	0.09	Low	3.52	109	61.0	854	0.24	3.3	308	8663						19.9	7.53	25.56	5.35	1.85		
W10B	-4.572	1/8/13	1235	-2.29	0.18	Flood	4.33	134	72.5	1016	0.40	5.6	375	10534						19.2	7.48	23.95	4.77	0.69		
W10B	-4.572	4/9/13	1429	-2.13	0.43	Flood	4.75	147	49.3	690	0.72	10.1	322	9045						19.6	7.48	24.92	3.71	1.12		
W10B	-4.572	7/17/13	1432	-2.01	0.58	Ebb	3.78	117	55.2	773	0.23	3.2	335	9409						21.0	7.46	25.18	4.86	0.25		
W10B	-4.572	10/15/13	1200	-2.15	0.46	Flood	3.42	106	55.9	783	0.38	5.3	295	8282						20.3	7.48	26.42	4.34	0.09		
W10B	-4.572	1/15/14	1207	-2.46	0.00	Low	3.84	119	71.5	1002	0.51	7.2	328	9218						20.7	7.58	22.84	5.23	0.06		
W10B	-4.572	4/29/14	1352	-2.27	0.40	Flood	3.65	113	62.3	873	0.49	6.8	306	8585						19.6	7.45	25.19	5.45	0.13		
W10B	-4.572	7/29/14	1218	-2.42	0.12	Flood	3.91	121	58.6	821	0.36	5.0	282	7928						19.7	7.42	26.47	5.34	0.26		
W10B	-4.572	11/5/14	1227	-2.21	0.15	Flood	3.84	119	64.4	902	0.28	3.9	269	7567						21.8	7.56	25.55	4.87	0.16		
W10B	-4.572	1/1/15																								
W10B	-4.572	4/1/15																								

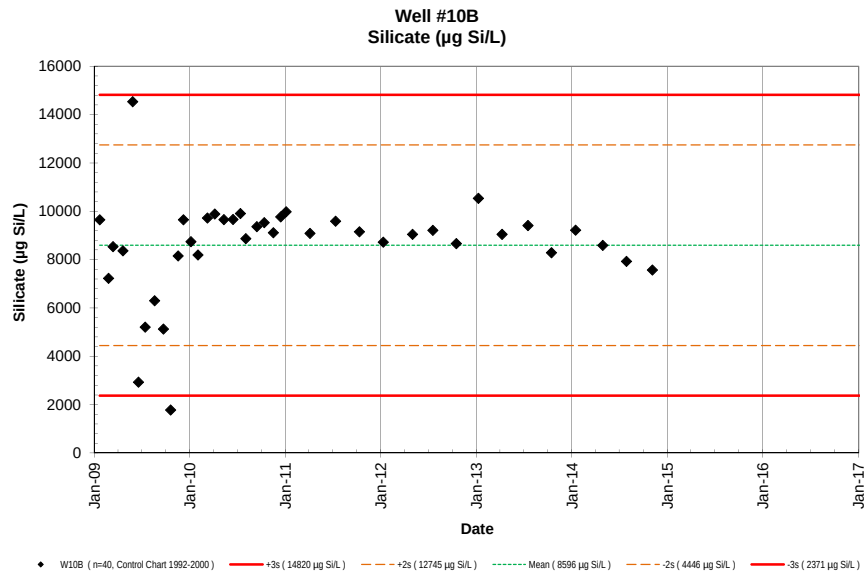

Well #10B
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W10B (n=40, Control Chart 1992-1995)
+3s (159 µg P/L)
+2s (144 µg P/L)
Mean (114 µg P/L)
-2s (85 µg P/L)
-3s (70 µg P/L)

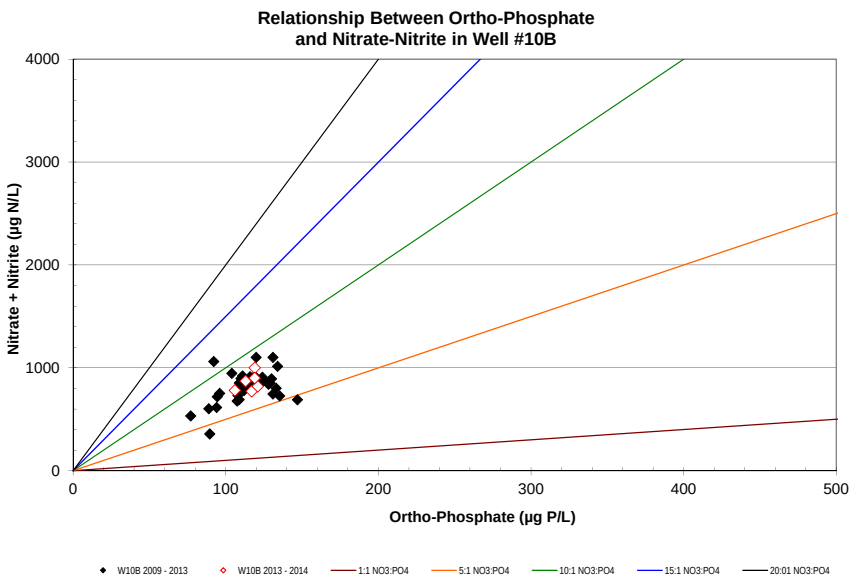

Well #10B
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W10B (n=40, Control Chart 1992-1995)
+3s (1267 µg N/L)
+2s (1119 µg N/L)
Mean (822 µg N/L)
-2s (526 µg N/L)
-3s (378 µg N/L)

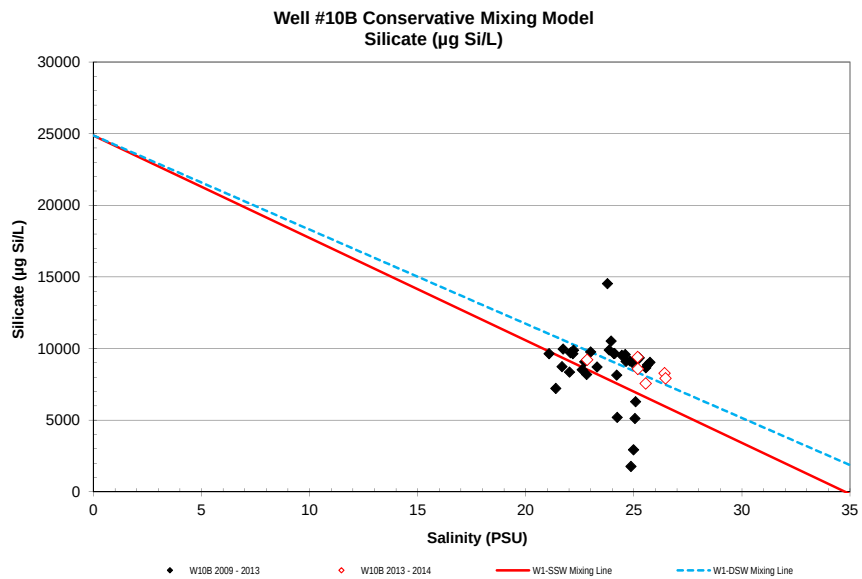

Well #10B Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W10B 2009 - 2013
W10B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

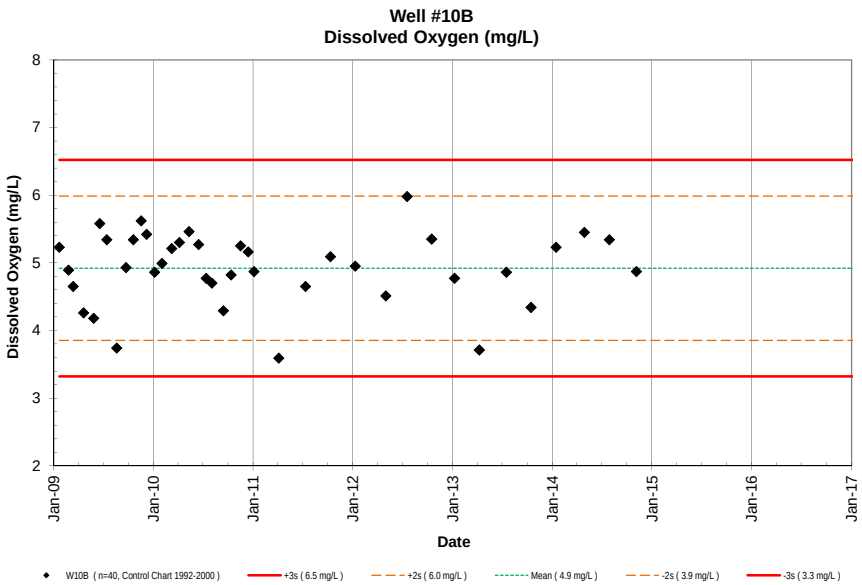

Well #10B Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W10B 2009 - 2013
W10B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

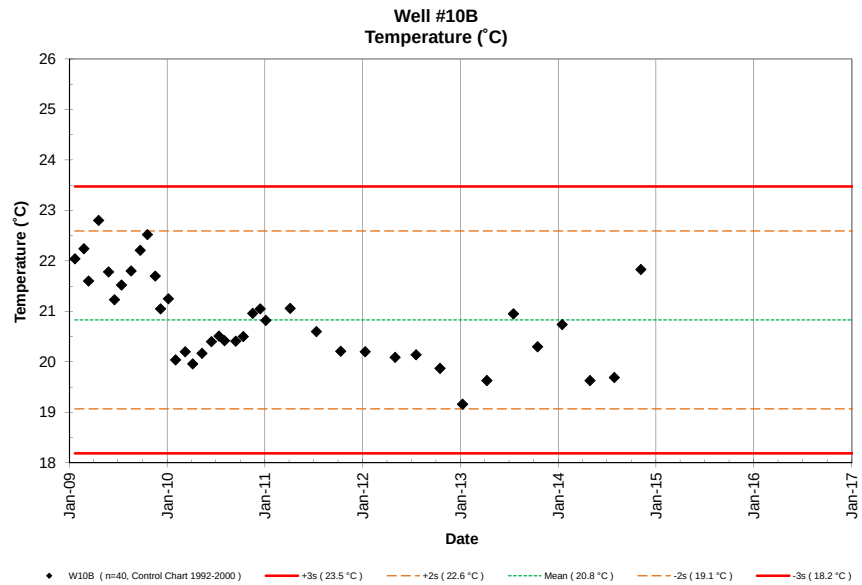

Well #10B
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W10B (n=40, Control Chart 1992-1995)
+3s (17.4 µg N/L)
+2s (13.6 µg N/L)
Mean (5.9 µg N/L)
-2s (-1.7 µg N/L)
-3s (-5.5 µg N/L)

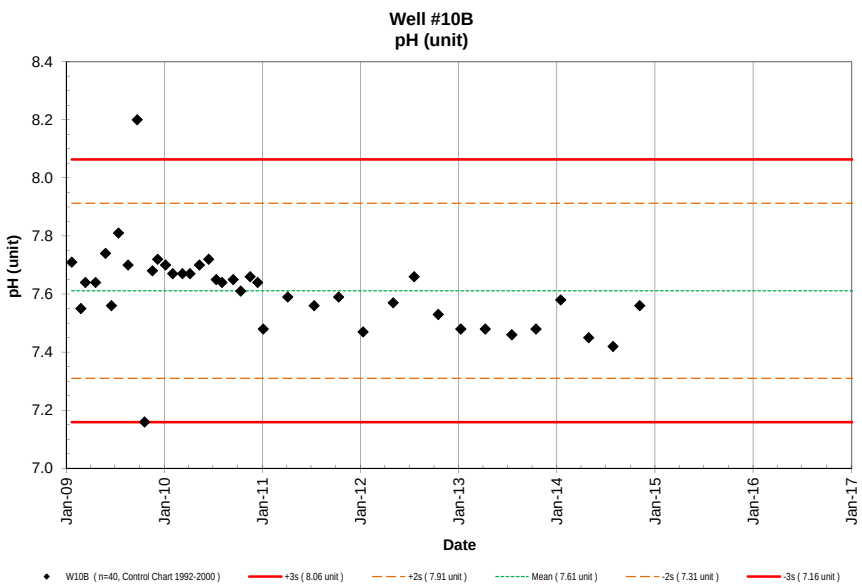

Well #10B
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W10B (n=40, Control Chart 1992-2000)
+3s (14820 µg Si/L)
+2s (12745 µg Si/L)
Mean (8596 µg Si/L)
-2s (4446 µg Si/L)
-3s (2371 µg Si/L)

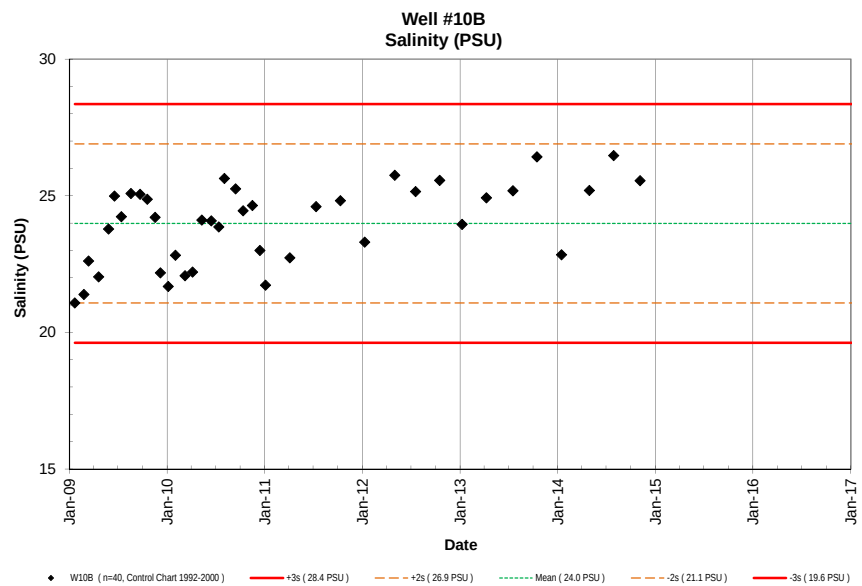

Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #10B
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W10B 2009 - 2013
W10B 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

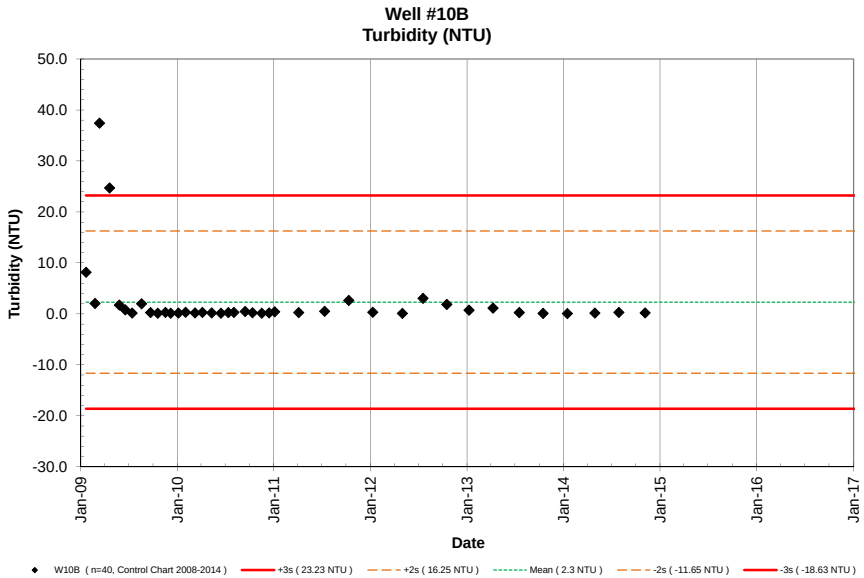

Well #10B Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W10B 2009 - 2013
W10B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

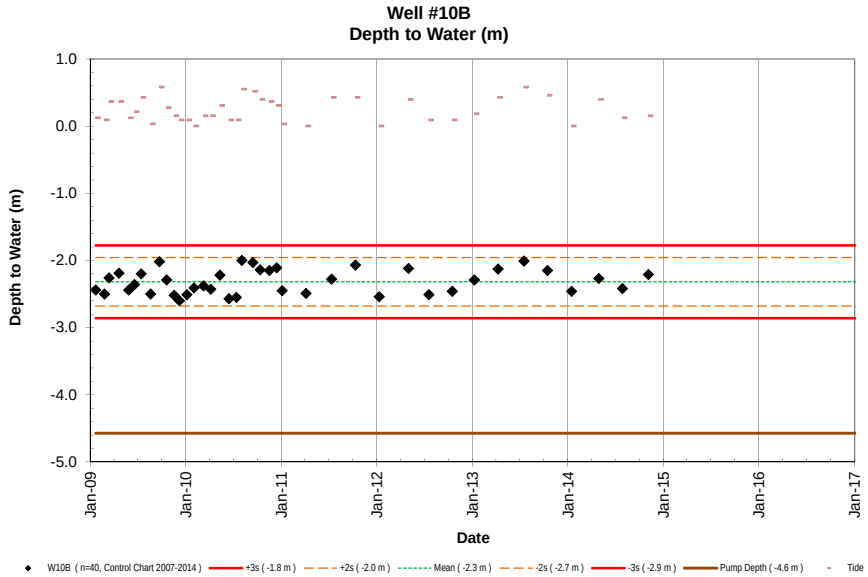

Well #10B
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
8
7
6
5
4
3
2
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W10B (n=40, Control Chart 1992-2000)
+3s (6.5 mg/L)
+2s (6.0 mg/L)
Mean (4.9 mg/L)
-2s (3.9 mg/L)
-3s (3.3 mg/L)


Well #10B
Temperature (˚C)
Temperature (˚C)
26
25
24
23
22
21
20
19
18
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W10B (n=40, Control Chart 1992-2000)
+3s (23.5 °C)
+2s (22.6 °C)
Mean (20.8 °C)
-2s (19.1 °C)
-3s (18.2 °C)


Well #10B
pH (unit)
pH (unit)
8.4
8.2
8.0
7.8
7.6
7.4
7.2
7.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W10B (n=40, Control Chart 1992-2000)
+3s (8.06 unit)
+2s (7.91 unit)
Mean (7.61 unit)
-2s (7.31 unit)
-3s (7.16 unit)


Well #10B
Salinity (PSU)
Salinity (PSU)
30
25
20
15
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W10B (n=40, Control Chart 1992-2000)
+3s (28.4 PSU)
+2s (26.9 PSU)
Mean (24.0 PSU)
-2s (21.1 PSU)
-3s (19.6 PSU)


Well #10B
Turbidity (NTU)
Turbidity (NTU)
50.0
40.0
30.0
20.0
10.0
0.0
-10.0
-20.0
-30.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W10B (n=40, Control Chart 2008-2014)
+3s (23.23 NTU)
+2s (16.25 NTU)
Mean (2.3 NTU)
-2s (-11.65 NTU)
-3s (-18.63 NTU)

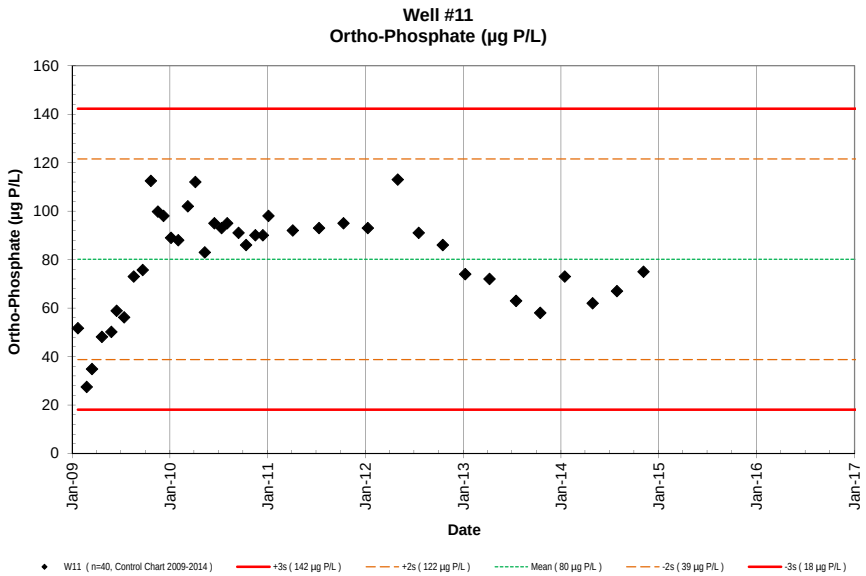

Well #10B
Depth to Water (m)
Depth to Water (m)
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W10B (n=40, Control Chart 2007-2014)
+3s (-1.8 m)
+2s (-2.0 m)
Mean (-2.3 m)
-2s (-2.7 m)
-3s (-2.9 m)
Pump Depth (-4.6 m)
Tide

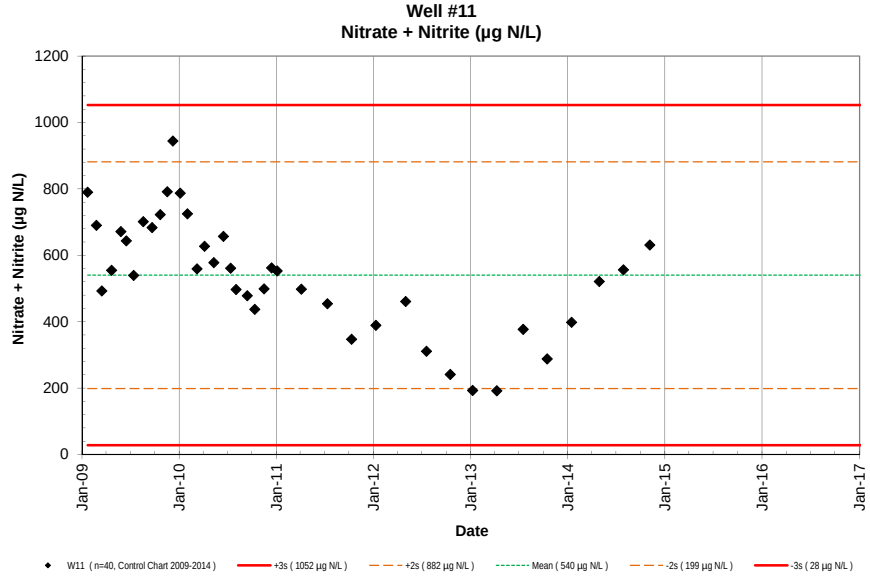
NELHA Water Quality Laboratory

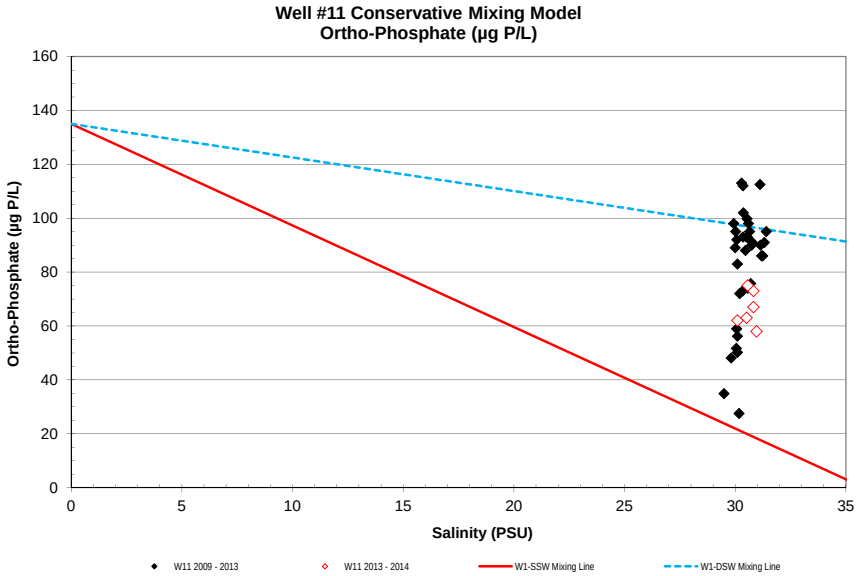
Well 11 Data Table

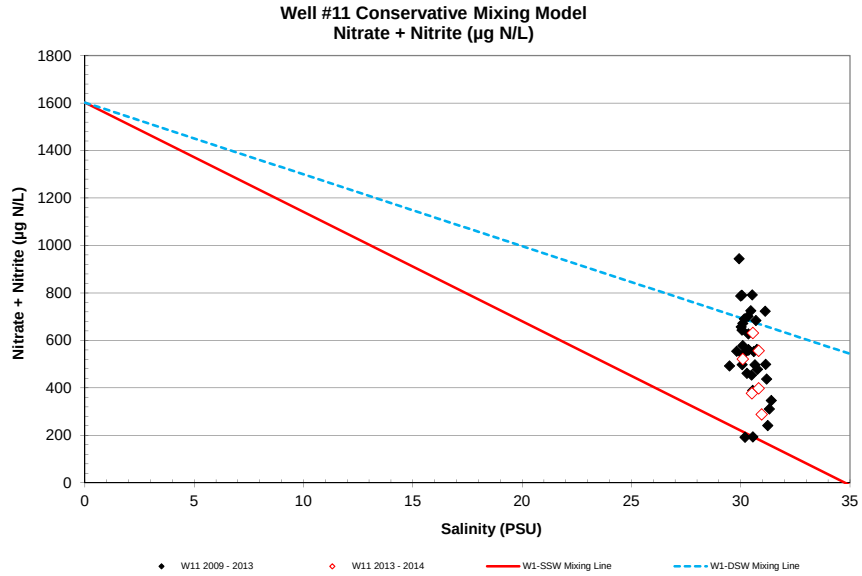
January 2009 - December 2014

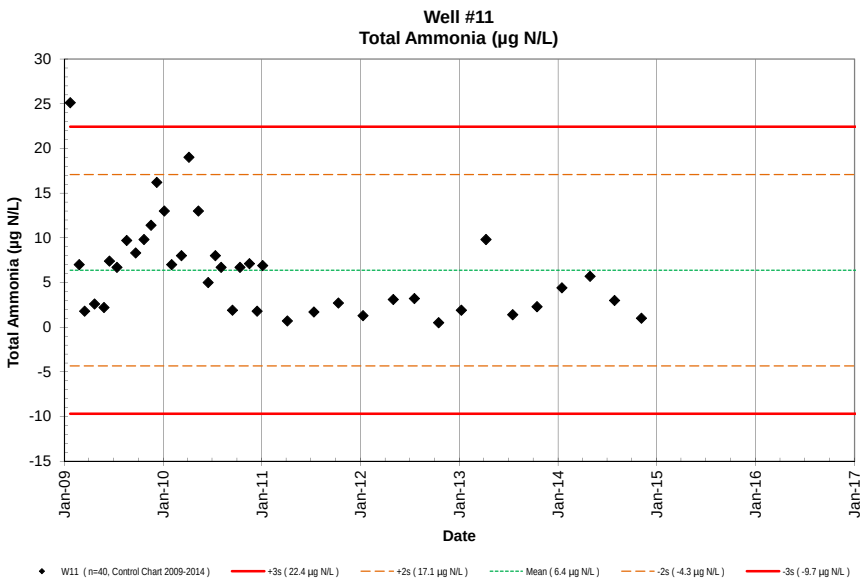
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W11	-18.288	1/22/09	1037	-3.2	0.09	Low	1.67	52	56.4	790	1.79	25.1	106	2966						22.7	8.09	30.05	3.01	0.95		
W11	-18.288	2/24/09	958	-3.3	0.06	Ebb	0.89	28	49.3	690	0.50	7.0	105	2949						20.7	7.91	30.17	3.33	0.75		
W11	-18.288	3/16/09	1044	-3.3	0.09	Ebb	1.13	35	35.2	493	0.13	1.8	87	2436						22.3	7.75	29.49	3.84	0.41		
W11	-18.288	4/22/09	1218	-3.1	0.34	Flood	1.55	48	39.6	555	0.19	2.6	108	3035						21.6	7.80	29.82	3.32	9.77		
W11	-18.288	5/27/09	920	-3.3	0.09	Ebb	1.62	50	47.9	671	0.16	2.2	101	2835						19.4	7.77	30.10	3.84	0.52		
W11	-18.288	6/16/09	1359	-3.0	0.40	Ebb	1.90	59	45.9	643	0.53	7.4	124	3494						19.5	7.58	30.06	4.23	0.29		
W11	-18.288	7/14/09	1256	-3.1	0.40	Ebb	1.81	56	38.5	540	0.48	6.7	77	2168						19.7	7.89	30.10	4.16	0.19		
W11	-18.288	8/19/09	1334	-2.8	0.52	Flood	2.36	73	50.0	701	0.69	9.7	118	3312						20.9	7.78	30.34	3.59	0.19		
W11	-18.288	9/21/09	1518	-3.2	0.24	Flood	2.44	76	48.8	684	0.59	8.3	93	2600						21.4	8.31	30.70	3.90	0.15		
W11	-18.288	10/22/09	1555	-3.3	0.15	Low	3.63	113	51.6	723	0.70	9.8	92	2579						22.7	7.82	31.12	3.55	0.06		
W11	-18.288	11/17/09	821	-3.1	0.40	Ebb	3.22	100	56.5	792	0.81	11.4	144	4058						21.5	7.82	30.53	3.87	0.06		
W11	-18.288	12/8/09	811	-3.0	0.49	Flood	3.16	98	67.4	944	1.16	16.2	166	4671						22.4	7.91	29.93	4.12	0.05		
W11	-18.288	1/5/10	1432	-3.4	0.0	Low	2.87	89	56.2	787	0.93	13.0	142	3977						22.3	7.87	30.00	4.33	0.07		
W11	-18.288	2/1/10	1529	-3.2	0.15	Flood	2.84	88	51.8	725	0.50	7.0	130	3651						22.3	7.94	30.46	4.19	0.07		
W11	-18.288	3/9/10	1517	-3.4	0.12	Ebb	3.29	102	39.9	559	0.57	8.0	147	4117						23.6	7.93	30.37	3.96	0.07		
W11	-18.288	4/6/10	1349	-3.4	0.12	Ebb	3.62	112	44.8	627	1.36	19.0	161	4519						23.6	7.90	30.35	4.42	0.14		
W11	-18.288	5/11/10	1414	-2.9	0.52	Flood	2.68	83	41.3	578	0.93	13.0	140	3933						22.6	7.96	30.10	4.58	0.06		
W11	-18.288	6/16/10	920	-3.2	0.09	Ebb	3.07	95	46.9	657	0.36	5.0	152	4278						22.2	7.90	30.02	4.24	0.19		
W11	-18.288	7/13/10	1402	-3.2	0.24	Flood	3.00	93	40.1	561	0.57	8.0	152	4268						20.5	7.87	30.35	3.96	0.10		
W11	-18.288	8/3/10	1403	-3.0	0.43	Ebb	3.07	95	35.5	497	0.48	6.7	160	4484						23.5	7.94	30.65	3.98	0.05		
W11	-18.288	9/14/10	1417	-3.0	0.34	Ebb	2.94	91	34.1	478	0.14	1.9	161	4516						21.8	7.88	30.77	3.96	0.12		
W11	-18.288	10/12/10	1442	-3.1	0.18	Low	2.78	86	31.2	437	0.48	6.7	157	4410						23.1	7.95	31.19	3.96	0.08		
W11	-18.288	11/16/10	1331	-3.1	0.37	Ebb	2.91	90	35.6	499	0.51	7.1	156	4394						23.1	7.94	31.14	4.12	0.09		
W11	-18.288	12/14/10	1402	-3.2	0.18	Ebb	2.91	90	40.1	562	0.13	1.8	159	4473						22.1	7.92	30.74	4.01	0.10		
W11	-18.288	1/4/11	1400	-3.3	0.12	Flood	3.16	98	39.5	553	0.49	6.9	153	4292						21.7	7.81	30.60	3.85	0.11		
W11	-18.288	4/5/11	1409	-3.1	0.21	Flood	2.97	92	35.6	498	0.05	0.7	140	3945						20.8	7.77	30.07	3.38	0.05		
W11	-18.288	7/12/11	1426	-2.9	0.73	Flood	3.00	93	32.4	454	0.12	1.7	156	4391						21.1	7.86	30.50	3.70	0.10		
W11	-18.288	10/11/11	1240	-3.1	0.24	Flood	3.07	95	24.8	347	0.19	2.7	156	4390						22.2	7.87	31.40	3.66	0.07		
W11	-18.288	1/10/12	1504	-3.4	0.09	Flood	3.00	93	27.8	389	0.09	1.3	145	4082						21.7	7.81	30.55	2.65	0.09		
W11	-18.288	5/1/12	1450	-3.1	0.40	Ebb	3.65	113	32.9	461	0.22	3.1	151	4240						19.5	7.83	30.29	3.00	0.05		
W11	-18.288	7/18/12	1406	-2.9	0.52	Flood	2.94	91	22.2	311	0.23	3.2	157	4420						21.5	7.89	31.31	2.79	0.34		
W11	-18.288	10/16/12	1358	-3.2	0.24	Flood	2.78	86	17.2	241	0.04	0.5	153	4299						21.9	7.82	31.24	1.64	0.07		
W11	-18.288	1/8/13	1448	-3.3	0.15	Ebb	2.39	74	13.8	193	0.14	1.9	171	4812						20.3	7.75	30.56	0.63	0.04		
W11	-18.288	4/9/13	1427	-3.1	0.46	Flood	2.32	72	13.7	192	0.70	9.8	143	4013						18.6	7.76	30.20	0.34	0.07		
W11	-18.288	7/17/13	1545	-3.1	0.46	Ebb	2.03	63	26.9	377	0.10	1.4	151	4239						19.4	7.64	30.51	1.09	0.29		
W11	-18.288	10/15/13	1424	-2.8	0.52	Ebb	1.87	58	20.6	288	0.16	2.3	146	4104						19.3	7.68	30.96	0.98	0.06		
W11	-18.288	1/15/14	1412	-3.0	0.15	Flood	2.36	73	28.4	398	0.31	4.4	154	4328						19.2	7.69	30.82	1.30	0.07		
W11	-18.288	4/29/14	1640	-2.8	0.58	High	2.00	62	37.2	521	0.41	5.7	155	4357						18.5	7.57	30.10	1.41	0.12		
W11	-18.288	7/29/14	1505	-3.1	0.40	Flood	2.16	67	39.7	556	0.21	3.0	152	4272						19.0	7.69	30.82	1.30	0.07		
W11	-18.288	11/5/14	1447	-2.9	0.40	High	2.42	75	45.0	631	0.07	1.0	154	4315						20.1	7.62	30.56	1.08	0.10		
W11	-18.288	1/1/15																								
W11	-18.288	4/1/15																								

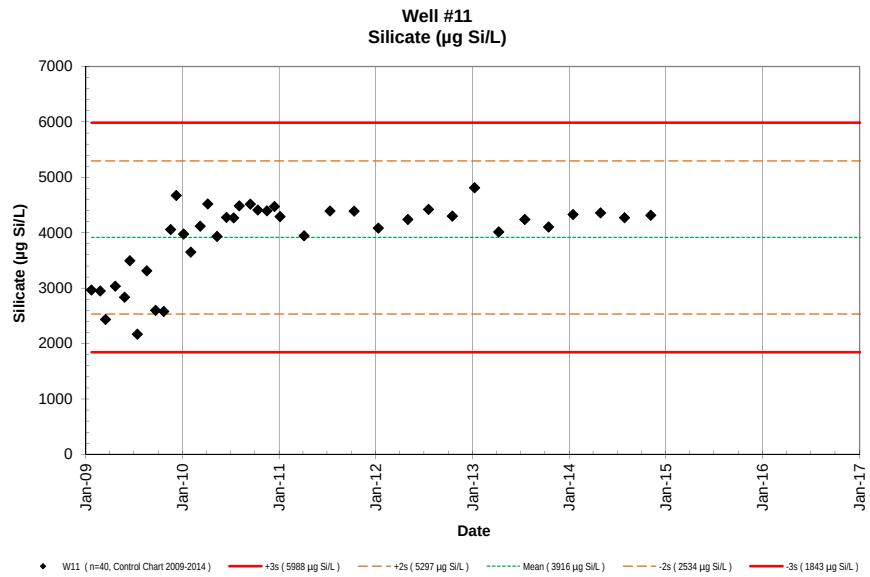

Well #11
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W11 (n=40, Control Chart 2009-2014)
+3s (142 µg P/L)
+2s (122 µg P/L)
Mean (80 µg P/L)
-2s (39 µg P/L)
-3s (18 µg P/L)

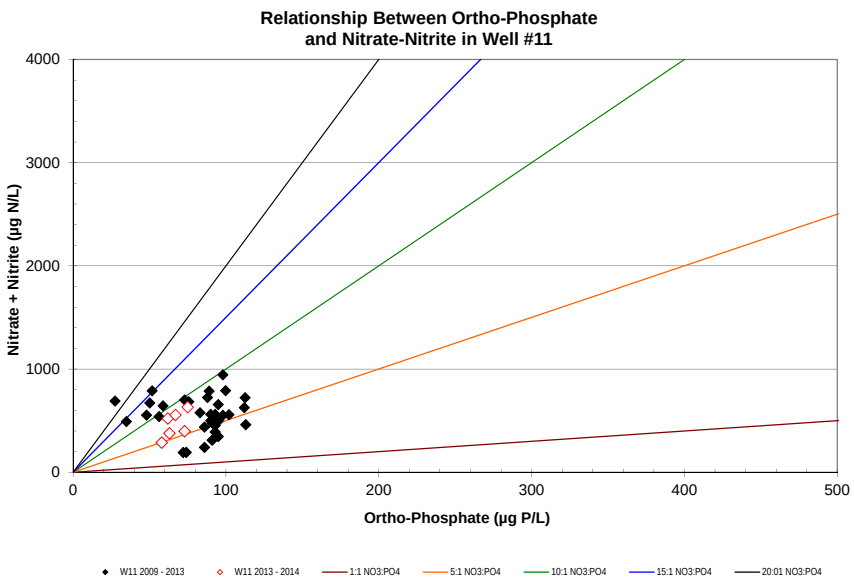

Well #11
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W11 (n=40, Control Chart 2009-2014)
+3s (1052 µg N/L)
+2s (882 µg N/L)
Mean (540 µg N/L)
-2s (199 µg N/L)
-3s (28 µg N/L)

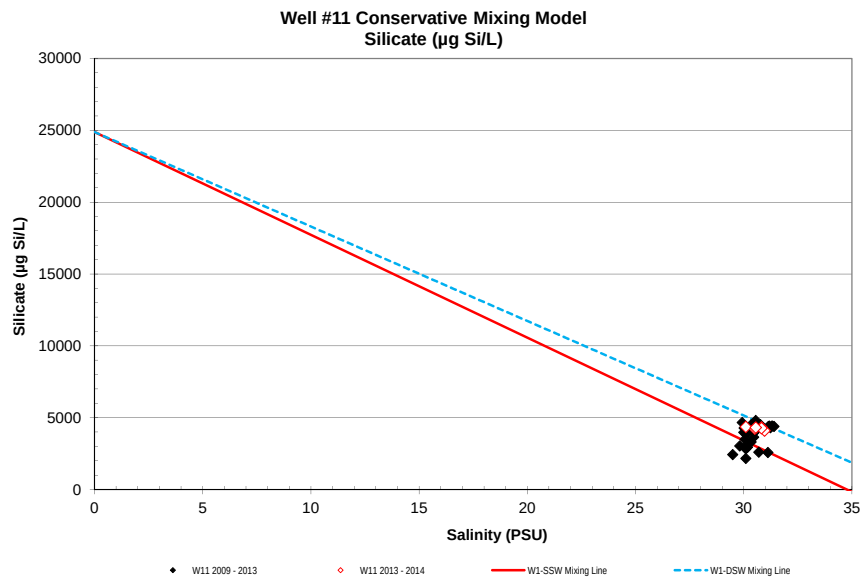

Well #11 Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W11 2009 - 2013
W11 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

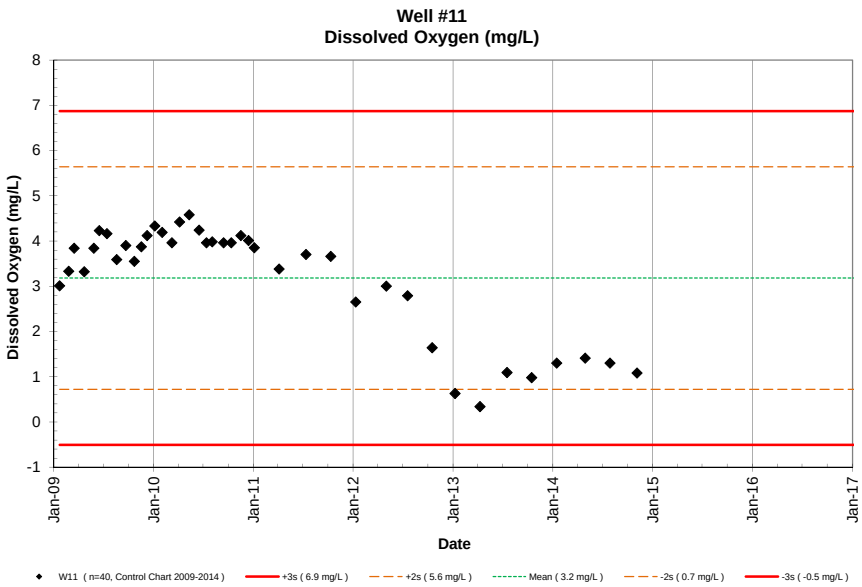

Well #11 Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W11 2009 - 2013
W11 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

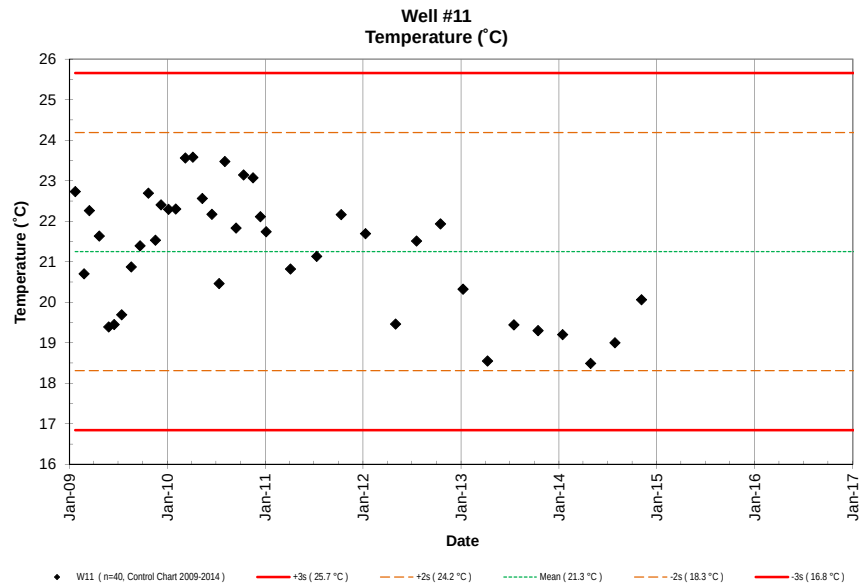

Well #11
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W11 (n=40, Control Chart 2009-2014)
+3s (22.4 µg N/L)
+2s (17.1 µg N/L)
Mean (6.4 µg N/L)
-2s (-4.3 µg N/L)
-3s (-9.7 µg N/L)

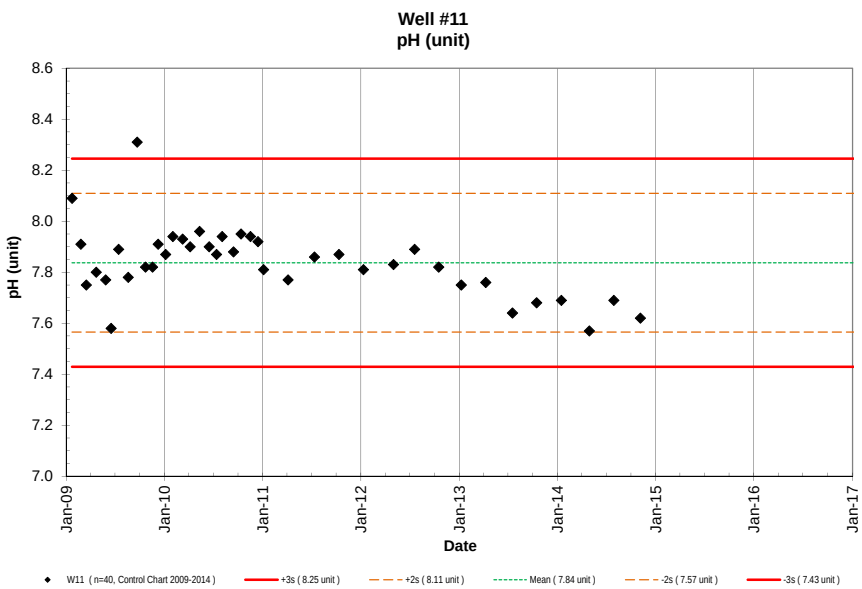

Well #11
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W11 (n=40, Control Chart 2009-2014)
+3s (5988 µg Si/L)
+2s (5297 µg Si/L)
Mean (3916 µg Si/L)
-2s (2534 µg Si/L)
-3s (1843 µg Si/L)

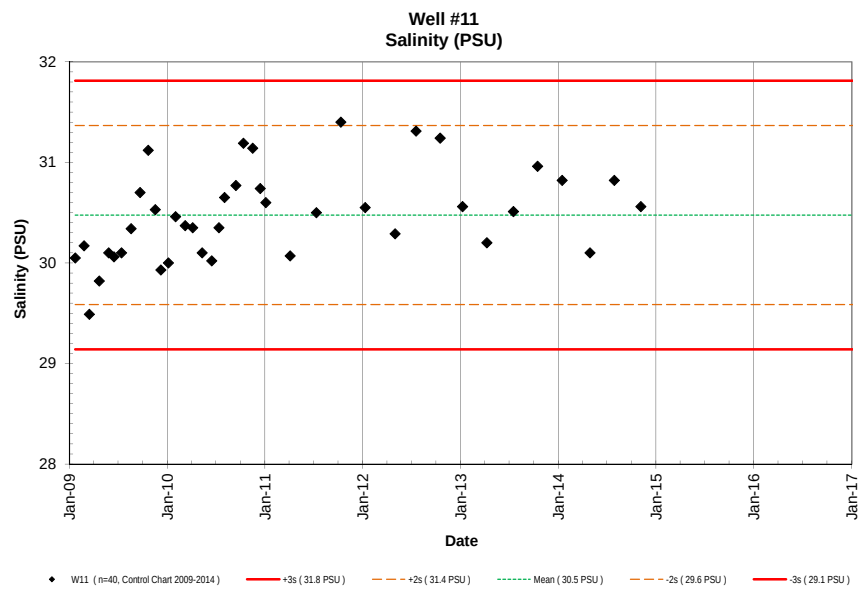

Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #11
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W11 2009 - 2013
W11 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

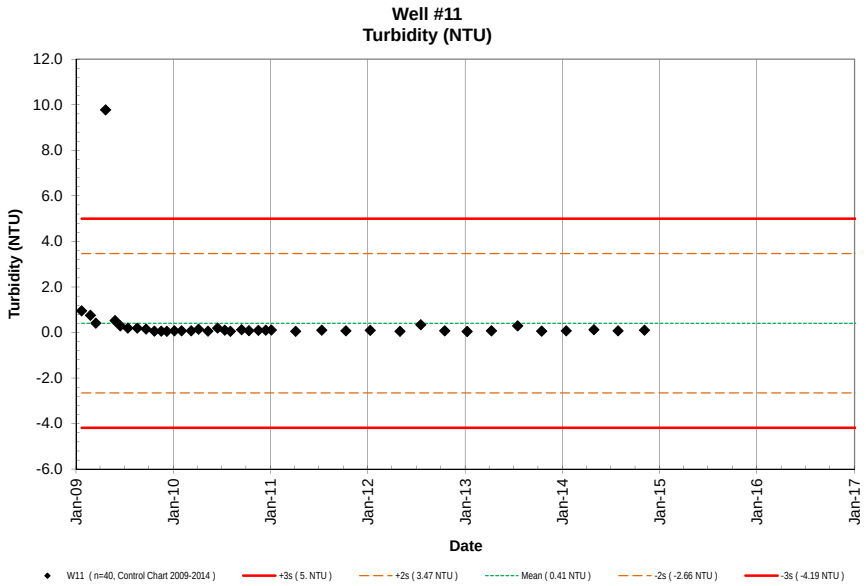

Well #11 Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W11 2009 - 2013
W11 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

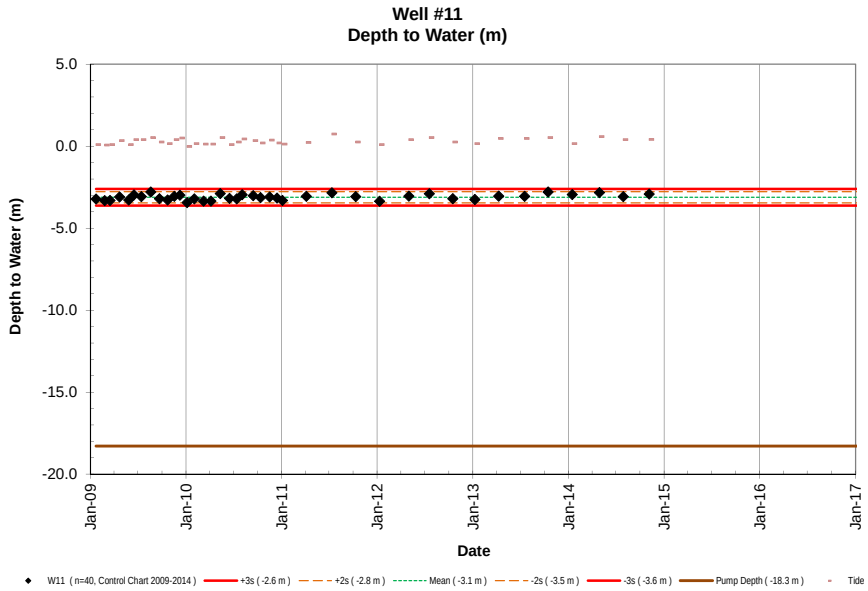

Well #11
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W11 (n=40, Control Chart 2009-2014)
+3s (6.9 mg/L)
+2s (5.6 mg/L)
Mean (3.2 mg/L)
-2s (0.7 mg/L)
-3s (-0.5 mg/L)


Well #11
Temperature (˚C)
Temperature (˚C)
Date
W11 (n=40, Control Chart 2009-2014)
+3s (25.7 °C)
+2s (24.2 °C)
Mean (21.3 °C)
-2s (18.3 °C)
-3s (16.8 °C)


Well #11
pH (unit)
pH (unit)
Date
W11 (n=40, Control Chart 2009-2014)
+3s (8.25 unit)
+2s (8.11 unit)
Mean (7.84 unit)
-2s (7.57 unit)
-3s (7.43 unit)


Well #11
Salinity (PSU)
Salinity (PSU)
Date
W11 (n=40, Control Chart 2009-2014)
+3s (31.8 PSU)
+2s (31.4 PSU)
Mean (30.5 PSU)
-2s (29.6 PSU)
-3s (29.1 PSU)


Well #11
Turbidity (NTU)
Turbidity (NTU)
12.0
10.0
8.0
6.0
4.0
2.0
0.0
-2.0
-4.0
-6.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W11 (n=40, Control Chart 2009-2014)
+3s (5. NTU)
+2s (3.47 NTU)
Mean (0.41 NTU)
-2s (-2.66 NTU)
-3s (-4.19 NTU)

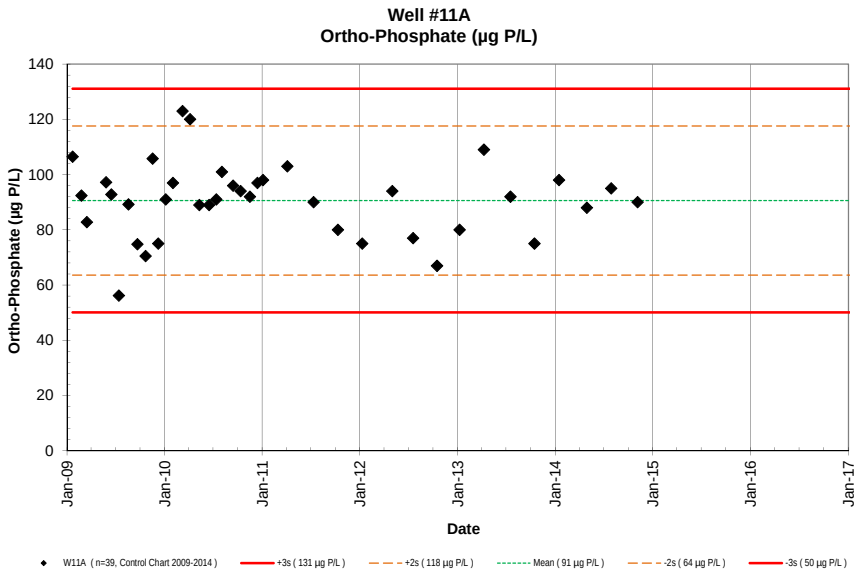

Well #11
Depth to Water (m)
Depth to Water (m)
5.0
0.0
-5.0
-10.0
-15.0
-20.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W11 (n=40, Control Chart 2009-2014)
+3s (-2.6 m)
+2s (-2.8 m)
Mean (-3.1 m)
-2s (-3.5 m)
-3s (-3.6 m)
Pump Depth (-18.3 m)
Tide

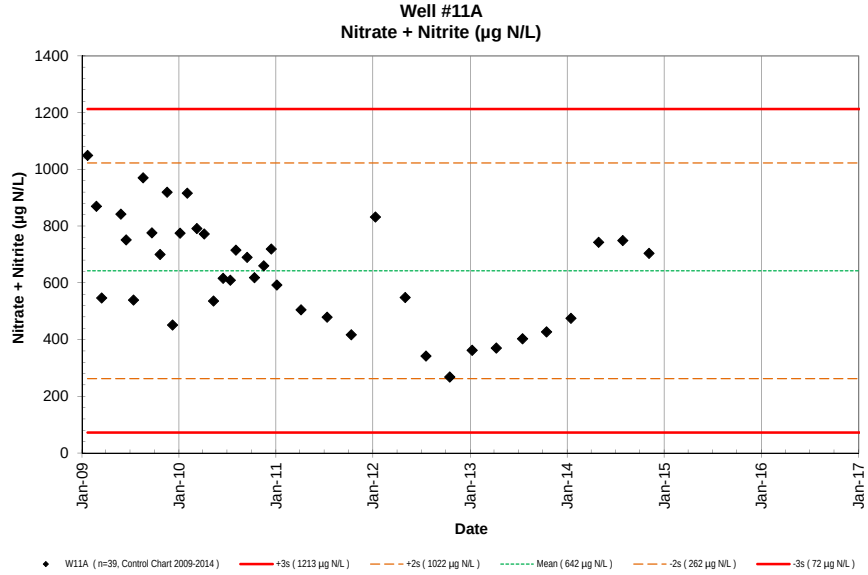
NELHA Water Quality Laboratory

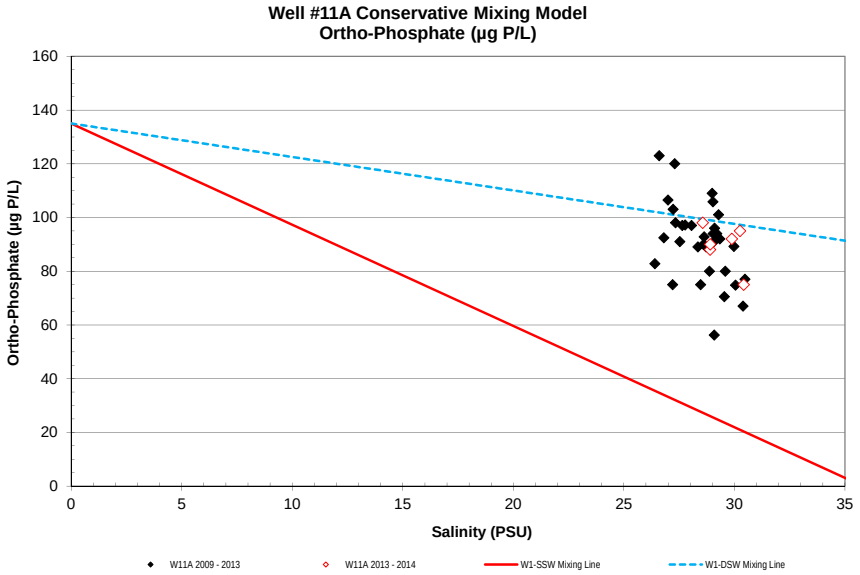
Well 11A Data Table

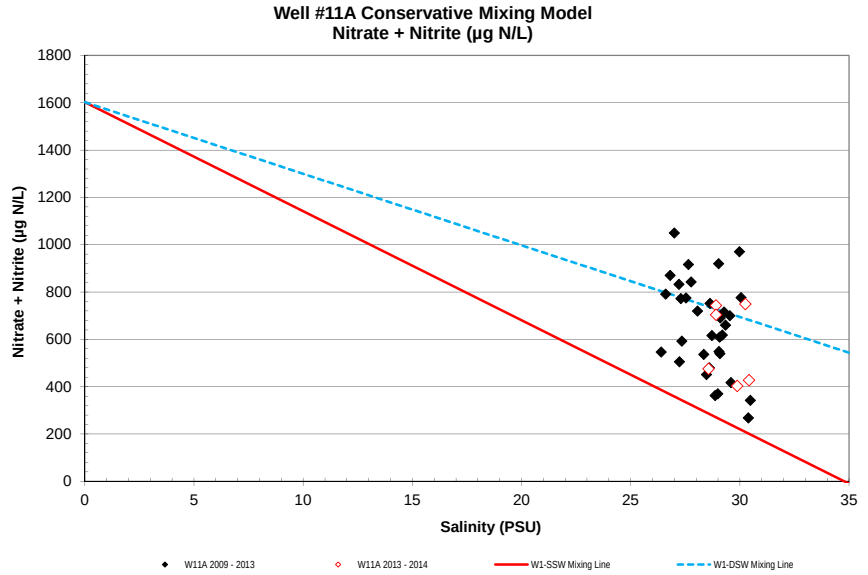
January 2009 - December 2014

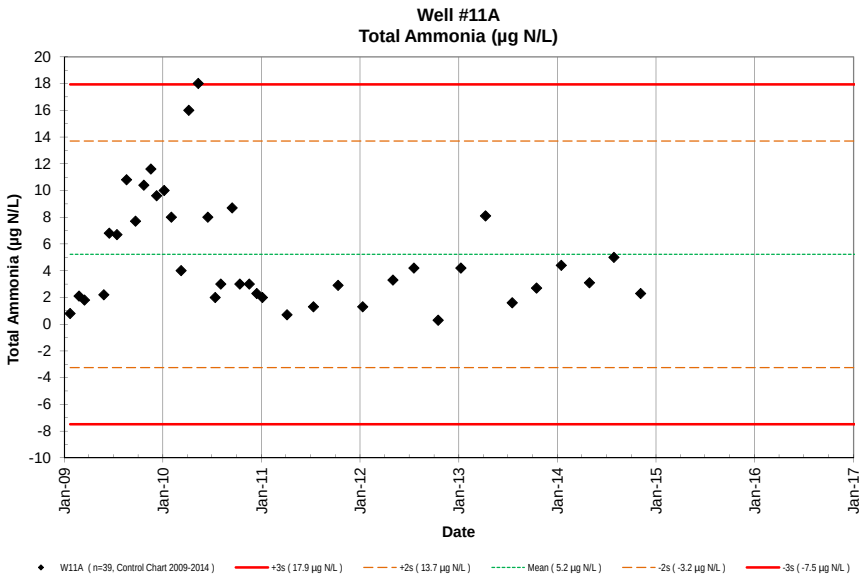
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W11A	-12.192	1/22/09	1026	-3.4	0.09	Low	3.44	107	74.9	1049	0.06	0.8	167	4690						24.3	7.83	27.00	4.21	5.23		
W11A	-12.192	2/24/09	942	-3.4	0.06	Ebb	2.98	92	62.1	870	0.15	2.1	193	5432						23.1	7.71	26.81	3.95	0.74		
W11A	-12.192	3/16/09	1031	-3.4	0.09	Ebb	2.67	83	39.0	547	0.13	1.8	151	4251						23.6	7.59	26.40	4.48	2.52		
W11A	-12.192	4/22/09	1230	-3.2	0.34	Flood																				
W11A	-12.192	5/27/09	947	-3.4	0.09	Ebb	3.14	97	60.1	842	0.16	2.2	272	7636						22.2	7.64	27.77	3.78	1.44		
W11A	-12.192	6/16/09	1346	-3.1	0.40	Ebb	3.00	93	53.7	752	0.49	6.8	163	4583						22.5	7.79	28.63	3.97	1.25		
W11A	-12.192	7/14/09	1243	-3.2	0.40	Ebb	1.81	56	38.5	540	0.48	6.7	77	2168						23.3	7.72	29.09	3.83	0.72		
W11A	-12.192	8/19/09	1319	-2.9	0.52	Flood	2.88	89	69.3	970	0.77	10.8	140	3940						23.7	7.80	29.98	3.85	0.14		
W11A	-12.192	9/21/09	1455	-3.2	0.24	Flood	2.41	75	55.4	776	0.55	7.7	106	2987						24.6	8.45	30.05	4.55	0.51		
W11A	-12.192	10/22/09	1536	-3.4	0.15	Low	2.28	71	50.0	700	0.74	10.4	86	2423						24.4	7.86	29.54	3.80	0.44		
W11A	-12.192	11/17/09	800	-3.1	0.40	Ebb	3.42	106	65.6	920	0.83	11.6	186	5221						23.6	7.78	29.03	4.04	0.29		
W11A	-12.192	12/8/09	832	-3.1	0.49	Flood	2.42	75	32.2	451	0.69	9.6	214	6018						22.7	7.75	28.47	3.92	0.04		
W11A	-12.192	1/5/10	1451	-3.5	0.0	Low	2.94	91	55.3	775	0.71	10.0	201	5649						23.3	7.76	27.53	4.35	3.63		
W11A	-12.192	2/1/10	1540	-3.3	0.15	Flood	3.13	97	65.4	916	0.57	8.0	178	5013						23.2	7.85	27.64	3.80	16.60		
W11A	-12.192	3/9/10	1529	-3.5	0.12	Ebb	3.97	123	56.5	791	0.29	4.0	224	6279						22.5	7.73	26.60	4.15	0.26		
W11A	-12.192	4/6/10	1354	-3.4	0.12	Ebb	3.87	120	55.1	772	1.14	16.0	214	6014						22.3	7.83	27.30	4.26	0.12		
W11A	-12.192	5/11/10	1420	-2.9	0.52	Flood	2.87	89	38.3	536	1.29	18.0	191	5351						22.3	7.91	28.35	3.85	0.61		
W11A	-12.192	6/16/10	908	-3.2	0.09	Ebb	2.87	89	44.0	616	0.57	8.0	197	5533						22.6	7.84	28.72	3.57	0.14		
W11A	-12.192	7/13/10	1409	-3.2	0.24	Flood	2.94	91	43.5	609	0.14	2.0	197	5529						23.0	7.87	29.07	3.74	0.30		
W11A	-12.192	8/3/10	1420	-3.0	0.43	Ebb	3.26	101	51.0	715	0.21	3.0	197	5526						23.1	7.83	29.28	3.90	0.07		
W11A	-12.192	9/14/10	1435	-3.1	0.34	Ebb	3.10	96	49.3	690	0.62	8.7	207	5815						23.2	7.80	29.10	4.91	0.32		
W11A	-12.192	10/12/10	1454	-3.2	0.18	Low	3.03	94	44.1	618	0.21	3.0	192	5394						23.4	7.85	29.20	3.91	0.40		
W11A	-12.192	11/16/10	1339	-3.0	0.37	Ebb	2.97	92	47.1	660	0.21	3.0	190	5326						23.6	7.84	29.34	3.62	0.25		
W11A	-12.192	12/14/10	1410	-3.2	0.18	Ebb	3.13	97	51.3	719	0.16	2.3	202	5675						23.2	7.81	28.06	3.53	0.33		
W11A	-12.192	1/4/11	1351	-3.3	0.12	Flood	3.16	98	42.3	592	0.14	2.0	194	5450						23.2	7.75	27.34	3.45	0.18		
W11A	-12.192	4/5/11	1416	-3.2	0.21	Flood	3.33	103	36.1	505	0.05	0.7	193	5425						22.3	7.75	27.23	2.94	0.12		
W11A	-12.192	7/12/11	1416	-2.9	0.73	Flood	2.91	90	34.2	479	0.09	1.3	203	5713						22.9	7.80	28.60	2.89	0.26		
W11A	-12.192	10/11/11	1248	-3.2	0.24	Flood	2.58	80	29.8	417	0.21	2.9	204	5733						23.2	7.77	29.59	2.62	0.49		
W11A	-12.192	1/10/12	1456	-3.3	0.09	Flood	2.42	75	59.4	832	0.09	1.3	207	5801						22.1	7.62	27.21	2.05	0.29		
W11A	-12.192	5/1/12	1500	-3.1	0.40	Ebb	3.03	94	39.1	548	0.24	3.3	198	5566						21.9	7.65	29.04	1.61	0.13		
W11A	-12.192	7/18/12	1413	-2.9	0.52	Flood	2.49	77	24.4	342	0.30	4.2	179	5036						22.9	7.80	30.48	2.01	0.35		
W11A	-12.192	10/16/12	1351	-3.2	0.24	Flood	2.16	67	19.1	268	0.02	0.3	169	4751						23.5	7.73	30.39	1.52	0.38		
W11A	-12.192	1/8/13	1456	-3.2	0.15	Ebb	2.58	80	25.8	362	0.30	4.2	193	5415						22.5	7.76	28.87	1.18	4.75		
W11A	-12.192	4/9/13	1435	-3.1	0.46	Flood	3.52	109	26.4	370	0.58	8.1	180	5050						21.2	7.78	28.99	4.63	1.32		
W11A	-12.192	7/17/13	1552	-3.1	0.46	Ebb	2.97	92	28.8	403	0.11	1.6	194	5438						22.5	7.63	29.88	1.54	0.17		
W11A	-12.192	10/15/13	1431	-2.9	0.52	Ebb	2.42	75	30.5	427	0.19	2.7	172	4819						22.5	7.71	30.42	1.92	1.16		
W11A	-12.192	1/15/14	1420	-3.2	0.15	Flood	3.16	98	33.9	475	0.31	4.4	183	5144						22.1	7.65	28.57	2.17	0.08		
W11A	-12.192	4/29/14	1634	-2.9	0.58	High	2.84	88	53.0	743	0.22	3.1	178	4995						21.1	7.60	28.90	2.38	0.81		
W11A	-12.192	7/29/14	1512	-3.1	0.40	Flood	3.07	95	53.5	749	0.36	5.0	167	4691						22.6	7.65	30.25	2.36	0.21		
W11A	-12.192	11/5/14	1454	-2.9	0.40	High	2.91	90	50.3	704	0.16	2.3	175	4928						23.0	7.66	28.91	1.58	0.10		
W11A	-12.192	1/1/15																								
W11A	-12.192	4/1/15																								

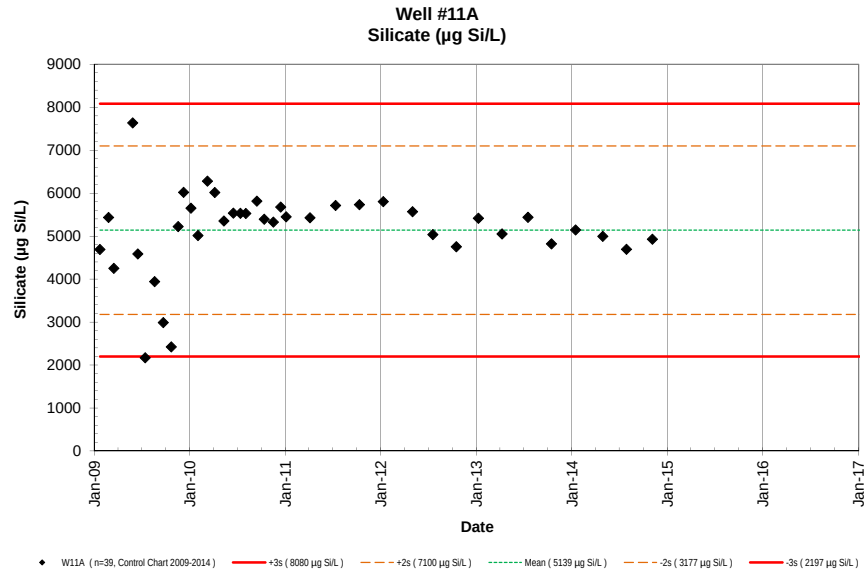

Well #11A
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W11A (n=39, Control Chart 2009-2014)
+3s (131 µg P/L)
+2s (118 µg P/L)
Mean (91 µg P/L)
-2s (64 µg P/L)
-3s (50 µg P/L)

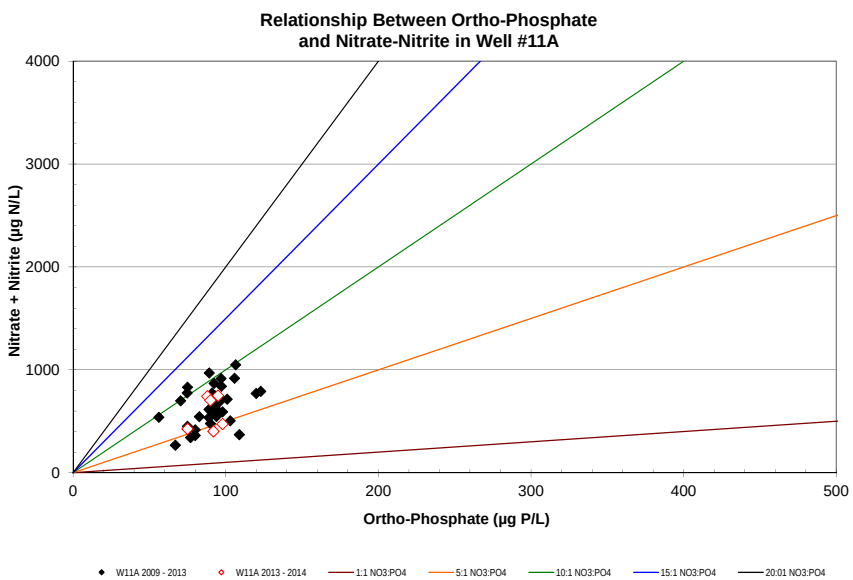

Well #11A
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W11A (n=39, Control Chart 2009-2014)
+3s (1213 µg N/L)
+2s (1022 µg N/L)
Mean (642 µg N/L)
-2s (262 µg N/L)
-3s (72 µg N/L)

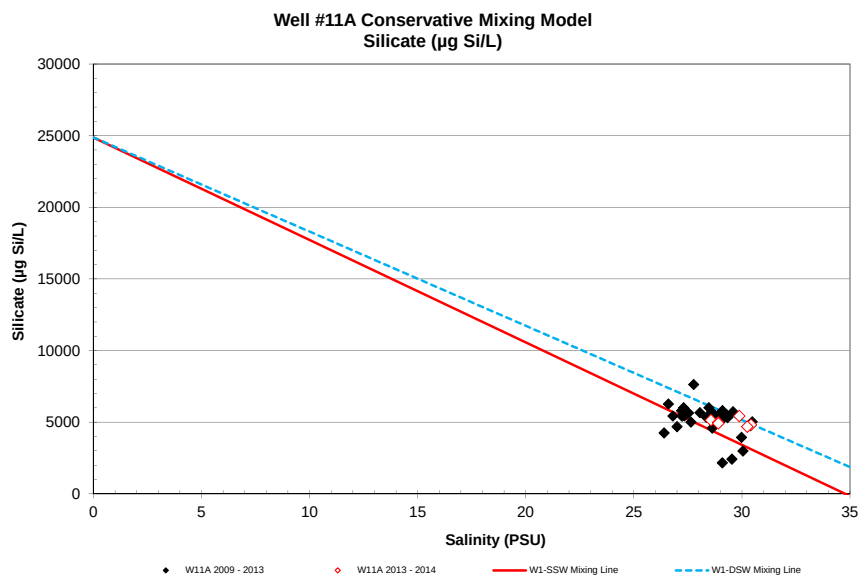

Well #11A Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W11A 2009 - 2013
W11A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

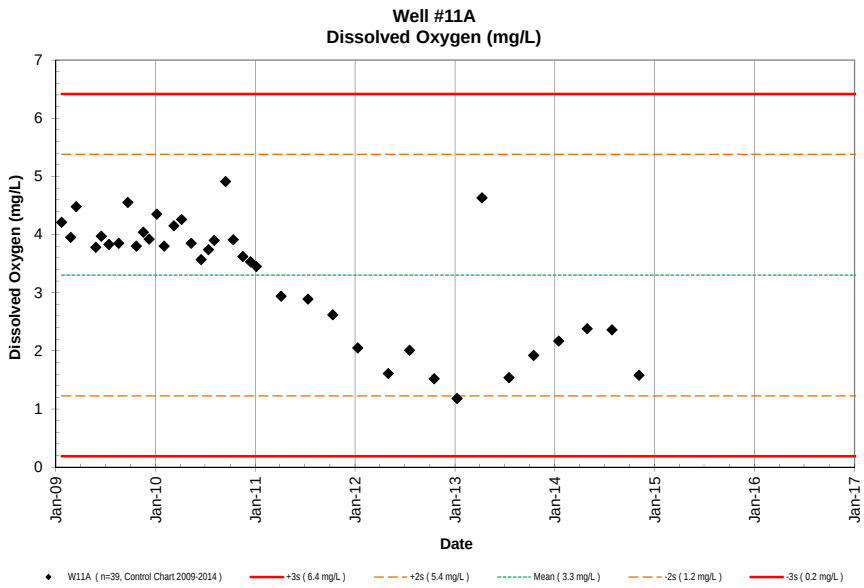

Well #11A Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W11A 2009 - 2013
W11A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

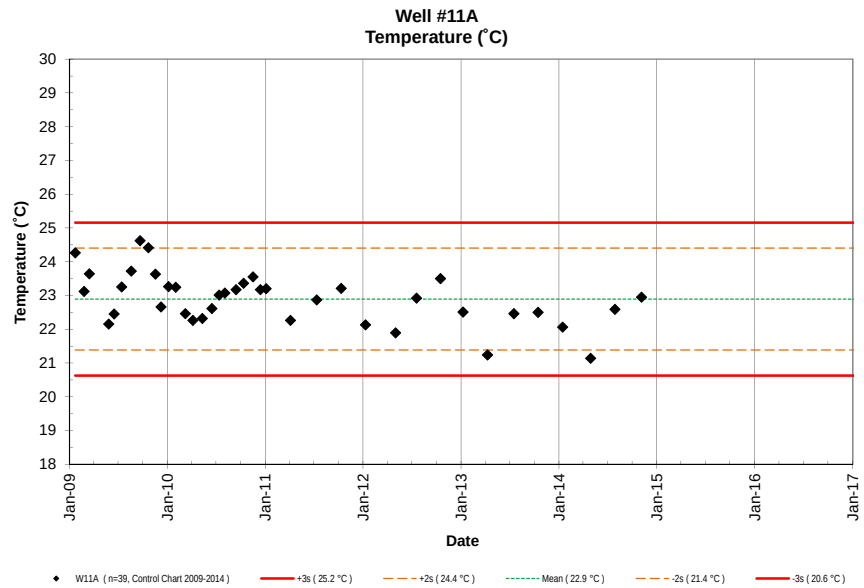

Well #11A
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W11A (n=39, Control Chart 2009-2014)
+3s (17.9 µg N/L)
+2s (13.7 µg N/L)
Mean (5.2 µg N/L)
-2s (-3.2 µg N/L)
-3s (-7.5 µg N/L)

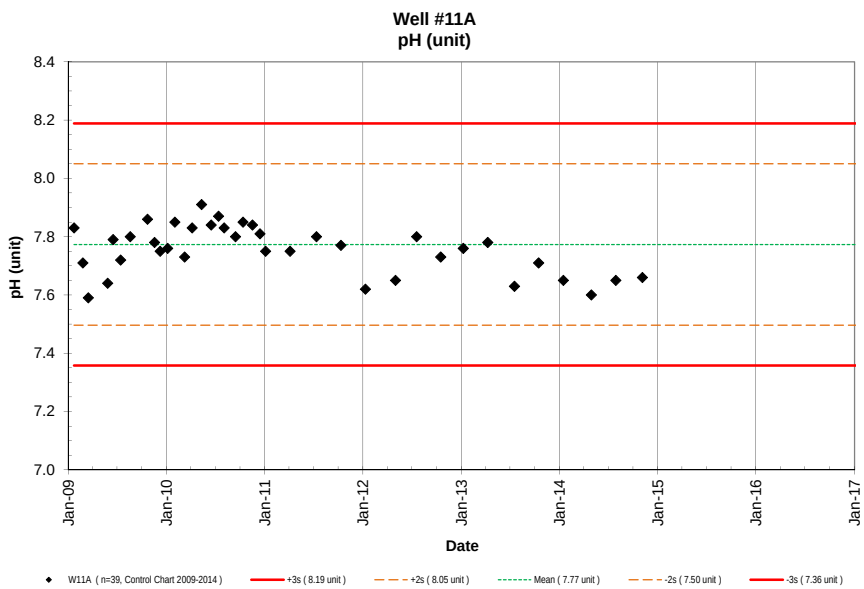

Well #11A
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W11A (n=39, Control Chart 2009-2014)
+3s (8080 µg Si/L)
+2s (7100 µg Si/L)
Mean (5139 µg Si/L)
-2s (3177 µg Si/L)
-3s (2197 µg Si/L)

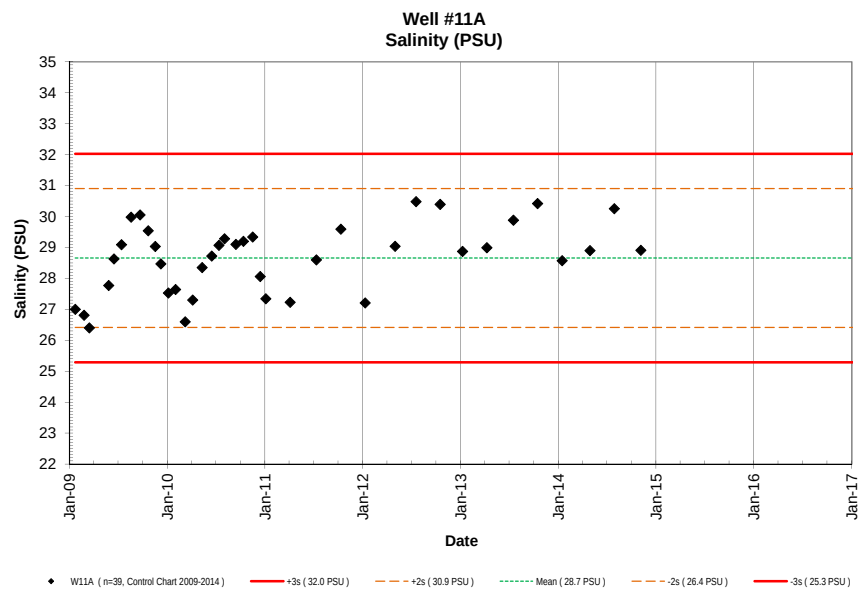

Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #11A
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W11A 2009 - 2013
W11A 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

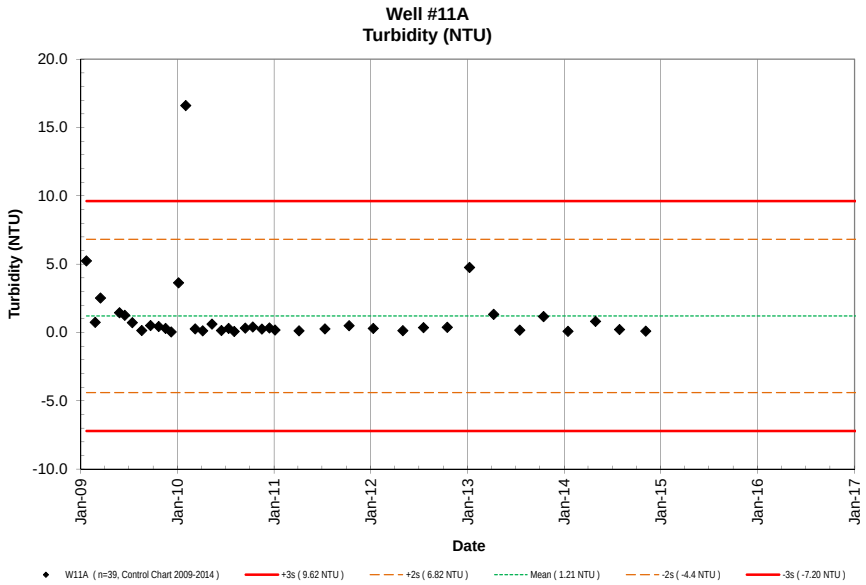

Well #11A Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W11A 2009 - 2013
W11A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

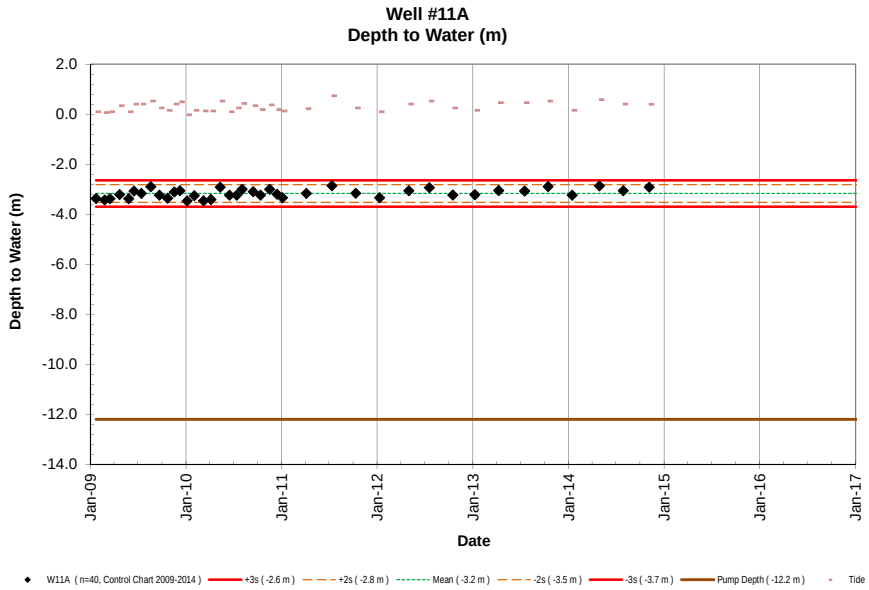

Well #11A
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W11A (n=39, Control Chart 2009-2014)
+3s (6.4 mg/L)
+2s (5.4 mg/L)
Mean (3.3 mg/L)
-2s (1.2 mg/L)
-3s (0.2 mg/L)


Well #11A
Temperature (˚C)
Temperature (˚C)
Date
W11A (n=39, Control Chart 2009-2014)
+3s (25.2 °C)
+2s (24.4 °C)
Mean (22.9 °C)
-2s (21.4 °C)
-3s (20.6 °C)


Well #11A
pH (unit)
pH (unit)
Date
W11A (n=39, Control Chart 2009-2014)
+3s (8.19 unit)
+2s (8.05 unit)
Mean (7.77 unit)
-2s (7.50 unit)
-3s (7.36 unit)


Well #11A
Salinity (PSU)
Salinity (PSU)
Date
W11A (n=39, Control Chart 2009-2014)
+3s (32.0 PSU)
+2s (30.9 PSU)
Mean (28.7 PSU)
-2s (26.4 PSU)
-3s (25.3 PSU)


Well #11A
Turbidity (NTU)
Turbidity (NTU)
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W11A (n=39, Control Chart 2009-2014)
+3s (9.62 NTU)
+2s (6.82 NTU)
Mean (1.21 NTU)
-2s (-4.4 NTU)
-3s (-7.20 NTU)

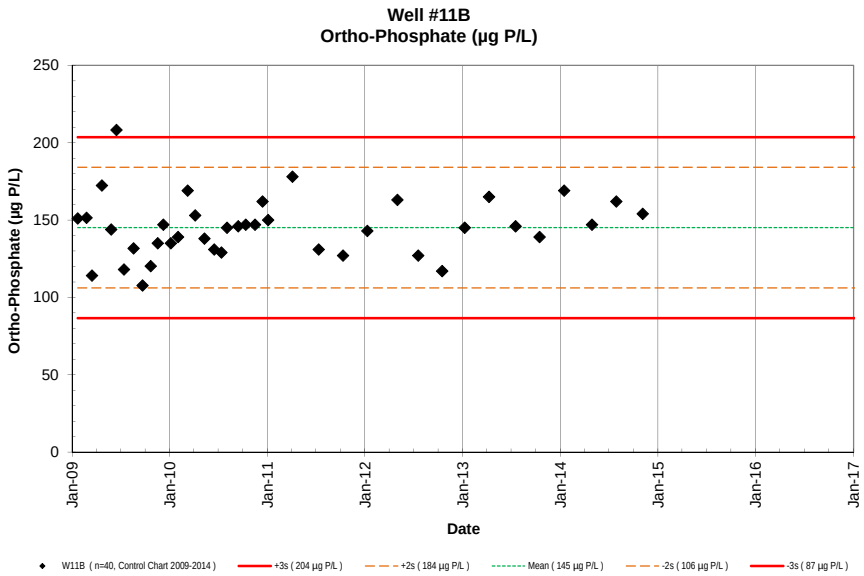

Well #11A
Depth to Water (m)
Depth to Water (m)
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
-12.0
-14.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W11A (n=40, Control Chart 2009-2014)
+3s (-2.6 m)
+2s (-2.8 m)
Mean (-3.2 m)
-2s (-3.5 m)
-3s (-3.7 m)
Pump Depth (-12.2 m)
Tide

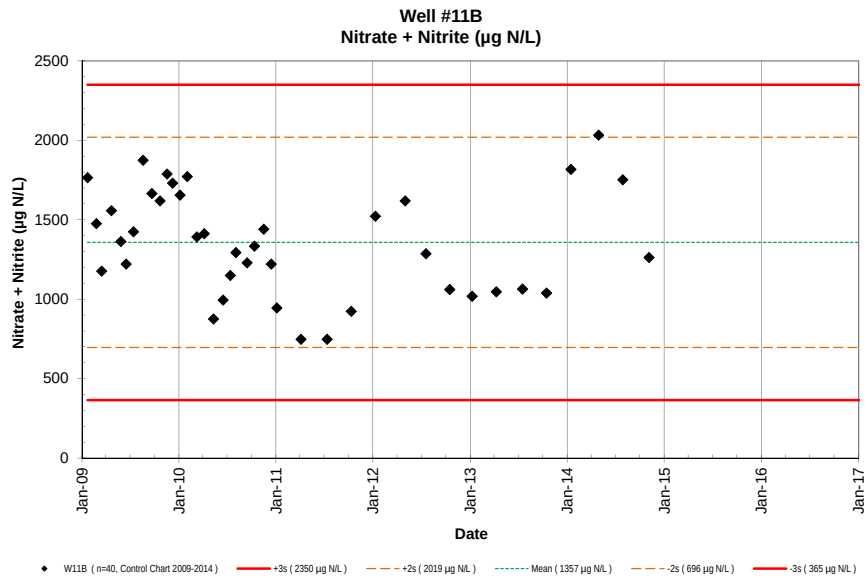
NELHA Water Quality Laboratory

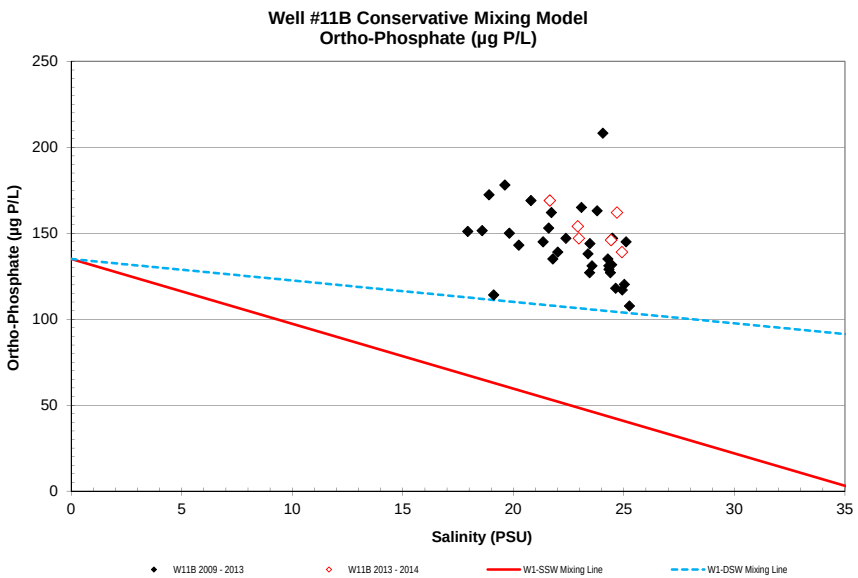
Well 11B Data Table

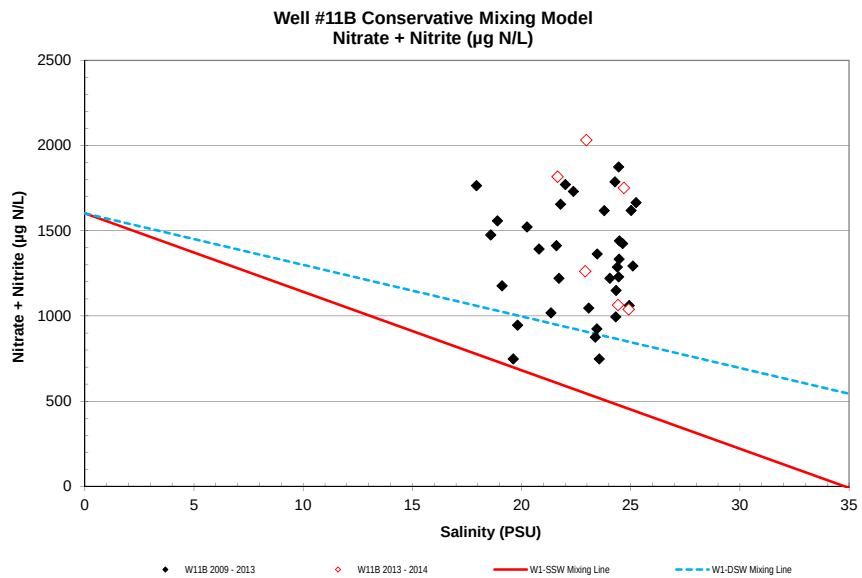
January 2009 - December 2014

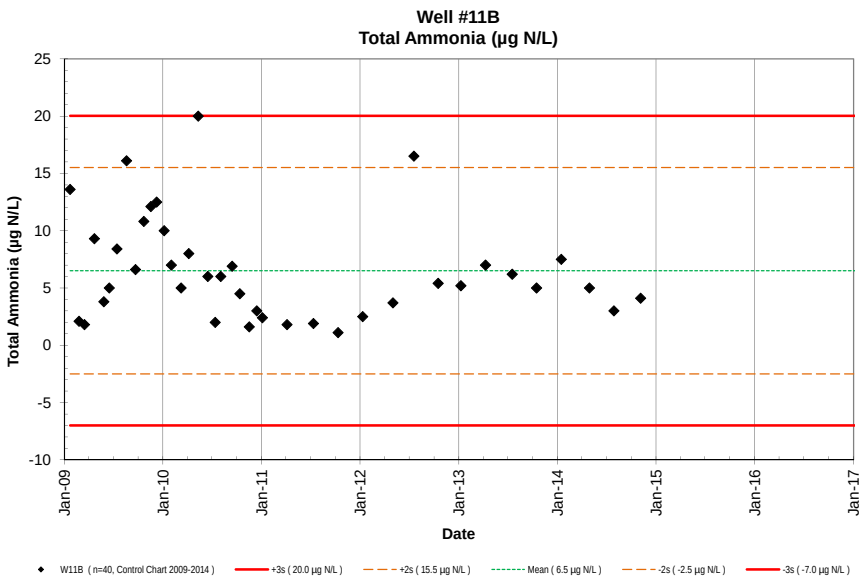
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W11B	-4.572	1/22/09	1014	-3.39	0.09	Low	4.88	151	126.0	1764	0.97	13.6	330	9255						25.8	7.60	17.94	4.28	0.50		
W11B	-4.572	2/24/09	927	-3.44	0.06	Ebb	4.89	152	105.3	1475	0.15	2.1	391	10995						24.4	7.50	18.59	4.11	0.29		
W11B	-4.572	3/16/09	1017	-3.39	0.09	Ebb	3.68	114	84.0	1177	0.13	1.8	260	7290						24.7	7.41	19.11	4.64	0.25		
W11B	-4.572	4/22/09	1235	-3.25	0.34	Flood	5.56	172	111.2	1557	0.66	9.3	271	7613						24.6	7.51	18.90	4.13	79.6		
W11B	-4.572	5/27/09	934	-3.40	0.09	Ebb	4.65	144	97.3	1363	0.27	3.8	444	12468						22.8	7.71	23.47	3.79	4.98		
W11B	-4.572	6/16/09	1335	-3.03	0.40	Ebb	6.72	208	87.1	1220	0.36	5.0	205	5761						23.5	7.44	24.05	3.79	0.11		
W11B	-4.572	7/14/09	1233	-3.18	0.40	Ebb	3.81	118	101.7	1425	0.60	8.4	128	3587						23.9	7.62	24.63	3.93	0.98		
W11B	-4.572	8/19/09	1304	-2.90	0.52	Flood	4.25	132	133.8	1874	1.15	16.1	253	7104						25.2	7.58	24.45	4.69	0.83		
W11B	-4.572	9/21/09	1441	-3.27	0.24	Flood	3.48	108	118.8	1665	0.47	6.6	164	4615						24.9	8.10	25.25	4.74	0.06		
W11B	-4.572	10/22/09	1517	-3.35	0.15	Low	3.88	120	115.5	1618	0.77	10.8	128	3586						25.3	7.60	25.02	4.77	0.15		
W11B	-4.572	11/17/09	744	-3.12	0.40	Ebb	4.36	135	127.6	1787	0.86	12.1	317	8896						25.1	7.59	24.28	4.73	0.06		
W11B	-4.572	12/8/09	823	-3.06	0.49	Flood	4.75	147	123.5	1730	0.89	12.5	338	9488						25.4	7.61	22.38	4.61	1.09		
W11B	-4.572	1/5/10	1444	-3.49	0.0	Low	4.36	135	118.2	1655	0.71	10.0	315	8848						25.4	7.68	21.79	5.07	1.28		
W11B	-4.572	2/1/10	1520	-3.31	0.15	Flood	4.49	139	126.4	1771	0.50	7.0	281	7890						24.2	7.70	22.01	4.10	5.38		
W11B	-4.572	3/9/10	1512	-3.43	0.12	Ebb	5.46	169	99.4	1392	0.36	5.0	361	10146						23.6	7.64	20.80	4.49	1.39		
W11B	-4.572	4/6/10	1342	-3.46	0.12	Ebb	4.94	153	100.8	1412	0.57	8.0	338	9490						23.0	7.65	21.60	4.80	0.50		
W11B	-4.572	5/11/10	1407	-2.93	0.52	Flood	4.46	138	62.5	875	1.43	20.0	296	8307						23.1	7.70	23.38	3.78	0.23		
W11B	-4.572	6/16/10	900	-3.25	0.09	Ebb	4.23	131	71.0	994	0.43	6.0	309	8691						23.2	7.63	24.32	3.53	0.06		
W11B	-4.572	7/13/10	1417	-3.21	0.24	Flood	4.16	129	82.0	1149	0.14	2.0	332	9324						23.4	7.61	24.33	4.23	0.17		
W11B	-4.572	8/3/10	1412	-3.00	0.43	Ebb	4.68	145	92.3	1293	0.43	6.0	321	9017						23.9	7.62	25.10	3.98	0.04		
W11B	-4.572	9/14/10	1443	-3.06	0.34	Ebb	4.71	146	87.7	1229	0.49	6.9	343	9634						24.2	7.58	24.45	4.56	0.37		
W11B	-4.572	10/12/10	1500	-3.28	0.18	Low	4.75	147	95.2	1333	0.32	4.5	330	9258						24.1	7.65	24.47	4.61	0.14		
W11B	-4.572	11/16/10	1347	-3.01	0.37	Ebb	4.75	147	102.8	1440	0.11	1.6	327	9185						24.2	7.62	24.49	3.95	0.24		
W11B	-4.572	12/14/10	1418	-3.21	0.18	Ebb	5.23	162	87.2	1221	0.21	3.0	385	10806						24.2	7.67	21.72	4.26	0.10		
W11B	-4.572	1/4/11	1342	-3.33	0.12	Flood	4.84	150	67.5	945	0.17	2.4	361	10151						24.2	7.49	19.82	3.85	0.09		
W11B	-4.572	4/5/11	1422	-3.17	0.21	Flood	5.75	178	53.3	747	0.13	1.8	372	10441						23.3	7.52	19.62	2.16	0.28		
W11B	-4.572	7/12/11	1407	-2.88	0.73	Flood	4.23	131	53.3	747	0.14	1.9	341	9590						23.5	7.46	23.56	2.79	0.50		
W11B	-4.572	10/11/11	1255	-3.18	0.24	Flood	4.10	127	66.0	924	0.08	1.1	334	9384						23.6	7.45	23.45	3.76	0.17		
W11B	-4.572	1/10/12	1447	-3.37	0.09	Flood	4.62	143	108.7	1522	0.18	2.5	392	10998						23.2	7.40	20.25	3.08	0.16		
W11B	-4.572	5/1/12	1506	-3.15	0.40	Ebb	5.26	163	115.5	1618	0.26	3.7	371	10424						22.6	7.41	23.79	1.98	0.08		
W11B	-4.572	7/18/12	1418	-2.96	0.52	Flood	4.10	127	91.8	1286	1.18	16.5	340	9549						23.0	7.39	24.39	2.43	0.15		
W11B	-4.572	10/16/12	1346	-3.25	0.24	Flood	3.78	117	75.7	1061	0.39	5.4	329	9248						23.9	7.30	24.93	2.51	0.38		
W11B	-4.572	1/8/13	1504	-3.22	0.15	Ebb	4.68	145	72.7	1018	0.37	5.2	386	10834						23.6	7.32	21.35	2.82	6.99		
W11B	-4.572	4/9/13	1442	-3.07	0.46	Flood	5.33	165	74.7	1046	0.50	7.0	350	9840						22.4	7.43	23.08	1.91	2.87		
W11B	-4.572	7/17/13	1556	-3.09	0.46	Ebb	4.71	146	76.0	1064	0.44	6.2	345	9703						23.6	7.41	24.42	3.96	0.10		
W11B	-4.572	10/15/13	1439	-2.91	0.52	Ebb	4.49	139	74.1	1038	0.36	5.0	325	9114						24.2	7.44	24.91	3.62	2.07		
W11B	-4.572	1/15/14	1430	-3.30	0.15	Flood	5.46	169	129.7	1817	0.54	7.5	343	9637						24.0	7.54	21.65	4.02	1.81		
W11B	-4.572	4/29/14	1626	-2.88	0.58	High	4.75	147	145.1	2032	0.36	5.0	319	8955						22.6	7.43	22.97	3.34	1.77		
W11B	-4.572	7/29/14	1516	-3.07	0.40	Flood	5.23	162	125.0	1751	0.21	3.0	328	9219						22.8	7.75	24.69	4.43	0.26		
W11B	-4.572	11/5/14	1500	-2.93	0.40	High	4.97	154	90.1	1262	0.29	4.1	296	8301						24.9	7.50	22.92	3.59	1.38		
W11B	-4.572	1/1/15																								
W11B	-4.572	4/1/15																								

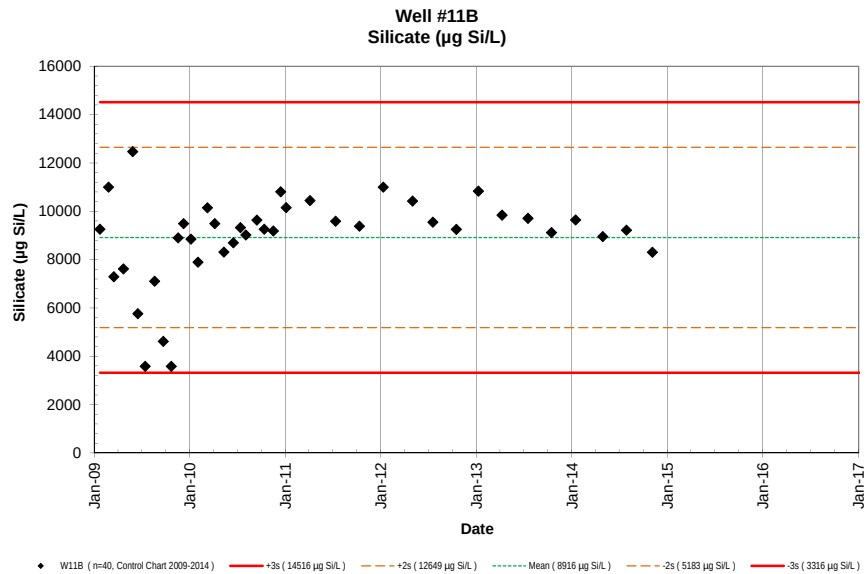

Well #11B
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W11B (n=40, Control Chart 2009-2014)
+3s (204 µg P/L)
+2s (184 µg P/L)
Mean (145 µg P/L)
-2s (106 µg P/L)
-3s (87 µg P/L)

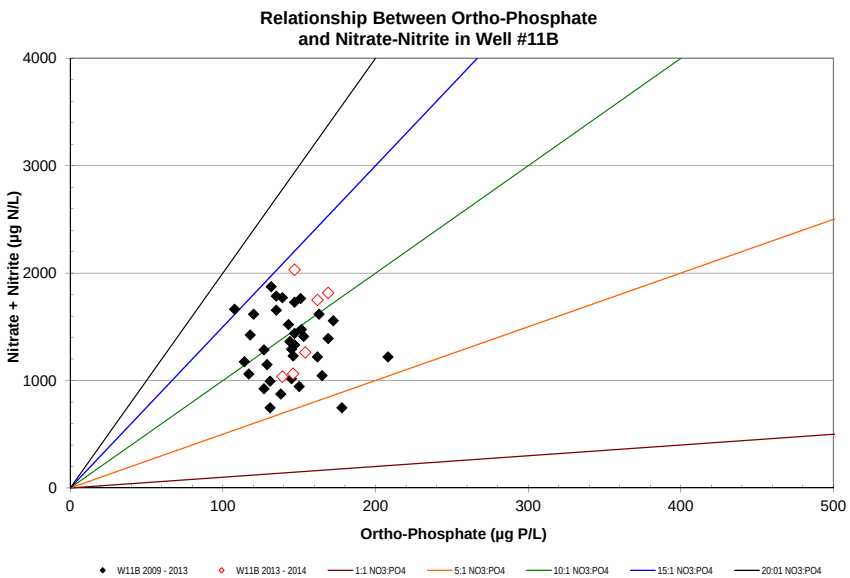

Well #11B
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W11B (n=40, Control Chart 2009-2014)
+3s (2350 µg N/L)
+2s (2019 µg N/L)
Mean (1357 µg N/L)
-2s (696 µg N/L)
-3s (365 µg N/L)

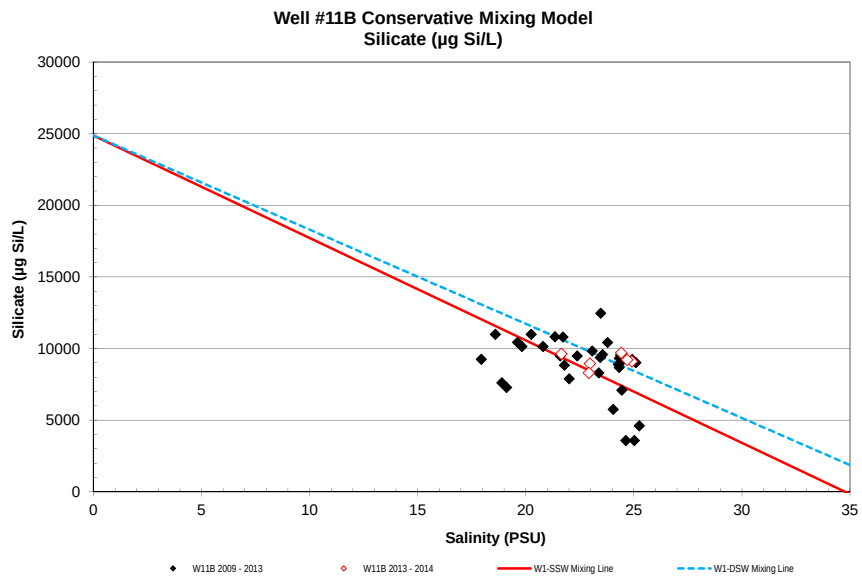

Well #11B Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W11B 2009 - 2013
W11B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

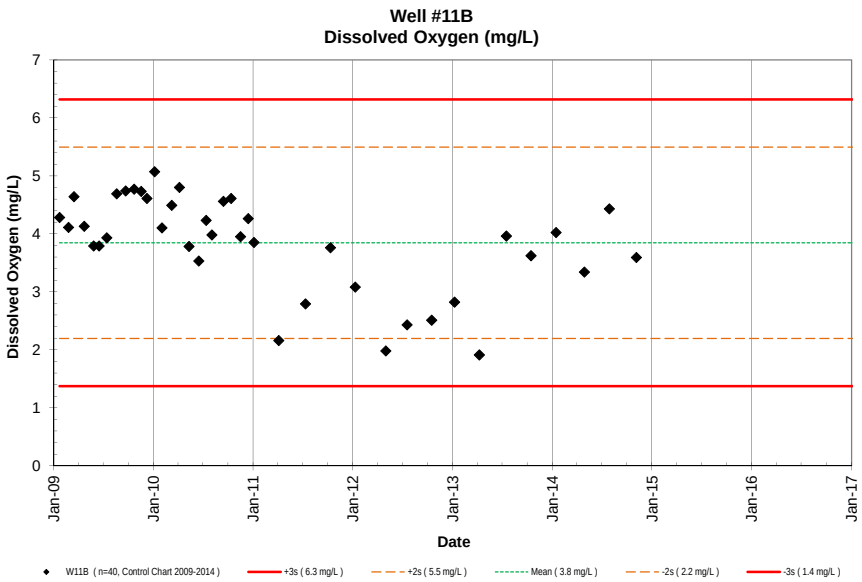

Well #11B Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W11B 2009 - 2013
W11B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

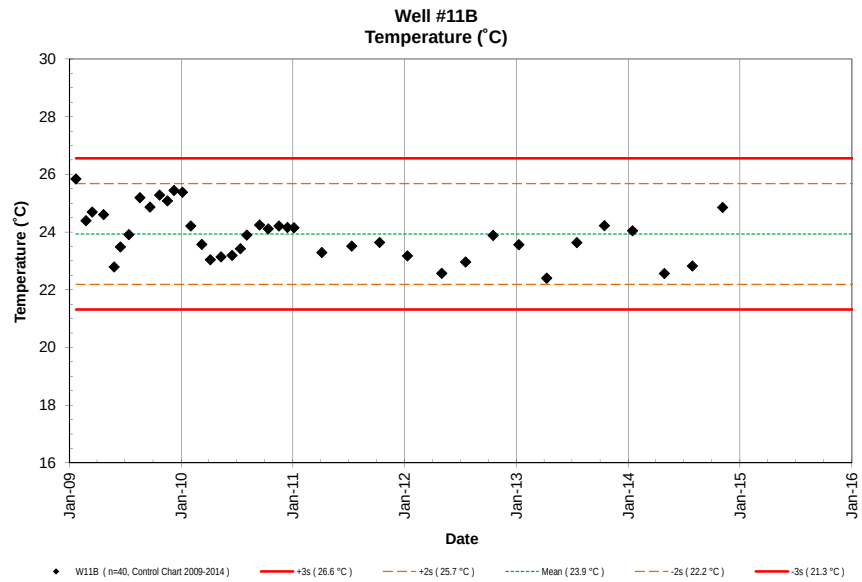

Well #11B
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W11B (n=40, Control Chart 2009-2014)
+3s (20.0 µg N/L)
+2s (15.5 µg N/L)
Mean (6.5 µg N/L)
-2s (-2.5 µg N/L)
-3s (-7.0 µg N/L)

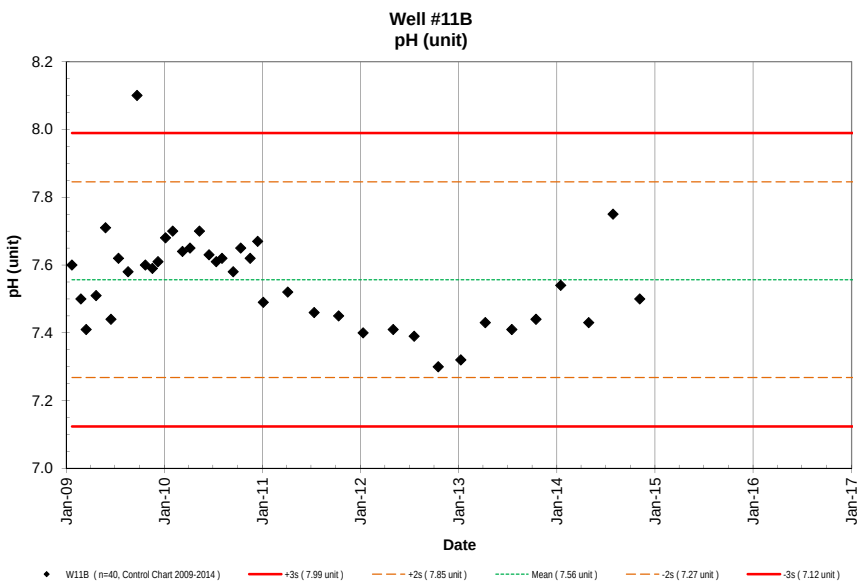

Well #11B
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W11B (n=40, Control Chart 2009-2014)
+3s (14516 µg Si/L)
+2s (12649 µg Si/L)
Mean (8916 µg Si/L)
-2s (5183 µg Si/L)
-3s (3316 µg Si/L)

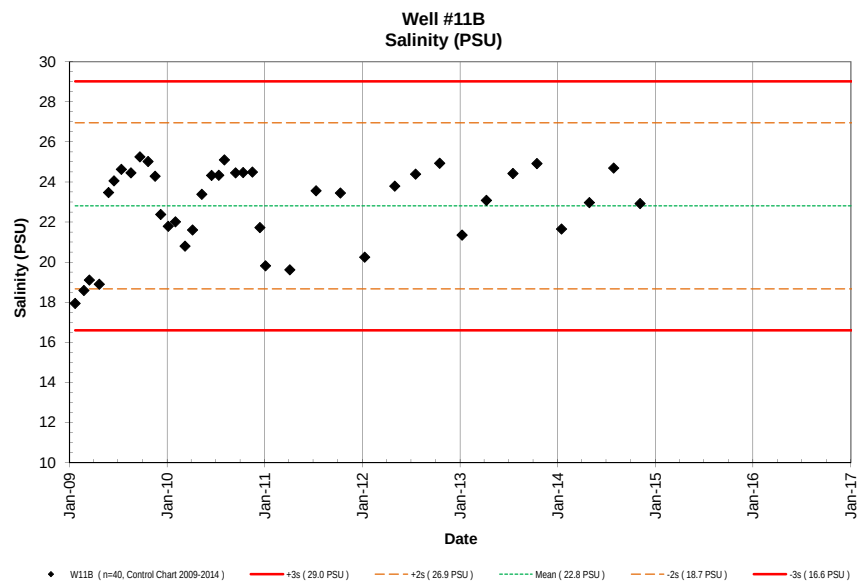

Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #11B
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W11B 2009 - 2013
W11B 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

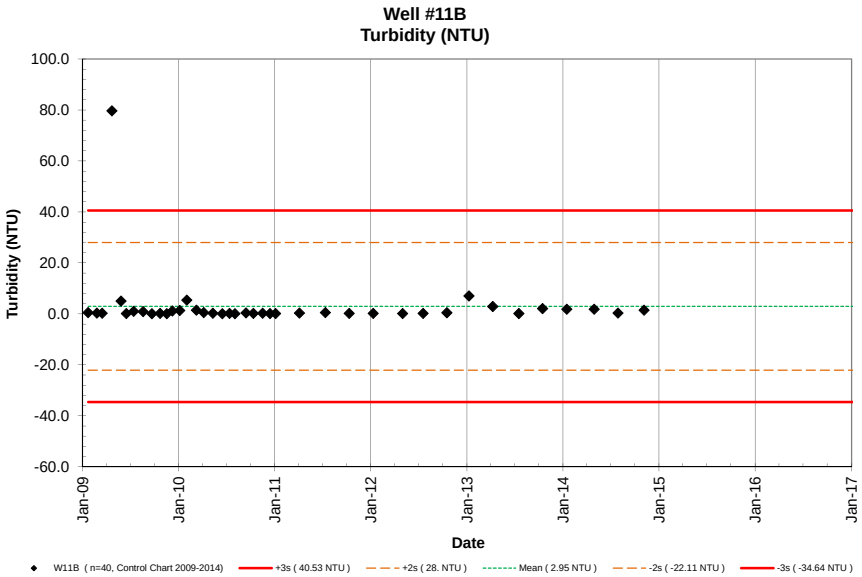

Well #11B Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W11B 2009 - 2013
W11B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

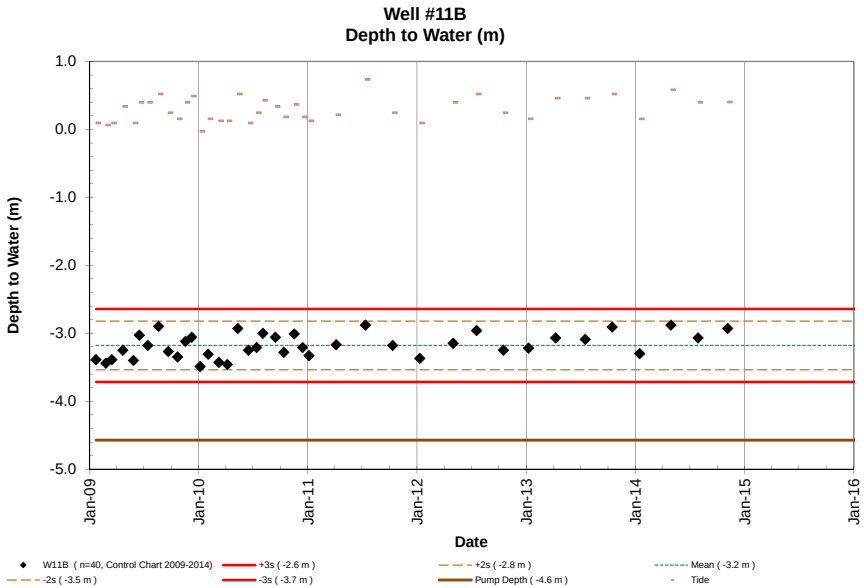

Well #11B
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W11B (n=40, Control Chart 2009-2014)
+3s (6.3 mg/L)
+2s (5.5 mg/L)
Mean (3.8 mg/L)
-2s (2.2 mg/L)
-3s (1.4 mg/L)


Well #11B
Temperature (˚C)
Temperature (˚C)
Date
W11B (n=40, Control Chart 2009-2014)
+3s (26.6 °C)
+2s (25.7 °C)
Mean (23.9 °C)
-2s (22.2 °C)
-3s (21.3 °C)


Well #11B
pH (unit)
pH (unit)
Date
W11B (n=40, Control Chart 2009-2014)
+3s (7.99 unit)
+2s (7.85 unit)
Mean (7.56 unit)
-2s (7.27 unit)
-3s (7.12 unit)


Well #11B
Salinity (PSU)
Salinity (PSU)
Date
W11B (n=40, Control Chart 2009-2014)
+3s (29.0 PSU)
+2s (26.9 PSU)
Mean (22.8 PSU)
-2s (18.7 PSU)
-3s (16.6 PSU)


Well #11B
Turbidity (NTU)
Turbidity (NTU)
100.0
80.0
60.0
40.0
20.0
0.0
-20.0
-40.0
-60.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W11B (n=40, Control Chart 2009-2014)
+3s (40.53 NTU)
+2s (28. NTU)
Mean (2.95 NTU)
-2s (-22.11 NTU)
-3s (-34.64 NTU)

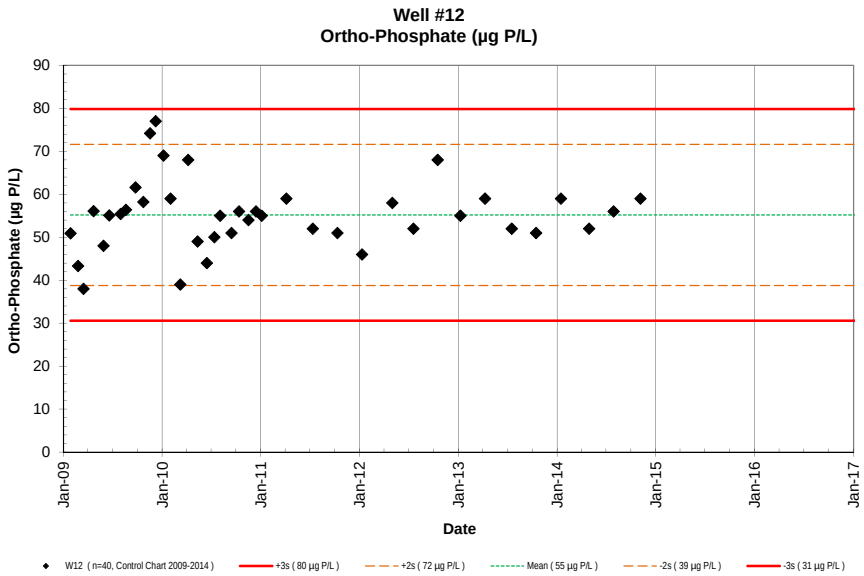

Well #11B
Depth to Water (m)
Depth to Water (m)
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Date
W11B (n=40, Control Chart 2009-2014)
+3s (-2.6 m)
+2s (-2.8 m)
Mean (-3.2 m)
-2s (-3.5 m)
-3s (-3.7 m)
Pump Depth (-4.6 m)
Tide

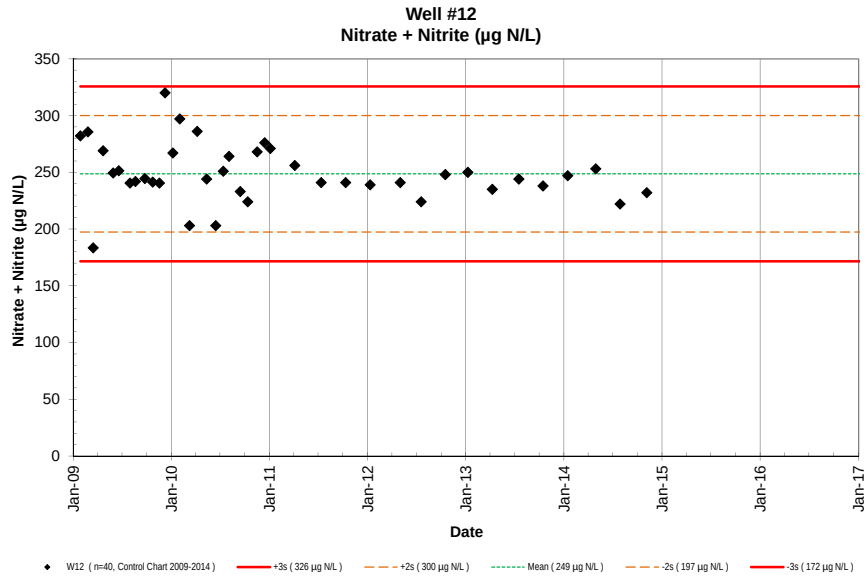
NELHA Water Quality Laboratory

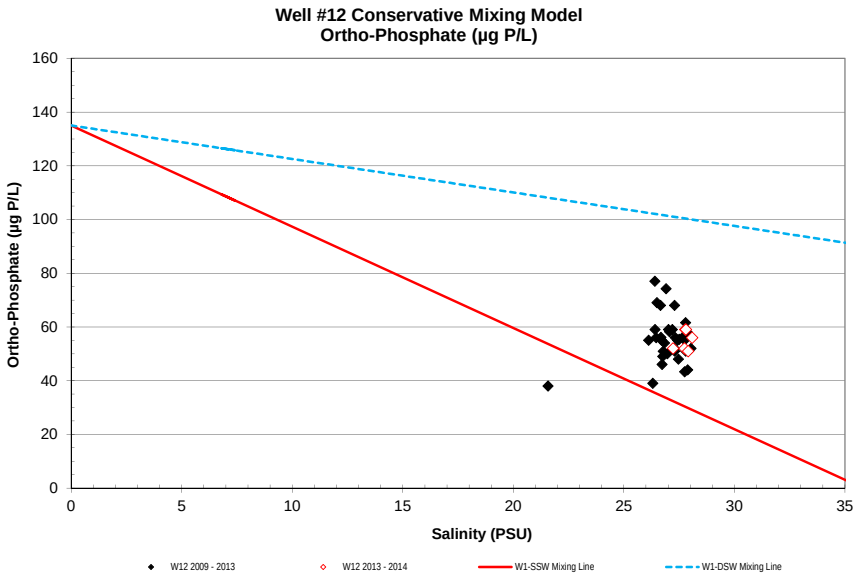
Well 12 Data Table

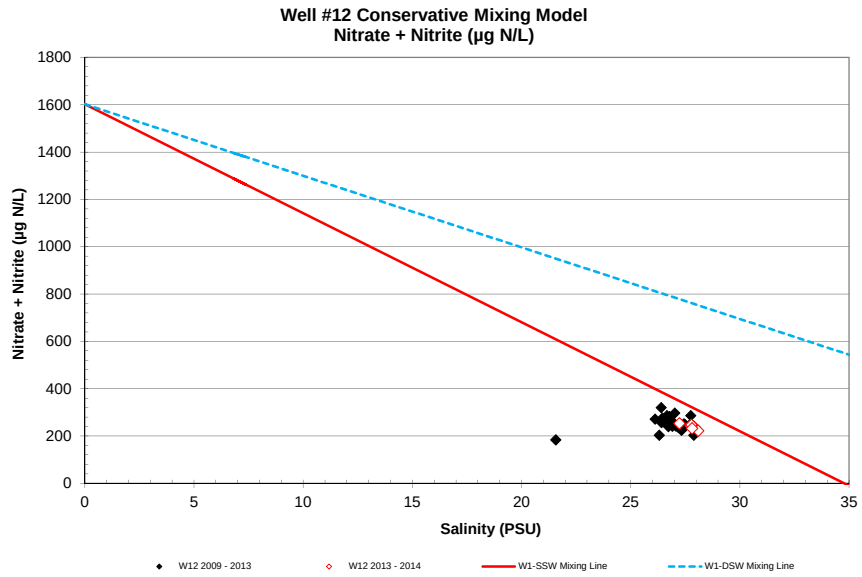
January 2009 - December 2014

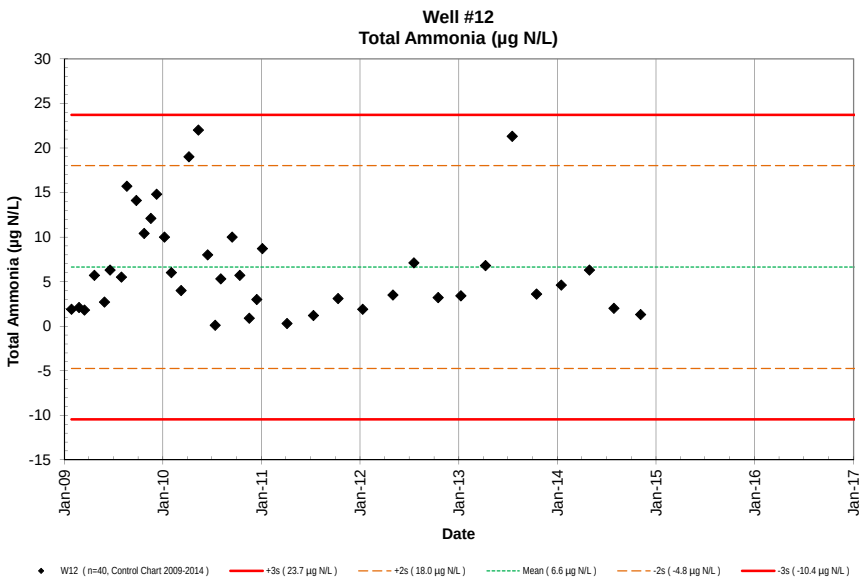
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W12	-18.288	01/27/09	1024	-5.37	0.09	Ebb	1.64	51	20.1	282	0.14	1.9	146	4094						24.0	7.90	26.78	1.53	0.42		
W12	-18.288	02/24/09	1440	-5.32	0.24	Flood	1.40	43	20.4	286	0.15	2.1	319	8965						22.9	7.74	27.75	1.49	0.10		
W12	-18.288	03/16/09	1440	-5.56	0.06	Flood	1.23	38	13.1	184	0.13	1.8	233	6549						24.0	7.68	21.57	2.65	0.11		
W12	-18.288	04/22/09	922	-5.58	0.00	Flood	1.81	56	19.2	269	0.41	5.7	280	7867						24.6	7.64	26.68	1.69	1.81		
W12	-18.288	05/29/09	1324	-5.49	0.12	Low	1.55	48	17.8	249	0.19	2.7	482	13529						21.7	7.73	27.47	1.60	0.04		
W12	-18.288	06/19/09	1343	-4.89	0.70	High	1.78	55	17.9	251	0.45	6.3	218	6137						21.7	7.86	27.75	1.52	0.07		
W12	-18.288	07/31/09	1355	-4.90	0.64	High	1.79	55	17.2	241	0.39	5.5	226	6349						21.8	7.80	27.50	1.54	0.04		
W12	-18.288	08/20/09	1443	-4.91	0.61	Flood	1.82	56	17.3	242	1.12	15.7	287	8067						21.9	7.85	27.70	1.45	0.02		
W12	-18.288	09/24/09	1413	-5.30	0.30	Ebb	1.99	62	17.5	245	1.01	14.1	242	6800						21.8	8.30	27.79	1.57	0.05		
W12	-18.288	10/23/09	1606	-5.40	0.15	Low	1.88	58	17.2	241	0.74	10.4	169	4743						21.7	7.80	27.07	1.80	0.03		
W12	-18.288	11/17/09	1537	-5.51	0.21	Flood	2.40	74	17.2	241	0.86	12.1	283	7951						21.7	7.80	26.91	1.75	0.11		
W12	-18.288	12/08/09	1150	-5.23	0.37	Ebb	2.49	77	22.8	320	1.06	14.8	367	10317						22.1	7.75	26.40	1.67	0.02		
W12	-18.288	01/06/10	1121	-5.22	0.21	Ebb	2.23	69	19.1	267	0.71	10.0	333	9363						22.3	7.80	26.50	1.67	0.04		
W12	-18.288	02/01/10	1105	-5.33	0.00	Ebb	1.90	59	21.2	297	0.43	6.0	347	9736						22.2	7.87	27.02	2.03	0.10		
W12	-18.288	03/09/10	1058	-5.58	0.15	Flood	1.26	39	14.5	203	0.29	4.0	364	10231						23.2	7.81	26.31	1.91	0.09		
W12	-18.288	04/07/10	826	-5.50	0.09	Flood	2.20	68	20.4	286	1.36	19.0	341	9584						23.1	7.85	26.66	1.73	0.08		
W12	-18.288	05/12/10	1028	-5.53	0.06	Flood	1.58	49	17.4	244	1.57	22.0	328	9226						22.9	7.88	26.76	1.79	0.03		
W12	-18.288	06/15/10	1614	-5.24	0.46	Flood	1.42	44	14.5	203	0.57	8.0	298	8377						21.4	7.91	27.89	1.48	0.03		
W12	-18.288	7/13/10	1528	-4.96	0.46	Flood	1.61	50	17.9	251	0.01	0.1	363	10183						21.3	7.87	26.97	1.64	0.06		
W12	-18.288	8/3/10	1624	-5.15	0.30	Ebb	1.78	55	18.8	264	0.38	5.3	364	10236						21.4	7.86	26.71	1.68	0.04		
W12	-18.288	9/14/10	1630	-5.31	0.24	Low	1.65	51	16.6	233	0.71	10.0	345	9692						21.4	7.86	27.80	1.52	0.08		
W12	-18.288	10/12/10	1649	-5.27	0.18	Low	1.81	56	16.0	224	0.41	5.7	359	10095						21.4	7.86	27.33	1.70	0.33		
W12	-18.288	11/16/10	1531	-5.20	0.24	Ebb	1.74	54	19.1	268	0.06	0.9	377	10576						21.4	7.84	26.84	1.60	0.13		
W12	-18.288	12/14/10	1559	-5.39	0.06	Ebb	1.81	56	19.7	276	0.21	3.0	385	10806						21.4	7.84	26.46	1.59	0.08		
W12	-18.288	1/4/11	1540	-5.32	0.21	Flood	1.78	55	19.3	271	0.62	8.7	363	10191						21.3	7.76	26.12	1.68	0.09		
W12	-18.288	4/5/11	1552	-5.05	0.46	Flood	1.90	59	18.3	256	0.02	0.3	337	9473						21.3	7.70	26.41	1.39	0.07		
W12	-18.288	7/12/11	1556	-4.94	0.73	Ebb	1.68	52	17.2	241	0.09	1.2	334	9381						21.5	7.82	27.29	1.26	0.09		
W12	-18.288	10/11/11	1523	-5.10	0.43	High	1.65	51	17.2	241	0.22	3.1	339	9525						21.5	7.81	27.30	1.47	0.03		
W12	-18.288	1/10/12	1646	-5.32	0.24	Flood	1.49	46	17.1	239	0.14	1.9	322	9031						21.5	7.79	26.73	1.55	0.62		
W12	-18.288	5/1/12	1604	-5.18	0.30	Ebb	1.87	58	17.2	241	0.25	3.5	344	9675						21.4	7.80	27.87	1.40	0.05		
W12	-18.288	7/18/12	1454	-4.95	0.64	Flood	1.68	52	16.0	224	0.51	7.1	330	9260						21.6	7.92	28.04	1.49	0.07		
W12	-18.288	10/16/12	1446	-5.25	0.30	Flood	2.20	68	17.7	248	0.23	3.2	343	9630						21.4	7.82	27.29	1.50	0.10		
W12	-18.288	1/8/13	1545	-5.39	-0.03	Ebb	1.78	55	17.8	250	0.24	3.4	366	10268						21.4	7.77	27.43	1.48	2.25		
W12	-18.288	4/9/13	1525	-5.03	0.55	High	1.90	59	16.8	235	0.49	6.8	346	9721						21.4	7.82	27.19	1.37	0.04		
W12	-18.288	7/17/13	1644	-5.24	0.30	Ebb	1.68	52	17.4	244	1.52	21.3	334	9393						21.9	7.78	27.74	1.45	0.16		
W12	-18.288	10/15/13	1512	-5.08	0.49	Ebb	1.65	51	17.0	238	0.26	3.6	327	9187						21.5	7.78	27.91	1.47	0.16		
W12	-18.288	1/15/14	1513	-5.34	0.15	Flood	1.90	59	17.6	247	0.33	4.6	336	9442						21.9	7.88	27.78	1.71	0.03		
W12	-18.288	4/29/14	1739	-4.95	0.61	High	1.68	52	18.1	253	0.45	6.3	337	9474						21.5	7.76	27.23	1.73	0.14		
W12	-18.288	7/29/14	1558	-5.09	0.46	Flood	1.81	56	15.8	222	0.14	2.0	331	9287						22.8	7.75	28.09	1.96	0.06		
W12	-18.288	11/5/14	1541	-5.05	0.36	Ebb	1.90	59	16.6	232	0.09	1.3	317	8893						21.9	7.77	27.81	1.40	0.10		
W12	-18.288	1/1/15																								
W12	-18.288	4/1/15																								

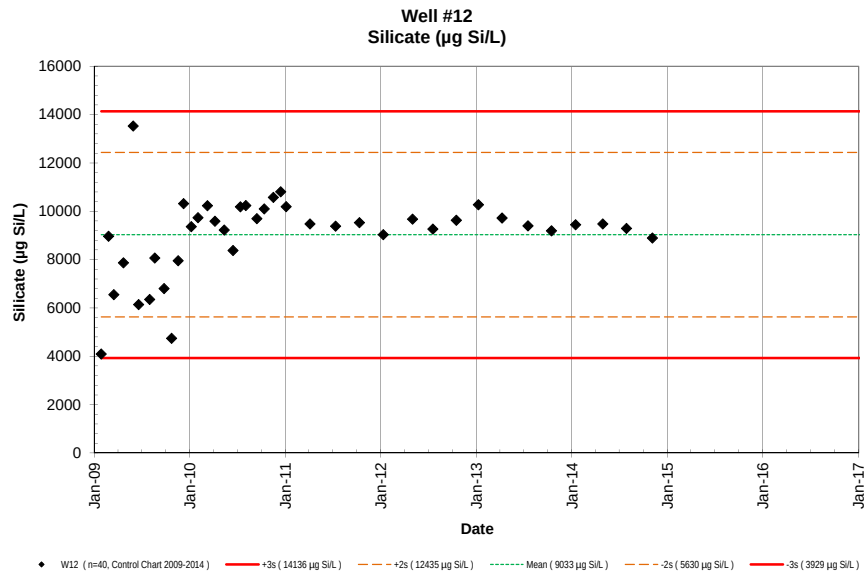

Well #12
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W12 (n=40, Control Chart 2009-2014)
+3s (80 µg P/L)
+2s (72 µg P/L)
Mean (55 µg P/L)
-2s (39 µg P/L)
-3s (31 µg P/L)

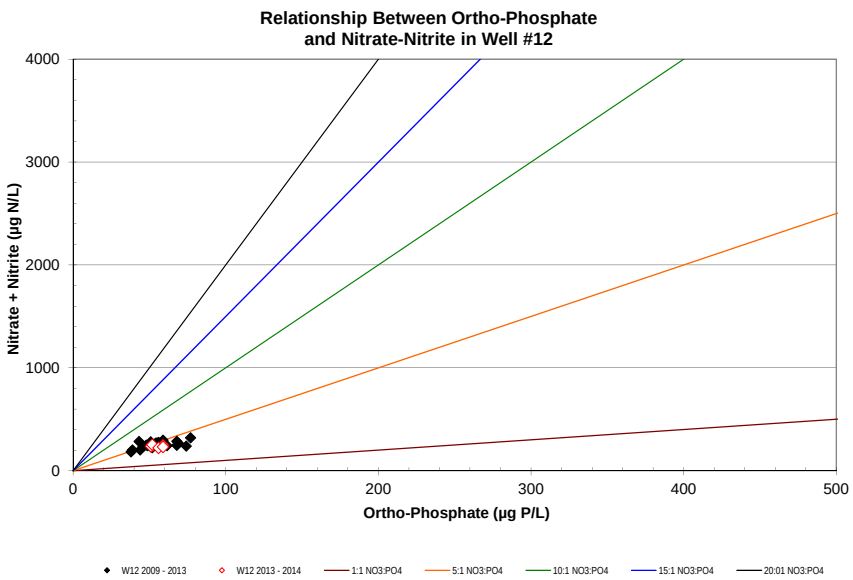

Well #12
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W12 (n=40, Control Chart 2009-2014)
+3s (326 µg N/L)
+2s (300 µg N/L)
Mean (249 µg N/L)
-2s (197 µg N/L)
-3s (172 µg N/L)

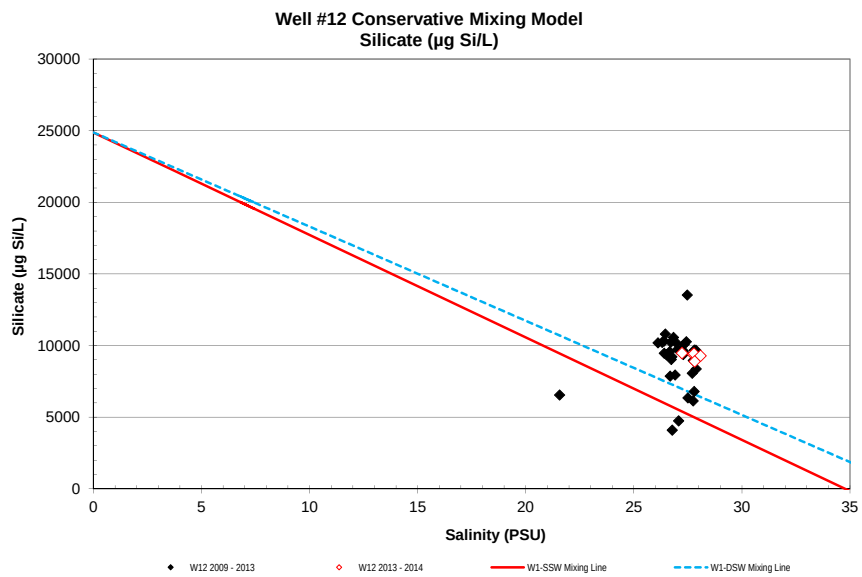

Well #12 Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W12 2009 - 2013
W12 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

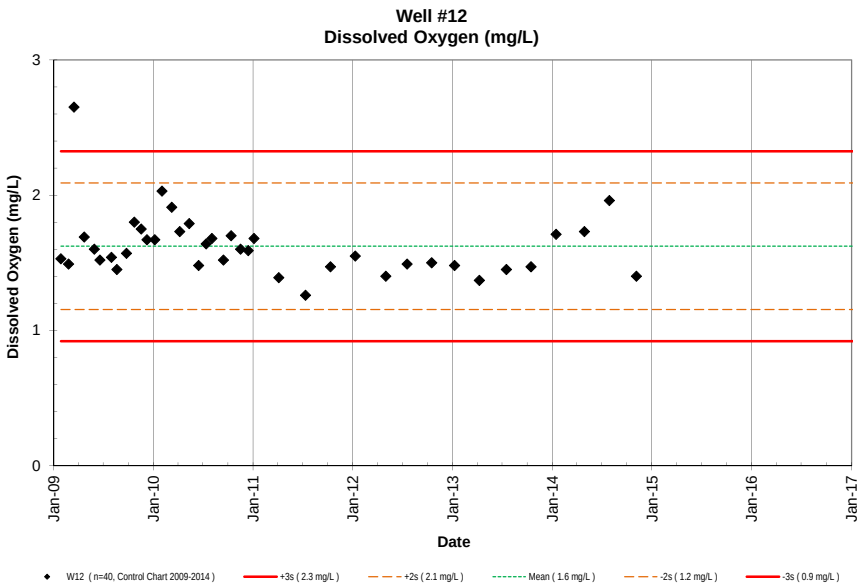

Well #12 Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W12 2009 - 2013
W12 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

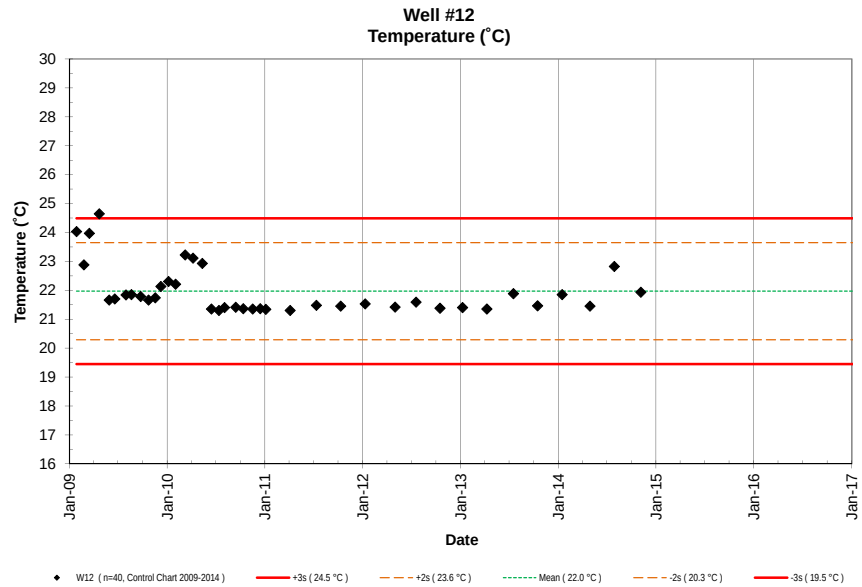

Well #12
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W12 (n=40, Control Chart 2009-2014)
+3s (23.7 µg N/L)
+2s (18.0 µg N/L)
Mean (6.6 µg N/L)
-2s (-4.8 µg N/L)
-3s (-10.4 µg N/L)

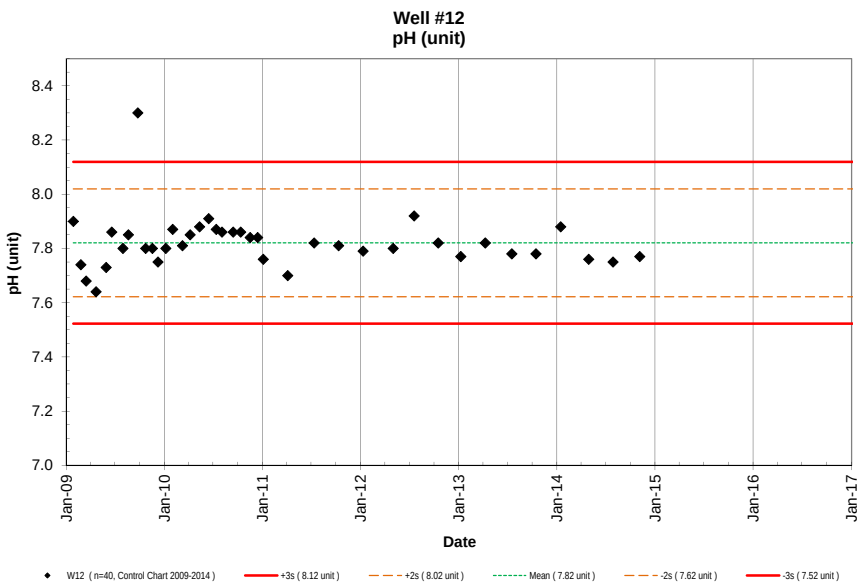

Well #12
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W12 (n=40, Control Chart 2009-2014)
+3s (14136 µg Si/L)
+2s (12435 µg Si/L)
Mean (9033 µg Si/L)
-2s (5630 µg Si/L)
-3s (3929 µg Si/L)

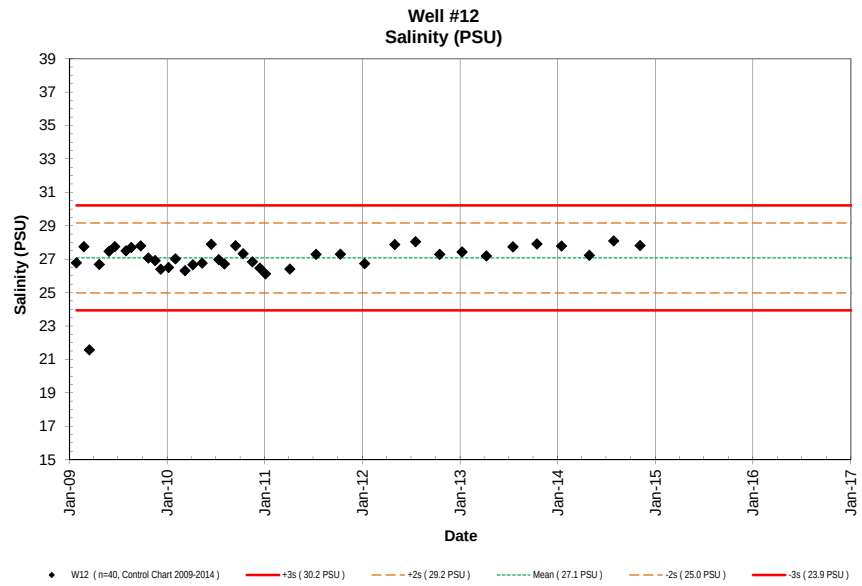

Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #12
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W12 2009 - 2013
W12 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

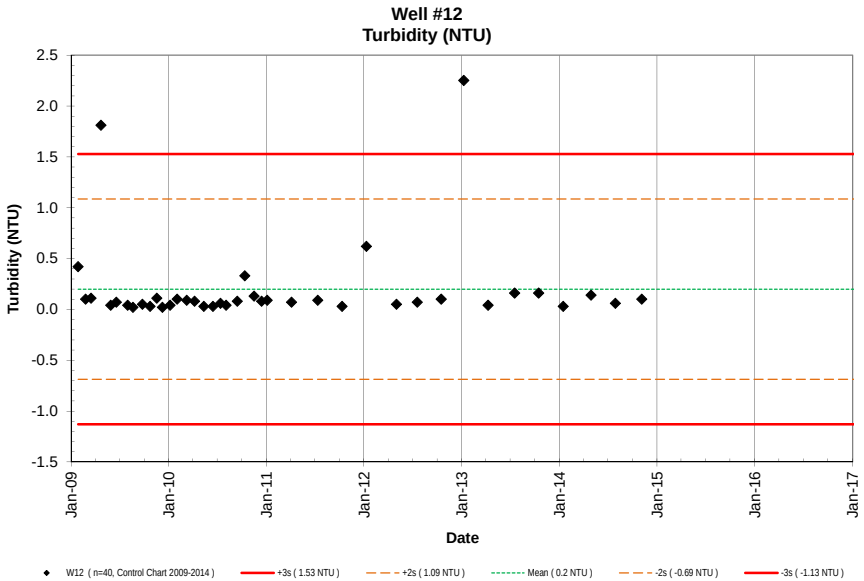

Well #12 Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W12 2009 - 2013
W12 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

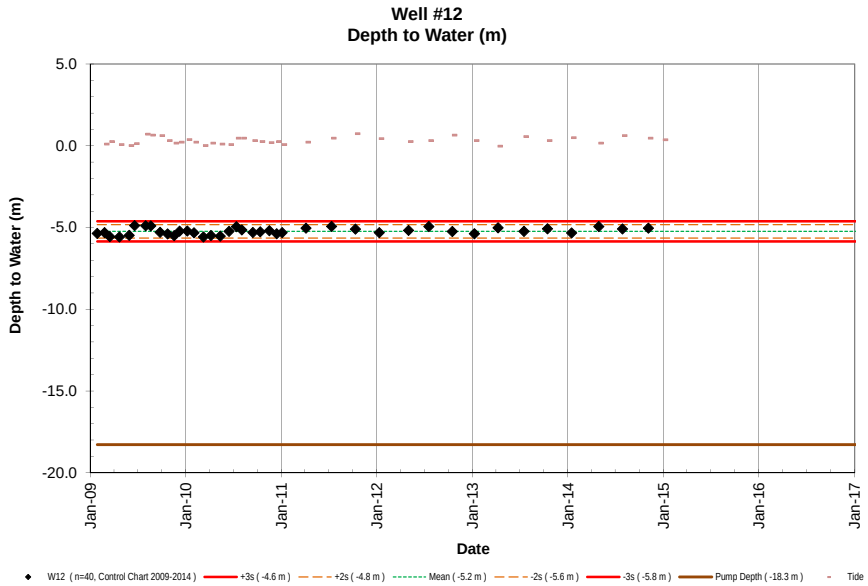

Well #12
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W12 (n=40, Control Chart 2009-2014)
+3s (2.3 mg/L)
+2s (2.1 mg/L)
Mean (1.6 mg/L)
-2s (1.2 mg/L)
-3s (0.9 mg/L)


Well #12
Temperature (˚C)
Temperature (˚C)
Date
W12 (n=40, Control Chart 2009-2014)
+3s (24.5 °C)
+2s (23.6 °C)
Mean (22.0 °C)
-2s (20.3 °C)
-3s (19.5 °C)


Well #12
pH (unit)
pH (unit)
Date
W12 (n=40, Control Chart 2009-2014)
+3s (8.12 unit)
+2s (8.02 unit)
Mean (7.82 unit)
-2s (7.62 unit)
-3s (7.52 unit)


Well #12
Salinity (PSU)
Salinity (PSU)
Date
W12 (n=40, Control Chart 2009-2014)
+3s (30.2 PSU)
+2s (29.2 PSU)
Mean (27.1 PSU)
-2s (25.0 PSU)
-3s (23.9 PSU)


Well #12
Turbidity (NTU)
Turbidity (NTU)
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W12 (n=40, Control Chart 2009-2014)
+3s (1.53 NTU)
+2s (1.09 NTU)
Mean (0.2 NTU)
-2s (-0.69 NTU)
-3s (-1.13 NTU)

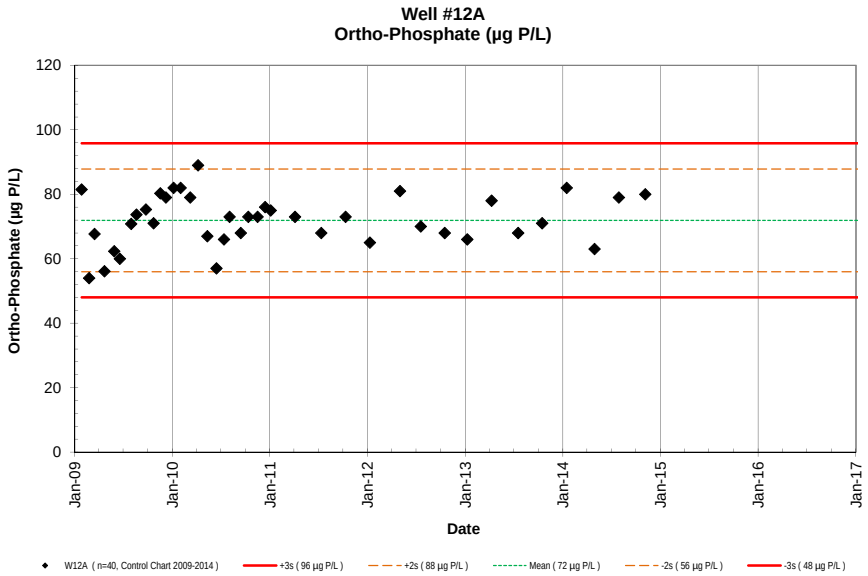

Well #12
Depth to Water (m)
Depth to Water (m)
5.0
0.0
-5.0
-10.0
-15.0
-20.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W12 (n=40, Control Chart 2009-2014)
+3s (-4.6 m)
+2s (-4.8 m)
Mean (-5.2 m)
-2s (-5.6 m)
-3s (-5.8 m)
Pump Depth (-18.3 m)
Tide

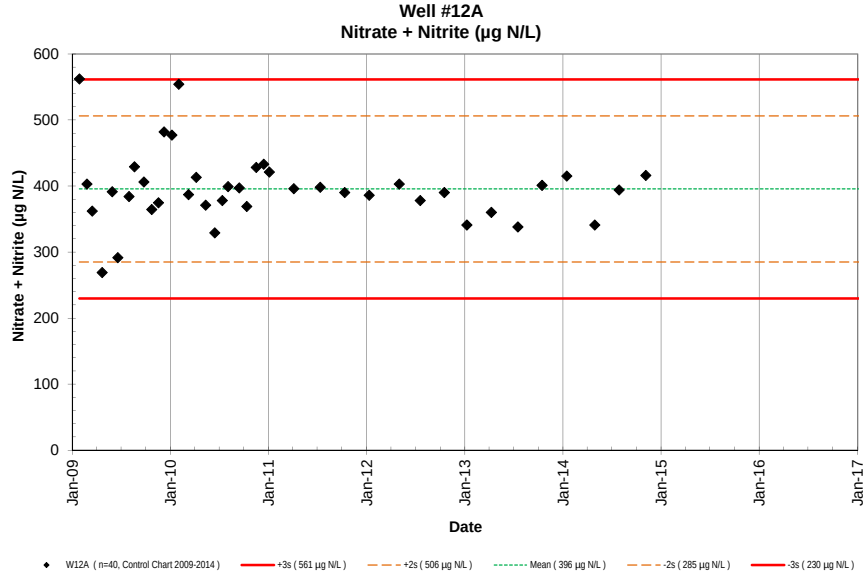
NELHA Water Quality Laboratory

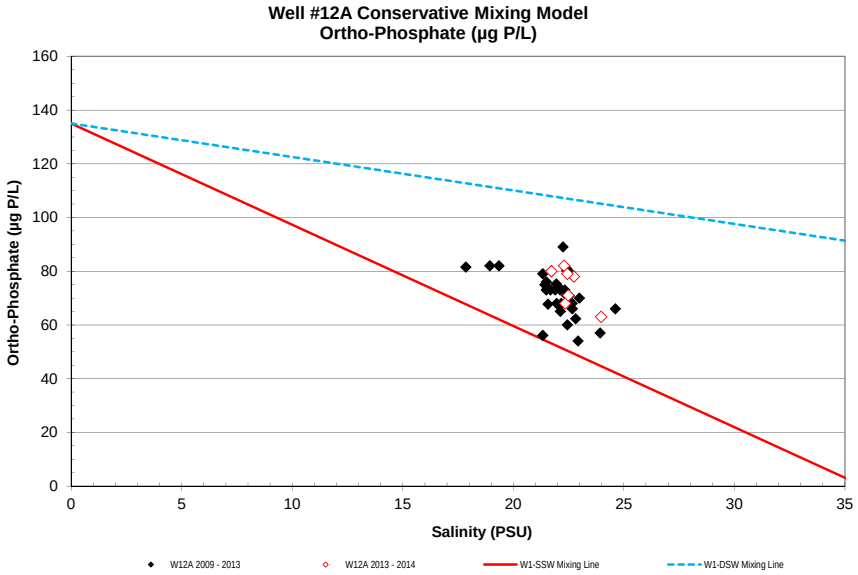
Well 12A Data Table

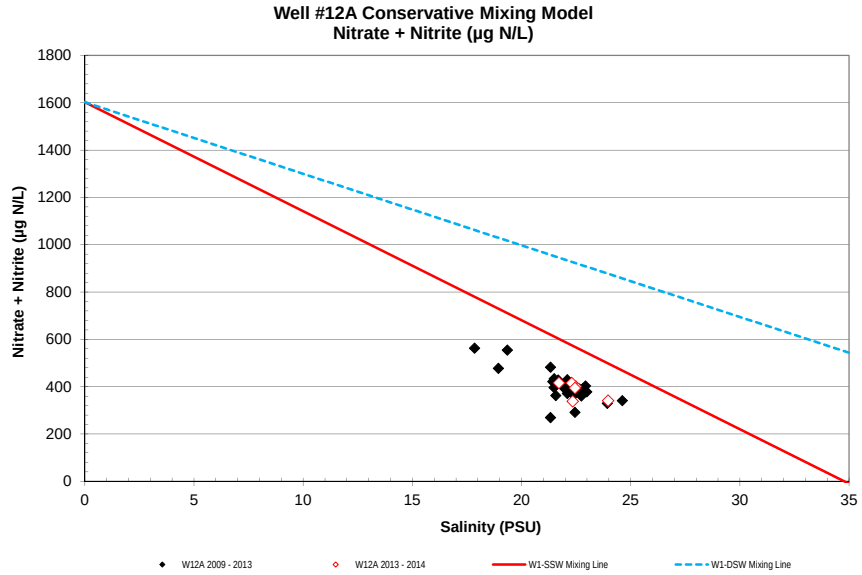
January 2009 - December 2014

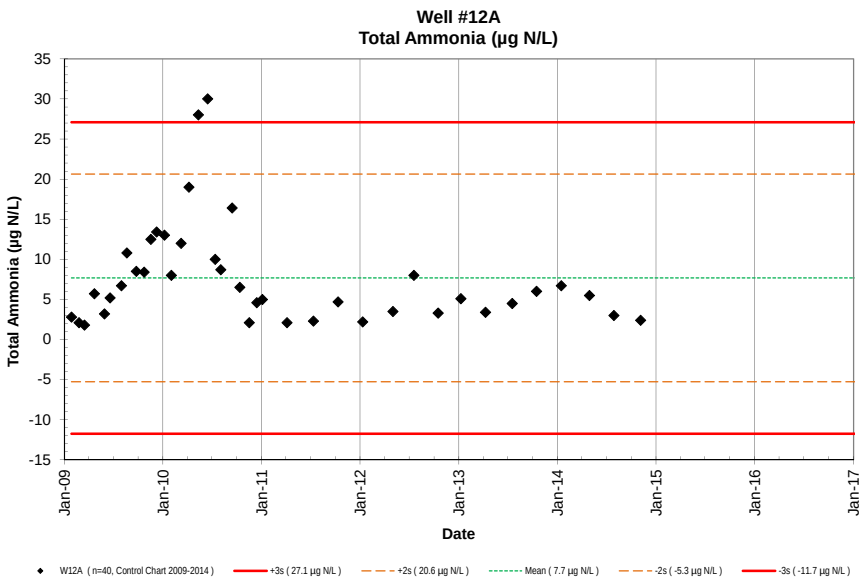
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W12A	-12.192	01/27/09	1004	-5.36	0.09	Ebb	2.63	82	40.1	562	0.20	2.8	504	14155						23.6	7.94	17.85	3.72	0.16		
W12A	-12.192	02/24/09	1421	-5.34	0.24	Flood	1.74	54	28.8	403	0.15	2.1	423	11884						22.8	7.75	22.93	2.30	0.18		
W12A	-12.192	03/16/09	1425	-5.56	0.06	Flood	2.19	68	25.8	362	0.13	1.8	379	10643						24.0	7.68	21.57	2.65	0.11		
W12A	-12.192	04/22/09	941	-5.59	0.00	Flood	1.81	56	19.2	269	0.41	5.7	280	7867						25.7	7.74	21.33	2.62	0.72		
W12A	-12.192	05/29/09	1308	-5.43	0.12	Low	2.01	62	27.9	391	0.23	3.2	541	15207						21.8	7.35	22.82	2.47	0.10		
W12A	-12.192	06/19/09	1327	-4.89	0.70	High	1.94	60	20.8	292	0.37	5.2	239	6710						21.8	7.91	22.45	2.46	0.04		
W12A	-12.192	07/31/09	1341	-4.92	0.64	High	2.29	71	27.4	384	0.48	6.7	315	8861						22.0	7.82	22.53	2.51	0.02		
W12A	-12.192	08/20/09	1425	-4.93	0.61	Flood	2.38	74	30.6	429	0.77	10.8	491	13781						21.9	7.87	22.10	2.41	0.03		
W12A	-12.192	09/24/09	1353	-5.30	0.30	Ebb	2.43	75	29.0	406	0.61	8.5	233	6539						22.0	7.95	21.95	2.64	0.02		
W12A	-12.192	10/23/09	1531	-5.49	0.15	Low	2.29	71	26.0	365	0.60	8.4	200	5631						21.9	7.83	22.40	2.64	0.05		
W12A	-12.192	11/17/09	1507	-5.47	0.21	Flood	2.59	80	26.7	375	0.89	12.5	436	12253						22.1	7.83	22.42	2.60	0.02		
W12A	-12.192	12/08/09	1208	-5.23	0.37	Ebb	2.55	79	34.4	482	0.96	13.4	479	13439						22.3	7.80	21.33	2.80	0.02		
W12A	-12.192	01/06/10	1130	-5.25	0.21	Ebb	2.65	82	34.1	477	0.93	13.0	473	13280						22.5	7.88	18.94	3.55	0.12		
W12A	-12.192	02/01/10	1116	-5.34	0.00	Ebb	2.65	82	39.6	554	0.57	8.0	445	12500						22.5	7.92	19.35	3.49	0.08		
W12A	-12.192	03/09/10	1044	-5.51	0.15	Flood	2.55	79	27.6	387	0.86	12.0	443	12454						21.7	7.83	22.62	2.68	0.03		
W12A	-12.192	04/07/10	822	-5.56	0.09	Flood	2.87	89	29.5	413	1.36	19.0	460	12917						21.5	7.78	22.25	2.63	0.11		
W12A	-12.192	05/12/10	1023	-5.55	0.06	Flood	2.16	67	26.5	371	2.00	28.0	419	11766						21.7	7.89	22.10	2.67	0.05		
W12A	-12.192	06/15/10	1607	-5.25	0.46	Flood	1.84	57	23.5	329	2.14	30.0	421	11819						21.3	7.92	23.93	2.14	0.04		
W12A	-12.192	7/13/10	1516	-4.97	0.46	Flood	2.13	66	27.0	378	0.71	10.0	476	13380						21.6	7.86	22.67	2.48	0.11		
W12A	-12.192	8/3/10	1632	-5.16	0.30	Ebb	2.36	73	28.5	399	0.62	8.7	487	13669						21.7	7.93	21.90	2.63	0.05		
W12A	-12.192	9/14/10	1636	-5.29	0.24	Low	2.20	68	28.3	397	1.17	16.4	495	13916						21.5	7.87	22.17	2.71	0.14		
W12A	-12.192	10/12/10	1659	-5.25	0.18	Low	2.36	73	26.3	369	0.46	6.5	501	14063						21.5	7.88	22.33	2.53	0.16		
W12A	-12.192	11/16/10	1538	-5.21	0.24	Ebb	2.36	73	30.6	428	0.15	2.1	510	14336						21.6	7.88	21.68	2.64	0.08		
W12A	-12.192	12/14/10	1607	-5.38	0.06	Ebb	2.45	76	30.9	433	0.33	4.6	512	14392						21.6	7.86	21.50	2.75	0.08		
W12A	-12.192	1/4/11	1547	-5.32	0.21	Flood	2.42	75	30.1	421	0.36	5.0	487	13683						21.6	7.78	21.43	2.71	0.10		
W12A	-12.192	4/5/11	1558	-5.05	0.46	Flood	2.36	73	28.3	396	0.15	2.1	454	12756						21.6	7.83	21.49	2.39	0.03		
W12A	-12.192	7/12/11	1548	-4.92	0.73	Ebb	2.20	68	28.4	398	0.16	2.3	470	13193						21.8	7.86	21.96	2.39	0.02		
W12A	-12.192	10/11/11	1533	-5.11	0.43	High	2.36	73	27.8	390	0.34	4.7	480	13491						21.8	7.85	22.12	2.67	0.05		
W12A	-12.192	1/10/12	1635	-5.32	0.24	Flood	2.10	65	27.6	386	0.16	2.2	458	12869						21.9	7.82	22.13	2.57	0.16		
W12A	-12.192	5/1/12	1612	-5.17	0.30	Ebb	2.62	81	28.8	403	0.25	3.5	511	14350						21.7	7.82	22.41	2.50	0.02		
W12A	-12.192	7/18/12	1459	-4.92	0.64	Flood	2.26	70	27.0	378	0.57	8.0	462	12977						21.6	7.92	22.99	2.53	0.04		
W12A	-12.192	10/16/12	1439	-5.25	0.30	Flood	2.20	68	27.8	390	0.24	3.3	471	13227						21.8	7.85	22.66	2.43	0.19		
W12A	-12.192	1/8/13	1545	-5.39	-0.03	Ebb	2.13	66	24.3	341	0.36	5.1	455	12766						21.4	7.79	24.62	1.95	0.36		
W12A	-12.192	4/9/13	1534	-5.04	0.55	High	2.52	78	25.7	360	0.24	3.4	467	13125						21.7	7.84	22.74	2.06	0.76		
W12A	-12.192	7/17/13	1651	-5.23	0.30	Ebb	2.20	68	24.1	338	0.32	4.5	479	13439						22.3	7.81	22.35	2.58	0.19		
W12A	-12.192	10/15/13	1520	-5.06	0.49	Ebb	2.29	71	28.6	401	0.43	6.0	462	12973						21.8	7.81	22.49	2.68	0.02		
W12A	-12.192	1/15/14	1521	-5.31	0.15	Flood	2.65	82	29.6	415	0.48	6.7	464	13035						22.1	7.88	22.30	2.87	0.02		
W12A	-12.192	4/29/14	1729	-4.98	0.61	High	2.03	63	24.3	341	0.39	5.5	421	11812						21.5	7.80	23.97	2.38	0.02		
W12A	-12.192	7/29/14	1605	-5.08	0.46	Flood	2.55	79	28.1	394	0.21	3.0	492	13817						22.2	7.77	22.45	2.74	0.03		
W12A	-12.192	11/5/14	1549	-5.03	0.36	Ebb	2.58	80	29.7	416	0.17	2.4	460	12906						22.2	7.86	21.72	2.81	0.05		
W12A	-12.192	1/1/15																								
W12A	-12.192	4/1/15																								

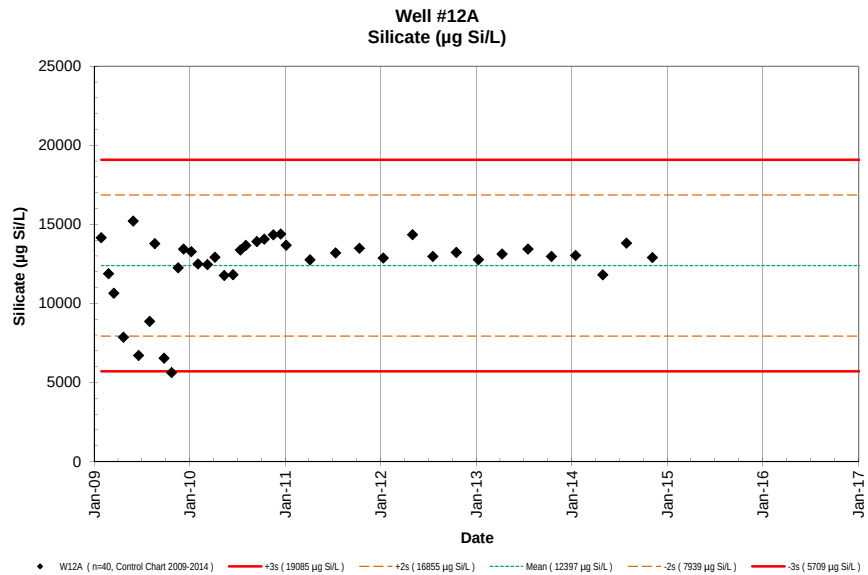

Well #12A
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W12A (n=40, Control Chart 2009-2014)
+3s (96 µg P/L)
+2s (88 µg P/L)
Mean (72 µg P/L)
-2s (56 µg P/L)
-3s (48 µg P/L)

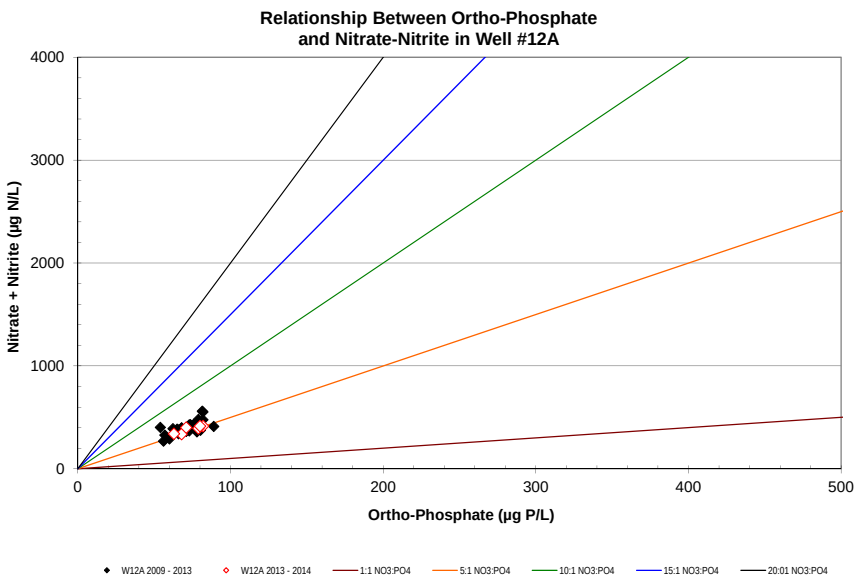

Well #12A
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W12A (n=40, Control Chart 2009-2014)
+3s (561 µg N/L)
+2s (506 µg N/L)
Mean (396 µg N/L)
-2s (285 µg N/L)
-3s (230 µg N/L)

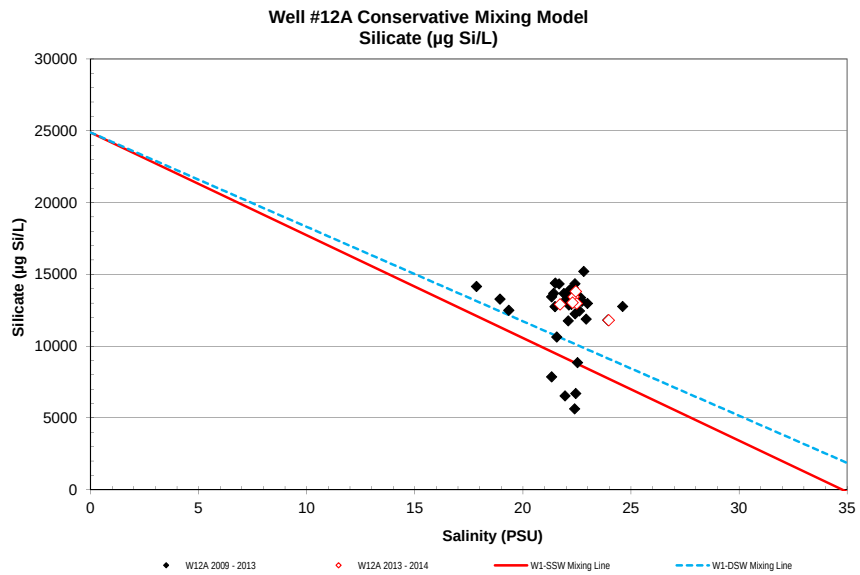

Well #12A Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W12A 2009 - 2013
W12A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

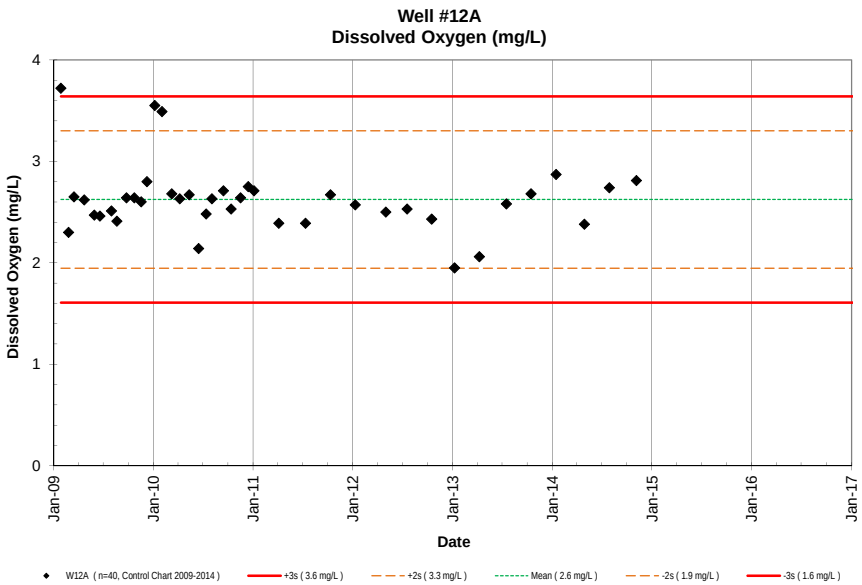

Well #12A Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W12A 2009 - 2013
W12A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

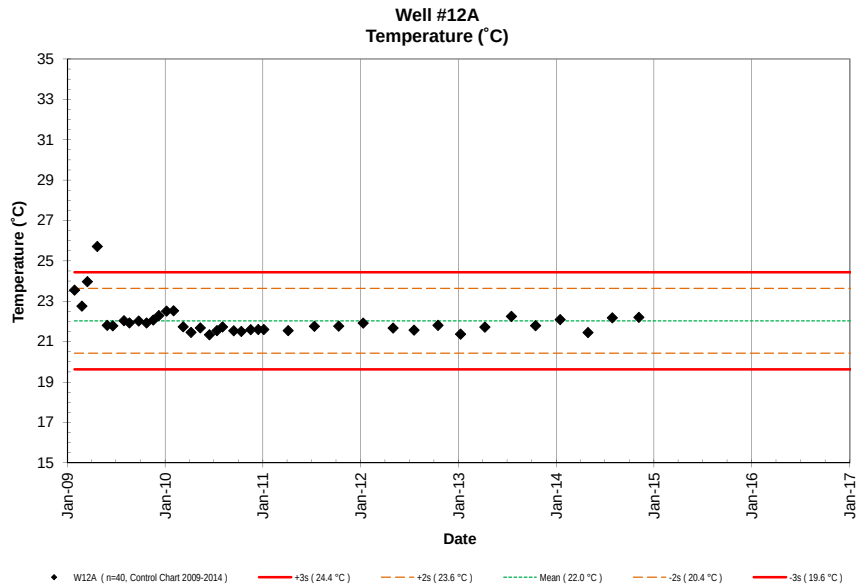

Well #12A
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
35
30
25
20
15
10
5
0
-5
-10
-15
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W12A (n=40, Control Chart 2009-2014)
+3s (27.1 µg N/L)
+2s (20.6 µg N/L)
Mean (7.7 µg N/L)
-2s (-5.3 µg N/L)
-3s (-11.7 µg N/L)

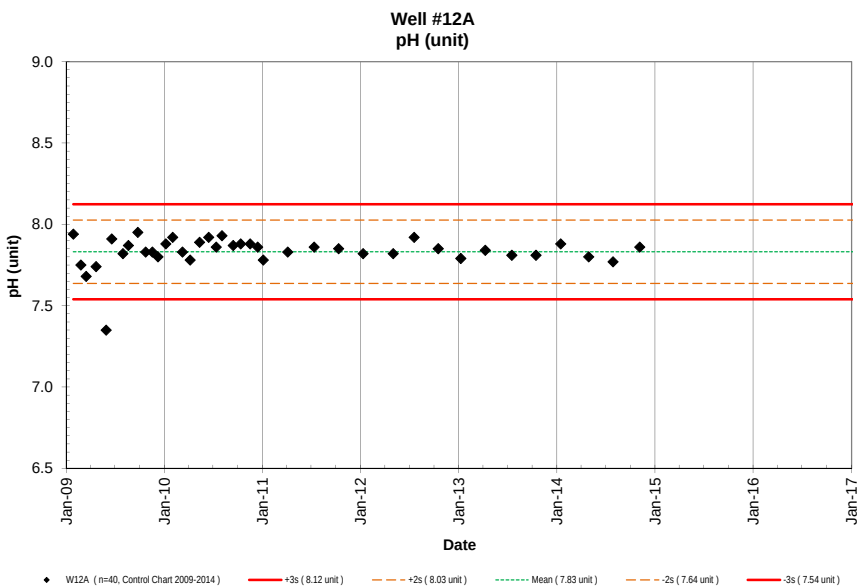

Well #12A
Silicate (µg Si/L)
Silicate (µg Si/L)
25000
20000
15000
10000
5000
0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W12A (n=40, Control Chart 2009-2014)
+3s (19085 µg Si/L)
+2s (16855 µg Si/L)
Mean (12397 µg Si/L)
-2s (7939 µg Si/L)
-3s (5709 µg Si/L)

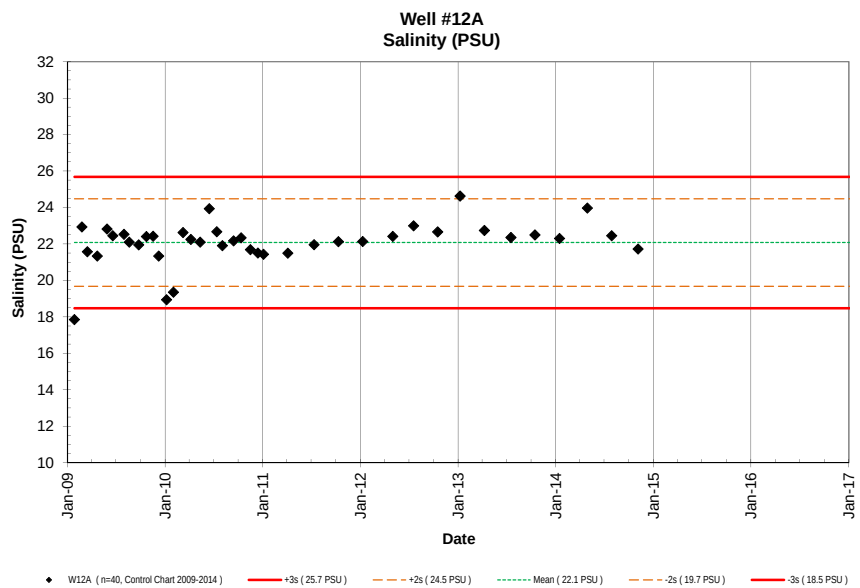

Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #12A
Nitrate + Nitrite (µg N/L)
4000
3000
2000
1000
0
0
100
200
300
400
500
Ortho-Phosphate (µg P/L)
W12A 2009 - 2013
W12A 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

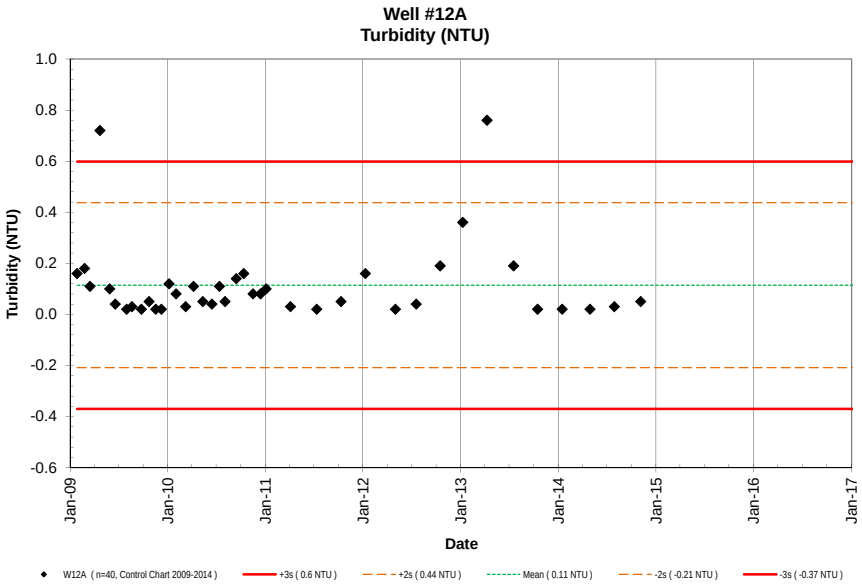

Well #12A Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
30000
25000
20000
15000
10000
5000
0
0
5
10
15
20
25
30
35
Salinity (PSU)
W12A 2009 - 2013
W12A 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

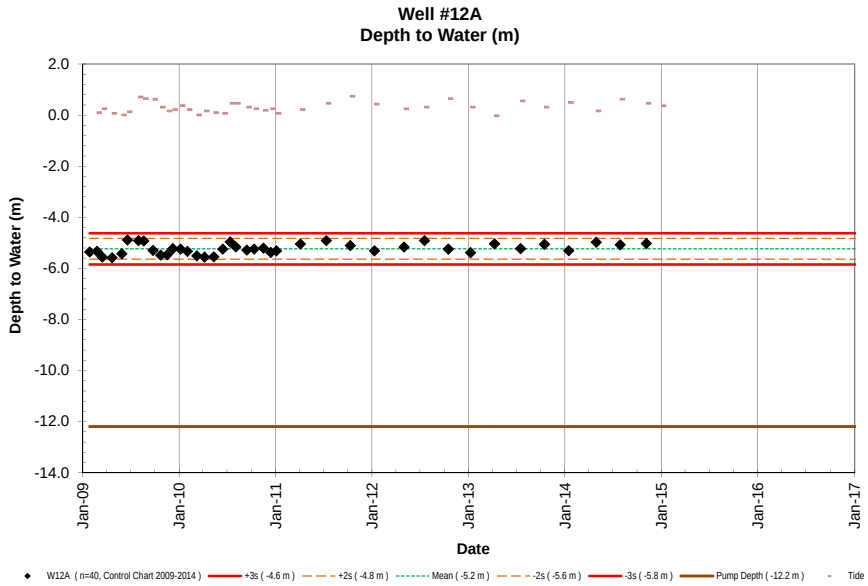

Well #12A
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W12A (n=40, Control Chart 2009-2014)
+3s (3.6 mg/L)
+2s (3.3 mg/L)
Mean (2.6 mg/L)
-2s (1.9 mg/L)
-3s (1.6 mg/L)


Well #12A
Temperature (˚C)
Temperature (˚C)
Date
W12A (n=40, Control Chart 2009-2014)
+3s (24.4 °C)
+2s (23.6 °C)
Mean (22.0 °C)
-2s (20.4 °C)
-3s (19.6 °C)


Well #12A
pH (unit)
pH (unit)
Date
W12A (n=40, Control Chart 2009-2014)
+3s (8.12 unit)
+2s (8.03 unit)
Mean (7.83 unit)
-2s (7.64 unit)
-3s (7.54 unit)


Well #12A
Salinity (PSU)
Salinity (PSU)
Date
W12A (n=40, Control Chart 2009-2014)
+3s (25.7 PSU)
+2s (24.5 PSU)
Mean (22.1 PSU)
-2s (19.7 PSU)
-3s (18.5 PSU)


Well #12A
Turbidity (NTU)
Turbidity (NTU)
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W12A (n=40, Control Chart 2009-2014)
+3s (0.6 NTU)
+2s (0.44 NTU)
Mean (0.11 NTU)
-2s (-0.21 NTU)
-3s (-0.37 NTU)

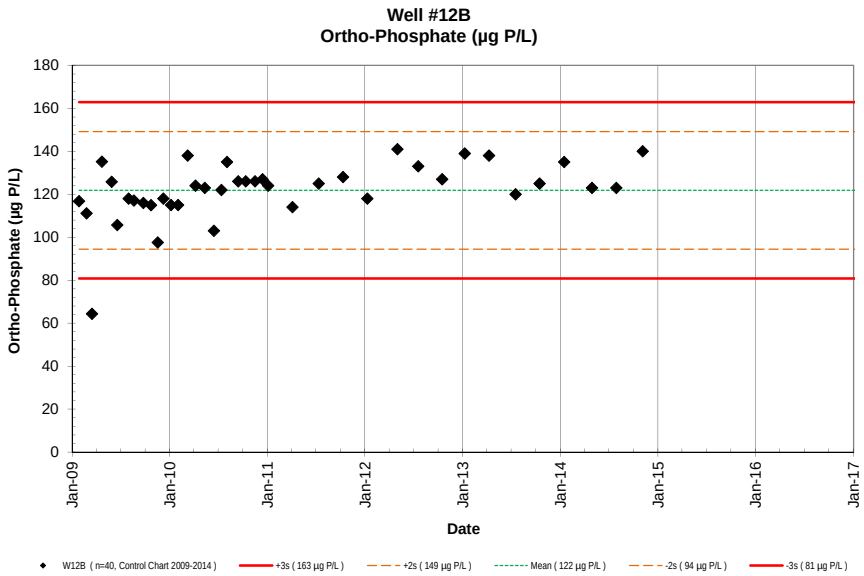

Well #12A
Depth to Water (m)
Depth to Water (m)
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
-12.0
-14.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W12A (n=40, Control Chart 2009-2014)
+3s (-4.6 m)
+2s (-4.8 m)
Mean (-5.2 m)
-2s (-5.6 m)
-3s (-5.8 m)
Pump Depth (-12.2 m)
Tide

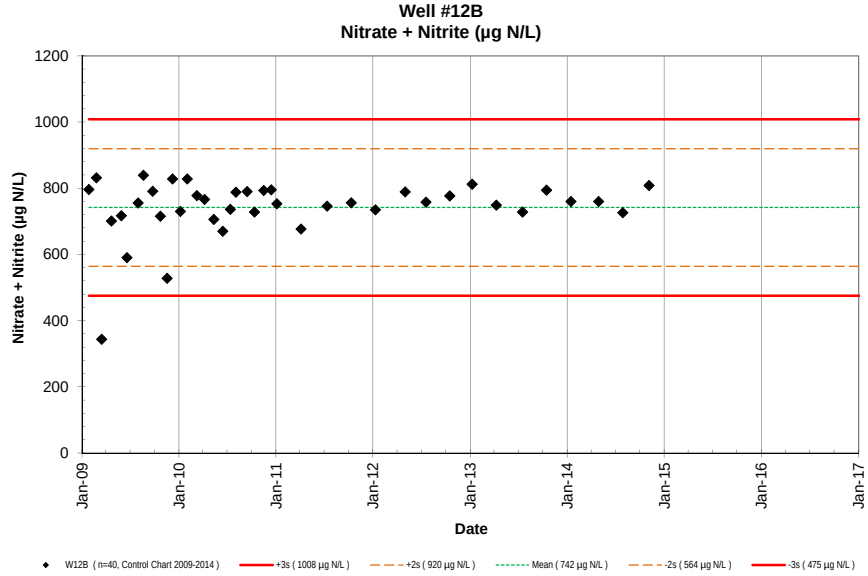
NELHA Water Quality Laboratory

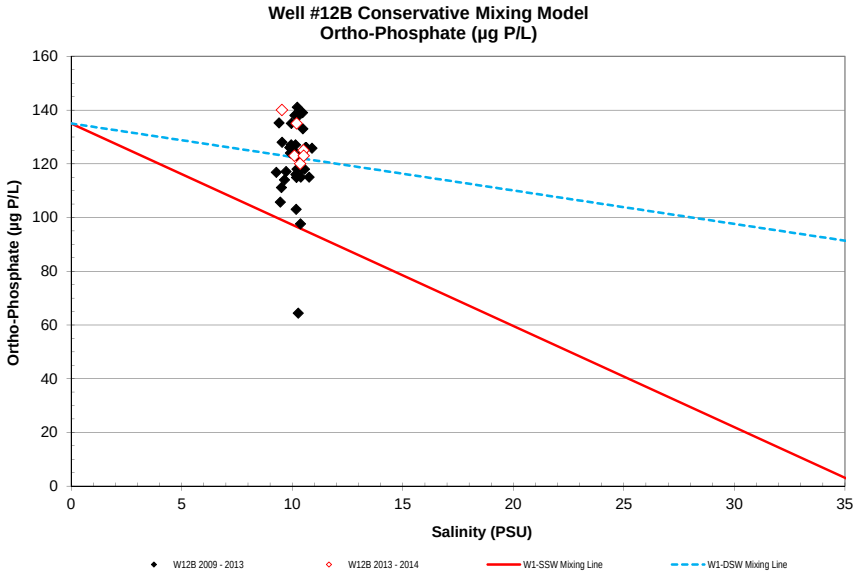
Well 12B Data Table

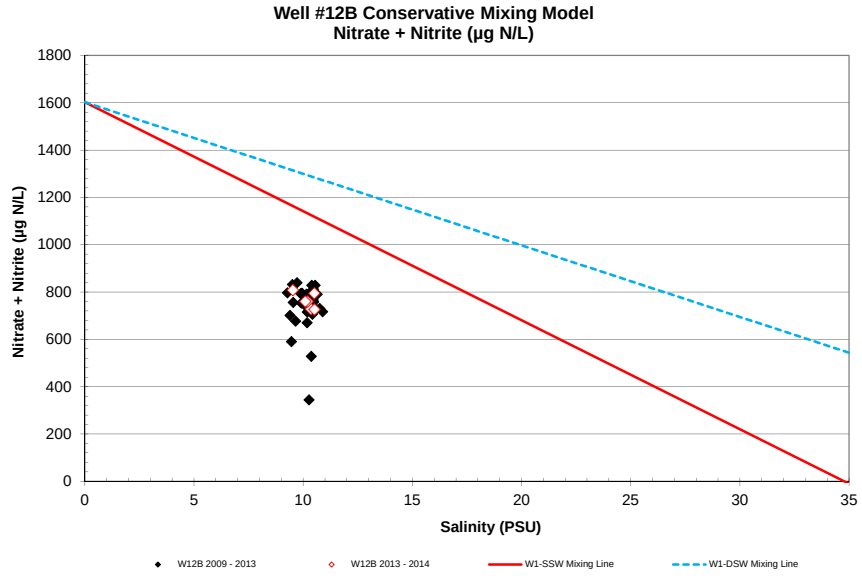
January 2009 - December 2014

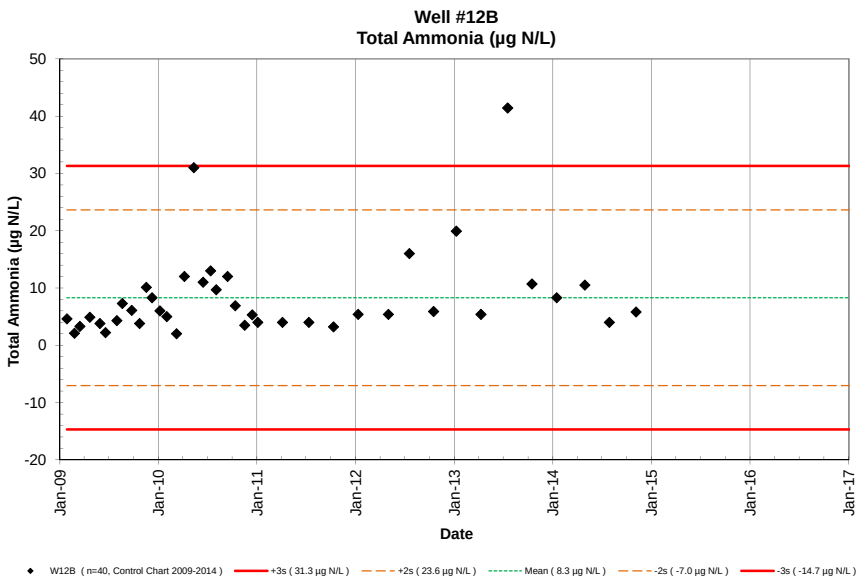
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W12B	-6.096	1/27/09	943	-5.42	0.09	Ebb	3.77	117	56.8	796	0.33	4.6	668	18752						24.1	8.09	9.28	6.54	21.60		
W12B	-6.096	2/24/09	1408	-5.38	0.24	Flood	3.59	111	59.4	832	0.15	2.1	727	20425						23.6	7.92	9.51	6.53	1.71		
W12B	-6.096	3/16/09	1410	-5.59	0.06	Flood	2.08	64	24.6	344	0.24	3.3	395	11107						25.4	7.81	10.27	6.45	15.50		
W12B	-6.096	4/22/09	1010	-5.58	0.00	Flood	4.36	135	50.1	701	0.35	4.9	628	17634						23.7	7.89	9.40	6.91	20.10		
W12B	-6.096	5/29/09	1255	-5.52	0.12	Low	4.06	126	51.2	717	0.27	3.8	756	21236						23.1	7.97	10.89	6.84	3.83		
W12B	-6.096	6/19/09	1314	-4.96	0.70	High	3.41	106	42.1	590	0.16	2.2	323	9066						22.6	8.09	9.46	6.96	0.17		
W12B	-6.096	7/31/09	1332	-4.98	0.64	High	3.81	118	53.9	756	0.31	4.3	385	10809						23.2	7.97	10.21	6.62	0.10		
W12B	-6.096	8/20/09	1412	-4.98	0.61	Flood	3.78	117	59.9	839	0.52	7.3	498	13983						22.8	8.02	9.72	6.39	0.24		
W12B	-6.096	9/24/09	1338	-5.34	0.30	Ebb	3.75	116	56.5	791	0.44	6.1	389	10928						23.1	7.92	10.16	6.69	0.10		
W12B	-6.096	10/23/09	1513	-5.48	0.15	Low	3.71	115	51.1	715	0.27	3.8	307	8622						23.3	7.97	10.19	7.14	0.27		
W12B	-6.096	11/17/09	1445	-5.52	0.21	Flood	3.15	98	37.7	528	0.72	10.1	722	20264						22.7	8.00	10.37	7.19	0.04		
W12B	-6.096	12/8/09	1158	-5.27	0.37	Ebb	3.81	118	59.1	828	0.59	8.3	664	18642						22.8	7.94	10.55	6.11	1.33		
W12B	-6.096	1/6/10	1115	-5.32	0.21	Ebb	3.71	115	52.1	730	0.43	6.0	605	17002						24.4	8.03	10.76	5.70	0.23		
W12B	-6.096	2/1/10	1050	-5.41	0.00	Ebb	3.71	115	59.1	828	0.36	5.0	662	18594						25.2	8.04	10.39	7.57	7.45		
W12B	-6.096	3/9/10	1033	-5.65	0.15	Flood	4.46	138	55.5	778	0.14	2.0	660	18535						22.7	7.96	10.12	6.72	0.04		
W12B	-6.096	4/7/10	817	-5.59	0.09	Flood	4.00	124	54.7	766	0.86	12.0	572	16063						22.1	8.02	10.46	6.93	0.23		
W12B	-6.096	5/12/10	1016	-5.60	0.06	Flood	3.97	123	50.4	706	2.21	31.0	730	20506						22.3	8.08	10.42	7.16	0.15		
W12B	-6.096	6/15/10	1558	-5.31	0.46	Flood	3.33	103	47.8	670	0.79	11.0	603	16933						22.2	8.05	10.18	7.46	0.15		
W12B	-6.096	7/13/10	1509	-5.02	0.46	Flood	3.94	122	52.5	736	0.93	13.0	720	20218						22.5	8.02	10.33	6.79	0.25		
W12B	-6.096	8/3/10	1637	-5.23	0.30	Ebb	4.36	135	56.3	788	0.69	9.7	763	21425						22.5	8.05	9.96	6.85	0.18		
W12B	-6.096	9/14/10	1642	-5.32	0.24	Low	4.07	126	56.4	790	0.86	12.0	768	21577						22.3	8.01	10.64	7.04	0.30		
W12B	-6.096	10/12/10	1708	-5.34	0.18	Low	4.07	126	52.0	728	0.49	6.9	804	22592						22.3	8.03	10.60	6.79	0.15		
W12B	-6.096	11/16/10	1547	-5.26	0.24	Ebb	4.07	126	56.6	793	0.25	3.5	795	22328						22.4	8.00	9.89	6.92	0.32		
W12B	-6.096	12/14/10	1614	-5.43	0.06	Ebb	4.10	127	56.8	795	0.38	5.3	801	22486						22.4	8.00	9.95	6.79	0.80		
W12B	-6.096	1/4/11	1554	-5.37	0.21	Flood	4.00	124	53.8	753	0.29	4.0	735	20638						22.3	7.93	9.92	6.80	0.10		
W12B	-6.096	4/5/11	1604	-5.10	0.46	Flood	3.68	114	48.3	677	0.29	4.0	633	17766						22.2	7.98	9.65	5.99	0.14		
W12B	-6.096	7/12/11	1540	-4.98	0.73	Ebb	4.04	125	53.3	746	0.29	4.0	718	20155						22.5	8.03	10.05	6.66	0.07		
W12B	-6.096	10/11/11	1542	-5.16	0.43	High	4.13	128	54.0	756	0.23	3.2	733	20595						22.6	8.00	9.54	7.20	0.04		
W12B	-6.096	1/10/12	1628	-5.37	0.24	Flood	3.81	118	52.5	735	0.39	5.4	687	19286						22.7	7.96	10.42	6.68	0.27		
W12B	-6.096	5/1/12	1620	-5.22	0.30	Ebb	4.55	141	56.3	789	0.39	5.4	794	22296						22.3	8.02	10.23	6.74	0.09		
W12B	-6.096	7/18/12	1504	-4.94	0.64	Flood	4.29	133	54.1	758	1.14	16.0	725	20374						22.4	8.03	10.48	7.12	0.16		
W12B	-6.096	10/16/12	1431	-5.32	0.30	Flood	4.10	127	55.5	777	0.42	5.9	703	19738						22.6	8.04	10.15	7.09	0.09		
W12B	-6.096	1/8/13	1552	-5.42	-0.03	Ebb	4.49	139	58.0	812	1.42	19.9	798	22410						22.4	7.92	10.47	6.87	0.12		
W12B	-6.096	4/9/13	1542	-5.09	0.55	High	4.46	138	53.5	749	0.39	5.4	774	21733						22.4	7.99	10.30	5.75	0.06		
W12B	-6.096	7/17/13	1701	-5.30	0.30	Ebb	3.87	120	52.0	728	2.96	41.4	720	20217						23.0	7.95	10.36	6.67	0.58		
W12B	-6.096	10/15/13	1526	-5.14	0.49	Ebb	4.04	125	56.7	794	0.76	10.7	742	20848						22.7	7.90	10.51	6.84	0.02		
W12B	-6.096	1/15/14	1529	-5.38	0.15	Flood	4.36	135	54.3	760	0.59	8.3	697	19569						22.9	8.00	10.20	7.06	0.02		
W12B	-6.096	4/29/14	1720	-5.05	0.61	High	3.97	123	54.3	760	0.75	10.5	714	20055						22.4	7.98	10.10	7.37	0.09		
W12B	-6.096	7/29/14	1614	-5.19	0.46	Flood	3.97	123	51.8	726	0.29	4.0	704	19770						23.0	7.93	10.52	6.97	0.09		
W12B	-6.096	11/5/14	1558	-5.09	0.36	Ebb	4.52	140	57.7	808	0.41	5.8	729	20474						23.0	7.99	9.53	7.33	0.11		
W12B	-6.096	1/1/15																								
W12B	-6.096	4/1/15																								

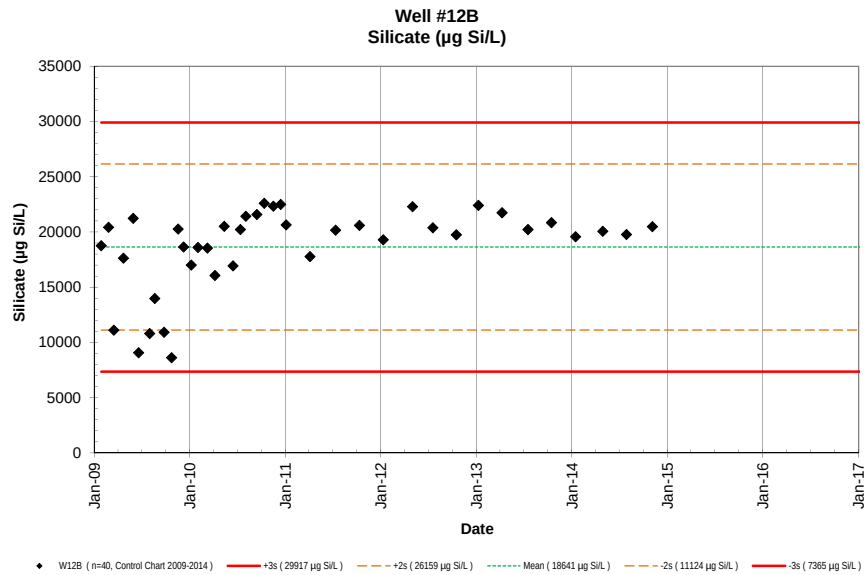

Well #12B
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W12B (n=40, Control Chart 2009-2014)
+3s (163 µg P/L)
+2s (149 µg P/L)
Mean (122 µg P/L)
-2s (94 µg P/L)
-3s (81 µg P/L)

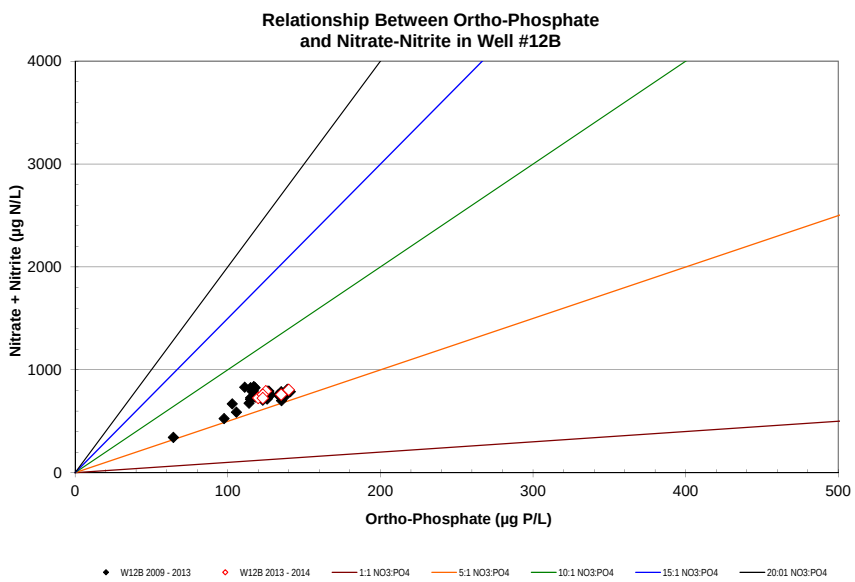

Well #12B
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W12B (n=40, Control Chart 2009-2014)
+3s (1008 µg N/L)
+2s (920 µg N/L)
Mean (742 µg N/L)
-2s (564 µg N/L)
-3s (475 µg N/L)

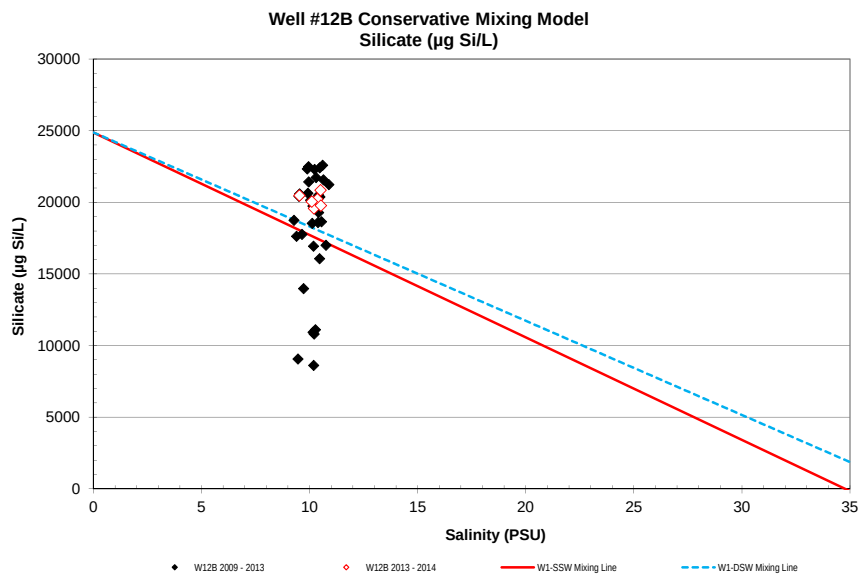

Well #12B Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W12B 2009 - 2013
W12B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

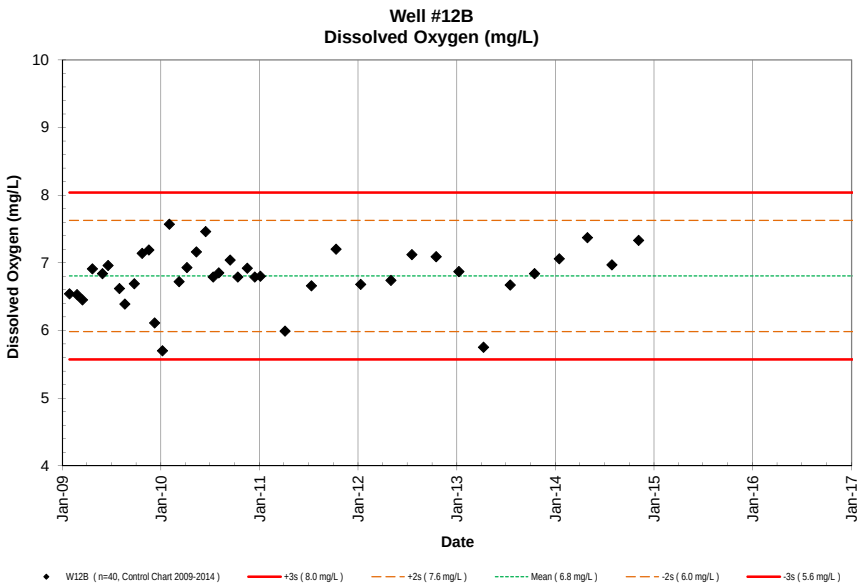

Well #12B Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W12B 2009 - 2013
W12B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

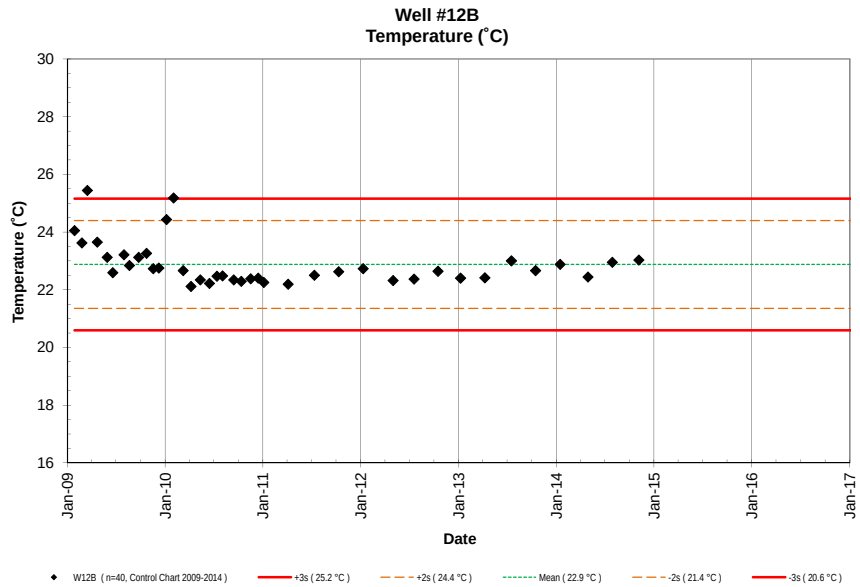

Well #12B
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
W12B (n=40, Control Chart 2009-2014)
+3s (31.3 µg N/L)
+2s (23.6 µg N/L)
Mean (8.3 µg N/L)
-2s (-7.0 µg N/L)
-3s (-14.7 µg N/L)

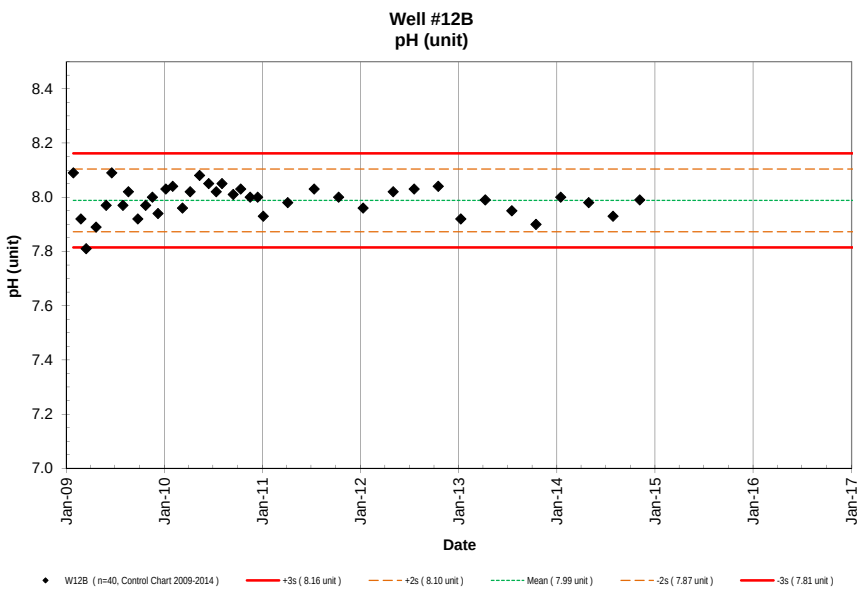

Well #12B
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
W12B (n=40, Control Chart 2009-2014)
+3s (29917 µg Si/L)
+2s (26159 µg Si/L)
Mean (18641 µg Si/L)
-2s (11124 µg Si/L)
-3s (7365 µg Si/L)

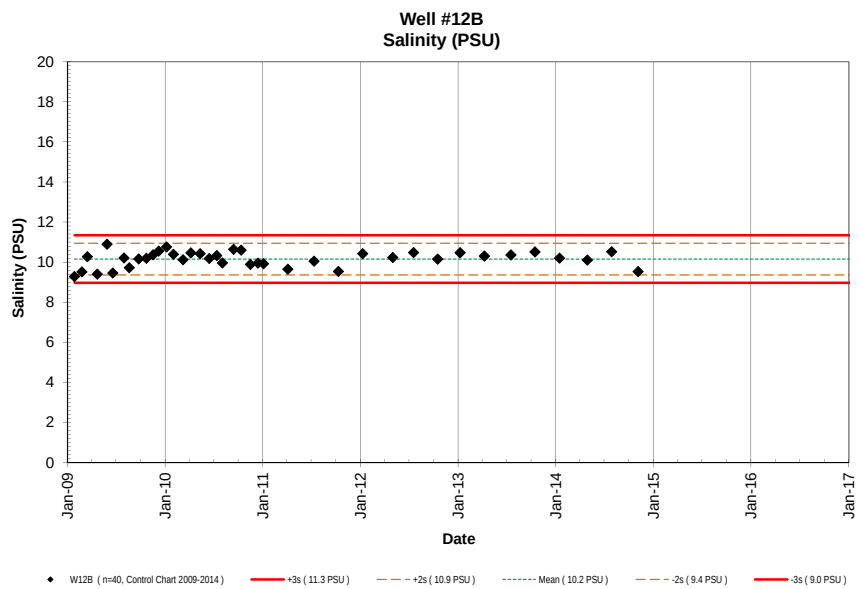

Relationship Between Ortho-Phosphate
and Nitrate-Nitrite in Well #12B
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
W12B 2009 - 2013
W12B 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4


Well #12B Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
W12B 2009 - 2013
W12B 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

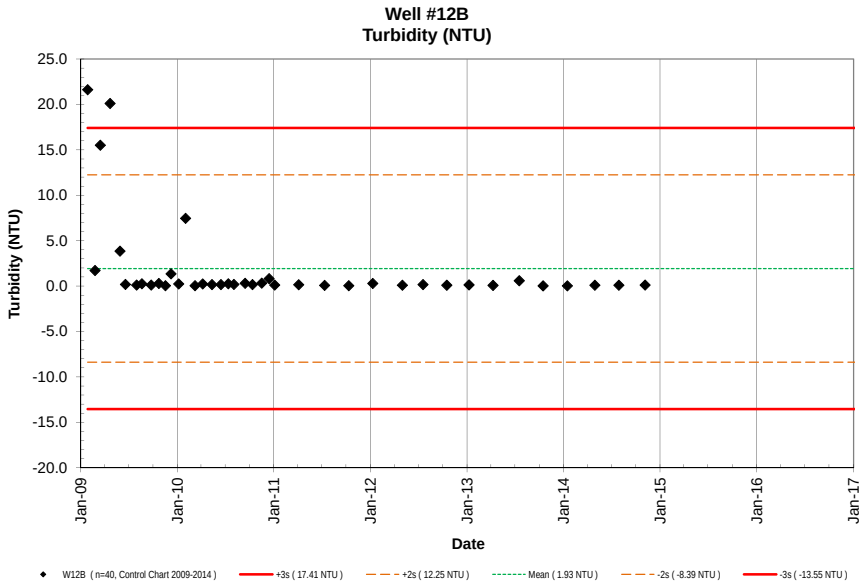

Well #12B
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W12B (n=40, Control Chart 2009-2014)
+3s (8.0 mg/L)
+2s (7.6 mg/L)
Mean (6.8 mg/L)
-2s (6.0 mg/L)
-3s (5.6 mg/L)

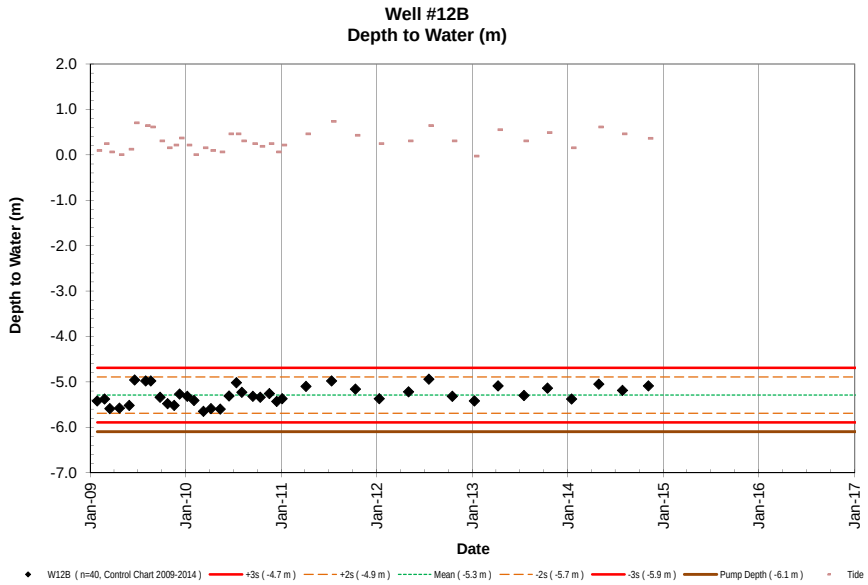

Well #12B
Temperature (˚C)
Temperature (˚C)
Date
W12B (n=40, Control Chart 2009-2014)
+3s (25.2 °C)
+2s (24.4 °C)
Mean (22.9 °C)
-2s (21.4 °C)
-3s (20.6 °C)


Well #12B
pH (unit)
pH (unit)
Date
W12B (n=40, Control Chart 2009-2014)
+3s (8.16 unit)
+2s (8.10 unit)
Mean (7.99 unit)
-2s (7.87 unit)
-3s (7.81 unit)


Well #12B
Salinity (PSU)
Salinity (PSU)
Date
W12B (n=40, Control Chart 2009-2014)
+3s (11.3 PSU)
+2s (10.9 PSU)
Mean (10.2 PSU)
-2s (9.4 PSU)
-3s (9.0 PSU)

Not


Well #12B
Turbidity (NTU)
Turbidity (NTU)
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W12B (n=40, Control Chart 2009-2014)
+3s (17.41 NTU)
+2s (12.25 NTU)
Mean (1.93 NTU)
-2s (-8.39 NTU)
-3s (-13.55 NTU)

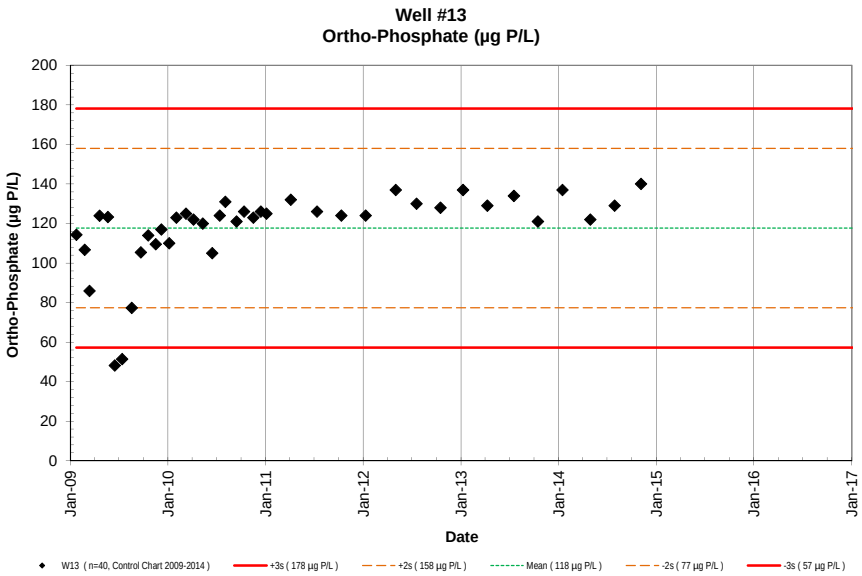

Well #12B
Depth to Water (m)
Depth to Water (m)
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W12B (n=40, Control Chart 2009-2014)
+3s (-4.7 m)
+2s (-4.9 m)
Mean (-5.3 m)
-2s (-5.7 m)
-3s (-5.9 m)
Pump Depth (-6.1 m)
Tide

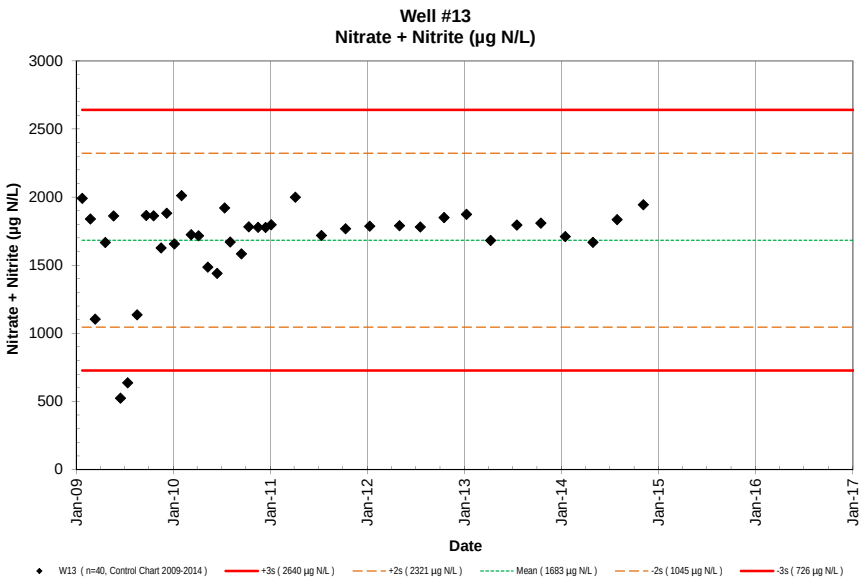
NELHA Water Quality Laboratory

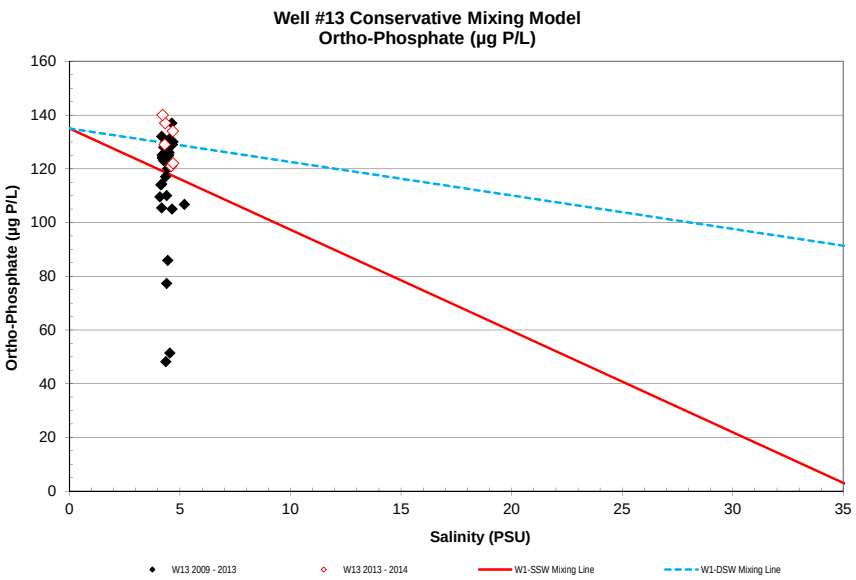
Well 13 Data Table

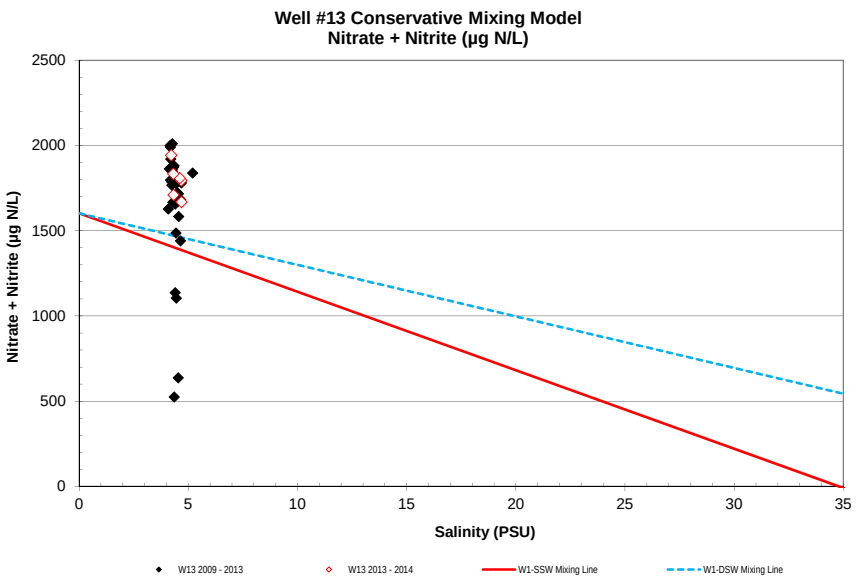
January 2009 - December 2014

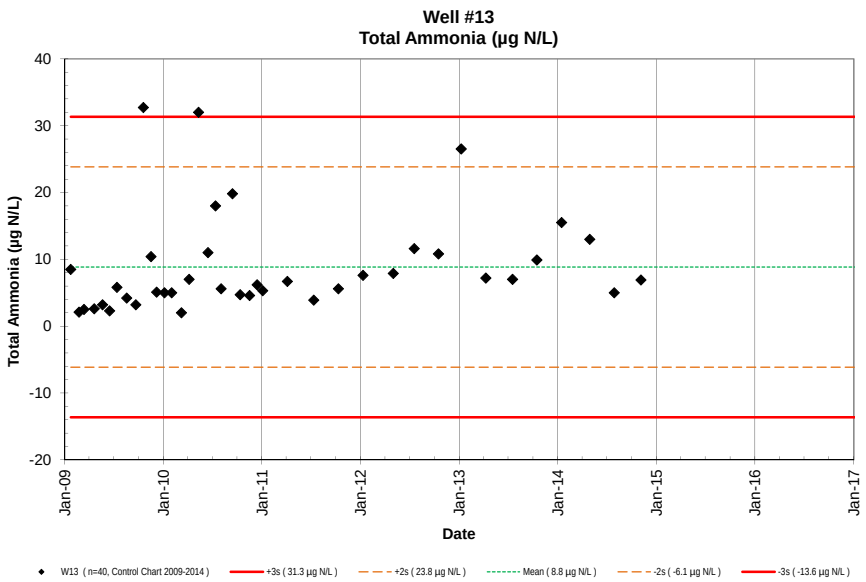
Site	Pump Depth (m)	Date M/D/Y	Time (2400)	Depth to H_2O (m)	Tide (m)	Tide (cycle)	PO_4^{3-} (µM)	PO_4^{3-} (µg P/L)	NO_3^- & NO_2^- (µM)	NO_3^- & NO_2^- (µg N/L)	NH_4^+ & NH_3 (µM)	NH_4^+ & NH_3 (µg N/L)	Si (µM)	Si (µg Si/L)	TDP (µM)	TDP (µg P/L)	TDN (µM)	TDN (µg N/L)	TOC (mgC/L)	Temp. (˚C)	pH (unit)	Salinity (PSU)	DO (mg/L)	Turbidity NTU	Fecal Col. CFU/100ml	Entero. CFU/100ml
W13	-45.72	01/23/09	945	-39.2	0.12	Ebb	3.69	114	142.1	1990	0.61	8.5	651	18279						23.8	8.03	4.18	7.95	6.62		
W13	-45.72	02/23/09	1110	-39.2	0.06	Low	3.44	107	131.3	1839	0.15	2.1	718	20169						23.2	7.86	5.20	7.95	0.25		
W13	-45.72	03/13/09	1052	-39.3	-0.03	Ebb	2.77	86	78.9	1105	0.18	2.5	609	17106						22.6	7.86	4.45	8.17	0.88		
W13	-45.72	04/20/09	942	-39.2	0.06	Flood	4.00	124	119.0	1666	0.19	2.6	570	16007						23.4	7.83	4.29	8.07	3.51		
W13	-45.72	05/21/09	914	-39.3	0.00	Flood	3.98	123	132.9	1861	0.23	3.2	871	24466						25.6	8.07	4.27	7.53	0.80		
W13	-45.72	06/16/09	847	-39.2	0.21	Flood	1.56	48	37.4	524	0.16	2.3	426	11973						25.8	7.90	4.36	7.51	0.39		
W13	-45.72	07/13/09	1033	-39.0	0.37	Ebb	1.66	51	45.5	637	0.41	5.8	223	6252						24.0	8.00	4.54	7.65	0.21		
W13	-45.72	08/18/09	829	-39.2	0.00	Low	2.50	77	81.1	1136	0.30	4.2	518	14537						23.2	7.99	4.40	8.01	7.35		
W13	-45.72	09/21/09	938	-39.0	0.37	Ebb	3.40	105	133.1	1865	0.23	3.2	294	8256						25.7	8.01	4.17	7.78	0.81		
W13	-45.72	10/19/09	931	-39.1	0.34	Ebb	3.68	114	133.0	1863	2.33	32.7	341	9568						22.5	8.25	4.14	8.35	0.11		
W13	-45.72	11/16/09	907	-39.1	0.21	Ebb	3.54	110	116.2	1627	0.74	10.4	565	15882						22.8	8.07	4.09	8.10	0.16		
W13	-45.72	12/07/09	1013	-39.0	0.52	Ebb	3.78	117	134.3	1881	0.36	5.1	683	19180						22.1	7.93	4.35	7.48	0.10		
W13	-45.72	01/05/10	956	-39.0	0.40	Ebb	3.55	110	118.2	1656	0.36	5.0	615	17286						22.4	8.01	4.40	7.87	0.16		
W13	-45.72	02/01/10	950	-38.9	0.15	Ebb	3.97	123	143.5	2010	0.36	5.0	646	18148						22.2	8.03	4.27	8.19	0.18		
W13	-45.72	03/09/10	901	-39.2	0.09	Low	4.04	125	123.1	1724	0.14	2.0	642	18041						22.1	7.96	4.49	7.84	0.17		
W13	-45.72	04/06/10	839	-39.2	0.24	Low	3.94	122	122.5	1716	0.50	7.0	635	17837						23.2	7.95	4.55	8.17	0.09		
W13	-45.72	05/11/10	856	-39.3	-0.03	Low	3.87	120	106.1	1486	2.28	32.0	586	16471						22.2	8.07	4.44	8.30	0.12		
W13	-45.72	06/15/10	940	-39.2	0.12	Ebb	3.39	105	102.8	1440	0.79	11.0	676	18994						22.9	8.04	4.64	7.94	0.06		
W13	-45.72	7/13/10	910	-39.1	0.06	Ebb	4.00	124	137.1	1920	1.29	18.0	794	22312						23.3	8.06	4.20	8.06	0.16		
W13	-45.72	8/3/10	907	-39.0	0.40	Flood	4.23	131	119.2	1670	0.40	5.6	806	22636						23.2	8.02	4.52	8.01	0.28		
W13	-45.72	9/14/10	901	-39.0	0.55	Flood	3.91	121	113.0	1583	1.41	19.8	801	22503						23.3	7.98	4.56	7.74	0.16		
W13	-45.72	10/12/10	908	-38.9	0.64	Ebb	4.07	126	127.2	1781	0.34	4.7	837	23508						23.3	8.02	4.32	8.22	0.12		
W13	-45.72	11/16/10	841	-39.0	0.24	Flood	3.97	123	126.9	1778	0.33	4.6	816	22912						23.0	7.96	4.45	7.63	0.11		
W13	-45.72	12/14/10	903	-39.0	0.34	Flood	4.07	126	126.9	1777	0.44	6.2	837	23495						22.9	7.97	4.45	8.01	0.09		
W13	-45.72	1/4/11	905	-39.0	0.24	Ebb	4.04	125	128.3	1797	0.38	5.3	770	21635						22.9	7.93	4.19	8.32	0.08		
W13	-45.72	4/5/11	945	-39.2	-0.03	Ebb	4.26	132	142.7	1999	0.48	6.7	719	20182						23.1	7.99	4.17	7.19	0.06		
W13	-45.72	7/12/11	855	-39.4	0.00	Flood	4.07	126	122.7	1718	0.28	3.9	741	20821						22.7	7.98	4.51	7.72	0.04		
W13	-45.72	10/11/11	917	-39.0	0.12	Low	4.00	124	126.2	1767	0.40	5.6	736	20674						22.9	7.97	4.25	8.27	0.09		
W13	-45.72	1/10/12	916	-39.0	0.30	Ebb	4.00	124	127.5	1786	0.54	7.6	717	20126						22.9	7.96	4.25	8.25	0.14		
W13	-45.72	5/1/12	926	-39.2	0.09	Flood	4.42	137	127.8	1790	0.56	7.9	810	22753						23.0	7.95	4.63	7.92	0.16		
W13	-45.72	7/18/12	852	-39.3	0.00	Ebb	4.20	130	127.1	1780	0.83	11.6	698	19594						22.2	7.95	4.69	8.38	0.18		
W13	-45.72	10/16/12	922	-39.0	0.24	Ebb	4.13	128	132.1	1850	0.77	10.8	730	20500						22.3	7.99	4.27	8.35	0.07		
W13	-45.72	1/8/13	951	-38.9	0.09	Low	4.42	137	133.7	1873	1.89	26.5	801	22493						22.3	7.90	4.33	8.30	0.10		
W13	-45.72	4/9/13	922	-39.2	-0.09	Low	4.16	129	120.1	1682	0.51	7.2	759	21327						22.5	7.96	4.66	8.36	0.07		
W13	-45.72	7/17/13	943	-39.2	0.37	Flood	4.33	134	128.1	1794	0.50	7.0	732	20569						21.8	7.86	4.68	7.76	0.13		
W13	-45.72	10/15/13	920	-38.9	0.21	Flood	3.91	121	129.1	1808	0.71	9.9	748	21010						22.2	7.82	4.61	7.48	0.04		
W13	-45.72	1/15/14	854	-39.0	0.18	Ebb	4.42	137	122.1	1710	1.11	15.5	685	19225						21.7	8.00	4.33	8.49	0.02		
W13	-45.72	4/29/14	1007	-39.3	-0.06	Low	3.94	122	119.1	1668	0.93	13.0	727	20407						21.7	7.88	4.69	8.25	0.05		
W13	-45.72	7/29/14	946	-39.1	0.15	Ebb	4.16	129	130.9	1834	0.36	5.0	737	20690						22.2	7.93	4.31	8.42	0.06		
W13	-45.72	11/5/14	939	-39.0	0.13	Low	4.52	140	138.7	1943	0.49	6.9	742	20828						22.2	8.05	4.22	8.75	0.09		
W13	-45.72	1/1/15																								
W13	-45.72	4/1/15																								

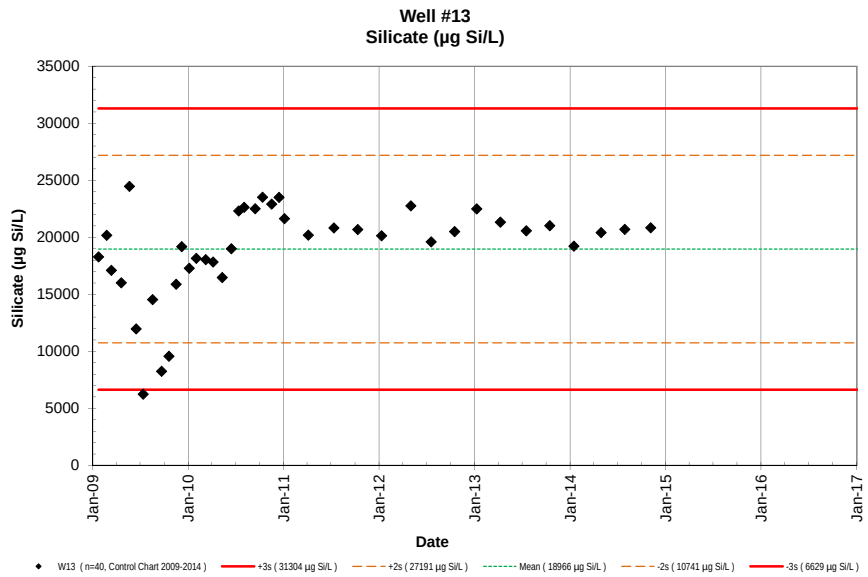

Well #13
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
W13 (n=40, Control Chart 2009-2014)
+3s (178 µg P/L)
+2s (158 µg P/L)
Mean (118 µg P/L)
-2s (77 µg P/L)
-3s (57 µg P/L)

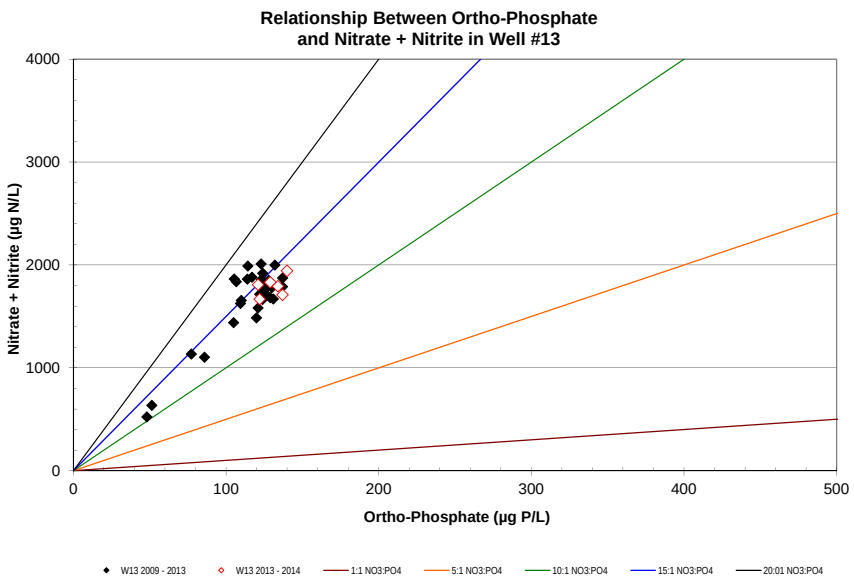

Well #13
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
W13 (n=40, Control Chart 2009-2014)
+3s (2640 µg N/L)
+2s (2321 µg N/L)
Mean (1683 µg N/L)
-2s (1045 µg N/L)
-3s (726 µg N/L)

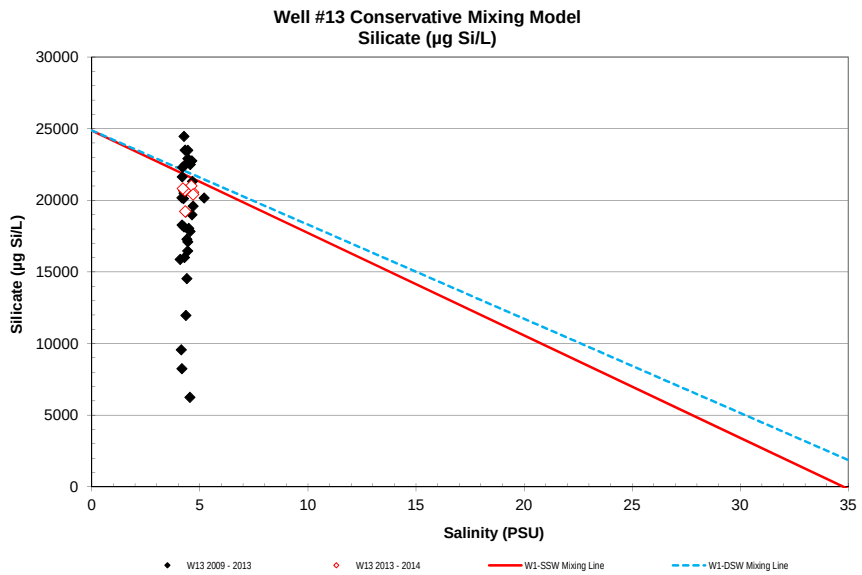

Well #13 Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
W13 2009 - 2013
W13 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

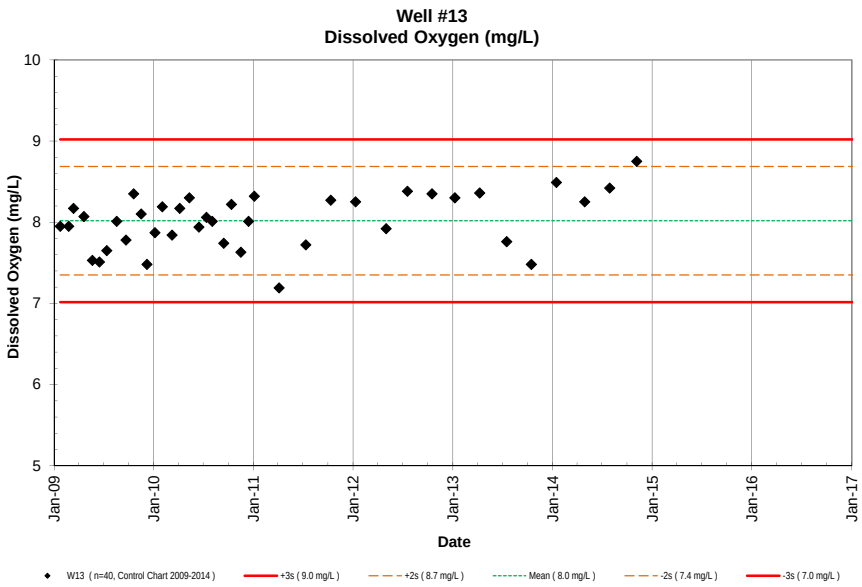

Well #13 Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
W13 2009 - 2013
W13 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

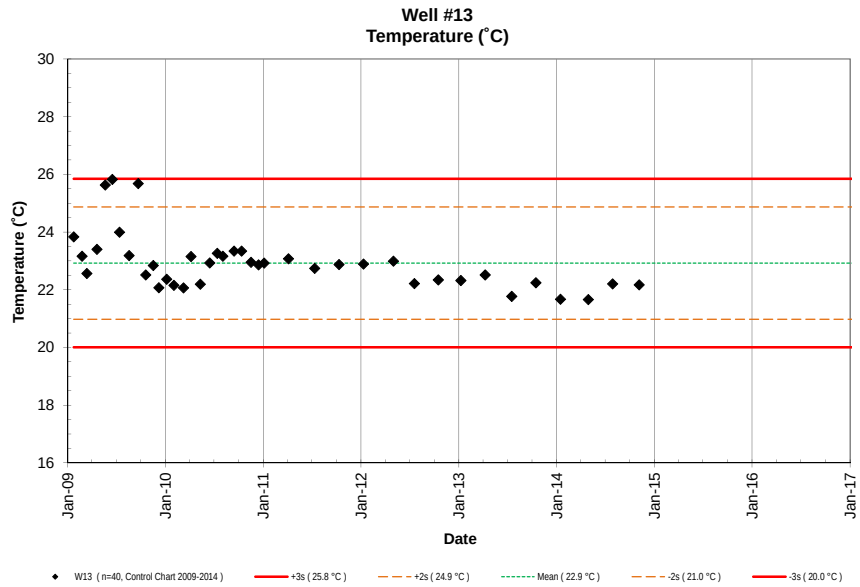

Well #13
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
40
30
20
10
0
-10
-20
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W13 (n=40, Control Chart 2009-2014)
+3s (31.3 µg N/L)
+2s (23.8 µg N/L)
Mean (8.8 µg N/L)
-2s (-6.1 µg N/L)
-3s (-13.6 µg N/L)

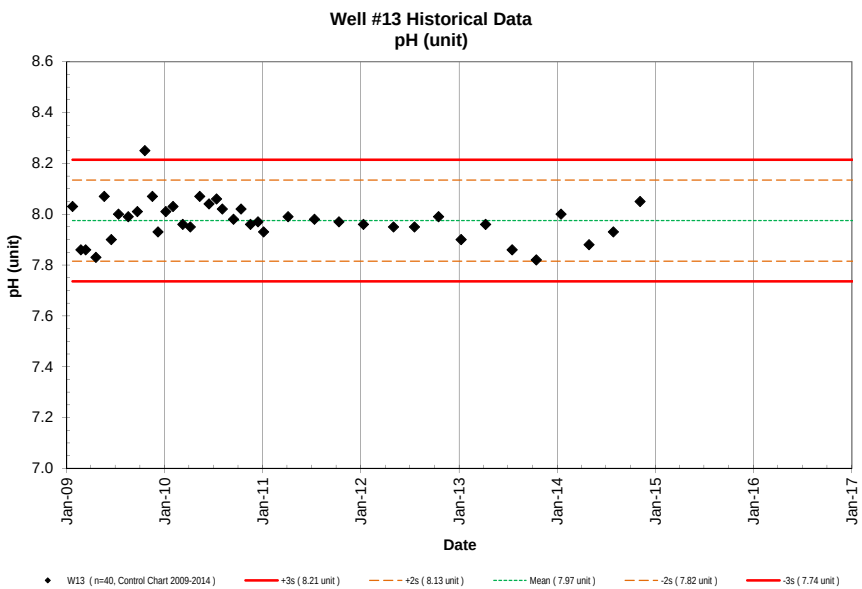

Well #13
Silicate (µg Si/L)
Silicate (µg Si/L)
35000
30000
25000
20000
15000
10000
5000
0
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W13 (n=40, Control Chart 2009-2014)
+3s (31304 µg Si/L)
+2s (27191 µg Si/L)
Mean (18966 µg Si/L)
-2s (10741 µg Si/L)
-3s (6629 µg Si/L)

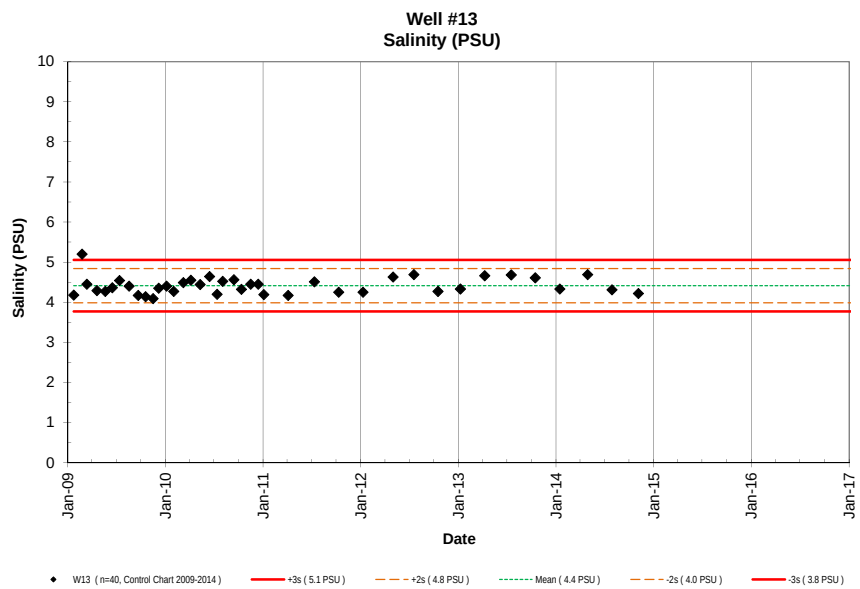

Relationship Between Ortho-Phosphate
and Nitrate + Nitrite in Well #13
Nitrate + Nitrite (µg N/L)
4000
3000
2000
1000
0
0
100
200
300
400
500
Ortho-Phosphate (µg P/L)
W13 2009 - 2013
W13 2013 - 2014
1:1 NO3:PO4
5:1 NO3:PO4
10:1 NO3:PO4
15:1 NO3:PO4
20:01 NO3:PO4

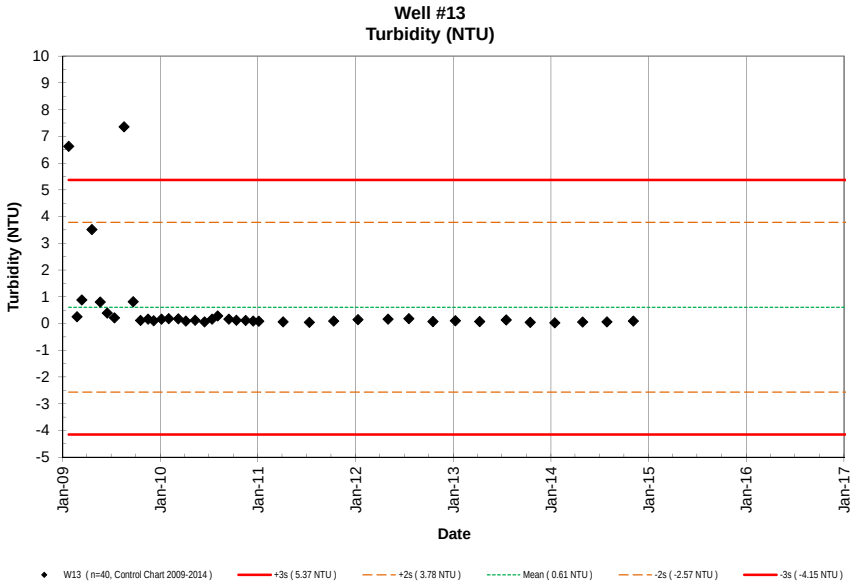

Well #13 Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
30000
25000
20000
15000
10000
5000
0
0
5
10
15
20
25
30
35
Salinity (PSU)
W13 2009 - 2013
W13 2013 - 2014
W1-SSW Mixing Line
W1-DSW Mixing Line

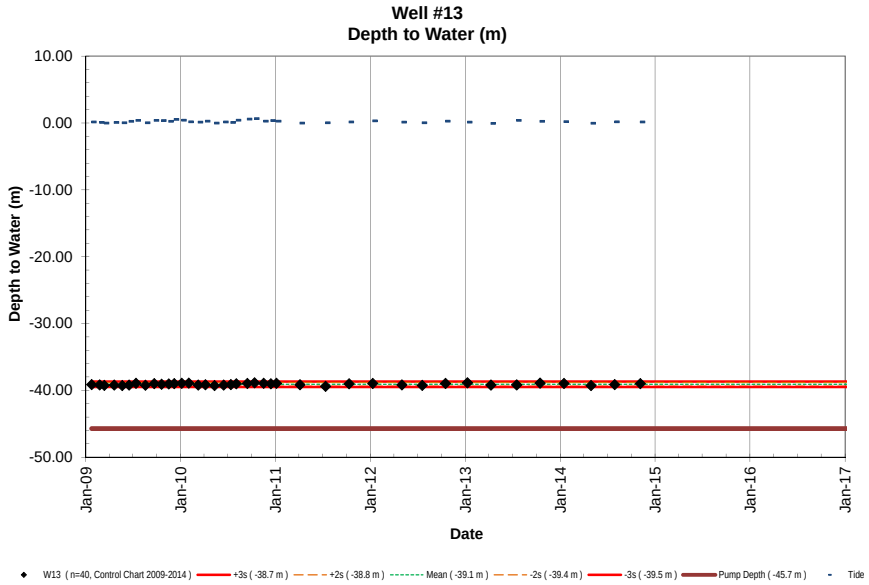

Well #13
Dissolved Oxygen (mg/L)
Dissolved Oxygen (mg/L)
Date
W13 (n=40, Control Chart 2009-2014)
+3s (9.0 mg/L)
+2s (8.7 mg/L)
Mean (8.0 mg/L)
-2s (7.4 mg/L)
-3s (7.0 mg/L)


Well #13
Temperature (˚C)
Temperature (˚C)
Date
W13 (n=40, Control Chart 2009-2014)
+3s (25.8 °C)
+2s (24.9 °C)
Mean (22.9 °C)
-2s (21.0 °C)
-3s (20.0 °C)


Well #13 Historical Data
pH (unit)
pH (unit)
Date
W13 (n=40, Control Chart 2009-2014)
+3s (8.21 unit)
+2s (8.13 unit)
Mean (7.97 unit)
-2s (7.82 unit)
-3s (7.74 unit)


Well #13
Salinity (PSU)
Salinity (PSU)
Date
W13 (n=40, Control Chart 2009-2014)
+3s (5.1 PSU)
+2s (4.8 PSU)
Mean (4.4 PSU)
-2s (4.0 PSU)
-3s (3.8 PSU)


Well #13
Turbidity (NTU)
Turbidity (NTU)
10
9
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W13 (n=40, Control Chart 2009-2014)
+3s (5.37 NTU)
+2s (3.78 NTU)
Mean (0.61 NTU)
-2s (-2.57 NTU)
-3s (-4.15 NTU)


Well #13
Depth to Water (m)
Depth to Water (m)
10.00
0.00
-10.00
-20.00
-30.00
-40.00
-50.00
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Date
W13 (n=40, Control Chart 2009-2014)
+3s (-38.7 m)
+2s (-38.8 m)
Mean (-39.1 m)
-2s (-39.4 m)
-3s (-39.5 m)
Pump Depth (-45.7 m)
Tide

NELHA Water Quality Laboratory

Seawater Return Trench 4

January 1992 - December 2014

SITE ID	DATE	TIME	TIDE		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TOC	Turbidity	Salinity	TEMP	pH	DO	Chl a	Fecal Col.	Entero.
	M/D/Y	(2400)	(ft)	cycle	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)	CFU/100ml	CFU/100ml
SRT 4s	1/28/92	705	0.6	Low	1.8	54	60.2	843	0.1	0.7	478	13425	1.9	59	63	880	1.07		15.51	19.8	8.21		6.57	3	1
SRT 4s	4/20/92	1146	-0.1	Low	2.6	82	56.3	789	0.1	0.7	508	14267	2.9	91	61	853	1.01	SS 1.36 mg	14.86	24.1	8.03		2.39	<1	<1
SRT 4s	5/20/92	1059	0.1	Low	0.6	20	31.6	443	0.3	4.6	601	16879	1.0	30	39	550	1.07	SS 5.31 mg	15.67	25.5	8.50		30.0	<1	<1
SRT 4s	6/24/92	1053	1.3	Flood	2.1	64	50.3	705	0.5	7.3	586	16458	2.3	72	59	831	0.84	SS 0.57 mg	14.42	24.9	8.06		3.50	<1	<1
SRT 4s	7/30/92	1000	-0.1	Low	2.0	62	50.4	706	1.3	18.8	525	14731	2.2	68	55	767	1.22	0.38*	16.31	24.5	8.02	7.70	6.55	<1	<1
SRT 4s	8/31/92	1005	1.2	Ebb	2.0	62	44.0	616	1.1	14.9	570	16009	2.2	67	48	674	1.10	0.55	16.58	24.6	8.06	8.48	5.27	<1	<1
SRT 4s	9/23/92	1041	1.0	Flood	2.0	61	303	4243	46.5	651.3	585	16430	2.0	62	403	5639	1.65	1.64	15.57	24.9	7.59	ND	1.13	<1	<1
SRT 4s	10/28/92	1059	0.8	Ebb													0.68	0.94	15.95	24.1	8.10	8.19	3.84	<1	<1
SRT 4s	11/18/92	1121	1.6	High	2.0	63	61.0	855	0.2	2.2	577	16205	2.5	76	137	1919	0.93	0.75	15.23	23.9	8.15	9.11	13.1	1	<1
SRT 4s	12/28/92	811	1.7	High	2.9	90	60.6	849	0.3	4.6	654	18368	3.5	107	75	1056	0.65	0.84	13.78	20.5	8.02	7.71	0.21	<1	4
SRT 4s	1/27/93	1013	0.7	Ebb	2.5	78	69.6	975	0.4	5.7	637	17901	2.7	83	78	1093	1.09	1.08	11.46	20.8	7.87	5.95	0.26	<1	<1
SRT 4s	2/24/93	945	0.4	Ebb	2.7	83	66.8	936	0.2	3.4	615	17284	2.8	85	69	968	0.49	0.37	13.53	19.1	7.98	7.29	0.40	<1	<1
SRT 4s	3/17/93	1010	0.4	Flood	2.5	77	67.6	946	0.3	4.8	642	18028	2.5	79	72	1002	0.68	4.0	11.56	21.9	8.06	7.78	1.68	<1	<1
SRT 4s	4/28/93	938	0.5	High	2.6	82	70.7	990	1.5	20.7	638	17919	2.8	87	77	1080	0.60	0.54	11.55	22.3	8.05	7.74	0.28	<1	<1
SRT 4s	5/26/93	947	0.6	High	1.5	46	20.9	292	0.5	6.4	725	20362	1.7	51	26	365	0.75	0.14	34.43	16.0	7.96	6.83	0.24	<1	<1
SRT 4s	6/29/93	949	0.8	Flood	2.7	84	71.3	998	1.5	21.3	655	18396	2.9	90	78	1095	0.78	0.77	11.58	22.9	8.08	7.79	0.36	2	3
SRT 4s	9/1/93	952	0.3	Low	2.8	86	68.1	954	0.1	1.5	660	18536	2.9	90	90	1256	0.67	0.29	11.61	23.9	8.08	7.31	0.10	2	0
SRT 4s	10/27/93	941	0.6	Low	2.8	88	73.2	1025	0.8	10.6	610	17132	2.9	90	76	1071	0.80	0.98	10.59	22.5	8.00	6.73	0.08	0	6
SRT 4s	2/8/94	945	0.2	Low	3.0	93	68.9	965	0.5	7.3	580	16290	3.0	94	80	1116	0.61	0.15	12.70	21.7	8.00	7.55	0.09	<1	<1
SRT 4s	6/22/94	939	-0.2	Low	2.4	75	63.8	894	0.8	10.8	568	15939	2.5	77	69	963	0.78	0.88	12.84	23.5	8.09	8.21	7.72	<1	<1
SRT 4s	7/26/94	1043	0.7	Ebb	1.3	42	19.2	269	0.3	3.9	43	1202	1.6	49	25	347	0.74	0.07	34.48	17.4	7.98	1.60	0.00	<1	<1
SRT 4s	10/26/94	857	1.8	High	2.9	91	75.4	1056	1.0	13.6	589	16537	3.1	96	80	1114	0.51	0.25	11.50	22.7	8.05	7.30	1.26	2	3
SRT 4s	1/25/95	1048	0.8	High	3.4	105	76.8	1076	0.0	0.0	535	15017	3.4	105	56	786	0.44	0.06	13.65	20.7	8.08	7.74	0.00	27	11
SRT 4s	5/10/95	630	-0.1	Low	3.3	102	99.0	1387	0.2	3.1	543	15259	3.3	102	88	1233	0.62	0.16	12.70	19.6	8.07	7.08	0.14	<1	12
SRT 4s	9/13/95	710	1.8	High	3.3	103	74.6	1045	0.4	5.7	539	15124	3.4	106	78	1093	0.53	0.19	13.90	20.8	7.99	6.72	0.04	1	15
SRT 4s	11/7/95	1131	0.5	Flood	1.2	36	16.5	231	0.6	8.0	48	1344	1.3	40	23	315	1.06	0.09	34.23	19.3	8.09	2.56	0.03	<1	<1
SRT 4s	1/31/96	956	0.4	Flood	3.1	95	94.0	1317	0.9	11.9	473	13276	3.1	97	98	1379	0.93	1.83	12.68	23.4	8.06	6.77	0.36	utc-spreaders	116
SRT 4s	6/18/96	1221	0.3	Flood	2.6	81	58.7	823	8.7	122.1	370	10386	2.8	85	65	911	0.73	0.16	31.38	23.0	8.03	8.13	0.18	<1	1
SRT 4s	8/6/96	1226	1.6	Ebb	2.1	65	68.8	963	0.3	4.2	499	14019	2.5	77	72	1010	0.93	0.63	14.58	29.3	8.32	9.89	2.63	<1	3
SRT 4s	10/7/96	903	1.1	Flood	2.9	91	88.5	1239	0.6	8.3	598	16809	3.1	95	93	1308	0.68	0.12	11.17	23.5	7.96	6.97	0.00	1	<1
SRT 4s	1/15/97	1103	1.0	Ebb	3.8	116	179	2510	0.3	3.9	513	14411	3.8	116	182	2551	0.74	0.10	12.64	22.4	7.99	7.05	0.13	2	<1
SRT 4s	4/30/97	912	0.5	Flood	1.5	46	17.7	248	0.4	5.9	42	1168	2.5	77	21	290	1.03	0.13	34.22	17.8	8.05	3.39	0.08	<1	<1
SRT 4s	7/14/97	1047	1.4	Flood	1.0	31	87.2	1221	0.1	0.7	574	16132	1.7	53	97	1354	1.11	0.77	11.16	25.5	8.43	10.86	13.7	<1	1
SRT 4s	10/14/97	1112	0.8	Flood	3.0	93	111	1551	0.1	1.0	597	16761	3.3	102	112	1564	0.91	0.65	10.39	26.2	8.42	9.12	7.49	<1	<1
SRT 4s	3/11/98	1304	0.6	Flood	3.4	104	84.5	1184	0.1	2.0	576	16183	3.6	110	89	1243	0.56	0.25	12.25	26.3	8.18	8.93	6.67	<1	<1
SRT 4s	4/15/98	1152	0.0	Low	2.8	85	77.2	1081	0.2	2.2	563	15812	3.0	93	82	1154	0.56	0.42	12.95	24.8	8.23	9.44	7.47	<1	<1
SRT 4s	7/15/98	945	1.3	High	1.7	54	67.8	950	0.2	2.1	562	15781	2.0	61	71	1000	0.73	0.94	13.84	24.5	8.40	10.25	11.2	2	5
SRT 4s	10/14/98	954	1.6	Flood	3.1	97	92.5	1296	0.1	0.7	571	16037	3.3	103	94	1310	0.84	0.27	12.54	24.9	8.39	9.76	8.34	<1	1
SRT 4s	3/3/99	954	0.3	Ebb	3.4	105	77.1	1080	0.6	8.1	533	14970	3.5	107	85	1191	0.65	0.15	14.46	22.3	8.00	8.74	1.04	<1	2
SRT 4s	4/14/99	947	-0.2	Flood	3.1	97	65.1	912	0.6	7.7	423	11869	3.3	101	68	954	0.69	0.10	19.24	19.7	7.94	6.55	0.09	2	5
SRT 4s	8/24/99	950	0.7	Flood	2.6	81	68.9	965	0.2	2.4	645	18118	2.9	90	71	1001	0.74	0.45	12.93	25.2	8.28	8.78	8.37	<1	<1
SRT 4s	10/12/99	1011	0.9	Ebb	3.4	106	77.5	1085	0.6	8.7	549	15422	3.6	112	81	1136	0.62	0.15	12.79	24.3	8.10	7.67	0.29	1	5
SRT 4s	3/1/00	1015	0.4	Flood	3.6	113	81.5	1142	0.3	4.8	564	15837	3.6	112	85	1192	0.99	0.24	19.49	23.1	8.22	7.78	0.46	<1	1
SRT 4s	4/24/00	1039	0.3	Ebb	3.0	94	78.1	1094	0.1	1.7	564	15835	3.1	96	79	1108	0.59	0.15	13.40	24.0	8.15	8.14	3.39	1	1
SRT 4s	8/1/00	1000	0.0	Low	2.9	90	76.3	1069	0.1	1.3	536	15043	3.1	96	80	1121	0.81	0.26	15.03	26.1	8.16	8.21	4.41	1	<1
SRT 4s	12/20/00	935	0.9	Flood	3.8	116	104	1452	1.1	15.7	571	16048	4.0	122	111	1561	0.87	0.22	11.90	22.7	8.11	7.17	0.38	1	1
SRT 4s	2/27/01	958	0.6	Ebb	2.9	90	85.6	1199	0.1	1.7	542	15211	3.1	96	87	1215	0.72	0.24	13.19	23.4	8.17	8.35	1.16	<1	<1
SRT 4s	5/9/01	1006	-0.2	Low	2.9	90	82.7	1158	0.4	4.9	504	14152	3.2	99	85	1188	0.78	0.22	14.72	24.3	8.12	8.12	4.81	<1	<1
SRT 4s	9/11/01	1050	2.1	High	2.9	91	87.8	1230	0.3	3.8	544	15284	3.0	92	93	1300	0.75	0.22	12.77	26.7	8.14	7.99	3.25	<1	1
SRT 4s	10/31/01	1009	0.4	Low	3.3	103	89.3	1250	1.0	13.7	577	16205	3.5	107	87	1218	0.67	0.12	12.52	24.9	8.07	7.84	1.24	1	2
SRT 4s	1/15/02	958	0.7	Ebb	3.6	113	105	1472	1.3	18.5	536	15054	3.7	113	107	1497	0.67	0.10	14.04	21.9	8.06	7.39	0.99	<1	<1
SRT 4s	5/28/02	1022	-0.2	Low	4.3	133	57.9	810	0.8	11.8	406	11391	4.6	143	64	889	1.24	0.79	17.70	26.3	8.37	11.38	7.21	<1	<1
SRT 4s	9/17/02	1025	1.2	Flood	4.5	138	108	1509	0.3	3.8	568	15961	4.8	147	98	1369	0.72	0.15	12.91	25.5	8.08	7.68	1.72	<1	<1
SRT 4s	12/16/02	1105	0.6	Flood	4.7	145	99.9	1399	0.3	4.1	548	15396	5.3	163	109	1525	0.81	0.21	12.47	24.3	8.14	7.47	1.28	<1	1
SRT 4s	1/30/03	1040	0.1	Flood	4.8	148	122	1709	0.7	9.1	516	14498	5.0	155	152	2133	0.75	0.17	14.57	24.2	8.08	7.17	3.85	<1	1
SRT 4s	5/28/03	948	0.3	Flood	5.4	168	114	1591	0.2	3.2	524	14720	5.6	174	126	1758		0.30	13.50	25.4	8.25	8.25	2.83	<1	<1

NELHA Water Quality Laboratory

Seawater Return Trench 4

January 1992 - December 2014

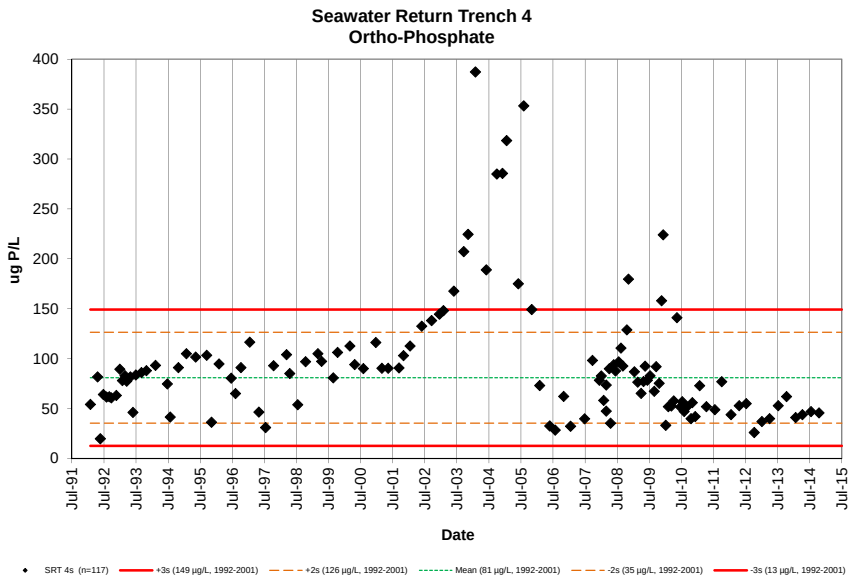
SITE ID	DATE	TIME	TIDE		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TOC	Turbidity	Salinity	TEMP	pH	DO	Chl a	Fecal Col.	Entero.
	M/D/Y	(2400)	(ft)	cycle	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)	CFU/100ml	CFU/100ml
SRT 4s	9/18/03	1016	1.7	Flood	6.7	207	140	1965	0.7	9.9	522	14672	7.1	220	146	2041	4.27	0.10	12.41	26.4	8.11	7.19	0.18	1	1
SRT 4s	11/6/03	936	0.6	Flood	7.3	225	134	1878	1.2	16.4	549	15405	7.5	232	172	2412	31.5	0.11	12.63	24.4	8.23		1.24	<1	1
SRT 4s	11/14/03	1007	1.7	Ebb																23.8		6.84			
SRT 4s	1/29/04	951	0.9	Ebb	12.5	387	465	6515	1.7	23.8	704	19758	12.2	378	477	6677	2.08	0.24	12.04	22.4	8.40	6.87	0.47	1	<1
SRT 4s	6/1/04	822	-0.2	Flood	6.1	189	140	1965	0.1	0.8	534	15003	6.6	206	147	2065	2.65	0.51	11.42	24.5	8.20	7.48	0.11	<1	<1
SRT 4s	9/29/04	906	0.7	Ebb	9.2	285	129	1807	0.5	7.1	508	14276	9.8	302	142	1986	1.04	0.26	12.85	24.4	8.10	7.04	2.23	1	1
SRT 4s	12/2/04	929	1.9	Ebb	9.2	286	165	2308	0.4	5.9	534	15006	9.5	295	176	2465	1.10	0.58	11.82	23.8	8.12	6.71	2.42	<1	<1
SRT 4s	1/19/05	920	0.5	Flood	10.3	318	247	3462	0.2	2.1	497	13970	10.7	330	275	3846	1.52	0.17	11.82	22.9	8.40	6.56	1.89	1	1
SRT 4s	5/31/05	912	0.5	Flood	5.7	175	114	1594	0.2	3.2	507	14234	5.6	174	118	1646	0.87	0.25	12.45	23.6	8.27	7.67	1.14	<1	2
SRT 4s	8/2/05	1013	0.6	Flood	11.4	353	159	2233	0.1	1.0	510	14324	11.8	366	163	2287	1.11	0.21	14.69	24.9	8.27	7.29	1.49	<1	<1
SRT 4s	11/1/05	845	0.7	Ebb	4.8	149	105	1467	1.6	22	474	13321	5.1	158	112	1567	0.61	0.46	11.36	25.2	8.15	6.71	0.38	<1	3
SRT 4s	1/30/06	850	0.9	Ebb	2.4	73	36	502	19.8	277	175	4926	2.7	84	53	743	0.96	0.41	27.93	23.1	7.77	5.72	0.34	135	2
SRT 4s	5/25/06	1042	0.5	Flood	1.1	33	3	42	16.8	235	4	112	1.6	50	29	412	1.19	0.45	34.73	26.8	7.95	7.22	0.96	41	33
SRT 4s	7/27/06	1010	0.2	Low	0.9	28	3	41	13.5	189	17	486	2.0	61	34	480	2.61	1.29	34.47	26.8	8.29	10.23	3.37	<1	<1
SRT 4s	10/31/06	1041	1.8	Flood	2.0	62	9	124	36.5	511	3	88	2.9	89	63	879	1.65	0.47	34.86	28.2	7.71	8.65	1.10	<1	41
SRT 4s	1/17/07	1017	0.2	Low	1.0	32	3	44	15.3	214	3	96	1.8	55	29	412	1.49	1.36	34.77	25.7	8.04	7.73	4.90	<1	1
SRT 4s	6/26/07	942	0.8	Flood	1.3	40	7	99	15.1	212	6	158	2.3	72	32	453		0.33	34.65	26.7	7.92	6.87	0.87	<1	21
SRT 4s	9/24/07	1348	2.0	Flood	3.2	98	51	718	7.3	103	441	12380	3.4	106	75	1056		1.01	33.58	27.0	8.12	4.27	2.75		
SRT 4s	12/11/07	1048	0.8	Ebb	2.5	78	84	1182	1.2	16	299	8401	3.2	100	112	1563		0.84	13.71	26.1	8.97	11.24	6.40		
SRT 4s	1/29/08	1101	0.6	Ebb	1.9	58	58	815	1.2	16	231	6479	2.7	85	80	1118		n/a	19.91	26.7	8.36	13.67	21.89		
SRT 4s	2/28/08	951	0.4	Ebb	1.5	48	70	976	1.6	23	402	11286	2.0	61	76	1068		1.04	20.71	26.7	8.36	11.84	38.44		
SRT 4s	2/28/08	2259	1.5	Ebb	2.4	74	85	1190	2.2	31	451	12673	2.4	73	88	1232		1.44	17.24	26.1	8.48	15.07	39.93		
SRT 4s	4/2/08	1023	0.2	Flood	2.9	90	36	502	4.0	56	476	13380	2.0	61	94	1321		1.26	15.34	24.6	8.28	8.40	20.13		
SRT 4s	4/16/08	1351	1.3	Flood	1.1	35	43	602	0.2	3	445	12493	2.7	83	64	893		0.99	15.45	28.5	8.47	11.32	10.32		
SRT 4s	5/23/08	1012	0.0	Ebb	3.0	94	69	962	1.0	14	641	17990	3.1	95	80	1123		0.64	15.44	25.1	8.37	7.92	0.11		
SRT 4s	6/12/08	1022	1.0	Flood	2.8	88	68	948	3.2	46	487	13688	2.9	89	77	1076		0.38	14.05	24.5	7.91	7.22	5.45		
SRT 4s	7/18/08	935	-0.1	Low	3.1	97	69	967	1.1	15	494	13886	3.0	92	84	1182		0.52	17.32	25.4	7.97	5.72	1.25		
SRT 4s	8/13/08	1039	0.7	Flood	3.6	111	73	1016	0.7	10	435	12231	0.0		0			1.68	14.74	26.3	8.08	7.40	11.48		
SRT 4s	9/4/08	1045	1.3	Ebb	3.0	93	69	964	0.6	8	409	11501	5.1	157	103	1445		1.40	15.26	25.8	8.15	6.42	1.53		
SRT 4s	10/20/08	1054	2.0	Ebb	4.2	129	85	1187	0.4	6	425	11927	0.0		0			0.87	16.85	26.7	7.84	6.86	0.78		
SRT 4s	11/6/08	1039	1.8	High	5.8	180	135	1894	1.3	18	498	13990	9.3	288	287	4017		0.54	15.41	25.7	8.28	8.06	0.69		
SRT 4s	1/2/08	1053	1.0	Ebb	2.7	83	40	566	0.1	2	72	2015	2.4	76	39	550		0.16	34.72	11.7	7.85	9.51	0.98		
SRT 4s	1/12/09	1033	0.3	Ebb	2.8	87	40	557	0.1	2	71	1983	0.4	12	41	578		0.18	34.73	11.3	7.84	9.03	0.06		
SRT 4s	2/20/09	941	0.3	Low	2.5	77	47	659	0.4	6	77	2162	2.3	72	41	575		0.15	34.62	9.9	7.57	9.18	0.38		
SRT 4s	3/30/09	1440	0.3	Flood	2.1	65	41	571	0.5	8	75	2116	12.7	393	198	2775		0.24	34.49	11.3	7.52	9.49	0.19		
SRT 4s	4/27/09	1109	-0.2	Flood	2.5	77	39	543	1.7	24	74	2076	3.3	102	53	736		0.07	34.37	12.1	7.97	9.25	0.07		
SRT 4s	5/14/09	1432	0.5	Flood	3.0	93	40	554	1.9	26	67	1875	2.8	85	43	600		0.31	34.73	11.9	7.40	8.81	0.08		
SRT 4s	6/10/09	840	0.2	Ebb	2.5	78	37	516	1.9	26	65	1830	3.1	96	47	657		0.09	34.45	11.9	7.48	8.58	0.03		
SRT 4s	7/10/09	845	0.5	Ebb	2.7	83	39	541	1.9	26	72	2008	3.2	101	22	314		0.13	34.91	10.1	7.68	9.58	0.17		
SRT 4s	8/27/09	909	1.8	Flood	2.2	67	30	419	1.3	19	52	1471	2.0	62	33	456		0.11	34.52	11.0	7.66	6.70	0.10		
SRT 4s	9/17/09	1225	0.3	Flood	3.0	92	38	528	0.5	7	63	1758	2.9	90	42	591		0.54	34.59	8.7	7.55	9.98	0.06		
SRT 4s	10/22/09	908	1.8	Ebb	2.4	75	42	588	1.0	15	184	5158	2.6	82	47	655		0.47	18.96	25.8	7.65	3.09	5.91		
SRT 4s	11/19/09	856	1.7	Ebb	5.1	158	93	1309	4.6	64	356	9994	5.0	154	102	1431		0.50	16.47	24.3	7.72	3.50	2.00		
SRT 4s	12/7/09	830	2.0	High	7.2	224	61	854	5.6	78	334	9367	7.0	218	71	996		0.52	23.33	23.9	7.75	1.75	2.47		
SRT 4s	1/4/10	1416	0.0	Low	1.1	33	12	169	0.6	8	32	894	2.3	70	16	231		0.29	34.88	19.4	8.16	9.61	0.60		
SRT 4s	2/2/10	1353	-0.2	Low	1.7	52	24	339	1.4	20	49	1388	2.0	61	27	384		0.33	34.65	16.7	8.01	8.43	0.34		
SRT 4s	3/10/10	1308	0.7	High	1.7	53	25	344	0.2	3	51	1445	1.9	59	28	397		0.11	32.55	16.8	7.96	7.84	0.89		
SRT 4s	4/5/10	958	0.4	High	1.9	58	24	340	2.2	31	74	2084	2.0	63	28	388		0.15	34.66	15.5	8.08	7.94	0.15		
SRT 4s	5/12/10	1252	1.5	Flood	4.6	141	98	1372	1.5	21	454	12757	4.2	129	98	1371		0.30	17.55	22.6	8.13	7.43	0.15		
SRT 4s	6/21/10	1018	1.3	Flood	1.7	52	24	334	0.7	10	55	1551	2.0	61	28	396		0.30	34.61	16.0	7.92	7.45	1.07		

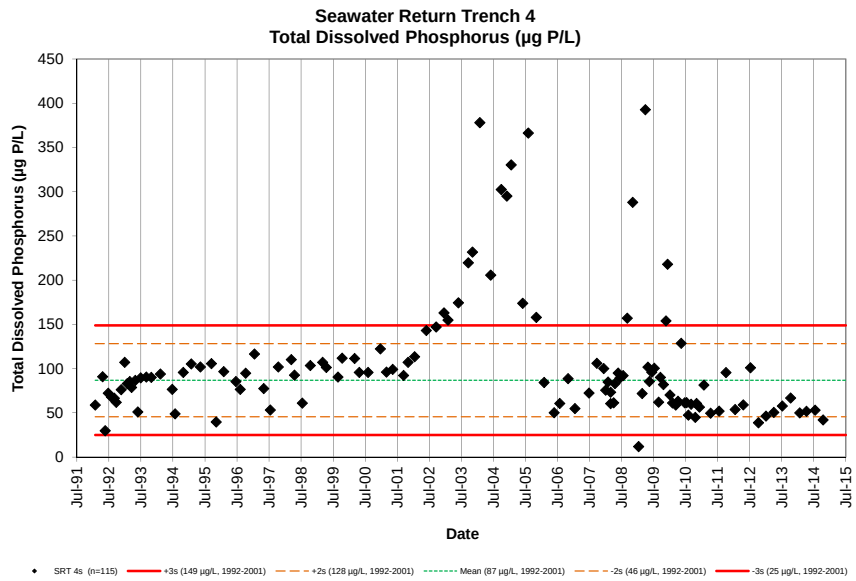
NELHA Water Quality Laboratory

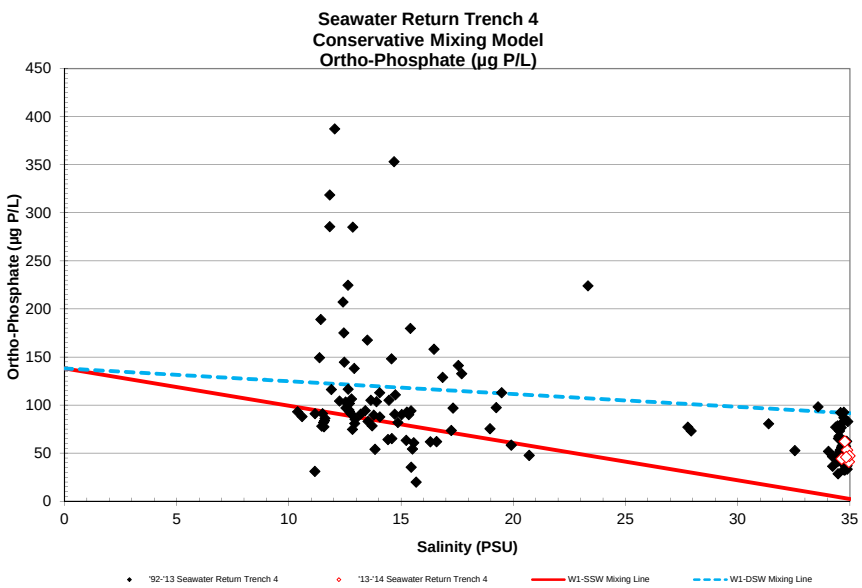
Seawater Return Trench 4

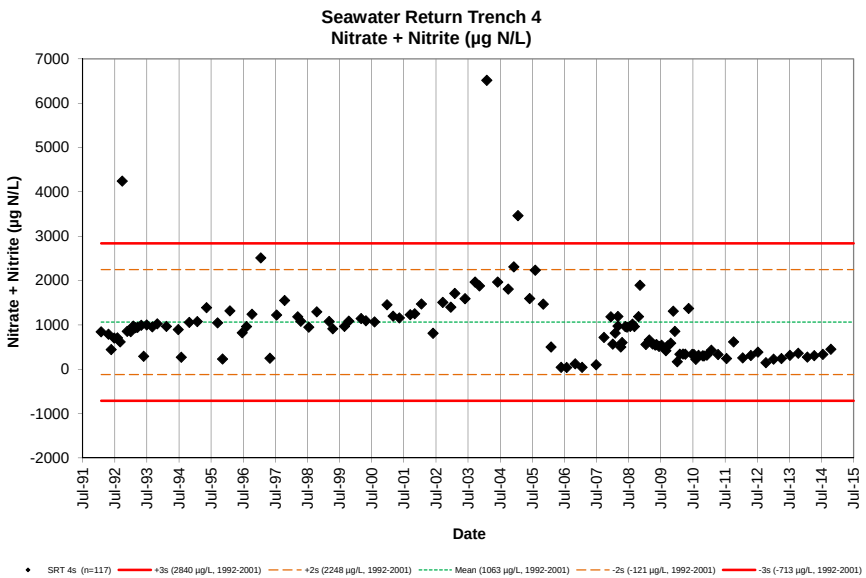
January 1992 - December 2014

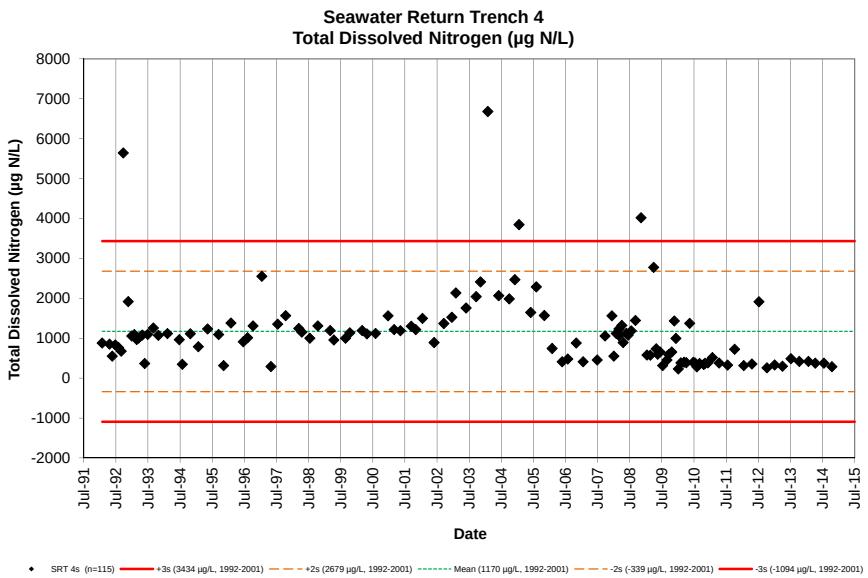
SITE ID	DATE	TIME	TIDE		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TOC	Turbidity	Salinity	TEMP	pH	DO	Chl a	Fecal Col.	Entero.
	M/D/Y	(2400)	(ft)	cycle	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)	CFU/100ml	CFU/100ml
SRT 4s	7/12/10	1011	-0.1	Low	1.8	57	24	333	0.9	13	55	1554	2.0	62	27	384		0.90	34.81	17.3	7.91	7.74	7.24		
SRT 4s	8/2/10	1219	1.3	Ebb	1.5	47	16	223	0.4	5.8	51	1434	1.5	47	20	281		0.13	34.53	17.6	8.13	12.71	0.14		
SRT 4s	9/2/10	1143	1.9	Flood	1.7	52	22	313	0.4	6.2	44	1237	1.9	60	26	366		0.11	34.05	17.3	7.99	8.39	0.24		
SRT 4s	10/19/10	1123	1.2	Flood	1.3	40	22	302	0.0	0.3	45	1250	1.4	45	24	341		0.21	34.69	17.3	8.02	8.05	0.07		
SRT 4s	11/3/10	1001	0.6	Flood	1.8	56	21	300	1.1	15.5	48	1337	2.0	61	26	369		0.86	34.63	17.4	7.98	7.52	5.50		
SRT 4s	12/6/10	937	0.7	Ebb	1.4	42	23	317	0.7	9.8	50	1392	1.8	57	27	381		0.13	34.47	16.6	7.93	7.74	0.17		
SRT 4s	1/26/11	1014	0.8	Ebb	2.4	73	31	430	0.2	3.1	65	1833	2.6	82	37	515		0.16	34.54	14.7	7.78	7.13	0.25		
SRT 4s	4/13/11	1014	0.4	Flood	1.7	52	24	331	0.4	5.0	53	1493	1.6	50	27	380		0.16	34.67	16.3	7.93	7.26	0.14		
SRT 4s	7/18/11	935	0.6	Ebb	1.6	49	17	240	0.5	7.2	42	1185	1.7	52	23	327		25.6	34.45	18.5	7.86	9.08	5.76		
SRT 4s	10/5/11	956	1.6	Flood	2.5	77	44	615	0.4	5.5	211	5925	3.1	96	52	723		1.25	27.78	19.7	7.95	9.31	2.45		
SRT 4s	1/17/12	830	0.7	Flood	1.4	44	18	256	0.4	5.0	39	1088	1.7	54	23	315		0.29	34.54	16.8	7.93	7.20	0.15		
SRT 4s	4/19/12	1043	0.3	Flood	1.7	53	22	310	0.7	9.7	45	1265	1.9	59	25	355		0.46	34.57	15.5	7.94	8.22	0.08		
SRT 4s	7/9/12	1140	1.1	Ebb	1.8	55	28	386	0.3	3.7	59	1662	3.3	101	137	1915		1.50	35.29	15.2	7.90	9.26	0.58		
SRT 4s	10/8/12	1047	1.8	High	0.8	26	11	148	0.2	3.2	33	918	1.2	39	18	257		0.26	35.05	22.0	8.22	10.20	1.67		
SRT 4s	1/3/13	1020	1.2	Ebb	1.2	37	16	227	0.6	7.8	31	877	1.5	46	23	329		0.18	34.87	17.5	8.25	11.23	0.85		
SRT 4s	4/1/13	1031	0.4	Ebb	1.3	40	17	240	0.4	5.4	37	1034	1.6	51	21	299		0.67	34.68	19.1	8.06	7.90	0.65		
SRT 4s	7/8/13	1004	-0.1	Low	1.7	53	22	313	1.3	18.0	46	1285	1.9	58	35	486		0.48	34.87	17.9	7.87	6.96	0.03		
SRT 4s	10/10/13	1119	1.7	Ebb	2.0	62	26	360	0.6	8.9	51	1432	2.2	67	30	420		0.72	34.77	14.8	7.90	6.62	0.25		
SRT 4s	1/22/14	910	0.7	High	1.3	41	20	275	0.9	12.2	43	1211	1.6	50	30	417		0.61	34.95	16.2	7.89	6.26	38.89		
SRT 4s	4/9/14	1057	0.7	Flood	1.4	44	22	306	1.3	18.1	49	1371	1.7	52	27	373		0.16	34.64	16.4	7.85	6.20	0.15		
SRT 4s	7/16/14	1109	0.5	Ebb	1.5	47	24	337	1.8	24.6	39	1092	1.7	53	27	375		0.32	34.98	17.4	7.92	7.25	0.08		
SRT 4s	10/15/14	1144	1.5	Ebb	1.5	46	32	450	1.9	26.1	40	1114	1.4	42	21	288		0.35	34.84	18.0	7.93	6.24	0.12		
SRT 4s	1/1/15																								
SRT 4s	4/1/15																								

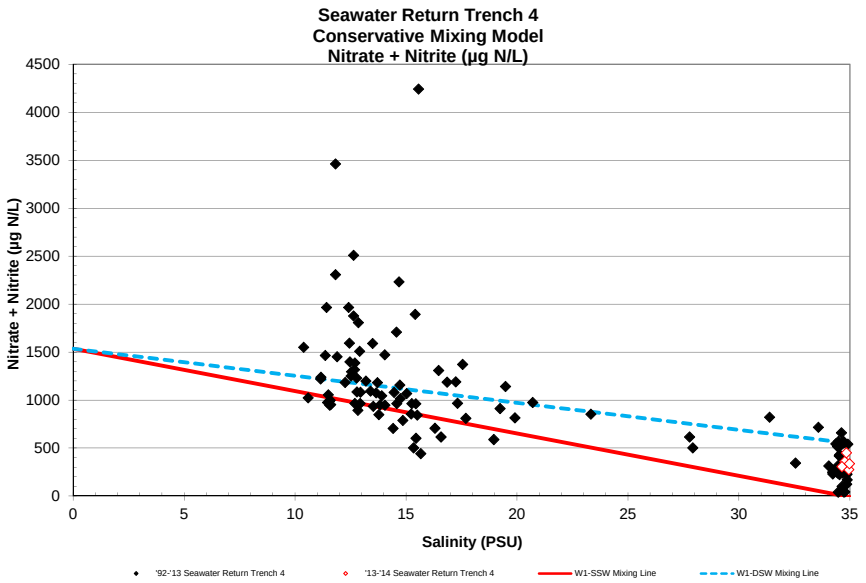

Seawater Return Trench 4
Ortho-Phosphate
ug P/L
Date
SRT 4s (n=117)
+3s (149 µg/L, 1992-2001)
+2s (126 µg/L, 1992-2001)
Mean (81 µg/L, 1992-2001)
-2s (35 µg/L, 1992-2001)
-3s (13 µg/L, 1992-2001)

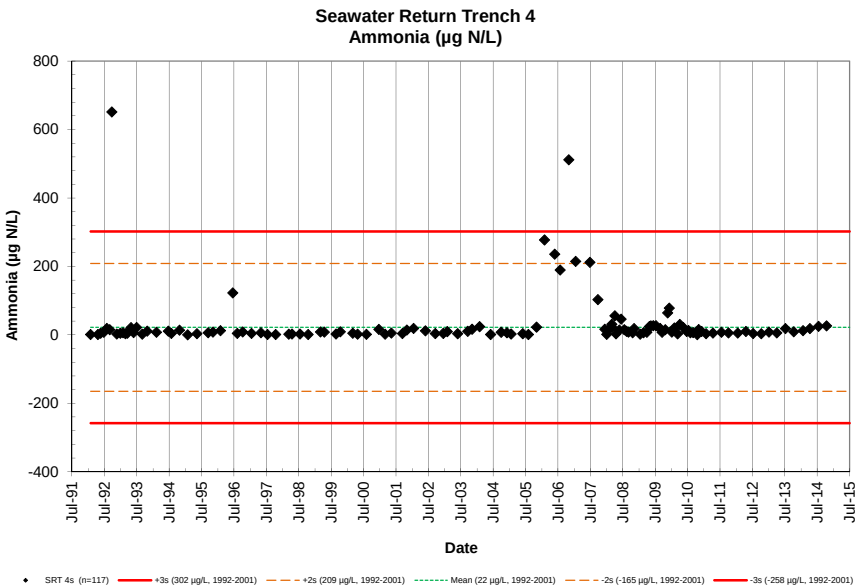

Seawater Return Trench 4
Total Dissolved Phosphorus (µg P/L)
Total Dissolved Phosphorus (µg P/L)
Date
SRT 4s (n=115)
+3s (149 µg/L, 1992-2001)
+2s (128 µg/L, 1992-2001)
Mean (87 µg/L, 1992-2001)
-2s (46 µg/L, 1992-2001)
-3s (25 µg/L, 1992-2001)

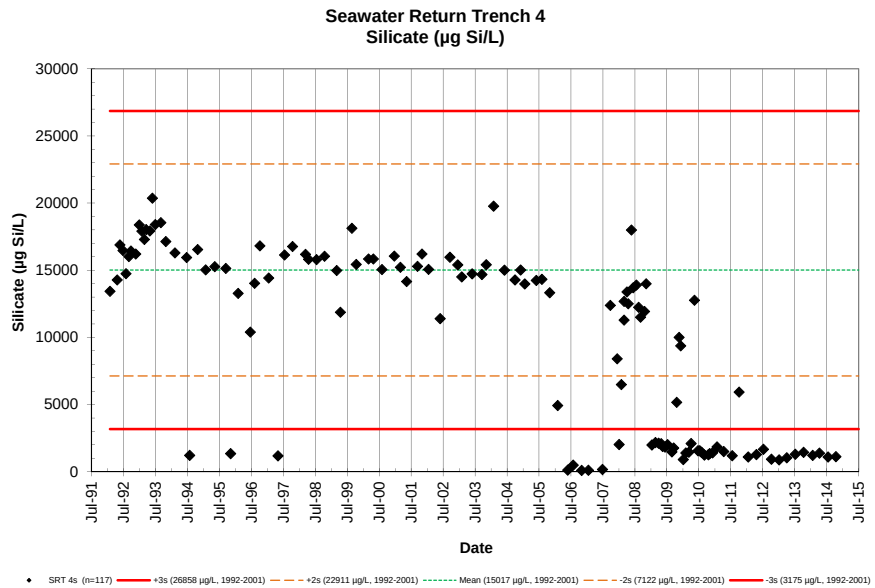

Seawater Return Trench 4
Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
'92-'13 Seawater Return Trench 4
'13-'14 Seawater Return Trench 4
W1-SSW Mixing Line
W1-DSW Mixing Line

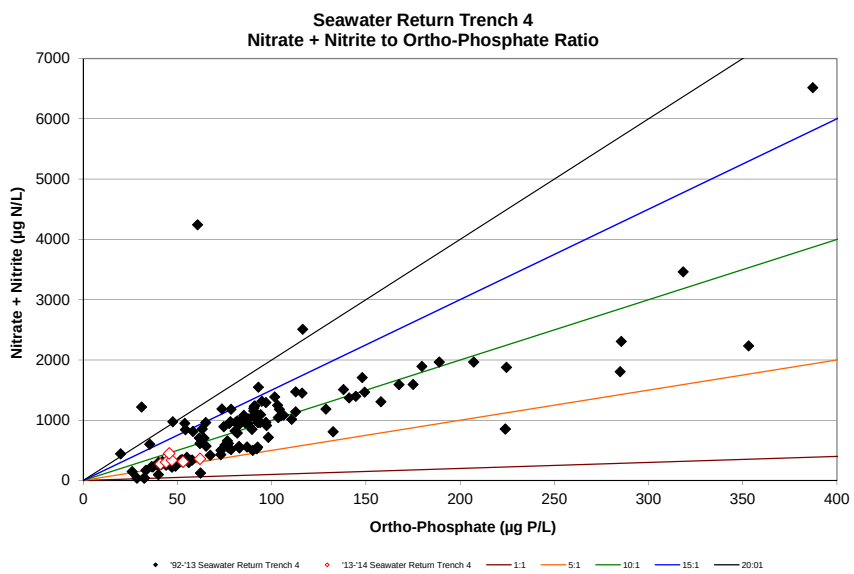

Seawater Return Trench 4
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
SRT 4s (n=117)
+3s (2840 µg/L, 1992-2001)
+2s (2248 µg/L, 1992-2001)
Mean (1063 µg/L, 1992-2001)
-2s (-121 µg/L, 1992-2001)
-3s (-713 µg/L, 1992-2001)

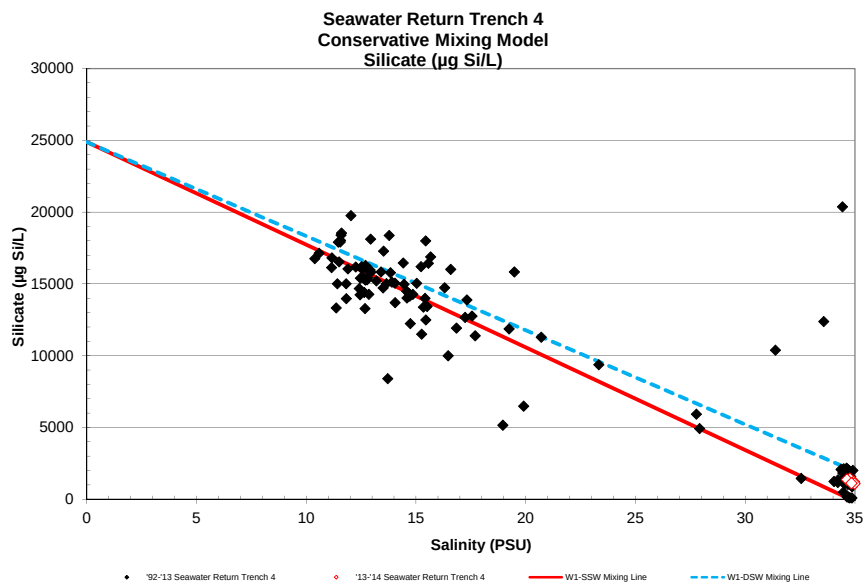

Seawater Return Trench 4
Total Dissolved Nitrogen (µg N/L)
Total Dissolved Nitrogen (µg N/L)
Date
SRT 4s (n=115)
+3s (3434 µg/L, 1992-2001)
+2s (2679 µg/L, 1992-2001)
Mean (1170 µg/L, 1992-2001)
-2s (-339 µg/L, 1992-2001)
-3s (-1094 µg/L, 1992-2001)

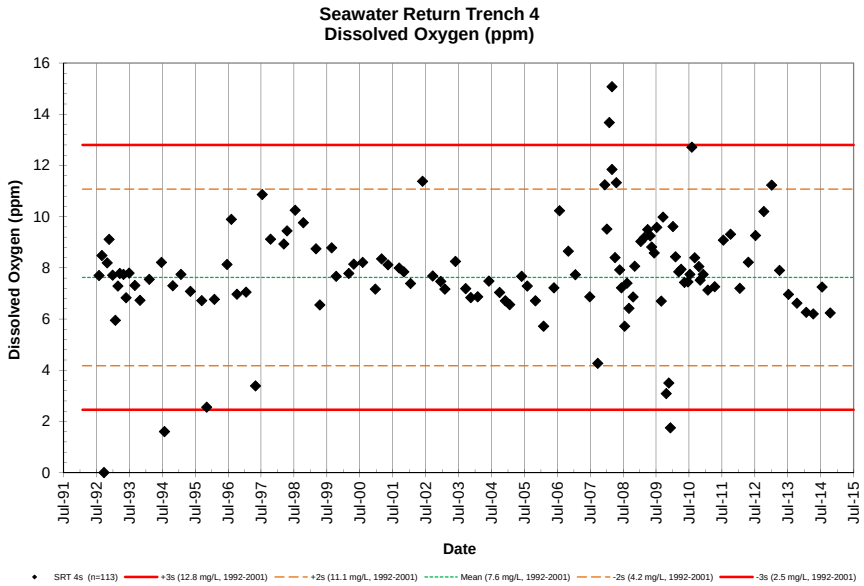

Seawater Return Trench 4
Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
'92-'13 Seawater Return Trench 4
'13-'14 Seawater Return Trench 4
W1-SSW Mixing Line
W1-DSW Mixing Line

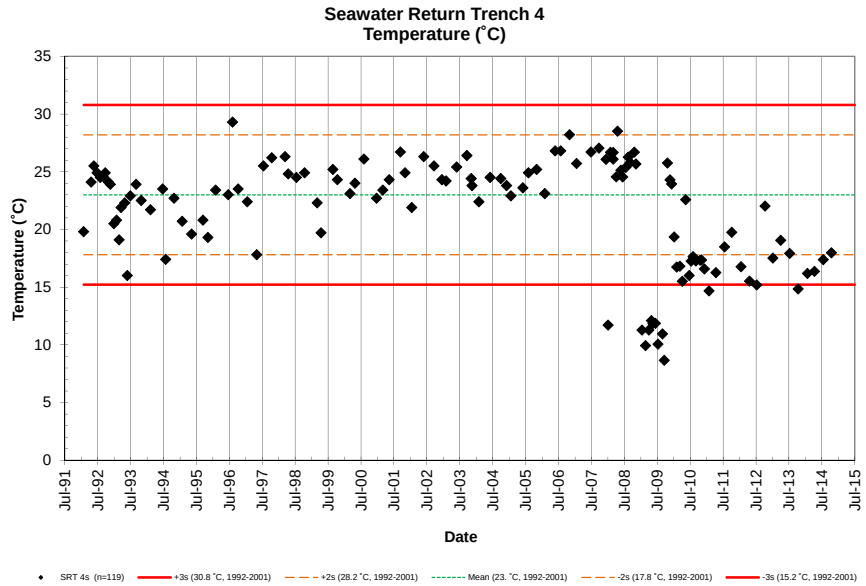

Seawater Return Trench 4
Ammonia (µg N/L)
Ammonia (µg N/L)
Date
SRT 4s (n=117)
+3s (302 µg/L, 1992-2001)
+2s (209 µg/L, 1992-2001)
Mean (22 µg/L, 1992-2001)
-2s (-165 µg/L, 1992-2001)
-3s (-258 µg/L, 1992-2001)

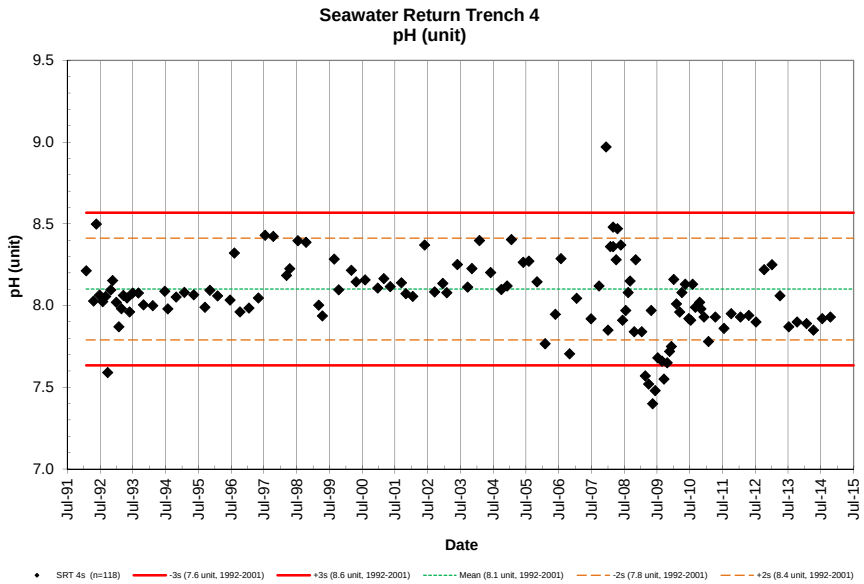

Seawater Return Trench 4
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
SRT 4s (n=117)
+3s (26858 µg/L, 1992-2001)
+2s (22911 µg/L, 1992-2001)
Mean (15017 µg/L, 1992-2001)
-2s (7122 µg/L, 1992-2001)
-3s (3175 µg/L, 1992-2001)

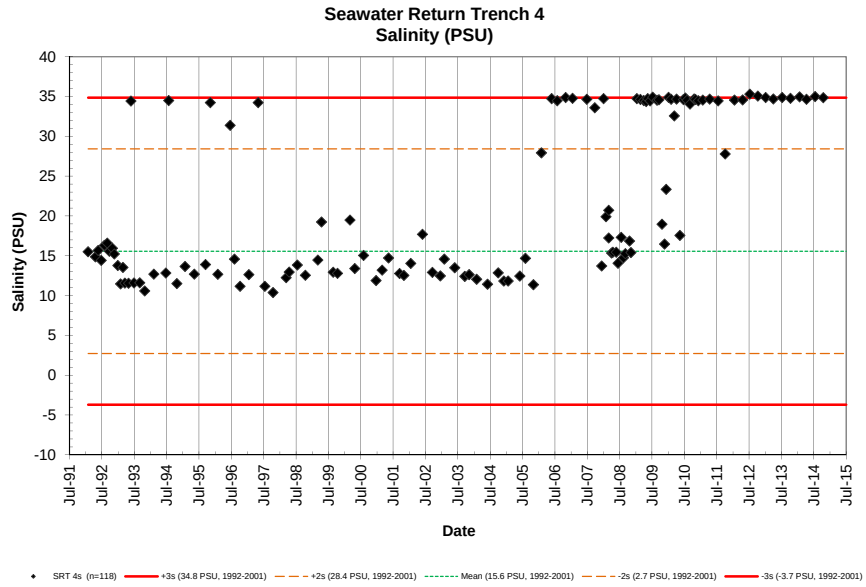

Seawater Return Trench 4
Nitrate + Nitrite to Ortho-Phosphate Ratio
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
'92-'13 Seawater Return Trench 4
'13-'14 Seawater Return Trench 4
1:1
5:1
10:1
15:1
20:01

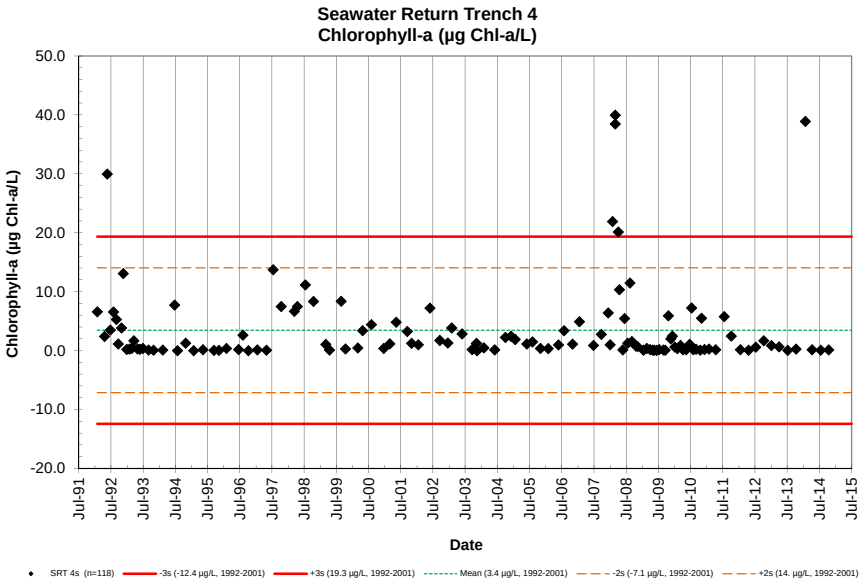

Seawater Return Trench 4
Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
'92-'13 Seawater Return Trench 4
'13-'14 Seawater Return Trench 4
W1-SSW Mixing Line
W1-DSW Mixing Line

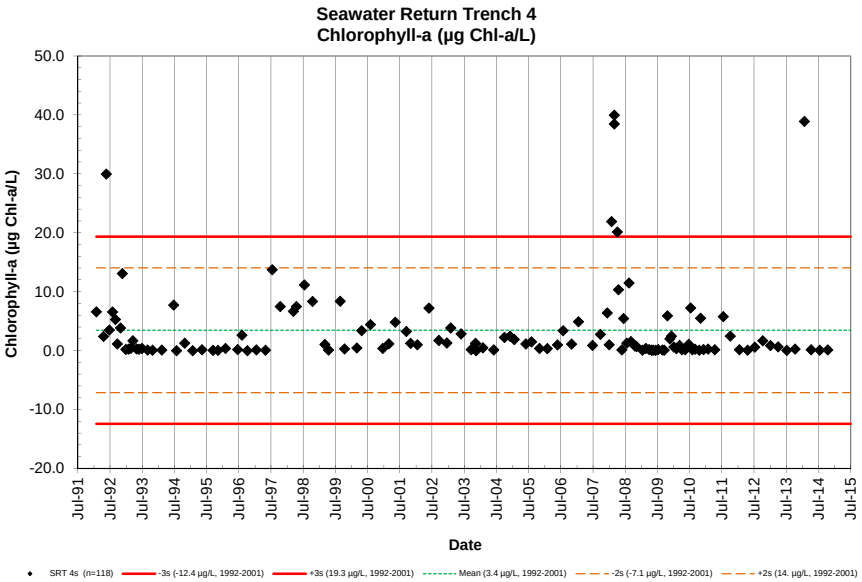

Seawater Return Trench 4
Dissolved Oxygen (ppm)
Dissolved Oxygen (ppm)
Date
SRT 4s (n=113)
+3s (12.8 mg/L, 1992-2001)
+2s (11.1 mg/L, 1992-2001)
Mean (7.6 mg/L, 1992-2001)
-2s (4.2 mg/L, 1992-2001)
-3s (2.5 mg/L, 1992-2001)


Seawater Return Trench 4
Temperature (˚C)
Temperature (˚C)
Date
SRT 4s (n=119)
+3s (30.8 ˚C, 1992-2001)
+2s (28.2 ˚C, 1992-2001)
Mean (23. ˚C, 1992-2001)
-2s (17.8 ˚C, 1992-2001)
-3s (15.2 ˚C, 1992-2001)


Seawater Return Trench 4
pH (unit)
pH (unit)
Date
SRT 4s (n=118)
-3s (7.6 unit, 1992-2001)
+3s (8.6 unit, 1992-2001)
Mean (8.1 unit, 1992-2001)
-2s (7.8 unit, 1992-2001)
+2s (8.4 unit, 1992-2001)


Seawater Return Trench 4
Salinity (PSU)
Salinity (PSU)
Date
SRT 4s (n=118)
+3s (34.8 PSU, 1992-2001)
+2s (28.4 PSU, 1992-2001)
Mean (15.6 PSU, 1992-2001)
-2s (2.7 PSU, 1992-2001)
-3s (-3.7 PSU, 1992-2001)


Seawater Return Trench 4
Chlorophyll-a (µg Chl-a/L)
Chlorophyll-a (µg Chl-a/L)
50.0
40.0
30.0
20.0
10.0
0.0
-10.0
-20.0
Jul-91
Jul-92
Jul-93
Jul-94
Jul-95
Jul-96
Jul-97
Jul-98
Jul-99
Jul-00
Jul-01
Jul-02
Jul-03
Jul-04
Jul-05
Jul-06
Jul-07
Jul-08
Jul-09
Jul-10
Jul-11
Jul-12
Jul-13
Jul-14
Jul-15
Date
SRT 4s (n=118)
-3s (-12.4 µg/L, 1992-2001)
+3s (19.3 µg/L, 1992-2001)
Mean (3.4 µg/L, 1992-2001)
-2s (-7.1 µg/L, 1992-2001)
+2s (14. µg/L, 1992-2001)


Seawater Return Trench 4
Chlorophyll-a (µg Chl-a/L)
Chlorophyll-a (µg Chl-a/L)
50.0
40.0
30.0
20.0
10.0
0.0
-10.0
-20.0
Jul-91
Jul-92
Jul-93
Jul-94
Jul-95
Jul-96
Jul-97
Jul-98
Jul-99
Jul-00
Jul-01
Jul-02
Jul-03
Jul-04
Jul-05
Jul-06
Jul-07
Jul-08
Jul-09
Jul-10
Jul-11
Jul-12
Jul-13
Jul-14
Jul-15
Date
SRT 4s (n=118)
-3s (-12.4 µg/L, 1992-2001)
+3s (19.3 µg/L, 1992-2001)
Mean (3.4 µg/L, 1992-2001)
-2s (-7.1 µg/L, 1992-2001)
+2s (14. µg/L, 1992-2001)

NELHA Water Quality Laboratory

Seawater Return Trench 5

June 1992 - December 2014

SITE ID	DATE	TIME	TIDE		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TOC	Turbidity	Salinity	TEMP	pH	DO	Chl a	Fecal Col.	Entero.
	M/D/Y	(2400)	(ft)	cycle	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(NTU)	(PSU)	(˚C)		(ppm)	(µg/L)	CFU/100ml	CFU/100ml
SRT-5s	6/24/92	1150	1.4	High	3.0	92	77.9	1091	0.44	6	729	20474	3.0	94	82	1151	0.71	0.91	8.36	25.3	8.18		0.1	1	5
SRT-5s	7/31/92	918	0.4	Ebb	3.0	94	73.5	1029			680	19093	3.2	98	76	1067	1.05	0.17	10.09	22.7	7.98	8.06	0.1	<1	<1
SRT-5s	8/31/92	1101	0.8	Ebb	3.7	115	12.7	177	35.2	493	79	2229	5.0	155	71	987	3.63	0.94	32.33	27.0	7.97	6.54	12.8	<1	10
SRT-5s	9/23/92	1138	1.5	Flood	12.9	400	17.1	240	91.6	1283	79	2218	13.3	412	122	1704	4.81	4.3	34.12	26.7	8.00	5.76	0.6	431	<1
SRT-5s	10/28/92	1156	0.6	Low														9.9	27.18	25.8	7.76	1.40	0.6	11	TNTC
SRT-5s	11/18/92	1212	1.5	High	13.0	403	31.7	443	36.5	511	169	4746	16.3	505	155	2167	5.88	4.2	29.78	26.8	8.24	9.98	22.6	<1	TNTC
SRT-5s	12/9/92	1047	0.4	Low	4.5	140	63.9	895	22.5	315	39	1104	6.3	196	62	866	3.65	7.3	34.80	23.5	7.94	4.30	11.9	<1	141
SRT-5s	1/27/93				NO SAMPLES TAKEN, UNFILTERABLE																				
SRT-5s	2/24/93				NO SAMPLES TAKEN, UNFILTERABLE																				
SRT-5s	3/22/93	1312	0.8	Flood	1.9	59	3.2	45	5.21	73	53	1480	3.8	118	77	1083	6.46	4.1	34.62	27.6	8.26	3.45	60.9		
SRT-5s	4/28/93	1027	0.5	High	3.7	113	11.4	159	10.6	148	59	1650	4.8	149	51	708	2.80	2.0	32.90	24.3	8.30	7.25	22.0	<1	<1
SRT-5s	5/26/93	1041	0.9	Flood	NO SAMPLES TAKEN, UNFILTERABLE													3.0	34.08	25.8	8.70	11.21	31.1	<1	<1
SRT-5s	6/29/93	1036	1.3	Flood	NO SAMPLES TAKEN, UNFILTERABLE													2.1	30.22	24.2	8.39	9.70	83.2	<1	<1
SRT-5s	9/20/93	822	2.1	High	4.7	144	106.0	1485	36.0	504	54	1512	6.1	190	215	3011	4.44	3.2	33.83	19.9	7.67	7.71	78.4	<1	<1
SRT-5s	10/27/93	1034	0.7	Flood	3.7	114	26.5	371	0.96	13	129	3623	4.6	142	63	884	2.42	2.5	30.09	25.0	8.14	7.45	2.0	<1	<1
SRT-5s	2/8/94	1057	0.2	Low	3.6	112	68.7	962	12.6	176	151	4241	4.9	152	115	1610	2.52	16.9	29.25	20.7	8.03	8.77	20.7	<1	<1
SRT-5s	6/22/94	1026	0.0	Flood	1.3	39	63.5	889	1.87	26	30	840	8.0	248	236	3311	NS	3.9	34.31	22.9	8.38	10.69	126.3	<1	<1
SRT-5s	8/24/94	1009	0.8	Ebb	4.9	151	77.3	1082	12.5	176	101	2840	6.0	184	118	1649	2.37	1.22	30.37	24.5	8.08	10.02	12.1	<1	1
SRT-5s	10/26/94	944	1.8	High	2.3	72	303.8	4255	34.3	480	86	2429	6.2	192	368	5158	4.90	3.9	33.06	23.1	8.22	10.98	179.5	<1	1
SRT-5s	3/29/95	1124	0.2	Flood	15.0	465	454.8	6370	32.9	461	76	2126	16.2	502	494	6918	3.34	1.07	33.34	21.9	7.88	8.59	42.6	<1	3
SRT-5s	5/10/95	724	-0.2	Low	4.7	146	68.5	959	44.7	626	23	652	8.0	248	161	2259	6.81	6.5	34.72	22.4	7.82	3.05	152.5	<1	3
SRT-5s	9/13/95	732	1.8	High	1.0	32	10.9	152	26.5	371	45	1264	3.7	115	102	1427	5.41	8.1	34.35	23.2	7.74	2.56	134.6	2	64
SRT-5s	11/6/95	1003	0.4	Low	5.8	181	166.0	2326	40.2	564	48	1361	8.6	265	250	3508	5.58	5.1	32.91	23.2	7.94	7.74	147.0	<1	10
SRT-5s	1/31/96	1013	0.5	Flood	7.7	238	42.3	592	33.5	469	34	964	8.7	271	45	623	2.31	3.6	31.13	20.8	7.83	6.73	26.9	14	10
SRT-5s	6/17/96	1330	1.0	Flood	3.0	92	46.0	645	5.06	71	150	4223	3.4	107	106	1490	2.17	1.56	24.91	24.4	8.22	7.08	4.1	<1	102
SRT-5s	8/5/96	1253	1.2	Ebb	2.8	86	28.3	396	2.12	30	105	2953	3.2	100	34	477	1.24	1.20	30.88	25.0	8.49	10.57	10.6	2	21
SRT-5s	10/7/96	1153	1.7	Flood	6.3	195	309.8	4339	4.43	62	44	1246	6.6	206	311	4357	1.64	1.64	34.50	22.4	8.31	7.36	87.7	<1	<1
SRT-5s	1/15/97	940	1.3	High	15.5	480	361.7	5066	24.2	339	48	1348	17.0	527	405	5676	3.38	5.5	34.41	21.9	8.03	7.26	207.0	2	14
SRT-5s	4/30/97	1008	0.7	Flood	0.5	15	0.3	5	0.40	6	68	1904	3.1	96	42	590	3.46	8.6	24.71	26.5	8.59	10.06	216.0	2	70
SRT-5s	7/14/97	1120	1.6	Flood	0.0	1	0.3	4	0.65	9	12	333	0.9	28	23	326	2.26	4.1	34.45	27.4	8.66	8.15	172.2	1	67
SRT-5s	10/13/97	1215	1.5	Flood	0.2	6	0.3	4	0.85	12	114	3202	1.3	40	38	535	4.22	4.7	34.72	27.6	8.90	9.15	218.5	2	29
SRT-5s					NO SAMPLES TAKEN DUE TO SITE QUARANTINE																				
SRT-5s	4/15/98	1118	0.0	Low	1.1	33	5.6	79	6.15	86	49	1387	2.1	65	36	510	1.50	0.44	33.50	24.6	8.14	6.29	0.8	2	22
SRT-5s	7/15/98	1128	1.2	High	5.0	154	19.2	268	4.82	68	89	2505	6.7	207	59	825	3.00	3.1	32.22	25.0	8.39	7.54	24.4	<1	2
SRT-5s	10/14/98	1105	1.8	Flood	2.4	74	4.0	55	0.37	5	21	598	5.2	161	31	439	2.87	1.67	34.89	26.4	8.35	8.41	22.7	<1	<1
SRT-5s	3/3/99	1045	0.1	Ebb	4.0	123	1.1	16	0.30	4	12	339	4.8	150	23	327	2.20	2.4	35.12	23.3	8.30	10.99	84.2	<1	1
SRT-5s	4/14/99	1028	-0.1	Flood	6.6	204	32.8	459	0.65	9	262	7358	14.6	452	151	2114	11.4	4.3	24.10	25.0	8.17	8.20	12.8	<1	<1
SRT-5s	8/24/99	1044	1.0	Flood	1.4	42	2.2	31	1.96	27	11	320	2.7	84	32	452	2.64	1.86	35.03	27.9	8.31	8.35	10.1	24	<1
SRT-5s	10/12/99	1040	0.8	Ebb	1.4	44	0.1	1	0.35	5	21	594	5.9	182	33	457	3.13	2.1	35.16	25.8	8.32	8.50	10.1	<1	6
SRT-5s	3/1/00	1040	0.4	Flood	0.3	8	0.1	1	0.40	6	52	1466	2.0	62	22	303	2.34	4.4	33.56	23.1	8.29	8.30	10.4	<1	<1
SRT-5s	4/24/00	1109	0.3	Ebb	0.6	20	0.2	2	0.12	2	47	1306	1.7	51	19	262	1.92	4.7	33.52	22.6	8.36	8.73	70.4	1	6
SRT-5s	8/1/00	1031	0.0	Low	3.7	116	4.7	66	1.08	15	44	1241	5.5	172	32	453	2.86	6.4	34.00	25.3	8.08	5.71	107.0	89	2
SRT-5s	12/20/00	1005	1.0	Flood	3.7	114	9.3	130	4.52	63	42	1174	6.8	211	54	762	3.75	9.2	33.54	22.0	7.89	3.78	201.0	3	105
SRT-5s	2/27/01	1037	0.4	Ebb	3.8	119	11.8	165	5.38	75	56	1570	5.9	183	44	622	2.82	2.6	33.21	22.5	8.07	7.11	40.0	<1	5
SRT-5s	5/9/01	1038	-0.2	Low	3.7	115	8.3	117	0.43	6	75	2106	6.1	189	45	633	4.08	6.9	32.44	23.5	8.14	8.45	135.9	1	12
SRT-5s	9/11/01	1100	2.1	High	3.3	103	0.1	1	0.08	1	27	768	4.8	149	34	476	2.76	7.4	34.48	26.0	8.37	6.53	76.5	<1	22
SRT-5s	10/31/01	1137	0.7	Flood	8.8	271	4.4	61	6.21	87	31	857	10.8	335	56	783	3.18	3.3	34.62	27.3	8.10	7.13	59.2	<1	10
SRT-5s	1/15/02	1056	0.4	Ebb	4.0	125	1.9	27	32.0	448	33	913	7.7	238	45	626	3.01	3.6	34.23	21.8	8.08	6.57	98.0	3	27
SRT-5s	5/28/02	1041	-0.2	Low	6.9	212	5.5	77	0.43	6	58	1632	9.1	282	50	698	4.01	13.2	33.26	25.8	7.77	2.31	169.4	149	19
SRT-5s	9/17/02	1113	1.6	Flood	3.3	103	10.5	147	7.30	102	46	1292	4.7	144	44	610	2.32	5.7	33.66	21.6	8.03	7.54	143.1	2	1
SRT-5s	12/16/02	1129	0.6	Flood	2.2	69	6.4	89	3.53	49	58	1623	4.0	123	42	588	2.84	6.10	33.59	23.8	8.07	9.45	34.2	40	21
SRT-5s	1/30/03	1130	0.2	Flood	0.6	19	0.6	9	1.10	15	61	1713	1.5	45	20	281	2.21	7.60	33.61	23.9	8.29	8.64	117.0	82	24
SRT-5s	5/28/03	1035	0.4	Flood	1.0	30	1.0	14	0.20	3	44	1230	3.7	115	33	463		10.5	34.02	21.8	8.12	6.53	98.8	3	54

NELHA Water Quality Laboratory

Seawater Return Trench 5

June 1992 - December 2014

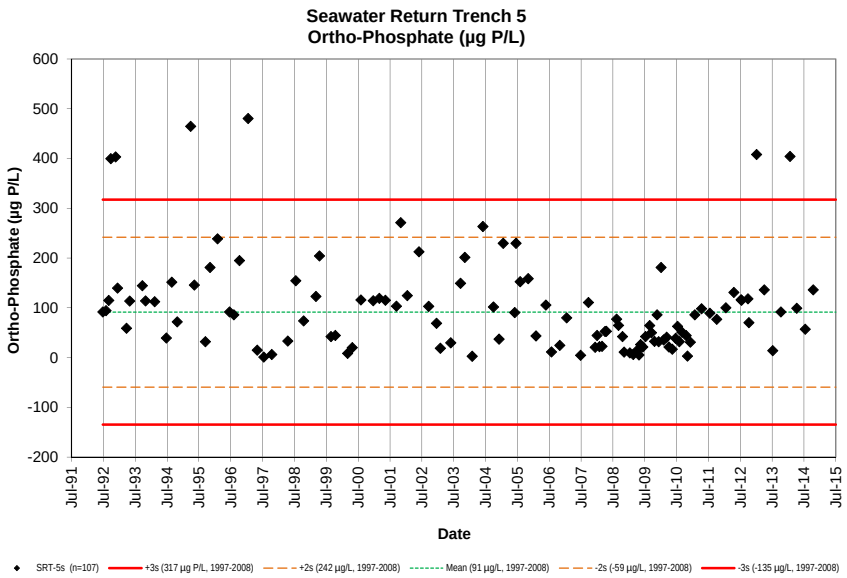
SITE ID	DATE	TIME	TIDE		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TOC	Turbidity	Salinity	TEMP	pH	DO	Chl a	Fecal Col.	Entero.
	M/D/Y	(2400)	(ft)	cycle	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(NTU)	(PSU)	(˚C)		(ppm)	(µg/L)	CFU/100ml	CFU/100ml
SRT-5s	9/18/03	1047	1.7	Ebb	4.8	149	13.9	195	7.35	103	32	899	6.2	191	41	576	3.61	1.01	34.49	23.8	8.07	7.65	13.0	2	6
SRT-5s	11/6/03	1035	0.7	Flood	6.5	201	10.0	140	12.4	173	38	1061	8.3	258	53	741	3.80	2.20	34.03	24.2	7.78		22.0	<1	2
SRT-5s	11/14/03	1355	0.6	Ebb																24.2		9.42			
SRT-5s	1/29/04	1019	0.9	Ebb	0.1	2	0.0	1	0.20	3	38	1080	1.0	30	16	224	2.67	7.70	33.53	22.6	8.23	7.18	128.2	UTC	33
SRT-5s	6/1/04	959	-0.1	Flood	8.5	263	24.6	344	3.65	51	80	2255	11.0	339	55	770	4.57	5.80	31.32	26.2	7.85	5.43	7.5	<1	5
SRT-5s	9/29/04	958	0.5	Ebb	3.3	102	6.7	94	10.5	147	31	868	4.7	146	36	507	2.31	3.76	33.33	24.9	8.13	6.12	45.3	4	4
SRT-5s	12/2/04	1045	1.6	Ebb	1.2	37	1.8	25	0.71	10	32	896	2.5	77	18	258	2.48	11.2	33.06	22.7	8.12	4.71	68.1	2	5
SRT-5s	1/19/05	1020	0.6	Flood	7.4	230	17.3	242	9.1	127	55	1532	8.7	271	45	624	2.25	4.56	33.52	20.6	7.92	5.63	22.6	2	9
SRT-5s	5/31/05	1015	0.9	Flood	2.9	90	14.8	207	9.8	137	97	2713	4.3	134	46	641	2.22	4.8+/-	31.51	23.5	8.18		0.2	1	8
SRT-5s	6/16/05	1000	1.0	Flood	7.4	230	17.3	242	9.1	127	55	1532	8.7	271	44	616				24.2		6.97		25	35
SRT-5s	8/2/05	945	0.4	Flood	4.9	152	15.4	215	12.3	173	96	2688	6.7	209	52	731	2.94	4.54+/-	31.58	25.2	8.08	7.12	26.3	25	35
SRT-5s	8/8/05	1010																		25.0				3	7
SRT-5s	11/1/05	939	0.9	Flood	5.1	159	6.3	88	38.6	540	23	652	8.1	251	72	1012	4.86	12.8	34.70	24.0	7.42	2.45	40.3	5	25
SRT-5s	1/30/06	938	0.5	Ebb	1.4	43	12.1	170	1.90	27	28	772	1.8	56	18	248	0.93	1.33	34.78	19.9	8.08	7.39	3.7	<1	3
SRT-5s	5/25/06	950	0.0	Flood	3.4	106	7.3	102	1.81	25	23	652	5.1	158	33	465	2.69	7.29	34.42	25.2	8.07	5.71	110.0	4	17
SRT-5s	7/27/06	1104	0.2	Low	0.4	11	0.2	3	0.32	4	20	565	1.3	39	12	170	1.54	2.52	34.50	25.7	8.29	8.55	27.0	2	46
SRT-5s	10/31/06	940	1.6	Flood	0.8	24	18.8	263	0.49	7	72	2011	2.1	64	39	549	2.21	6.00	32.86	23.0	7.86	5.50	16.5	350	4
SRT-5s	1/17/07	1138	0.3	Flood	2.6	80	16.3	228	8.2	115	40	1118	3.6	110	36	504	2.12	3.10	34.12	22.1	8.03	7.24	14.3	15	5
SRT-5s	6/26/07	1111	1.6	Flood	0.1	5	12.1	170	4.39	61	45	1261	0.7	23	n/a	n/a		5.76	34.17	22.3	7.95	6.85	35.3	1	27
SRT-5s	9/24/07	1307	1.8	Flood	3.6	111	15.7	219	10.07	141	45	1275	4.6	141	50	704		4.53	34.71	21.2	8.02	8.00	8.2		
SRT-5s	12/11/07	1105	0.8	Ebb	0.7	21	8.6	120	13.59	190	18	500	2.3	71	44	618		4.23	34.46	21.2	8.04	5.62	35.5		
SRT-5s	1/29/08	1339	0.2	Ebb	0.7	22	4.5	64	3.57	50	17	466	2.5	78	41	573		3.37	34.75	18.7	7.98	8.83	85.4		
SRT-5s	2/28/08	1023	0.4	Ebb	0.7	23	10.8	152	5.64	79	45	1255	1.8	57	40	562		3.12	34.88	18.6	7.81	6.16	114.8		
SRT-5s	4/2/08	1345	1.1	High	1.7	52	10.2	143	0.18	3	41	1147	2.7	84	113	1588		1.59	34.86	20.7	8.10	8.40	28.2		
SRT-5s	4/16/08	1415	1.3	Flood	1.7	53	19.5	273	0.18	3	46	1283	2.3	70	48	676		2.19	34.77	18.2	7.97	9.15	34.9		
SRT-5s	5/23/08	1050	Trench Dry																						
SRT-5s	6/12/08	1100	Trench Dry																						
SRT-5s	7/18/08	958	Trench Dry																						
SRT-5s	8/13/08	1101	1.2	Flood	2.5	77	33	464	4.2	59	81	2274	0.0		0			1.09	34.85	23.6	7.97	5.08	7.0		
SRT-5s	9/4/08	1151	1.0	Ebb	2.1	65	31	440	4.1	57	76	2138	1.6	51	22	314		1.22	34.67	13.8	7.67	8.15	6.9		
SRT-5s	10/20/08	1144	1.8	Ebb	1.4	42	7	105	10.6	148	21	600	0.0		0			1.76	35.06	24.9	7.83	7.10	38.0		
SRT-5s	11/6/08	1055	1.8	High	0.4	11	7	95	0.1	2	22	622	0.8	24	26	369		1.37	35.25	22.6	8.27	7.21	6.8		
SRT-5s	1/2/08	1115	0.7	Ebb	1.4	44	2	27	21.3	299	7	185	4.0	125	60	835		4.63	35.34	25.7	8.12	4.75	89.3		
SRT-5s	1/12/09	1057	0.6	Ebb	0.3	9	1	13	13.5	189	2	67	0.3	8	42	584		2.13	34.82	25.3	8.34	5.94	28.7		
SRT-5s	2/20/09	1005	0.3	Low	0.2	6	38	526	3.2	46	4	101	1.2	38	42	591		5.20	35.83	22.3	8.17	6.86	17.7		
SRT-5s	3/30/09	1412	0.1	Flood	0.4	13	2	31	8.2	115	16	440	23.8	736	29	403		1.97	34.83	25.0	8.12	6.26	19.9		
SRT-5s	4/27/09	1441	0.3	Flood	0.2	5	4	58	3.9	54	30	854	1.6	51	44	614		4.12	35.42	28.0	8.61	5.92	20.9		
SRT-5s	5/14/09	1048	0.4	Flood	0.8	26	2	25	6.2	86	6	173	1.3	40	25	347		0.31	35.26	26.2	8.15	4.82	2.1		
SRT-5s	6/10/09	912	0.2	Ebb	0.7	21	10	142	5.7	80	7	204	1.5	47	31	428		3.08	35.39	27.5	9.09	4.33	4.6		
SRT-5s	7/10/09	845	0.5	Ebb	1.4	42	1	13	11.1	155	8	214	2.5	76	20	278		6.36	35.61	26.4	8.16	5.33	2.3		
SRT-5s	8/27/09	1036	1.8	Flood	2.1	64	2	26	1.4	20	21	583	4.3	132	45	626		8.47	35.50	28.1	8.32	7.50	3.9		
SRT-5s	9/17/09	1043	0.3	Flood	1.6	50	10	134	0.3	5	40	1128	2.9	90	42	591		5.98	35.45	22.2	7.73	6.73	6.3		
SRT-5s	10/22/09	940	1.6	Ebb	1.0	32	24	332	1.6	22	47	1309	1.6	49	34	472		3.64	35.19	17.5	7.75	7.48	33.7		
SRT-5s	11/19/09	918	1.7	Ebb	2.8	86	23	321	23.6	330	54	1529	3.0	93	59	824		5.72	34.98	17.9	7.62	6.55	4.9		
SRT-5s	12/7/09	810	2.0	High	1.0	32	22	308	12.4	174	68	1923	1.8	55	48	666		2.92	34.88	17.4	7.83	6.41	135.4		
SRT-5s	1/4/10	1353	0.0	Low	5.8	181	26	365	25.4	356	58	1637	6.7	207	66	923		19.90	34.70	15.9	7.91	8.19	137.0		
SRT-5s	2/2/10	1310	-0.2	Low	1.1	35	27	375	9.4	132	51	1419	1.6	49	43	599		3.50	34.62	20.3	7.92	9.31	134.6		
SRT-5s	3/10/10	1230	0.7	High	1.3	41	7	93	13.4	188	16	446	1.9	60	36	503		4.49	35.34	24.7	8.16	6.95	89.8		
SRT-5s	4/5/10	930	0.4	High	0.7	21	9	125	9.7	136	43	1212	1.2	38	31	435		3.45	35.17	22.1	8.10	4.95	92.8		
SRT-5s	5/12/10	1210	1.5	Flood	0.5	17	10	141	11.7	164	41	1143	2.1	66	45	632		6.63	34.63	25.2	8.29	6.94	77.0		
SRT-5s	6/21/10	930	1.3	Flood	1.2	39	14	203	15.8	221	82	2315	2.6	80	49	686		6.42	32.75	23.0	7.94	5.56	101.8		

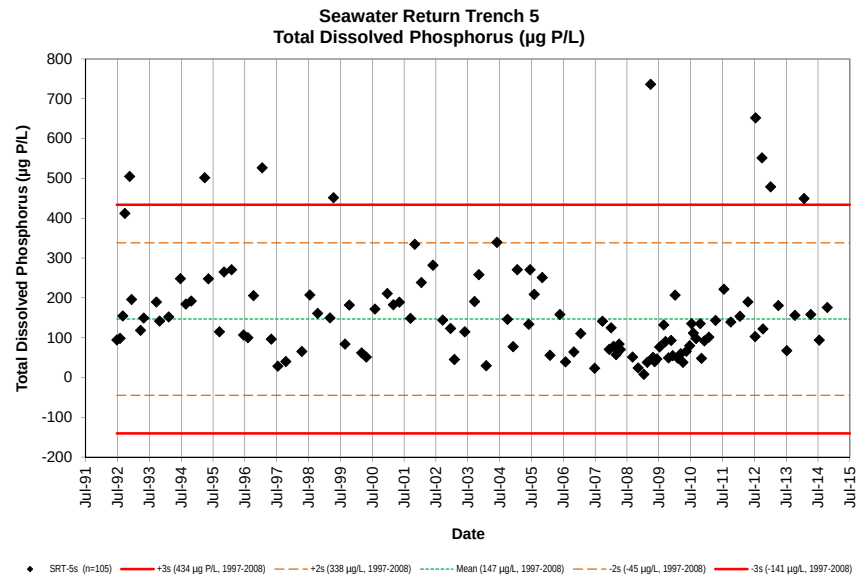
NELHA Water Quality Laboratory

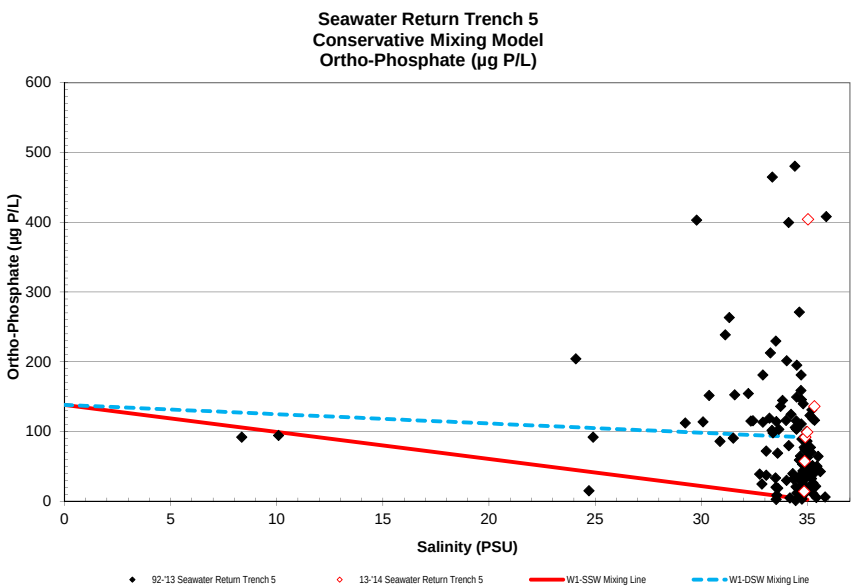
Seawater Return Trench 5

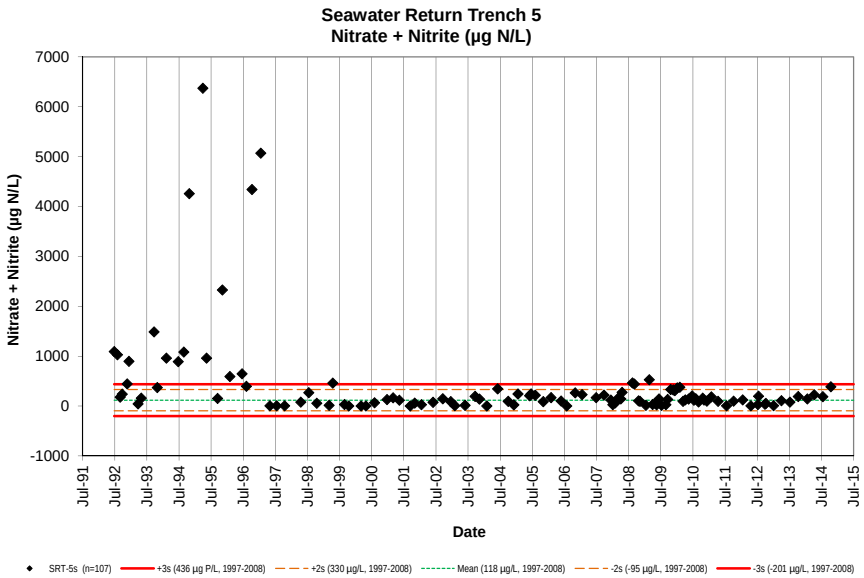
June 1992 - December 2014

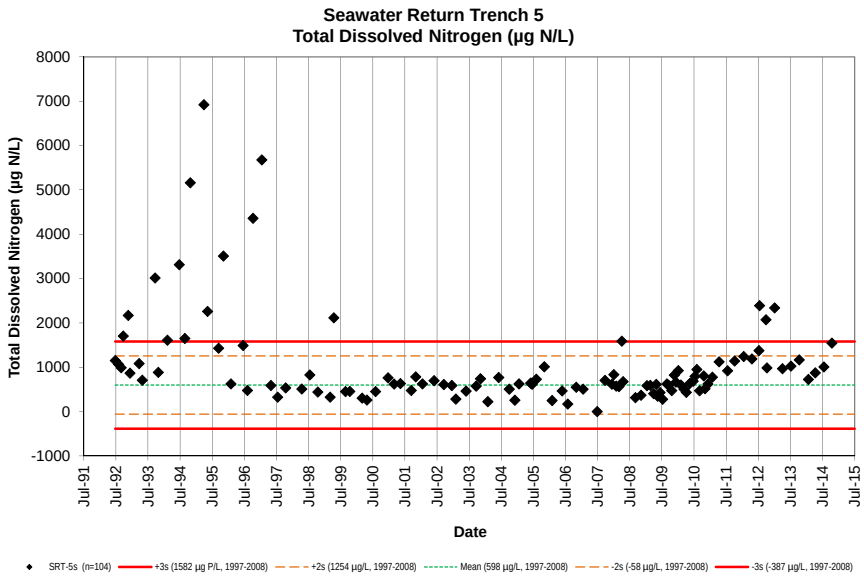
SITE ID	DATE	TIME	TIDE		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TOC	Turbidity	Salinity	TEMP	pH	DO	Chl a	Fecal Col.	Entero.
	M/D/Y	(2400)	(ft)	cycle	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(NTU)	(PSU)	(˚C)		(ppm)	(µg/L)	CFU/100ml	CFU/100ml
SRT-5s	7/12/10	917	-0.1	Low	2.0	63	8.4	118	19.6	274	23	644	4.4	135	57	794		7.86	35.00	23.8	7.53	3.72	114.4		
SRT-5s	8/2/10	1150	1.3	Ebb	1.0	32	10	146	26.6	372	39	1103	3.6	112	68	949		7.13	34.84	24.5	7.74	6.94	132.9		
SRT-5s	9/2/10	1028	1.7	Flood	1.6	51	6	81	0.7	10	25	703	3.2	98	34	469		8.15	35.24	25.6	7.99	3.81	93.0		
SRT-5s	10/19/10	1039	1.0	Flood	1.4	44	11	160	13.6	190	30	834	4.4	135	57	804		6.04	34.96	23.0	7.81	7.07	40.1		
SRT-5s	11/3/10	919	0.5	Low	0.1	3	9	120	11.4	160	33	913	1.6	48	37	517		5.55	34.74	21.2	7.78	6.56	93.1		
SRT-5s	12/6/10	907	0.9	Ebb	1.0	31	7	97	15.8	221	31	861	3.0	92	44	622		3.13	34.64	21.4	8.05	6.89	63.0		
SRT-5s	1/26/11	931	0.9	High	2.8	86	13	183	27.3	383	31	858	3.3	101	56	778		4.10	34.96	27.0	7.71	5.07	29.8		
SRT-5s	4/13/11	955	0.3	Flood	3.2	98	7	95	55.5	777	47	1308	4.6	143	80	1123		5.31	33.38	26.4	7.59	0.53	18.8		
SRT-5s	7/18/11	842	0.8	Ebb	2.9	89	0	6	24.7	347	38	1078	7.2	222	66	921		6.81	34.74	22.6	7.15	0.11	27.9		
SRT-5s	10/5/11	930	1.4	Flood	2.5	77	7	98	50.4	707	38	1059	4.5	139	82	1142		5.71	35.14	22.6	7.14	1.01	46.2		
SRT-5s	1/17/12	803	0.7	Flood	3.2	100	9	122	55.8	782	25	712	5.0	154	89	1243		4.66	34.95	23.2	7.52	0.05	49.0		
SRT-5s	4/19/12	1019	0.3	Flood	4.2	131	0	6	60.5	847	16	446	6.1	190	85	1189		6.32	35.21	26.2	7.45	0.02	71.6		
SRT-5s	7/9/12	1140	1.1	Ebb	3.7	116	2	32	39.0	547	32	906	3.3	103	98	1376		9.67	35.34	26.7	7.54	0.09	32.8		
SRT-5s	7/16/12	1354	2.1	Flood	3.7	115	14	197	46.7	654	42	1180	21.1	652	170	2388		36.20	34.48	27.9	7.76	5.42	50.1		
SRT-5s	9/26/12	1103	1.2	Flood	3.8	118	3	38	47.0	659	17	485	17.8	551	148	2073		9.93	35.25	25.2	7.47	5.32	53.0		
SRT-5s	10/8/12	1018	1.7	Flood	2.3	70	4	52	47.1	660	23	644	3.9	122	70	984		7.76	35.17	25.0	7.55	7.98	98.1		
SRT-5s	1/3/13	1020	1.2	Ebb	13.2	408	0.5	7	136.6	1913	10	284	15.5	479	167	2337		14.40	35.89	24.5	7.07	0.51	53.7		
SRT-5s	4/1/13	1002	0.4	Ebb	4.4	136	7.6	106	31.6	443	61	1716	5.8	181	69	966		12.90	33.74	23.3	7.51	6.76	81.6		
SRT-5s	7/8/13	926	-0.1	Low	0.5	14	5.6	78	19.2	269	41	1165	2.2	68	73	1024		9.63	34.85	23.9	7.60	7.06	52.7		
SRT-5s	10/10/13	1030	1.8	Ebb	3.0	92	13.6	191	39.3	551	42	1166	5.0	156	83	1165		6.06	34.90	21.8	7.64	7.12	64.0		
SRT-5s	1/22/14	838	0.7	High	13.0	404	10.2	143	26.5	371	37	1028	14.5	449	52	724		1.36	35.03	20.2	7.38	6.90	67.3		
SRT-5s	4/9/14	1031	0.7	Flood	3.2	99	16.2	227	33.0	462	34	960	5.1	158	62	875		7.01	34.99	21.7	7.37	6.62	48.8		
SRT-5s	7/16/14	1035	0.5	Ebb	1.8	57	13.4	187	47.8	669	34	953	3.0	94	72	1008		2.83	34.87	23.1	7.41	6.54	38.5		
SRT-5s	10/15/14	1203	1.5	Ebb	4.4	136	27.6	386	67.8	949	371	10430	5.7	176	110	1545		3.60	35.33	24.5	7.40	5.93	41.2		
SRT-5s	1/1/15																								
SRT-5s	4/1/15																								

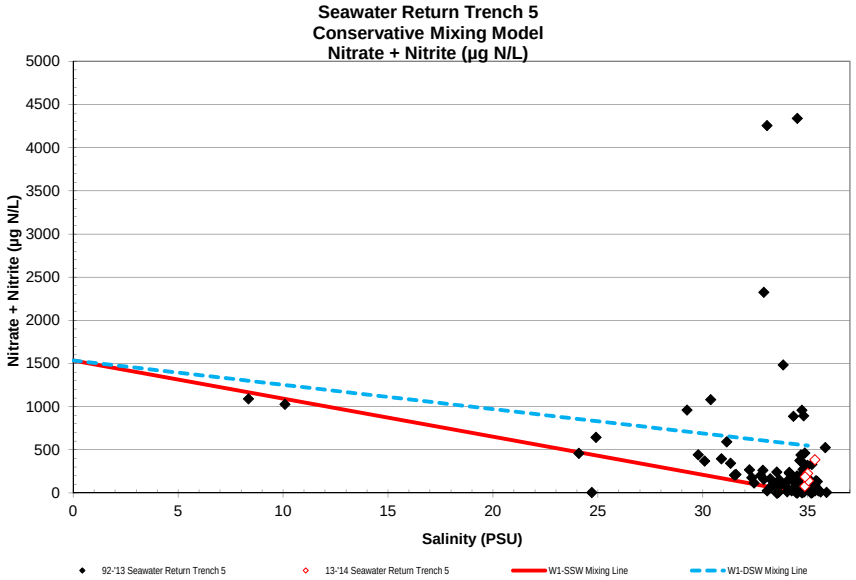

Seawater Return Trench 5
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
600
500
400
300
200
100
0
-100
-200
Jul-91
Jul-92
Jul-93
Jul-94
Jul-95
Jul-96
Jul-97
Jul-98
Jul-99
Jul-00
Jul-01
Jul-02
Jul-03
Jul-04
Jul-05
Jul-06
Jul-07
Jul-08
Jul-09
Jul-10
Jul-11
Jul-12
Jul-13
Jul-14
Jul-15
Date
SRT-5s (n=107)
+3s (317 µg P/L, 1997-2008)
+2s (242 µg/L, 1997-2008)
Mean (91 µg/L, 1997-2008)
-2s (-59 µg/L, 1997-2008)
-3s (-135 µg/L, 1997-2008)

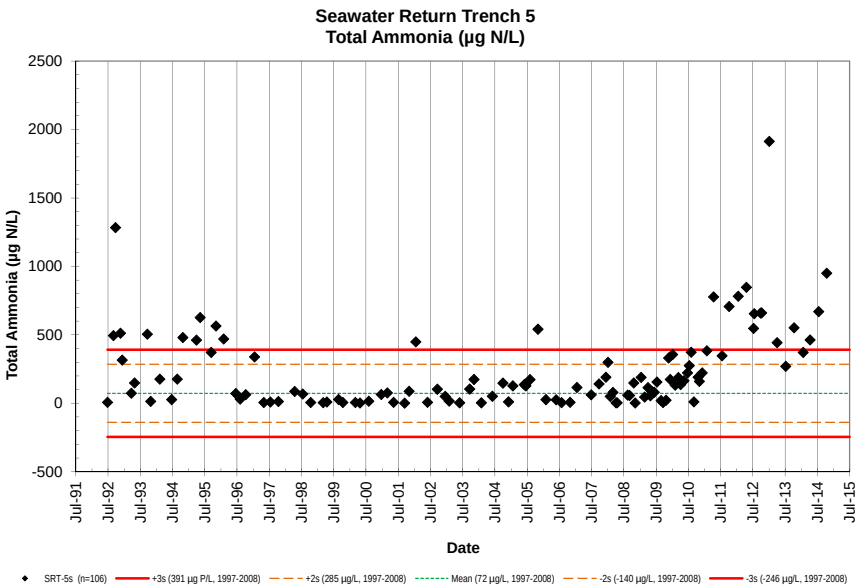

Seawater Return Trench 5
Total Dissolved Phosphorus (µg P/L)
Total Dissolved Phosphorus (µg P/L)
800
700
600
500
400
300
200
100
0
-100
-200
Jul-91
Jul-92
Jul-93
Jul-94
Jul-95
Jul-96
Jul-97
Jul-98
Jul-99
Jul-00
Jul-01
Jul-02
Jul-03
Jul-04
Jul-05
Jul-06
Jul-07
Jul-08
Jul-09
Jul-10
Jul-11
Jul-12
Jul-13
Jul-14
Jul-15
Date
SRT-5s (n=105)
+3s (434 µg P/L, 1997-2008)
+2s (338 µg/L, 1997-2008)
Mean (147 µg/L, 1997-2008)
-2s (-45 µg/L, 1997-2008)
-3s (-141 µg/L, 1997-2008)

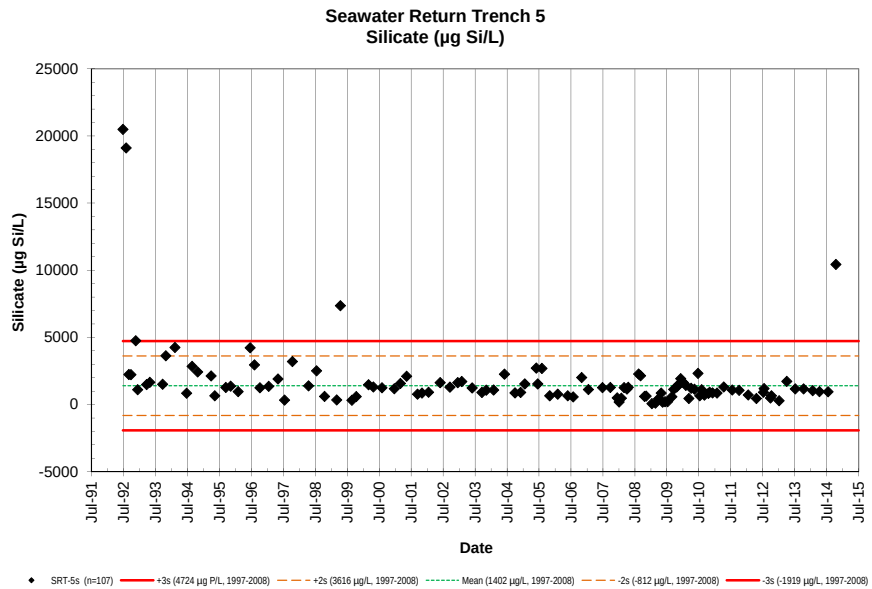

Seawater Return Trench 5
Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
600
500
400
300
200
100
0
0
5
10
15
20
25
30
35
Salinity (PSU)
92-'13 Seawater Return Trench 5
13-'14 Seawater Return Trench 5
W1-SSW Mixing Line
W1-DSW Mixing Line

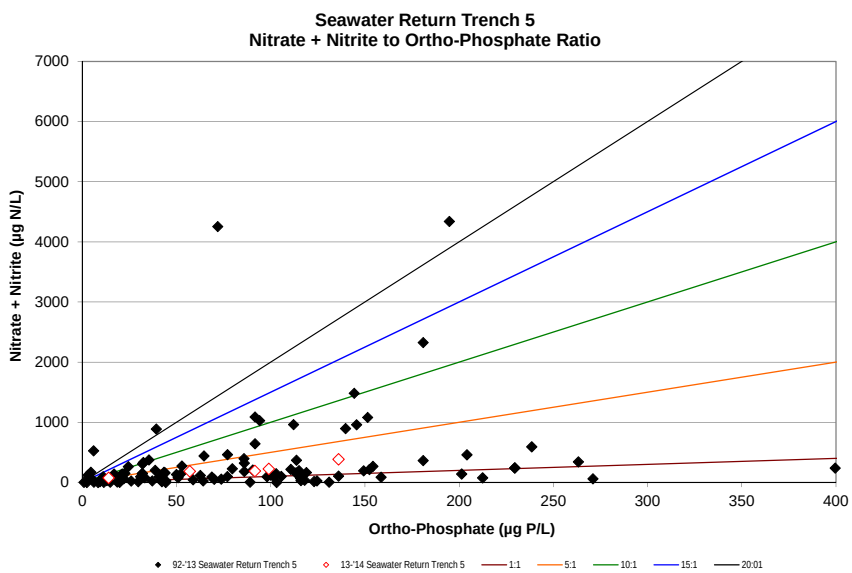

Seawater Return Trench 5
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
SRT-5s (n=107)
+3s (436 µg P/L, 1997-2008)
+2s (330 µg/L, 1997-2008)
Mean (118 µg/L, 1997-2008)
-2s (-95 µg/L, 1997-2008)
-3s (-201 µg/L, 1997-2008)

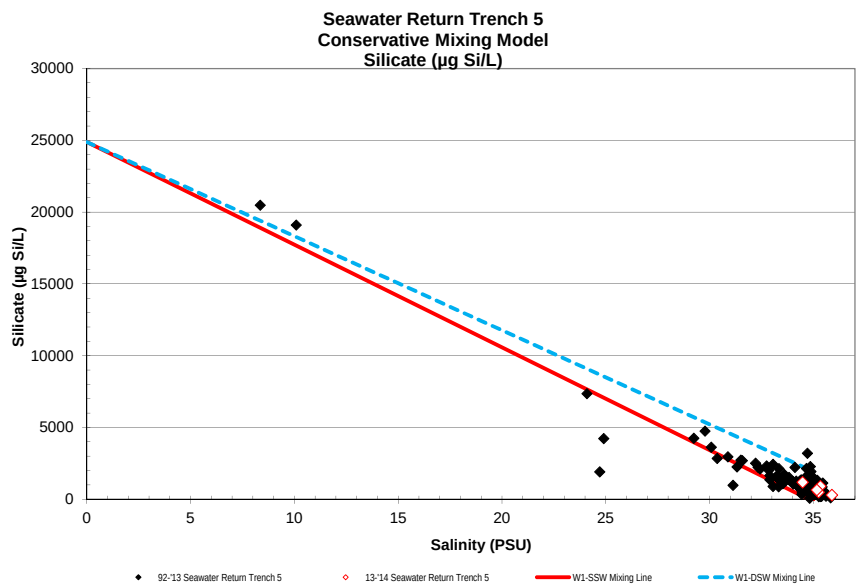

Seawater Return Trench 5
Total Dissolved Nitrogen (µg N/L)
Total Dissolved Nitrogen (µg N/L)
Date
SRT-5s (n=104)
+3s (1582 µg P/L, 1997-2008)
+2s (1254 µg/L, 1997-2008)
Mean (598 µg/L, 1997-2008)
-2s (-58 µg/L, 1997-2008)
-3s (-387 µg/L, 1997-2008)

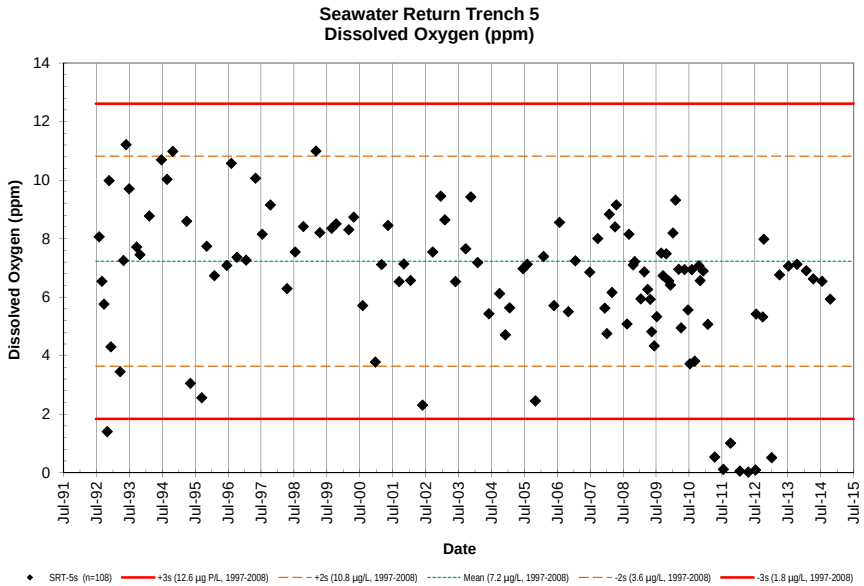

Seawater Return Trench 5
Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
92-'13 Seawater Return Trench 5
13-'14 Seawater Return Trench 5
W1-SSW Mixing Line
W1-DSW Mixing Line

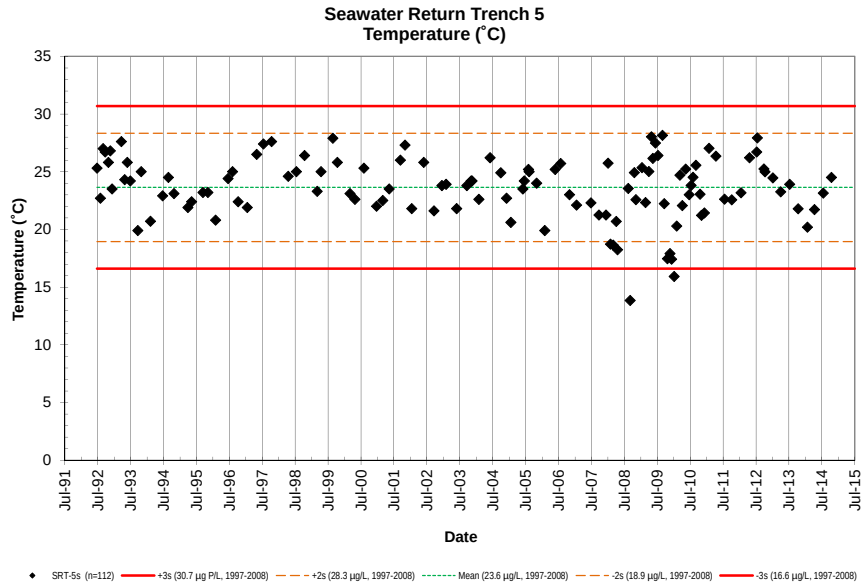

Seawater Return Trench 5
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
SRT-5s (n=106)
+3s (391 µg P/L, 1997-2008)
+2s (285 µg/L, 1997-2008)
Mean (72 µg/L, 1997-2008)
-2s (-140 µg/L, 1997-2008)
-3s (-246 µg/L, 1997-2008)

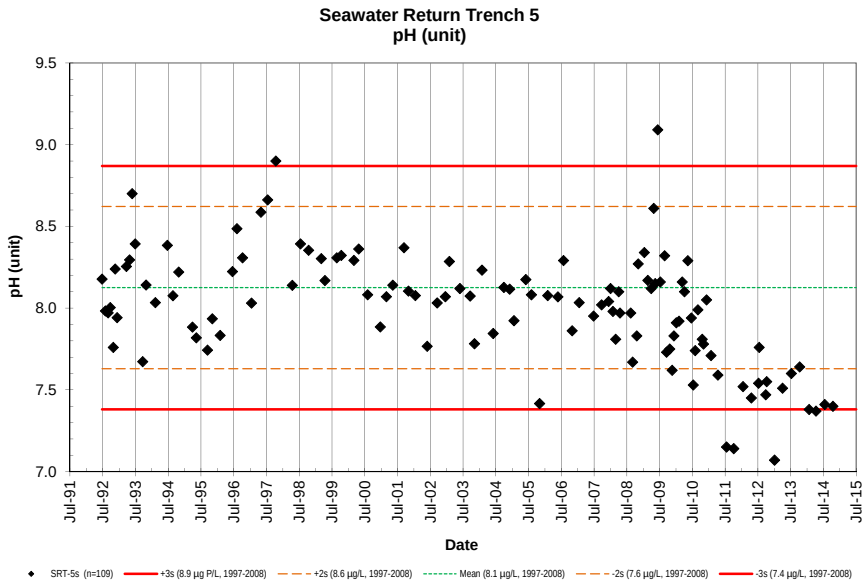

Seawater Return Trench 5
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
SRT-5s (n=107)
+3s (4724 µg P/L, 1997-2008)
+2s (3616 µg/L, 1997-2008)
Mean (1402 µg/L, 1997-2008)
-2s (-812 µg/L, 1997-2008)
-3s (-1919 µg/L, 1997-2008)

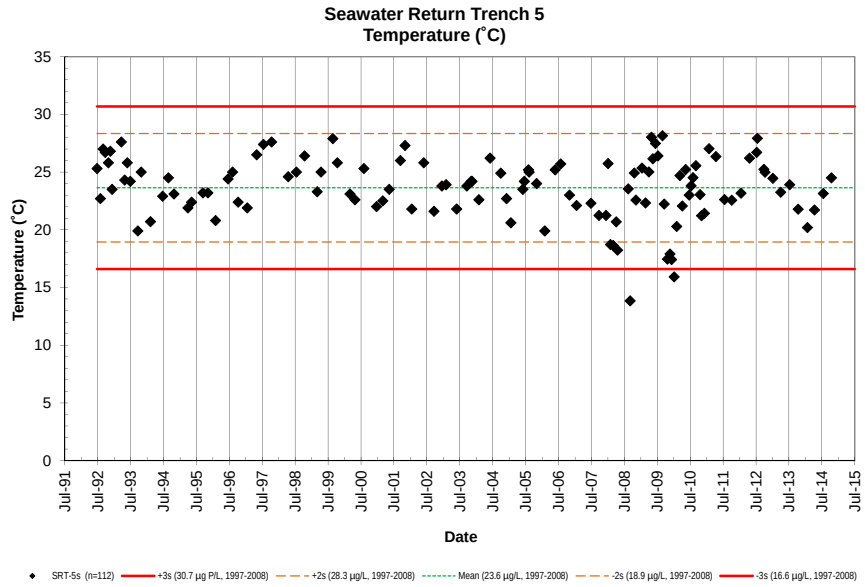

Seawater Return Trench 5
Nitrate + Nitrite to Ortho-Phosphate Ratio
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
92-'13 Seawater Return Trench 5
13-'14 Seawater Return Trench 5
1:1
5:1
10:1
15:1
20:01

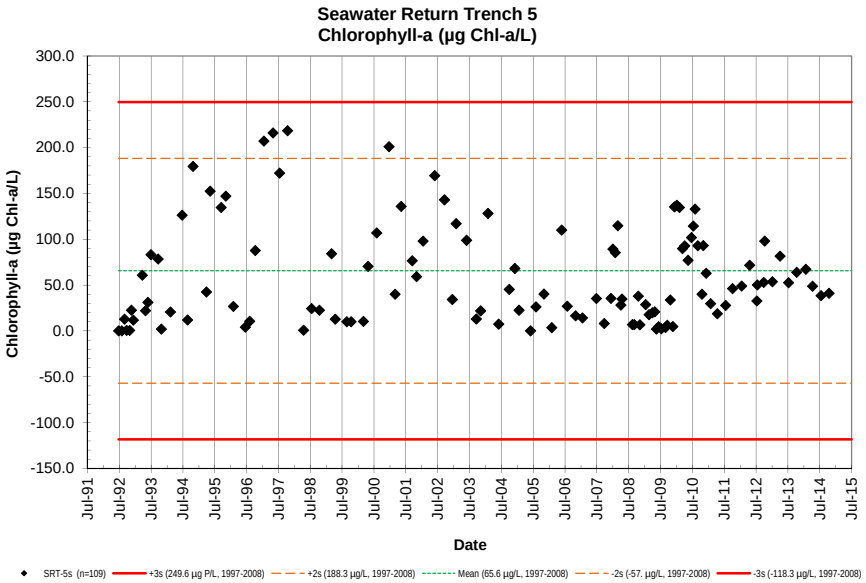

Seawater Return Trench 5
Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
92-'13 Seawater Return Trench 5
13-'14 Seawater Return Trench 5
W1-SSW Mixing Line
W1-DSW Mixing Line

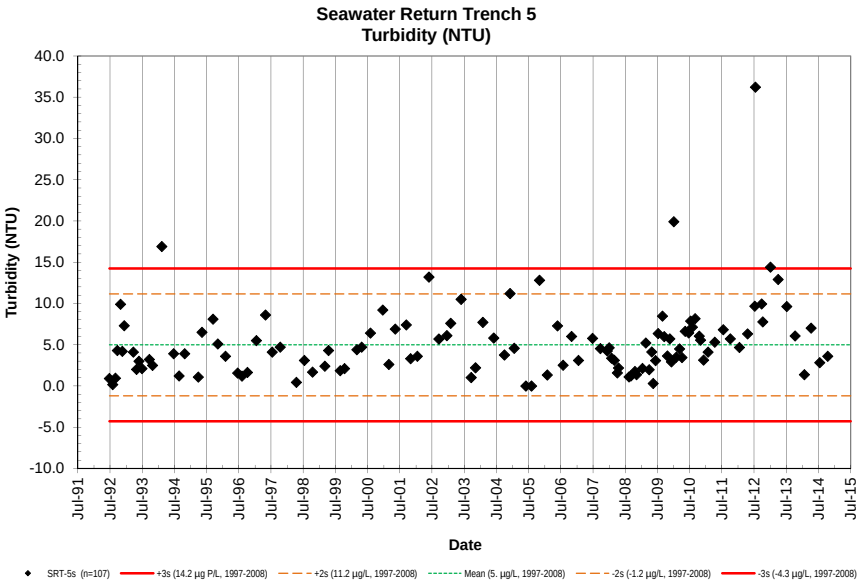

Seawater Return Trench 5
Dissolved Oxygen (ppm)
Dissolved Oxygen (ppm)
Date
SRT-5s (n=108)
+3s (12.6 µg P/L, 1997-2008)
+2s (10.8 µg/L, 1997-2008)
Mean (7.2 µg/L, 1997-2008)
-2s (3.6 µg/L, 1997-2008)
-3s (1.8 µg/L, 1997-2008)


Seawater Return Trench 5
Temperature (˚C)
Temperature (˚C)
Date
SRT-5s (n=112)
+3s (30.7 µg P/L, 1997-2008)
+2s (28.3 µg/L, 1997-2008)
Mean (23.6 µg/L, 1997-2008)
-2s (18.9 µg/L, 1997-2008)
-3s (16.6 µg/L, 1997-2008)


Seawater Return Trench 5
pH (unit)
pH (unit)
Date
SRT-5s (n=109)
+3s (8.9 µg P/L, 1997-2008)
+2s (8.6 µg/L, 1997-2008)
Mean (8.1 µg/L, 1997-2008)
-2s (7.6 µg/L, 1997-2008)
-3s (7.4 µg/L, 1997-2008)


Seawater Return Trench 5
Temperature (˚C)
Temperature (˚C)
Date
SRT-5s (n=112)
+3s (30.7 µg P/L, 1997-2008)
+2s (28.3 µg/L, 1997-2008)
Mean (23.6 µg/L, 1997-2008)
-2s (18.9 µg/L, 1997-2008)
-3s (16.6 µg/L, 1997-2008)


Seawater Return Trench 5
Chlorophyll-a (µg Chl-a/L)
Chlorophyll-a (µg Chl-a/L)
300.0
250.0
200.0
150.0
100.0
50.0
0.0
-50.0
-100.0
-150.0
Jul-91
Jul-92
Jul-93
Jul-94
Jul-95
Jul-96
Jul-97
Jul-98
Jul-99
Jul-00
Jul-01
Jul-02
Jul-03
Jul-04
Jul-05
Jul-06
Jul-07
Jul-08
Jul-09
Jul-10
Jul-11
Jul-12
Jul-13
Jul-14
Jul-15
Date
SRT-5s (n=109)
+3s (249.6 µg P/L, 1997-2008)
+2s (188.3 µg/L, 1997-2008)
Mean (65.6 µg/L, 1997-2008)
-2s (-57. µg/L, 1997-2008)
-3s (-118.3 µg/L, 1997-2008)


Seawater Return Trench 5
Turbidity (NTU)
Turbidity (NTU)
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
Jul-91
Jul-92
Jul-93
Jul-94
Jul-95
Jul-96
Jul-97
Jul-98
Jul-99
Jul-00
Jul-01
Jul-02
Jul-03
Jul-04
Jul-05
Jul-06
Jul-07
Jul-08
Jul-09
Jul-10
Jul-11
Jul-12
Jul-13
Jul-14
Jul-15
Date
SRT-5s (n=107)
+3s (14.2 µg P/L, 1997-2008)
+2s (11.2 µg/L, 1997-2008)
Mean (5. µg/L, 1997-2008)
-2s (-1.2 µg/L, 1997-2008)
-3s (-4.3 µg/L, 1997-2008)

NELHA Water Quality Laboratory

Anchialine Pond A1

June 1993 - December 2014

SITE ID	DATE	TIME	TIDE		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TP		TDN		TOC	Turbidity	Salinity	TEMP	pH	DO	Chl a	Fecal Col.	Entero.
	M/D/Y	(2400)	(ft)	cycle	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(mgC/L)	(NTU)	(PSU)	(˚C)		(ppm)	(µg/L)	CFU/100ml	CFU/100ml
A1	8/31/93	1017	0.4	Low	1.7	53	28.5	399	9.6	134	717	20137	2.8	86	2.9	90	63	888	1.84	0.77	12.74	23.9	7.41	2.11	1.93	18	13
A1	10/26/93	1013	0.8	Flood	3.2	98	107.9	1511	1.9	27	666	18705	3.5	107	3.4	105	132	1843	2.93	0.31	10.29	22.7	7.55	6.13	0.11	246	211
A1	2/8/94	919	0.2	Low	1.9	57	24.1	338	4.3	60	533	14970	2.0	61	2.1	64	47	653	2.04	0.28	15.70	22.0	8.07	10.94	1.07	54	164
A1	6/27/94	844	0.8	High	2.6	80	52.6	737	2.2	31	666	18705	2.6	80	2.6	81	62	874	0.71	0.42	11.42	23.2	7.65	7.53	0.63	39	44
A1	7/26/94	1017	0.7	Ebb	2.3	72	52.7	738	1.1	15	569	15982	2.5	78	2.6	80	61	856	0.71	0.21	12.51	23.9	7.68	7.35	0.34	14	9
A1	10/17/94	1101	0.7	Ebb	2.6	79	50.4	706	2.0	28	634	17817	2.7	82	2.8	86	57	797	0.74	0.34	10.95	23.0	7.51	6.85	0.89	<1	9
A1	3/29/95	1019	0.0	Low	2.7	83	51.1	716	2.1	30	618	17354	2.7	85	2.9	90	55	766	0.87	2.70	11.49	22.5	7.46	5.58	21.8	1	169
A1	4/26/95	1155	0.7	Flood	2.5	77	83.9	1175	2.0	28	619	17371	2.7	83	2.8	87	95	1337	2.05	0.74	10.46	26.6	7.92	10.25	1.39	128	34
A1	8/23/95	1129	1.1	Flood	2.4	75	47.1	660	2.2	31	629	17655	2.7	84	2.7	84	54	763	0.84	0.56	11.37	25.4	7.82	10.17	1.36	3	<1
A1	10/17/95	1128	1.7	High	2.7	83	60.9	853	2.5	35	645	18126	2.7	84	2.8	85	58	809	1.08	0.59	10.13	24.2	7.90	6.23	2.06	22	8
A1	2/27/96	1144	0.8	High	3.4	106	82.9	1161	3.4	48	610	17121	3.4	106	3.5	107	79	1103	1.35	0.69	10.68	24.3	7.65	6.80	1.89	7	14
A1	5/8/96	1040	0.4	Ebb	3.3	102	52.8	740	11.8	165	575	16160	3.6	111	4.3	132	71	998	1.67	1.94	11.02	26.8	7.73	9.30	8.57	15	<1
A1	7/17/96	1212	0.5	Flood	2.8	86	30.3	424	1.0	14	582	16342	3.3	103	3.5	108	49	693	2.15	1.62	12.41	31.6	8.17	13.72	2.71	14	5
A1	10/9/96	1111	1.2	Flood	2.8	86	33.3	467	1.2	16	619	17391	3.4	106	3.9	122	53	737	1.62	1.96	11.09	26.5	8.19	13.26	9.97	108	66
A1	1/15/97	1030	1.2	Ebb	2.6	80	80.7	1130	1.6	22	578	16233	2.6	81	2.7	83	90	1266	1.02	0.35	10.42	24.2	8.22	11.77	1.41	9	120
A1	4/30/97	854	0.4	Flood	5.6	172	100.7	1410	4.5	63	502	14098	5.7	178	5.75	0	104	1459	1.25	0.90	10.44	23.0	7.57	5.78	0.57	6	82
A1	7/14/97	1022	1.2	Flood	2.9	88	89.7	1256	2.0	28	590	16570	3.2	99	3.2	100	95	1328	0.52	1.30	10.26	25.4	7.91	9.02	0.44	54	1
A1	10/13/97	1238	1.7	Flood	2.9	89	94.0	1317	2.5	35	594	16694	3.0	94	3.1	96	98	1374	1.23	0.38	10.64	26.0	7.97	8.54	0.49	10	15
A1	3/11/98	1246	0.8	Flood	3.0	94	72.3	1013	2.6	37	597	16775	3.2	100	3.4	104	79	1102	0.77	0.40	11.81	25.4	7.63	7.36	0.63	7	66
A1	6/3/98	1120	1.0	Flood	2.8	86	58.3	817	3.3	46	607	17042	2.9	90	3.0	92	67	944	0.86	0.32	11.26	24.8	7.94	10.55	1.70	33	54
A1	7/15/98	926	1.2	High	3.0	93	58.8	824	2.1	30	594	16682	3.1	97	3.2	99	65	909	0.80	0.56	13.03	23.6	7.87	9.54	0.79	2	9
A1	10/14/98	1006	1.7	Flood	3.3	103	62.0	868	0.1	1	611	17160	3.7	114	3.8	119	75	1044	0.91	0.50	12.43	23.7	7.57	6.18	1.03	6	7
A1	3/3/99	925	0.4	Ebb	2.8	86	34.7	486	7.8	109	510	14324	3.1	95	3.1	97	52	733	1.21	0.55	15.75	22.9	7.76	7.77	0.74	6	11
A1	4/14/99	1138	0.5	Flood	2.8	86	49.9	699	0.8	11	585	16430	2.8	86	2.8	88	52	729	0.84	0.21	13.16	23.1	7.87	9.43	1.32	<1	1
A1	8/24/99	1004	0.7	Flood	2.6	79	42.2	591	19.0	265	732	20556	2.8	87	3.0	94	59	829	0.96	1.36	12.18	23.2	7.37	3.00	2.00	13	5
A1	10/12/99	945	1.0	Ebb	2.7	83	51.6	723	3.0	42	565	15868	2.9	90	2.9	91	58	806	0.80	0.20	13.27	23.0	7.78	7.18	0.27	9	25
A1	3/1/00	948	0.4	Flood	3.6	112	20.1	282	6.2	86	615	17267	4.4	137	4.4	135	37	513	2.00	0.56	13.14	23.0	7.44	3.70	0.21	16	164
A1	4/24/00	1020	0.3	Ebb	3.3	103	23.4	328	8.4	118	584	16413	3.5	109	3.8	116	41	570	1.47	0.96	13.24	26.4	8.06	14.59	0.88	34	1
A1	9/6/00	953	1.7	Flood	2.7	83	57.4	804	1.5	21	610	17124	3.0	92	3.0	93	60	840	0.87	0.20	12.46	24.0	7.77	7.82	0.37	2	11
A1	12/20/00	924	0.8	Flood	3.0	93	61.9	867	2.6	37	622	17466	3.2	99	3.2	98	66	929	1.13	0.20	11.21	22.0	7.59	6.05	0.23	14	10
A1	2/27/01	935	0.7	Ebb	2.7	84	60.6	849	1.6	23	588	16526	2.8	88	2.8	87	64	897	0.90	0.18	12.65	22.1	7.58	5.52	0.13	183	417
A1	5/14/01	1107	0.5	High	3.7	114	37.8	529	3.0	42	599	16823	3.9	119	3.9	119	46	642	1.35	0.61	12.16	27.2	8.03	13.35	2.58	47	12
A1	9/11/01	1025	2.1	High	2.6	81	63.5	889	0.7	9	596	16731	2.8	87	2.9	90	72	1013	0.92	0.24	12.42	23.9	7.73	6.21	0.27	9	11
A1	10/31/01	930	0.4	Low	3.2	99	43.2	605	5.4	76	565	15857	3.5	110	3.7	115	54	763	1.59	0.34	13.86	23.1	7.62	4.93	0.87	27	26
A1	1/15/02	935	0.9	Ebb	2.6	81	62.5	875	1.9	27	538	15096	2.8	86	2.8	85	68	955	1.62	0.22	14.28	22.0	7.65	5.41	0.37	132	74
A1	5/28/02	1355	0.8	Flood	2.8	88	57.5	805	3.7	52	604	16964	3.1	97	3.1	97	63	889	1.26	0.85	12.26	25.3	7.76	8.62	1.15	1	8
A1	9/17/02	1040	1.3	Flood	2.7	84	64.4	903	2.2	30	626	17567	3.0	93	3.0	94	64	892	1.10	0.52	11.29	23.8	7.77	8.71	0.52	1	5
A1	12/16/02	1040	0.6	Flood	2.9	90	47.8	670	0.1	1	582	16349	3.0	94	3.1	95	57	793	0.97	0.28	13.27	23.3	7.68	7.73	0.35	13	10
A1	1/30/03	1350	0.5	Flood	2.7	84	72.5	1015	6.4	90	571	16042	3.0	94	3.0	94	99	1381	1.57	0.54	13.96	25.6	7.74	6.66	1.83	35	158
A1	5/28/03	1105	0.6	Flood	3.2	100	60.7	850	1.9	26	598	16784	3.5	108	3.5	108	76	1062		0.22	11.66	24.2	7.59	6.82	0.68	<100 spreaders	609
A1	6/4/03																									22	175
A1	9/18/03	949	1.7	Flood	2.8	87	65.9	923	1.3	18	611	17157	3.2	98	3.2	98	71	1000	2.15	0.17	11.91	23.7	7.73	7.26	1.51	26	18
A1	11/6/03	1008	0.6	Flood	3.7	113	46.2	647	4.9	69	619	17379	3.9	122	4.1	126	59	832	1.59	0.22	12.23	22.9	7.55		0.58	142	119
A1	11/14/03	1026	1.6	Ebb																		23.9		6.10			
A1	1/29/04	945	0.9	Ebb	3.0	93	80.7	1131	3.3	47	591	16584	3.2	98	3.2	98	84	1181	1.38	0.21	11.52	22.0	7.66	5.69	0.53	2	197
A1	6/1/04	1021	0.2	Flood	3.3	103	74.5	1043	2.0	29	595	16697	3.6	110	3.9	120	83	1158	1.92	0.50	11.20	24.0	7.66	6.45	0.17	6	7
A1	9/29/04	849	0.7	Ebb	2.9	90	57.4	803	1.7	23	563	15804	3.2	100	3.3	103	60	833	0.95	0.21	12.95	23.2	7.76	7.68	0.73	7	237
A1	12/2/04	850	1.9	Ebb	3.2	99	101.4	1420	1.0	15	593	16643	3.3	103	3.3	103	135	1888	0.83	0.20	11.91	22.4	7.86	6.23	0.10	2	87
A1	1/19/05	900	0.5	Low	3.5	107	106.5	1492	2.4	33	585	16424	3.7	113	3.6	112	118	1647	1.34	0.18	12.63	23.0	7.69	5.54	0.26	15	139
A1	5/31/05	854	0.5	Flood	3.4	107	69.6	975	2.8	39	602	16902	3.6	112	3.7	115	75	1046	1.22	0.25	11.18	22.0	7.73	6.70	0.45	1	143

NELHA Water Quality Laboratory

Anchialine Pond A1

June 1993 - December 2014

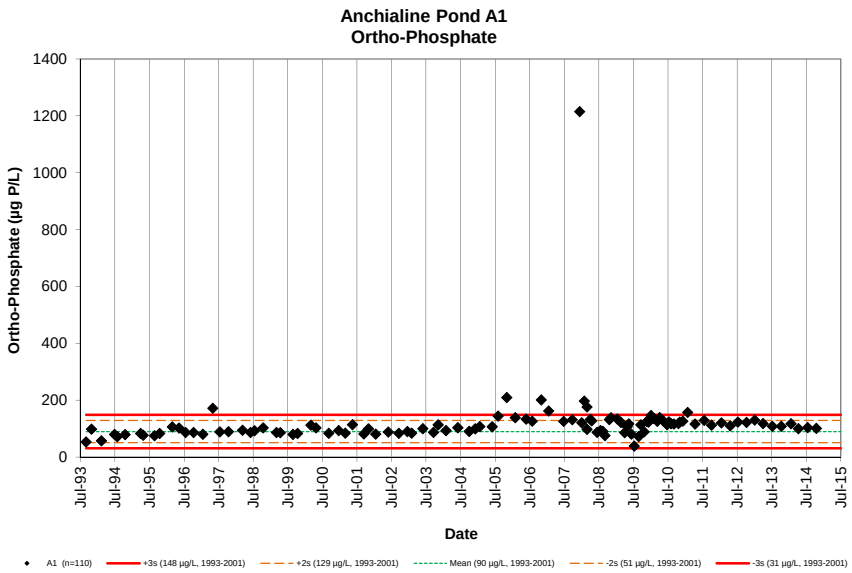
SITE ID	DATE	TIME	TIDE		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TP		TDN		TOC	Turbidity	Salinity	TEMP	pH	DO	Chl a	Fecal Col.	Entero.
	M/D/Y	(2400)	(ft)	cycle	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(mgC/L)	(NTU)	(PSU)	(˚C)		(ppm)	(µg/L)	CFU/100ml	CFU/100ml
A1	8/2/05	1029	0.7	Flood	4.7	144	1.7	24	69.1	968	430	12071	5.6	174	5.8	180	88	1238	4.66	1.27	10.86	23.9	8.60	3.86	4.39	6	54
A1	8/8/05	854																				23.5				3	53
A1	11/1/05	817	0.8	Ebb	6.8	209	56.2	787	4.7	65	538	15116	7.2	222	7.3	227	67	944	1.49	0.34	12.72	22.9	7.87	3.17	0.93	76	350
A1	1/30/06	832	1.0	Ebb	4.5	139	64.5	903	1.0	14	479	13453	4.7	145	4.7	147	72	1014	1.13	0.37	15.82	22.2	7.84	4.65	0.08	27	256
A1	5/25/06	1107	0.5	Flood	4.3	134	70.3	985	3.6	51	591	16599	4.6	143	4.7	146	68	949	0.81	1.09	11.84	22.5	7.70	3.97	1.51	4	3
A1	7/27/06	949	0.3	Ebb	4.1	126	36.8	515	3.3	46	567	15924	4.4	136	4.4	136	41	572	1.32	0.38	13.39	23.0	7.82	5.58	0.42	21	19
A1	10/31/06	1015	1.7	Flood	6.5	201	97.3	1363	0.5	8	531	14913	6.8	209	7.0	218	103	1445	0.94	0.25	11.86	23.2	7.86	3.59	0.30	3	15
A1	1/17/07	957	0.2	Low	5.2	162	81.3	1139	4.5	64	515	14464	5.6	173	5.6	173	84	1170	1.45	0.41	13.84	21.8	7.74	4.12	0.57	13	69
A1	6/26/07	1004	0.8	Flood	4.1	126	78.2	1096	1.1	15	364	10236	4.9	152			86	1210		0.20	12.46	23.1	7.62	7.81	0.15	2	21
A1	9/24/07	1403	2.0	Flood	4.2	131	84.8	1188	1.5	21	657	18466	4.1	127			90	1261		0.11	16.27	24.6	8.25	6.91	0.15		
A1	12/11/07	1038	0.8	Ebb	39.2	1215	611.4	8563	73.9	1035	361	10151	42.1	1305			942	13199		2.27	8.57	22.8	9.25	2.46	7.56		
A1	1/29/08	1049	0.6	Ebb	6.4	197	48.2	676	3.0	42	329	9246	7.3	227			63	889		n/a	11.52	20.4	8.01	8.30	3.26		
A1	2/28/08	1005	0.4	Ebb	3.1	98	42.5	596	3.0	42	298	8377	4.9	152			80	1120		3.81	11.31	21.6	8.08	4.76	4.69		
A1	2/28/08	2312	1.6	High	5.7	177	102.5	1436	1.4	20	559	15711	5.2	161			104	1451		0.31	10.83	21.7	7.97	4.21	0.85		
A1	4/2/08	1010	0.2	Flood	4.3	133	58.0	812	2.3	32	577	16201	2.6	80			125	1752		0.98	11.93	22.0	6.75	3.91	1.61		
A1	4/16/08	1340	1.3	Flood	4.1	127	73.8	1033	0.2	3	565	15867	3.5	110			80	1118		0.33	12.95	22.5	7.75	5.86	1.97		
A1	5/23/08	1012	No Water																								
A1	6/12/08	1009	0.9	Flood	2.8	87	83.4	1168	0.7	10	762	21400	2.8	86			87	1224			11.07	22.5	7.41	6.22	0.67		
A1	7/18/08	1002	-0.1	Low	3.0	93	68.6	961	2.8	40	606	17024	3.6	112			97	1357			11.67	22.1	7.36	2.15			
A1	8/13/08	1039	0.8	Flood	2.9	90	64.4	902	1.8	26	531	14903	0.0				0			0.80	11.46	23.0	7.48	6.06	2.48		
A1	9/4/08	1119	1.1	Ebb	2.4	76	61.1	856	1.7	24	499	14013	3.2	99			91	1277		2.59	12.89	23.7	7.69	4.56	3.69		
A1	10/20/08	955	2.2	High	4.3	132	124.6	1746	0.3	4	496	13934	0.0				0			0.21	13.36	22.7	7.58		10.71		
A1	11/6/08	1022	1.8	High	4.5	139	120.7	1690	1.8	25	523	14696	4.8	149			132	1852		0.74	11.38	22.4	7.86	4.16	1.13		
A1	1/2/08	1032	1.0	Ebb	3.9	120	119.2	1669	2.9	40	524	14718	4.4	135			108	1518		0.21	12.91	22.9	7.94	6.85	2.38		
A1	1/12/09	1013	0.6	Ebb	4.3	134	158.8	2224	2.5	35	566	15896	0.6	18			160	2245		2.17	12.59	21.7	7.80	4.07	1.99		
A1	2/20/09	921	0.3	Low	3.9	122	79.9	1120	5.5	76	539	15127	2.9	90			95	1330		2.95	12.29	21.4	7.35	2.64	1.28		
A1	3/30/09	1428	0.3	Flood	2.8	86	92.4	1294	0.4	6	424	11910	4.0	123			102	1424		0.49	11.7	22.7	7.78	6.13	0.48		
A1	4/27/09	1504	1.0	Flood	3.4	107	95.7	1340	1.0	14	539	15127	4.3	134			92	1295		0.54	13.58	23.0	7.87	5.96	0.05		
A1	5/14/09	1401	0.6	Flood	3.8	117	70.6	989	4.1	58	538	15120	4.0	125			71	997		2.19	12.02	27.8	8.30	9.03	1.10		
A1	6/10/09	808	0.3	Ebb	2.6	81	31.5	441	6.2	87	471	13238	2.8	87			51	719		3.3	13.28	23.3	7.50	7.48	0.31		
A1	7/10/09	749	0.6	Ebb	1.2	39	21.6	303	3.8	54	266	7477	2.3	71			31	431		3.93	12.69	22.6	7.41	8.84	0.64		
A1	8/27/09	923	1.7	Flood	2.3	73	52.4	734	0.9	13	282	7913	3.0	93			52	731		0.10	12.94	22.9	7.88	5.20	0.29		
A1	9/17/09	1102	1.0	Flood	3.7	113	95.5	1338	1.3	18	370	10393	3.4	107			101	1415		0.46	11.94	22.8	7.35	5.25	1.05		
A1	10/22/09	840	2.0	Ebb	2.9	89	55.3	775	0.7	10	106	2975	2.7	83			58	807		5.1	13.25	22.8	7.76	5.37	1.04		
A1	11/19/09	829	1.7	Ebb	4.0	125	92.2	1292	1.7	24	406	11407	3.8	118			97	1362		0.96	14.2	22.3	7.54	5.25	0.72		
A1	12/7/09	842	2.0	High	4.0	123	104.0	1456	0.9	12	435	12210	3.8	118			107	1502		0.14	13.13	22.1	7.95	6.31	0.60		
A1	1/4/10	1451	0.0	Low	4.7	147	107.9	1512	0.8	12	525	14745	4.3	134			114	1590		0.24	14.27	22.8	8.20	8.21	0.15		
A1	2/2/10	1407	-0.2	Low	4.4	136	129.5	1814	1.5	21	469	13172	4.7	147			131	1828		0.27	15.83	22.3	8.29	5.53	0.28		
A1	3/10/10	1325	0.7	High	4.1	126	100.3	1405	0.6	9	375	10534	4.0	124			104	1461		0.26	12.41	22.6	8.11	8.10	0.48		
A1	4/5/10	1010	0.4	High	4.5	139	99.4	1393	0.9	13	598	16807	4.2	129			102	1423		0.13	12.42	23.1	8.24	7.10	0.11		
A1	5/12/10	1309	1.5	Flood	4.1	128	95.7	1340	0.4	5	578	16222	3.7	116			93	1307		0.24	14.22	26.5	8.44	7.40	0.04		
A1	6/21/10	1032	1.3	Flood	3.7	114	97.4	1365	1.5	21	605	16988	4.0	123			104	1459		0.18	12.36	24.9	8.23	7.50	0.23		
A1	7/12/10	1023	-0.1	Low	4.0	124	111.6	1563	0.9	13	575	16147	3.9	122			117	1636		0.31	15.57	24.2	8.01	5.93	0.22		
A1	8/2/10	1231	1.3	Ebb	3.8	117	105.7	1481	2.0	27	605	16985	3.7	116			113	1579		0.54	12.78	26.5	8.17	7.50	0.21		
A1	9/2/10	1158	1.9	Flood	3.7	116	108.0	1512	1.7	23	574	16126	3.6	111			114	1598		0.25	12.69	27.0	8.30	7.28	0.12		
A1	10/19/10	1132	1.2	Flood	3.8	118	119.9	1679	1.1	15	593	16661	3.8	119			121	1693		0.27	12.56	25.3	8.31	7.01	0.10		
A1	11/3/10	1011	0.7	Flood	4.0	123	118.0	1653	1.2	18	555	15577	4.0	124			127	1778		0.39	13.66	24.1	8.36	6.97	0.34		
A1	12/6/10	953	0.3	Ebb	4.1	126	100.9	1413	1.2	18	563	15806	3.8	119			107	1503		0.18	15.79	22.3	8.01	5.48	0.17		
A1	1/26/11	1028	0.8	Ebb	5.1	157	137.3	1923	1.5	21	551	15462	4.8	149			140	1955		0.14	12.33	22.4	8.15	6.11	0.25		
A1	4/13/11	1030	0.4	Flood	3.7	116	104.0	1457	1.0	14	612	17177	3.7	115			106	1488		0.43	12.43	24.4	8.45	7.55	0.27		
A1	7/18/11	952	0.5	Ebb	4.2	129	94.7	1327	0.7	10	584	16413	4.5	141			99	1387		0.11	13.85	22.7	7.76	6.69	0.02		
A1	10/5/11	1003	1.6	Flood	3.6	112	89.7	1256	1.0	15	585	16429	3.7	115			92	1289		0.09	12.31	23.6	8.04	6.70	0.10		
A1	1/17/12	838	0.7	Flood	3.9	120	97.0	1359	0.8	11	602	16905	3.7	114			100	1404		0.20	12.84	22.4	7.95	6.88	0.10		
A1	4/19/12	1053	0.3	Flood	3.6	110	81.9	1147	1.1	16	605	16994	3.7	115			89	1249		0.13	13.3	23.6	8.20	7.51	0.10		

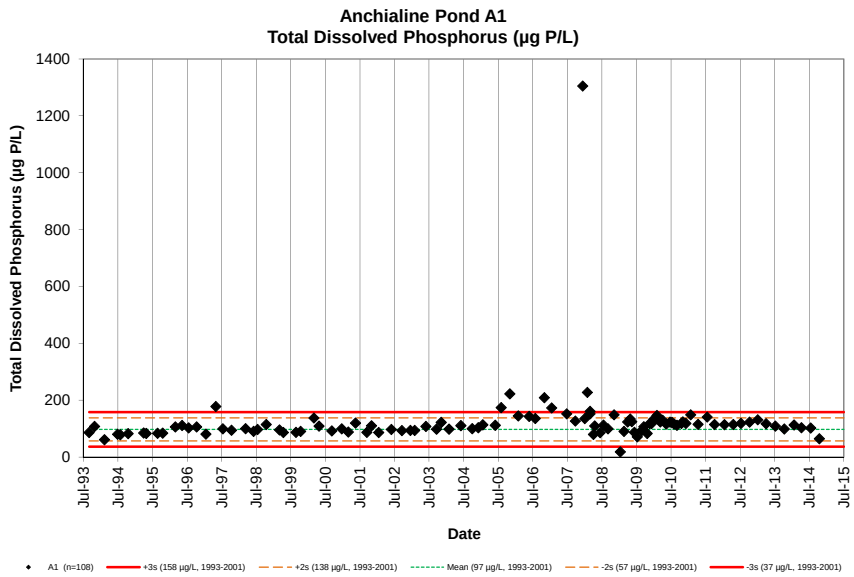
NELHA Water Quality Laboratory

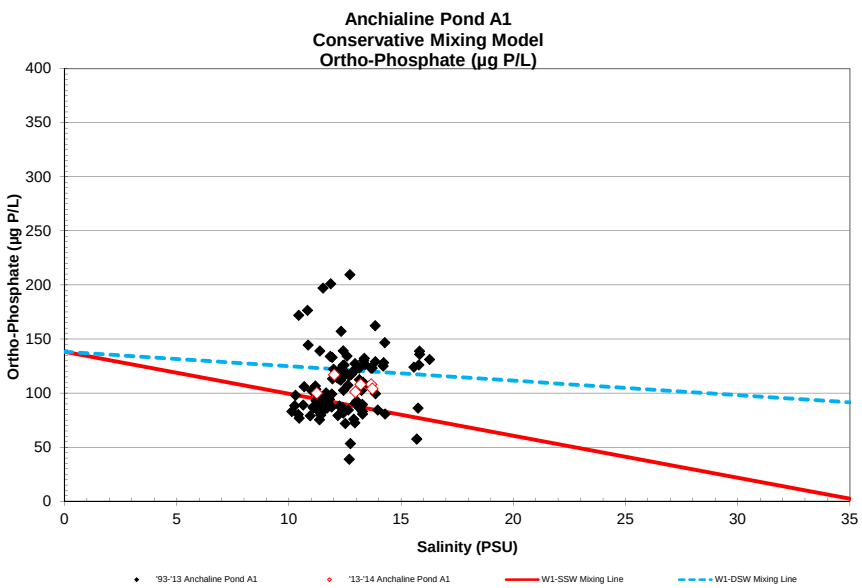
Anchialine Pond A1

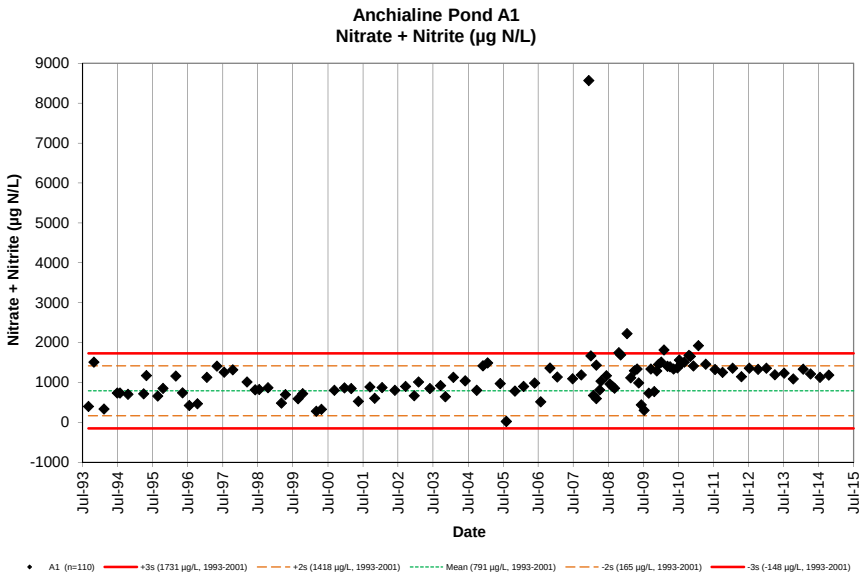
June 1993 - December 2014

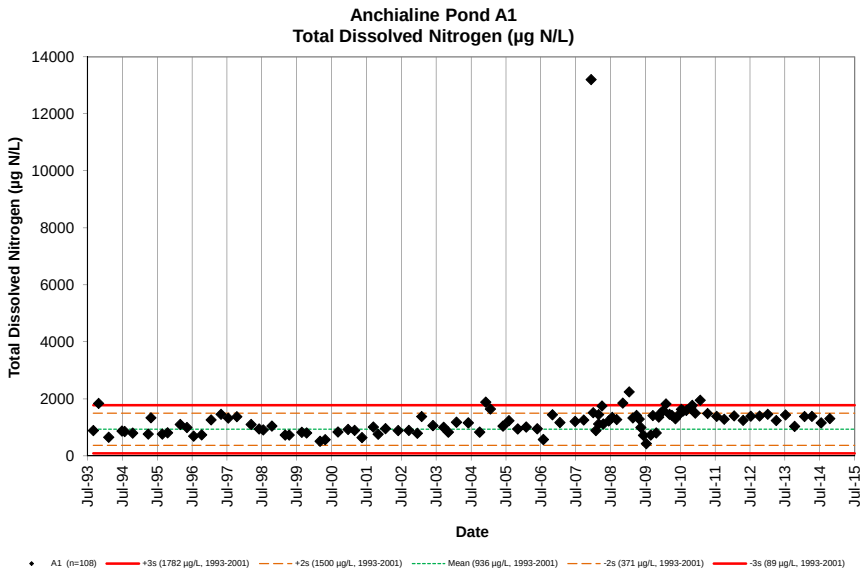
SITE ID	DATE	TIME	TIDE		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TP		TDN		TOC	Turbidity	Salinity	TEMP	pH	DO	Chl a	Fecal Col.	Entero.
	M/D/Y	(2400)	(ft)	cycle	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(mgC/L)	(NTU)	(PSU)	(˚C)		(ppm)	(µg/L)	CFU/100ml	CFU/100ml
A1	7/9/12	1128	1.1	Ebb	4.0	123	97.1	1360	0.7	10	575	16152	3.8	119			99	1392		0.05	13.71	23.2	7.91	7.84	0.01		
A1	10/8/12	1055	1.8	High	3.9	122	94.9	1329	1.0	14	600	16841	4.0	123			100	1402		0.18	11.99	24.6	8.00	7.60	0.14		
A1	1/3/13	1051	1.0	Ebb	4.2	130	97.0	1358	1.5	22	576	16173	4.2	131			104	1461		0.13	13.33	22.4	8.07	6.05	0.06		
A1	4/1/13	1039	0.4	Ebb	3.8	118	85.4	1196	1.0	14	557	15649	3.8	117			89	1241		0.27	12.28	22.8	8.12	7.65	0.05		
A1	7/8/13	1004	-0.1	low	3.5	108	88.2	1236	2.5	36	579	16255	3.5	109			103	1441		0.17	13.67	23.7	8.25	9.05	0.03		
A1	10/10/13	1126	1.6	Ebb	3.5	108	77.8	1090	1.0	15	559	15695	3.2	99			74	1035		0.12	13.2	25.2	8.15	9.61	0.10		
A1	1/22/14	916	0.7	High	3.8	117	95.3	1335	1.4	20	596	16746	3.6	113			99	1380		0.02	12.02	22.0	8.01	6.23	0.62		
A1	4/9/14	1126	0.7	Flood	3.2	100	86.7	1214	2.3	32	511	14352	3.3	103			99	1390		0.47	11.24	24.5	8.59	9.92	0.90		
A1	7/16/14	1118	0.5	Ebb	3.4	104	80.6	1129	0.9	13	504	14160	3.3	102			83	1158		0.53	13.72	23.7	8.10	7.75	0.41		
A1	10/15/14	1134	1.5	Ebb	3.3	101	84.7	1187	0.9	13	529	14856	2.1	64			94	1311		0.3	12.96	25.3	8.04	6.85	0.12		
A1	1/1/15																										
A1	4/1/15																										

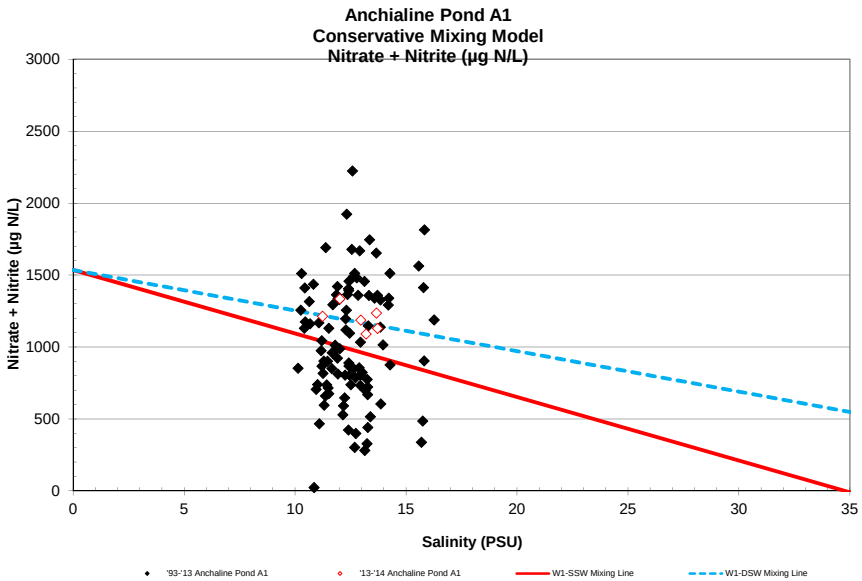

Anchialine Pond A1
Ortho-Phosphate
Ortho-Phosphate (µg P/L)
Date
A1 (n=110)
+3s (148 µg/L, 1993-2001)
+2s (129 µg/L, 1993-2001)
Mean (90 µg/L, 1993-2001)
-2s (51 µg/L, 1993-2001)
-3s (31 µg/L, 1993-2001)

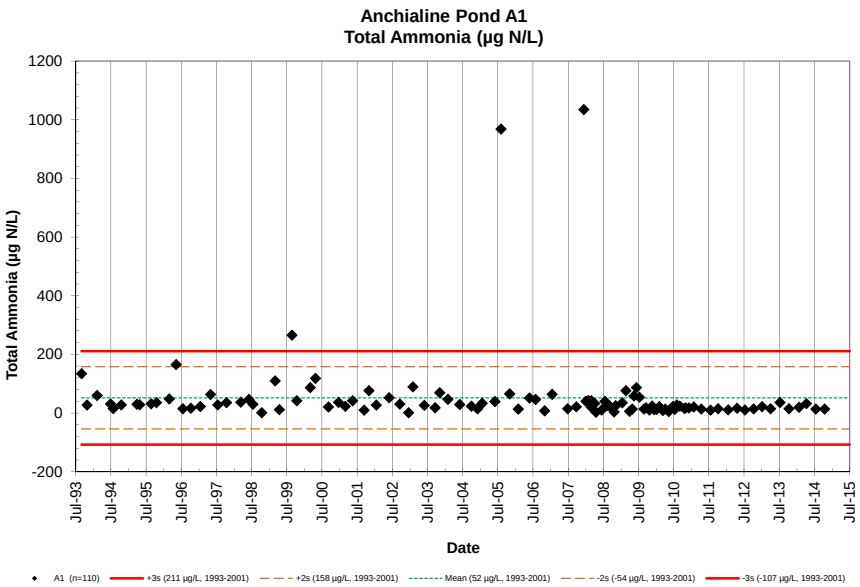

Anchialine Pond A1
Total Dissolved Phosphorus (µg P/L)
Total Dissolved Phosphorus (µg P/L)
Date
A1 (n=108)
+3s (158 µg/L, 1993-2001)
+2s (138 µg/L, 1993-2001)
Mean (97 µg/L, 1993-2001)
-2s (57 µg/L, 1993-2001)
-3s (37 µg/L, 1993-2001)

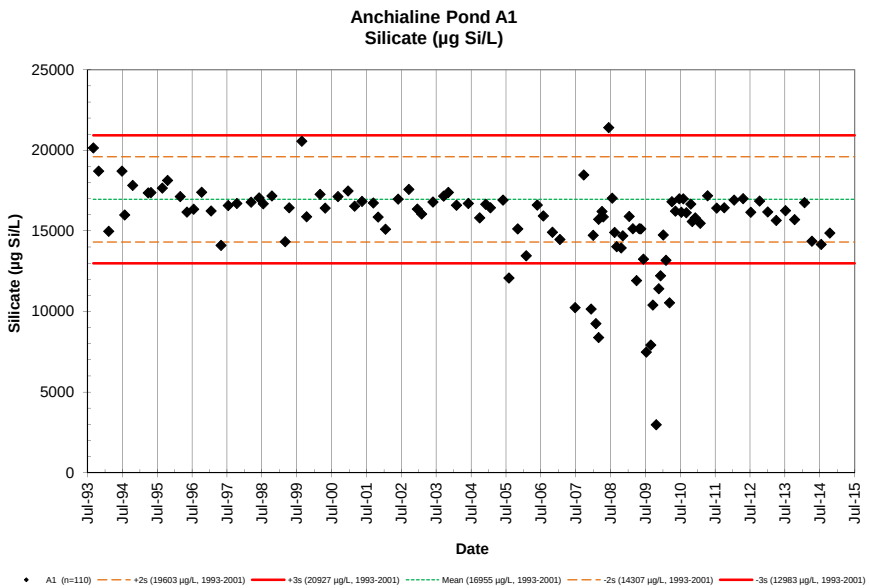

Anchialine Pond A1
Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
'93-'13 Anchaline Pond A1
'13-'14 Anchaline Pond A1
W1-SSW Mixing Line
W1-DSW Mixing Line

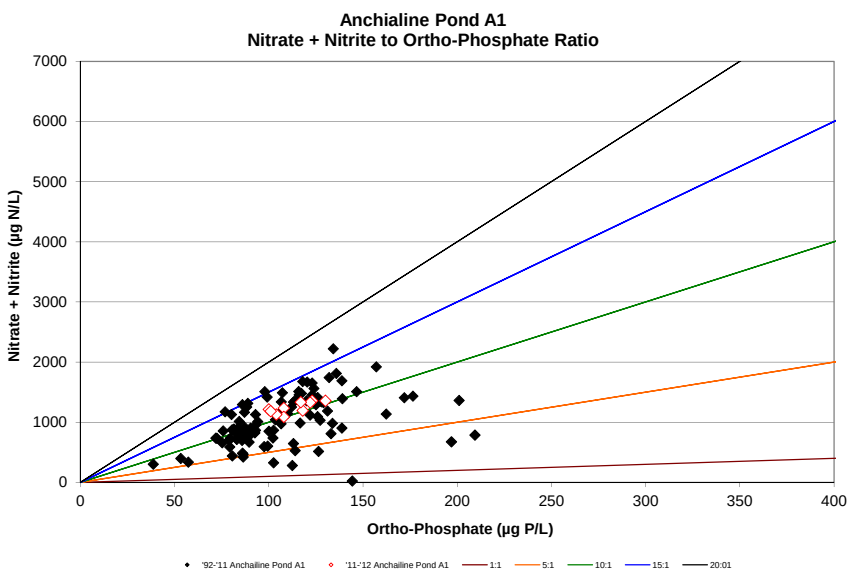

Anchialine Pond A1
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
A1 (n=110)
+3s (1731 µg/L, 1993-2001)
+2s (1418 µg/L, 1993-2001)
Mean (791 µg/L, 1993-2001)
-2s (165 µg/L, 1993-2001)
-3s (-148 µg/L, 1993-2001)

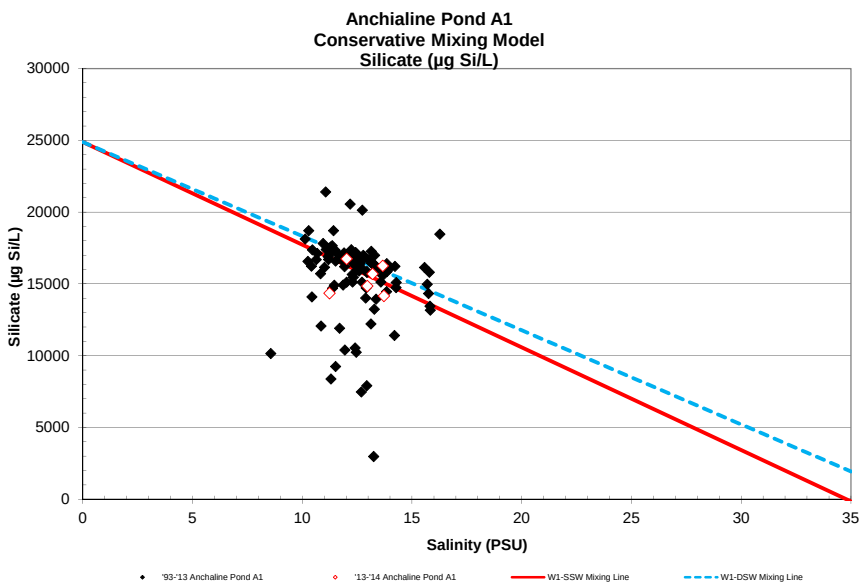

Anchialine Pond A1
Total Dissolved Nitrogen (µg N/L)
Total Dissolved Nitrogen (µg N/L)
Date
A1 (n=108)
+3s (1782 µg/L, 1993-2001)
+2s (1500 µg/L, 1993-2001)
Mean (936 µg/L, 1993-2001)
-2s (371 µg/L, 1993-2001)
-3s (89 µg/L, 1993-2001)

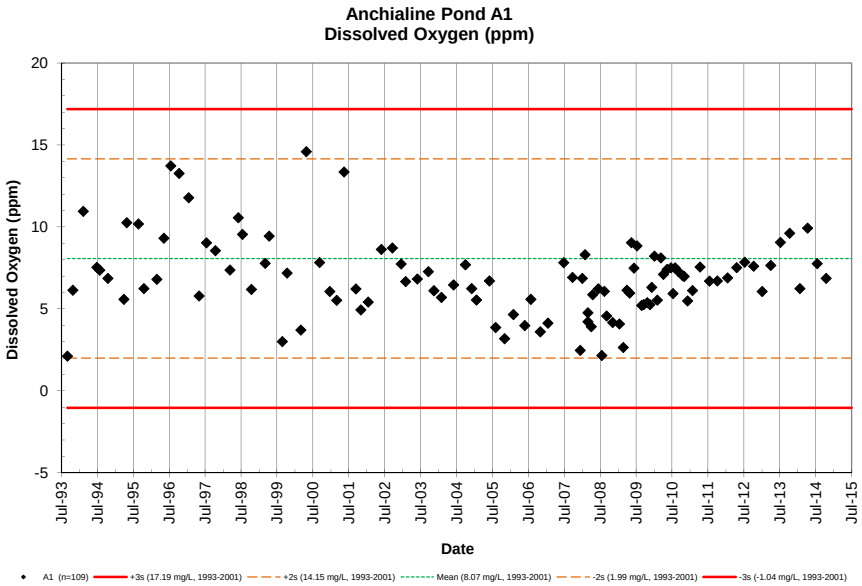

Anchialine Pond A1
Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
'93-'13 Anchaline Pond A1
'13-'14 Anchaline Pond A1
W1-SSW Mixing Line
W1-DSW Mixing Line

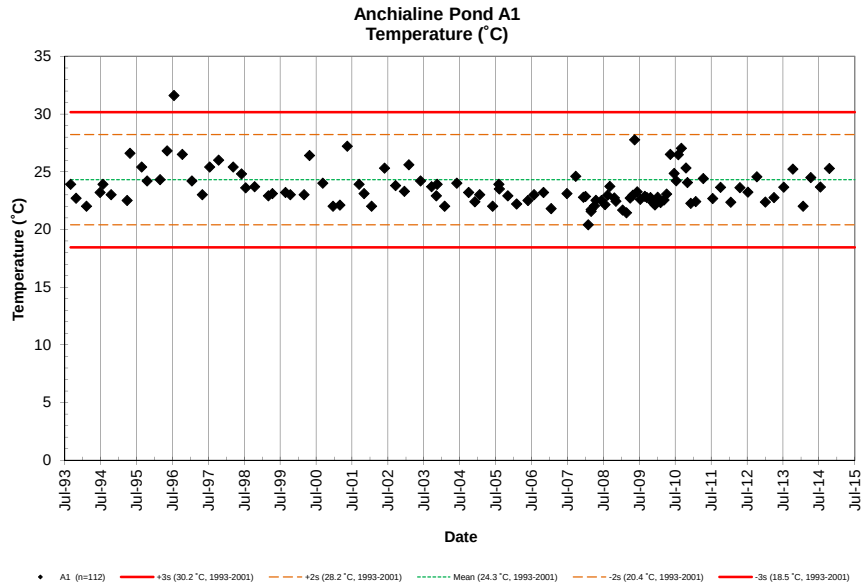

Anchialine Pond A1
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
A1 (n=110)
+3s (211 µg/L, 1993-2001)
+2s (158 µg/L, 1993-2001)
Mean (52 µg/L, 1993-2001)
-2s (-54 µg/L, 1993-2001)
-3s (-107 µg/L, 1993-2001)

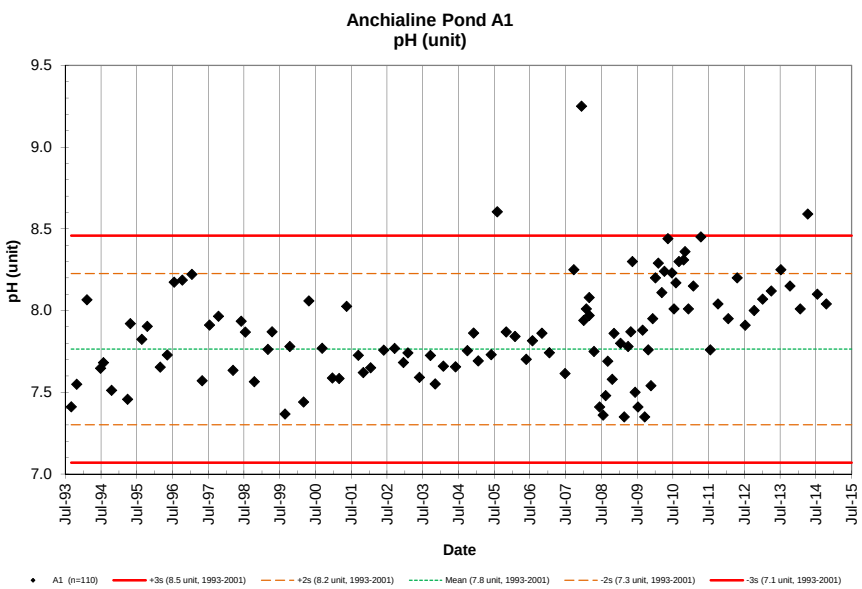

Anchialine Pond A1
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
A1 (n=110)
+2s (19603 µg/L, 1993-2001)
+3s (20927 µg/L, 1993-2001)
Mean (16955 µg/L, 1993-2001)
-2s (14307 µg/L, 1993-2001)
-3s (12983 µg/L, 1993-2001)

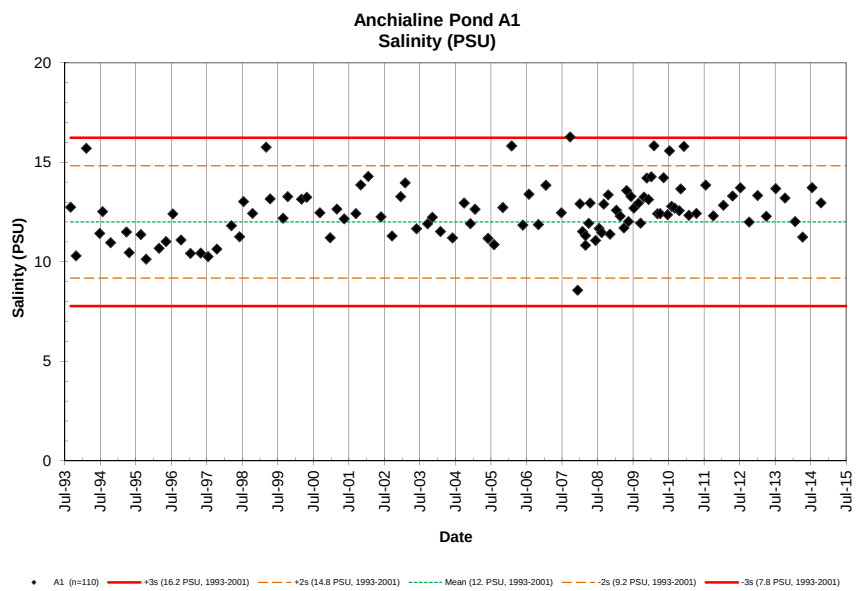

Anchialine Pond A1
Nitrate + Nitrite to Ortho-Phosphate Ratio
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
'92-'11 Anchailine Pond A1
'11-'12 Anchailine Pond A1
1:1
5:1
10:1
15:1
20:01

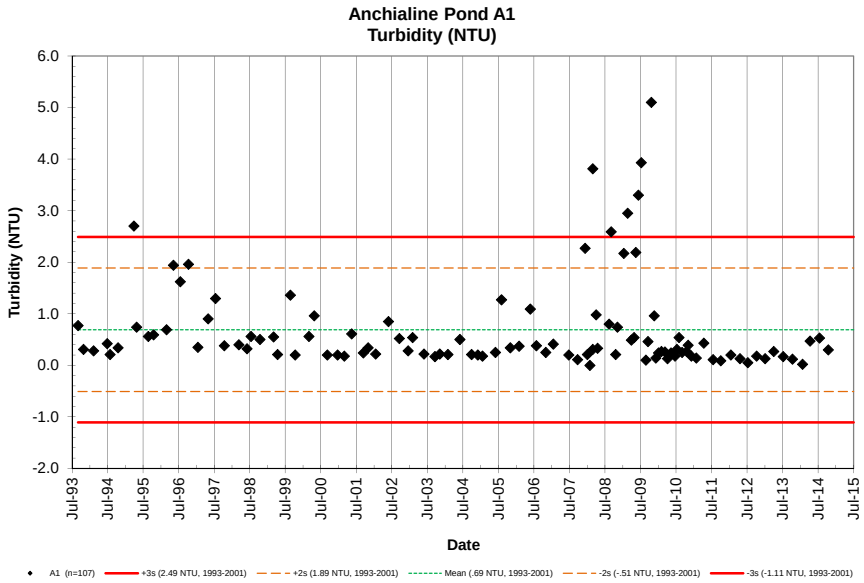

Anchialine Pond A1
Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
'93-'13 Anchaline Pond A1
'13-'14 Anchaline Pond A1
W1-SSW Mixing Line
W1-DSW Mixing Line

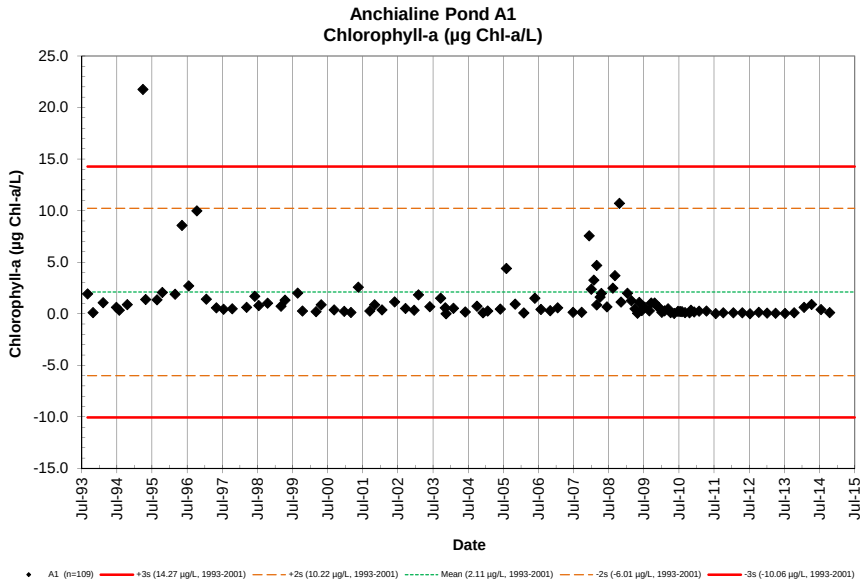

Anchialine Pond A1
Dissolved Oxygen (ppm)
Dissolved Oxygen (ppm)
Date
A1 (n=109)
+3s (17.19 mg/L, 1993-2001)
+2s (14.15 mg/L, 1993-2001)
Mean (8.07 mg/L, 1993-2001)
-2s (1.99 mg/L, 1993-2001)
-3s (-1.04 mg/L, 1993-2001)


Anchialine Pond A1
Temperature (˚C)
Temperature (˚C)
Date
A1 (n=112)
+3s (30.2 ˚C, 1993-2001)
+2s (28.2 ˚C, 1993-2001)
Mean (24.3 ˚C, 1993-2001)
-2s (20.4 ˚C, 1993-2001)
-3s (18.5 ˚C, 1993-2001)


Anchialine Pond A1
pH (unit)
pH (unit)
Date
A1 (n=110)
+3s (8.5 unit, 1993-2001)
+2s (8.2 unit, 1993-2001)
Mean (7.8 unit, 1993-2001)
-2s (7.3 unit, 1993-2001)
-3s (7.1 unit, 1993-2001)


Anchialine Pond A1
Salinity (PSU)
Salinity (PSU)
Date
A1 (n=110)
+3s (16.2 PSU, 1993-2001)
+2s (14.8 PSU, 1993-2001)
Mean (12. PSU, 1993-2001)
-2s (9.2 PSU, 1993-2001)
-3s (7.8 PSU, 1993-2001)


Anchialine Pond A1
Turbidity (NTU)
Turbidity (NTU)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
Jul-93
Jul-94
Jul-95
Jul-96
Jul-97
Jul-98
Jul-99
Jul-00
Jul-01
Jul-02
Jul-03
Jul-04
Jul-05
Jul-06
Jul-07
Jul-08
Jul-09
Jul-10
Jul-11
Jul-12
Jul-13
Jul-14
Jul-15
Date
A1 (n=107)
+3s (2.49 NTU, 1993-2001)
+2s (1.89 NTU, 1993-2001)
Mean (.69 NTU, 1993-2001)
-2s (-.51 NTU, 1993-2001)
-3s (-1.11 NTU, 1993-2001)


Anchialine Pond A1
Chlorophyll-a (µg Chl-a/L)
Chlorophyll-a (µg Chl-a/L)
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
Jul-93
Jul-94
Jul-95
Jul-96
Jul-97
Jul-98
Jul-99
Jul-00
Jul-01
Jul-02
Jul-03
Jul-04
Jul-05
Jul-06
Jul-07
Jul-08
Jul-09
Jul-10
Jul-11
Jul-12
Jul-13
Jul-14
Jul-15
Date
A1 (n=109)
+3s (14.27 µg/L, 1993-2001)
+2s (10.22 µg/L, 1993-2001)
Mean (2.11 µg/L, 1993-2001)
-2s (-6.01 µg/L, 1993-2001)
-3s (-10.06 µg/L, 1993-2001)

NELHA Water Quality Laboratory

Anchialine Pond A2

June 1993 - December 2014

SITE ID	DATE	TIME	TIDE		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TP		TDN		TOC	Turbidity	Salinity	TEMP	pH	DO	Chl a	Fecal Col.	Entero.
	M/D/Y	(2400)	(ft)	cycle	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(mgC/L)	(NTU)	(PSU)	(˚C)		(ppm)	(µg/L)	CFU/100ml	CFU/100ml
A2	8/31/93	950	0.3	Low	3.4	105	10.0	140	0.05	0.7	731	20519	3.39	105	3.43	106	137	1919	0.63	0.04	7.453	21.4	8.01	8.06	0.00	10	21
A2	10/26/93	939	0.7	Flood	3.8	118	113	1579	0.31	4.3	663	18621	3.82	118	3.91	121	126	1769	2.55	0.37	6.742	21.5	8.02	7.98	0.01	361	370
A2	2/8/94	818	0.4	Ebb	3.4	106	101	1417	0.01	0.1	658	18480	3.44	107	3.46	107	112	1575	0.70	0.06	7.712	20.6	8.01	8.24	0.00	1	7
A2	6/27/94	816	0.8	High	3.4	105	103	1439	0.22	3.1	704	19772	3.40	105	3.40	105	110	1534	0.64	0.09	7.773	21.0	8.01	8.20	0.00	<1	<1
A2	7/26/94	938	0.8	Ebb	3.4	105	106	1484	0.10	1.4	618	17357	3.41	106	3.42	106	116	1631	0.74	0.05	7.667	21.3	7.99	8.25	0.00	3	6
A2	10/17/94	1021	0.6	Low	3.4	106	110	1546	0.25	3.5	664	18643	3.45	107	3.48	108	64.0	897	0.46	0.08	7.306	21.4	8.03	8.42	0.03	<1	<1
A2	2/15/95	1023	0.1	Low	3.4	104	116	1621	0.07	1.0	664	18643	3.37	104	3.47	107	106	1489	0.68	0.06	7.826	20.8	8.06	8.27	0.01	5	1
A2	4/26/95	1117	0.5	Flood	3.5	109	108	1514	0.27	3.8	659	18511	3.51	109	3.59	111	117	1640	1.53	0.05	6.917	22.6	8.05	8.40	0.01	<1	<1
A2	8/23/95	1100	1.0	Flood	3.3	101	103	1448	0.38	5.3	674	18941	3.32	103	3.33	103	110	1548	0.51	0.06	7.407	21.9	8.03	8.46	0.02	<1	<1
A2	10/16/95	1002	1.8	High	3.4	106	104	1457	0.38	5.3	669	18795	3.45	107	3.45	107	98.9	1385	0.68	0.03	7.808	21.7	8.05	5.03	0.00	<1	9
A2	2/26/96	1102	0.7	Ebb	3.4	104	100	1407	0.21	2.9	655	18403	3.36	104	3.37	104	105	1468	0.66	0.09	7.522	21.1	8.00	8.15	0.00	<1	<1
A2	4/1/96	1040	0.3	Flood	3.4	106	106	1483	0.33	4.6	659	18494	3.43	106	3.45	107	106	1485	0.58	0.04	7.301	21.7	7.99	8.37	0.00	<1	<1
A2	7/16/96	1010	0.2	Low	3.4	106	110	1537	0.26	3.6	697	19571	3.50	108	3.52	109	116	1630	0.61	0.07	7.102	21.8	8.03	8.28	0.00	28	1
A2	10/8/96	1054	1.3	Flood	3.5	107	112	1562	0.38	5.3	657	18451	3.53	109	3.53	109	89.9	1260	0.61	0.06	7.102	22.1	8.01	7.81	0.75	10	31
A2	1/15/97	919	1.3	High	3.4	104	95.2	1333	0.12	1.7	650	18264	3.35	104	3.36	104	112	1567	0.79	0.06	6.351	21.2	8.02	8.21	0.00	<1	<1
A2	4/30/97	947	0.6	Flood	5.7	176	107	1497	0.20	2.8	528	14835	5.72	177	5.88	182	111	1550	0.88	0.09	6.904	21.4	8.03	8.03	0.00	<1	<1
A2	7/14/97	1155	1.6	Flood	3.5	107	112	1569	0.19	2.7	660	18548	3.58	111	3.61	112	120	1680	0.67	0.07	6.735	21.6	8.05	8.48	0.00	7	212
A2	10/13/97	1159	1.5	Flood	3.5	108	117	1632	0.18	2.5	666	18716	3.50	108	3.50	108	124	1731	0.73	0.06	6.594	22.7	8.16	8.52	0.00	<1	3
A2	3/11/98	920	0.2	Low	3.6	111	116	1628	0.15	2.1	668	18761	3.70	115	3.70	115	119	1665	0.46	0.06	7.584	21.0	8.01	8.28	0.00	17	63
A2	4/15/98	1101	0.1	Low	3.6	110	121	1691	0.21	2.9	666	18699	3.63	112	3.68	114	123	1718	0.53	0.06	7.419	21.5	8.04	8.43	0.00	<1	<1
A2	7/15/98	751	1.0	Flood	3.6	110	118	1658	0.10	1.4	670	18806	3.56	110	3.69	114	123	1729	0.59	0.07	7.638	20.8	8.00	8.24	0.00	<1	2
A2	10/14/98	1038	1.8	Flood	3.6	111	127	1776	0.04	0.6	684	19213	3.60	112	3.60	112	134	1883	0.60	0.07	7.132	22.5	8.01	8.92	0.03	1	2
A2	3/3/99	905	0.6	Ebb	3.4	104	113	1583	0.17	2.4	651	18284	3.36	104	3.38	105	123	1729	0.56	0.08	8.498	20.9	7.98	8.80	0.05	<1	3
A2	4/14/99	903	-0.3	Low	3.5	108	129	1804	0.15	2.1	665	18677	3.52	109	3.52	109	131	1828	0.74	0.07	7.456	21.2	8.01	8.34	0.03	1	5
A2	8/24/99	917	0.5	Flood	3.4	105	114	1590	0.26	3.6	771	21657	3.39	105	3.44	107	117	1642	0.57	0.09	7.716	21.4	8.03	8.27	0.06	<1	1
A2	10/12/99	921	1.2	Ebb	3.3	102	113	1587	0.25	3.5	639	17941	3.38	105	3.35	104	120	1686	0.65	0.07	7.809	22.1	8.06	8.14	0.03	3	6
A2	3/1/00	925	0.3	Low	3.4	107	112	1569	0.17	2.4	670	18809	3.04	94	3.11	96	114	1597	0.63	0.05	7.926	21.0	8.03	8.08	0.02	<1	<1
A2	4/24/00	955	0.3	Ebb	3.4	106	119	1660	0.16	2.2	662	18595	3.29	102	3.31	103	118	1659	0.62	0.04	8.044	21.4	8.04	8.10	0.02	1	1
A2	8/1/00	933	0.1	Ebb	3.3	102	109	1527	0.16	2.2	662	18593	3.39	105	3.36	104	113	1577	0.65	0.05	8.565	21.4	7.98	8.02	0.01	62	13
A2	12/20/00	900	0.8	Flood	3.5	108	114	1597	0.19	2.7	675	18958	3.48	108	3.48	108	115	1611	0.74	0.06	7.979	21.1	8.02	7.71	0.05	<1	1
A2	2/27/01	915	0.8	Ebb	3.4	104	112	1566	0.09	1.3	667	18733	3.38	105	3.33	103	113	1589	0.70	0.07	8.240	21.1	7.96	7.57	0.03	<1	1
A2	5/9/01	917	-0.1	Ebb	3.2	100	110	1542	0.18	2.5	641	17994	3.38	105	3.34	103	111	1556	0.64	0.04	8.235	21.4	8.00	8.22	0.02	<1	1
A2	9/11/01	1000	2.0	Flood	3.3	103	122	1705	0.26	3.6	647	18166	3.20	99	3.12	97	129	1803	0.78	0.09	7.613	22.5	8.01	8.21	0.15	928	34
A2	10/31/01	1054	0.5	Flood	3.6	112	119	1665	0.38	5.3	667	18719	3.62	112	3.60	112	116	1624	0.61	0.06	7.827	21.7	7.98	8.19	0.09	2	2
A2	1/15/02	910	1.0	Ebb	3.4	105	116	1629	0.13	1.8	668	18761	3.30	102	3.42	106	115	1609	0.62	0.04	8.157	21.0	7.98	7.65	0.02	1	7
A2	5/28/02	927	0.9	Ebb	3.4	105	118	1646	0.12	1.7	673	18887	3.39	105	3.42	106	113	1576	0.61	0.05	8.386	21.3	7.99	8.22	0.03	<1	<1
A2	9/17/02	940	0.9	Flood	3.5	109	130	1814	0.11	1.5	675	18958	3.33	103	3.45	107	117	1640	0.67	0.05	7.836	21.9	8.02	8.14	0.06	<1	1
A2	12/16/02	955	0.6	Flood	3.3	102	126	1768	0.19	2.7	675	18966	3.55	110	3.53	109	113	1576	0.59	0.06	7.994	21.3	7.97	8.35	0.06	2	9
A2	1/30/03	950	0.2	Ebb	3.3	102	134	1881	0.73	10.2	687	19298	3.52	109	3.48	108	167	2336	0.57	0.05	8.143	21.1	8.00	8.16	0.04	1	8
A2	5/28/03	907	0.0	Flood	3.6	112	127	1784	0.23	3.2	653	18343	3.72	115	3.72	115	148	2067		0.07	8.099	21.4	8.04	8.47	0.11	<1	<1
A2	9/18/03	915	1.6	Flood	3.4	104	126	1762	0.40	5.6	666	18705	3.61	112	3.66	113	129	1805	1.35	0.05	8.152	22.7	7.97	8.26	0.01	4	11
A2	11/6/03	856	0.5	Ebb	3.7	113	127	1776	0.80	11.2	664	18649	3.66	113	3.64	113	153	2147	1.80	0.04	8.294	21.2	7.99		0.05	<1	2
A2	11/14/03	1407	0.6	Ebb																		21.4		8.12			
										0.0		0		0		0		0									
A2	1/29/04	853	0.9	Ebb	3.3	102	115	1607	1.71	24.0	704	19758	3.30	102	3.32	103	128	1787	1.20	0.07	8.927	20.8	7.96	7.70	0.05	<1	<1
A2	6/1/04	927	-0.1	Flood	3.4	104	125	1748	0.39	5.5	655	18399	3.48	108	4.02	125	129	1808	1.87	0.37	8.37	22.1	8.00	8.28	0.01	<1	1
A2	9/29/04	936	0.5	Ebb	3.3	102	127	1776	0.29	4.1	637	17885	3.32	103	3.34	103	131	1835	0.69	0.04	8.71	21.9	7.99	8.07	0.04	<1	2
A2	12/2/04	1010	1.7	Ebb	3.3	102	127	1784	0.45	6.3	642	18022	3.34	103	3.32	103	135	1888	0.73	0.13	9.16	22.2	8.12	8.92	0.12	9	48
A2	1/19/05	955	0.6	Flood	3.4	107	128	1793	0.34	4.8	680	19098	3.62	112	3.62	112	142	1989	0.74	0.55	8.382	21.2	8.05	8.24	0.10	<1	1
A2	5/31/05	948	0.8	Flood	3.2	99	129	1812	0.25	3.5	631	17719	3.22	100	3.23	100	133	1861	0.68	0.06	9.781	20.6	7.99	8.65	0.02	<1	<1

NELHA Water Quality Laboratory

Anchialine Pond A2

June 1993 - December 2014

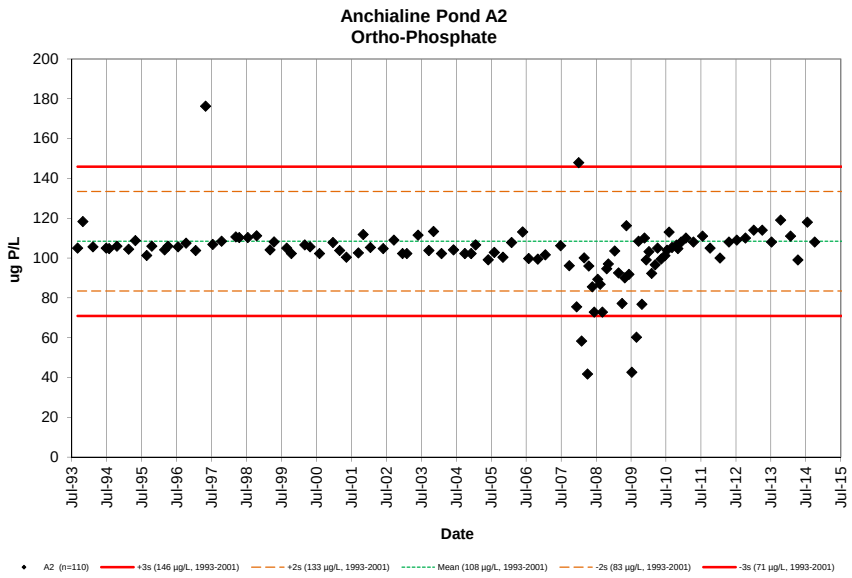
SITE ID	DATE	TIME	TIDE		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TP		TDN		TOC	Turbidity	Salinity	TEMP	pH	DO	Chl a	Fecal Col.	Entero.
	M/D/Y	(2400)	(ft)	cycle	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(mgC/L)	(NTU)	(PSU)	(˚C)		(ppm)	(µg/L)	CFU/100ml	CFU/100ml
A2	8/2/05	920	0.3	Flood	3.3	103	128	1791	2.97	41.6	637	17888	3.48	108	3.50	108	136	1909	0.65	0.05	8.982	25.2	8.08	8.06	0.02	60	5
A2	8/8/05	933	0.6	Ebb																		22.0				12	62
A2	11/1/05	912	0.5	Ebb	3.2	100	126	1759	0.27	3.8	630	17694	3.36	104	3.34	103	127	1779	0.56	0.06	10.225	21.8	7.99	7.89	0.12	18	9
A2	1/30/06	919	1.0	Ebb	3.5	108	122	1710	3.14	44.0	613	17222	3.56	110	3.78	117	125	1754	0.55	0.12	10.619	21.5	7.98	7.86	0.04	56	26
A2	5/25/06	930	-0.2	Flood	3.7	113	129	1807	0.28	3.9	607	17048	3.84	119	3.83	119	125	1753	0.68	0.14	10.835	21.9	7.99	8.20	0.12	884	<1
A2	7/27/06	1047	0.2	Low	3.2	100	126	1765	0.38	5.3	606	17020	3.39	105	3.31	103	111	1561	0.66	0.10	11.103	22.2	7.96	8.33	0.11	42	<1
A2	10/31/06	920	0.4	Flood	3.2	99	135	1891	0.23	3.2	627	17610	3.25	101	3.30	102	140	1965	0.65	0.07	9.333	21.6	7.96	7.95	0.06	6	33
A2	1/17/07	1120	0.3	Flood	3.3	102	146	2045	0.29	4.1	618	17357	3.29	102	3.25	101	127	1781	0.61	0.04	10.608	21.4	7.99	8.47	0.03	4	2
A2	6/26/07	910	0.6	Flood	3.4	106	116	1631	0.78	11.0	371	10421	3.43	106			119	1672		0.08	10.301	21.7	8.03	9.55	0.05	4	1
A2	9/24/07	1333	2.0	Flood	3.1	96	125	1757	1.51	21.1	680	19102	3.1	95			131	1838		0.10	9.78	22.4	8.16	9.00	0.37		
A2	12/11/07	1116	0.5	Ebb	2.4	76	86	1206	0.47	6.6	317	8899	3.1	95			98	1369		0.30	6.84	21.4	8.33	6.67	0.19		
A2	1/31/08	1314	0.4	Ebb	1.9	58	89	1244	0.98	13.7	230	6450	2.8	87			120	1678		0.20	9.73	21.1	7.64	6.49	0.30		
A2	2/28/08	1055	0.3	Ebb	3.2	100	132	1855	0.43	6.0	577	16207	2.9	89			130	1815		0.09	10.17	21.0	7.94	6.31	0.10		
A2	4/2/08	1357	1.2	High	1.3	42	59	821	0.73	10.2	309	8677	2.7	84			124	1733		0.13	9.71	21.3	8.08	7.03	0.18		
A2	4/16/08	1428	1.3	Flood	3.1	96	128	1796	0.18	2.5	601	16878	2.6	80			125	1753		0.09	9.88	21.5	8.02	7.95	0.17		
A2	5/23/08	1137	-0.1	Low	2.8	86	130	1820	0.69	9.7	962	27017	2.4	74			139	1951		0.56	10.44	22.4	8.05	7.17			
A2	6/12/08	1009	0.9	Flood	2.4	73	127	1783	0.26	3.6	630	17689	2.4	73			127	1783		0.08	10.43	21.1	8.14	6.43	0.13		
A2	7/18/08	958	-0.1	Low	2.9	89	129.0	1807	0.5	7	623	17503	2.4	74			89	1240		0.03	10.07	21.1	8.07	6.29	0.09		
A2	8/13/08	1129	1.2	Flood	2.8	87	132.2	1852	0.3	4	579	16264	0.0				0			0.22	9.86	22.1	7.96	9.90	0.11		
A2	9/4/08	1151	1.0	Ebb	2.4	73	125.5	1757	0.1	2	545	15294	2.8	88			136	1903		0.06	10.55	21.7	7.90	6.46	0.28		
A2	10/20/08	1144	1.8	Ebb	3.1	95	136.9	1918	0.1	2	569	15974	0.0				0			0.07	10.16	23.3	7.86	7.84	0.15		
A2	11/6/08	1106	1.8	High	3.1	97	130.4	1827	0.2	3	587	16479	2.9	90			136	1909		0.10	10.00	21.3	8.44	7.05	0.59		
A2	1/2/08	1133	0.7	Ebb	4.8	148	155.0	2172	0.1	1	583	16362	3.4	107			133	1858		0.42	10.31	22.3	8.08	7.45	0.04		
A2	1/12/09	1113	0.6	Ebb	3.3	104	146.9	2057	0.1	2	603	16931	0.4	13			132	1852		0.11	9.72	21.9	8.13	7.46	0.35		
A2	2/20/09	1031	0.3	Low	3.0	93	47.0	659	0.2	2	552	15514	2.3	72			144	2022		0.67	10.28	21.5	7.85	7.38	0.25		
A2	3/30/09	1355	0.1	Flood	2.5	77	110.8	1552	0.3	5	387	10877	2.8	86			112	1571		0.12	10.91	22.2	7.81	7.69	0.11		
A2	4/27/09	1340	0.3	Flood	2.9	90	135.6	1900	0.7	10	566	15889	3.6	111			134	1870		0.27	10.69	21.4	8.16	7.57	0.25		
A2	5/14/09	1031	0.4	Flood	3.8	116	131.4	1840	1.0	14	576	16186	3.5	108			128	1788		0.16	10.19	21.4	8.01	7.03	0.02		
A2	6/10/09	931	0.2	Ebb	3.0	92	126.7	1774	0.2	3	527	14808	2.9	89			164	2303		0.06	10.20	22.6	8.70	6.93	0.04		
A2	7/10/09	1020	0.3	Ebb	1.4	43	60.5	847	0.7	11	246	6915	2.1	65			62	871		0.08	10.67	21.6	8.02	7.11	0.03		
A2	8/27/09	1113	1.8	High	1.9	60	74.0	1036	0.6	9	424	11904	2.1	64			77	1080		0.23	9.83	22.3	7.96	7.28	0.24		
A2	9/17/09	1015	0.2	Flood	3.5	108	139.2	1950	0.4	6	387	10872	3.1	97			153	2140		0.37	10.19	22.2	7.62	7.05	0.09		
A2	10/22/09	956	1.9	Ebb	2.5	77	99.1	1389	0.2	3	78	2180	2.4	74			100	1398		0.16	11.26	22.5	7.82	7.40	0.06		
A2	11/19/09	950	1.7	Ebb	3.6	110	79.0	1107	3.2	45	439	12331	3.4	106			87	1216		0.13	11.17	22.3	7.89	6.37	0.02		
A2	12/7/09	758	2.0	High	3.2	99	120.2	1683	0.7	10	452	12692	3.0	93			124	1735		0.02	11.91	21.3	7.84	6.60	0.07		
A2	1/4/10	1338	0.0	Low	3.3	103	116.2	1627	0.5	7	489	13723	3.0	93			118	1652		0.07	11.3	22.0	8.01	7.03	0.20		
A2	2/2/10	1335	-0.2	Low	3.0	92	112.7	1579	0.8	11	556	15620	2.9	89			115	1610		0.08	10.97	22.0	8.00	7.26	0.24		
A2	3/10/10	1251	0.7	High	3.1	97	117.3	1643	0.3	4	353	9906	2.8	88			117	1634		0.11	11.06	22.4	8.08	7.72	0.53		
A2	4/5/10	942	0.4	High	3.4	105	113.2	1586	0.6	9	608	17082	3.2	100			114	1599		0.05	11.53	21.5	8.03	7.99	0.06		
A2	5/12/10	1234	1.5	Flood	3.2	100	120.4	1686	0.5	7	606	17019	3.1	96			121	1691		0.07	10.45	21.5	7.99	8.10	0.02		
A2	6/21/10	950	1.3	Flood	3.3	101	129.7	1817	1.3	19	651	18279	3.3	102			135	1897		0.08	10.65	21.9	7.96	6.36	0.08		
A2	7/12/10	936	-0.1	Low	3.4	104	125.2	1754	1.1	16	623	17488	3.3	103			137	1918		0.23	11.28	23.1	7.82	7.22	0.07		
A2	8/2/10	1231	1.3	Ebb	3.6	113	141.6	1983	0.6	8	651	18272	3.3	101			141	1979		0.13	10.18	22.2	8.02	7.23	0.06		
A2	9/2/10	1044	1.8	Flood	3.4	105	143.7	2013	0.5	7	622	17458	3.3	102			145	2038		0.05	10.58	22.0	7.98	6.40	0.04		
A2	10/19/10	1055	1.1	Flood	3.4	107	140.7	1970	0.8	12	647	18166	3.2	98			137	1913		0.25	10.43	22.5	7.96	6.94	0.08		
A2	11/3/10	944	0.4	Low	3.4	105	130.6	1829	0.4	6	624	17523	3.3	104			135	1896		0.19	10.44	22.2	8.00	6.22	0.09		
A2	12/6/10	923	0.8	Ebb	3.5	108	131.9	1847	0.6	9	668	18766	3.2	98			133	1869		0.07	10.74	21.7	7.91	7.23	0.09		
A2	1/26/11	957	0.8	Ebb	3.6	110	131.1	1836	1.0	14	583	16365	3.3	101			132	1844		0.11	10.90	21.4	7.88	6.64	0.09		
A2	4/13/11	941	0.3	Flood	3.5	108	143.2	2006	0.5	7	666	18707	3.1	95			139	1943		0.12	10.48	22.0	7.94	6.74	0.14		
A2	7/18/11	908	0.7	Ebb	3.6	111	123.6	1731	0.5	7	612	17178	3.4	106			128	1789		0.14	11.34	21.6	7.93	6.22	0.01		
A2	10/5/11	940	1.5	Flood	3.4	105	120.6	1689	1.1	16	594	16673	3.4	105			125	1746		0.02	11.20	22.1	7.84	6.72	0.02		
A2	1/17/12	814	0.7	Flood	3.2	100	119.9	1679	0.5	7	598	16799	3.0	94			125	1745		0.08	11.89	21.3	7.85	7.03	0.00		
A2	4/19/12	1032	0.3	Flood	3.5	108	128.9	1805	0.7	10	614	17241	3.5	108			133	1865		0.03	11.34	21.7	7.90	6.35	0.01		

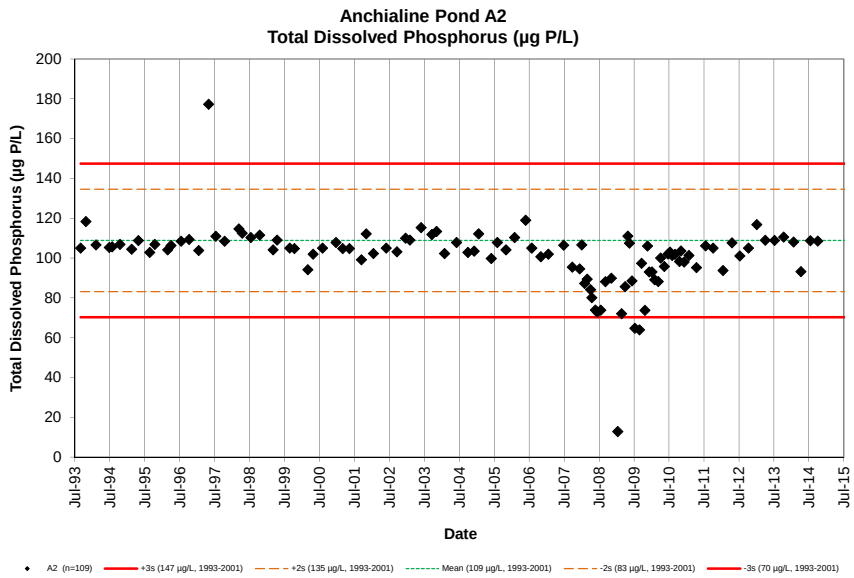
NELHA Water Quality Laboratory

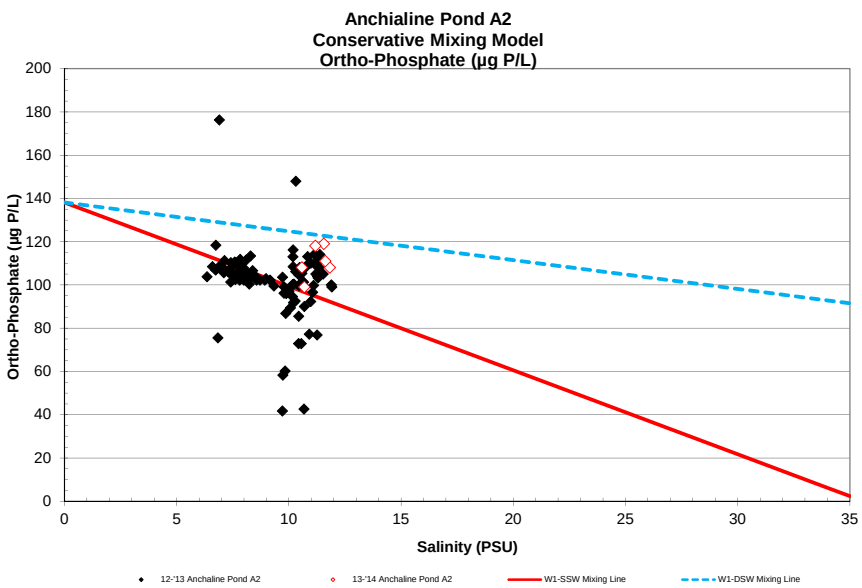
Anchialine Pond A2

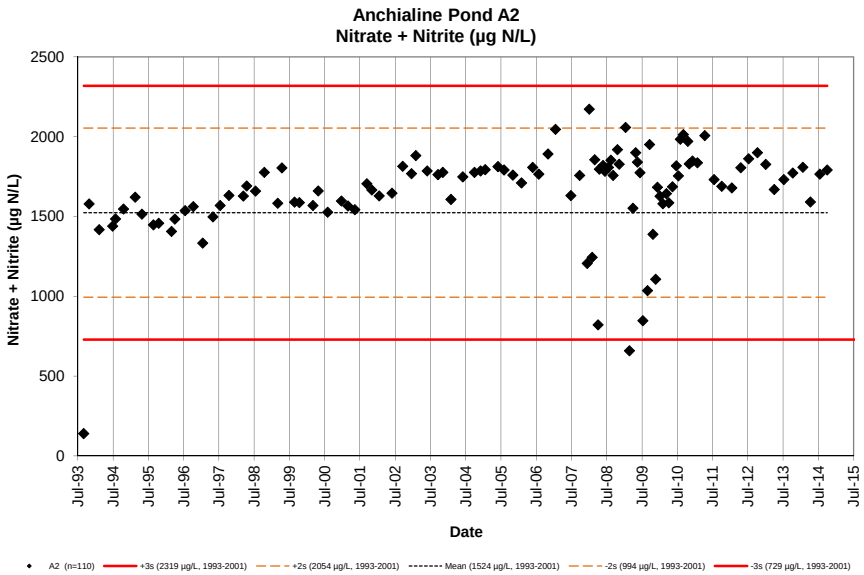
June 1993 - December 2014

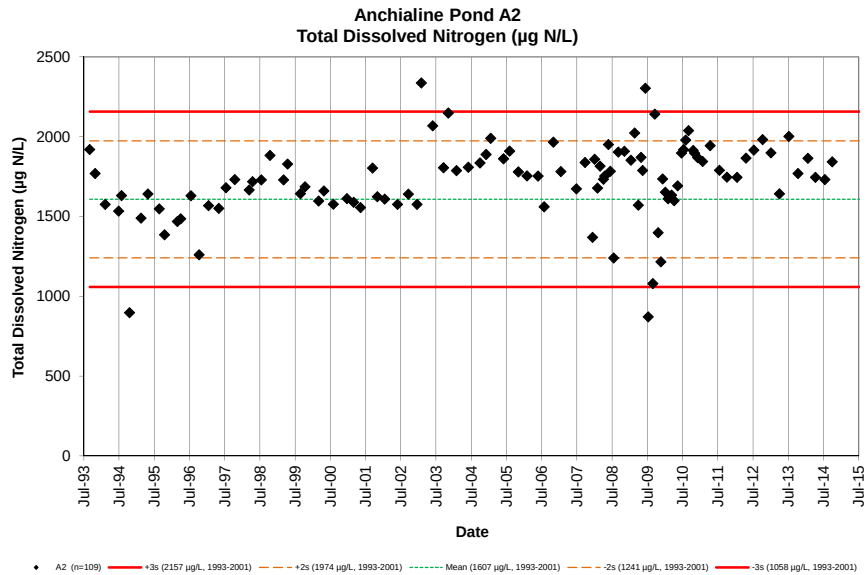
SITE ID	DATE	TIME	TIDE		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TP		TDN		TOC	Turbidity	Salinity	TEMP	pH	DO	Chl a	Fecal Col.	Entero.
	M/D/Y	(2400)	(ft)	cycle	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(mgC/L)	(NTU)	(PSU)	(˚C)		(ppm)	(µg/L)	CFU/100ml	CFU/100ml
A2	7/9/12	1103	1.2	Ebb	3.5	109	132.9	1861	1.0	14	607	17043	3.3	101			137	1915		0.02	11.21	22.0	7.94	8.67	0.02		
A2	10/8/12	1030	1.8	High	3.6	110	135.6	1899	0.9	12	624	17520	3.4	105			141	1982		0.07	10.98	22.8	7.91	7.48	0.12		
A2	1/3/13	1033	1.2	Ebb	3.7	114	130.4	1826	0.6	9	590	16561	3.8	117			136	1898		0.02	11.13	21.9	7.98	7.19	0.01		
A2	4/1/13	1013	0.4	Ebb	3.7	114	119.2	1669	1.0	14	587	16480	3.5	109			117	1641		0.03	11.38	21.7	7.86	6.67	0.02		
A2	7/8/13	943	-0.1	Low	3.5	108	123.6	1731	1.4	20	572	16068	3.5	109			143	2002		0.10	11.82	23.2	7.78	7.10	0.00		
A2	10/10/13	1040	1.7	Ebb	3.8	119	126.5	1772	0.8	11	590	16561	3.6	111			126	1769		0.02	11.56	22.7	7.89	6.78	0.08		
A2	1/22/14	849	0.7	High	3.6	111	129.1	1808	0.8	11	591	16597	3.5	108			133	1864		0.02	11.62	21.7	7.91	6.62	0.00		
A2	4/9/14	1025	0.7	Flood	3.2	99	113.6	1591	2.4	34	539	15143	3.0	93			125	1745		0.08	10.69	22.7	7.83	7.19	0.12		
A2	7/16/14	1052	0.5	Ebb	3.8	118	126.0	1765	0.7	10	550	15451	3.5	109			124	1731		0.07	11.18	22.5	7.90	6.94	0.03		
A2	10/1/14	1209	1.5	Ebb	3.5	108	127.9	1791	1.2	17	553	15542	3.5	109			131	1842		0.13	10.58	23.0	7.99	6.83	0.03		
A2	1/1/15																										
A2	4/1/15																										

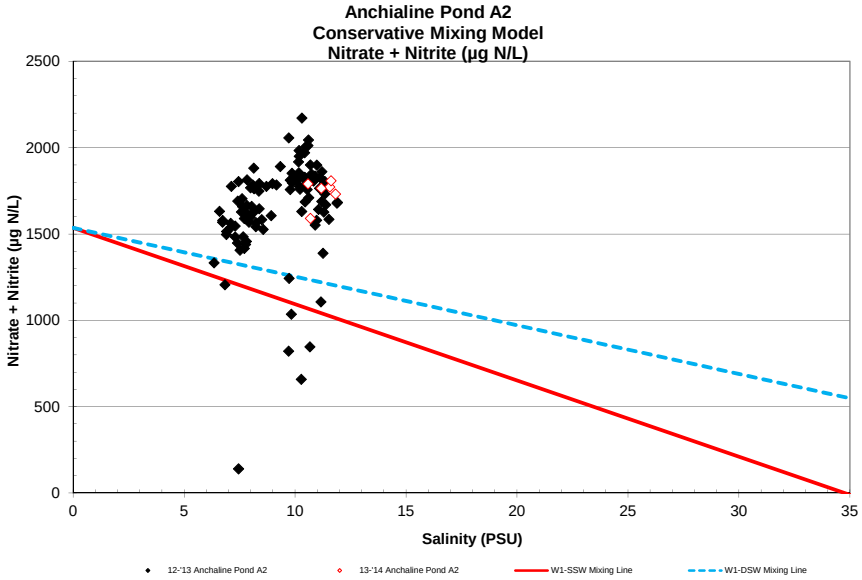

Anchialine Pond A2
Ortho-Phosphate
ug P/L
Date
A2 (n=110)
+3s (146 µg/L, 1993-2001)
+2s (133 µg/L, 1993-2001)
Mean (108 µg/L, 1993-2001)
-2s (83 µg/L, 1993-2001)
-3s (71 µg/L, 1993-2001)

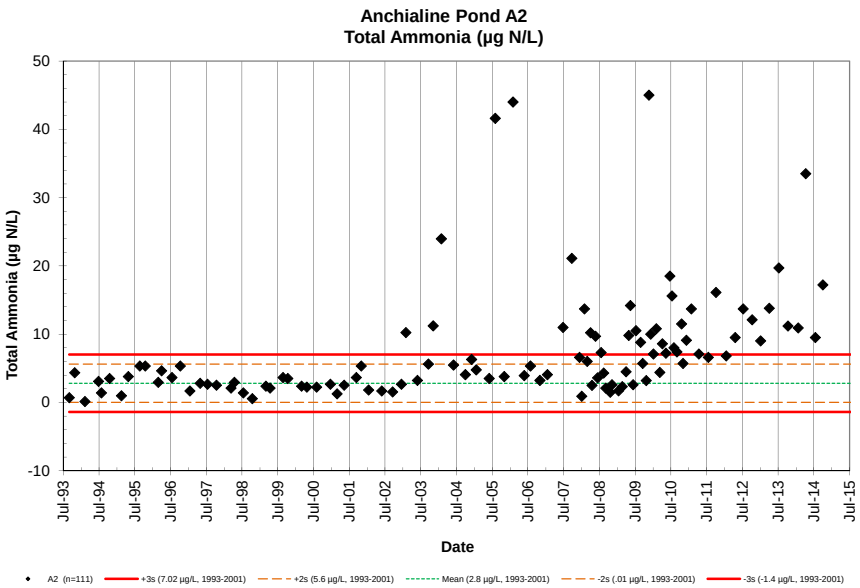

Anchialine Pond A2
Total Dissolved Phosphorus (µg P/L)
Total Dissolved Phosphorus (µg P/L)
Date
A2 (n=109)
+3s (147 µg/L, 1993-2001)
+2s (135 µg/L, 1993-2001)
Mean (109 µg/L, 1993-2001)
-2s (83 µg/L, 1993-2001)
-3s (70 µg/L, 1993-2001)

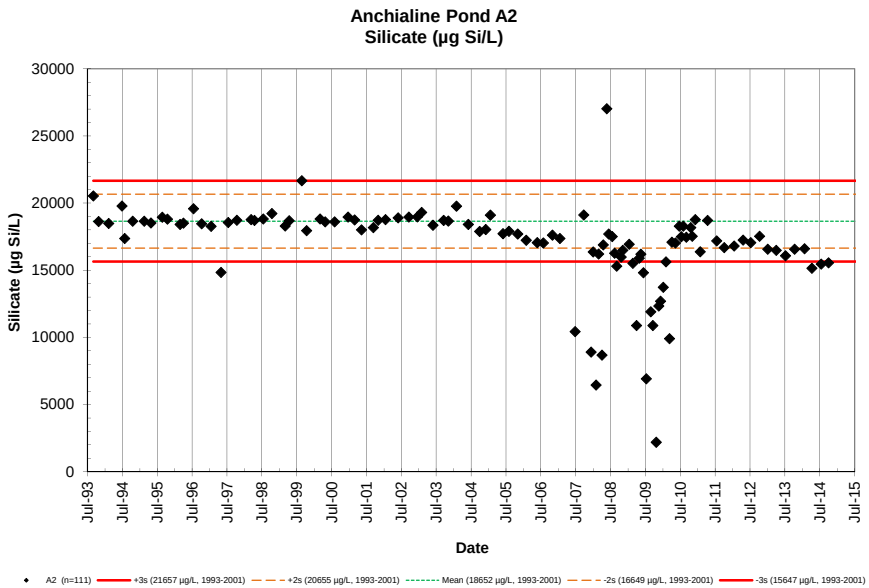

Anchialine Pond A2
Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
12-'13 Anchaline Pond A2
13-'14 Anchaline Pond A2
W1-SSW Mixing Line
W1-DSW Mixing Line

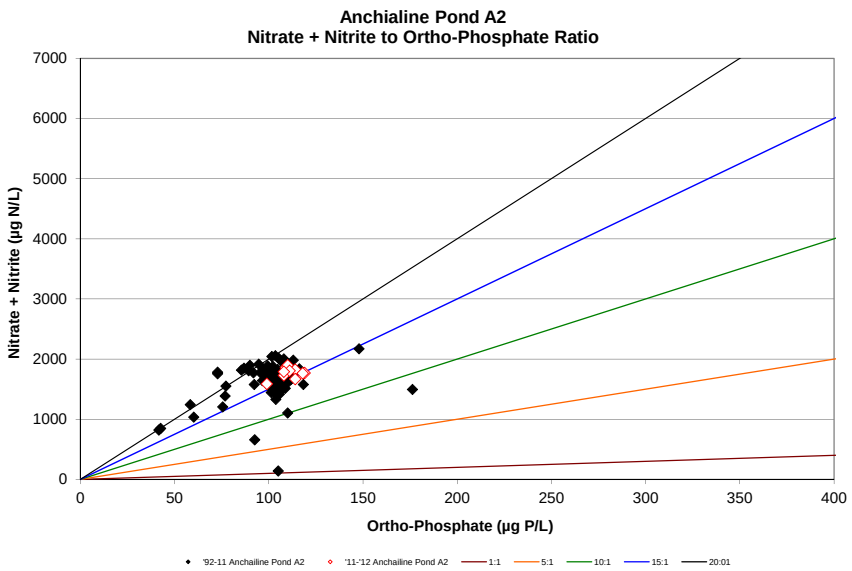

Anchialine Pond A2
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
A2 (n=110)
+3s (2319 µg/L, 1993-2001)
+2s (2054 µg/L, 1993-2001)
Mean (1524 µg/L, 1993-2001)
-2s (994 µg/L, 1993-2001)
-3s (729 µg/L, 1993-2001)

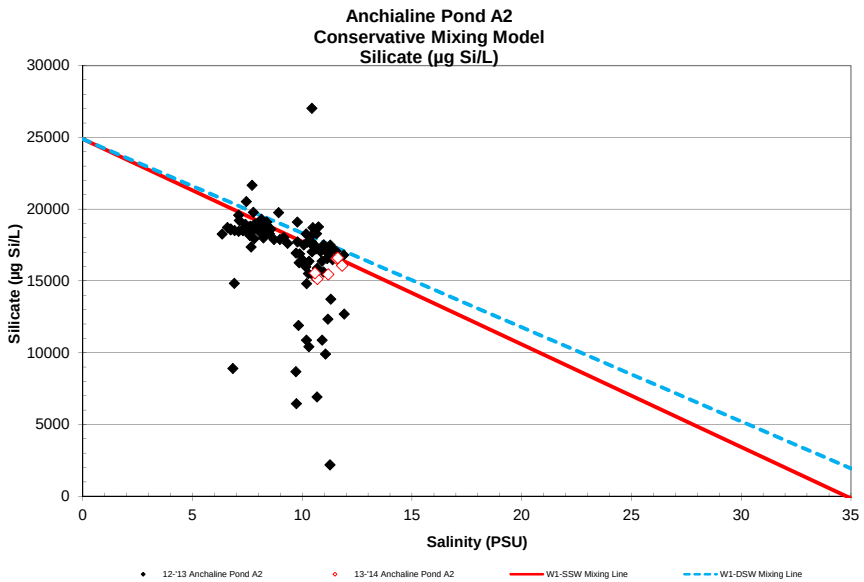

Anchialine Pond A2
Total Dissolved Nitrogen (µg N/L)
Total Dissolved Nitrogen (µg N/L)
Date
A2 (n=109)
+3s (2157 µg/L, 1993-2001)
+2s (1974 µg/L, 1993-2001)
Mean (1607 µg/L, 1993-2001)
-2s (1241 µg/L, 1993-2001)
-3s (1058 µg/L, 1993-2001)

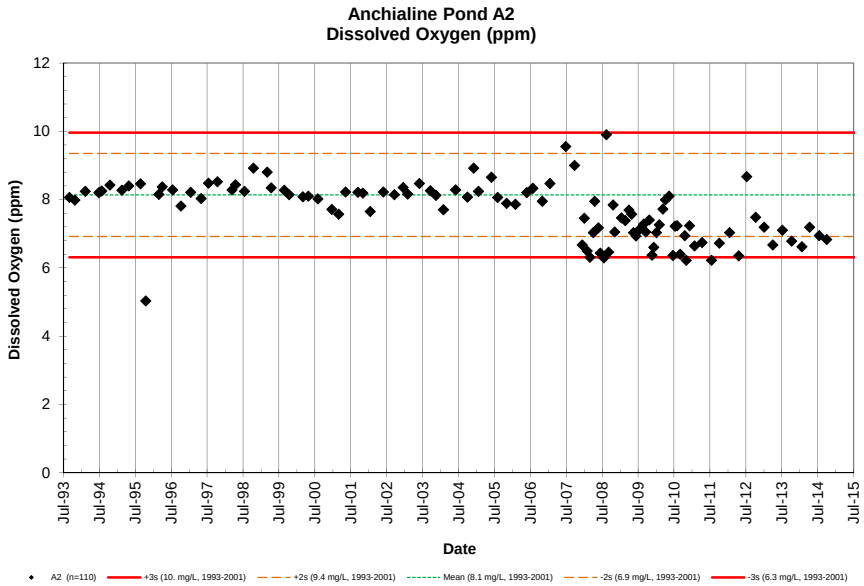

Anchialine Pond A2
Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
12-'13 Anchaline Pond A2
13-'14 Anchaline Pond A2
W1-SSW Mixing Line
W1-DSW Mixing Line

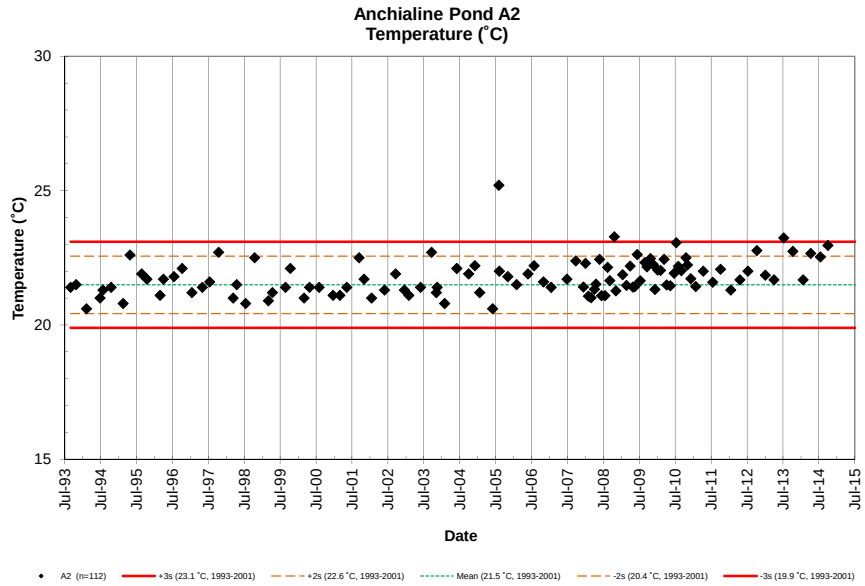

Anchialine Pond A2
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
A2 (n=111)
+3s (7.02 µg/L, 1993-2001)
+2s (5.6 µg/L, 1993-2001)
Mean (2.8 µg/L, 1993-2001)
-2s (.01 µg/L, 1993-2001)
-3s (-1.4 µg/L, 1993-2001)

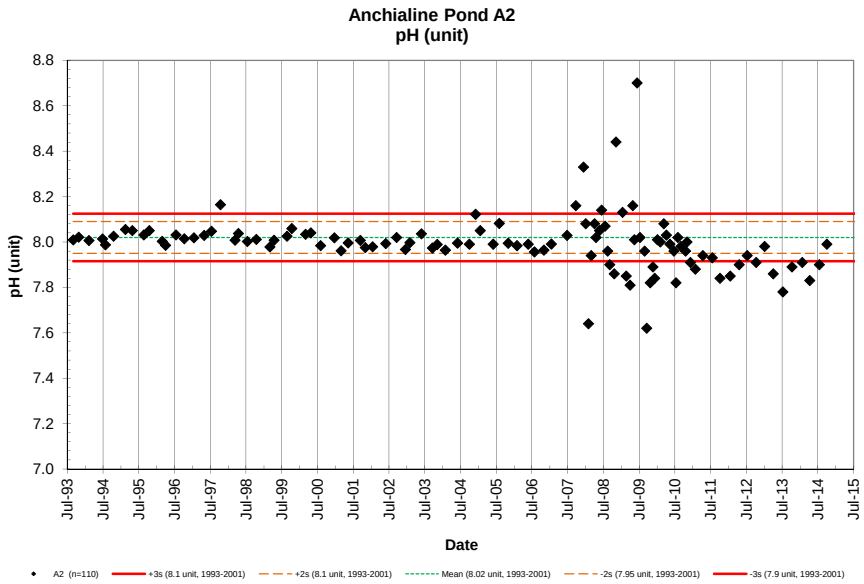

Anchialine Pond A2
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
A2 (n=111)
+3s (21657 µg/L, 1993-2001)
+2s (20655 µg/L, 1993-2001)
Mean (18652 µg/L, 1993-2001)
-2s (16649 µg/L, 1993-2001)
-3s (15647 µg/L, 1993-2001)

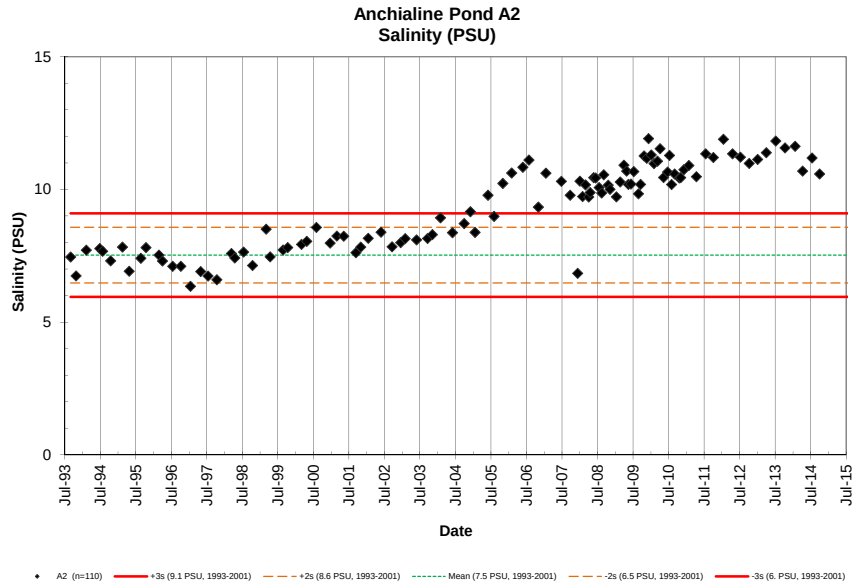

Anchialine Pond A2
Nitrate + Nitrite to Ortho-Phosphate Ratio
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
'92-11 Anchailine Pond A2
'11-'12 Anchailine Pond A2
1:1
5:1
10:1
15:1
20:01

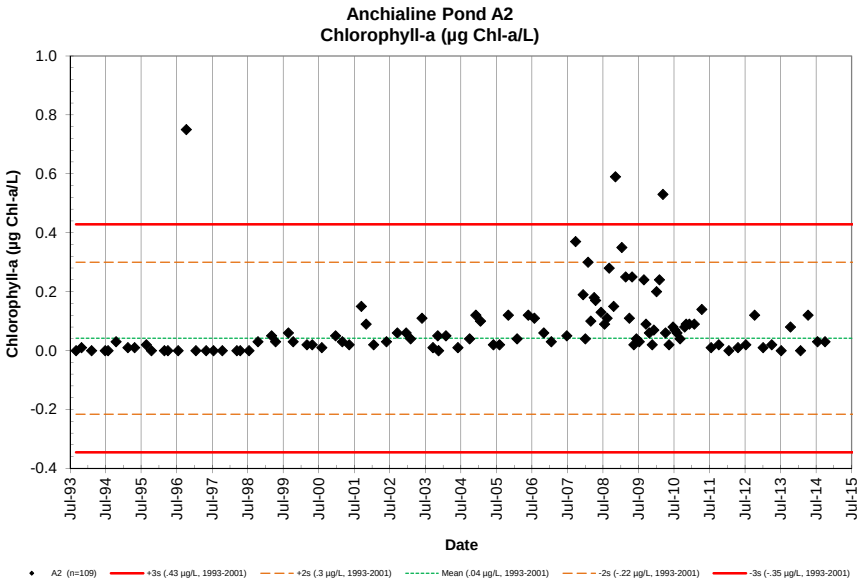

Anchialine Pond A2
Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
12-'13 Anchaline Pond A2
13-'14 Anchaline Pond A2
W1-SSW Mixing Line
W1-DSW Mixing Line

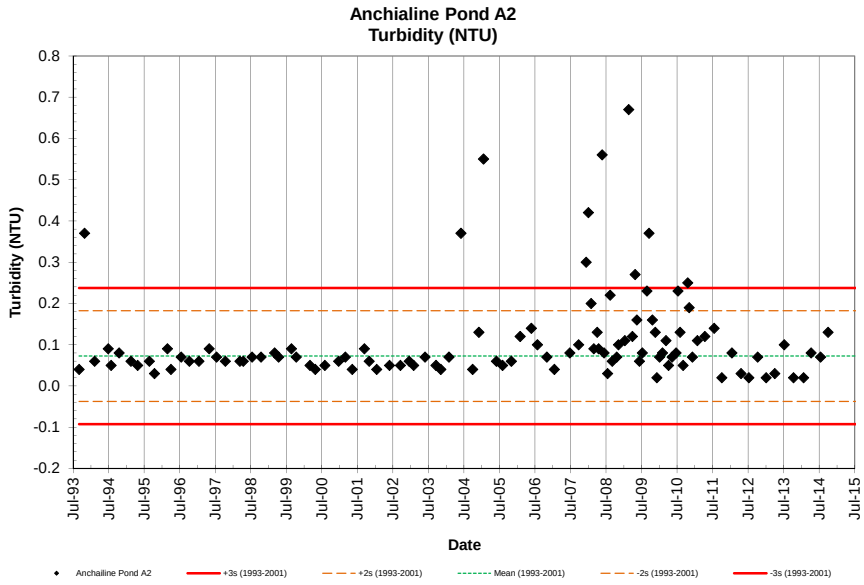

Anchialine Pond A2
Dissolved Oxygen (ppm)
Dissolved Oxygen (ppm)
Date
A2 (n=110)
+3s (10. mg/L, 1993-2001)
+2s (9.4 mg/L, 1993-2001)
Mean (8.1 mg/L, 1993-2001)
-2s (6.9 mg/L, 1993-2001)
-3s (6.3 mg/L, 1993-2001)


Anchialine Pond A2
Temperature (˚C)
Temperature (˚C)
Date
A2 (n=112)
+3s (23.1 ˚C, 1993-2001)
+2s (22.6 ˚C, 1993-2001)
Mean (21.5 ˚C, 1993-2001)
-2s (20.4 ˚C, 1993-2001)
-3s (19.9 ˚C, 1993-2001)


Anchialine Pond A2
pH (unit)
pH (unit)
Date
A2 (n=110)
+3s (8.1 unit, 1993-2001)
+2s (8.1 unit, 1993-2001)
Mean (8.02 unit, 1993-2001)
-2s (7.95 unit, 1993-2001)
-3s (7.9 unit, 1993-2001)


Anchialine Pond A2
Salinity (PSU)
Salinity (PSU)
Date
A2 (n=110)
+3s (9.1 PSU, 1993-2001)
+2s (8.6 PSU, 1993-2001)
Mean (7.5 PSU, 1993-2001)
-2s (6.5 PSU, 1993-2001)
-3s (6. PSU, 1993-2001)


Anchialine Pond A2
Chlorophyll-a (µg Chl-a/L)
Chlorophyll-a (µg Chl-a/L)
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
Jul-93
Jul-94
Jul-95
Jul-96
Jul-97
Jul-98
Jul-99
Jul-00
Jul-01
Jul-02
Jul-03
Jul-04
Jul-05
Jul-06
Jul-07
Jul-08
Jul-09
Jul-10
Jul-11
Jul-12
Jul-13
Jul-14
Jul-15
Date
A2 (n=109)
+3s (.43 µg/L, 1993-2001)
+2s (.3 µg/L, 1993-2001)
Mean (.04 µg/L, 1993-2001)
-2s (-.22 µg/L, 1993-2001)
-3s (-.35 µg/L, 1993-2001)

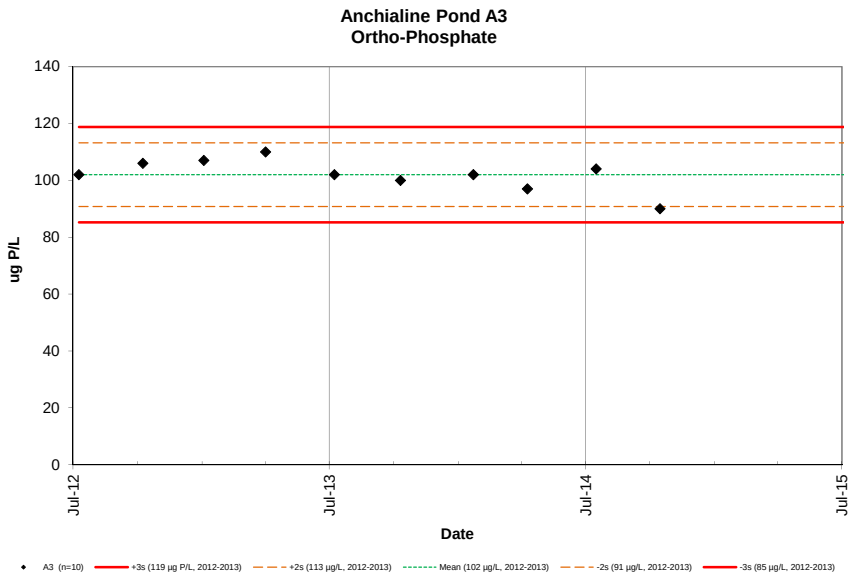

Anchialine Pond A2
Turbidity (NTU)
Turbidity (NTU)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
Jul-93
Jul-94
Jul-95
Jul-96
Jul-97
Jul-98
Jul-99
Jul-00
Jul-01
Jul-02
Jul-03
Jul-04
Jul-05
Jul-06
Jul-07
Jul-08
Jul-09
Jul-10
Jul-11
Jul-12
Jul-13
Jul-14
Jul-15
Date
Anchialine Pond A2
+3s (1993-2001)
+2s (1993-2001)
Mean (1993-2001)
-2s (1993-2001)
-3s (1993-2001)

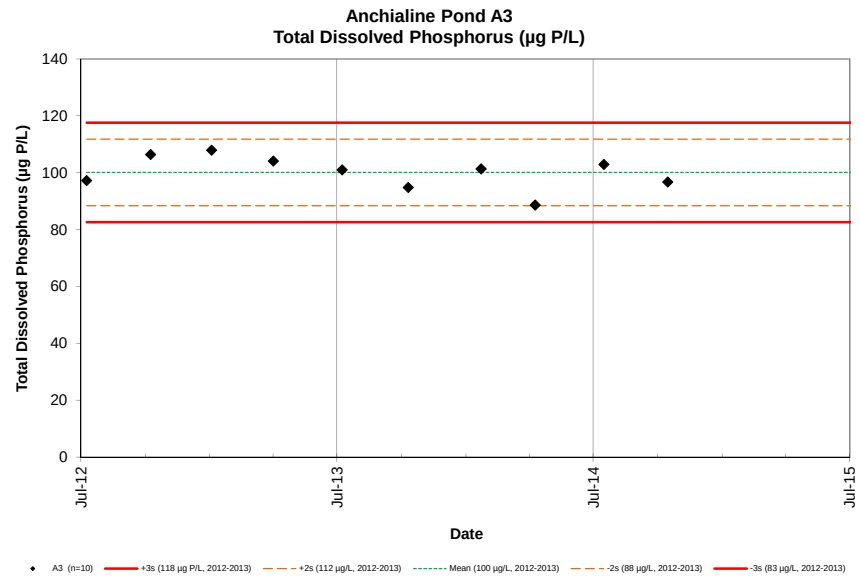
NELHA Water Quality Laboratory

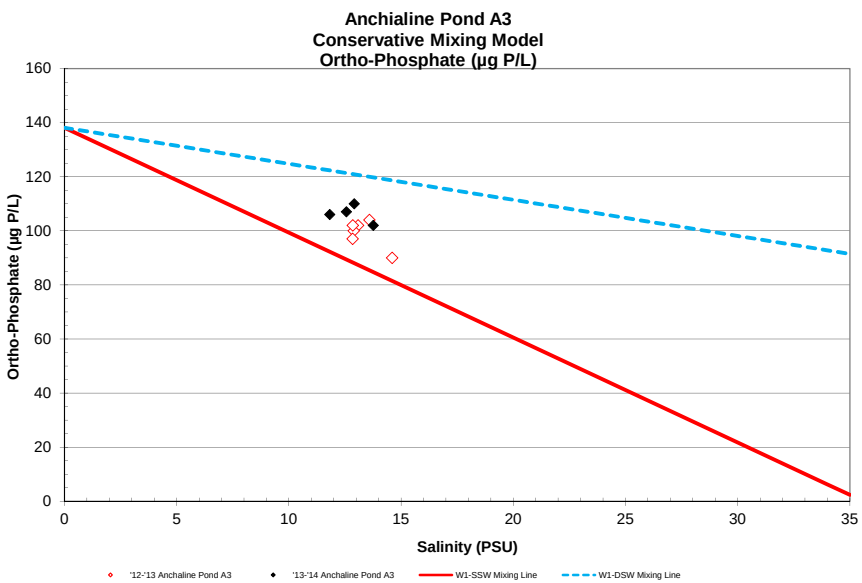
Anchialine Pond A3

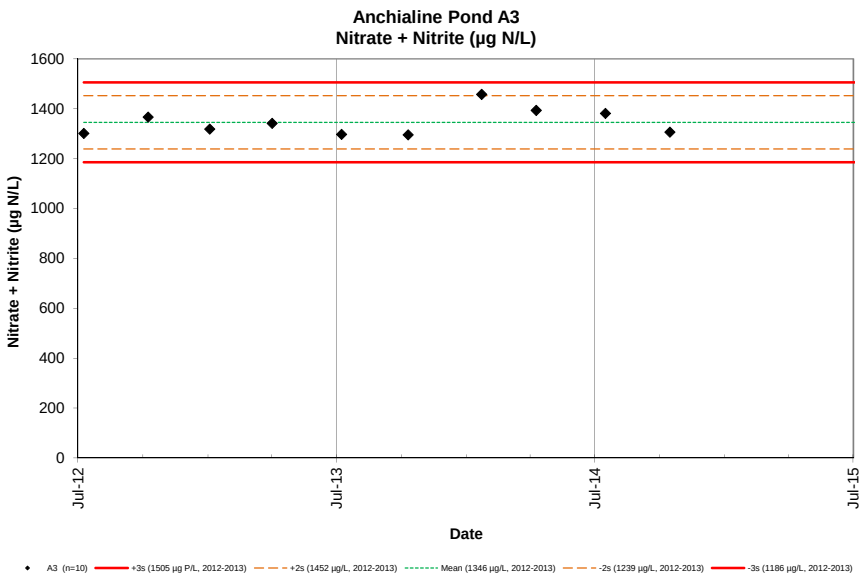
June 2012 - December 2014

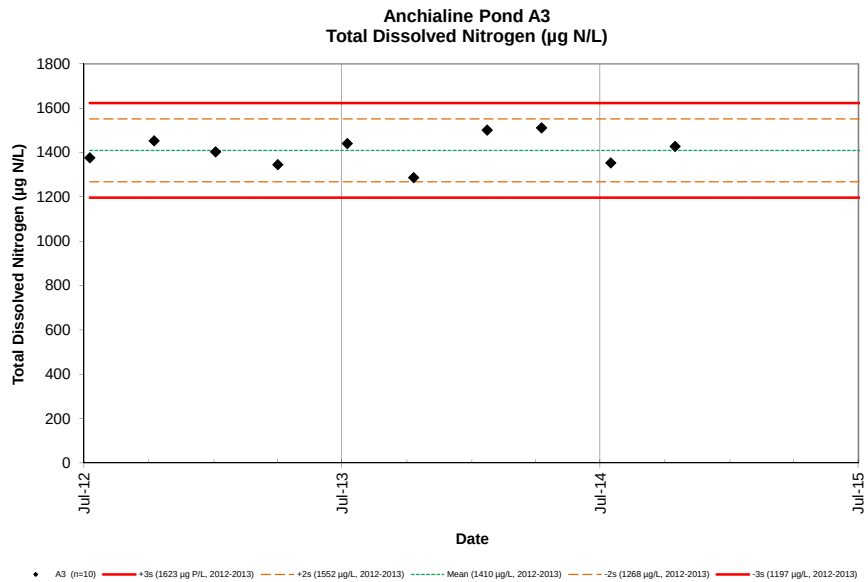
SITE ID	DATE	TIME	TIDE		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		Turbidity	Salinity	TEMP	pH	DO	Chl a
	M/D/Y	(2400)	(ft)	cycle	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)
A3	7/9/12	1111	1.2	Ebb	3.3	102	92.9	1301	0.8	10.7	562	15780	3.1	97	98.2	1376	0.39	13.76	22.0	7.97	7.83	0.07
A3	10/8/12	1035	1.8	High	3.4	106	97.5	1366	2.4	34.3	589	16537	3.4	106	103.7	1453	0.6	11.82	22.0	7.94	7.30	0.32
A3	1/3/13	1039	1.2	Ebb	3.5	107	94.1	1318	1.3	17.7	553	15523	3.5	108	100.2	1403	0.1	12.56	20.9	7.99	7.90	0.04
A3	4/1/13	1019	0.4	Ebb	3.6	110	95.7	1341	1.2	17.1	549	15431	3.4	104	96.0	1345	2.79	12.91	20.9	7.84	6.90	0.12
A3	7/8/13	950	-0.1	Low	3.3	102	92.6	1297	1.61	22.5	565	15859	3.26	101	103	1441	5.62	13.08	22.6	7.68	7.44	1.21
A3	10/10/13	1047	1.7	Ebb	3.2	100	92.5	1295	1.20	16.8	529	14871	3.06	95	92	1287	0.31	12.89	23.6	7.94	7.85	0.19
A3	1/22/14	855	0.7	High	3.3	102	104.0	1457	0.9	12	552	15512	3.3	101	107	1501	0.02	12.85	21.0	7.97	7.04	0.03
A3	4/9/14	1014	0.7	Flood	3.1	97	99.5	1393	2.3	32	513	14415	2.9	89	108	1511	0.05	12.84	21.0	7.85	7.30	0.02
A3	7/16/14	1058	0.5	Ebb	3.4	104	98.6	1381	1.58	22.1	503	14121	3.32	103	97	1353	0.18	13.59	21.9	7.86	7.59	0.07
A3	10/15/14	1218	1.5	Ebb	2.9	90	93.2	1306	0.79	11.1	494	13861	3.12	97	102	1428	0.41	14.60	25.4	7.87	6.61	0.09
A3	1/1/15																					
A3	4/1/15																					

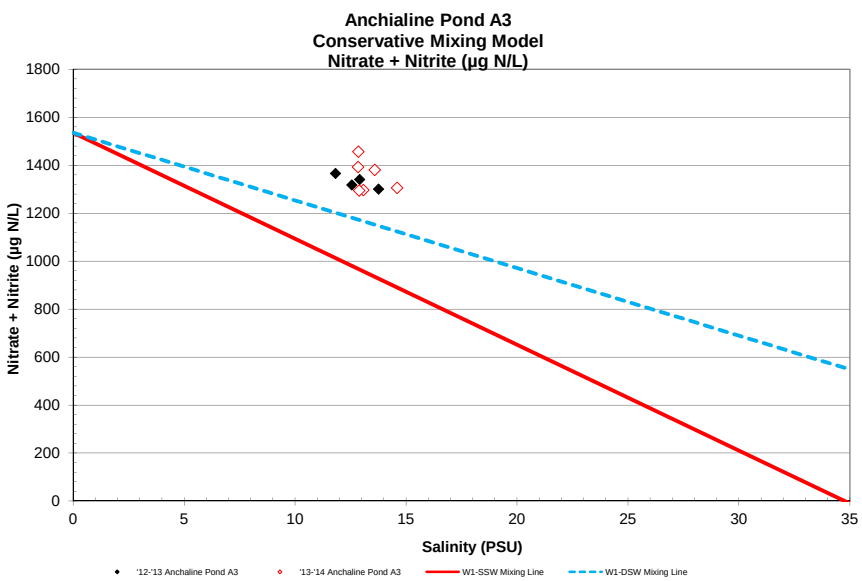

Anchialine Pond A3
Ortho-Phosphate
ug P/L
Date
Jul-12
Jul-13
Jul-14
Jul-15
A3 (n=10)
+3s (119 µg P/L, 2012-2013)
+2s (113 µg/L, 2012-2013)
Mean (102 µg/L, 2012-2013)
-2s (91 µg/L, 2012-2013)
-3s (85 µg/L, 2012-2013)

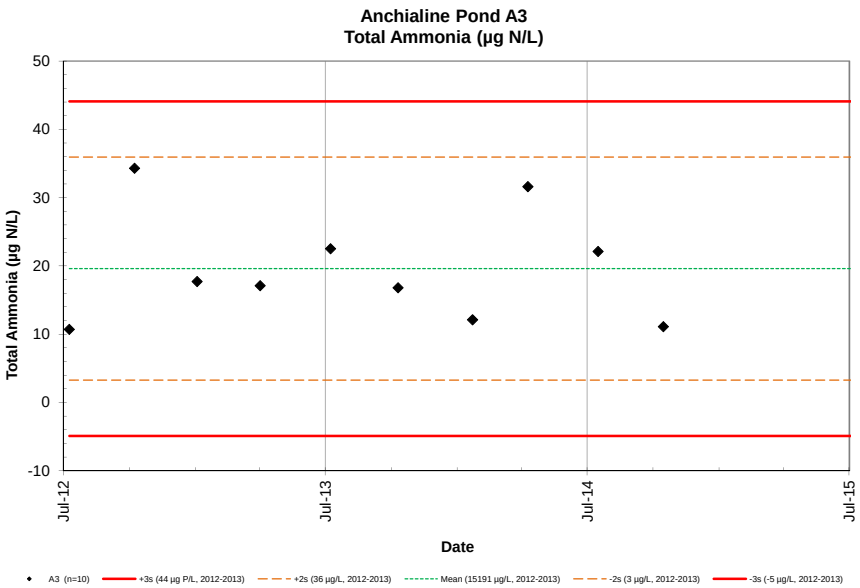

Anchialine Pond A3
Total Dissolved Phosphorus (µg P/L)
Total Dissolved Phosphorus (µg P/L)
Date
Jul-12
Jul-13
Jul-14
Jul-15
A3 (n=10)
+3s (118 µg P/L, 2012-2013)
+2s (112 µg/L, 2012-2013)
Mean (100 µg/L, 2012-2013)
-2s (88 µg/L, 2012-2013)
-3s (83 µg/L, 2012-2013)

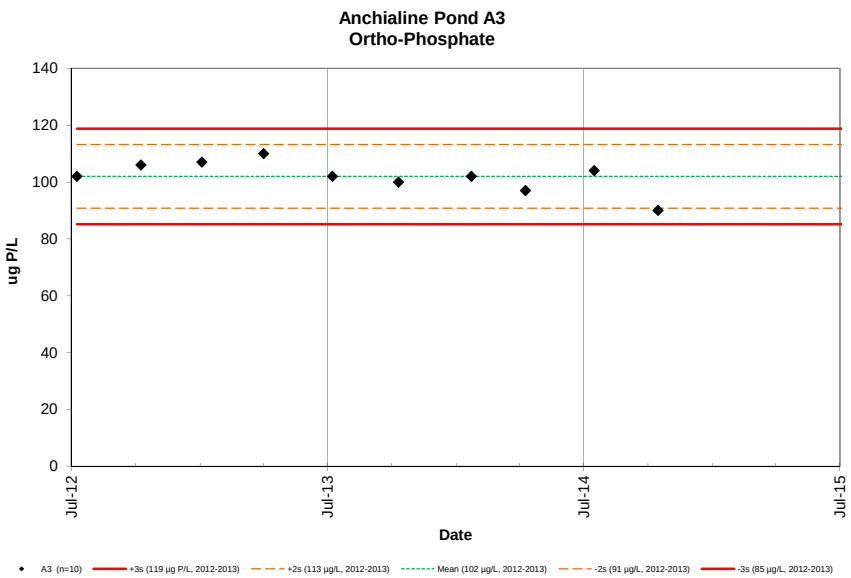

Anchialine Pond A3
Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
'12-'13 Anchaline Pond A3
'13-'14 Anchaline Pond A3
W1-SSW Mixing Line
W1-DSW Mixing Line

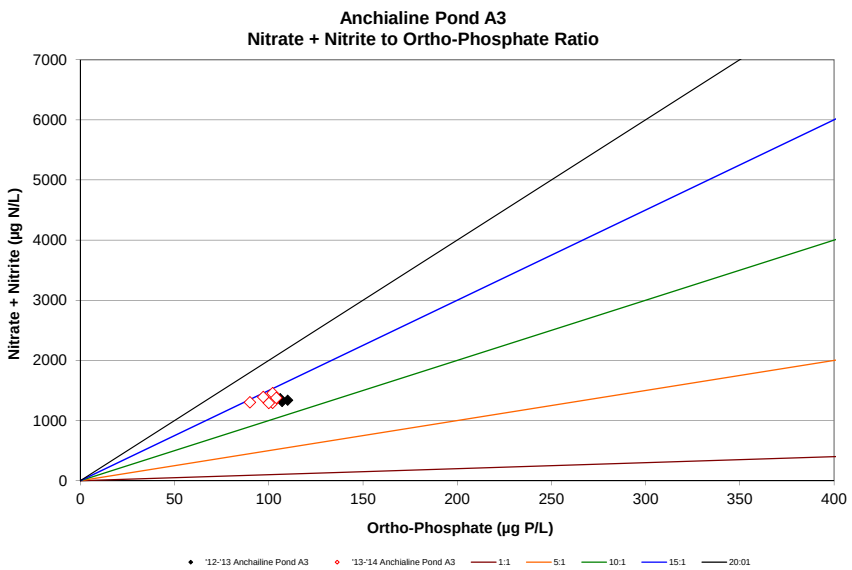

Anchialine Pond A3
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
1600
1400
1200
1000
800
600
400
200
0
Jul-12
Jul-13
Jul-14
Jul-15
Date
A3 (n=10)
+3s (1505 µg P/L, 2012-2013)
+2s (1452 µg/L, 2012-2013)
Mean (1346 µg/L, 2012-2013)
-2s (1239 µg/L, 2012-2013)
-3s (1186 µg/L, 2012-2013)

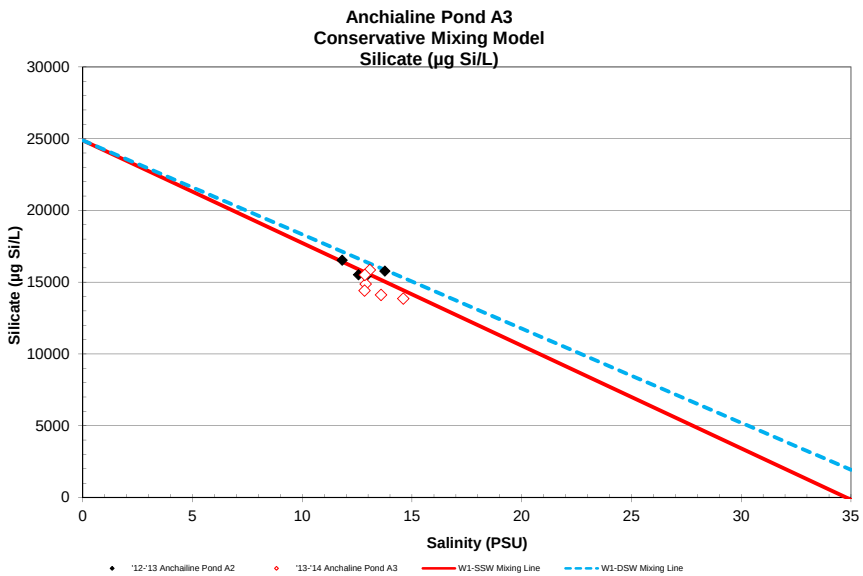

Anchialine Pond A3
Total Dissolved Nitrogen (µg N/L)
Total Dissolved Nitrogen (µg N/L)
1800
1600
1400
1200
1000
800
600
400
200
0
Jul-12
Jul-13
Jul-14
Jul-15
Date
A3 (n=10)
+3s (1623 µg P/L, 2012-2013)
+2s (1552 µg/L, 2012-2013)
Mean (1410 µg/L, 2012-2013)
-2s (1268 µg/L, 2012-2013)
-3s (1197 µg/L, 2012-2013)

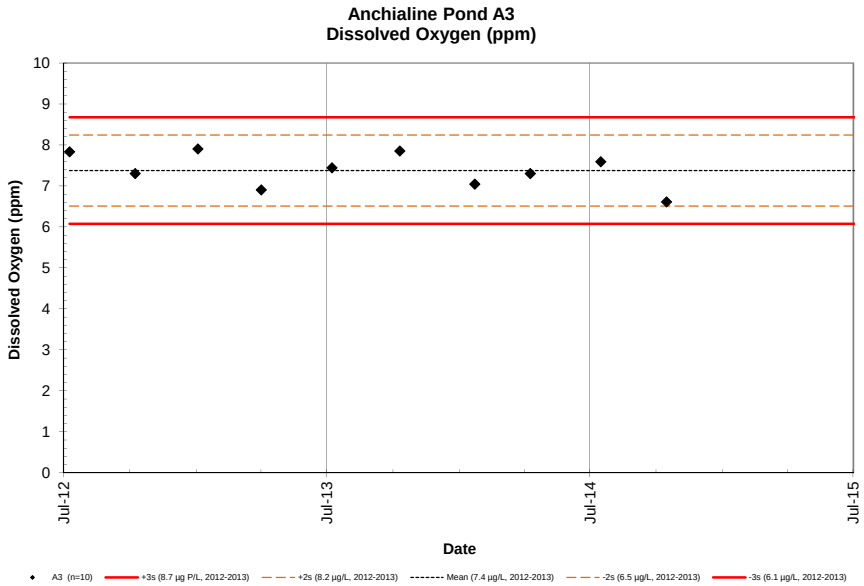

Anchialine Pond A3
Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
1800
1600
1400
1200
1000
800
600
400
200
0
0
5
10
15
20
25
30
35
Salinity (PSU)
'12-'13 Anchaline Pond A3
'13-'14 Anchaline Pond A3
W1-SSW Mixing Line
W1-DSW Mixing Line

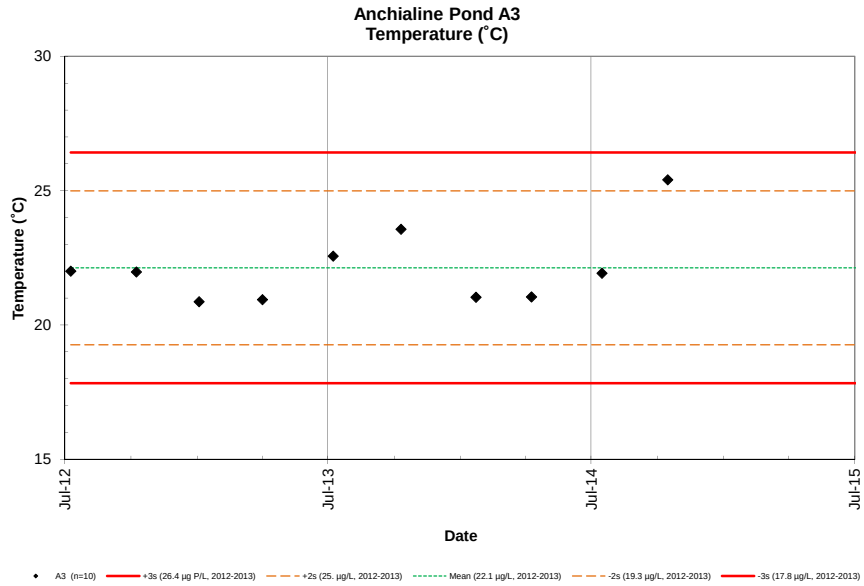

Anchialine Pond A3
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
50
40
30
20
10
0
-10
Jul-12
Jul-13
Jul-14
Jul-15
Date
A3 (n=10)
+3s (44 µg P/L, 2012-2013)
+2s (36 µg/L, 2012-2013)
Mean (15191 µg/L, 2012-2013)
-2s (3 µg/L, 2012-2013)
-3s (-5 µg/L, 2012-2013)

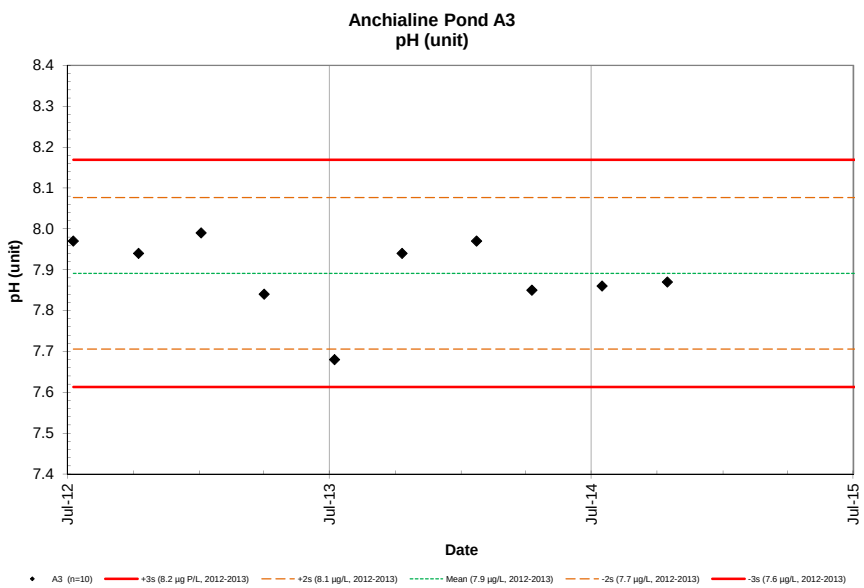

Anchialine Pond A3
Ortho-Phosphate
ug P/L
140
120
100
80
60
40
20
0
Jul-12
Jul-13
Jul-14
Jul-15
Date
A3 (n=10)
+3s (119 µg P/L, 2012-2013)
+2s (113 µg/L, 2012-2013)
Mean (102 µg/L, 2012-2013)
-2s (91 µg/L, 2012-2013)
-3s (85 µg/L, 2012-2013)

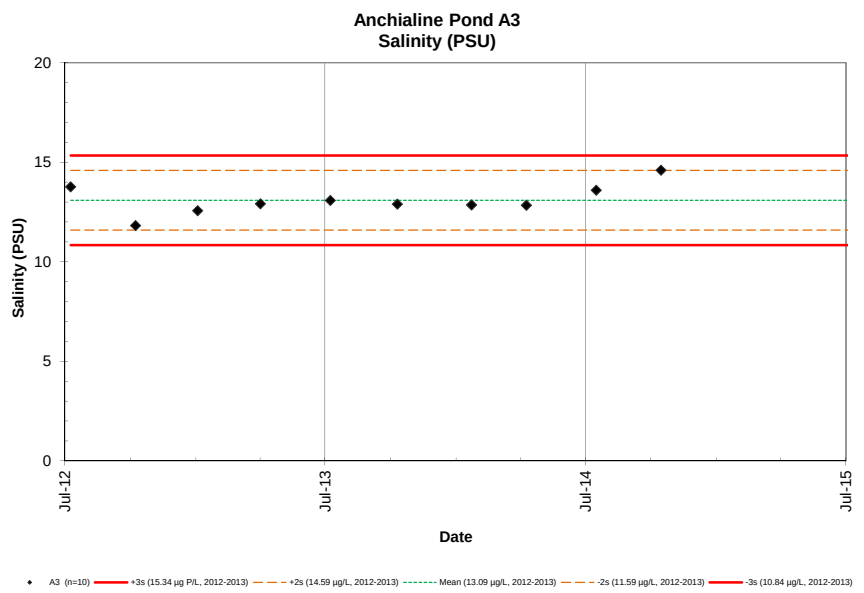

Anchialine Pond A3
Nitrate + Nitrite to Ortho-Phosphate Ratio
Nitrate + Nitrite (µg N/L)
7000
6000
5000
4000
3000
2000
1000
0
0
50
100
150
200
250
300
350
400
Ortho-Phosphate (µg P/L)
'12-'13 Anchailine Pond A3
'13-'14 Anchialine Pond A3
1:1
5:1
10:1
15:1
20:01

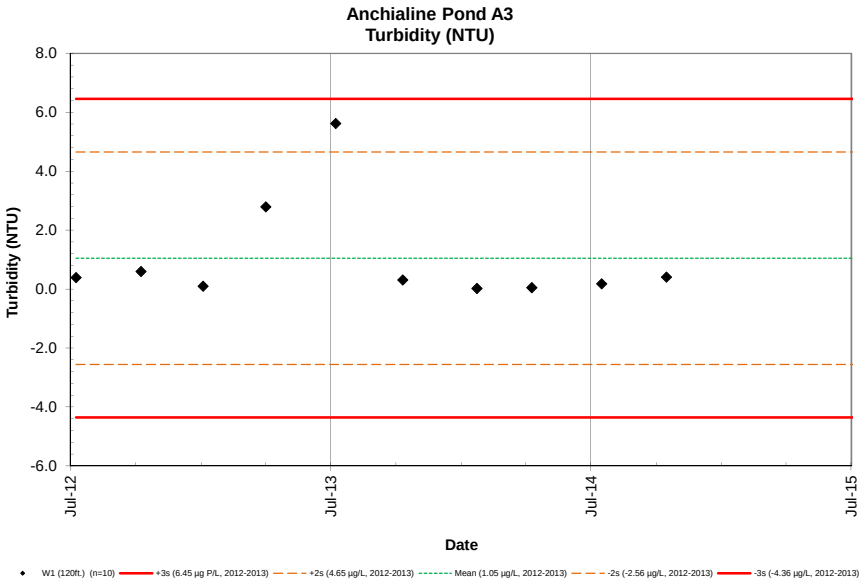

Anchialine Pond A3
Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
30000
25000
20000
15000
10000
5000
0
0
5
10
15
20
25
30
35
Salinity (PSU)
'12-'13 Anchailine Pond A2
'13-'14 Anchaline Pond A3
W1-SSW Mixing Line
W1-DSW Mixing Line

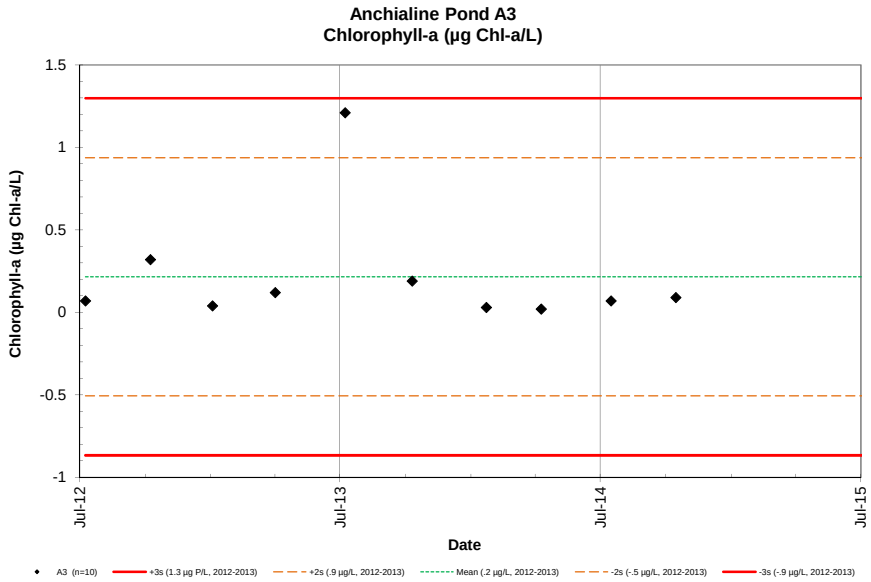

Anchialine Pond A3
Dissolved Oxygen (ppm)
Dissolved Oxygen (ppm)
10
9
8
7
6
5
4
3
2
1
0
Jul-12
Jul-13
Jul-14
Jul-15
Date
A3 (n=10)
+3s (8.7 µg P/L, 2012-2013)
+2s (8.2 µg/L, 2012-2013)
Mean (7.4 µg/L, 2012-2013)
-2s (6.5 µg/L, 2012-2013)
-3s (6.1 µg/L, 2012-2013)


Anchialine Pond A3
Temperature (˚C)
Temperature (˚C)
30
25
20
15
Jul-12
Jul-13
Jul-14
Jul-15
Date
A3 (n=10)
+3s (26.4 µg P/L, 2012-2013)
+2s (25. µg/L, 2012-2013)
Mean (22.1 µg/L, 2012-2013)
-2s (19.3 µg/L, 2012-2013)
-3s (17.8 µg/L, 2012-2013)


Anchialine Pond A3
pH (unit)
pH (unit)
8.4
8.3
8.2
8.1
8.0
7.9
7.8
7.7
7.6
7.5
7.4
Jul-12
Jul-13
Jul-14
Jul-15
Date
A3 (n=10)
+3s (8.2 µg P/L, 2012-2013)
+2s (8.1 µg/L, 2012-2013)
Mean (7.9 µg/L, 2012-2013)
-2s (7.7 µg/L, 2012-2013)
-3s (7.6 µg/L, 2012-2013)


Anchialine Pond A3
Salinity (PSU)
Salinity (PSU)
20
15
10
5
0
Jul-12
Jul-13
Jul-14
Jul-15
Date
A3 (n=10)
+3s (15.34 µg P/L, 2012-2013)
+2s (14.59 µg/L, 2012-2013)
Mean (13.09 µg/L, 2012-2013)
-2s (11.59 µg/L, 2012-2013)
-3s (10.84 µg/L, 2012-2013)


Anchialine Pond A3
Turbidity (NTU)
8.0
6.0
4.0
2.0
0.0
-2.0
-4.0
-6.0
Turbidity (NTU)
Jul-12
Jul-13
Jul-14
Jul-15
Date
W1 (120ft.) (n=10)
+3s (6.45 µg P/L, 2012-2013)
+2s (4.65 µg/L, 2012-2013)
Mean (1.05 µg/L, 2012-2013)
-2s (-2.56 µg/L, 2012-2013)
-3s (-4.36 µg/L, 2012-2013)


Anchialine Pond A3
Chlorophyll-a (µg Chl-a/L)
1.5
1
0.5
0
-0.5
-1
Chlorophyll-a (µg Chl-a/L)
Jul-12
Jul-13
Jul-14
Jul-15
Date
A3 (n=10)
+3s (1.3 µg P/L, 2012-2013)
+2s (.9 µg/L, 2012-2013)
Mean (.2 µg/L, 2012-2013)
-2s (-.5 µg/L, 2012-2013)
-3s (-.9 µg/L, 2012-2013)

NELHA Water Quality Laboratory

Coastal Site C24

October 1989 - December 2014

SITE ID	DATE	TIME	TIDE		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TOC	Turbidity	Salinity	TEMP	pH	DO	Chl a	Fecal Col.	Entero.
	M/D/Y	(2400)	(ft)	cycle	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)	CFU/100ml	CFU/100ml
C24	10/6/89	825	1.7	Ebb	1.87	58	4.43	62	0.28	3.9	327	9184						*8/93 STAR	22.80	26.1	8.20	7.10		NA	7
C24	11/7/89	1330	0.8	Ebb	3.68	114	88.8	1244	0.16	2.2	651	18284	3.75	116	92.4	1294	0.83	RBIDITY (N	11.92	22.5	8.15	6.89		NA	35
C24	12/4/89	1057	0.9	Ebb	3.30	102	89.3	1251	0.07	1.0	663	18621	3.49	108	22.2	311	0.93	0.56	9.75	22.4	8.11	7.97		NA	3
C24	1/29/90	1115	0.3	Ebb	3.40	105	76.3	1069	0.16	2.2	687	19295	3.50	108	79.3	1111	1.35	12.57	9.97	21.2	8.09	7.40		NA	23
C24	2/7/90	1305	0.4	Flood	3.40	105	80.8	1132	1.55	21.7	519	14576	3.55	110	83.1	1165	0.96	0.00	10.33	21.1	8.12	7.39		NA	13
C24	3/12/90	1350	0.5	Flood	2.18	68	54.8	768	0.07	1.0	187	5244	2.39	74	57.1	800	0.67	1.33	17.48	22.0	8.18	7.75		NA	4
C24	4/3/90	1115	0.5	Flood	3.45	107	93.8	1314	0.07	1.0	660	18536	3.53	109	100	1401	0.50	1.06	8.58	21.0	8.01	7.52		NA	10
C24	5/8/90	1045	0.3	Flood	2.82	87	86.7	1214	0.07	1.0	629	17666	3.03	94	94.7	1326	2.33	1.00	10.13	22.3	8.02	7.29		NA	15
C24	5/30/90	1415	0.7	Low	2.89	90	84.2	1179	0.07	1.0	635	17834	3.12	97	92.9	1301	1.52	0.02	10.46	21.1	8.01	7.12		NA	2
C24	7/9/90	930	0.6	Ebb	2.88	89	76.0	1065	0.07	1.0	365	10251	4.44	138	96.0	1345	2.12	0.11	10.03	21.4	8.03	7.27		NA	<1
C24	8/1/90	1045	1.4	Flood	2.49	77	59.5	833	0.07	1.0	512	14380	2.49	77	63.3	887	1.98	0.62	16.87	24.2	8.29	7.80		NA	<1
C24	9/11/90	1045	2.0	High	0.27	8	1.06	15	0.37	5.2	16.2	455	0.93	29	6.35	89	1.63	1.96	34.25	27.9	8.34	6.89		NA	9
C24	10/2/90	1120	0.8	Flood	2.30	71	58.5	819	0.07	1.0	620	17415	2.76	85	66.0	925	0.95	0.82	16.55	24.1	8.28	7.23		NA	7
C24	11/7/90	935	1.8	Ebb	0.72	22	30.9	433	0.20	2.8	242	6805	1.38	43	41.5	581	0.68	1.14	25.02	25.5	8.24	6.61		NA	<1
C24	12/4/90	1130	0.6	Ebb	2.47	77	70.5	987	0.22	3.1	924	25951	2.85	88	72.7	1018	0.49	0.61	14.11	21.3	8.02	6.60		NA	<1
C24	1/8/91	1015	0.9	Ebb	2.91	90	95.1	1332	0.05	0.7	631	17722	3.16	98	99.2	1389	0.65	1.26	8.81	21.0	8.04	7.50		NA	6
C24	2/12/91	1045	0.2	Low	2.00	62	82.0	1149	0.07	1.0	367	10293	2.05	63	84.5	1184	0.82	0.97	9.48	21.6	8.16	7.44		NA	8
C24	3/12/91	1049	0.4	Flood	0.77	24	13.7	192	0.33	4.6	124	3485	0.96	30	17.3	242	0.92	0.73	30.21	24.5	8.28	7.69	0.08	NA	<1
C24	4/9/91	1114	0.6	Flood	3.09	96	77.8	1090	0.07	1.0	765	21485	3.13	97	82.4	1154	0.67	0.00	10.63	20.9	7.97	7.02		NA	<1
C24	5/14/91	1023	-0.4	Low	2.63	81	74.6	1045	0.07	1.0	534	14998	3.09	96	83.8	1174	0.70	0.20	10.10	21.1	8.03	7.45	0.04	NA	10
C24	6/3/91	1252	0.4	Low	2.79	86	81.6	1143	0.07	1.0	641	18008	3.18	98	90.1	1262	0.97	0.27	9.13	21.5	8.07	7.39	0.03	107	4
C24	7/8/91	1059	1.2	Flood	0.80	25	23.3	326	0.40	5.6	98.0	2752	1.01	31	26.0	364	0.86	0.40	27.28	25.6	8.36	8.53	0.03	1	<1
C24	8/7/91	919	0.2	Flood	2.40	74	49.0	686	0.07	1.0	440	12358	2.48	77	54.7	766	0.68	0.11	9.90	21.3	7.99	6.92	0.06	91	68
C24	9/4/91	1046	1.5	Flood	0.92	28	24.7	346	0.93	13.0	233	6544	1.13	35	29.3	410	0.92	0.22	26.73	26.0	8.32	8.55	0.09	64	<1
C24	10/7/91	1151	0.5	Low	2.80	87	89.2	1249	0.02	0.3	579	16262	2.84	88	91.7	1284	0.59	0.14	11.77	21.4	7.95	7.15	0.06	3	2
C24	11/5/91	1006	0.5	Low	2.12	66	83.6	1171	0.07	1.0	535	15026	2.14	66	84.7	1186	1.10	0.71	13.26	22.4	8.12	7.39	0.03	1	3
C24	12/2/91	1020	0.6	Low	1.82	56	77.1	1080	0.07	1.0	481	13509	1.95	60	80.4	1126	0.70	0.71	14.81	22.7	8.16	7.54	0.29	22	16
C24	1/6/92	1017	0.6	Ebb	2.39	74	95.1	1332	0.07	1.0	451	12667	2.39	74	99.2	1389	0.80	0.28	12.62	21.2	8.04	7.12	0.07	4	2
C24	2/24/92	1232	0.3	Ebb	0.53	16	34.7	486	0.17	2.4	216	6066	0.68	21	38.1	534	0.96	1.01	25.61	24.4	8.32	7.49	0.19	<1	1
C24	3/23/92	1100	0.2	Ebb	3.12	97	73.4	1028	0.04	0.6	742	20839	3.31	103	97.7	1369	0.67	0.23	9.69	21.1	8.05	7.68	0.20	<1	2
C24	4/20/92	1022	-0.1	Low	2.69	83	45.8	642	0.11	1.5	864	24266	2.79	86	101	1421	0.62	0.42	10.04	21.3	8.05	7.66	0.07	27	1
C24	5/18/92	1206	0.2	Flood	2.74	85	87.5	1225	0.23	3.2	779	21879	2.78	86	88.5	1240	1.31	0.50	12.21	22.4	8.11	8.09	0.19	5	2
C24	6/16/92	1231	0.4	Flood	2.68	83	93.5	1310	0.02	0.3	648	18199	2.78	86	94.0	1316	0.81	0.22	10.74	22.0	8.08	7.93	0.16	3	2
C24	7/22/92	1102	1.5	High	1.55	48	48.6	680	0.84	11.8	393	11038	1.72	53	53.5	749	0.81	2.47	21.99	25.4	8.28	8.05	0.13	5	2
C24	8/17/92	940	1.1	Ebb	3.09	96	44.8	628	0.07	1.0	190	5336	3.09	96	76.3	1068	0.90	0.20	10.74	21.8	8.00	7.66	0.03	1	<1
C24	9/8/92	1059	1.0	Flood	0.66	20	1.08	15	0.66	9.2	11.0	309	0.75	23	7.49	105	1.03	0.24	18.51	24.3	8.25	8.44	0.21	36	1
C24	10/19/92	1057	2.0	High	1.98	61	63.3	886	0.62	8.7	73.7	2070	2.35	73	63.6	891	1.33	2.60	34.32	28.8	8.31	7.47	0.08	67	1
C24	11/23/92	1124	0.4	Low	1.88	58	22.2	312	0.38	5.3	35.4	995	2.56	79	65.9	923	0.95	0.94	18.37	23.7	8.24	7.86	0.06	2	2
C24	12/21/92	1055	0.4	Low	2.17	67	63.2	885	0.34	4.8	649	18227	3.28	102	72.0	1008	0.77	1.02	15.89	22.5	8.23	8.02	0.10	<1	1
C24	1/19/93	1016	0.3	Low	2.47	77	94.7	1327	0.54	7.6	221	6204	2.61	81	105	1466	0.66	1.02	11.16	21.4	8.13	7.73	0.00	8	10
C24	2/17/93	1041	0.3	Low	0.63	20	39.4	552	0.33	4.6	435	12217	0.63	20	41.0	575	0.97	0.19	24.36	23.5	8.33	7.89	0.08	1	<1
C24	3/22/93	952	0.0	Low	2.16	67	96.8	1356	0.03	0.4	631	17719	2.17	67	217	3044	0.64	0.50	10.36	21.3	8.16	7.81	0.13	<1	<1
C24	4/19/93	1040	0.3	Flood	1.62	50	71.1	995	0.25	3.5	566	15888	1.86	58	72.7	1019	0.64	0.33	16.10	22.7	8.30	8.70	0.20	<1	<1
C24	5/17/93	939	0.3	Flood	1.83	57	74.5	1043	0.31	4.3	593	16649	2.13	66	81.4	1141	0.68	0.22	14.75	22.0	8.22	8.22	0.08	3	<1
C24	6/14/93	1013	1.0	Flood	0.69	21	15.6	219	0.60	8.4	109	3050	0.81	25	18.7	262	1.19		30.09	25.9	8.33	7.97	0.36	2	2
C24	8/17/93	1040	0.2	Flood	2.78	86	92.2	1291	0.15	2.1	237	6659	2.78	86	98.4	1379	0.65	0.54	11.37	22.0	8.10	7.76	0.15	2	6
C24	12/21/93	1102	1.0	Ebb	0.46	14	33.7	471	0.44	6.2	204	5734	0.62	19	39.6	554	0.94	0.12	25.96	24.0	8.24	7.70	0.11	<1	<1
C24	2/23/94	1117	0.3	Flood	1.73	54	55.4	776	0.33	4.6	389	10925	1.93	60	85.9	1204	0.75	0.51	18.72	22.9	8.26	7.88	0.09	1	<1
C24	5/24/94	1028	-0.2	Flood	2.02	63	69.7	976	0.33	4.6	460	12917	2.05	63	73.9	1035	0.65	0.29	17.08	23.1	8.26	8.64	0.27	24	35
C24	7/25/94	1120	0.3	Low	2.74	85	51.4	719	0.43	6.0	105	2939	2.66	82	103	1439	0.68	0.29	11.74	22.5	8.11	7.92	0.00	1	1
C24	10/18/94	1116	0.6	Low	2.78	86	90.2	1264	0.09	1.3	593	16649	2.75	85	88.9	1245	0.76	0.50	11.86	22.3	8.13	8.29	0.18	1	1
C24	2/21/95	1137	0.5	Ebb	2.68	83	91.7	1284	0.20	2.8	712	19988	2.68	83	97.7	1369	0.62	0.10	10.97	21.5	8.13	7.96	0.11	<1	13
C24	4/19/95	1125	0.1	Low	2.67	83	93.3	1307	0.49	6.9	707	19856	2.66	82	100	1403	0.77	0.24	10.93	22.0	8.15	8.02	0.13	1	1

NELHA Water Quality Laboratory

Coastal Site C24

October 1989 - December 2014

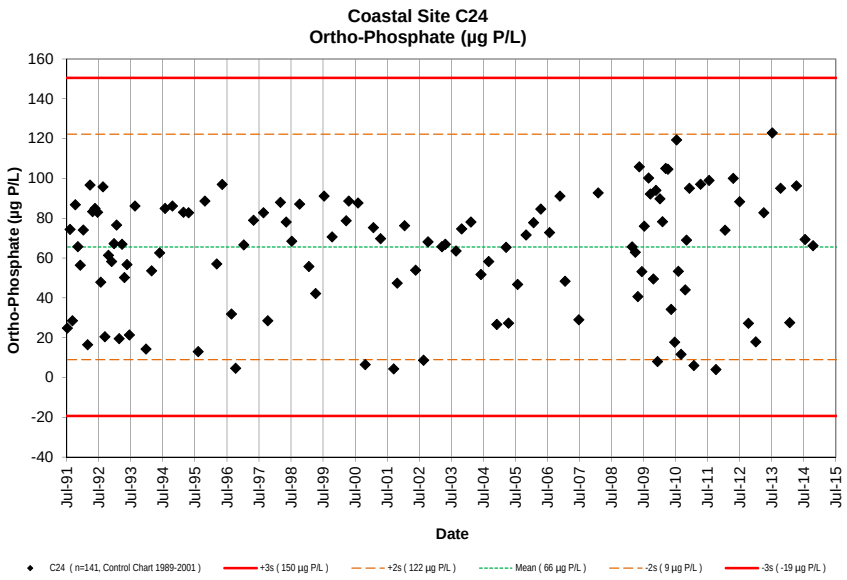
SITE ID	DATE	TIME	TIDE		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TOC	Turbidity	Salinity	TEMP	pH	DO	Chl a	Fecal Col.	Entero.
	M/D/Y	(2400)	(ft)	cycle	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)	CFU/100ml	CFU/100ml
C24	8/8/95	1146	1.1	Flood	0.42	13	4.60	64	0.92	12.9	53.7	1507	0.63	20	11.6	162	0.89	0.66	32.63	27.4	8.35	8.04	0.22	1	<1
C24	10/23/95	1027	0.3	Low	2.86	89	90.0	1260	0.64	9.0	58.6	1646	2.87	89	99.6	1395	0.82	0.19	11.81	21.9	8.08	7.80	0.29	1	<1
C24	3/6/96	1115	0.0	Low	1.84	57	95.1	1332	0.36	5.0	600	16851	2.00	62	93.3	1307	0.87	0.20	10.13	22.0	8.17	7.61	0.05	5	1
C24	5/7/96	1129	0.0	Low	3.13	97	95.9	1343	0.23	3.2	614	17250	3.10	96	102	1426	0.70	0.64	10.52	22.4	8.01	7.56	0.05	3	3
C24	8/21/96	1110	1.6	Ebb	1.03	32	36.5	511	1.27	17.8	225	6313	1.18	37	39.7	556	0.90	0.34	25.56	27.6	8.30	7.93	0.17	1	1
C24	10/7/96	1116	1.6	Flood	0.15	5	0.80	11	1.00	14.0	22.5	633	0.37	11	7.29	102	1.20	0.22	34.24	29.0	8.34	7.43	0.24	<1	1
C24	1/8/97	1045	0.1	Low	2.15	67	70.0	980	0.22	3.1	469	13178	2.19	68	76.0	1064	0.77	0.54	13.40	22.6	8.21	7.78	0.42	<1	1
C24	4/29/97	1051	0.6	High	2.55	79	42.1	590	0.78	10.9	307	8619	2.70	84	39.9	559	0.85	0.22	23.62	24.8	8.35	7.90	0.10	5	<1
C24	8/20/97	1147	0.2	Low	2.67	83	93.7	1313	0.75	10.5	552	15503	2.70	84	104	1460	0.73	1.21	11.78	22.5	8.29	7.82	0.16	5	2
C24	10/8/97	1028	1.8	Ebb	0.92	28	30.4	426	0.72	10.1	193	5421	1.11	34	33.3	466	0.94	0.15	27.08	26.9	8.50	7.54	0.26	<1	1
C24	3/2/98	1131	0.3	Ebb	2.84	88	103	1447	0.29	4.1	643	18051	3.02	94	110	1535	0.58	0.27	10.40	21.5	8.26	7.75	0.00	1	1
C24	5/6/98	1118	0.6	Flood	2.52	78	83.6	1171	0.51	7.1	489	13742	2.59	80	87.7	1228	0.60	0.14	14.95	21.7	8.21	8.30	0.10	<1	<1
C24	7/8/98	1141	0.9	Flood	2.21	68	69.8	978	0.82	11.5	442	12411	2.22	69	78.6	1101	0.72	0.25	17.49	23.7	8.28	8.91	0.14	2	<1
C24	10/7/98	1045	0.4	Ebb	2.81	87	99.7	1397	0.42	5.9	559	15711	2.92	90	104	1453	0.71	0.15	12.88	22.8	8.04	7.87	0.11	9	<1
C24	1/20/99	1110	0.6	Ebb	1.80	56	86.9	1217	0.26	3.6	462	12978	1.89	59	87.4	1224	0.79	0.31	15.98	22.5	8.16	7.80	0.12	1	<1
C24	4/7/99	1142	0.4	Ebb	1.36	42	75.8	1062	0.31	4.3	378	10628	1.46	45	78.3	1097	0.72	0.29	18.26	23.1	8.30	8.54	0.24	<1	1
C24	7/12/99	1035	0.2	Flood	2.94	91	105	1476	0.46	6.4	598	16781	3.01	93	110	1534	0.65	0.31	11.15	21.9	8.05	7.83	0.24	6	9
C24	10/11/99	1103	0.5	Low	2.28	71	96.6	1353	0.43	6.0	557	15644	2.46	76	103	1443	0.72	0.27	12.32	22.2	8.17	8.02	0.20	1	5
C24	3/20/00	1130	0.0	Flood	2.54	79	22.0	308	0.33	4.6	547	15368	2.30	71	112	1572	0.59	0.27	11.29	21.5	8.13	7.97	0.30	<1	<1
C24	4/18/00	1127	0.2	Flood	2.86	89	98.6	1381	0.43	6.0	559	15694	2.30	71	105	1466	0.65	0.23	12.44	23.4	8.17	8.22	0.20	2	2
C24	8/2/00	1048	0.2	Low	2.83	88	81.8	1146	0.24	3.4	560	15731	2.95	91	90.8	1272	0.53	0.27	13.00	21.6	7.97	7.08	0.13	2	15
C24	10/23/00	1126	1.7	Flood	0.21	7	0.77	11	0.52	7.3	37.6	1056	0.48	15	7.04	99	1.06	0.20	34.54	26.9	8.36	7.54	0.26	<1	<1
C24	1/23/01	1118	0.3	Low	2.43	75	95.7	1340	0.32	4.5	572	16073	2.45	76	101	1408	0.66	0.26	12.39	25.2	8.13	7.47	0.13	<1	5
C24	4/16/01	1105	0.5	Flood	2.25	70	50.3	705	0.33	4.6	503	14119	2.48	77	89.1	1248	0.76	0.09	14.97	22.9	8.20	8.54	0.18	<1	<1
C24	9/12/01	1125	2.1	Flood	0.14	4	0.38	5	0.35	4.9	14.6	411	0.30	9	6.25	88	1.11	0.25	34.76	28.2	8.30	7.65	0.42	1	1
C24	10/23/01	1135	1.7	Ebb	1.53	47	56.6	793	0.58	8.1	334	9383	1.63	50	58.3	817	0.80	0.11	22.07	25.0	8.23	8.08	0.32	1	1
C24	1/14/02	1153	0.2	Low	2.46	76	96.7	1354	0.20	2.8	587	16492	2.28	71	88.2	1236	0.61	0.23	11.97	21.8	8.05	6.40	0.06	10	5
C24	5/20/02	1150	0.9	High	1.74	54	67.3	943	0.70	9.8	412	11580	1.88	58	60.2	843	0.69	0.13	18.95	24.1	8.25	8.66	0.16	1	1
C24	8/19/02	1153	1.7	Flood	0.28	9	2.63	37	0.47	6.6	29.2	820	0.52	16	8.68	122	1.09	0.14	33.75	27.9	8.32	7.76	0.10	<1	<1
C24	10/10/02	1134	1.1	Ebb	2.20	68	77.9	1091	0.77	10.8	475	13327	2.39	74	78.0	1093	0.81	0.36	16.24	23.8	8.15	7.52	0.13	34	9
C24	3/17/03	1112	-0.1	Flood	2.12	66	93.6	1311	0.60	8.4	562	15778	2.24	69	109	1527	0.47	0.60	12.34	22.6	8.18	8.17	0.50	11	1
C24	4/24/03	1142	0.5	Flood	2.16	67	92.6	1297	0.75	10.5	517	14520	2.28	71	99.7	1396	0.95	0.18	14.61	23.2	8.30	8.54	0.09	1	1
C24	8/25/03	1050	0.9	Flood	2.05	63	78.3	1097	0.75	10.5	467	13102	2.15	67	107	1496	1.23	0.20	17.02	24.0	8.25	8.77	0.41	1	2
C24	10/27/03	1208	0.4	Ebb	2.41	75	50.4	706	0.54	7.6	278	7819	2.71	84	72.7	1018	2.10	0.23	13.68	23.3	8.10		0.14	1	1
C24	12/5/03	1052	0.8	Flood												0						8.12			
C24	2/9/04	1155	0.0	Ebb	2.52	78	108	1511	0.24	3.4	584	16405	2.49	77	115	1611	1.52	0.52	12.08	22.1	8.05	7.84	0.13	14	1
C24	6/3/04	1145	0.1	Flood	1.67	52	65.6	919	0.94	13.2	367	10296	1.77	55	81.7	1145	1.42	0.54	19.45	25.1	8.31	8.64	0.02	5	1
C24	8/31/04	1106	0.2	Low	1.88	58	79.9	1119	0.58	8.1	423	11891	1.82	56	80.6	1129		0.19	17.30	24.3	8.26	8.00	0.16	4	1
C24	12/1/04	1032	1.6	Ebb	0.86	27	36.3	508	0.68	9.5	180	5044	1.08	33	43.7	612	1.06	0.26	26.98	25.6	8.32	7.40	0.21	<1	<1
C24	3/17/05	1112	0.3	Ebb	2.11	65	105	1468	0.53	7.4	566	15899	2.24	69	111	1548		0.14	11.33	24.7	8.35	8.82	0.18	1	<1
C24	4/14/05	1154	0.2	Ebb	0.88	27	27.6	386	0.78	10.9	162	4553	1.08	33	33.1	463	1.10	0.31	28.20	25.7	8.42	8.18	0.25	1	2
C24	7/26/05	1132	1.1	Ebb	1.51	47	60.6	849	0.50	7.0	298	8375	1.59	49	76.4	1070	1.02	0.22	22.89	25.6	8.34	7.93	0.06	2	<1
C24	8/8/05	926	0.7	Ebb												0			16.13	22.7				1	2
C24	10/31/05	1043	0.6	Flood	2.31	72	98.2	1375	0.93	13.0	454	12742	2.42	75	105	1471	0.69	0.25	13.37	23.5	8.25	8.14	0.27	10	1
C24	1/25/06	1126	0.4	Flood	2.51	78	115	1615	0.52	7.3	545	15307	2.53	78	110	1539	0.59	0.22		22.4	8.23	8.44	0.27	2	1
C24	4/17/06	1115	-0.2	Low	2.73	85	124	1737	0.33	4.6	561	15756	2.94	91	121	1688	0.63	0.35	12.59	24.9	8.13	8.37	0.30	3	2
C24	7/26/06	1233	0.6	Flood	2.35	73	78.7	1102	0.88	12.3	430	12077	2.40	74	72.6	1016	0.83	0.97	18.43	23.8	8.24	9.17	0.22	5	2
C24	11/21/06	1123	0.4	Low	2.94	91	122	1709	0.44	6.2	543	15250	2.95	91	108	1517	0.58	0.22	13.48	22.4	8.06	7.82	0.27	3	2
C24	1/18/07	1201	0.2	Flood	1.56	48	80.0	1121	0.78	10.9	368	10335	1.64	51	81.6	1143	0.87	0.39	20.12	23.8	8.32	8.64	0.26	1	<1
C24	6/25/07	1127	1.5	Flood	0.93	29	29.45	413	0.92	12.9	140	3931	1.95	60	31.01	434		0.29	28.73	26.7	8.44	9.71	0.31	4	<1
C24	2/1/08	1334	0.5	High	3.0	93	107	1497	0.5	7	605	16989	2.5	77	102	1425		0.41	10.76	21.7	7.99	8.30			
C24	2/20/09	1105	0.3	Flood	2.1	66	55.3	775	0.4	6	222	6239	2.4	74	131	1832		0.19	14.96	22.5	8.00	7.63	0.02		
C24	3/30/09	1000	0.3	Ebb	2.0	63	93	1297	1.2	17	321	9028	3.4	104	97	1353		0.65	13.79	22.4	7.78	6.62	0.05		
C24	4/27/09	1356	0.3	Flood	1.3	41	55	777	3.1	44	221	6199	1.9	58	80	1117		0.48	25.09	25.0	8.42	6.21	0.05		
C24	5/14/09	946	0.4	Ebb	3.4	106	125	1747	1.0	14	504	14154	3.2	100	119	1671		0.34	13.45	22.7	7.94	6.75	0.13		
C24	6/12/09	816	0.6	High	1.7	53	108	1513	1.0	14	408	11447	2.1	66	122	1705		0.34	15.76	23.3	8.06	6.48	0.18		
C24	7/10/09	901	0.3	Ebb	2.5	76	84	1182	0.7	10	375	10536	6.3	196	87	1222		1.35	12.61	22.3	8.01	6.54	0.09		

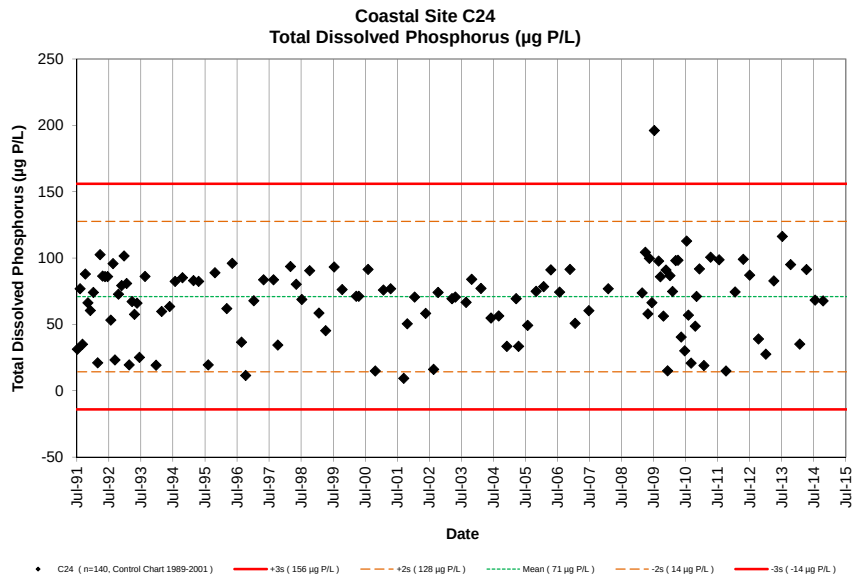
NELHA Water Quality Laboratory

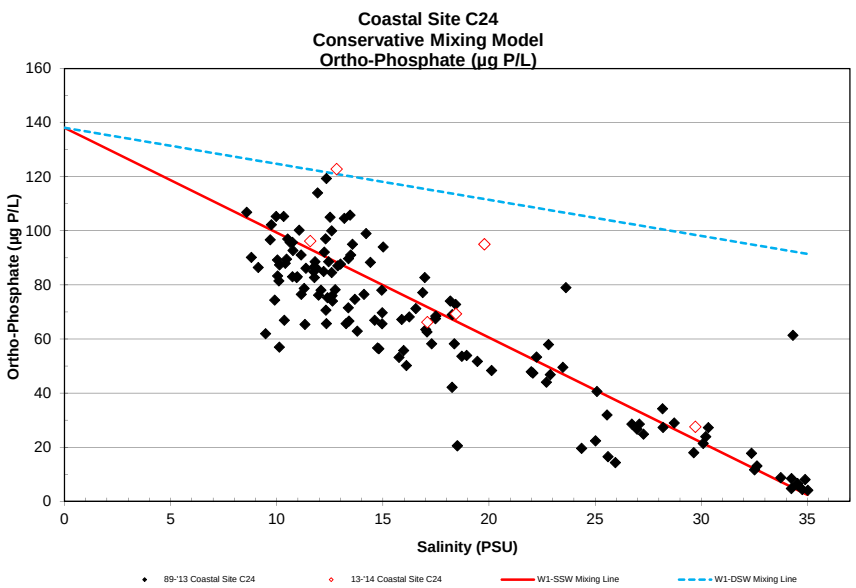
Coastal Site C24

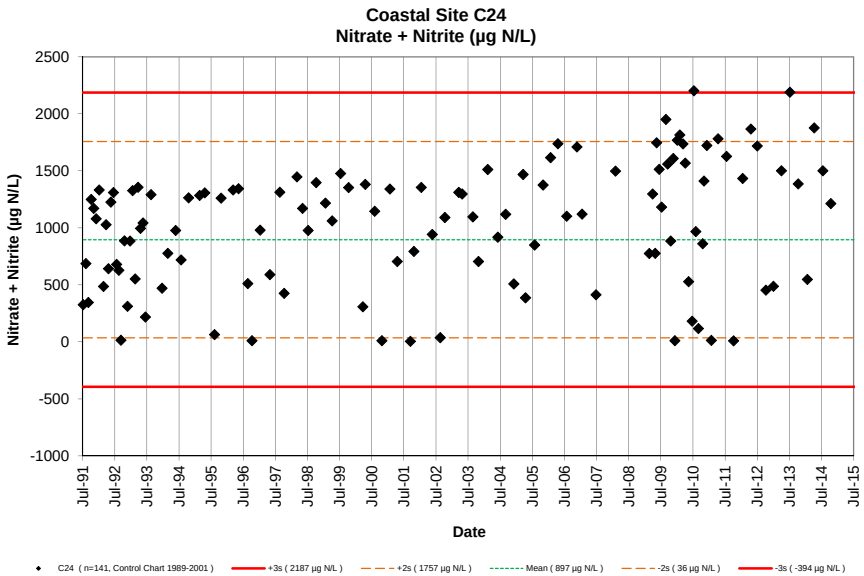
October 1989 - December 2014

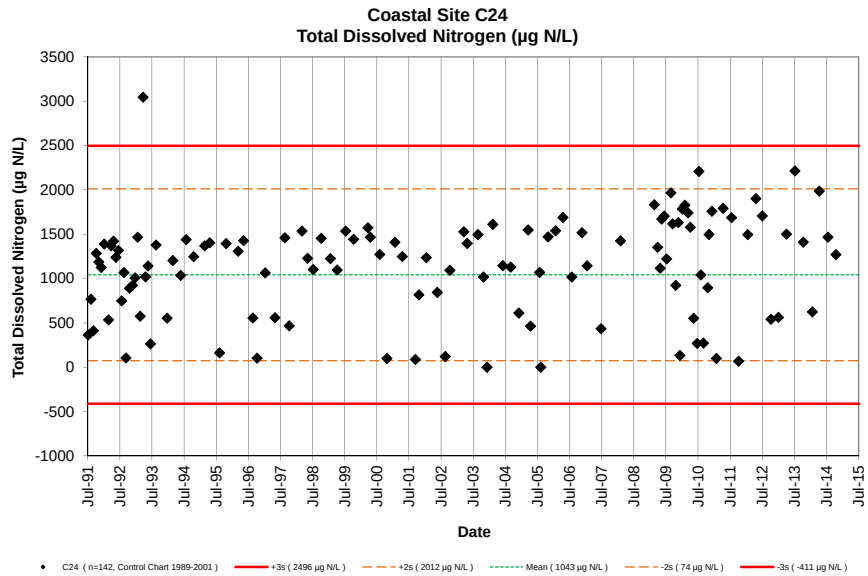
SITE ID	DATE	TIME	TIDE		PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TOC	Turbidity	Salinity	TEMP	pH	DO	Chl a	Fecal Col.	Entero.
	M/D/Y	(2400)	(ft)	cycle	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(NTU)	(PSU)	(˚C)	(unit)	(ppm)	(µg/L)	CFU/100ml	CFU/100ml
C24	8/27/09	822	1.8	High	3.2	100	139	1951	0.5	7	493	13854	3.2	98	140	1966		0.22	11.06	22.3	8.16	6.11	0.08		
C24	9/17/09	906	0.2	Flood	3.0	92	111	1559	0.5	7	384	10788	2.8	86	115	1615		0.29	12.24	22.5	8.32	6.03	0.23		
C24	10/22/09	908	1.9	Ebb	1.6	50	63	885	2.4	34	120	3368	1.8	56	66	924		0.54	23.48	23.8	7.96	6.42	1.57		
C24	11/19/09	1010	1.7	Ebb	3.0	94	115	1608	0.8	11	410	11515	2.9	91	116	1630		0.21	15.01	22.4	7.89	5.62	0.51		
C24	12/7/09	754	2.0	High	0.3	8	1	10	1.1	15	24	688	0.5	15	9	133		0.24	34.89	24.8	8.19	6.52	0.76		
C24	1/4/10	1343	0.0	Low	2.9	90	126	1768	0.5	7	505	14189	2.8	87	127	1784		0.50	13.38	21.9	7.70	7.18	1.26		
C24	2/2/10	1329	-0.2	Low	2.5	78	130	1814	1.4	19	524	14707	2.4	75	130	1827		0.55	12.75	21.9	7.79	6.91	0.55		
C24	3/10/10	1245	0.7	High	3.4	105	124	1736	0.2	3	417	11703	3.2	98	124	1740		0.44	12.51	21.8	7.99	6.50	0.64		
C24	4/5/10	947	0.4	High	3.4	105	112.0	1568	0.7	10	564	15850	3.2	98	113	1578		0.11	13.18	21.8	8.10	7.53	0.06		
C24	5/12/10	1224	1.5	Flood	1.1	34	37.7	528	2.8	40	200	5605	1.3	40	39	553		0.17	28.18	26.1	8.20	6.40	0.07		
C24	6/21/10	959	1.3	Flood	0.6	18	13.0	182	0.9	12	84	2369	1.0	30	19	268		0.25	32.37	25.7	8.29	7.58	0.45		
C24	7/12/10	951	-0.1	Low	3.9	119	157.2	2201	2.1	30	622	17471	3.6	113	158	2207		0.42	12.34	22.6	7.94	6.07	0.08		
C24	8/2/10	1205	1.3	Ebb	1.7	53	69.1	967	0.8	12	326	9160	1.8	57	74	1041		0.91	22.24	26.3	8.20	7.40	0.26		
C24	9/1/10	1038	1.8	Flood	0.4	12	8.4	117	0.9	12	68	1910	0.7	21	19	272		0.16	32.51	27.2	8.31	8.25	0.18		
C24	10/19/10	1100	1.1	Flood	1.4	44	61.4	860	0.9	13	303	8510	1.6	49	64	896		0.20	22.71	24.6	8.28	8.22	0.18		
C24	11/3/10	935	0.5	Low	2.2	69	100.7	1411	0.8	11	472	13259	2.3	71	107	1497		0.64	18.27	23.4	8.16	7.45	0.12		
C24	12/6/10	918	0.8	Ebb	3.1	95	122.9	1722	0.6	9	587	16477	3.0	92	125	1758		0.06	13.57	21.9	7.94	6.68	0.09		
C24	1/26/11	953	0.8	Ebb	0.2	6	0.9	13	0.3	4	11	313	0.6	19	7	99		0.46	34.53	25.3	8.23	6.36	0.17		
C24	4/13/11	936	0.3	Flood	3.1	97	127.2	1781	0.4	6	587	16493	3.2	101	128	1791		0.48	12.30	22.1	8.07	7.60	0.17		
C24	7/18/11	900	0.7	Ebb	3.2	99	116.2	1627	0.6	8	545	15293	3.2	99	120	1686		0.27	14.21	21.9	7.89	7.23	0.12		
C24	10/5/11	936	1.4	Flood	0.1	4	0.6	9	1.6	22	9	248	0.5	15	5	68		0.07	35.02	27.0	8.17	6.82	0.21		
C24	1/17/12	810	0.7	Flood	2.4	74	102.3	1433	0.5	7	455	12771	2.4	74	107	1494		0.23	18.18	21.8	7.94	7.09	0.06		
C24	4/19/12	1028	0.3	Flood	3.2	100	133.2	1866	0.7	10	587	16487	3.2	99	136	1900		0.07	12.59	21.7	7.97	7.23	0.02		
C24	7/1/12	1058	1.2	Ebb	2.9	88	122.6	1718	0.8	11	516	14484	2.8	87	122	1706		0.10	14.41	22.4	8.03	8.01	0.03		
C24	10/8/12	1026	1.8	High	0.9	27	32.4	454	1.3	19	139	3917	1.3	39	39	542		0.20	30.33	26.7	8.24	7.64	0.10		
C24	1/1/13	1028	1.2	Ebb	0.6	18	34.8	488	1.7	23	125	3498	0.9	28	40	563		0.09	29.65	24.8	8.24	6.63	0.17		
C24	4/1/13	1008	0.4	Ebb	2.7	83	107.1	1500	0.7	10	421	11837	2.7	83	107	1501		1.26	16.97	22.4	8.11	8.12	0.11		
C24	7/8/13	937	-0.1	Low	4.0	123	156.3	2189	1.3	18	575	16139	3.8	116	158	2212		0.84	12.82	21.9	7.83	6.63	0.02		
C24	10/10/13	1036	1.8	Ebb	3.1	95	99.0	1386	0.7	10	433	12161	3.1	95	101	1411		0.13	19.78	23.8	8.08	7.47	0.07		
C24	1/22/14	845	0.7	High	0.9	28	39.1	548	0.7	10	142	3989	1.1	35	45	624		0.02	29.72	23.9	8.02	6.35	0.12		
C24	4/9/14	1024	0.7	Flood	3.1	96	133.9	1876	1.0	14	534	15012	2.9	91	142	1985		0.40	11.58	22.6	7.92	7.25	0.06		
C24	7/16/14	1042	0.5	Ebb	2.2	69	107.1	1501	1.5	21	388	10899	2.2	68	105	1466		0.17	18.44	24.5	8.05	7.29	0.25		
C24	10/15/14	1213	1.5	Ebb	2.1	66	86.6	1213	0.9	13	371	10431	2.2	68	91	1271		0.10	17.09	25.0	8.17	7.49	0.06		
C24	1/1/15																								
C24	4/1/15																								

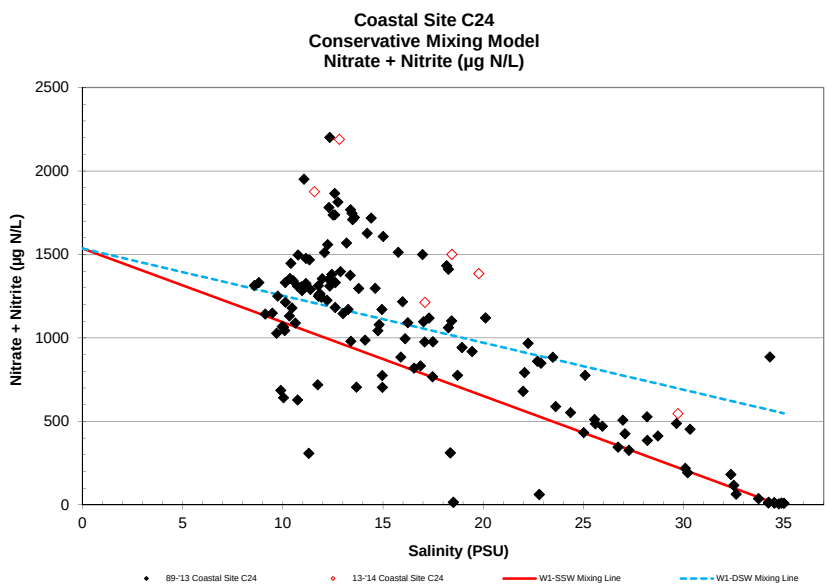

Coastal Site C24
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Date
C24 (n=141, Control Chart 1989-2001)
+3s (150 µg P/L)
+2s (122 µg P/L)
Mean (66 µg P/L)
-2s (9 µg P/L)
-3s (-19 µg P/L)

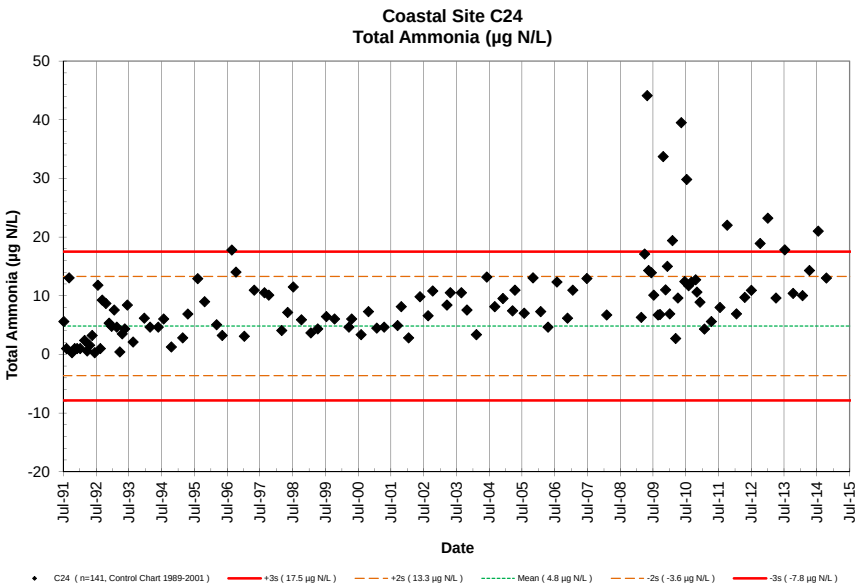

Coastal Site C24
Total Dissolved Phosphorus (µg P/L)
Total Dissolved Phosphorus (µg P/L)
Date
C24 (n=140, Control Chart 1989-2001)
+3s (156 µg P/L)
+2s (128 µg P/L)
Mean (71 µg P/L)
-2s (14 µg P/L)
-3s (-14 µg P/L)

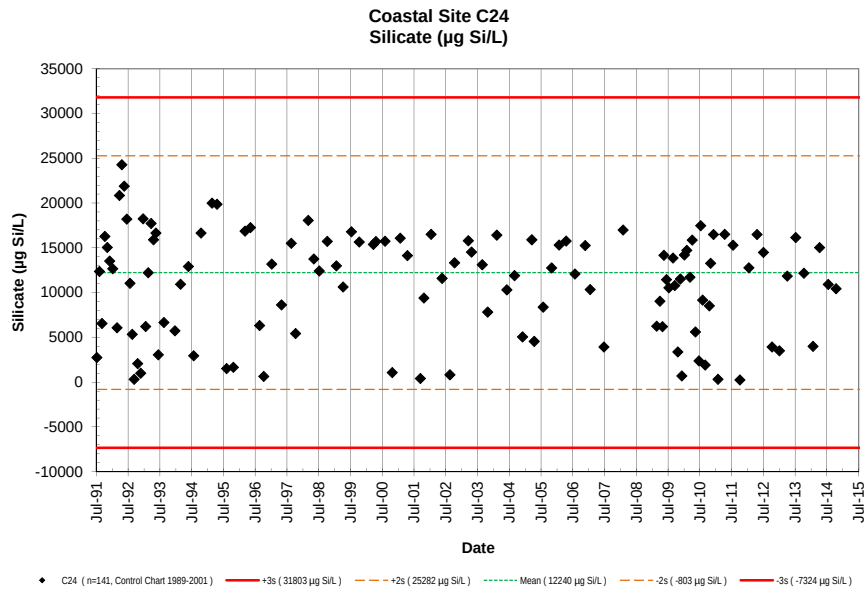

Coastal Site C24
Conservative Mixing Model
Ortho-Phosphate (µg P/L)
Ortho-Phosphate (µg P/L)
Salinity (PSU)
89-'13 Coastal Site C24
13-'14 Coastal Site C24
W1-SSW Mixing Line
W1-DSW Mixing Line

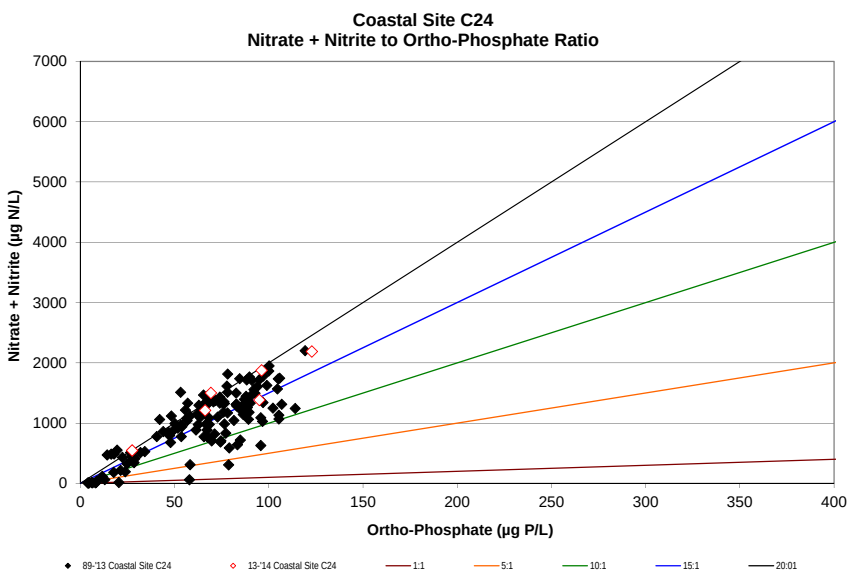

Coastal Site C24
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Date
C24 (n=141, Control Chart 1989-2001)
+3s (2187 µg N/L)
+2s (1757 µg N/L)
Mean (897 µg N/L)
-2s (36 µg N/L)
-3s (-394 µg N/L)

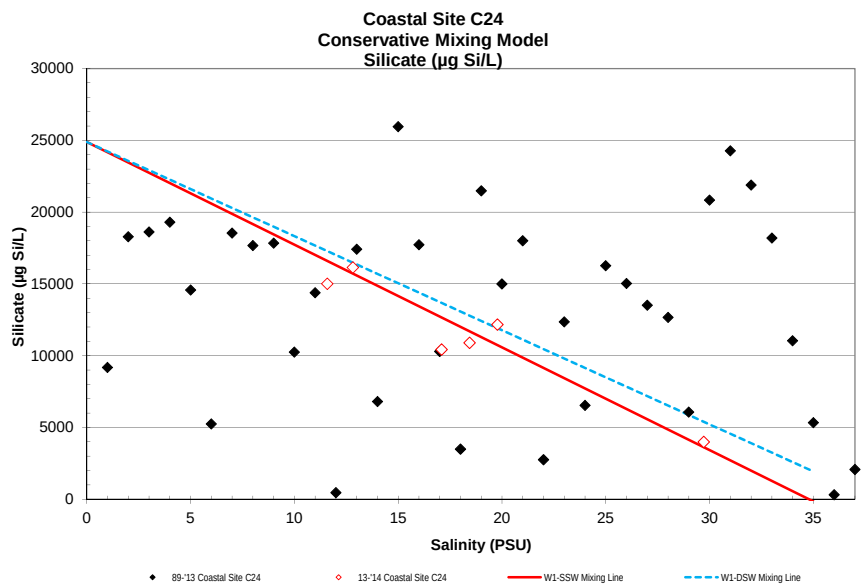

Coastal Site C24
Total Dissolved Nitrogen (µg N/L)
Total Dissolved Nitrogen (µg N/L)
Date
C24 (n=142, Control Chart 1989-2001)
+3s (2496 µg N/L)
+2s (2012 µg N/L)
Mean (1043 µg N/L)
-2s (74 µg N/L)
-3s (-411 µg N/L)

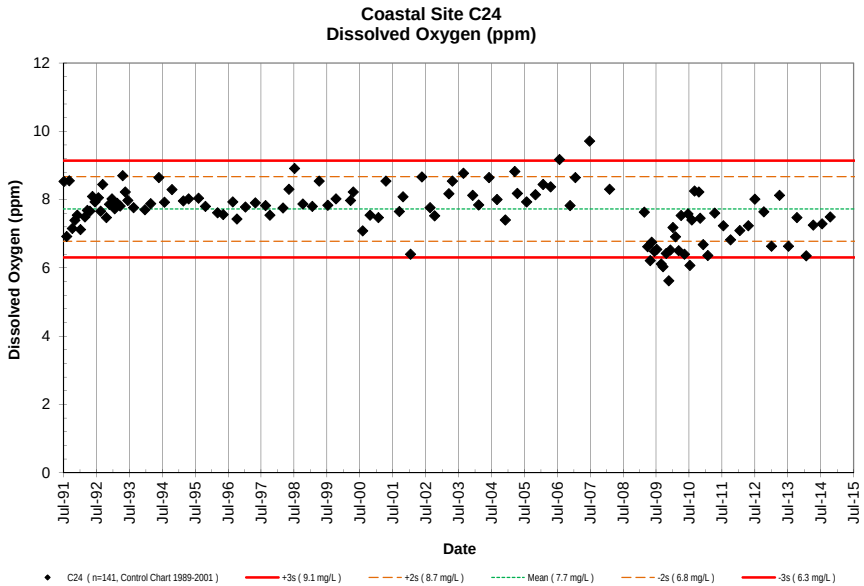

Coastal Site C24
Conservative Mixing Model
Nitrate + Nitrite (µg N/L)
Nitrate + Nitrite (µg N/L)
Salinity (PSU)
89-'13 Coastal Site C24
13-'14 Coastal Site C24
W1-SSW Mixing Line
W1-DSW Mixing Line

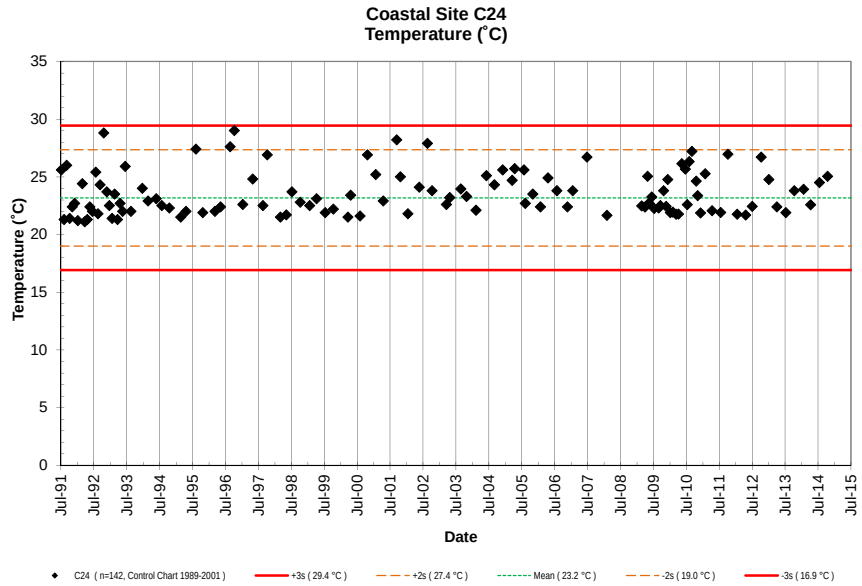

Coastal Site C24
Total Ammonia (µg N/L)
Total Ammonia (µg N/L)
Date
C24 (n=141, Control Chart 1989-2001)
+3s (17.5 µg N/L)
+2s (13.3 µg N/L)
Mean (4.8 µg N/L)
-2s (-3.6 µg N/L)
-3s (-7.8 µg N/L)

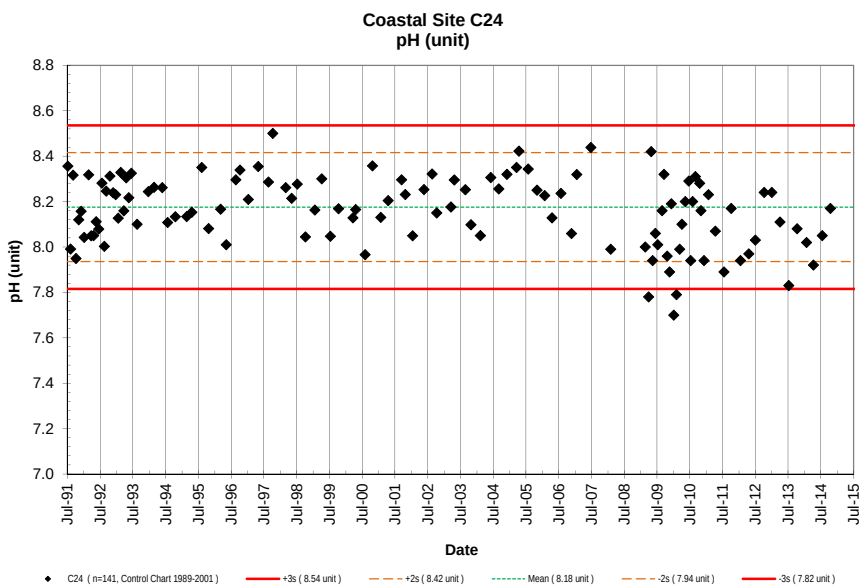

Coastal Site C24
Silicate (µg Si/L)
Silicate (µg Si/L)
Date
C24 (n=141, Control Chart 1989-2001)
+3s (31803 µg Si/L)
+2s (25282 µg Si/L)
Mean (12240 µg Si/L)
-2s (-803 µg Si/L)
-3s (-7324 µg Si/L)

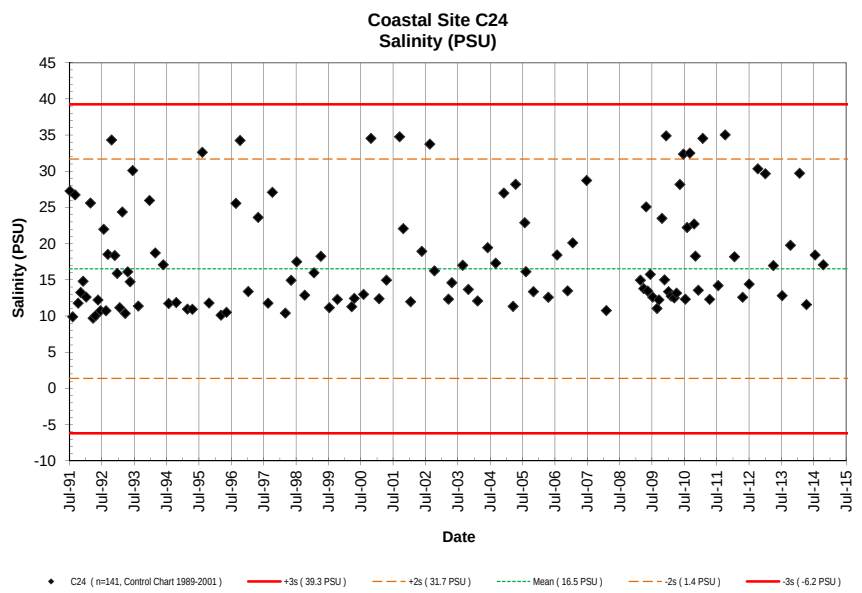

Coastal Site C24
Nitrate + Nitrite to Ortho-Phosphate Ratio
Nitrate + Nitrite (µg N/L)
Ortho-Phosphate (µg P/L)
89-'13 Coastal Site C24
13-'14 Coastal Site C24
1:1
5:1
10:1
15:1
20:01

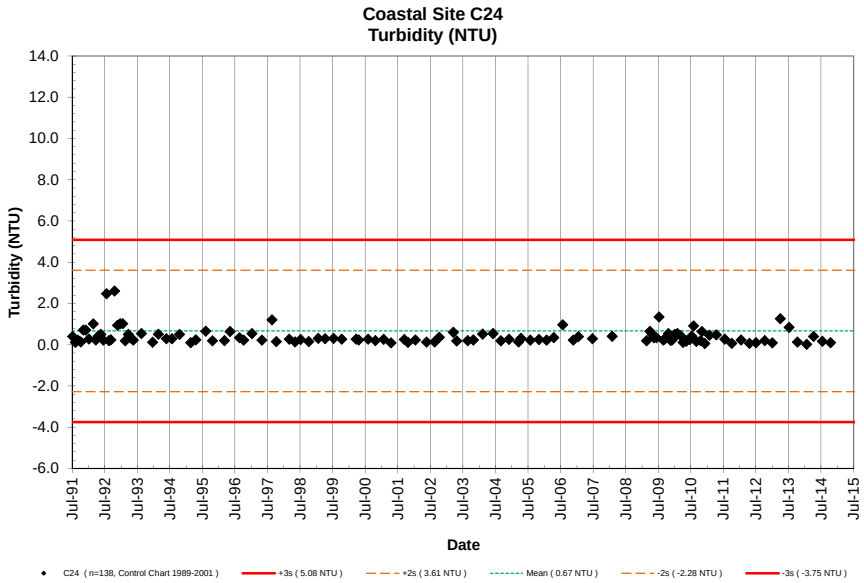

Coastal Site C24
Conservative Mixing Model
Silicate (µg Si/L)
Silicate (µg Si/L)
Salinity (PSU)
89-'13 Coastal Site C24
13-'14 Coastal Site C24
W1-SSW Mixing Line
W1-DSW Mixing Line

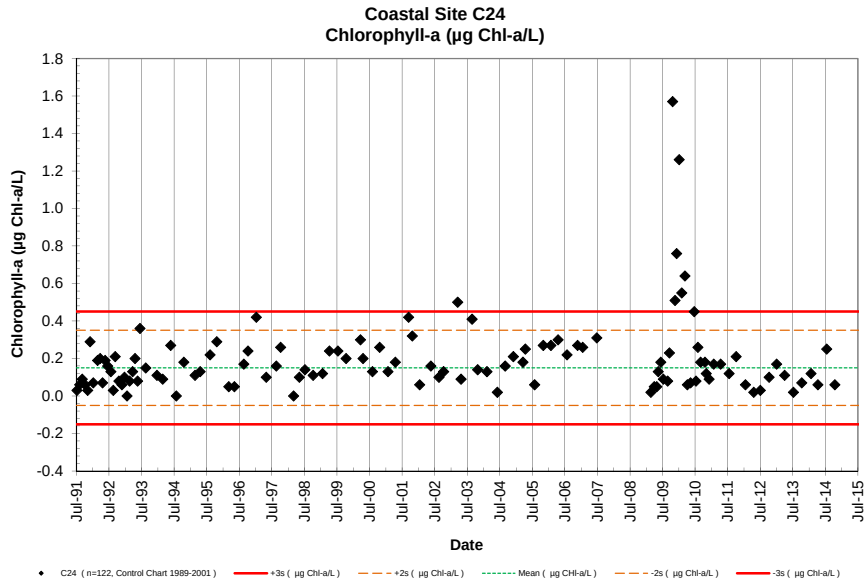

Coastal Site C24
Dissolved Oxygen (ppm)
Dissolved Oxygen (ppm)
Date
C24 (n=141, Control Chart 1989-2001)
+3s (9.1 mg/L)
+2s (8.7 mg/L)
Mean (7.7 mg/L)
-2s (6.8 mg/L)
-3s (6.3 mg/L)


Coastal Site C24
Temperature (˚C)
Temperature (˚C)
Date
C24 (n=142, Control Chart 1989-2001)
+3s (29.4 °C)
+2s (27.4 °C)
Mean (23.2 °C)
-2s (19.0 °C)
-3s (16.9 °C)


Coastal Site C24
pH (unit)
pH (unit)
Date
C24 (n=141, Control Chart 1989-2001)
+3s (8.54 unit)
+2s (8.42 unit)
Mean (8.18 unit)
-2s (7.94 unit)
-3s (7.82 unit)


Coastal Site C24
Salinity (PSU)
Salinity (PSU)
Date
C24 (n=141, Control Chart 1989-2001)
+3s (39.3 PSU)
+2s (31.7 PSU)
Mean (16.5 PSU)
-2s (1.4 PSU)
-3s (-6.2 PSU)


Coastal Site C24
Turbidity (NTU)
Turbidity (NTU)
Date
C24 (n=138, Control Chart 1989-2001)
+3s (5.08 NTU)
+2s (3.61 NTU)
Mean (0.67 NTU)
-2s (-2.28 NTU)
-3s (-3.75 NTU)


Coastal Site C24
Chlorophyll-a (µg Chl-a/L)
Chlorophyll-a (µg Chl-a/L)
Date
C24 (n=122, Control Chart 1989-2001)
+3s (µg Chl-a/L)
+2s (µg Chl-a/L)
Mean (µg CHl-a/L)
-2s (µg Chl-a/L)
-3s (µg Chl-a/L)

APPENDIX C - NELHA Pipeline Data Tables and Graphs

Surface Seawater 28” Pipeline ……. Appendix C-SSW28-1
Surface Seawater 24” Pipeline…….. Appendix C-SSW24-1
Surface Seawater 55” Pipeline…… Appendix C-SSW55-1
Deep Seawater 40” Pipeline…… Appendix C-DSW40-1
Deep Seawater 18” Pipeline ……..…. Appendix C-DSW18-1
Deep Seawater 55” Pipeline…… Appendix C-DSW55-1

NELHA Water Quality Laboratory

SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/24/82		0.11	3.4	0.14	2.0			2.3	66									34.466	27.0				
SSW28"	8/3/82		0.17	5.3	0.19	2.7			2.9	82									34.482	27.8				
SSW28"	8/10/82		0.08	2.5	0.28	3.9			3.7	104									34.458	27.6				
SSW28"	8/17/82		0.10	3.1	0.34	4.8			3.9	110									34.446	27.4				
SSW28"	8/23/82		0.10	3.1	0.43	6.0			6.0	170									34.537	27.6				
SSW28"	9/1/82		0.12	3.7	0.09	1.3			1.8	51									34.544	27.6				
SSW28"	9/10/82		0.12	3.7	0.18	2.5			3.8	106									34.540	27.9				
SSW28"	9/17/82		0.11	3.4	0.47	6.6			11.5	324									34.442	27.6				
SSW28"	9/20/82		0.08	2.5	0.18	2.5			3.6	101									34.395	27.6				
SSW28"	9/29/82		0.12	3.7	0.23	3.2			6.2	173									34.329	27.5				
SSW28"	10/6/82		0.21	6.5	0.17	2.4			4.6	130									34.403	27.5				
SSW28"	10/14/82		0.17	5.3	0.12	1.7			3.5	99									34.438	27.3				
SSW28"	10/18/82		0.15	4.6	0.14	2.0			3.0	83									34.572	27.6				
SSW28"	10/28/82		0.13	4.0	0.14	2.0			2.1	58									34.595	27.4				
SSW28"	11/4/82		0.11	3.4	0.14	2.0			2.3	65									34.595	27.6				
SSW28"	11/10/82		0.12	3.7	0.17	2.4			2.3	65									34.607	27.4				
SSW28"	11/17/82		0.11	3.4	0.19	2.7			2.1	60									34.670	27.2				
SSW28"	11/22/82		0.12	3.7	0.17	2.4			2.3	65									34.709	26.7				
SSW28"	12/7/82		0.13	4.0	0.11	1.5			3.0	85									34.627	26.2				
SSW28"	12/20/82		0.16	5.0	0.08	1.1			2.1	58									34.682	25.8				
SSW28"	12/23/82		0.20	6.2	0.19	2.7			7.2	201									34.694	25.2				
SSW28"	12/27/82		0.17	5.3	0.14	2.0			1.9	53									34.737	25.1				
SSW28"	1/5/83		0.16	5.0	0.11	1.5			3.0	85									34.635	25.3				
SSW28"	1/10/83		0.18	5.6	0.11	1.5			3.4	95									34.658	25.3				
SSW28"	1/19/83		0.16	5.0	0.08	1.1			2.9	80									34.760	25.4				
SSW28"	1/27/83		0.16	5.0	0.08	1.1			2.9	80									34.756	24.8				
SSW28"	2/4/83		0.16	5.0	0.11	1.5			2.9	80									34.776	24.9				
SSW28"	2/10/83		0.15	4.6	0.05	0.7			3.7	105									34.772	24.3				
SSW28"	2/18/83		0.18	5.6	0.14	2.0			3.4	95									34.792	24.7				
SSW28"	2/22/83		0.14	4.3	0.14	2.0			2.9	80									34.858	24.9				
SSW28"	3/1/83		0.04	1.2	0.10	1.4			3.0	83									34.874	25.1				
SSW28"	3/11/83		0.06	1.9	0.25	3.5			4.1	116									34.837	25.4				
SSW28"	3/18/83		0.06	1.9	0.21	2.9			3.0	83									34.855	24.9				
SSW28"	3/24/83		0.09	2.8	0.12	1.7			2.8	78									34.846	24.9				
SSW28"	3/31/83		0.10	3.1	0.12	1.7			2.0	55									34.753	24.9				
SSW28"	4/6/83		0.09	2.8	0.21	2.9			2.8	78									34.770	25.3				
SSW28"	4/16/83		0.12	3.7	0.21	2.9			3.4	94									34.730	25.2				
SSW28"	4/21/83		0.14	4.3	0.16	2.2			6.5	183									34.721	25.7				
SSW28"	4/25/83		0.10	3.1	0.12	1.7			3.5	99									34.780	25.2				
SSW28"	5/7/83		0.16	5.0	0.14	2.0			2.7	76									34.700	25.1				
SSW28"	5/10/83		0.15	4.6	0.03	0.4			3.4	96									34.701	25.2				
SSW28"	5/19/83		0.17	5.3	0.24	3.4			5.4	152									34.538	25.4				
SSW28"	5/26/83		0.18	5.6	0.07	1.0			3.4	96									34.710	25.2				
SSW28"	6/2/83		0.16	5.0	0.10	1.4			3.2	91									34.629	25.9				
SSW28"	6/7/83		0.17	5.3	0.14	2.0			3.4	96									34.795	25.6				
SSW28"	6/16/83		0.15	4.6	0.10	1.4			2.9	81									34.840	26.1				
SSW28"	6/23/83		0.15	4.6	0.07	1.0			2.3	66									34.844	26.2				
SSW28"	6/29/83		0.17	5.3	0.17	2.4			3.6	101									34.784	26.1				

NELHA Water Quality Laboratory

SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/7/83		0.17	5.3	0.24	3.4			4.7	131									34.764	25.9				
SSW28"	7/14/83		0.17	5.3	0.18	2.5			4.9	138									34.713	25.6				
SSW28"	7/21/83		0.16	5.0	0.15	2.1			2.1	59									34.774	26.2				
SSW28"	7/28/83		0.17	5.3	0.17	2.4			3.9	110									34.752	26.1				
SSW28"	8/3/83		0.18	5.6	0.36	5.0			4.1	114									34.775	25.9				
SSW28"	8/11/83		0.15	4.6	0.15	2.1			2.7	76									34.794	26.5				
SSW28"	8/20/83		0.15	4.6	0.12	1.7			3.1	86									34.766	26.5				
SSW28"	8/26/83		0.16	5.0	0.18	2.5			4.1	114									34.787	26.7				
SSW28"	8/29/83		0.15	4.6	0.18	2.5			3.7	105									34.795	26.6				
SSW28"	9/8/83		0.16	5.0	0.17	2.4			4.0	112									34.768	26.5				
SSW28"	9/14/83		0.17	5.3	0.17	2.4			2.8	78									34.837	27.0				
SSW28"	9/22/83		0.16	5.0	0.23	3.2			5.0	142									34.866	26.8				
SSW28"	9/29/83		0.17	5.3	0.16	2.2			2.9	82									34.890	26.3				
SSW28"	10/8/83		0.15	4.6	0.22	3.1			4.1	115									34.886	26.8				
SSW28"	10/15/83		0.15	4.6	0.19	2.7			4.1	115									34.927	26.6				
SSW28"	10/21/83		0.15	4.6	0.16	2.2			5.0	139									34.929	26.7				
SSW28"	10/24/83		0.15	4.6	0.09	1.3			4.4	125									34.924	27.5				
SSW28"	11/3/83		0.16	5.0	0.18	2.5			2.5	71									34.890	26.5				
SSW28"	11/10/83		0.13	4.0	0.14	2.0			2.5	71									35.003	26.1				
SSW28"	11/18/83		0.11	3.4	0.11	1.5			2.7	76									35.002	26.4				
SSW28"	11/21/83		0.13	4.0	0.18	2.5			2.9	80									35.003	26.6				
SSW28"	11/30/83		0.17	5.3	0.07	1.0			2.6	73									35.003	26.4				
SSW28"	12/8/83		0.17	5.3	0.17	2.4			2.2	63									35.047	26.5				
SSW28"	12/13/83		0.21	6.5	0.10	1.4			2.4	68									34.961	26.4				
SSW28"	12/21/83		0.18	5.6	0.07	1.0			2.6	73									34.995	25.7				
SSW28"	12/28/83		0.18	5.6	0.12	1.7			1.9	53									34.894	25.9				
SSW28"	1/6/84		0.13	4.0	0.15	2.1			2.2	62									34.972	25.6				
SSW28"	1/13/84		0.15	4.6	0.24	3.4			2.3	64									34.965	25.7				
SSW28"	1/20/84		0.12	3.7	0.12	1.7			1.8	51									35.016	25.3				
SSW28"	1/25/84		0.15	4.6	0.18	2.5			2.8	79									34.886	25.6				
SSW28"	2/3/84		0.13	4.0	0.12	1.7			2.0	56									35.047	25.1				
SSW28"	2/10/84		0.14	4.3	0.21	2.9			3.2	89									34.980	24.8				
SSW28"	2/15/84		0.14	4.3	0.09	1.3			2.2	61									34.972	25.2				
SSW28"	2/24/84		0.14	4.3	0.12	1.7			2.8	79									34.932	25.2				
SSW28"	2/29/84		0.17	5.3	0.12	1.7			3.0	84									34.933	25.2				
SSW28"	3/9/84		0.18	5.6	0.10	1.4			2.8	78									34.893	25.5				
SSW28"	3/16/84		0.19	5.9	0.21	2.9			4.5	126									34.801	26.0				
SSW28"	3/23/84		0.18	5.6	0.14	2.0			3.6	102									34.796	26.0				
SSW28"	3/27/84		0.19	5.9	0.17	2.4			3.8	106									34.739	25.5				
SSW28"	4/13/84		0.18	5.6	0.05	0.7			2.3	65									34.850	25.1				
SSW28"	4/19/84		0.18	5.6	0.22	3.1			3.3	94									34.864	25.4				
SSW28"	4/25/84		0.17	5.3	0.22	3.1			2.3	65									34.931	25.3				
SSW28"	5/4/84		0.16	5.0	0.27	3.8			2.9	82									34.899	25.7				
SSW28"	5/10/84		0.18	5.6	0.19	2.7			2.4	67									34.880	25.6				
SSW28"	5/18/84		0.17	5.3	0.27	3.8			3.8	106									34.811	25.3				
SSW28"	5/25/84		0.14	4.3	0.25	3.5			4.3	120									34.794	25.9				
SSW28"	5/29/84		0.21	6.5	0.25	3.5			2.6	72									34.820	25.5				
SSW28"	6/8/84		0.18	5.6	0.14	2.0			2.3	65									34.971	26.1				
SSW28"	6/16/84		0.16	5.0	0.14	2.0			2.4	67									34.842	26.1				
SSW28"	6/22/84		0.16	5.0	0.22	3.1			2.8	79									34.921	26.4				
SSW28"	6/29/84		0.18	5.6	0.39	5.5			5.1	144									34.938	26.5				

NELHA Water Quality Laboratory

SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/6/84		0.15	4.6	0.22	3.1			3.6	102									34.976	26.5				
SSW28"	7/13/84		0.13	4.0	0.22	3.1			4.0	112									34.933	26.7				
SSW28"	7/19/84		0.11	3.4	0.24	3.4			3.3	92									34.882	26.7				
SSW28"	7/27/84		0.12	3.7	0.19	2.7			3.1	88									34.961	26.9				
SSW28"	8/3/84		0.21	6.5	0.19	2.7			2.0	55									35.004	27.0				
SSW28"	8/10/84		0.15	4.6	0.11	1.5			2.5	70									35.000	25.9				
SSW28"	8/16/84		0.16	5.0	0.11	1.5			1.4	40									34.992	26.3				
SSW28"	8/25/84		0.20	6.2	0.24	3.4			3.2	90									35.012	26.6				
SSW28"	9/8/84		0.20	6.2	0.12	1.7			2.0	55									35.018	26.4				
SSW28"	9/13/84		0.25	7.7	0.24	3.4			3.0	85									34.893	26.7				
SSW28"	9/21/84		0.18	5.6	0.15	2.1			1.4	40									34.961	27.0				
SSW28"	9/28/84		0.19	5.9	0.21	2.9			3.2	91									35.059	27.5				
SSW28"	10/5/84		0.21	6.5	0.25	3.5			4.0	111									35.064	27.4				
SSW28"	10/12/84		0.14	4.3	0.14	2.0			2.3	65									35.112	27.2				
SSW28"	10/19/84		0.14	4.3	0.20	2.8			2.0	55									35.147	27.7				
SSW28"	10/29/84		0.16	5.0	0.19	2.7			1.1	30									35.053	27.1				
SSW28"	11/2/84		0.15	4.6	0.20	2.8			1.8	50									35.094	27.6				
SSW28"	11/9/84		0.16	5.0	0.13	1.8			1.4	40									35.083	26.7				
SSW28"	11/16/84		0.16	5.0	0.10	1.4			1.4	40									35.167	26.3				
SSW28"	11/23/84		0.12	3.7	0.20	2.8			1.6	45									35.196	26.3				
SSW28"	11/30/84		0.14	4.3	0.23	3.2			2.0	55									35.183	26.2				
SSW28"	12/7/84		0.18	5.6	0.19	2.7			1.9	54									35.181	26.1				
SSW28"	12/14/84		0.19	5.9	0.25	3.5			1.5	43									34.751	25.3				
SSW28"	12/21/84		0.19	5.9	0.36	5.0			5.0	140									35.006	25.7				
SSW28"	12/27/84		0.18	5.6	0.24	3.4			1.5	43									34.554	24.9				
SSW28"	1/4/85		0.19	5.9	0.35	4.9			3.0	84									34.504	24.9				
SSW28"	1/11/85		0.18	5.6	0.25	3.5			2.2	63									34.642	24.9				
SSW28"	1/18/85		0.15	4.6	0.25	3.5			1.9	53									34.835	24.5				
SSW28"	1/25/85		0.15	4.6	0.18	2.5			2.4	68									34.882	25.1				
SSW28"	2/1/85		0.15	4.6	0.35	4.9			3.6	100									34.916	24.5				
SSW28"	2/8/85		0.14	4.3	0.32	4.5			2.1	58									34.914	24.8				
SSW28"	2/15/85		0.14	4.3	0.23	3.2			1.4	40									34.965	24.7				
SSW28"	2/21/85		0.18	5.6	0.25	3.5			3.0	84									34.784	25.0				
SSW28"	3/1/85		0.18	5.6	0.24	3.4			2.5	69									34.544	24.7				
SSW28"	3/9/85		0.14	4.3	0.21	2.9			1.7	48									34.756	24.4				
SSW28"	3/15/85		0.17	5.3	0.18	2.5			1.7	48									34.690	24.4				
SSW28"	3/22/85		0.20	6.2	0.60	8.4			16.0	449									34.914	24.0				
SSW28"	3/30/85		0.16	5.0	0.24	3.4			2.4	68									34.803	24.5				
SSW28"	4/5/85		0.15	4.6	0.22	3.1			2.1	58									34.933	23.9				
SSW28"	4/12/85		0.18	5.6	0.22	3.1			1.7	47									35.028	23.9				
SSW28"	4/19/85		0.20	6.2	0.22	3.1			2.1	58									34.729	23.7				
SSW28"	4/26/85		0.19	5.9	0.27	3.8			2.9	82									34.823	24.2				
SSW28"	5/3/85		0.19	5.9	0.18	2.5			2.6	74									34.776	24.9				
SSW28"	5/10/85		0.24	7.4	0.28	3.9			3.0	85									34.607	24.8				
SSW28"	5/17/85		0.22	6.8	0.30	4.2			1.6	45									34.489	24.9				
SSW28"	5/29/85		0.23	7.1	0.18	2.5			2.4	68									34.552	25.6				
SSW28"	6/9/85		0.23	7.1	0.29	4.1			2.8	78									34.580	25.8				
SSW28"	6/14/85		0.22	6.8	0.26	3.6			4.1	115									34.540	25.8				
SSW28"	6/23/85		0.22	6.8	0.24	3.4			3.2	89									34.580	26.1				

NELHA Water Quality Laboratory

SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/3/85		0.21	6.5	0.26	3.6			3.6	102									34.629	26.0				
SSW28"	7/12/85		0.20	6.2	0.26	3.6			2.6	72									34.743	26.9				
SSW28"	7/19/85		0.20	6.2	0.23	3.2			2.7	77									34.760	26.9				
SSW28"	7/26/85		0.18	5.6	0.29	4.1			2.2	61									34.783	26.8				
SSW28"	8/1/85		0.18	5.6	0.24	3.4			2.9	80									34.711	26.5				
SSW28"	8/9/85		0.17	5.3	0.16	2.2			2.4	66									34.825	26.2				
SSW28"	8/16/85		0.18	5.6	0.19	2.7			2.9	83									34.812	26.4				
SSW28"	8/21/85		0.23	7.1	0.19	2.7			4.1	116									34.779	27.2				
SSW28"	8/29/85		0.21	6.5	0.17	2.4			2.6	72									34.800	27.3				
SSW28"	9/7/85		0.18	5.6	0.20	2.8			2.5	69									34.948	26.5				
SSW28"	9/15/85		0.18	5.6	0.22	3.1			2.7	74									34.938	27.0				
SSW28"	9/20/85		0.19	5.9	0.27	3.8			3.8	106									34.848	27.4				
SSW28"	9/27/85		0.21	6.5	0.27	3.8			1.9	53									34.854	27.2				
SSW28"	10/4/85		0.21	6.5	0.22	3.1			2.7	74									34.815	27.5				
SSW28"	10/11/85		0.18	5.6	0.20	2.8			2.3	64									34.896	26.9				
SSW28"	10/18/85		0.19	5.9	0.30	4.2			2.3	64									34.885	26.7				
SSW28"	10/25/85		0.18	5.6	0.20	2.8			1.9	53									34.891	26.4				
SSW28"	11/1/85		0.19	5.9	0.22	3.1			2.7	74									34.892	26.6				
SSW28"	11/7/85		0.16	5.0	0.23	3.2			1.7	47									34.896	26.9				
SSW28"	11/14/85		0.14	4.3	0.24	3.4			1.5	42									34.915	27.0				
SSW28"	11/21/85		0.14	4.3	0.27	3.8			1.9	52									34.823	26.8				
SSW28"	11/27/85		0.15	4.6	0.34	4.8			1.7	47									34.923	26.2				
SSW28"	12/5/85		0.12	3.7	0.32	4.5			2.0	57									34.937	26.3				
SSW28"	12/13/85		0.11	3.4	0.24	3.4			2.0	57									34.997	26.4				
SSW28"	12/20/85		0.12	3.7	0.32	4.5			2.0	57									34.989	25.4				
SSW28"	12/27/85		0.11	3.4	0.22	3.1			1.5	42									35.027	25.7				
SSW28"	1/3/86		0.20	6.2	0.25	3.5	0.15	2.1	2.3	64	0.5	15.5	6.0	84	0.45	0.34			35.044	25.5				
SSW28"	1/7/86		0.15	4.6	0.22	3.1	0.15	2.1	2.5	69	0.5	14.6	6.2	86	0.52	0.20			35.047	25.4				
SSW28"	1/17/86		0.18	5.6	0.22	3.1	0.18	2.5	3.0	85	0.5	13.9	5.1	71	0.44	0.11			34.969	25.6				
SSW28"	1/24/86		0.20	6.2	0.19	2.7	0.20	2.8	1.9	53	0.5	15.5	5.6	79	0.48	0.53			34.844	25.2				
SSW28"	1/31/86		0.18	5.6	0.22	3.1	0.18	2.5	2.5	69	0.5	15.5	5.6	78	0.42	0.37			34.889	25.0				
SSW28"	2/8/86		0.19	5.9	0.19	2.7	0.15	2.1	1.7	48	0.5	15.2	5.2	73	0.45	0.37			34.770	25.6				
SSW28"	2/12/86		0.20	6.2	0.16	2.2	0.20	2.8	2.7	75	0.5	16.7	5.6	78	0.53	0.32			34.627	25.6				
SSW28"	2/21/86		0.24	7.4	0.34	4.8	0.28	3.9	3.0	85	0.6	17.0	5.6	78	1.27	0.41			34.724	25.6				
SSW28"	3/1/86		0.22	6.8	0.22	3.1	0.43	6.0	1.7	48	0.5	16.4	5.5	77	0.45				34.745	25.6				
SSW28"	3/7/86		0.13	4.0	0.21	2.9	0.23	3.2	2.4	67	0.5	13.9	5.1	71	0.97	0.65			34.823	25.6				
SSW28"	3/13/86		0.16	5.0	0.26	3.6	0.26	3.6	3.5	98	0.6	17.0	6.3	88	0.85	0.70			34.725	26.4				
SSW28"	3/20/86		0.14	4.3	0.22	3.1	0.21	2.9	2.6	72	0.4	13.6	5.1	71	0.65	0.70			34.713	26.8				
SSW28"	3/27/86		0.11	3.4	0.16	2.2	0.13	1.8	2.6	72	0.4	13.6	5.2	73	0.40	0.80			34.815	25.5				
SSW28"	4/14/86		0.14	4.3	0.19	2.7	0.19	2.7	1.8	51	0.5	16.1	5.8	81	0.38	0.85			34.612	26.2				
SSW28"	4/19/86		0.12	3.7	0.36	5.0	0.21	2.9	4.8	134	0.5	15.5	4.9	69	0.61	0.80			34.634	25.6				
SSW28"	4/26/86		0.12	3.7	0.16	2.2	0.21	2.9	2.2	62	0.5	15.8	5.2	72	0.57	0.65			34.712	26.3				
SSW28"	4/30/86		0.16	5.0	0.38	5.3	0.30	4.2	5.5	153	0.4	13.0	5.8	81	0.40	0.65			34.648					
SSW28"	5/9/86		0.15	4.6	0.16	2.2	0.24	3.4	2.0	56	0.4	13.3	5.2	72	0.43	0.70			34.658					
SSW28"	5/16/86		0.15	4.6	0.25	3.5	0.31	4.3	2.7	77	0.5	13.9	5.4	76	0.40	1.35			34.691					
SSW28"	5/25/86		0.14	4.3	0.28	3.9	0.26	3.6	3.3	92	0.5	13.9	5.3	74	0.39	0.65			34.655					
SSW28"	5/30/86		0.15	4.6	0.28	3.9	0.29	4.1	3.6	102	0.5	14.2	5.0	69	0.41	0.40			34.648					
SSW28"	6/4/86		0.15	4.6	0.22	3.1	0.29	4.1	2.2	61	0.5	14.2	5.0	71	0.41	0.60			34.677					
SSW28"	6/13/86		0.15	4.6	0.43	6.0	0.30	4.2	4.9	138	0.5	16.1	5.9	83	0.36	0.85			34.614					
SSW28"	6/20/86		0.23	7.1	0.25	3.5	0.09	1.3	2.5	71	0.5	15.8	10.3	145	0.43	0.80			34.719					
SSW28"	6/27/86		0.23	7.1	0.15	2.1	0.12	1.7	5.1	142	0.5	15.5	9.0	126	0.41	0.60			34.685					

NELHA Water Quality Laboratory

SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/3/86		0.16	5.0	0.20	2.8	0.14	2.0	1.9	53	0.5	14.9	5.7	80	0.42	1.05			34.899					
SSW28"	7/12/86		0.17	5.3	0.20	2.8	0.24	3.4	0.2	5	0.5	15.8	5.2	73	0.38	0.85			34.790					
SSW28"	7/18/86		0.22	6.8	0.20	2.8	0.24	3.4	2.1	58	0.5	15.5	9.7	136	0.50	0.90			34.749					
SSW28"	7/25/86		0.16	5.0	0.22	3.1	0.17	2.4	2.1	58	0.5	14.2	5.6	78	0.53	0.70			34.805					
SSW28"	7/31/86		0.17	5.3	0.20	2.8	0.23	3.2	2.2	63	0.5	14.6	5.5	76	0.57	1.10			34.695					
SSW28"	8/7/86		0.19	5.9	0.20	2.8	0.33	4.6	1.9	53	0.5	16.1	5.2	72	0.38	0.55			34.733					
SSW28"	8/18/86		0.14	4.3	0.10	1.4	0.17	2.4	2.0	57	0.5	14.2	5.0	70	0.44	1.25			34.753					
SSW28"	8/28/86		0.15	4.6	0.21	2.9	0.29	4.1	2.2	62	0.5	15.5	5.7	79	0.43	1.45			34.749					
SSW28"	9/4/86		0.11	3.4	0.10	1.4	0.22	3.1	1.5	42	0.5	15.5	6.7	93	0.42	0.50			34.875					
SSW28"	9/11/86		0.15	4.6	0.21	2.9	0.22	3.1	2.8	78	0.5	14.6	5.7	80	0.41	0.40			34.720					
SSW28"	9/17/86		0.14	4.3	0.36	5.0	0.19	2.7	3.2	88	0.4	12.4	5.7	80	0.47	0.40			34.716					
SSW28"	9/24/86		0.12	3.7	0.26	3.6	0.19	2.7	1.9	52	0.4	13.3	5.4	75	0.46	0.65			34.828					
SSW28"	9/30/86		0.12	3.7	0.10	1.4	0.22	3.1	1.5	42	0.5	14.2	6.7	93	0.47	0.65			34.784					
SSW28"	10/9/86		0.11	3.4	0.18	2.5	0.24	3.4	2.0	57	0.4	11.8	5.9	83	0.38	1.60			34.730					
SSW28"	10/16/86		0.09	2.8	0.18	2.5	0.23	3.2	1.7	47	0.4	12.1	6.6	92	0.41	0.85			34.796					
SSW28"	10/23/86		0.09	2.8	0.13	1.8	0.23	3.2	1.7	47	0.4	13.0	6.2	87	0.39	1.65			34.798					
SSW28"	10/30/86		0.11	3.4	0.21	2.9	0.23	3.2	2.0	57	0.4	13.0	6.3	88	0.38	1.00			34.840					
SSW28"	11/6/86		0.11	3.4	0.16	2.2	0.25	3.5	1.9	52	0.4	13.0	6.4	89	0.39	0.45			34.841					
SSW28"	11/13/86		0.09	2.8	0.13	1.8	0.23	3.2	2.2	62	0.4	13.0	6.0	84	0.39	2.55			34.754					
SSW28"	11/20/86		0.11	3.4	0.12	1.7	0.22	3.1	1.9	52	0.4	13.3	6.6	92	0.39	0.70			34.792					
SSW28"	11/28/86		0.11	3.4	0.21	2.9	0.23	3.2	2.2	62	0.5	15.5	6.1	85	0.39	0.65			34.825					
SSW28"	12/4/86		0.15	4.6	0.21	2.9	0.10	1.4	3.0	83	0.4	13.0	6.6	92	0.47	1.05			34.761					
SSW28"	12/11/86		0.09	2.8	0.19	2.7	0.11	1.5	2.6	73	0.4	12.1	5.8	81	0.58	1.00			34.930					
SSW28"	12/19/86		0.12	3.7	0.22	3.1	0.11	1.5	2.4	68	0.5	14.2	6.2	87	0.42	0.90			34.833					
SSW28"	12/23/86		0.14	4.3	0.30	4.2	0.18	2.5	3.9	109	0.5	14.6	6.2	87	0.42	0.65			34.723					
SSW28"	12/30/86		0.15	4.6	0.14	2.0	0.12	1.7	2.2	62	0.5	14.6	5.3	75	0.41	0.80			34.678					
SSW28"	1/8/87		0.14	4.3	0.22	3.1	0.15	2.1	2.4	68	0.5	14.2	5.9	83	0.42	0.90			34.854	26.0	8.26	6.50		
SSW28"	1/14/87		0.14	4.3	0.25	3.5	0.24	3.4	2.2	62	0.5	15.8	7.3	102	0.43	0.85			34.805	25.7	8.22	6.45		
SSW28"	1/21/87		0.14	4.3	0.14	2.0	0.22	3.1	2.0	57	0.5	14.6	6.2	86	0.48	0.65			34.797	25.3	8.18	6.51		
SSW28"	1/28/87		0.16	5.0	0.27	3.8	0.22	3.1	2.6	73	0.5	14.9	6.8	96	0.46	1.50			34.711	25.6	8.26	7.13		
SSW28"	2/6/87		0.13	4.0	0.15	2.1	0.09	1.3	3.0	83	0.4	12.1	5.5	77	0.54	0.80				24.8	8.27	6.90		
SSW28"	2/12/87		0.15	4.6	0.15	2.1	0.12	1.7	1.9	52	0.4	13.3	5.8	81	0.47	0.55				24.8	8.21	7.01		
SSW28"	2/19/87		0.15	4.6	0.19	2.7	0.17	2.4	2.4	68	0.5	13.9	5.6	79	0.43	0.90				24.7	8.19	6.60		
SSW28"	2/26/87		0.17	5.3	0.28	3.9	0.24	3.4	2.8	78	0.5	14.2	5.9	82	0.43	0.80				24.6	8.22	6.68		
SSW28"	3/3/87		0.15	4.6	0.15	2.1	0.21	2.9	2.0	57	0.5	14.6	5.7	79	0.46	0.75				24.5	8.19	7.02		
SSW28"	3/10/87		0.13	4.0	0.25	3.5	0.28	3.9	1.9	52	0.5	15.2	5.7	80	0.41	0.75				24.5	8.17	6.75		
SSW28"	3/17/87		0.15	4.6	0.25	3.5	0.28	3.9	1.7	47	0.5	16.4	5.8	82	0.41	0.75				25.1	8.22	7.07		
SSW28"	3/24/87		0.15	4.6	0.25	3.5	0.33	4.6	1.9	52	0.5	16.7	9.3	130	0.54	0.60				25.0	8.16	6.89		
SSW28"	4/3/87		0.23	7.1	0.18	2.5	0.33	4.6	2.5	69	0.6	17.0	5.4	75	0.69	0.90			34.581	25.0	8.25	6.64		
SSW28"	4/9/87		0.17	5.3	0.15	2.1	0.23	3.2	3.0	85	0.5	16.4	6.6	92	0.46	0.35			34.546	25.1	8.23	6.63		
SSW28"	4/16/87		0.15	4.6	0.21	2.9	0.23	3.2	4.2	117	0.5	14.9	5.5	77	0.45	0.85			34.577	25.1	8.24	6.40		
SSW28"	4/21/87		0.13	4.0	0.06	0.8	0.28	3.9	1.3	37	0.5	15.2	6.0	84	0.41	0.70			34.748	24.7	8.25	7.05		
SSW28"	4/28/87		0.15	4.6	0.15	2.1	0.28	3.9	2.9	80	0.5	15.8	5.0	70	0.54	0.85			34.652	25.2	8.23	7.00		
SSW28"	5/5/87		0.14	4.3	0.14	2.0	0.30	4.2	1.9	53	0.5	15.2	6.0	84	0.42	0.85			34.694	24.9	8.22	6.84		
SSW28"	5/12/87		0.16	5.0	0.21	2.9	0.33	4.6	3.2	91	0.5	16.4	5.9	83	0.41	0.60			34.623	24.9	8.23	7.16		
SSW28"	5/21/87		0.13	4.0	0.27	3.8	0.30	4.2	3.4	96	0.5	16.4	5.5	77	0.41	0.80			34.641	25.5	8.23	6.98		
SSW28"	5/26/87		0.13	4.0	0.15	2.1	0.28	3.9	2.9	80	0.5	14.9	5.1	71	0.41	0.60			34.692	25.6	8.24	7.27		
SSW28"	6/2/87		0.13	4.0	0.15	2.1	0.29	4.1	1.3	37	0.5	14.9	5.3	74	0.60	0.70			34.553	25.6	8.18	7.07		
SSW28"	6/9/87		0.15	4.6	0.30	4.2	0.17	2.4	4.3	120	0.5	16.1	8.9	125	0.49	0.75		2.32	34.542	25.9	8.18	7.26		
SSW28"	6/17/87		0.13	4.0	0.22	3.1	0.21	2.9	3.2	90	0.6	17.3	8.7	122	0.41	0.60		2.32	34.736	26.3	8.20	6.59		

NELHA Water Quality Laboratory

SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/2/87		0.13	4.0	0.16	2.2	0.23	3.2	2.3	64	0.5	16.1	9.0	125	0.40	0.60		2.31	34.644	26.2	8.23	6.44		
SSW28"	7/11/87		0.13	4.0	0.16	2.2	0.23	3.2	2.1	58	0.5	16.7	7.6	107	0.39	0.50		2.31	34.612	26.7	8.23	8.06		
SSW28"	7/18/87		0.13	4.0	0.19	2.7	0.23	3.2	1.6	45	0.5	16.7	7.4	104	0.37	0.85		2.31	34.585	26.8	8.23	6.89		
SSW28"	7/28/87		0.12	3.7	0.16	2.2	0.21	2.9	1.9	53	0.5	15.2	7.6	107	0.38	0.45		2.31	34.673	26.8	8.16	7.08		
SSW28"	7/28/87		0.12	3.7	0.24	3.4	0.21	2.9	2.7	74	0.5	13.9	6.8	95	0.40	0.40		2.31	34.649	26.8	8.17	7.80		
SSW28"	8/8/87		0.12	3.7	0.19	2.7	0.21	2.9	2.5	69	0.5	15.8	7.2	101	0.40	0.40		2.31	34.690	28.2	8.21	6.68		
SSW28"	8/15/87		0.12	3.7	0.18	2.5	0.22	3.1	3.5	99	0.5	15.2	5.3	74	0.46	0.60		2.32	34.772	28.1	8.22	6.64		
SSW28"	8/21/87		0.11	3.4	0.15	2.1	0.24	3.4	2.1	58	0.5	16.1	6.4	89	0.53	0.70		2.32	34.751	27.6	8.20	6.70		
SSW28"	8/27/87		0.14	4.3	0.21	2.9	0.56	7.8	2.1	58	0.5	16.7	7.2	101	0.53	0.55		2.32	34.767	28.1	8.21	6.65		
SSW28"	9/4/87		0.14	4.3	0.21	2.9	0.24	3.4	2.6	73	0.5	16.7	5.7	80	0.55	0.65		2.32	34.764	28.5	8.23	6.85		
SSW28"	9/11/87		0.12	3.7	0.32	4.5	0.22	3.1	3.2	89	0.5	16.1	5.9	82	0.52	0.45		2.31	34.704	28.1	8.21	6.85		
SSW28"	9/18/87		0.10	3.1	0.12	1.7	0.24	3.4	1.5	42	0.4	13.0	5.4	76	0.52	0.65		2.33	34.887	27.4	8.23	6.74		
SSW28"	9/26/87		0.15	4.6	0.26	3.6	0.35	4.9	2.6	73	0.5	15.5	6.6	92	0.52	0.60		2.32	34.725	28.1	8.25	6.96		
SSW28"	10/3/87		0.11	3.4	0.21	2.9	0.27	3.8	2.6	73	0.5	14.9	5.4	76	0.51	0.65		2.33	34.902	28.2	8.28	6.80		
SSW28"	10/9/87		0.11	3.4	0.23	3.2	0.27	3.8	2.6	73	0.4	13.3	5.9	82	0.51	0.45		2.32	34.842	27.7	8.22	6.64		
SSW28"	10/16/87		0.12	3.7	0.26	3.6	0.18	2.5	1.7	47	0.5	15.2	5.0	70	0.53	0.50		2.32	34.799	27.9	8.28	6.79		
SSW28"	10/22/87		0.13	4.0	0.24	3.4	0.20	2.8	2.0	57	0.5	14.9	5.5	77	0.53	0.50		2.31	34.747	27.5	8.25	6.72		
SSW28"	10/29/87		0.15	4.6	0.35	4.9	0.32	4.5	2.4	68	0.5	14.9	5.6	79	0.50	0.50		2.32	34.817	27.7	8.24	6.92		
SSW28"	11/6/87		0.12	3.7	0.16	2.2	0.18	2.5	2.4	68	0.5	15.2	4.8	67	0.47	1.10		2.32	34.824	27.5	8.21	7.01		
SSW28"	11/13/87		0.13	4.0	0.27	3.8	0.18	2.5	3.2	88	0.5	16.4	5.9	83	0.51	1.15		2.32	34.766	27.4	8.24	6.59		
SSW28"	11/21/87		0.17	5.3	0.27	3.8	0.20	2.8	2.6	73	0.6	18.6	5.1	71	0.48	0.85		2.32	34.779	26.8	8.23	6.73		
SSW28"	11/26/87		0.15	4.6	0.30	4.2	0.23	3.2	2.2	62	0.6	18.3	4.9	69	0.47	4.50		2.31	34.765	27.2	8.25	7.28		
SSW28"	12/3/87		0.15	4.6	0.27	3.8	0.23	3.2	3.7	104	0.5	15.2	5.0	70	0.50	1.00		2.30	34.752	26.6	8.27	6.98		
SSW28"	12/12/87		0.12	3.7	0.24	3.4	0.23	3.2	2.2	62	0.5	14.2	4.8	67	0.54	1.00		2.31	34.799	27.7	8.25	7.08		
SSW28"	12/20/87		0.11	3.4	0.35	4.9	0.25	3.5	2.4	68	0.4	13.0	4.9	69	0.52	2.00		2.33	34.833	25.4	8.28	7.08		
SSW28"	12/24/87		0.13	4.0	0.57	8.0	0.32	4.5	4.3	120	0.5	14.2	5.2	73	0.52	0.10		2.23	34.774	25.3	8.27	7.17		
SSW28"	12/31/87		0.12	3.7	0.43	6.0	0.31	4.3	3.8	107	0.5	13.9	4.9	69	0.53	0.40		2.32	34.806	25.6	8.24	7.13		
SSW28"	1/13/88		0.13	4.0	0.22	3.1	0.17	2.4	1.7	47	0.5	14.9	4.8	67	0.56	0.35		2.31	34.762	25.9	8.24	6.97		
SSW28"	1/22/88		0.16	5.0	0.27	3.8	0.20	2.8	2.1	58	0.5	14.9	5.2	72	0.56	0.30		2.32	34.796	25.2	8.25	7.10		
SSW28"	1/29/88		0.13	4.0	0.27	3.8	0.17	2.4	1.7	47	0.5	16.4	4.9	69	0.56	0.55		2.32	34.820	25.2	8.28	7.07		
SSW28"	2/5/88		0.15	4.6	0.32	4.5	0.19	2.7	2.4	68	0.5	16.7	4.8	67	0.54	0.45		2.32	34.806	25.3	8.25	7.07		
SSW28"	2/12/88		0.15	4.6	0.30	4.2	0.22	3.1	2.6	73	0.5	16.7	4.6	64	0.54	0.60		2.32	34.747	25.8	8.22	7.09		
SSW28"	2/21/88		0.13	4.0	0.25	3.5	0.17	2.4	1.5	42	0.5	16.4	4.7	66	0.55	0.65		2.32	34.831	25.7	8.27	7.05		
SSW28"	2/26/88		0.19	5.9	0.35	4.9	0.20	2.8	2.8	78	0.6	17.7	4.8	68	0.54	0.95		2.30	34.577	25.6	8.27	7.17		
SSW28"	3/6/88		0.19	5.9	0.31	4.3	0.15	2.1	2.2	63	0.5	16.1	4.7	65	0.53	0.60		2.30	34.509	25.3	8.18	7.33		
SSW28"	3/11/88		0.19	5.9	0.34	4.8	0.07	1.0	3.8	106	0.4	11.2	4.9	68	0.53	0.55		2.32	34.473	25.6	8.25	7.10		
SSW28"	3/18/88		0.16	5.0	0.26	3.6	0.07	1.0	6.8	190	0.3	10.5	4.8	68	0.59	0.70		2.31	34.618	25.8	8.27	7.02		
SSW28"	3/25/88		0.18	5.6	0.34	4.8	0.07	1.0	3.6	101	0.4	10.8	6.2	87	0.55	4.70		2.32	34.642	25.5	8.26	7.35		
SSW28"	3/31/88		0.14	4.3	0.23	3.2	0.07	1.0	3.0	84	0.3	9.6	4.7	66	0.58	0.80		2.32	34.736	25.7	8.27	8.88		
SSW28"	4/8/88		0.15	4.6	0.26	3.6	0.07	1.0	2.2	62	0.3	9.9	4.8	67	0.58	0.55		2.33	34.807	25.6	8.24	7.16		
SSW28"	4/18/88		0.18	5.6	0.23	3.2	0.09	1.3	1.6	45	0.4	10.8	4.9	69	0.52	0.55		2.32	34.650	25.7	8.25	7.27		
SSW28"	4/22/88		0.19	5.9	0.18	2.5	0.14	2.0	0.8	22	0.3	9.9	4.8	67	0.53	0.60		2.33	34.627	25.6	8.29	7.38		
SSW28"	4/29/88		0.18	5.6	0.21	2.9	0.12	1.7	1.6	45	0.4	10.8	5.1	71	0.53	0.45		2.32	34.644	25.2	8.26	7.00		
SSW28"	5/6/88		0.18	5.6	0.31	4.3	0.07	1.0	1.2	34	0.4	10.8	5.2	73	0.53	1.40				25.5	8.24	7.08		
SSW28"	5/23/88		0.37	11.5	0.03	0.4	0.19	2.7			0.5	14.6	7.2	101	0.46	2.15		2.32	34.662	26.1	8.43	7.23		
SSW28"	5/28/88		0.13	4.0	0.03	0.4	0.13	1.8	2.2	62	0.3	9.9	5.4	76	0.40	2.00		2.31	34.684	25.7	8.16	7.18		
SSW28"	6/5/88		0.13	4.0	0.12	1.7	0.15	2.1	3.2	90	0.3	10.5	6.0	84	0.41	3.95		2.31	34.606	26.1	8.13	7.01		
SSW28"	6/9/88		0.12	3.7	0.29	4.1	0.32	4.5	3.8	108	0.3	9.6	5.9	83	0.41	1.20		2.31	34.602	26.4	8.12	7.20		
SSW28"	6/19/88		0.13	4.0	0.06	0.8	0.21	2.9	2.2	62	0.3	9.6	5.1	72	0.34	5.05		2.32	34.673	26.1	8.12	7.26		
SSW28"	6/24/88		0.13	4.0	0.17	2.4	0.34	4.8	1.6	45	0.3	9.6	5.6	78	0.36	1.50		2.33	34.730	25.8	8.13	7.08		

NELHA Water Quality Laboratory

SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/5/88		0.19	5.9	0.23	3.2	0.34	4.8	1.8	51	0.4	11.5	6.9	97	0.33	11.30		2.32	34.711	26.1	8.26	6.99		
SSW28"	7/28/88		0.12	3.7	0.17	2.4	0.14	2.0	2.8	80	0.4	11.2	5.0	70	0.43	1.25		2.32	34.694	26.3	8.25	6.82		
SSW28"	8/6/88		0.14	4.3	0.23	3.2	0.16	2.2	2.6	74	0.4	11.5	5.6	78	0.39	0.90		2.31	34.692	26.4	8.21	5.91		
SSW28"	8/16/88		0.14	4.3	0.42	5.9	0.11	1.5	4.3	119	0.4	11.2	5.2	73	0.36	0.75		2.31	34.621	26.7	8.22	7.31		
SSW28"	8/31/88		0.16	5.0	0.37	5.2	0.17	2.4	3.9	108	0.4	13.6	6.3	88	0.40			2.32	34.765	27.2	8.27	6.82		
SSW28"	9/2/88		0.12	3.7	0.42	5.9	0.18	2.5	1.8	51	0.3	10.2	5.4	75	0.42									
SSW28"	9/2/88		0.12	3.7	0.30	4.2	0.20	2.8	1.4	40	0.3	10.2	5.3	74	0.34									
SSW28"	9/9/88		0.20	6.2	0.38	5.3	0.23	3.2	2.3	64	0.4	12.1	5.8	82	0.48	0.65		2.32	34.802	27.3	8.24			
SSW28"	9/10/88		0.18	5.6	0.43	6.0	0.14	2.0	2.1	59	0.4	10.8	5.1	71	0.40	1.00		2.32	34.799	27.0	8.26			
SSW28"	9/15/88		0.15	4.6	0.41	5.7	0.14	2.0	2.7	76	0.3	10.2	5.0	70	0.38	1.25		2.33	34.797	27.4	7.97	7.31		
SSW28"	9/23/88		0.14	4.3	0.14	2.0	0.08	1.1	1.7	47	0.4	10.8	5.4	76	0.37	1.25		2.34	34.870	27.2	8.10	6.77		
SSW28"	9/30/88		0.16	5.0	0.57	8.0	0.21	2.9	2.3	64	0.4	11.5	6.2	86	0.32	1.45		2.33	34.843	27.4	8.14	6.77		
SSW28"	10/7/88		0.16	5.0	0.48	6.7	0.21	2.9	2.7	76	0.4	11.2	5.2	73	0.33	0.55		2.33	34.767	27.2	8.35	6.79		
SSW28"	10/14/88		0.15	4.6	0.37	5.2	0.21	2.9	1.9	53	0.4	11.2	5.1	71	0.35	0.80		2.33	34.823	27.9	8.30	6.67		
SSW28"	10/21/88		0.20	6.2	0.28	3.9	0.24	3.4	1.5	42	0.4	12.1	5.5	78	0.34	1.40		2.31	34.539	27.5	8.23	6.75		
SSW28"	10/28/88		0.21	6.5	0.24	3.4	0.27	3.8	1.1	31	0.4	12.1	5.0	69	0.35	2.55		2.31	34.447	27.8	8.22	6.67		
SSW28"	11/4/88		0.25	7.7	0.35	4.9	0.08	1.1	2.2	62	0.4	12.4	6.0	84	0.56	0.95		2.31	34.451	26.9	8.18	6.72		
SSW28"	11/9/88		0.19	5.9	0.37	5.2	0.06	0.8	1.8	50	0.4	11.2	5.1	72	0.49	0.75		2.33	34.595	27.4	8.20	6.71		
SSW28"	11/18/88		0.15	4.6	0.37	5.2	0.11	1.5	1.6	45	0.3	10.2	5.3	75	0.46	0.70		2.33	34.797	26.9	8.22	6.83		
SSW28"	11/25/88		0.20	6.2	0.41	5.7	0.03	0.4	1.8	50	0.4	11.5	5.0	70	0.41	0.70		2.32	34.588	26.5	8.22	6.85		
SSW28"	12/2/88		0.16	5.0	0.41	5.7	0.03	0.4	2.4	67	0.4	12.7	4.7	66	0.39	0.50		2.33	34.699	26.6	8.24	6.89		
SSW28"	12/9/88		0.12	3.7	0.35	4.9	0.11	1.5	1.6	45	0.3	9.0	4.2	58	0.42	0.75		2.33	34.871	26.3	8.28	6.56		
SSW28"	12/16/88		0.14	4.3	0.59	8.3	0.11	1.5	2.4	67	0.3	9.9	5.0	70	0.40	0.85		2.33	34.830	27.0	8.25	6.97		
SSW28"	12/23/88		0.15	4.6	0.43	6.0	0.06	0.8	2.2	62	0.3	9.3	4.2	59	0.37	1.05		2.32	34.734	26.2	8.26	6.97		
SSW28"	1/4/89		0.15	4.6	0.07	1.0	0.04	0.6	1.2	35	0.3	10.2	5.8	82	0.49	0.90		2.33	34.645	25.5	8.25	6.96		
SSW28"	1/12/89		0.16	5.0	0.16	2.2	0.07	1.0	1.6	46	0.3	10.5	6.1	85	0.45	0.70		2.30	34.551	25.2	8.23	6.97		
SSW28"	1/20/89		0.16	5.0	0.16	2.2	0.09	1.3	2.0	57	0.3	10.5	6.5	91	0.45	1.05		2.30	34.456	24.5	8.22	6.82		
SSW28"	1/27/89		0.18	5.6	0.25	3.5	0.09	1.3	2.6	74	0.4	11.2	6.8	95	0.46	1.05		2.30	34.398	24.5	8.24	6.90		
SSW28"	2/1/89		0.18	5.6	0.12	1.7	0.11	1.5	1.4	40	0.4	11.5	5.6	79	0.50	0.75		2.29	34.214	25.2	8.25	6.39		
SSW28"	2/7/89		0.18	5.6	0.18	2.5	0.11	1.5	2.0	57	0.4	11.5	6.2	87	0.47	0.70		2.30	34.280	25.6	8.23	6.87		
SSW28"	2/15/89		0.18	5.6	0.21	2.9	0.09	1.3	2.2	62	0.4	11.2	5.9	83	0.45	0.90		2.30	34.283	25.0	8.24	6.89		
SSW28"	2/21/89		0.18	5.6	0.14	2.0	0.09	1.3	2.2	62	0.4	11.2	6.0	84	0.48	0.75		2.31	34.308	25.2	8.26	6.73		
SSW28"	2/27/89		0.19	5.9	0.30	4.2	0.11	1.5	2.8	79	0.4	11.5	5.4	75	0.46	0.85		2.31	34.271	24.9	8.24	6.77		
SSW28"	3/6/89		0.19	5.9	0.52	7.3	0.16	2.2	2.8	79	0.3	10.5	5.8	82	0.51	0.60		2.33	34.349	25.2	8.25	7.22		
SSW28"	3/13/89		0.20	6.2	0.47	6.6	0.41	5.7	2.4	67	0.4	11.5	5.8	81	0.49	1.05		2.33	34.281	25.2	8.20	7.12		
SSW28"	3/20/89		0.19	5.9	0.28	3.9	0.09	1.3	2.0	56	0.4	10.8	5.3	74	0.47	1.55		2.33	34.397	25.5	8.24	7.03		
SSW28"	3/28/89		0.16	5.0	0.40	5.6	0.11	1.5	3.0	84	0.3	10.5	5.0	70	0.44	0.80		2.34	34.343	25.3	8.25	7.06		
SSW28"	4/4/89		0.20	6.2	0.80	11.2	0.16	2.2	3.4	95	0.4	11.5	5.9	82	0.50	0.65		2.32	34.163	25.8	8.19	6.85		
SSW28"	4/10/89		0.19	5.9	0.59	8.3	0.20	2.8	3.2	90	0.4	11.5	5.7	80	0.49	0.95		2.33	34.217	25.5	8.23	6.93		
SSW28"	4/18/89		0.19	5.9	0.42	5.9	0.20	2.8	3.4	95	0.4	11.8	6.2	87	0.43	0.75		2.33	34.238	25.2	8.24	6.96		
SSW28"	4/24/89		0.23	7.1	0.35	4.9	0.08	1.1	1.6	44	0.4	11.8	4.8	67	0.40	0.70		2.31	34.228	25.8	8.24	6.94		
SSW28"	5/1/89		0.20	6.2	0.33	4.6	0.13	1.8	2.6	72	0.3	10.5	5.4	76	0.39	0.47		2.31	34.377	25.5	8.23	7.23		
SSW28"	5/8/89		0.22	6.8	0.26	3.6	0.16	2.2	2.6	72	0.4	11.8	5.8	81	0.38	0.75		2.31	34.391	25.5	8.25	6.76		
SSW28"	5/15/89		0.19	5.9	0.28	3.9	0.08	1.1	1.6	44	0.4	11.5	6.0	84	0.40			2.32	34.426	25.7	8.25	7.00		
SSW28"	5/22/89		0.19	5.9	0.24	3.4	0.11	1.5	1.6	44	0.4	12.1	7.7	108	0.38			2.32	34.384	25.9	8.23	7.09		
SSW28"	5/30/89		0.20	6.2	0.28	3.9	0.11	1.5	2.2	61	0.4	11.8	6.6	92	0.37			2.30	34.350	26.2	8.26	7.07		
SSW28"	6/5/89		0.23	7.1	0.28	3.9	0.08	1.1	2.0	55	0.4	12.1	5.3	75	0.36			2.31	34.386	26.2	8.22	7.00		
SSW28"	6/13/89		0.22	6.8	0.33	4.6	0.05	0.7	1.8	50	0.4	11.8	4.8	67	0.37			2.32	34.405	26.2	8.23	6.94		
SSW28"	6/19/89		0.22	6.8	0.31	4.3	0.11	1.5	2.8	78	0.4	12.1	5.9	82	0.36			2.32	34.401	26.4		6.94		
SSW28"	6/26/89		0.19	5.9	0.28	3.9	0.13	1.8	2.2	61	0.4	12.7	6.4	90	0.35			2.32	34.445	26.6		7.03		

NELHA Water Quality Laboratory

SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/3/89		0.20	6.2	0.17	2.4	0.10	1.4	1.9	54	0.4	12.1	4.9	69	0.37			2.32	34.500	26.4		6.96		
SSW28"	7/10/89		0.22	6.8	0.22	3.1	0.12	1.7	2.7	76	0.4	12.1	4.8	67	0.40			2.31	34.458	26.6		6.92		
SSW28"	7/17/89		0.20	6.2	0.24	3.4	0.15	2.1	2.7	76	0.4	12.4	4.8	67	0.42			2.32	34.545	26.7		7.10		
SSW28"	7/24/89		0.21	6.5	0.28	3.9	0.15	2.1	2.9	81	0.4	11.7	5.0	69	0.41			2.32	34.531	26.9	8.24	6.89		
SSW28"	8/1/89		0.21	6.5	0.54	7.6	0.19	2.7	4.6	129	0.4	12.1	5.8	81	0.40			2.31	34.418	27.5	8.25	6.83		
SSW28"	8/7/89		0.22	6.8	0.32	4.5	0.19	2.7	4.0	113	0.4	13.0	7.9	111	0.42			2.31	34.502	27.1	8.26	5.86		
SSW28"	8/14/89		0.22	6.8	0.40	5.6	0.19	2.7	2.8	78	0.4	13.3	5.4	75	0.42			2.32	34.557	27.0	8.23	5.64		
SSW28"	8/21/89		0.21	6.5	0.26	3.6	0.12	1.7	1.6	44	0.4	13.0	4.9	69	0.40			2.33	34.670		8.25	5.90		
SSW28"	8/31/89		0.18	5.6	0.44	6.2	0.10	1.4	2.9	80	0.4	11.8	5.1	72	0.49			2.30	34.636		8.25	5.93		
SSW28"	9/5/89		0.19	5.9	0.46	6.4	0.08	1.1	2.6	74	0.4	10.8	6.3	88	0.39			2.30	34.620	27.5	8.25	5.86		
SSW28"	9/11/89		0.18	5.6	0.30	4.2	0.08	1.1	2.2	63	0.4	11.8	5.8	82	0.51			2.31	34.667	26.8	8.26	5.90		
SSW28"	9/19/89		0.18	5.6	0.33	4.6	0.08	1.1	2.0	57	0.4	10.8	6.1	86	0.44			2.31	34.706	26.9	8.26	6.76		
SSW28"	9/27/89		0.18	5.6	0.30	4.2	0.08	1.1	1.8	51	0.4	11.8	5.8	82	0.48			2.34	34.700	27.2	8.25	6.86		
SSW28"	10/3/89		0.15	4.6	0.41	5.7	0.10	1.4	1.8	51	0.3	10.5	4.4	61	0.46			2.34	34.738	27.3	8.24	7.23		
SSW28"	10/9/89		0.14	4.3	0.28	3.9	0.08	1.1	2.0	57	0.3	10.2	4.3	60	0.45			2.34	34.704	27.6	8.22	7.32		
SSW28"	10/16/89		0.12	3.7	0.22	3.1	0.10	1.4	1.0	29	0.3	9.6	3.9	54	0.39			2.31	34.649	27.5	8.56	6.84		
SSW28"	10/23/89		0.14	4.3	0.37	5.2	0.10	1.4	1.6	46	0.3	10.2	4.9	69	0.49			2.33	34.682	27.3	8.25	6.80		
SSW28"	11/1/89		0.14	4.3	0.22	3.1	0.08	1.1	1.4	40	0.3	10.5	4.0	56	0.50			2.33	34.749	26.9	8.21	7.12		
SSW28"	11/9/89		0.14	4.3	0.17	2.4	0.06	0.8	1.6	46	0.3	9.3	4.4	61	0.47			2.33	34.812	26.7	8.25	6.77		
SSW28"	11/13/89		0.15	4.6	0.31	4.3	0.09	1.3	2.7	74	0.3	9.3	4.5	63	0.43			2.34	34.885	26.6	8.26	6.67		
SSW28"	11/20/89		0.14	4.3	0.21	2.9	0.13	1.8	2.2	63	0.3	9.3	5.2	72	0.43			2.33	34.541	26.9	8.26	6.99		
SSW28"	11/27/89		0.14	4.3	0.24	3.4	0.21	2.9	2.5	69	0.3	9.0	5.2	72	0.65			2.33	34.833	24.5	8.23	6.76		
SSW28"	12/7/89		0.15	4.6	0.26	3.6	0.17	2.4	2.2	63	0.3	9.3	4.9	69	0.45	0.61		2.34	34.895	26.5	8.24	6.94		
SSW28"	12/14/89		0.15	4.6	0.24	3.4	0.19	2.7	3.3	92	0.3	9.3	6.0	84	0.45	1.22		2.34	34.926	24.8	8.23	7.40		
SSW28"	12/18/98		0.14	4.3	0.21	2.9	0.21	2.9	2.5	69	0.3	9.0	4.7	65	0.44	0.10		2.33	34.921	25.5	8.24	7.62		
SSW28"	12/26/89		0.14	4.3	0.19	2.7	0.17	2.4	2.9	80	0.3	9.0	4.9	69	0.44	0.92		2.33	34.930	25.6	8.25	8.09		
SSW28"	1/4/90		0.14	4.3	0.24	3.4	0.15	2.1	2.2	63	0.3	9.0	4.6	65	0.42	0.60		2.27	34.933	25.9	8.23	7.73		
SSW28"	1/12/90		0.23	7.1	0.49	6.9	0.08	1.1	2.7	77	0.3	8.7	4.0	56	0.93	1.01		2.27	34.960	25.3	8.25	7.73		
SSW28"	1/18/90		0.23	7.1	1.88	26.3	0.23	3.2	14.7	413	0.3	8.7	5.6	78	1.12	1.01		2.26	34.881	25.7	8.23	7.63		
SSW28"	1/22/90		0.20	6.2	0.50	7.0	0.05	0.7	2.7	75	0.2	7.1	2.9	41	0.91	0.59		2.28	34.848	24.9	8.23	7.69		
SSW28"	2/1/90		0.18	5.6	0.36	5.0	0.05	0.7	2.2	61	0.2	7.4	2.7	37	1.08	0.85		2.28	34.385	25.7	8.23	7.13		
SSW28"	2/8/90		0.18	5.6	0.46	6.4	0.05	0.7	2.8	79	0.3	8.7	3.0	42	1.09	0.48		2.28	34.579	25.2	8.24	7.09		
SSW28"	2/15/90		0.20	6.2	0.45	6.3	0.05	0.7	3.2	89	0.4	12.1	3.0	42	0.97	1.01		2.28	34.561	25.6	8.24	7.17		
SSW28"	2/20/90		0.22	6.8	0.52	7.3	0.05	0.7	3.1	86	0.4	11.2	4.0	55	0.85	0.41		2.31	34.852	24.8	8.24	7.29		
SSW28"	2/26/90		0.21	6.5	0.52	7.3	0.05	0.7	3.3	93	0.3	8.7	3.8	53	1.03	0.44		2.31	34.744	24.5	8.23	7.17		
SSW28"	3/8/90		0.20	6.2	2.77	38.8	0.05	0.7	26.0	730	0.4	11.5	7.1	99	1.35	0.15		2.30	34.598	24.2	8.24	7.09		
SSW28"	3/13/90		0.21	6.5	0.52	7.3	0.05	0.7	2.9	82	0.3	9.3	3.9	55	0.94	0.30		2.30	34.628	24.8	8.23	7.12		
SSW28"	3/21/90		0.20	6.2	0.52	7.3	0.05	0.7	2.9	82	0.4	11.2	4.0	56	0.86	0.23		2.30	34.641	24.6	8.26	7.09		
SSW28"	3/27/90		0.20	6.2	0.47	6.6	0.05	0.7	2.9	82	0.5	14.2	3.4	47	0.96	0.30		2.30	34.729	24.5	8.25	7.19		
SSW28"	4/2/90		0.03	0.9	0.12	1.7	0.26	3.6	3.3	91	0.3	10.2	4.0	56	0.90	0.34		2.30	34.512	25.1	8.25	7.03		
SSW28"	4/9/90		0.05	1.5	0.17	2.4	0.23	3.2	3.1	87	0.3	9.3	4.4	61	0.94	0.19		2.30	34.549	25.1	8.24	7.01		
SSW28"	4/16/90		0.01	0.3	0.02	0.2	0.15	2.1	2.4	68	0.4	11.2	4.2	58	1.07	0.42		2.28	34.665	25.5	8.28	6.97		
SSW28"	4/23/90		0.17	5.3	0.20	2.8	0.01	0.1	1.5	41	0.5	15.5	5.8	81	2.31	0.33		2.27	34.480	25.8	8.25	6.32		
SSW28"	4/30/90		0.16	5.0	0.23	3.2	0.01	0.1	1.5	41	0.5	14.6	6.8	96	1.21	0.19		2.29	34.749	25.8	8.23	6.44		
SSW28"	5/7/90		0.16	5.0	0.24	3.4	0.09	1.3	2.4	68	0.5	13.9	5.9	83	0.96	0.52		2.28	34.679	26.1	8.28	6.39		
SSW28"	5/14/90		0.16	5.0	0.29	4.1	0.09	1.3	1.9	54	0.5	14.6	6.8	96	0.93	0.70		2.29	34.769	25.8	8.26	6.47		
SSW28"	5/21/90		0.16	5.0	0.26	3.6	0.18	2.5	2.6	72	0.5	14.6	6.5	90	0.96	0.54		2.29	34.759	25.2	8.32	6.82		
SSW28"	5/29/90		0.16	5.0	0.25	3.5	0.18	2.5	2.0	56	0.5	16.1	6.3	89		1.06		2.29	34.649	26.3	8.30	6.85		
SSW28"	6/4/90		0.16	5.0	0.29	4.1	0.27	3.8	2.1	60	0.5	14.6	7.0	98	2.90	0.69		2.29	34.706	25.9	8.30	6.76		
SSW28"	6/11/90		0.03	0.9	0.14	2.0	0.37	5.2	1.9	53	0.1	1.9	9.8	138	3.41	1.40		2.27	34.659	26.1	8.32	6.64		
SSW28"	6/18/90		0.08	2.5	0.24	3.4	0.37	5.2	3.0	83	0.1	3.4	2.6	36	7.54	0.12		2.28	34.627	26.2	8.31	6.44		
SSW28"	6/25/90		0.05	1.5	0.22	3.1	0.44	6.2	2.3	63	0.1	3.4	3.1	43	1.00	0.89		2.29	34.688	26.4	8.31	6.57		

NELHA Water Quality Laboratory

SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/2/90		0.08	2.5	0.17	2.4	0.37	5.2	1.9	53	0.1	3.4	3.3	46	2.66	0.37		2.29	34.734	26.3	8.29	6.60		
SSW28"	7/6/90		0.08	2.5	0.20	2.8	0.40	5.6	2.6	73	0.1	4.0	3.3	46	1.06	0.53		2.30	34.744	26.0	8.30	6.60		
SSW28"	7/13/90		0.10	3.1	0.14	2.0	0.44	6.2	2.0	57	0.1	3.4	2.9	41	1.18	0.51		2.30	34.714	26.4	8.29	6.76		
SSW28"	7/23/90		0.08	2.5	0.11	1.5	0.37	5.2	2.3	63	0.1	3.4	3.7	52	3.27	0.53		2.31	34.727	26.8	8.30	6.44		
SSW28"	7/30/90		0.05	1.5	0.14	2.0	0.37	5.2	1.8	52	0.1	4.0	5.7	80	1.95	0.32		2.30	34.700	27.5	8.27	6.39		
SSW28"	8/6/90		0.10	3.1	0.20	2.8	0.59	8.3	1.8	50	0.4	13.6	3.4	47	3.62	0.32		2.31	34.686	27.7	8.29	6.33		
SSW28"	8/13/90		0.14	4.3	0.20	2.8	0.43	6.0	2.0	55	0.4	13.0	3.1	43	1.04	0.49		2.31	34.751	27.4	8.28	6.43		
SSW28"	8/20/90		0.09	2.8	0.15	2.1	0.51	7.1	1.8	50	0.4	13.0	3.4	48	1.42	0.58		2.30	34.735	27.6	8.29	6.55		
SSW28"	8/27/90		0.09	2.8	0.20	2.8	0.43	6.0	2.1	60	0.4	11.8	2.7	38	2.57	0.61		2.31	34.735	27.9	8.28	6.40		
SSW28"	9/4/90		0.13	4.0	0.33	4.6	0.51	7.1	3.1	87	0.4	13.0	2.8	39	2.13	0.72		2.32	34.764	28.1	8.27	6.71		
SSW28"	9/10/90		0.14	4.3	0.20	2.8	0.59	8.3	4.0	113	0.4	13.0	2.7	38	0.85	0.69		2.31	34.789	27.9	8.29	7.39		
SSW28"	9/17/90		0.14	4.3	0.25	3.5	0.51	7.1	2.2	63	0.4	13.6	4.0	56	1.20	0.62		2.32	34.756	28.4	8.26	6.64		
SSW28"	9/24/90		0.13	4.0	0.23	3.2	0.51	7.1	2.4	66	0.4	12.1	3.7	51	1.36	0.74		2.32	34.770	28.3	8.28	6.46		
SSW28"	10/1/90		0.13	4.0	0.23	3.2	0.51	7.1	1.8	50	0.5	13.9	3.9	55	1.07	0.81		2.26	34.790	27.9	8.28	6.57		
SSW28"	10/10/90		0.14	4.3	0.25	3.5	0.75	10.5	2.5	69	0.4	11.8	3.7	51	0.94	0.58		2.26	34.786	27.9	8.29	6.40		
SSW28"	10/15/90		0.18	5.6	0.67	9.4	1.23	17.2	2.5	69	0.5	13.9	4.0	56	1.04	0.69		2.26	34.779	28.0	8.24	6.16		
SSW28"	10/22/90		0.09	2.8	0.20	2.8	0.43	6.0	2.7	77	0.4	13.0	3.3	47	3.03	0.65		2.25	34.846	27.4	8.27	6.54		
SSW28"	10/29/90		0.10	3.1	0.42	5.9	0.15	2.2	3.6	100	0.2	5.0	5.0	70	2.60	0.77		2.25	34.899	27.2	8.27	6.23		
SSW28"	11/5/90		0.08	2.5	0.17	2.4	0.08	1.1	2.1	58	0.1	3.4	3.8	54	1.02	0.75		2.26	34.882	27.4	8.27	6.36		
SSW28"	11/13/90		0.05	1.5	0.12	1.7	0.26	3.6	2.5	70	0.3	9.3	3.4	47	1.18	0.67		2.26	34.990	26.4	8.25	6.23		
SSW28"	11/20/90		0.05	1.5	0.12	1.7	0.26	3.6	2.8	78	0.3	10.2	3.4	47	1.21	1.11		2.26	34.968	25.9	8.28	6.36		
SSW28"	11/28/90		0.05	1.5	0.26	3.6	0.26	3.6	3.6	101	0.3	10.2	3.3	47	0.94	2.90		2.27	34.861	26.2	8.30	6.28		
SSW28"	12/3/90		0.07	2.2	0.12	1.7	0.20	2.8	4.4	124	0.4	11.2	2.9	40	0.98	0.91		2.28	34.657	26.5	8.29	6.34		
SSW28"	12/11/90		0.09	2.8	0.12	1.7	0.26	3.6	5.9	165	0.4	11.2	3.0	42	1.02	0.44		2.28	34.631	26.4	8.26	6.41		
SSW28"	12/17/90		0.09	2.8	0.16	2.2	0.26	3.6	3.6	101	0.4	11.2	3.0	42	0.82	1.05		2.29	34.782	26.4	8.28	6.56		
SSW28"	12/28/90		0.11	3.4	0.14	2.0	0.13	1.8	2.7	76	0.4	12.4	4.8	67	0.91	1.08		2.29	34.666	25.4	8.29	6.41		
SSW28"	1/2/91		0.08	2.5	0.09	1.3	0.16	2.2	2.2	62	0.4	12.4	3.2	45	1.05	0.76		2.28	34.740	25.6	8.31	6.57		
SSW28"	1/7/91		0.14	4.3	0.20	2.8	0.18	2.5	2.3	64	0.4	11.2	3.1	43	0.95	0.90		2.28	34.707	25.5	8.31	6.59		
SSW28"	1/14/91		0.11	3.4	0.09	1.3	0.16	2.2	2.1	58	0.5	14.2	3.3	46	0.97	0.97		2.28	34.710	25.1	8.29	6.62		
SSW28"	1/24/91		0.06	2.0	0.23	3.2	0.35	4.9	2.4	68	0.3	8.4	2.9	41	1.45	1.12		2.28	34.741	25.1	8.31	6.60		
SSW28"	1/28/91		0.08	2.5	0.23	3.2	0.38	5.3	2.0	56	0.2	7.1	2.9	41	0.90	0.83		2.25	34.794	24.9	8.30	6.86		
SSW28"	2/4/91		0.06	1.9	0.10	1.4	0.38	5.3	2.3	64	0.3	9.9	3.1	44	0.96	0.89		2.25	34.744	25.1	8.30	6.77		
SSW28"	2/11/91		0.10	3.0	0.26	3.6	0.38	5.3	3.0	83	0.3	9.9	3.7	52	1.56	0.15		2.24	34.748	25.2	8.30	6.83		
SSW28"	2/19/91		0.10	3.1	0.21	2.9	0.38	5.3	2.6	74	0.2	7.4	3.5	49	1.11	0.56		2.25	34.801	25.2	8.31	6.76		
SSW28"	2/25/91		0.14	4.3	0.33	4.6	0.45	6.3	3.4	96	0.2	7.4	3.1	43	0.97	0.29		2.25	34.774	25.0	8.29	6.73		
SSW28"	3/4/91		0.14	4.3	0.33	4.6	0.38	5.3	3.3	91	0.2	7.4	3.3	46	0.96	1.51		2.26	34.820	24.9	8.29	6.86		
SSW28"	3/11/91		0.12	3.7	0.36	5.0	0.40	5.6	2.9	81	0.3	8.7	3.4	47	0.98	0.43		2.26	34.837	24.8	8.28	6.69		
SSW28"	3/18/91		0.12	3.7	0.39	5.5	0.38	5.3	2.6	74	1.4	43.1	3.5	48	0.87	0.25		2.25	34.801	23.6	8.27	9.68		
SSW28"	3/27/91		0.14	4.3	0.39	5.5	0.35	4.9	2.6	72	0.2	7.1	2.9	41	0.89	0.04		2.24	34.738	24.7	8.28	11.10		
SSW28"	4/1/91		0.12	3.7	0.33	4.6	0.35	4.9	2.3	64	0.3	8.7	4.0	56	1.21	0.04		2.24	34.769	24.5	8.27	10.91		
SSW28"	4/8/91		0.09	2.8	0.19	2.7	0.45	6.3	3.1	88	0.2	6.8	2.8	39	1.18	0.19		2.38	34.729	24.8	8.28	6.62		
SSW28"	4/15/91		0.09	2.8	0.19	2.7	0.45	6.3	3.4	96	0.3	8.4	3.1	43	0.99	0.37		2.38	34.645	25.3	8.27	21.72		
SSW28"	4/23/91		0.09	2.8	0.14	2.0	0.48	6.7	2.7	76	0.3	9.3	3.0	43	0.93	0.19		2.37	34.589	24.9	8.27	12.43		
SSW28"	4/29/91		0.09	2.8	0.19	2.7	0.43	6.0	2.1	59	0.3	8.4	2.6	36	0.93	0.13		2.38	34.642	25.1	8.29	14.23		
SSW28"	5/6/91		0.09	2.8	0.19	2.7	0.40	5.6	3.0	84	0.3	8.7	3.0	43	1.02	0.32		2.37	34.630	25.4	8.30	6.61		
SSW28"	5/8/91																					6.45		
SSW28"	5/13/91		0.09	2.8	0.19	2.7	0.39	5.5	2.4	67	0.3	8.7	2.7	38	1.20	0.32		2.38	34.661	25.3	8.30	6.77		
SSW28"	5/20/91		0.09	2.8	0.06	0.8	0.50	7.0	1.7	48	0.4	11.2	3.3	46	1.18	0.49		2.37	34.508	26.0	8.30	6.75		
SSW28"	5/28/91		0.07	2.2	0.17	2.4	0.21	2.9	2.3	65	0.3	10.5	4.3	60	1.04	0.30		2.38	34.590	25.5	8.30	6.64		
SSW28"	6/4/91		0.07	2.2	0.17	2.4	0.24	3.4	3.1	87	0.3	10.5	4.3	60	1.15	0.31		2.37	34.578	26.1	8.30	6.64		
SSW28"	6/10/91		0.06	1.9	0.19	2.7	0.18	2.5	10.8	303	0.3	10.5	3.6	50	0.98	0.47		2.39	34.619	25.9	8.28	6.69		
SSW28"	6/17/91		0.06	1.9	0.21	2.9	0.26	3.6	2.9	82	0.3	9.6	3.6	50	0.94	0.76		2.31	34.633	26.1	8.27	6.58		
SSW28"	6/24/91		0.07	2.2	0.21	2.9	0.21	2.9	3.7	104	0.3	10.5	2.6	37	1.05	0.22		2.32	34.674	25.9	8.27	6.81		

NELHA Water Quality Laboratory

SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/1/91		0.11	3.4	1.57	22.0	0.40	5.6	18.3	514	0.4	13.6	3.0	41	1.05	0.23		2.31	34.666	26.1	8.27	6.77		
SSW28"	7/9/91		0.07	2.2	0.29	4.1	0.26	3.6	3.5	99	0.4	11.2	5.1	72	0.98	0.50		2.33	34.643	26.8	8.27	6.65		
SSW28"	7/16/91		0.05	1.5	0.16	2.2	0.22	3.1	2.5	69	0.2	7.4	2.3	32	1.05	0.74		2.34	34.706	26.4	8.28	6.70		
SSW28"	7/22/91		0.08	2.5	0.12	1.7	0.22	3.1	4.1	115	0.3	9.0	2.4	34	1.10	0.64		2.33	34.690	26.4	8.28	6.68		
SSW28"	7/26/91		0.08	2.5	0.09	1.3	0.22	3.1	2.0	56	0.3	9.3	2.6	36	0.96	0.50		2.33	34.646	26.3	8.27	6.74		
SSW28"	8/5/91		0.08	2.5	0.09	1.3	0.25	3.5	1.9	52	0.3	9.0	2.2	30	0.85	0.26		2.33	34.650	26.4	8.25	6.75		
SSW28"	8/15/91		0.12	3.7	0.21	2.9	0.34	4.8	2.3	65	0.3	10.5	3.9	55	1.11	0.42		2.33	34.654	26.5	8.28	6.69		
SSW28"	8/21/91		0.06	1.9	0.07	1.0	0.33	4.6	3.5	97	0.2	5.9	5.9	83	0.87	0.04		2.33	34.606	27.1	8.29	6.55		
SSW28"	8/27/91		0.05	1.5	0.54	7.6	0.15	2.1	4.0	113	0.2	7.1	5.6	79	1.06	0.18		2.33	34.628	27.0	8.28	6.57		
SSW28"	9/6/91		0.08	2.5	0.27	3.8	0.68	9.5	2.5	69	0.2	5.3	4.0	56	0.99	0.13		2.33	34.678	26.8	8.26	6.55		
SSW28"	9/13/91		0.03	0.9	0.27	3.8	0.28	3.9	2.9	81	0.2	7.1	2.8	39	0.93	0.28		2.34	34.813	26.7	8.27	6.34		
SSW28"	9/18/91		0.05	1.5	0.27	3.8	0.42	5.9	3.2	89	0.2	5.3	3.2	44	0.95	0.54		2.34	34.832	26.9	8.29	6.39		
SSW28"	9/25/91		0.02	0.6	0.20	2.8	0.19	2.7	2.3	65	0.2	5.9	3.0	41	1.07	0.45		2.35	34.839	27.1	8.24	6.75		
SSW28"	10/1/91		0.05	1.5	0.27	3.8	0.37	5.2	3.5	97	0.2	7.1	3.5	49	0.95	0.31		2.34	34.725	26.8	8.25	6.40		
SSW28"	10/9/91		0.11	3.4	0.23	3.2	0.14	2.0	2.2	60	0.3	9.0	4.1	58	1.39	0.34		2.35	34.737	26.9	8.23	7.44		
SSW28"	10/25/91		0.05	1.5	0.18	2.5	0.10	1.4	2.8	79	0.3	9.6	3.1	44	1.74	0.47		2.34	34.773	27.2	8.25	6.46		
SSW28"	11/4/91		0.03	0.9	0.32	4.5	0.18	2.5	2.5	69	0.3	8.7	4.4	62	1.29	0.13		2.34	34.777	27.4	8.25	6.55		
SSW28"	11/8/91		0.03	0.9	0.26	3.6	0.20	2.8	2.6	73	0.3	10.5	3.7	52	1.40	0.58		2.34	34.736	27.1	8.27	6.50		
SSW28"	11/14/91		0.07	2.2	0.21	2.9	0.19	2.7	2.0	55	0.3	9.3	3.3	47	0.95	0.33		2.34	34.815	26.8	8.26	6.47		
SSW28"	11/22/91		0.07	2.2	0.34	4.8	0.21	2.9	5.3	148	0.3	10.2	3.2	44	1.01	0.20		2.35	34.854	26.7	8.26	6.52		
SSW28"	11/29/91		0.09	2.8	0.39	5.5	0.25	3.5	12.3	345	0.3	10.2	3.1	43	0.96	0.28		2.29	34.795	26.6	8.27	6.45		
SSW28"	12/6/91		0.07	2.2	0.17	2.4	0.29	4.1	2.2	60	0.4	10.8	3.0	42	0.96	0.25		2.30	34.852	26.4	8.26	6.61		
SSW28"	12/12/91		0.14	4.3	3.94	55.2	0.29	4.1	37.4	1050	0.4	12.1	6.9	96	1.02	0.25		2.30	34.851	26.1	8.26	6.56		
SSW28"	12/19/91		0.09	2.8	0.26	3.6	0.27	3.8	2.4	66	0.3	10.2	4.1	57	0.99	0.06		2.29	34.784	25.9	8.26	6.70		
SSW28"	12/23/91		0.11	3.4	0.63	8.8	0.43	6.0	4.0	112	0.3	9.6	7.6	106	0.97	0.11		2.29	34.666	25.9	8.25	6.57		
SSW28"	1/3/92		0.10	3.1	0.63	8.8	0.38	5.3	1.8	49	0.3	9.6	6.7	94	1.67	0.19		2.29	34.691	25.3	8.28	6.65		
SSW28"	1/10/92		0.08	2.5	0.63	8.8	0.38	5.3	2.3	66	0.3	9.6	6.7	94	1.08	0.89		2.29	34.740	24.9	8.30	6.71		
SSW28"	1/16/92		0.11	3.4	0.85	11.9	0.38	5.3	2.9	82	0.3	9.6	6.6	92	0.99	0.17		2.29	34.793	24.6	8.29	7.02		
SSW28"	1/22/92		0.12	3.7	0.15	2.1	0.23	3.2	2.6	74	0.3	9.9	3.3	46	1.04	0.23		2.29	34.809	24.4	8.32	6.79		
SSW28"	1/30/92		0.15	4.6	0.44	6.2	0.23	3.2	3.5	98	0.3	9.9	4.1	58	1.60	0.02		2.29	34.508	24.6	8.27	6.94		
SSW28"	2/6/92		0.14	4.3	0.20	2.8	0.21	2.9	2.3	65	0.3	9.6	3.3	46	1.29	0.44		2.30	34.701	24.2	8.29	6.87		
SSW28"	2/14/92		0.11	3.4	0.24	3.4	0.36	5.0	4.3	121	0.4	12.1	3.5	48	0.96	0.33		2.30	34.692	24.4	8.27	6.76		
SSW28"	2/20/92		0.14	4.3	0.24	3.4	0.31	4.3	4.1	116	0.4	12.4	3.5	49	0.87	0.30		2.30	34.674	24.5	8.26	6.84		
SSW28"	2/27/92		0.14	4.3	0.24	3.4	0.36	5.0	2.6	74	0.3	10.2	3.2	44	0.94	0.07		2.30	34.609	24.1	8.26	6.84		
SSW28"	3/5/92		0.08	2.5	0.09	1.3	0.35	4.9	3.7	104	0.3	9.9	5.1	71	1.12	0.23		2.30	34.659	24.8	8.27	6.95		
SSW28"	3/12/92		0.15	4.6	0.09	1.3	0.31	4.3	2.2	63	0.3	9.9	4.0	56	1.08	0.12		2.27	34.185	24.9	8.26	6.85		
SSW28"	3/20/92		0.12	3.7	0.09	1.3	0.31	4.3	2.6	72	0.3	10.2	4.8	67	1.14	0.08		2.28	34.399	24.2	8.25	6.73		
SSW28"	3/25/92		0.15	4.6	0.09	1.3	0.40	5.6	2.6	72	0.3	10.2	3.6	50	0.99	0.14		2.29	34.591	24.4	8.27	6.79		
SSW28"	4/2/92		0.12	3.7	0.06	0.8	0.31	4.3	2.1	58	0.4	10.8	4.3	61	1.25	0.49		2.29	34.571	24.7	8.27	6.80		
SSW28"	4/9/92		0.15	4.6	0.34	4.8	0.33	4.6	2.6	72	0.3	9.9	4.7	65	1.22	0.29		2.27	34.603	24.5	8.26	6.73		
SSW28"	4/21/92		0.08	2.5	0.24	3.4	0.44	6.2	2.7	76	0.3	9.3	5.4	75	1.39	0.30		2.26	34.481	25.3	8.25	6.52		
SSW28"	4/24/92		0.07	2.2	0.16	2.2	0.42	5.9	1.7	49	0.3	9.3	5.4	75	1.24	0.17		2.26	34.452	25.2	8.26	6.60		
SSW28"	5/1/92		0.08	2.5	0.24	3.4	0.49	6.9	2.7	76	0.3	9.3	5.7	80	1.50	1.05		2.26	34.497	25.5	8.25	6.84		
SSW28"	5/7/92		0.08	2.5	0.24	3.4	0.44	6.2	3.0	84	0.3	9.3	6.4	90	1.69	0.68		2.25	34.527	25.5	8.26	6.81		
SSW28"	5/15/92		0.08	2.5	0.41	5.7	0.64	9.0	4.1	116	0.3	9.9	8.1	113	1.51	0.35		2.26	34.514	25.6	8.23	6.71		
SSW28"	5/21/92		0.08	2.5	0.24	3.4	0.44	6.2	2.2	61	0.3	9.3	7.0	98	1.44	0.12		2.26	34.563	26.4	8.23	6.73		
SSW28"	5/29/92		0.04	1.1	0.24	3.4	0.53	7.4	2.3	65	0.4	10.8	6.4	90	1.63	0.18		2.26	34.585	25.5	8.26	6.81		
SSW28"	6/4/92		0.05	1.5	0.33	4.6	0.42	5.9	1.9	53	0.4	12.7	9.1	127	1.61	0.26		2.26	34.625	26.2	8.24	6.81		
SSW28"	6/9/92		0.08	2.5	0.03	0.4	0.43	6.0	2.3	65	0.5	16.4	4.8	67	1.46	0.12		2.26	34.585	26.0	8.25	6.87		
SSW28"	6/19/92		0.13	4.0	0.15	2.1	0.67	9.4	2.0	57	0.4	11.2	4.8	67	1.44	0.40		2.28	34.555	26.6	8.25	6.70		
SSW28"	6/25/92		0.19	5.9	0.31	4.3	1.56	21.9	2.4	67	0.2	7.4	3.9	55	1.34	0.41		2.29	34.656	26.2	8.25	6.83		

NELHA Water Quality Laboratory

SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/2/92		0.20	6.2	0.39	5.5	0.66	9.3	2.9	80	0.3	9.6	7.0	98	1.20	0.29		2.28	34.558	27.1	8.25	6.64		
SSW28"	7/9/92		0.23	7.2	0.27	3.7	0.57	8.0	1.4	40	0.2	7.5	4.3	60	1.16	0.12		2.30	34.643	26.9	8.26	6.69		
SSW28"	7/16/92		0.13	4.1	0.27	3.7	0.48	6.7	1.3	36	0.4	11.1	5.3	74	1.10	0.20		2.31	34.633	27.5	8.26	6.52		
SSW28"	7/23/92		0.13	4.1	0.27	3.7	0.44	6.1	1.3	36	0.4	11.6	4.3	60	1.11	0.06		2.31	34.624	27.8	8.26	6.54		
SSW28"	7/31/92		0.08	2.5	0.20	2.9	0.25	3.5	1.5	42	0.4	12.1	4.7	66	1.15	0.04		2.30	34.630	27.4	8.21	6.59		
SSW28"	8/6/92		0.08	2.5	0.38	5.3	0.25	3.5	2.2	61	0.3	9.9	4.3	60	1.11	0.23		2.31	34.661	27.5	8.27	6.45		
SSW28"	8/14/92		0.08	2.5	0.27	3.8	0.25	3.5	1.5	42	0.3	9.6	4.0	55	1.27	0.18		2.31	34.616	27.0	8.27	6.60		
SSW28"	8/20/92		0.08	2.5	0.34	4.8	0.23	3.2	2.7	76	0.3	9.6	4.1	57	1.34	0.47		2.31	34.667	27.2	8.27	6.57		
SSW28"	8/27/92		0.08	2.5	0.31	4.3	0.25	3.5	2.0	56	0.3	9.0	4.4	61	1.21	0.16		2.33	34.707	27.3	8.24	6.60		
SSW28"	9/3/92		0.08	2.5	0.24	3.3	0.25	3.5	3.6	100	0.3	9.6	5.2	73	1.45	0.25		2.31	34.696	27.2	8.27	6.51		
SSW28"	9/10/92		0.08	2.5	0.24	3.3	0.30	4.2	1.8	50	0.4	12.1	5.9	82	1.17	0.26		2.31	34.663	27.8	8.26	6.46		
SSW28"	9/17/92		0.13	4.0	0.33	4.6	0.49	6.9	3.2	90	0.4	13.0	6.3	89	1.25	0.14		2.30	34.608	27.5	8.27	6.28		
SSW28"	9/25/92		0.20	6.2	0.25	3.5	0.44	6.2	3.0	85	0.4	13.0	7.5	105	1.36	0.22		2.30	34.589	27.8	8.26	6.26		
SSW28"	10/1/92		0.17	5.3	0.18	2.5	0.46	6.4	1.7	48	0.4	12.7	5.9	82	1.38	0.18		2.30	34.644	27.6	8.28	6.43		
SSW28"	10/8/92		0.17	5.3	0.22	3.1	0.44	6.2	2.1	58	0.4	12.7	7.5	105	1.02	0.03		2.30	34.642	27.7	8.28	6.28		
SSW28"	10/16/92		0.17	5.3	0.18	2.5	0.51	7.1	2.4	67	0.4	12.7	7.2	101	0.96	0.30		2.30	34.665	27.8	8.28	6.48		
SSW28"	10/22/92		0.15	4.6	1.46	20.4	0.82	11.5	1.5	42	0.4	13.6	6.5	91	1.12	0.51		2.30	34.558	27.2	8.27	6.02		
SSW28"	10/29/92		0.08	2.5	0.13	1.8	0.53	7.4	1.7	49	0.4	11.8	4.6	64	1.08	0.21		2.30	34.653	27.8	8.26	6.53		
SSW28"	11/5/92		0.10	3.1	0.25	3.5	0.55	7.7	1.8	51	0.4	11.8	5.2	73	1.11	0.18		2.30	34.682	26.9	8.29	6.55		
SSW28"	11/12/92		0.10	3.1	0.23	3.2	0.50	7.0	2.2	61	0.5	15.2	4.4	62	1.06	0.15		2.31	34.680	27.2	8.28	6.55		
SSW28"	11/19/92		0.13	4.0	0.24	3.4	0.65	9.1	3.2	90	0.3	9.9	4.2	59	1.21	0.19		2.31	34.701	26.8	8.26	6.50		
SSW28"	11/25/92		0.14	4.3	0.25	3.5	0.67	9.4	3.1	87	0.4	11.5	4.9	69	1.23	0.10		2.31	34.725	26.1	8.27	6.56		
SSW28"	12/3/92		0.10	3.1	0.23	3.2	0.44	6.2	2.3	63	0.4	11.8	5.0	69	1.12	0.03		2.30	34.689	26.7	8.26	6.09		
SSW28"	12/10/92		0.09	2.8	0.22	3.1	0.41	5.7	2.7	76	0.3	10.5	5.3	74	1.07	0.74		2.30	34.726	26.5	8.28	6.82		
SSW28"	12/17/92		0.10	3.1	0.22	3.1	0.47	6.6	2.5	71	0.4	11.5	5.5	77	1.09	0.26		2.30	34.691	26.2	8.26	6.72		
SSW28"	12/23/92		0.09	2.8	0.24	3.4	0.50	7.0	2.8	79	0.4	12.1	5.2	72	1.22	0.22		2.30	34.708	25.9	8.29	6.69		
SSW28"	12/30/92		0.11	3.4	0.14	2.0	0.69	9.7			0.5	16.1	5.3	74	1.21	0.15		2.30	34.729	25.7	8.29	6.75		
SSW28"	1/7/93		0.12	3.7	0.23	3.2	0.43	6.0	3.9	108	0.3	9.9	4.5	62	1.11	0.12		2.30	34.685	25.1	8.29	6.95		
SSW28"	1/14/93		0.08	2.5	0.19	2.7	0.41	5.7	2.4	68	0.3	8.1	4.7	66	1.11	0.20		2.31	34.744	24.6	8.26	7.10		
SSW28"	1/21/93		0.08	2.5	0.19	2.7	0.53	7.4	1.9	54	0.3	8.1	4.2	59	1.19	0.24		2.30	34.749	24.9	8.28	6.92		
SSW28"	1/28/93		0.06	1.9	0.12	1.7	0.43	6.0	2.8	78	0.2	6.2	4.4	61	1.14	0.34		2.31	34.764	24.6	8.29	7.04		
SSW28"	2/3/93		0.08	2.5	0.17	2.4	0.33	4.6	1.7	46	0.2	6.2	4.3	60	1.02	0.17		2.31	34.738	24.7	8.28	7.09		
SSW28"	2/11/93		0.11	3.4	0.23	3.2	0.21	2.9	2.6	74	0.3	7.7	4.9	68	0.97	0.24		2.31	34.735	24.3	8.28	6.94		
SSW28"	2/16/93		0.15	4.6	0.27	3.8	0.37	5.2	2.8	79	0.2	6.2	4.0	55	1.07	0.18		2.31	34.766	24.3	8.30	7.02		
SSW28"	2/25/93		0.08	2.5	0.23	3.2	0.11	1.5	3.6	102	0.2	6.2	5.4	76	1.17	0.46		2.31	34.725	24.2	8.29	7.12		
SSW28"	3/3/93		0.08	2.5	0.30	4.2	0.18	2.5	3.0	85	0.2	5.6	3.9	55	1.28	1.12		2.31	34.738	24.1	8.28	7.03		
SSW28"	3/11/93		0.12	3.7	0.12	1.7	0.28	3.9	2.5	70	0.2	6.8	4.7	66	1.07	0.47		2.31	34.761	24.3	8.29	6.81		
SSW28"	3/18/93		0.15	4.6	0.22	3.1	0.43	6.0	3.2	89	0.2	4.6	4.4	61	1.03	0.04		2.32	34.779	24.4	8.29	7.28		
SSW28"	3/24/93		0.14	4.3	0.11	1.5	0.35	4.9	2.3	64	0.2	7.1	5.3	75	1.04	0.08		2.32	34.764	25.1	8.28	6.97		
SSW28"	4/1/93		0.09	2.8	0.13	1.8	0.16	2.2	2.0	55	0.2	7.1	5.2	72	1.03	0.07		2.30	34.605	24.5	8.28	6.73		
SSW28"	4/7/93		0.12	3.7	0.15	2.1	0.12	1.7	1.9	54	0.3	9.0	4.8	67	1.03	0.59		2.30	34.555	24.9	8.31	7.45		
SSW28"	4/15/93		0.09	2.8	0.10	1.4	0.14	2.0	1.8	50	0.3	8.4	4.0	56	1.00	0.17		2.31	34.698	25.0	8.29	6.94		
SSW28"	4/22/93		0.11	3.4	0.09	1.3	0.16	2.2	2.8	78	0.3	9.0	4.3	60	1.00	0.26		2.30	34.598	25.1	8.28	6.94		
SSW28"	4/29/93		0.11	3.4	0.10	1.4	0.20	2.8	2.9	82	0.3	8.4	3.8	54	1.12	0.01		2.30	34.440	25.6	8.27	6.80		
SSW28"	5/6/93		0.10	3.1	0.09	1.3	0.28	3.9	2.4	68	0.3	9.0	4.5	64	1.07	0.12		2.31	34.661	25.3	8.29	6.93		
SSW28"	5/13/93		0.13	4.0	0.19	2.7	0.28	3.9	4.8	133	0.3	8.1	5.0	70	0.94	0.30		2.30	34.559	25.4	8.26	6.82		
SSW28"	5/18/93		0.16	5.0	0.15	2.1	0.28	3.9	2.6	74	0.3	10.5	4.1	57	0.93	0.18		2.29	34.396	25.4	8.28	6.80		
SSW28"	5/27/93		0.14	4.3	0.12	1.7	0.25	3.5	2.4	67	0.4	11.2	4.3	60	0.98	0.22		2.30	34.448	25.6	8.27	7.12		
SSW28"	6/1/93		0.11	3.4	0.10	1.4	0.29	4.1	2.3	64	0.2	6.8	5.2	73	1.00	0.24		2.30	34.481	25.6	8.28	6.87		
SSW28"	6/8/93		0.10	3.1	0.23	3.2	0.38	5.3	4.0	113	0.3	8.1	4.6	64	0.98	0.28		2.30	34.540	26.4	8.27	6.71		
SSW28"	6/16/93		0.10	3.1	0.12	1.7	0.31	4.3	2.1	58	0.3	8.4	3.6	51	1.00	0.19		2.30	34.585	26.3	8.26	6.72		
SSW28"	6/24/93		0.09	2.8	0.10	1.4	0.31	4.3	1.5	43	0.3	8.4	4.9	68	1.05	0.22		2.31	34.643	25.8	8.28	6.74		
SSW28"	6/30/93		0.11	3.4	0.46	6.4	0.37	5.2	5.8	163	0.3	9.9	4.5	64	1.11	0.29		2.30	34.490	26.2	8.25	6.58		

NELHA Water Quality Laboratory

SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/6/93		0.13	4.0	0.46	6.4	0.36	5.0	2.5	70	0.3	8.7	6.0	83	0.95	0.19		2.31	34.495	26.5	8.27	6.64		
SSW28"	7/12/93		0.12	3.7	0.19	2.7	0.48	6.7	2.1	59	0.3	8.1	4.7	66	1.01	0.19		2.31	34.643	26.1	8.28	6.70		
SSW28"	7/19/93		0.09	2.8	0.22	3.1	0.30	4.2	2.4	68	0.3	8.7	4.6	64	1.05	0.23		2.31	34.603	26.8	8.28	6.68		
SSW28"	7/30/93		0.12	3.7	0.12	1.7	0.41	5.7	2.2	62	0.3	10.5	1.7	24	0.95	0.22		2.32	34.595	26.3	8.28	7.08		
SSW28"	8/4/93		0.06	1.9	0.17	2.4	0.28	3.9	2.9	81	0.2	6.5	3.9	54	1.06	1.28		2.32	34.619	26.1	8.25	6.55		
SSW28"	8/10/93		0.09	2.8	0.17	2.4	0.25	3.5	2.6	73	0.3	8.7	3.9	55	1.04	0.47		2.32	34.571	26.7	8.26	7.00		
SSW28"	8/18/93		0.12	3.7	0.23	3.2	0.44	6.2	2.2	62	0.3	10.2	3.8	53	1.05	0.21		2.31	34.565	26.7	8.26	6.81		
SSW28"	8/25/93		0.08	2.5	0.16	2.2	0.27	3.8	2.8	79	0.3	8.4	4.8	67	1.08	0.17		2.32	34.574	27.4	8.27	6.51		
SSW28"	9/2/93		0.12	3.7	0.16	2.2	0.41	5.7	1.9	53	0.3	9.3	5.2	72	1.09	0.08		2.32	34.555	27.5	8.26	6.47		
SSW28"	9/9/93		0.11	3.4	0.24	3.4	0.34	4.8	3.1	87	0.3	9.6	5.4	76	1.07	0.01		2.32	34.546	27.5	8.26	6.48		
SSW28"	9/14/93		0.14	4.3	0.20	2.8	0.25	3.5	2.9	82	0.3	9.9	5.4	75	1.08	0.07		2.32	34.636	27.1	8.26	6.43		
SSW28"	9/21/93		0.07	2.2	0.27	3.8	0.30	4.2	3.0	85	0.3	8.7	4.8	67	1.07	0.05		2.32	34.634	27.1	8.25	6.38		
SSW28"	9/28/93		0.07	2.2	0.27	3.8	0.26	3.6	2.2	62	0.2	6.8	5.1	71	1.06	0.15		2.33	34.725	27.0	8.26	6.39		
SSW28"	10/7/93		0.08	2.5	0.29	4.1	0.33	4.6	2.7	76	0.2	7.1	6.5	90	1.15	0.14		2.27	34.691	27.4	8.26	6.32		
SSW28"	10/12/93		0.12	3.7	0.20	2.8	0.35	4.9	2.7	76	0.3	9.0	6.1	85	1.09	0.24		2.27	34.624	27.8	8.28	6.27		
SSW28"	10/19/93		0.11	3.4	0.16	2.2	0.24	3.4	2.4	67	0.2	7.1	5.6	79	1.21	0.06		2.27	34.657	26.7	8.28	6.40		
SSW28"	10/28/93		0.08	2.5	0.14	2.0	0.40	5.6	1.5	43	0.3	8.4	5.1	71	1.21	0.00		2.28	34.750	26.1	8.28	6.30		
SSW28"	11/2/93		0.12	3.7	0.10	1.4	0.24	3.4	4.4	122	0.3	8.1	5.1	71	1.21	0.14		2.28	34.699	27.0	8.27	6.37		
SSW28"	11/9/93		0.08	2.5	0.10	1.4	0.41	5.7	1.9	53	0.3	8.1	5.5	77	1.14	0.38		2.28	34.751	26.5	8.28	6.34		
SSW28"	11/16/93		0.10	3.1	0.15	2.1	0.21	2.9	2.2	62	0.3	7.7	5.2	73	1.12	0.18		2.28	34.756	26.1	8.29	6.43		
SSW28"	11/23/93		0.08	2.5	0.10	1.4	0.18	2.5	1.9	53	0.3	8.7	5.0	70	1.18	0.01		2.28	34.765	26.2	8.28	6.36		
SSW28"	12/1/93		0.13	4.0	0.20	2.8	0.25	3.5	2.4	68	0.3	7.7	5.4	76	1.02	0.10		2.28	34.798	25.5	8.28	6.40		
SSW28"	12/9/93		0.10	3.1	0.24	3.4	0.10	1.4	2.7	77	0.3	7.7	5.4	76	1.12	0.07		2.28	34.800	23.7	8.27	6.43		
SSW28"	12/14/93		0.11	3.4	0.24	3.4	0.03	0.4	1.9	54	0.3	9.0	5.2	73	1.15	0.00		2.28	34.833	24.3	8.29	6.47		
SSW28"	12/20/93		0.11	3.4	0.29	4.1	0.26	3.6	2.1	60	0.3	8.7	6.0	83	1.20	0.01		2.28	34.857	24.9	8.26	6.54		
SSW28"	12/28/93		0.09	2.8	0.30	4.2	0.52	7.3	2.3	63	0.3	8.7	6.1	86	1.26	0.13		2.29	34.948	23.3	8.28	6.80		
SSW28"	1/6/94		0.14	4.3	0.44	6.2	0.46	6.4	2.3	65	0.4	11.2	5.8	81	1.02	0.26		2.33	34.949	23.4	8.28	6.42		
SSW28"	1/12/94		0.12	3.7	0.29	4.1	0.33	4.6	2.9	83	0.3	9.9	6.8	95	1.47	0.04		2.33	34.926	24.6	8.29	6.58		
SSW28"	1/18/94		0.11	3.4	0.21	2.9	0.08	1.1	2.9	80	0.3	9.9	5.7	80	0.99	0.01		2.33	34.911	24.3	8.28	6.64		
SSW28"	1/26/94		0.16	5.0	0.32	4.5	0.37	5.2	2.4	67	0.3	9.9	5.6	78	0.97	0.17		2.33	34.855	23.9	8.27	6.54		
SSW28"	2/2/94		0.15	4.6	0.36	5.0	0.30	4.2	2.6	73	0.3	10.5	6.6	92	0.91	0.04		2.31	34.461	23.3	8.30	6.66		
SSW28"	2/9/94		0.21	6.5	0.29	4.1	0.28	3.9	2.2	62	0.4	11.2	6.4	90	0.92	0.05		2.29	34.264	23.2	8.30	6.64		
SSW28"	2/15/94		0.21	6.5	0.25	3.5	0.33	4.6	1.6	45	0.4	11.2	6.3	88	0.88	0.03		2.27	33.835	23.9	8.28	6.66		
SSW28"	2/24/94		0.15	4.6	0.31	4.3	0.23	3.2	3.3	92	0.3	8.7	5.7	80	0.91	0.06		2.30	34.355	23.9	8.29	6.70		
SSW28"	3/2/94		0.20	6.2	0.28	3.9	0.15	2.1	0.2	4	0.3	9.9	6.4	90	0.93	0.02		2.30	34.366	23.1	8.28	6.70		
SSW28"	3/9/94		0.27	8.4	0.38	5.3	0.26	3.6	0.3	7	0.3	10.2	7.1	99	0.96	0.10		2.29	34.251	26.5	8.23	7.14		
SSW28"	3/17/94		0.21	6.5	0.37	5.2	0.18	2.5	0.2	5	0.4	12.1	5.7	79	0.89	0.04		2.30	34.408	23.0	8.26	6.66		
SSW28"	3/22/94		0.15	4.6	0.29	4.1	0.12	1.7	0.1	3	0.3	9.3	6.4	90	0.92	0.04		2.30	34.430	23.2	8.28	6.58		
SSW28"	3/29/94		0.17	5.3	0.13	1.8	0.07	1.0	4.7	133	0.3	9.9	6.3	88	0.93	0.03		2.30	34.435	24.3	8.24	6.66		
SSW28"	4/5/94		0.15	4.6	0.31	4.3	0.17	2.4	3.4	96	0.4	11.2	6.4	90	0.83	0.05		2.30	34.373	25.1	8.26	6.84		
SSW28"	4/14/94		0.20	6.2	0.17	2.4	0.17	2.4	10.2	286	0.4	11.5	5.8	81	1.04	0.01		2.29	34.425	24.6	8.28	6.75		
SSW28"	5/12/94		0.16	5.0	0.30	4.2	0.10	1.4	2.6	74	0.3	10.2	5.7	80	1.01	0.05		2.30	34.569	26.3	8.30	6.66		
SSW28"	5/17/94		0.14	4.3	0.21	2.9	0.19	2.7	2.3	65	0.4	10.8	6.1	86	0.98	0.03		2.30	34.530	26.1	8.27	6.50		
SSW28"	5/25/94		0.19	5.9	0.24	3.4	0.19	2.7	3.1	86	0.4	11.8	6.4	90	1.09	0.24		2.31	34.596	25.4	8.27	6.51		
SSW28"	6/1/94		0.17	5.3	0.42	5.9	0.15	2.1	2.1	60	0.3	9.0	6.6	92	0.97	0.13		2.31	34.590	25.2	8.25	6.49		
SSW28"	6/7/94		0.17	5.3	0.53	7.4	0.18	2.5	3.3	92	0.4	11.2	6.5	92	0.92	0.10		2.32	34.588	25.7	8.25	6.38		
SSW28"	6/16/94		0.16	5.0	0.37	5.2	0.09	1.3	2.8	77	0.3	9.9	6.5	91	1.09	0.23		2.32	34.559	25.8	8.26	6.43		
SSW28"	6/23/94		0.25	7.7	0.26	3.6	0.22	3.1	3.2	89	0.3	10.2	5.8	82	1.28	0.01		2.32	34.580	26.4	8.25	6.44		
SSW28"	6/29/94		0.15	4.6	0.25	3.5	0.31	4.3	2.4	68	0.3	9.3	6.4	89	0.98	0.01		2.32	34.645	25.9	8.24	6.40		

NELHA Water Quality Laboratory

SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/5/94		0.16	5.0	0.47	6.6	0.20	2.8	3.3	93	0.3	9.9	6.2	87	1.13	0.01		2.32	34.669	26.2	8.24	6.51		
SSW28"	7/12/94		0.12	3.7	0.43	6.0	0.39	5.5	2.9	81	0.4	12.4	4.9	69	1.11	0.07		2.32	34.689	26.4	8.24	6.49		
SSW28"	7/19/94		0.10	3.1	0.31	4.3	0.27	3.8	1.0	28	0.3	9.0	6.0	84	1.09	0.01		2.31	34.563	27.1	8.27	6.52		
SSW28"	7/27/94		0.17	5.3	0.27	3.8	0.53	7.4	9.0	251	0.4	13.0	7.0	98	1.12	0.20		2.31	34.542	26.3	8.24	6.33		
SSW28"	8/1/94		0.16	5.0	0.66	9.2	0.05	0.7	2.7	75	0.3	9.9	6.6	92	1.05	0.13		2.31	34.496	25.4	8.25	6.37		
SSW28"	8/10/94		0.17	5.3	0.37	5.2	0.45	6.3	2.4	66	0.4	10.8	6.6	92	1.10	0.17		2.31	34.554	27.0	8.26	6.32		
SSW28"	8/16/94		0.16	5.0	0.44	6.2	0.14	2.0	3.0	85	0.3	10.2	6.4	89	1.04	0.14		2.31	34.507	27.1	8.26	6.23		
SSW28"	8/25/94		0.16	5.0	0.29	4.1	0.08	1.1	2.2	62	0.3	10.2	6.0	85	1.06	0.12		2.31	34.528	26.5	8.26	6.33		
SSW28"	8/30/94		0.17	5.3	0.26	3.6	0.09	1.3	1.8	50	0.3	9.3	5.2	72	1.02	0.00		2.31	34.511	27.2	8.26	6.27		
SSW28"	9/7/94		0.17	5.3	0.25	3.5	0.25	3.5	2.5	69	0.4	11.5	5.3	74	1.05	0.04		2.32	34.629	27.6	8.27	6.24		
SSW28"	9/12/94		0.12	3.7	0.44	6.2	0.25	3.5	1.7	49	0.3	9.3	6.0	83	1.04	0.01		2.32	34.694	27.3	8.26	6.16		
SSW28"	9/20/94		0.13	4.0	0.35	4.9	0.14	2.0	4.8	134	0.3	8.7	5.8	82	1.04	0.63		2.32	34.660	26.8	8.28	6.16		
SSW28"	9/26/94		0.14	4.3	0.45	6.3	0.11	1.5	3.1	88	0.3	10.5	6.2	87	0.85	0.38		2.31	34.568	26.9	8.26	6.17		
SSW28"	10/3/94		0.13	4.0	0.36	5.0	0.19	2.7	2.4	69	0.3	9.6	4.9	68	0.97	0.07		2.31	34.634	27.7	8.27	6.17		
SSW28"	10/11/94		0.15	4.6	0.43	6.0	0.09	1.3	2.0	56	0.3	10.2	4.1	58	0.77	0.06		2.32	34.597	26.2	8.26	6.15		
SSW28"	10/20/94		0.14	4.3	0.46	6.4	0.09	1.3	1.7	48	0.3	9.9	4.6	64	0.83	0.02		2.32	34.669	25.8	8.27	6.30		
SSW28"	10/27/94		0.21	6.5	0.55	7.7	0.92	12.9	5.6	158	0.4	13.0	5.5	77	0.93	0.01		2.33	34.772	25.4	8.24	6.27		
SSW28"	11/3/94		0.17	5.3	0.55	7.7	0.59	8.3	2.3	65	0.4	10.8	6.4	90	0.93	0.00		2.32	34.709	25.6	8.26	6.16		
SSW28"	11/9/94		0.17	5.3	0.70	9.8	0.66	9.2	2.9	81	0.3	10.2	5.2	73	0.91	0.02		2.32	34.776	25.1	8.28	6.14		
SSW28"	11/17/94		0.19	5.9	0.33	4.6	0.62	8.7	3.1	87	0.4	11.2	5.9	83	0.92	0.22		2.31	34.618	25.7	8.25	6.21		
SSW28"	11/23/94		0.17	5.3	0.52	7.3	0.68	9.5	1.8	50	0.4	11.5	6.6	92	0.98	0.04		2.32	34.661	24.3	8.28	6.46		
SSW28"	11/29/94		0.21	6.5	0.41	5.7	0.68	9.5	2.0	55	0.4	11.5	5.7	79	0.94	0.17		2.29	34.448	24.4	8.28	6.71		
SSW28"	12/7/94		0.19	5.9	0.39	5.5	0.68	9.5	2.0	56	0.4	12.1	4.8	68	0.90	0.01		2.28	34.249	24.1	8.25	6.80		
SSW28"	12/12/94		0.20	6.2	0.50	7.0	0.22	3.1	3.3	94	0.4	12.1	5.8	81	0.91	0.08		2.29	34.331	24.4	8.27	6.77		
SSW28"	12/20/94		0.20	6.2	0.37	5.2	0.16	2.2	2.6	72	0.4	10.8	5.5	77	0.93	0.02		2.31	34.610	23.9	8.29	6.59		
SSW28"	12/27/94		0.11	3.4	0.36	5.0	0.13	1.8	2.3	65	0.3	9.6	5.4	75	0.91	0.02		2.32	34.704	23.9	8.29	6.50		
SSW28"	1/3/95		0.18	5.6	0.31	4.3	0.12	1.7	1.8	51	0.4	10.8	4.9	69	0.92	0.00		2.25	34.422	23.0	8.29	6.42		
SSW28"	1/10/95		0.17	5.3	0.37	5.2	0.15	2.1	2.0	56	0.4	11.5	4.8	67	0.90	0.28		2.25	34.493	22.6	8.28	6.73		
SSW28"	1/19/95		0.19	5.9	0.43	6.0	0.30	4.2	3.2	90	0.4	11.8	4.8	67	0.90	0.54		2.24	34.309	22.2	8.28	7.00		
SSW28"	1/26/95		0.24	7.4	0.44	6.2	0.04	0.6	1.9	53	0.4	13.6	5.1	71	0.95	0.01		2.26	34.392	23.6	8.26	6.78		
SSW28"	1/31/95		0.19	5.9	0.64	9.0	0.26	3.6	2.9	81	0.4	11.8	5.9	83	0.93	0.02		2.25	34.444	23.9	8.25	6.91		
SSW28"	2/10/95		0.19	5.9	0.58	8.1	0.20	2.8	1.9	54	0.4	11.8	4.1	57	0.82	2.18		2.24	34.208	21.6	8.25	6.61		
SSW28"	2/16/95		0.22	6.8	0.48	6.7	0.24	3.4	2.4	68	0.4	12.4	5.3	74	0.82	0.16		2.23	34.133	22.7	8.27	6.40		
SSW28"	2/24/95		0.24	7.4	0.57	8.0	0.20	2.8	2.5	71	0.4	11.8	5.2	72	0.89	0.02		2.23	34.168	22.7	8.26	6.44		
SSW28"	3/1/95		0.21	6.5	0.32	4.5	0.35	4.9	2.1	60	0.4	11.8	5.6	79	0.97	0.01		2.24	34.230	24.8	8.28	6.51		
SSW28"	3/7/95		0.23	7.1	0.20	2.8	0.39	5.5	2.1	60	0.4	13.0	5.3	74	0.95	0.57		2.23	34.159	23.4	8.27	6.78		
SSW28"	3/16/95		0.22	6.8	0.31	4.3	0.16	2.2	2.1	59	0.4	12.1	4.8	68	1.19	0.02		2.24	34.268	24.3	8.26	6.48		
SSW28"	3/23/95		0.22	6.8	0.25	3.5	0.37	5.2	10.5	294	0.4	13.0	5.9	83	1.03	0.48		2.23	34.226	24.9	8.25	6.54		
SSW28"	3/28/95		0.20	6.2	0.43	6.0	0.48	6.7	5.7	161	0.4	12.1	5.2	73	0.93	0.02		2.23	34.186	25.4	8.25	6.35		
SSW28"	4/6/95		0.22	6.8	0.75	10.5	0.47	6.6	3.5	99	0.4	12.1	5.9	83	0.93	0.19		2.23	34.205	24.9	8.23	6.21		
SSW28"	4/13/95		0.22	6.8	0.98	13.7	0.39	5.5	2.8	78	0.4	11.5	4.9	68	0.81	0.00		2.24	34.325	25.8	8.22	6.22		
SSW28"	4/20/95		0.19	5.9	0.56	7.8	0.33	4.6	1.9	53	0.4	10.8	5.2	73	0.89	0.06		2.35	34.430	26.3	8.22	6.34		
SSW28"	4/27/95		0.15	4.6	0.32	4.5	0.27	3.8	2.1	58	0.3	9.6	4.9	69	1.05	0.00		2.36	34.421	24.9	8.26	6.40		
SSW28"	5/4/95		0.16	5.0	0.96	13.4	0.21	2.9	2.7	76	0.3	10.5	5.4	76	0.99	0.02		2.35	34.383	26.9	8.21	6.36		
SSW28"	5/12/95		0.17	5.3	0.43	6.0	0.34	4.8	2.0	55	0.3	9.3	5.1	71	0.99	0.14		2.36	34.425	27.2	8.19	6.57		
SSW28"	5/16/95		0.14	4.3	0.48	6.7	0.35	4.9	1.1	32	0.3	10.2	5.1	72	0.95	0.11		2.36	34.472	27.0	8.22	6.48		
SSW28"	5/25/95		0.17	5.3	1.01	14.1	0.18	2.5	3.3	91	0.3	9.6	6.0	84	0.97	0.10		2.37	34.519	24.6	8.23	6.53		
SSW28"	6/1/95		0.16	5.0	0.50	7.0	0.11	1.5	2.3	65	0.3	8.7	4.8	67	0.87	0.08		2.36	34.439	24.9	8.23	6.62		
SSW28"	6/8/95		0.18	5.6	0.94	13.2	0.20	2.8	2.9	82	0.3	8.7	5.4	76	0.88	0.42		2.37	34.502	25.4	8.25	6.36		
SSW28"	6/15/95		0.18	5.6	1.08	15.1	0.18	2.5	3.6	100	0.3	8.4	5.5	77	0.86	0.05		2.36	34.487	25.8	8.23	6.38		
SSW28"	6/22/95		0.16	5.0	0.77	10.8	0.42	5.9	1.9	54	0.3	9.0	5.4	75	0.86	0.01		2.36	34.482	25.9	8.22	6.50		
SSW28"	6/30/95		0.13	4.0	0.16	2.2	0.46	6.4	2.6	72	0.2	6.8	5.1	72	0.88	0.22		2.36	34.540	27.1	8.27	6.25		

NELHA Water Quality Laboratory

SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/5/95		0.14	4.3	0.16	2.2	0.10	1.4	3.0	85	0.3	10.5	4.5	63	0.90	0.10		2.36	34.520	26.8	8.26	6.35		
SSW28"	7/12/95		0.12	3.7	0.27	3.8	0.15	2.1	1.8	51	0.3	8.4	4.7	66	0.80	0.57		2.35	34.489	27.4	8.27	6.22		
SSW28"	7/19/95		0.16	5.0	0.48	6.7	0.14	2.0	3.6	101	0.3	10.5	4.4	62	0.89	0.14		2.35	34.393	26.8	8.28	6.03		
SSW28"	7/27/95		0.16	5.0	0.75	10.5	0.43	6.0	1.5	42	0.3	9.9	4.6	64	0.85	0.12		2.38	34.458	26.9	8.26	5.99		
SSW28"	8/2/95		0.16	5.0	0.33	4.6	0.42	5.9	2.6	72	0.3	9.3	4.3	60	0.87	0.48		2.38	34.479	26.6	8.28	6.16		
SSW28"	8/10/95		0.15	4.6	0.13	1.8	0.39	5.5	1.8	50	0.3	8.1	5.0	69	0.98	0.26		2.39	34.470	27.1	8.27	6.17		
SSW28"	8/16/95		0.15	4.6	0.44	6.2	0.44	6.2	2.5	70	0.3	9.6	4.7	66	0.89	0.34		2.39	34.445	27.7	8.27	6.07		
SSW28"	8/24/95		0.15	4.6	0.28	3.9	0.37	5.2	1.1	30	0.3	10.2	4.7	65	0.88	0.40		2.39	34.508	27.0	8.30	6.03		
SSW28"	8/31/95		0.14	4.3	0.39	5.5	0.31	4.3	1.8	51	0.3	7.7	4.9	69	0.87	0.00		2.39	34.574	27.4	8.28	5.99		
SSW28"	9/6/95		0.14	4.3	0.35	4.9	0.34	4.8	1.8	50	0.3	8.4	4.7	66	0.84	0.55		2.39	34.544	27.8	8.28	6.20		
SSW28"	9/14/95		0.12	3.7	0.68	9.5	0.43	6.0	3.0	83	0.3	9.3	5.7	79	0.82	0.09		2.39	34.561	27.3	8.28	5.99		
SSW28"	9/20/95		0.15	4.6	0.51	7.1	0.41	5.7	3.6	101	0.3	9.0	5.8	81	0.87	0.55		2.39	34.556	27.4	8.29	6.18		
SSW28"	9/27/95		0.15	4.6	0.53	7.4	0.50	7.0	1.4	39	0.3	9.0	5.5	76	0.78	1.12		2.39	34.582	27.5	8.27	6.18		
SSW28"	10/5/95		0.07	2.2	0.19	2.7	0.77	10.8	1.8	51	0.3	7.7	4.1	57	0.96	0.11		2.40	34.664	27.2	8.34	6.39		
SSW28"	10/10/95		0.06	1.9	0.17	2.4	0.63	8.8	1.7	49	0.3	8.1	4.3	60	0.93	0.42		2.40	34.683	27.5	8.30	6.38		
SSW28"	10/19/95		0.09	2.8	0.28	3.9	0.68	9.5	2.1	59	0.3	9.0	4.5	63	0.94	0.65		2.37	34.638	26.7	8.31	6.37		
SSW28"	10/25/95		0.11	3.4	0.16	2.2	0.61	8.5	1.3	37	0.2	7.1	5.2	73	0.84	0.57		2.37	34.664	25.2	8.33	6.38		
SSW28"	11/1/95		0.09	2.8	0.24	3.4	0.43	6.0	1.5	43	0.2	7.4	6.2	86	1.05	0.42		2.37	34.662	26.5	8.31	6.33		
SSW28"	11/8/95		0.11	3.4	0.33	4.6	0.52	7.3	2.6	73	0.2	7.4	5.1	72	0.89	0.60		2.37	34.592	26.6	8.26	6.17		
SSW28"	11/16/95		0.11	3.4	0.28	3.9	0.50	7.0	11.4	320	0.3	9.6	5.2	73	1.03	0.70		2.35	34.359	26.8	8.31	6.34		
SSW28"	11/21/95		0.12	3.7	0.07	1.0	0.51	7.1	2.0	55	0.3	9.3	5.7	80	1.13	0.45		2.36	34.550	27.0	8.25	6.52		
SSW28"	11/27/95		0.11	3.4	0.17	2.4	0.47	6.6	1.7	47	0.3	10.2	4.5	64	1.00	0.57		2.47	34.561	27.0	8.25	6.56		
SSW28"	12/5/95		0.05	1.5	0.06	0.8	0.41	5.7	2.8	77	0.2	6.5	7.8	110	1.18	0.44		2.54	34.655	26.1	8.28	6.82		
SSW28"	12/11/95		0.10	3.1	0.44	6.2	0.50	7.0	2.5	71	0.2	6.8	4.7	65	1.03	0.06		2.57	34.589	26.0	8.18	6.41		
SSW28"	12/21/95		0.09	2.8	0.11	1.5	0.28	3.9	1.7	49	0.3	10.5	3.6	51	0.97	0.59		2.60	34.637	25.6	8.27	6.65		
SSW28"	12/27/95		0.07	2.2	0.04	0.6	0.16	2.2	2.5	70	0.3	9.9	4.9	69	1.01	0.15		2.58	34.616	25.9	8.30	6.44		
SSW28"	1/3/96		0.12	3.7	0.03	0.4	0.15	2.1	2.2	61	0.3	8.7	5.2	72	0.99	0.30		2.59	34.514	25.0	8.33	6.50		
SSW28"	1/10/96		0.10	3.1	0.31	4.3	0.09	1.3	3.8	107	0.3	9.0	4.5	62	0.98	0.43		2.59	34.584	25.7	8.29	6.46		
SSW28"	1/17/96		0.08	2.5	0.02	0.3	0.04	0.6	2.1	59	0.3	8.1	6.2	86	0.97	0.36		2.60	34.658	25.0	8.28	6.58		
SSW28"	1/23/96		0.11	3.4	0.17	2.4	0.20	2.8	2.6	73	0.3	8.7	4.3	60	0.85	0.66		2.60	34.674	25.4	8.28	6.49		
SSW28"	1/31/96		0.08	2.5	0.11	1.5	0.36	5.0	2.1	60	0.3	7.7	5.4	75	1.03	2.75		2.58	34.588	24.4	8.25	6.55		
SSW28"	2/7/96		0.09	2.8	0.41	5.7	0.43	6.0	4.5	125	0.3	8.4	4.9	69	1.00	2.60		2.35	34.616	25.0	8.21	6.42		
SSW28"	2/16/96		0.10	3.1	0.07	1.0	0.43	6.0	5.8	163	0.3	8.1	5.1	71	0.99	1.75		2.32	34.420	24.4	8.24	6.52		
SSW28"	2/22/96		0.08	2.5	0.16	2.2	0.68	9.5	1.9	54	0.3	7.7	5.4	75	1.12	3.40		2.32	34.660	24.4	8.22	6.57		
SSW28"	2/28/96		0.08	2.5	0.22	3.1	0.42	5.9	5.3	148	0.2	6.2	5.9	83	1.08	6.95		2.31	34.543	24.4	8.25	6.43		
SSW28"	3/7/96		0.11	3.4	0.07	1.0	0.41	5.7	1.7	48	0.3	9.6	4.8	67	1.01	2.55		2.30	34.324	24.9	8.24	6.56		
SSW28"	3/14/96		0.09	2.8	0.13	1.8	0.54	7.6	2.7	77	0.3	9.3	4.6	65	0.94	9.05		2.30	34.166	24.6	8.24	6.78		
SSW28"	3/21/96		0.11	3.4	0.15	2.1	0.53	7.4	1.9	54	0.3	9.0	5.6	79	1.03	1.60		2.29	34.233	24.5	8.25	6.80		
SSW28"	3/28/96		0.10	3.1	0.16	2.2	0.35	4.9	3.4	96	0.3	9.3	4.9	68	0.95	2.70		2.29	34.242	24.2	8.27	6.69		
SSW28"	4/3/96		0.10	3.1	0.20	2.8	0.35	4.9	2.6	72	0.3	9.6	4.7	65	1.03	2.80		2.30	34.305	25.5	8.23	6.78		
SSW28"	4/10/96		0.12	3.7	0.07	1.0	0.48	6.7	2.9	82	0.3	8.7	5.0	70	0.99	1.95		2.28	34.208	25.6	8.25	6.37		
SSW28"	4/17/96		0.11	3.4	0.11	1.5	0.23	3.2	1.8	50	0.3	8.4	6.2	87	1.06	2.45		2.29	34.309	25.1	8.26	6.45		
SSW28"	4/24/96		0.12	3.7	0.11	1.5	0.21	2.9	4.3	122	0.3	9.0	5.4	75	1.01	3.45		2.36	34.444	25.2	8.25	6.63		
SSW28"	4/30/96		0.10	3.1	0.01	0.1	0.09	1.3	1.2	33	0.3	9.6	6.1	85	1.08	3.50		2.36	34.268	25.4	8.23	6.98		
SSW28"	5/9/96		0.07	2.2	0.14	2.0	0.16	2.2	3.1	88	0.3	8.4	4.2	59	0.89	2.70		2.36	34.390	26.2	8.21	6.54		
SSW28"	5/17/96		0.08	2.5	0.14	2.0	0.29	4.1	2.1	59	0.3	8.7	9.2	128	1.47	2.45		2.46	34.294	28.3	8.24	6.63		
SSW28"	5/22/96		0.12	3.7	0.16	2.2	0.25	3.5	1.7	47	0.2	7.4	5.6	79	1.05	2.75		2.32	34.292	26.6	8.25	7.61		
SSW28"	5/29/96		0.12	3.7	0.21	2.9	0.36	5.0	1.6	44	0.3	8.7	5.9	82	1.04	2.90		2.36	34.396	26.6	8.24	6.43		
SSW28"	6/5/96		0.10	3.1	0.15	2.1	0.17	2.4	1.2	35	0.3	7.7	5.5	76	0.95	2.40		2.35	34.408	27.7	8.25	6.49		
SSW28"	6/10/96		0.10	3.1	0.29	4.1	0.14	2.0	1.5	42	0.3	8.7	5.1	72	0.96	2.30		2.33	34.370	27.4	8.23	6.36		
SSW28"	6/19/96		0.09	2.8	0.23	3.2	0.30	4.2	1.4	39	0.3	8.4	5.5	77	0.98	2.60		2.35	34.394	25.9	8.23	6.23		
SSW28"	6/28/96		0.10	3.1	0.19	2.7	0.48	6.7	1.8	50	0.3	8.7	5.2	73	1.21	3.10		2.35	34.422	27.9	8.24	6.65		

NELHA Water Quality Laboratory

SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/5/96		0.10	3.1	0.17	2.4	0.42	5.9	2.0	57	0.3	9.9	4.4	62	1.06	2.55		2.37	34.372	27.1	8.22	6.46		
SSW28"	7/10/96		0.09	2.8	0.11	1.5	0.31	4.3	1.4	38	0.3	10.2	4.4	61	1.00	2.50		2.37	34.462	28.2	8.25	6.28		
SSW28"	7/18/96		0.07	2.2	0.10	1.4	0.31	4.3	8.7	244	0.3	9.0	4.2	59	1.06	1.70		2.36	34.333	26.7	8.21	6.45		
SSW28"	7/25/96		0.07	2.2	0.09	1.3	0.17	2.4	1.2	33	0.3	8.1	4.0	57	0.98	2.55		2.17	34.434	27.9	8.26	7.10		
SSW28"	8/2/96		0.05	1.5	0.11	1.5	0.44	6.2	5.4	152	0.3	9.0	4.3	60	0.89	3.15		2.21	34.480	27.6	8.27	6.50		
SSW28"	8/8/96		0.04	1.2	0.13	1.8	0.72	10.1	3.4	95	0.3	9.6	4.3	60	1.06	2.65		2.23	34.474	27.1	8.25	6.75		
SSW28"	8/14/96		0.06	1.9	0.07	1.0	0.63	8.8	2.6	74	0.3	7.7	4.4	61	0.98	2.85		2.15	34.482	27.7	8.26	6.32		
SSW28"	8/19/96		0.05	1.5	0.17	2.4	0.48	6.7	1.4	40	0.2	6.8	4.7	65	1.03	2.50		2.22	34.501	28.1	8.25	6.46		
SSW28"	8/29/96		0.07	2.2	0.19	2.7	0.41	5.7	2.1	58	0.3	9.0	4.4	61	1.01	2.80		2.22	34.509	27.8	8.23	6.14		
SSW28"	9/5/96		0.07	2.2	0.15	2.1	0.84	11.8	2.4	68	0.2	7.4	4.7	66	1.06	2.30		2.23	34.478	27.8	8.25	6.95		
SSW28"	9/12/96		0.07	2.2	0.18	2.5	0.17	2.4	1.6	45	0.2	7.4	5.0	70	1.06	2.65		2.23	34.605	27.5	8.26	7.10		
SSW28"	9/17/96		0.08	2.5	0.13	1.8	0.08	1.1	2.2	61	0.3	8.7	4.2	59	0.91	3.15		2.24	34.630	27.7	8.22	7.00		
SSW28"	9/25/96		0.08	2.5	0.12	1.7	0.38	5.3	1.5	43	0.3	8.1	8.3	116	1.23	2.05		2.21	34.632	27.2	8.24	7.21		
SSW28"	9/30/96		0.06	1.9	0.16	2.2	0.20	2.8	2.0	57	0.3	9.0	4.5	64	1.05	2.00		2.23	34.705	26.8	8.24	7.19		
SSW28"	10/10/96		0.06	1.9	0.14	2.0	0.53	7.4	9.8	276	0.3	7.7	4.6	65	1.03	2.15		2.23	34.653	26.7	8.24	6.49		
SSW28"	10/14/96		0.06	1.9	0.11	1.5	0.57	8.0	2.4	67	0.2	7.4	4.6	65	1.10	0.40		2.22	34.686	27.5	8.26	6.58		
SSW28"	10/24/96		0.05	1.5	0.04	0.6	0.46	6.4	8.1	226	0.3	9.0	4.8	67	1.05	2.50		2.21	34.724	27.2	8.23	6.68		
SSW28"	10/31/96		0.07	2.2	0.17	2.4	0.26	3.6	1.7	47	0.3	7.7	4.7	66	1.01	2.45		2.38	34.735	26.7	8.21	6.65		
SSW28"	11/8/96		0.06	1.9	0.27	3.8	0.47	6.6	2.4	68	0.2	6.5	4.5	63	0.99	1.80		2.33	34.713	26.8	8.23	6.54		
SSW28"	11/13/96		0.07	2.2	0.22	3.1	0.36	5.0	2.7	76	0.3	8.7	4.2	59	1.10	2.35		2.33	34.736	27.0	8.26	6.89		
SSW28"	11/20/96		0.06	1.9	0.18	2.5	0.38	5.3	3.6	100	0.3	8.4	3.5	49	1.11	1.70		2.32	34.744	25.7	8.25	6.53		
SSW28"	11/27/96		0.05	1.5	0.15	2.1	0.37	5.2	1.1	32	0.2	7.4	4.7	65	0.94	1.35		2.32	34.632	25.6	8.27	6.44		
SSW28"	12/4/96		0.08	2.5	0.12	1.7	0.43	6.0	3.8	108	0.3	8.1	4.3	61	0.95	2.20		2.33	34.643	25.2	8.25	7.46		
SSW28"	12/11/96		0.09	2.8	0.05	0.7	0.48	6.7	2.1	59	0.3	9.3	5.0	70	1.11	2.35		2.32	34.787	24.0	8.27	7.49		
SSW28"	12/18/96		0.07	2.2	0.01	0.1	0.25	3.5	1.4	38	0.3	9.3	3.7	51	0.92	2.25		2.32	34.808	24.8	8.26	6.59		
SSW28"	12/23/96		0.07	2.2	0.21	2.9	0.40	5.6	5.1	143	0.3	9.0	4.6	65	0.88	2.10		2.32	34.759	24.6	8.27	6.89		
SSW28"	1/2/97		0.06	1.9	0.21	2.9	0.30	4.2	1.6	45	0.2	6.2	3.9	55	0.85	2.85		2.30	34.719	24.3	8.28	6.71		
SSW28"	1/9/97		0.05	1.5	0.08	1.1	0.29	4.1	1.4	40	0.3	8.7	4.2	59	1.04	1.15		2.32	34.735	23.6	8.27	6.75		
SSW28"	1/16/97		0.07	2.2	0.26	3.6	0.12	1.7	2.6	73	0.4	11.5	4.7	66	0.91	3.15		2.31	34.664	23.6	8.26	6.97		
SSW28"	1/21/97		0.08	2.5	0.18	2.5	0.01	0.1	2.5	70	0.3	9.9	4.2	59	0.98	1.20		2.16	34.586	24.1	8.27	6.71		
SSW28"	1/28/97		0.03	0.9	0.12	1.7	0.01	0.1	2.3	65	0.2	7.1	4.5	63	1.07	2.30		2.10	34.748	24.5	8.28	6.65		
SSW28"	2/7/97		0.02	0.6	0.14	2.0	0.01	0.1	1.7	46	0.3	9.3	4.8	67	1.09	1.90		2.11	34.763	25.0	8.28	6.67		
SSW28"	2/12/97		0.04	1.2	0.12	1.7	0.13	1.8	1.3	37	0.3	9.0	4.7	66	1.03	1.75		2.12	34.794	23.3	8.30	6.72		
SSW28"	2/19/97		0.06	1.9	0.08	1.1	0.07	1.0	1.5	42	0.2	7.4	4.9	69	1.03	2.50		2.08	34.674	24.2	8.30	7.14		
SSW28"	2/25/97		0.06	1.9	0.13	1.8	0.15	2.1	1.5	43	0.2	5.0	4.5	63	1.05	3.00		2.10	34.793	23.6	8.32	7.04		
SSW28"	3/4/97		0.04	1.2	0.16	2.2	0.10	1.4	1.6	44	0.2	6.2	4.8	68	1.08	2.05		2.12	34.713	23.7	8.30	6.92		
SSW28"	3/12/97		0.06	1.9	0.07	1.0	0.24	3.4	2.0	56	0.2	5.6	6.3	88	1.21	2.90		2.10	34.585	24.0	8.25	7.03		
SSW28"	3/20/97		0.11	3.4	0.13	1.8	0.11	1.5	2.0	57	0.4	10.8	4.6	65	1.03	1.75		2.09	34.595	23.3	8.26	6.87		
SSW28"	3/25/97		0.14	4.3	0.09	1.3	0.21	2.9	1.8	51	0.3	9.9	4.7	65	1.06	3.90		2.09	34.585	23.6	8.25	7.01		
SSW28"	3/31/97		0.13	4.0	0.19	2.7	0.11	1.5	10.0	281	0.4	12.1	4.8	68	1.04	1.40		2.07	34.500	24.7	8.26	7.03		
SSW28"	4/7/97		0.06	1.9	0.09	1.3	0.51	7.1	10.7	300	0.3	9.9	5.7	80	1.07	1.85		2.09	34.749	24.1	8.26	6.52		
SSW28"	4/14/97		0.07	2.2	0.21	2.9	0.24	3.4	8.3	233	0.3	10.5	5.0	70	1.13	1.55		2.52	34.622	24.9	8.28	6.56		
SSW28"	4/24/97		0.13	4.0	0.16	2.2	0.40	5.6	2.5	70	0.6	18.3	4.7	66	1.03	1.45		2.64	34.373	25.5	8.27	6.76		
SSW28"	5/2/97		0.12	3.7	0.10	1.4	0.38	5.3	1.7	47	0.6	19.5	8.2	115	1.24	2.55		2.66	34.434	25.1	8.28	6.70		
SSW28"	5/8/97		0.11	3.4	0.15	2.1	0.30	4.2	2.0	55	0.6	18.9	4.6	65	0.99	2.10		2.70	34.394	24.6	8.30	6.76		
SSW28"	5/13/97		0.11	3.4	0.13	1.8	0.32	4.5	2.3	64	0.6	19.5	5.5	77	1.07	2.05		2.43	34.495	25.4	8.29	6.71		
SSW28"	5/19/97		0.10	3.1	0.08	1.1	0.33	4.6	1.0	29	0.5	16.7	4.5	63	1.03	2.70		2.54	24.517	24.7	8.32	6.58		
SSW28"	5/29/97		0.10	3.1	0.18	2.5	0.26	3.6	5.9	165	0.4	11.8	4.9	69	1.02	1.70		2.60	34.484	25.7	8.27	6.98		
SSW28"	6/3/97		0.08	2.5	0.14	2.0	0.42	5.9	1.6	46	0.3	9.6	4.9	69	1.06	1.60		2.58	34.476	26.8	8.31	6.91		
SSW28"	6/10/97		0.10	3.1	0.15	2.1	0.45	6.3	1.9	52	0.3	10.5	5.9	82	1.12	1.60		2.46	34.492	25.8	8.39	6.79		
SSW28"	6/18/97		0.10	3.1	0.02	0.3	0.42	5.9	2.0	57	0.4	11.2	4.0	56	1.03	2.65		2.62	34.512	25.2	8.28	8.51		
SSW28"	6/23/97		0.09	2.8	0.06	0.8	0.12	1.7	1.4	38	0.4	11.8	4.6	65	1.02	1.40		2.57	34.412	24.4	8.31	6.93		

NELHA Water Quality Laboratory

SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/3/97		0.12	3.7	0.19	2.7	0.02	0.3	12.4	348	0.3	10.5	4.5	64	0.98	2.55		2.61	34.542	23.5	8.31	7.18		
SSW28"	7/9/97		0.07	2.2	0.10	1.4	0.28	3.9	11.1	311	0.3	9.6	4.5	63	1.00	2.00		2.62	34.635	25.9	8.32	6.92		
SSW28"	7/17/97		0.07	2.2	0.04	0.6	0.15	2.1	1.4	40	0.3	10.2	4.3	60	1.07	3.75		2.62	34.636	25.8	8.30	6.73		
SSW28"	7/25/97		0.06	1.9	0.04	0.6	0.31	4.3	2.0	57	0.3	10.2	5.1	71	1.08	2.30		2.60	34.679	26.2	8.38	6.52		
SSW28"	7/31/97		0.06	1.9	0.05	0.7	0.19	2.7	1.0	28	0.3	8.7	5.5	77	1.11	1.90		2.57	34.657	25.8	8.37	6.68		
SSW28"	8/7/97		0.06	1.9	0.01	0.1	0.16	2.2	1.0	28	0.3	10.2	5.0	70	1.09	2.45		2.49	34.651	26.0	8.41	6.60		
SSW28"	8/13/97		0.06	1.9	0.01	0.1	0.04	0.6	2.0	56	0.3	9.0	4.8	67	1.04	1.85		2.48	34.631	25.7	8.39	6.52		
SSW28"	8/22/97		0.06	1.9	0.04	0.6	0.28	3.9	1.6	44	0.3	9.9	5.7	80	1.03	1.55		2.48	34.654	26.2	8.40	6.56		
SSW28"	8/27/97		0.12	3.7	0.02	0.3	0.33	4.6	1.8	49	0.4	10.8	5.0	70	1.06	1.75		2.48	34.649	26.3	8.38	6.54		
SSW28"	9/3/97		0.05	1.5	0.11	1.5	0.31	4.3	2.6	72	0.3	8.1	5.1	71	1.06	2.45		2.48	34.687	27.4	8.43	6.52		
SSW28"	9/11/97		0.06	1.9	0.02	0.3	0.30	4.2	3.0	83	0.4	10.8	4.8	68	1.00	1.55		2.48	34.699	26.6	8.44	6.35		
SSW28"	9/18/97		0.08	2.5	0.02	0.3	0.17	2.4	2.9	80	0.3	9.3	4.7	66	1.08	1.75		2.49	34.751	26.0	8.43	6.05		
SSW28"	9/25/97		0.08	2.5	0.12	1.7	0.54	7.6	2.7	76	0.3	10.2	4.9	68	1.03	0.50		2.49	34.788	27.3	8.41	6.32		
SSW28"	9/30/97		0.06	1.9	0.12	1.7	0.40	5.6	1.7	49	0.3	9.9	4.8	67	1.04	1.70		2.49	34.785	26.1	8.44	6.35		
SSW28"	10/9/97		0.10	3.1	0.03	0.4	0.34	4.8	4.1	116	0.4	12.1	4.9	68	1.00	1.30		2.48	34.790	27.5	8.43	6.14		
SSW28"	10/16/97		0.06	1.9	0.04	0.6	0.42	5.9	1.3	37	0.4	11.8	4.7	66	1.06	1.55		2.48	34.820	26.9	8.44	6.31		
SSW28"	10/23/97		0.06	1.9	0.10	1.4	0.29	4.1	1.8	51	0.4	10.8	4.8	68	1.04	1.65		2.47	34.825	26.9	8.48	6.45		
SSW28"	10/30/97		0.04	1.2	0.01	0.1	0.24	3.4	1.4	39	0.3	9.9	4.4	61	1.07	1.45		2.48	34.914	26.4	8.45	6.84		
SSW28"	11/6/97		0.05	1.5	0.01	0.1	0.41	5.7	0.7	21	0.3	9.3	4.4	62	1.07	1.15		2.48	34.946	25.9	8.42	6.69		
SSW28"	11/10/97		0.05	1.5	0.05	0.7	0.37	5.2	1.5	42	0.2	7.4	4.6	64	1.05	0.95		2.49	34.959	25.9	8.45	6.65		
SSW28"	11/20/97		0.06	1.9	0.09	1.3	0.44	6.2	2.4	68	0.3	10.5	4.8	67	1.08	1.50		2.48	34.874	25.9	8.40	6.46		
SSW28"	11/25/97		0.05	1.5	0.14	2.0	0.43	6.0	1.7	49	0.3	8.1	5.0	70	1.05	0.35		2.48	34.852	25.3	8.41	6.37		
SSW28"	12/1/97		0.08	2.5	0.07	1.0	0.41	5.7	6.7	188	0.3	9.9	4.8	68	1.03	1.50		2.48	34.889	24.8	8.40	6.38		
SSW28"	12/11/97		0.07	2.2	0.01	0.1	0.15	2.1	13.6	383	0.3	10.2	3.6	51	0.99	1.30		2.49	34.965	24.4	8.43	6.65		
SSW28"	12/18/97		0.09	2.8	0.14	2.0	0.39	5.5	2.3	65	0.3	9.3	3.9	54	1.01	2.10		2.49	34.977	23.5	8.42	6.55		
SSW28"	12/24/97		0.08	2.5	0.12	1.7	0.30	4.2	8.3	234	0.4	10.8	3.7	52	0.98	1.55		2.49	34.963	23.7	8.42	6.67		
SSW28"	12/29/97		0.09	2.8	0.06	0.8	0.31	4.3	1.1	32	0.4	11.2	4.5	63	1.02	1.20		2.49	34.963	23.1	8.44	6.69		
SSW28"	1/6/98		0.03	0.9	0.05	0.7	0.11	1.5	1.2	35	0.3	8.1	4.1	57	0.97	1.70		2.48	34.965	22.5	8.44	6.65		
SSW28"	1/14/98		0.06	1.9	0.02	0.3	0.12	1.7	1.6	46	0.3	10.5	4.3	60	2.68	2.00		2.49	34.996	25.0	8.42	7.38		
SSW28"	1/22/98		0.10	3.1	0.03	0.4	0.09	1.3	2.0	55	0.4	11.5	3.9	55	0.93	1.05		2.49	35.007	23.9	8.42	6.92		
SSW28"	1/29/98		0.06	1.9	0.05	0.7	0.13	1.8	2.5	69	0.3	9.9	4.1	58	0.94	1.85		2.24	35.009	23.8	8.42	7.00		
SSW28"	2/5/98		0.08	2.5	0.07	1.0	0.18	2.5	2.6	73	0.2	7.4	4.3	60	0.99	2.05		2.25	35.016	23.6	8.45	6.87		
SSW28"	2/9/98		0.06	1.9	0.08	1.1	0.21	2.9	1.4	39	0.3	10.2	4.3	61	0.96	0.70		2.25	35.043	23.0	8.45	6.92		
SSW28"	2/17/98		0.03	0.9	0.07	1.0	0.28	3.9	1.4	39	0.3	9.3	4.3	60	1.03	1.10		2.25	35.046	23.5	8.47	6.89		
SSW28"	2/23/98		0.09	2.8	0.15	2.1	0.29	4.1	2.4	68	0.3	10.2	4.4	62	0.96	1.50		2.25	35.044	22.8	8.47	6.96		
SSW28"	3/5/98		0.09	2.8	0.19	2.7	0.21	2.9	2.2	62	0.2	6.5	4.4	62	0.93	0.25		2.25	35.033	23.8	8.25	6.77		
SSW28"	3/12/98		0.10	3.1	0.07	1.0	0.28	3.9	1.7	49	0.3	9.0	4.3	60	0.98	0.70		2.25	35.013	23.8	8.23	6.80		
SSW28"	3/19/98		0.11	3.4	0.08	1.1	0.30	4.2	2.2	62	0.4	10.8	4.5	63	0.99	0.55		2.24	34.905	24.3	8.21	6.79		
SSW28"	3/25/98		0.09	2.8	0.08	1.1	0.37	5.2	2.7	77	0.3	9.9	4.3	60	0.93	0.70		2.25	35.053	22.2	8.22	6.91		
SSW28"	4/2/98		0.06	1.9	0.02	0.3	0.32	4.5	1.6	45	0.3	9.3	4.1	58	0.96	1.00		2.31	35.078	23.4	8.23	6.72		
SSW28"	4/9/98		0.08	2.5	0.02	0.3	0.22	3.1	1.7	48	0.4	10.8	4.3	60	0.97	0.90		2.32	35.112	23.9	8.28	6.76		
SSW28"	4/16/98		0.08	2.5	0.06	0.8	0.12	1.7	1.6	45	0.4	11.8	4.2	59	1.09	1.15		2.32	35.060	22.7	8.24	6.85		
SSW28"	4/20/98		0.05	1.5	0.12	1.7	0.29	4.1	3.5	99	0.3	9.6	4.5	63	1.03	1.15		2.32	34.988	23.7	8.22	6.83		
SSW28"	4/30/98		0.08	2.5	0.01	0.1	0.33	4.6	4.1	114	0.4	11.8	4.1	57	1.07	2.00		2.32	35.059	23.2	8.23	6.81		
SSW28"	5/7/98		0.06	1.9	0.08	1.1	0.16	2.2	5.1	142	0.3	10.5	4.3	60	1.04	1.90		2.32	35.102	23.6	8.23	6.81		
SSW28"	5/15/98		0.09	2.8	0.10	1.4	0.28	3.9	2.0	56	0.3	10.5	5.6	79	1.07	1.95		2.32	35.122	23.9	8.23	6.73		
SSW28"	5/21/98		0.07	2.2	0.11	1.5	0.10	1.4	1.9	54	0.4	11.2	5.2	72	1.03	1.75		2.31	35.112	22.6	8.24	6.72		
SSW28"	5/28/98		0.07	2.2	0.06	0.8	0.16	2.2	1.9	53	0.3	9.9	4.8	67	0.96	0.65		2.32	35.154	23.0	8.24	6.84		
SSW28"	6/4/98		0.06	1.9	0.10	1.4	0.09	1.3	2.2	62	0.4	10.8	4.8	68	0.99	1.10		2.31	35.138	24.2	8.24	6.86		
SSW28"	6/9/98		0.08	2.5	0.12	1.7	0.32	4.5	2.6	72	0.4	10.8	5.0	70	0.98	1.05		2.31	35.127	24.3	8.22	6.80		
SSW28"	6/17/98		0.12	3.7	0.09	1.3	0.32	4.5	3.2	89	0.4	12.4	5.3	74	1.00	2.35		2.31	35.075	24.7	8.22	6.72		
SSW28"	6/23/98		0.09	2.8	0.05	0.7	0.51	7.1	3.1	86	0.4	11.2	4.9	68	0.96	1.50		2.31	35.054	25.0	8.21	6.72		

NELHA Water Quality Laboratory

SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/1/98		0.11	3.4	0.09	1.3	0.02	0.3	2.8	79	0.4	12.7	5.1	71	0.96	1.15		2.35	35.032	24.8	8.22	6.77		
SSW28"	7/9/98		0.07	2.2	0.04	0.6	0.11	1.5	2.1	58	0.4	12.1	4.7	66	0.94	1.30		2.32	35.048	25.1	8.22	6.65		
SSW28"	7/16/98		0.08	2.5	0.09	1.3	0.27	3.8	4.3	120	0.4	11.2	5.0	70	1.00	0.05		2.33	35.016	26.6	8.24	6.72		
SSW28"	7/23/98		0.08	2.5	0.04	0.6	0.34	4.8	1.6	44	0.3	10.5	5.0	70	1.11	1.80		2.32	35.015	25.7	8.23	6.68		
SSW28"	7/29/98		0.07	2.2	0.04	0.6	0.18	2.5	1.7	47	0.3	9.3	5.0	70	1.05	0.90		2.36	35.105	24.8	8.23	6.73		
SSW28"	8/4/98		0.10	3.1	0.08	1.1	0.12	1.7	2.4	68	0.4	13.0	5.3	74	1.06	1.00		2.35	35.040	25.1	8.21	6.64		
SSW28"	8/13/98		0.08	2.5	0.03	0.4	0.14	2.0	2.2	62	0.4	11.8	5.4	76	1.08	0.45		2.32	35.053	25.8	8.20	6.73		
SSW28"	8/19/98		0.06	1.9	0.06	0.8	0.15	2.1	2.4	67	0.4	11.2	5.3	74	1.10	2.05		2.32	35.073	26.0	8.20	6.57		
SSW28"	8/26/98		0.09	2.8	0.03	0.4	0.15	2.1	1.5	43	0.4	12.4	5.2	73	1.08	1.00		2.31	35.018	25.3	8.22	6.59		
SSW28"	9/3/98		0.09	2.8	0.07	1.0	0.12	1.7	2.3	64	0.4	12.1	5.5	77	1.03	3.35		2.34	35.025	26.5	8.21	6.44		
SSW28"	9/10/98		0.10	3.1	0.02	0.3	0.07	1.0	1.9	54	0.4	13.6	5.6	78	1.12	1.45		2.34	35.033	26.8	8.22	6.49		
SSW28"	9/17/98		0.07	2.2	0.09	1.3	0.09	1.3	3.4	96	0.4	10.8	5.0	70	1.09	1.25		2.33	35.055	26.9	8.22	6.54		
SSW28"	9/21/98		0.06	1.9	0.04	0.6	0.07	1.0	4.6	130	0.4	11.5	5.0	71	1.08	1.95		2.34	35.017	26.8	8.23	6.54		
SSW28"	10/1/98		0.06	1.9	0.02	0.3	0.06	0.8	2.2	62	0.4	11.5	4.8	68	1.25	1.50		2.38	35.130	26.7	8.23	7.01		
SSW28"	10/8/98		0.10	3.1	0.11	1.5	0.27	3.8	4.1	115	0.3	10.5	4.6	65	1.15	2.60		2.36	35.097	25.6	8.22	6.88		
SSW28"	10/14/98		0.04	1.2	0.04	0.6	0.17	2.4	2.0	57	0.3	9.9	4.9	68	1.13	2.60		2.32	35.130	25.6	8.23	6.88		
SSW28"	10/21/98		0.10	3.1	0.01	0.1	0.16	2.2	2.5	69	0.4	10.8	4.8	67	1.14	4.05		2.32	35.127	26.1	8.24	6.96		
SSW28"	10/27/98		0.09	2.8	0.02	0.3	0.09	1.3	2.2	63	0.4	11.2	5.6	78	1.21	2.70		2.31	35.163	25.2	8.26	6.94		
SSW28"	11/6/98		0.08	2.5	0.01	0.1	0.11	1.5	3.5	98	0.3	10.5	4.3	61	1.18	2.70		2.27	34.998	26.4	8.24	6.59		
SSW28"	11/9/98		0.10	3.1	0.09	1.3	0.05	0.7	2.3	65	0.4	11.5	5.1	71	1.17	2.80		2.27	34.832	26.3	8.26	8.57		
SSW28"	11/18/98		0.07	2.2	0.04	0.6	0.15	2.1	14.3	402	0.3	9.3	5.8	81	1.20	2.40		2.27	35.111	25.8	8.25	6.57		
SSW28"	11/23/98		0.07	2.2	0.02	0.3	0.09	1.3	2.0	56	0.3	9.3	5.2	73	1.22	2.80		2.27	35.177	25.8	8.24	6.56		
SSW28"	11/30/98		0.07	2.2	0.02	0.3	0.10	1.4	2.8	78	0.3	9.0	4.9	68	1.15	2.00		2.28	35.127	25.2	8.26	7.71		
SSW28"	12/8/98		0.07	2.2	0.05	0.7	0.12	1.7	18.5	520	0.3	9.6	5.8	81	1.17	2.65		2.23	35.156	24.2	8.24	6.59		
SSW28"	12/17/98		0.05	1.5	0.01	0.1	0.04	0.6	1.9	53	0.3	10.2	4.5	63	1.13	1.90		2.22	35.102	25.1	8.24	6.68		
SSW28"	12/21/98		0.06	1.9	0.11	1.5	0.11	1.5	2.3	65	0.4	10.8	5.0	70	1.18	2.90		2.21	35.070	24.9	8.25	6.60		
SSW28"	12/29/98		0.09	2.8	0.18	2.5	0.18	2.5	2.2	63	0.4	10.8	6.3	88	1.23	2.25		2.22	35.079	24.8	8.22	6.77		
SSW28"	1/5/99		0.07	2.2	0.01	0.1	0.15	2.1	2.4	67	0.4	11.2	4.6	64	1.13	2.75		2.21	35.086	24.7	8.24	6.74		
SSW28"	1/14/99		0.07	2.2	0.04	0.6	0.03	0.4	2.1	59	0.3	9.3	4.5	64	1.12	1.85		2.23	35.104	24.8	8.23	6.80		
SSW28"	1/21/99		0.06	1.9	0.02	0.3	0.10	1.4	2.1	60	0.4	11.2	4.4	62	1.12	2.15		2.20	35.170	24.4	8.22	8.14		
SSW28"	1/26/99		0.07	2.2	0.01	0.1	0.07	1.0	1.7	49	0.3	9.6	4.6	64	1.13	3.00		2.19	35.117	24.5	8.26	6.92		
SSW28"	2/4/99		0.09	2.8	0.01	0.1	0.20	2.8	2.4	68	0.3	9.0	4.4	62	1.10	3.45		2.18	35.118	23.8	8.22	6.75		
SSW28"	2/11/99		0.11	3.4	0.08	1.1	0.23	3.2	1.9	53	0.4	10.8	3.9	55	0.97	2.40		2.18	35.038	23.9	8.23	7.55		
SSW28"	2/18/99		0.12	3.7	0.03	0.4	0.01	0.1	2.2	60	0.3	10.2	4.1	57	0.93	2.45		2.16	34.990	23.9	8.23	7.54		
SSW28"	2/23/99		0.09	2.8	0.06	0.8	0.02	0.3	2.3	65	0.3	9.9	4.2	59	0.96	2.90		2.17	35.039	23.4	8.23	7.47		
SSW28"	3/3/99		0.04	1.2	0.07	1.0	0.16	2.2	2.2	62	0.2	7.1	6.0	83	1.17	3.20		2.17	35.035	23.7	8.22	7.44		
SSW28"	3/9/99		0.08	2.5	0.04	0.6	0.13	1.8	2.8	77	0.3	9.3	4.7	66	1.04	1.90		2.15	35.038	24.4	8.22	6.88		
SSW28"	3/18/99		0.11	3.4	0.02	0.3	0.05	0.7	4.6	130	0.3	9.9	4.0	55	0.96	2.45		2.14	34.846	24.0	8.24	6.87		
SSW28"	3/24/99		0.13	4.0	0.02	0.3	0.14	2.0	6.9	194	0.4	11.8	4.3	61	1.06	1.65		2.13	34.732	23.9	8.23	6.91		
SSW28"	3/30/99		0.14	4.3	0.07	1.0	0.18	2.5	4.1	115	0.3	10.2	5.4	76	1.06	1.80		2.14	34.778	23.6	8.23	6.97		
SSW28"	4/7/99		0.12	3.7	0.02	0.3	0.04	0.6	3.5	98	0.4	10.8	4.5	63	0.95	2.35		2.16	34.689	24.2	8.21	6.86		
SSW28"	4/14/99		0.08	2.5	0.02	0.3	0.05	0.7	1.8	50	0.4	10.8	3.9	55	0.96	2.35		2.16	34.755	23.9	8.22	6.90		
SSW28"	4/21/99		0.13	4.0	0.18	2.5	0.18	2.5	2.4	68	0.3	10.2	4.3	61	0.97	1.65		2.16	34.889	23.8	8.22	7.70		
SSW28"	4/29/99		0.12	3.7	0.19	2.7	0.13	1.8	3.9	108	0.3	10.2	4.7	66	1.08	2.60		2.14	34.366	24.1	8.21	6.80		
SSW28"	5/5/99		0.08	2.5	0.07	1.0	0.43	6.0	2.4	66	0.3	10.5	5.1	71	1.03	1.20		2.14	34.396	24.6	8.20	6.86		
SSW28"	5/12/99		0.10	3.1	0.15	2.1	0.09	1.3	2.8	78	0.3	9.3	4.3	61	0.97	1.90		2.17	34.393	24.8	8.20	6.81		
SSW28"	5/20/99		0.13	4.0	0.22	3.1	0.09	1.3	2.4	66	0.4	10.8	4.4	62	0.98	3.60		2.18	34.384	25.1	8.20	6.86		
SSW28"	5/24/99		0.17	5.3	0.35	4.9	0.11	1.5	2.3	65	0.3	10.2	6.0	84	1.16	2.00		2.16	34.408	25.4	8.22	6.86		
SSW28"	6/3/99		0.16	5.0	0.19	2.7	0.13	1.8	1.9	52	0.4	11.5	5.0	70	1.01	2.20		2.15	34.383	24.4	8.21	6.74		
SSW28"	6/9/99		0.18	5.6	0.33	4.6	0.26	3.6	1.9	53	0.4	13.6	4.9	69	1.00	3.15		2.14	34.378	26.1	8.22	7.01		
SSW28"	6/16/99		0.12	3.7	0.17	2.4	0.13	1.8	3.2	90	0.4	11.5	4.7	66	0.95	2.05		2.15	34.405	25.4	8.22	6.74		
SSW28"	6/24/99		0.13	4.0	0.23	3.2	0.06	0.8	2.5	70	0.3	10.5	5.0	70	0.97	2.15		2.19	34.399	25.4	8.22	6.68		
SSW28"	6/29/99		0.13	4.0	0.07	1.0	0.10	1.4	1.9	52	0.4	13.0	5.6	78	1.01	1.75		2.17	34.398	25.9	8.22	6.58		

NELHA Water Quality Laboratory

SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/8/99		0.12	3.7	0.18	2.5	0.05	0.7	2.4	66	0.4	12.1	5.4	75	1.03	1.80		2.40	34.041	26.2	8.20	6.58		
SSW28"	7/12/99		0.11	3.4	0.14	2.0	0.08	1.1	1.8	51	0.4	12.4	6.0	84	1.07	2.25		2.27	34.965	26.0	8.22	6.63		
SSW28"	7/20/99		0.12	3.7	0.22	3.1	0.33	4.6	2.3	63	0.4	12.1	5.2	73	0.98	2.05		2.37	34.917	27.8	8.22	6.63		
SSW28"	7/27/99		0.11	3.4	0.08	1.1	0.23	3.2	1.7	48	0.4	11.2	4.8	68	1.09	2.45		2.30	34.872	26.2	8.25	6.86		
SSW28"	8/5/99		0.14	4.3	0.10	1.4	0.25	3.5	2.6	74	0.4	12.4	5.1	71	1.03	1.80		2.17	34.882	26.5	8.24	6.65		
SSW28"	8/11/99		0.11	3.4	0.17	2.4	0.28	3.9	3.4	94	0.4	11.5	3.7	52	0.98	2.80		2.29	34.927	26.2	8.44	6.55		
SSW28"	8/18/99		0.16	5.0	0.14	2.0	0.28	3.9	2.0	56	0.4	11.8	4.8	68	1.08	3.35		2.24	34.892	25.5	8.29	6.61		
SSW28"	8/24/99		0.09	2.8	0.06	0.8	0.02	0.3	2.3	66	0.3	10.2	4.5	63	1.02	1.75		2.38	34.910	26.4	8.26	6.56		
SSW28"	8/31/99		0.12	3.7	0.05	0.7	0.20	2.8	2.9	81	0.3	9.6	5.0	70	1.08	2.25		2.42	34.926	26.2	8.31	6.50		
SSW28"	9/8/99		0.16	5.0	0.15	2.1	0.02	0.3	2.3	63	0.4	11.2	5.5	76	1.06	2.60		2.45	35.033	26.3	8.29	6.57		
SSW28"	9/15/99		0.16	5.0	0.13	1.8	0.05	0.7	1.6	44	0.4	13.0	4.6	65	1.03	1.85		2.35	34.495	26.1	8.27	6.59		
SSW28"	9/20/99		0.13	4.0	0.08	1.1	0.11	1.5	2.4	67	0.4	11.5	5.5	77	1.13	2.75		2.34	35.005	27.2	8.29	6.63		
SSW28"	9/30/99		0.11	3.4	0.09	1.3	0.12	1.7	1.9	53	0.3	10.2	4.8	68	1.03	5.05		2.40	35.003	26.0	8.29	6.76		
SSW28"	10/12/99		0.07	2.2	0.05	0.7	0.23	3.2	2.9	82	0.2	7.4	5.1	71	1.06	1.75		2.23	35.038	25.9	8.27	6.74		
SSW28"	11/3/99		0.10	3.1	0.06	0.8	0.23	3.2	2.0	56	0.3	9.6	5.0	70	1.01	2.80		2.23	35.085	26.1	8.28	6.46		
SSW28"	12/15/99		0.09	2.8	0.07	1.0	0.08	1.1	3.1	88	0.3	8.7	5.5	77	0.98	2.75		2.22	35.128	24.7	8.21	6.29		
SSW28"	1/10/00		0.07	2.2	0.19	2.7	0.16	2.2	3.4	95	0.3	9.0	5.2	73	0.94	1.15		2.38	35.126	25.1	8.23	6.79		
SSW28"	2/7/00		0.11	3.4	0.06	0.8	0.34	4.8	2.3	65	0.4	10.8	5.0	69	0.99	2.20		2.32	35.129	23.4	8.26	6.74		
SSW28"	3/1/00		0.21	6.5	0.35	4.9	0.27	3.8	5.8	163	0.4	12.4	4.9	69	1.08	2.35		2.28	34.822	23.9	8.26	6.69		
SSW28"	4/10/00		0.16	5.0	0.17	2.4	0.06	0.8	7.6	215	0.3	9.6	5.2	73	1.03	2.55		2.25	34.932	23.8	8.26	6.66		
SSW28"	5/15/00		0.08	2.5	0.08	1.1	0.10	1.4	1.7	47	0.3	9.9	5.0	70	1.01	2.35		2.23	34.721	25.0	8.27	6.71		
SSW28"	6/6/00		0.13	4.0	0.03	0.4	0.01	0.1	2.0	56	0.2	6.8	5.2	72	1.01	2.15		2.24	34.725	25.5	8.25	6.67		
SSW28"	7/26/00		0.11	3.4	0.16	2.2	0.09	1.3	3.1	88	0.4	12.1	5.1	71	0.97	2.30		2.27	34.899	26.2	8.27	6.50		
SSW28"	8/30/00		0.09	2.8	0.08	1.1	0.09	1.3	2.3	63	0.3	9.3	5.4	75	0.98	2.20		2.38	34.958	26.4	8.22	6.32		
SSW28"	9/6/00		0.11	3.4	0.03	0.4	0.08	1.1	1.7	48	0.3	9.6	5.3	74	0.98	3.30		2.42	34.955	25.5	8.23	6.50		
SSW28"	10/20/00		0.15	4.6	0.41	5.7	0.11	1.5	3.9	110	0.4	11.5	5.3	75	0.97	3.00		2.40	34.912	26.4	8.26	6.35		
SSW28"	11/14/00		0.13	4.0	0.09	1.3	0.32	4.5	2.8	78	0.3	8.7	4.9	68	1.32	2.65		2.38	35.054	27.1	8.24	6.31		
SSW28"	12/20/00		0.13	4.0	0.28	3.9	0.30	4.2	4.0	112	0.3	10.5	5.6	79	1.19	2.70		2.27	34.785	24.0	8.26	6.43		
SSW28"	1/23/01		0.14	4.3	0.03	0.4	0.13	1.8	3.2	89	0.3	10.5	5.2	73	1.12	2.65		2.28	34.789	24.5	8.23	6.27		
SSW28"	2/5/01		0.13	4.0	0.04	0.6	0.11	1.5	2.6	72	0.3	9.6	5.1	71	1.03	2.65		2.30	34.957	23.6	8.22	6.25		
SSW28"	3/5/01		0.15	4.6	0.15	2.1	0.17	2.4	5.1	142	0.4	13.3	5.1	72	1.02	1.85		2.27	34.734	24.1	8.19	6.18		
SSW28"	4/16/01		0.09	2.8	0.12	1.7	0.04	0.6	11.8	333	0.3	10.5	4.5	63	1.03	2.45		2.28	34.778	24.2	8.21	6.93		
SSW28"	5/9/01		0.14	4.3	0.14	2.0	0.42	5.9	5.2	146	0.5	14.2	5.5	77	1.02	2.00		2.26	34.761	24.8	8.20	6.67		
SSW28"	6/8/01		0.14	4.3	0.15	2.1	0.18	2.5	2.8	78	0.3	10.5	6.0	84	1.11	2.65		2.28	34.794	25.9	8.22	6.54		
SSW28"	7/24/01		0.17	5.3	0.15	2.1	0.05	0.7	1.9	52	0.4	11.8	4.7	65	0.91	2.20		2.26	34.766	25.6	8.20	6.52		
SSW28"	8/22/01		0.19	5.9	0.21	2.9	0.05	0.7	3.7	104	0.4	12.7	4.7	66	0.93	2.80		2.25	34.852	26.1	8.17	6.32		
SSW28"	9/18/01		0.17	5.3	0.22	3.1	0.11	1.5	1.6	45	0.4	11.5	5.5	76	0.99	2.15		2.31	34.940	26.4	8.21	6.33		
SSW28"	10/9/01		0.17	5.3	0.35	4.9	0.11	1.5	1.6	45	0.4	11.5	5.8	81	0.99	2.95		2.28	34.941	26.3	8.19	6.97		
SSW28"	11/6/01		0.23	7.1	0.25	3.5	0.02	0.3	2.9	81	0.4	13.6	5.7	80	1.02	2.95		2.30	34.951	25.9	8.22	6.40		
SSW28"	12/18/01		0.11	3.4	0.22	3.1	0.22	3.1	1.6	44	0.3	9.3	5.4	76	0.98	2.45		2.28	34.988	25.0	8.21	6.54		
SSW28"	1/8/02		0.20	6.2	0.26	3.6	0.29	4.1	4.7	131	0.4	12.4	5.2	72	1.05	2.80		2.27	34.832	25.1	8.22	6.29		
SSW28"	2/27/02		0.17	5.3	0.15	2.1	0.09	1.3	8.8	247	0.4	11.8	6.3	88	1.09	2.35		2.34	34.913	23.5	8.22	6.24		
SSW28"	3/19/02		0.12	3.7	0.20	2.8	0.16	2.2	1.6	44	0.4	11.8	5.4	75	0.89	1.35		2.32	34.601	23.9	8.23	6.30		
SSW28"	4/9/02		0.19	5.9	0.28	3.9	0.11	1.5	5.1	143	0.4	11.8	5.3	75	0.87	2.20		2.31	34.577	24.7	8.19	6.18		
SSW28"	5/21/02		0.15	4.6	0.08	1.1	0.10	1.4	1.2	33	0.4	11.5	6.3	88	1.02	2.05		2.35	34.731	25.6	8.22	6.74		
SSW28"	6/18/02		0.16	5.0	0.30	4.2	0.12	1.7	2.6	72	0.4	11.2	5.7	80	0.86	0.65		2.31	34.574	26.2	8.21	6.38		
SSW28"	7/17/02		0.11	3.4	0.15	2.1	0.13	1.8	2.1	59	0.3	9.6	6.9	97	1.04	2.25		2.32	34.875	25.9	8.23	6.48		
SSW28"	8/22/02		0.12	3.7	0.14	2.0	0.18	2.5	4.2	117	0.3	10.5	6.3	88	0.91	2.30		2.35	34.792	26.9	8.22	6.44		
SSW28"	9/24/02		0.11	3.4	0.11	1.5	0.23	3.2	1.7	47	0.3	9.6	4.7	66	0.97	1.90		2.35	34.930	26.0	8.25	6.58		
SSW28"	10/16/02		0.08	2.5	0.16	2.2	0.32	4.5	1.6	45	0.4	12.1	5.5	77	0.96	1.60		2.35	34.920	26.5	8.24	6.43		
SSW28"	11/6/02		0.17	5.3	0.27	3.8	0.24	3.4	1.9	54	0.4	11.2	5.7	79	0.92	1.15		2.35	34.889	24.2	8.23	6.33		
SSW28"	12/19/02		0.17	5.3	0.30	4.2	0.05	0.7	1.0	29	0.3	10.5	5.5	78	0.89	2.50		2.36	35.017	23.7	8.24	6.53		
SSW28"	1/29/03		0.18	5.6	0.40	5.6	0.10	1.4	11.2	315	0.3	10.5	4.8	67	0.88	1.85		2.36	35.084	23.3	8.24	7.34		
SSW28"	2/10/03		0.10	3.1	0.12	1.7	0.02	0.3	7.8	219	0.4	10.8	5.3	75	0.78	1.90		2.33	34.617	23.1	8.25	6.66		
SSW28"	3/18/03		0.15	4.6	0.10	1.4	0.05	0.7	2.1	58	0.4	11.2	2.6	37	0.84	1.95		2.29	34.802	26.1	8.24	6.69		
SSW28"	4/29/03		0.18	5.6	0.20	2.8	0.12	1.7	5.0	140	0.5	13.9	3.3	46	1.05	1.75		2.30	34.778	24.7	8.27	7.09		
SSW28"	5/13/03		0.16	5.0	0.31	4.3	0.05	0.7	15.0	422	0.4	11.8	5.3	74	1.03	1.65		2.26	34.659	24.9	8.27	6.62		
SSW28"	6/5/03		0.15	4.6	0.04	0.6	0.07	1.0	5.4	152	0.4	11.5	4.8	67	1.10	1.90		2.27	34.625	26.7	8.27	6.74		

NELHA Water Quality Laboratory

SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/31/03		0.14	4.3	0.37	5.2	0.10	1.4	4.1	114	0.4	11.5	5.3	75		2.15		2.27	34.826	27.0	8.23	6.76		
SSW28"	8/27/03		0.11	3.4	0.33	4.6	0.05	0.7	2.2	61	0.4	11.2	6.1	85		2.30		2.24	34.820	27.3	8.25	6.43		
SSW28"	9/17/03		0.11	3.4	0.42	5.9	0.03	0.4	2.0	55	0.5	13.9	6.3	88		3.30		2.29	34.692	26.9	8.23	6.42		
SSW28"	10/7/03		0.14	4.3	0.33	4.6	0.23	3.2	1.8	50	0.4	12.1	7.1	99		2.35		2.32	34.766	26.6	8.23	NA		
SSW28"	11/4/03		0.14	4.3	0.26	3.6	0.05	0.7	3.6	100	0.4	12.4	6.1	86		2.60		2.29	34.706	26.1	8.24	NA		
SSW28"	11/14/03																			26.3		6.35		
SSW28"	12/16/03		0.12	3.7	0.44	6.2	0.05	0.7	1.8	51	0.4	12.1	5.6	79		2.20		2.18	34.825	24.4	8.24	6.45		
SSW28"	1/27/04		0.16	5.0	0.32	4.5	0.31	4.3	5.6	156	0.4	12.1	4.5	63		0.65		2.16	34.459	22.6	8.24	6.30		
SSW28"	2/10/04		0.16	5.0	0.31	4.3	0.07	1.0	3.7	105	0.4	12.4	5.8	81		1.20		2.14	34.406	24.6	8.24	6.56		
SSW28"	3/15/04		0.21	6.5	0.29	4.1	0.20	2.8	2.2	61	0.5	14.2	4.9	68		0.65		2.18	34.417	25.0	8.24	6.17		
SSW28"	4/21/04		0.18	5.6	0.10	1.4	0.34	4.8	3.9	109	0.5	15.5	5.2	73		0.35		2.24	34.266	24.3	8.24	6.67		
SSW28"	5/12/04		0.18	5.6	0.19	2.7	0.30	4.2	2.5	69	0.4	13.0	6.2	86		0.20		2.25	33.510	26.0	8.26	6.79		
SSW28"	6/7/04		0.16	5.0	0.34	4.8	0.17	2.4	4.9	139	0.4	13.6	7.9	110		0.85		2.27	33.460	25.6	8.21	6.51		
SSW28"	7/8/04		0.12	3.7	0.37	5.2	0.20	2.8	4.0	111	0.4	12.7	5.6	79	0.86	0.85		2.32	33.610	25.9	8.24	6.40		
SSW28"	8/24/04		0.14	4.3	0.40	5.6	0.34	4.8	3.1	86	0.4	12.1	5.2	73		0.90		2.34	33.670	26.0	8.24	6.19		
SSW28"	9/2/04		0.11	3.4	0.36	5.0	0.19	2.7	1.7	49	0.4	10.8	5.9	83		3.00		2.34	33.740	26.7	8.25	6.24		
SSW28"	10/1/04		0.10	3.1	0.28	3.9	0.22	3.1	2.1	60	0.4	10.8	5.5	77		1.25		2.31	33.740	27.3	8.26	7.93		
SSW28"	11/8/04		0.13	4.0	0.48	6.7	0.18	2.5	2.7	76	0.4	11.2	5.4	76		0.40		2.32	33.680	26.1	8.24	6.24		
SSW28"	12/7/04		0.11	3.4	0.39	5.5	0.26	3.6	1.6	45	0.3	10.2	5.5	77		1.95		2.31	33.770	23.8	8.27	6.36		
SSW28"	1/11/05		0.11	3.4	0.24	3.4	0.07	1.0	4.2	118	0.3	10.2	4.8	67		0.55		2.37	34.792	22.8	8.32	6.49		
SSW28"	2/8/05		0.11	3.4	0.26	3.6	0.06	0.8	2.9	80	0.3	10.2	5.4	76		1.90		2.35	34.794	22.6	8.32	6.65		
SSW28"	3/23/05		0.11	3.4	0.03	0.4	0.19	2.7	1.9	52	0.4	11.5	3.4	47	1.05	1.40		2.36	34.771	23.7	8.30	6.58	348	4208
SSW28"	4/21/05		0.18	5.6	0.15	2.1	0.27	3.8	2.0	56	0.4	11.8	5.4	76		0.85		2.30	34.560	24.3	8.30	6.33	297	2627
SSW28"	5/26/05	905	0.14	4.3	0.09	1.3	0.26	3.6	2.4	66	0.4	13.0	4.9	68		5.30		2.30	34.516	24.4	8.25	6.63	14800	5000
SSW28"	6/16/05	840	0.12	3.7	0.10	1.4	0.41	5.7	2.4	68	0.4	11.5	4.7	66		1.35		2.31	34.657	25.6	8.24	6.35	517	2127
SSW28"	7/27/05	825	0.11	3.4	0.37	5.2	0.05	0.7	2.3	65	0.4	10.8	4.4	61	0.95	0.70		2.33	34.692	22.5	8.29	6.11	280	4700
SSW28"	8/11/05	740	0.12	3.7	0.66	9.2	0.34	4.8	1.9	52	0.4	10.8	4.9	69	0.86	3.25		2.30	34.733	26.3	8.30	6.10	1081	4333
SSW28"	9/14/05	808	0.13	4.0	0.47	6.6	0.31	4.3	1.8	49	0.4	11.5	3.5	50	1.31	4.35		2.31	34.796	26.1	8.28	6.15	1119	4533
SSW28"	10/10/05	912	0.11	3.4	0.26	3.6	0.30	4.2	3.5	97	0.4	11.5	5.0	70	1.14	2.35		2.33	34.833	27.1	8.32	6.26	913	12133
SSW28"	11/2/05	802	0.10	3.1	0.26	3.6	0.40	5.6	7.3	205	0.4	10.8	4.3	60	0.69	2.30		2.37	34.948	25.3	8.28	6.41	1600	13400
SSW28"	12/20/05	809	0.09	2.8	0.14	2.0	0.40	5.6	1.3	37	0.3	9.9	5.0	69	0.86	2.25		2.51	34.936	25.0	8.31	6.50	1800	6233
SSW28"	1/26/06	811	0.11	3.4	0.33	4.6	0.27	3.8	2.6	73	0.3	9.6	5.3	74		1.70		2.15	35.052	23.1	8.26	6.45	1100	6188
SSW28"	2/28/06	820	0.12	3.7	0.32	4.5	0.43	6.0	6.7	189	0.9	27.9	6.4	89		2.85		2.13	34.925	24.0	8.26	6.59	1944	20100
SSW28"	3/23/06	820	0.12	3.7	0.21	2.9	0.48	6.7	4.2	118	0.4	12.7	5.4	75		1.00		2.11	34.754	23.5	8.26	6.66	1367	9675
SSW28"	4/18/06	857	0.16	5.0	0.33	4.6	0.28	3.9	2.1	59	0.3	10.5	6.0	83	1.17	2.70		2.24	34.726	24.9	8.27	6.64	1617	13225
SSW28"	5/18/06	905	0.13	4.0	0.16	2.2	0.15	2.1	2.0	56	0.4	12.7	4.7	66	0.86	2.15		2.23	34.721	24.9	8.25	6.50	1613	8288
SSW28"	6/29/06	1045	0.14	4.3	0.47	6.6	0.29	4.1	2.8	78	0.3	9.9	5.3	74	0.89	1.00		2.25	34.759	28.0	8.23	6.25	1319	22000
SSW28"	7/25/06	850	0.13	4.0	0.33	4.6	0.33	4.6	2.0	55	0.3	10.5	6.2	87	0.93	1.35		2.28	34.802	25.8	8.24	6.92	2767	15100
SSW28"	8/10/06	925	0.14	4.3	0.39	5.5	0.30	4.2	1.5	41	0.4	11.8	6.0	84	0.85	2.40		2.27	34.695	26.8	8.23	6.48	3075	51900
SSW28"	9/21/06	900	0.14	4.3	0.39	5.5	0.22	3.1	3.0	83	0.3	9.9	4.7	65	0.82	1.05		2.25	34.752	25.5	8.23	6.49	1075	2888
SSW28"	10/26/06	850	0.15	4.6	0.57	8.0	0.35	4.9	3.5	97	0.3	10.5	5.6	78	0.91	1.70		2.24	34.803	26.7	8.27	7.03	1976	8125
SSW28"	11/30/06	925	0.16	5.0	0.48	6.7	0.22	3.1	1.1	32	0.4	11.5	5.6	79	0.94	2.55		2.48	34.876	25.1	8.25	6.36	2013	36600
SSW28"	12/14/06	935	0.17	5.3	0.34	4.8	0.37	5.2	1.7	47	0.4	12.1	5.8	81	0.88	1.80		2.30	34.803	25.7	8.24	6.56	2213	20000
SSW28"	1/11/07	930	0.17	5.3	0.46	6.4	0.33	4.6	0.4	11	0.4	11.2	5.1	71	0.88	2.10		2.41	34.911	24.1	8.25	6.16	1625	5575
SSW28"	2/15/07	930	0.20	6.2	0.20	2.8	0.49	6.9	2.0	57	0.4	13.6	5.8	81	0.97	1.90		2.31	34.489	23.3	8.23	6.37	1800	9763
SSW28"	3/8/07	950	0.18	5.6	0.30	4.2	0.37	5.2	4.3	121	0.5	14.6	6.3	88	0.86	1.80		1.94	34.538	24.7	8.25	6.34	825	7688
SSW28"	4/12/07	930	0.20	6.2	1.42	19.9	0.47	6.6	2.8	79	0.4	13.3	5.6	79	0.81	1.35		1.83	34.679	25.5	8.26	6.13	3288	12288
SSW28"	5/9/07	945	0.19	5.9	0.38	5.3	0.44	6.2	1.5	43	0.4	13.3	6.5	91	0.98	1.80		1.97	34.751	25.8	8.26	6.44	2200	21300
SSW28"	6/27/07	900	0.17	5.3	0.56	7.9	0.07	1.0	2.9	81	0.0		0.0			2.15		2.56	34.790	26.7	8.28	6.55	1838	12633
SSW28"	7/30/07	1012	0.20	6.1	0.05	0.7	0.32	4.5	3.9	109	0.35	10.8	7.0	98		2.80		2.45	35.000	26.6	8.12	6.3		
SSW28"	8/30/07	1215	0.15	4.8	0.16	2.3	0.54	7.5	1.4	40	0.24	7.3	5.2	72		2.55		2.47	34.879	26.8	8.21	6.2		
SSW28"	9/21/07	1132	0.18	5.5	0.16	2.2	0.34	4.8	1.8	52	0.39	12.2	11.7	163		1.95		2.43	34.937	27.2	8.23	6.3		
SSW28"	10/30/07	1131	0.19	5.8	0.19	2.6	0.45	6.3	18.2	512	0.24	7.5	5.7	80		1.10		2.51	35.080	26.8	8.25	6.2		
SSW28"	11/27/07	1255	0.19	5.9	0.01	0.2	0.42	5.9	1.8	52	0.30	9.2	6.6	93		1.10		2.40	34.955	26.3	8.24	6.1		
SSW28"	12/28/07	1531	0.07	2.1	0.13	1.8	0.03	0.4	2.4	69	0.00		0.0			0.80		2.58	34.833	25.3	8.20	6.0		
SSW28"	1/30/08	924	0.08	2.5	0.16	2.3	0.18	2.5	28.2	792	0.00		0.0			1.55		2.41	34.940	24.2	8.13	6.1		
SSW28"	2/28/08	1419	0.04	1.2	0.19	2.7	0.05	0.7	5.2	146	0.29	9.1	7.6	106		2.40		2.42	34.950	24.5	8.13	6.5		
SSW28"	3/31/08	1146	0.04	1.2	0.06	0.9	0.05	0.7	8.8	247	0.36	11.0	7.1	99		2.60		2.40	34.900	24.5	8.15	6.5		
SSW28"	4/25/08	916	0.15	4.6	0.33	4.6	0.15	2.1	2.0	57	0.33	10.2	5.0	70		0.90		2.55	34.622	25.0	8.18	6.6		
SSW28"	5/23/08	933	0.14	4.4	0.17	2.4	0.16	2.3	NA	NA	0.22	6.9	5.2	73		6.30		2.34	34.805	25.3	8.29	6.4		
SSW28"	6/15/08	945	0.11	3.3	0.12	1.7	0.18	2.5	3.0	84	0.25	7.6	10.5	147		0.55		NA	34.648	25.3	8.25	6.1		

NELHA Water Quality Laboratory

SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/18/08	1400	0.14	4.4	0.17	2.4	0.09	1.3	1.8	51	0.05	1.5	9.8	137		0.25			34.719	26.2	8.11	6.2		
SSW28"	8/13/08	1209	0.58	18.1	0.34	4.7	0.58	8.1	8.5	238	0.20	6.1	7.9	110		0.31			34.408	26.4	8.03			
SSW28"	9/8/08	1041	0.05	1.7	0.36	5.0	4.61	64.6	2.3	65	0.15	4.6	7.1	99		1.06			34.88	26.1	8.06			
SSW28"	10/23/08	1112	0.22	6.9	0.40	5.6	0.80	11.2	1.3	37	0.81	25.1	10.0	139		0.29			35.09	26.2	8.19	4.9		
SSW28"	11/28/08	1047	0.09	2.8	0.49	6.8	0.18	2.5	2.0	55	0.41	12.7	5.3	74		2.30			35.15	25.3	8.28	5.9		
SSW28"	12/30/08	948	0.13	3.9	0.21	2.9	0.44	6.1	1.7	48	0.37	11.4	7.0	98		1.07			35.24	25.3	8.24	5.8		
SSW28"	1/12/09	1152	0.20	6.3	0.46	6.4	0.12	1.7	2.4	67	0.49	15.3	10.5	147		0.61			35.008	25.2	8.30	6.2		
SSW28"	2/20/09	1320	0.12	3.6	0.27	3.8	1.06	14.9	2.5	71	0.70	21.7	10.7	150		2.01	0.11		35.16	24.1	8.23	6.6		
SSW28"	3/30/09	1315	0.21	6.4	0.99	13.8	0.37	5.2	3.0	83	0.44	13.7	4.6	65		N/A			35.136	24.0	8.28	6.7		
SSW28"	4/30/09	1025	0.36	11.3	0.25	3.5	1.26	17.6	2.2	62	0.53	16.4	7.5	105		0.66			35.000	23.6	8.19	6.7		
SSW28"	5/15/09	1400	0.24	7.3	0.47	6.6	0.19	2.7	1.6	45	0.87	27.1	7.1	99		0.85			35.15	25.4	NA	6.3		
SSW28"	6/10/09	1053	0.52	16.1	0.26	3.7	0.29	4.1	2.0	57	0.66	20.3	6.2	87		0.67			34.617	27.0	8.29	5.8		
SSW28"	7/10/09	1045	0.41	12.8	0.67	9.4	0.59	8.3	7.4	209	0.33	10.3	6.8	95		0.98			35.21	26.2	8.47	6.3		
SSW28"	8/27/09	1009	0.15	4.8	0.22	3.1	0.19	2.7	3.4	95	0.28	8.8	6.7	93		0.64	0.04		34.97	26.6	8.20	6.0		
SSW28"	9/17/09	1144	0.11	3.4	1.01	14.2	0.74	10.4	15.1	424	0.34	10.4	4.2	59		0.37	0.02		35.37	26.5	8.06	5.9		
SSW28"	10/26/09	1047	0.07	2.1	0.26	3.6	0.25	3.5	3.7	103	0.32	9.8	5.2	74		0.58			35.40	26.6	8.47	5.8		
SSW28"	11/19/09	1431	0.16	5.1	0.25	3.5	0.55	7.7	1.7	48	0.47	14.5	8.6	121		0.84			35.47	25.9	8.30	6.1		
SSW28"	12/3/09	935	0.15	4.6	0.20	2.8	0.49	6.9	4.4	123	0.39	12.2	4.1	58		0.80			35.33	24.7	8.18	6.2		
SSW28"	1/14/10	940	0.20	6.2	0.31	4.4	0.13	1.8	1.4	39	0.45	13.8	6.1	85		0.15			35.29	25.5	8.20	6.7		
SSW28"	2/16/10	1109	0.18	5.6	0.36	5.0	0.35	4.9	1.0	28	0.44	13.6	4.6	64		0.90			34.86	25.4	8.22	6.1		
SSW28"	3/15/10	903	0.12	3.7	0.06	0.9	0.06	0.8	9.2	259	0.36	11.1	3.7	52		1.20			34.91	24.6	8.20	6.7		
SSW28"	4/1/10	842	0.12	3.8	0.04	0.5	0.37	5.2	2.5	69	0.31	9.7	7.0	99		0.80	0.04		35.13	24.3	8.20	6.7		
SSW28"	5/10/10	846	0.08	2.5	0.64	8.9	0.28	3.9	16.0	450	0.49	15.2	6.7	93		1.65	0.06		35.01	25.3	8.22	6.4		
SSW28"	6/23/10	920	0.04	1.1	0.44	6.2	0.19	2.6	1.2	35	0.36	11.2	6.2	86		1.5	0.09		35.05	25.5	8.22	6.1		
SSW28"	7/1/10	1020	0.04	1.2	0.35	4.9	0.40	5.6	7.7	217	0.4	11.7	7.3	102		0.95	0.06		34.99	25.5	8.21	6.31		
SSW28"	8/5/10	925	0.10	3.1	0.54	7.5	0.16	2.2	2.5	71	0.3	9.9	5.7	80		1.30	0.05		34.85	25.8	8.15	6.37		
SSW28"	9/2/10	939	0.04	1.1	0.28	3.9	0.10	1.4	0.9	26	0.3	10.1	5.2	73		1.35	0.04		34.83	25.9	8.25	6.28		
SSW28"	10/18/10	932	0.11	3.5	0.19	2.7	0.18	2.5	4.7	132	0.6	17.8	7.9	111		1.20	0.05		34.87	26.1	8.19	6.68		
SSW28"	11/4/10	955	0.05	1.7	0.46	6.4	0.19	2.7	3.2	91	0.4	11.0	5.5	77		0.95	0.12		35.00	26.4	8.23	6.15		
SSW28"	12/1/10	953	0.09	2.8	0.26	3.7	0.13	1.8	3.8	106	0.9	27.4	9.5	134		1.90	0.08		34.94	25.9	8.23	6.13		
SSW28"	1/25/11	948	0.18	5.6	0.30	4.2	0.23	3.2	2.2	62	0.6	18.1	6.7	94		0.95	0.02		34.92	25.2	8.21	6.22		
SSW28"	2/8/11	1001	0.14	4.3	0.32	4.5	0.46	6.5	1.3	37	0.5	14.4	5.0	70		1.10	0.07		35.16	25.1	8.25	6.36		
SSW28"	3/7/11	1049	0.22	6.7	0.28	3.9	0.31	4.4	2.2	63	0.6	18.5	4.0	56		0.95	0.09		34.57	25.2	8.23	6.25		
SSW28"	4/11/11	1100	0.16	4.9	0.30	4.2	0.15	2.1	0.7	19	0.4	12.7	4.3	60		1.17	0.09		35.12	25.1	8.17	5.72		
SSW28"	5/25/11	1150	0.10	3.2	0.48	6.7	0.31	4.3	0.7	19	0.4	12.1	4.5	64		1.03	0.06		34.76	25.4	8.24	5.86		
SSW28"	6/13/11	940	0.19	5.8	0.39	5.4	0.56	7.8	0.4	13	0.5	15.1	9.1	127		1.05	0.06		34.79	25.0	8.21	6.99		
SSW28"	7/21/11	840	0.21	6.4	0.45	6.3	0.29	4.1	0.5	15	0.4	12.5	4.7	66		0.90	0.02		34.81	25.5	8.18	6.50		
SSW28"	8/22/11	1008	0.10	3.2	0.36	5.1	0.16	2.3	0.5	14	0.3	9.1	5.0	70		1.03	0.04		34.91	25.6	8.22	6.52		
SSW28"	9/15/11	833	0.09	2.8	0.77	10.8	0.21	3.0	0.6	17	0.4	13.8	5.9	82		0.32	0.05		34.91	26.7	8.19	6.21		
SSW28"	10/4/11	1149	0.11	3.3	0.55	7.7	0.18	2.5	1.5	42	0.4	12.4	3.7	52		0.46	0.02		34.88	26.4	8.19	6.38		
SSW28"	11/21/11	1134	0.09	2.7	0.14	2.0	0.06	0.9	0.7	18	0.4	12.3	4.1	58		1.18	0.08		35.10	25.6	8.18	6.31		
SSW28"	12/27/11	1033	0.01	0.3	0.42	5.9	0.14	1.9	0.5	15	0.3	9.5	6.3	88		2.65	0.02		35.05	24.6	8.22	6.02		
SSW28"	1/30/12	1017	0.07	2.1	0.30	4.2	0.07	1.0	4.1	116	0.4	11.7	6.2	87		0.39	0.02		35.00	24.5	8.21	6.35		
SSW28"	2/27/12	1025	0.08	2.6	0.60	8.4	0.11	1.6	1.8	51	0.4	11.6	7.3	102		0.94	0.02		35.15	24.0	8.21	6.40		
SSW28"	3/28/12	952	0.17	5.2	0.21	2.9	0.58	8.1	0.6	17	0.4	13.8	5.2	73		0.87	0.09		35.04	23.9	8.21	6.39		
SSW28"	4/16/12	952	0.16	5.0	0.46	6.4	0.14	2.0	0.1	4	0.5	14.1	6.1	85		1.01	0.02		34.94	24.6	8.24	6.26		
SSW28"	5/24/12	958	0.15	4.8	0.37	5.2	0.24	3.3	1.9	54	0.5	14.7	5.3	74		0.88	0.05		35.04	24.6	8.22	6.53		
SSW28"	6/19/12	1007	0.14	4.3	0.47	6.6	0.37	5.2	2.8	79	0.4	12.5	10.5	147		0.93	0.09		35.21	24.9	8.22	6.64		

NELHA Water Quality Laboratory

SSW 28"

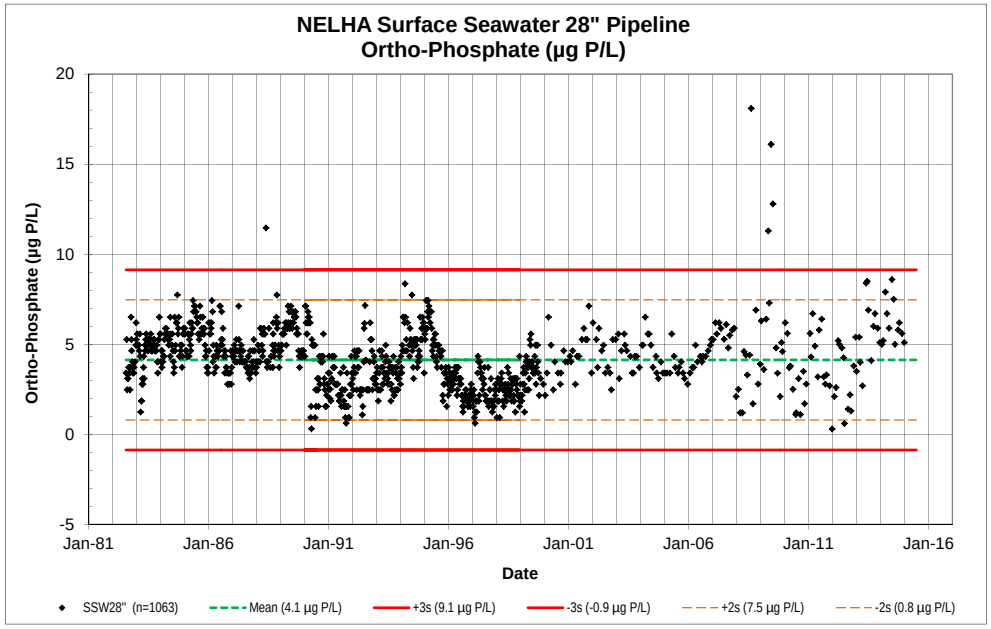
Intake Depth: 21 m, Offshore Pipe Length: 163 m

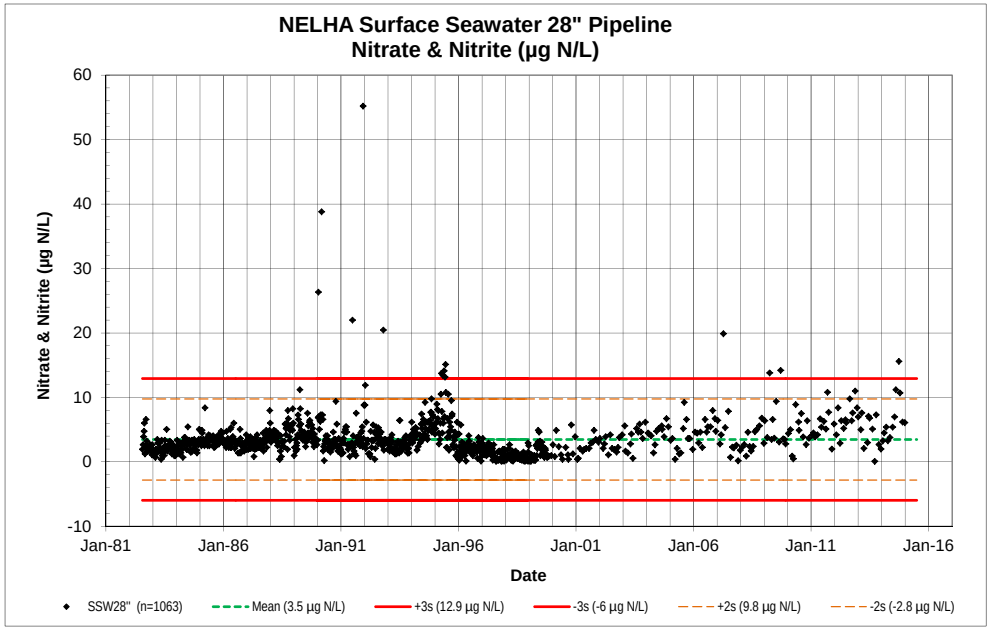
SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW28"	7/3/12	934	0.02	0.6	0.44	6.1	0.29	4.1	2.1	59	0.3	9.9	4.6	64		1.22	0.06		35.24	25.5	8.20	6.94		
SSW28"	8/27/12	1036	0.05	1.4	0.70	9.8	0.45	6.3	2.5	71	0.4	12.4	7.0	99		1.08	0.05		35.30	26.0	8.20	6.30		
SSW28"	9/26/12	1011	0.07	2.2	0.46	6.4	0.14	1.9	1.7	48	0.5	14.5	10.0	141		1.27	0.02		35.27	26.6	8.20	6.02		
SSW28"	10/10/12	936	0.04	1.3	0.54	7.6	0.24	3.4	2.2	62	0.4	12.7	7.1	100		0.97	2.85		35.29	26.5	8.21	5.99		
SSW28"	11/19/12	1309	0.12	3.8	0.79	11.0	0.29	4.1	4.9	137	0.4	12.8	7.1	100		0.72	0.03		35.24	26.0	8.26	6.57		
SSW28"	12/19/12	924	0.17	5.4	0.60	8.4	0.54	7.6	6.2	175	0.5	14.9	6.8	96		2.11	0.03		35.27	25.1	8.24	6.34		
SSW28"	1/4/13	950	0.11	3.5	0.50	7.0	0.19	2.7	0.4	10	0.4	13.3	4.6	64		1.07	0.04		35.28	25.1	8.20	6.28		
SSW28"	2/13/13	1003	0.17	5.4	0.36	5.0	0.14	2.0	1.7	48	0.4	13.7	4.7	65		1.09	0.08		35.19	24.5	8.21	6.03		
SSW28"	3/1/13	1110	0.13	4.0	0.54	7.6	0.47	6.6	1.8	51	0.4	12.9	4.5	62		2.33	0.02		34.97	24.3	8.22	6.36		
SSW28"	4/3/13	1204	0.09	2.7	0.15	2.1	0.14	1.9	2.4	67	0.4	12.3	4.9	68		1.06	0.02		35.30	24.5	8.20	6.33		
SSW28"	5/29/13	1033	0.27	8.4	0.21	3.0	0.36	5.1	1.2	33	0.7	20.8	7.3	103		1.31	0.02		34.97	26.4	8.20	6.09		
SSW28"	6/13/13	1015	0.27	8.5	0.51	7.1	0.50	7.0	1.8	51	0.6	17.8	5.3	74		1.03	0.06		35.09	25.8	8.17	5.96		
SSW28"	7/1/13	926	0.22	6.9	0.49	6.8	0.26	3.7	1.7	47	0.6	17.5	6.8	96		0.90	0.11		34.91	26.3	8.23	6.39		
SSW28"	8/14/13	949	0.13	4.1	0.36	5.1	0.17	2.4	1.8	51	0.4	13.6	5.0	70		1.15	0.03		35.27	26.6	8.23	6.14		
SSW28"	9/18/13	946	0.19	6.0	0.01	0.1	0.38	5.3	1.7	49	0.5	15.5	5.4	76		1.05	0.02		35.03	27.1	8.20	5.92		
SSW28"	10/10/13	922	0.22	6.7	0.52	7.3	0.29	4.0	2.2	63	0.6	18.9	6.1	86		0.86	0.07		35.10	26.0	8.20	6.30		
SSW28"	11/21/13	936	0.19	5.9	0.19	2.7	0.35	4.9	1.8	51	0.5	14.5	4.5	63		1.15	0.02		35.22	26.4	8.21	6.32		
SSW28"	12/23/13	918	0.16	5.1	0.14	2.0	0.34	4.7	1.4	38	0.5	16.4	5.6	78		1.13	0.02		35.24	26.0	8.23	6.08		
SSW28"	1/23/14	1144	0.16	5.0	0.24	3.3	0.30	4.2	1.7	49	0.5	15.2	7.4	104		1.93	0.02		35.27	25.0	8.21	6.46		
SSW28"	2/12/14	1033	0.17	5.2	0.32	4.5	0.61	8.5	2.0	55	0.4	13.7	5.7	80		1.13			34.93	25.6	8.21	6.98		
SSW28"	3/17/14	1007	0.26	7.9	0.39	5.4	0.21	2.9	2.2	61	0.7	20.3	7.5	105		1.40	0.04		34.73	25.5	8.20	6.69		
SSW28"	4/10/14	1101	0.22	6.7	0.24	3.3	0.21	3.0	1.6	44	0.5	15.8	6.6	92		1.51	0.02		34.92	25.6	8.21	6.18		
SSW28"	5/13/14	1426	0.19	5.9	0.27	3.8	0.39	5.4	2.1	58	0.5	14.0	6.6	93		1.20	0.04		34.92	25.8	8.23	6.28		
SSW28"	6/24/14	1229	0.28	8.6	0.39	5.4	0.49	6.8	2.8	78	0.8	24.8	7.3	102		1.32	0.02		34.89	25.9	8.20	6.36		
SSW28"	7/23/14	1155	0.24	7.5	0.50	7.0	0.34	4.7	1.6	44	0.5	15.6	7.6	106		1.47	0.07		35.01	26.5	8.21	6.21		
SSW28"	8/11/14	1118	0.16	5.0	0.80	11.2	0.45	6.3	0.6	17	0.4	11.3	7.9	111		1.80	0.05		34.96	26.0	8.20	5.98		
SSW28"	9/28/14	1123	0.19	5.8	1.11	15.6	0.21	3.0	9.3	260	0.5	15.9	10.3	144		1.64	0.08		35.01	28.0	8.21	5.71		
SSW28"	10/15/14	1252	0.20	6.2	0.76	10.7	0.31	4.3	0.8	22	0.6	17.8	11.0	154		1.51	0.10		35.05	27.8	8.22	5.94		
SSW28"	11/25/14	1212	0.18	5.6	0.44	6.2	0.10	1.4	0.2	6	0.5	14.4	7.5	105		2.35	0.02		34.98	27.1	8.23	6.40		
SSW28"	12/30/14	1022	0.16	5.1	0.44	6.1	0.33	4.6	0.1	3	0.4	13.8	5.4	75		1.12	0.03		35.29	25.2	8.21	6.14		
SSW28"	1/1/15																							
SSW28"	2/1/15																							
SSW28"	3/1/15																							
SSW28"	4/1/15																							
SSW28"	5/1/15																							
SSW28"	6/1/15																							
SSW28"	7/1/15																							
Mean (Jul. '82 - present)			0.13	4.13	0.25	3.48	0.27	3.73	2.92	82.1	0.36	11.2	5.23	73.5	0.92	1.13	0.10	2.31	34.72	25.8	8.26	6.70		
STD DEV			0.05	1.67	0.22	3.15	0.22	3.13	2.50	70.2	0.11	3.2	1.32	18.0	0.44	1.08	0.37	0.09	0.40	1.2	0.05	0.76		
Range																								
UWL	+2s		0.2	7.5	1	9.8	0.71	10.0	8	222	0.6	18	8	110	1.81	3.30	0.83	2.49	35.52	28.2	8.36	8.22		
LWL	-2s		0.0	0.8	0	-2.8	-0.18	-2.5	-2	-58	0.1	5	3	37	0.04	-1.03	-0.63	2.14	33.92	23.3	8.15	5.18		
UCL	+3s		0.3	9.1	1	12.9	0.94	13.1	10	293	0.7	21	9	128	2.25	4.38	1.19	2.58	35.92	29.4	8.42	8.98		
LCL	-3s		0.0	-0.9	0	-6.0	-0.40	-5.7	-5	-128	0.0	2	1	19	-0.40	-2.12	-1.00	2.05	33.53	22.1	8.09	4.42		
Data																								
Max. Value			0.58	18.1	3.94	55.2	4.61	64.6	37.4	1050	1.4	43.1	11.7	163	7.54	11.30	2.85	2.70	35.47	28.5	8.56	21.72		
Min. Value			0.01	0.3	0.01	0.1	0.01	0.1	0.1	3	0.0	1.5	0.0	24	0.32	0.00	0.02	1.83	24.52	21.6	7.97	4.90		

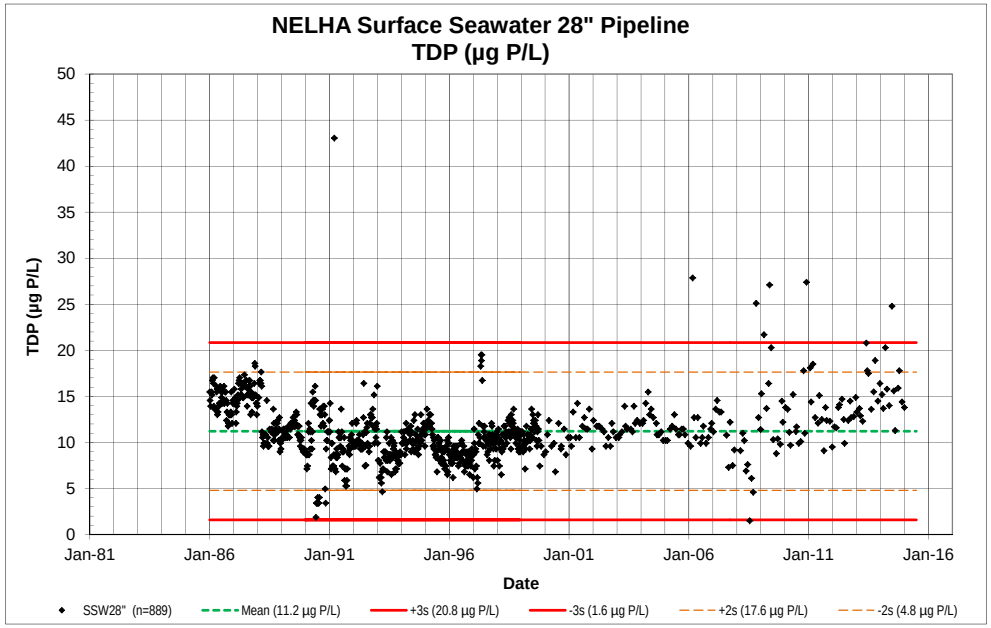
NELHA Water Quality Laboratory

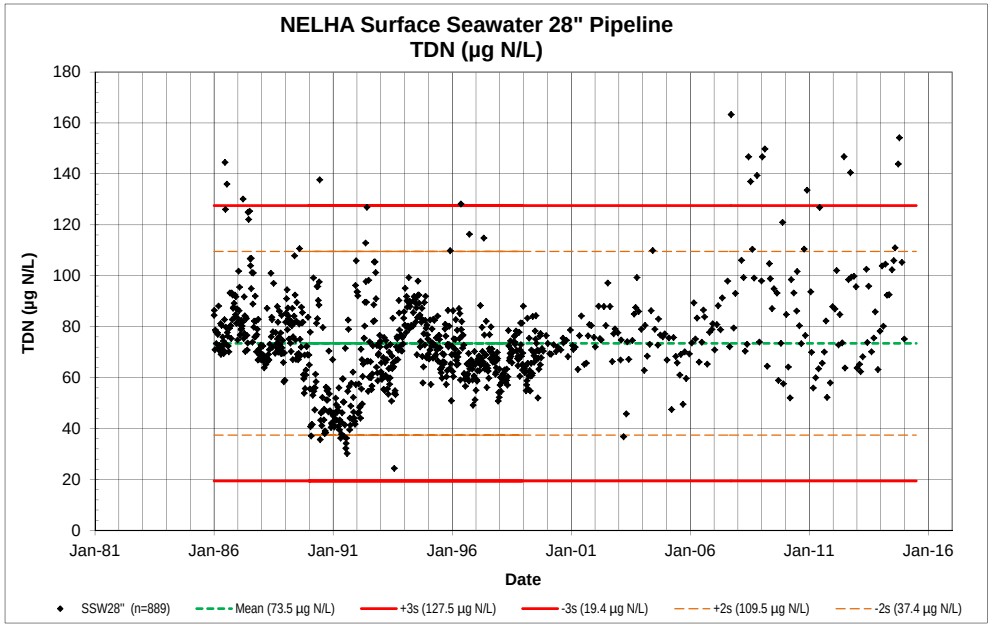
SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m





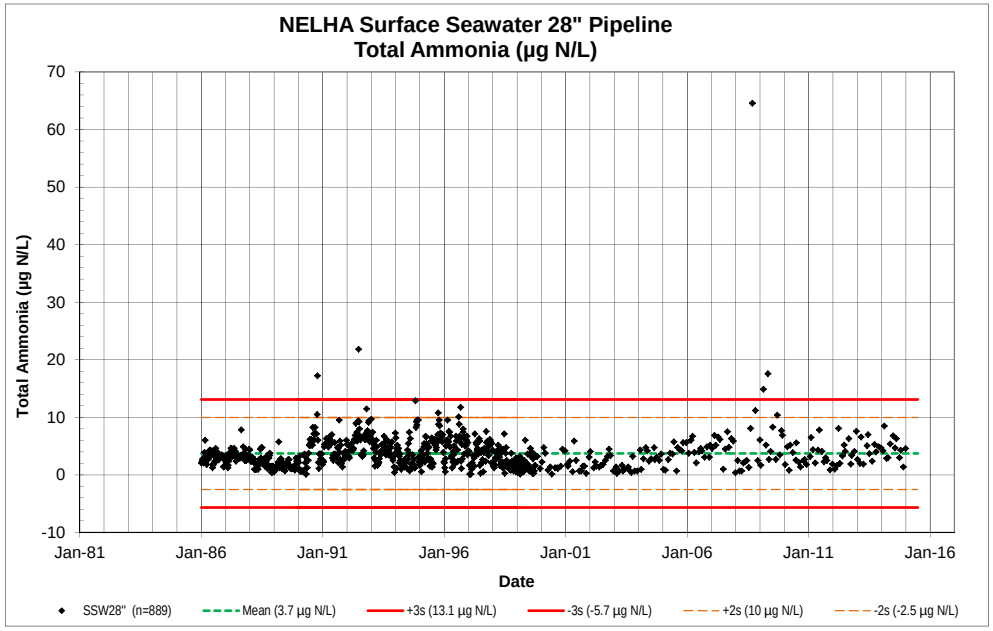


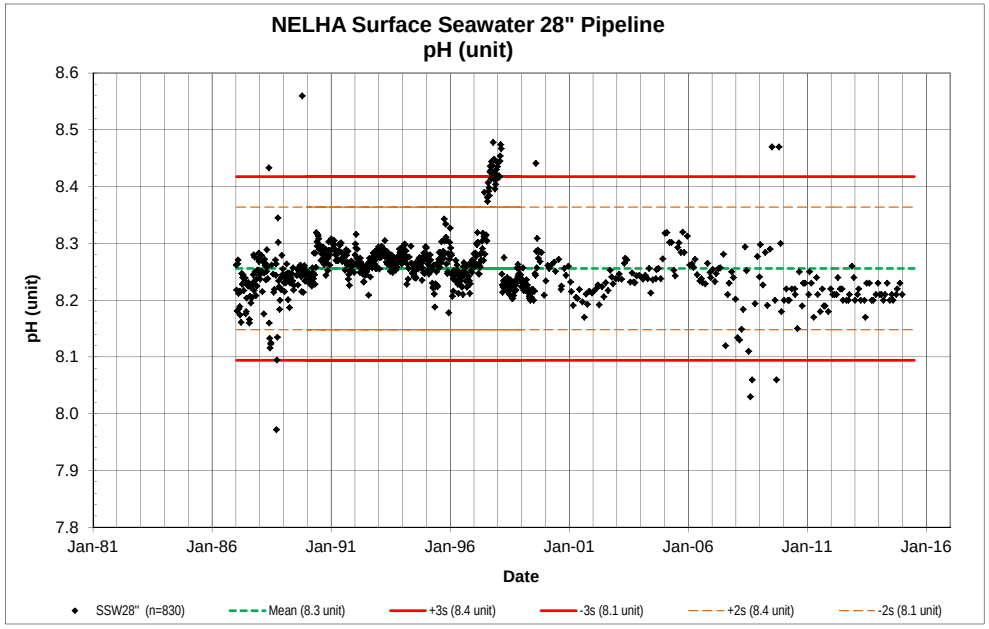


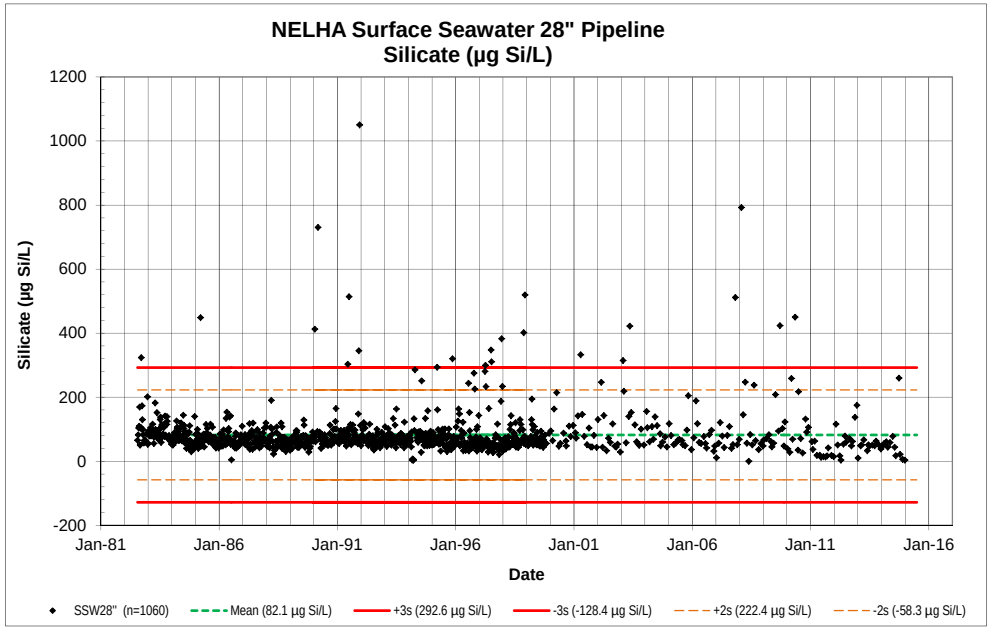
NELHA Water Quality Laboratory

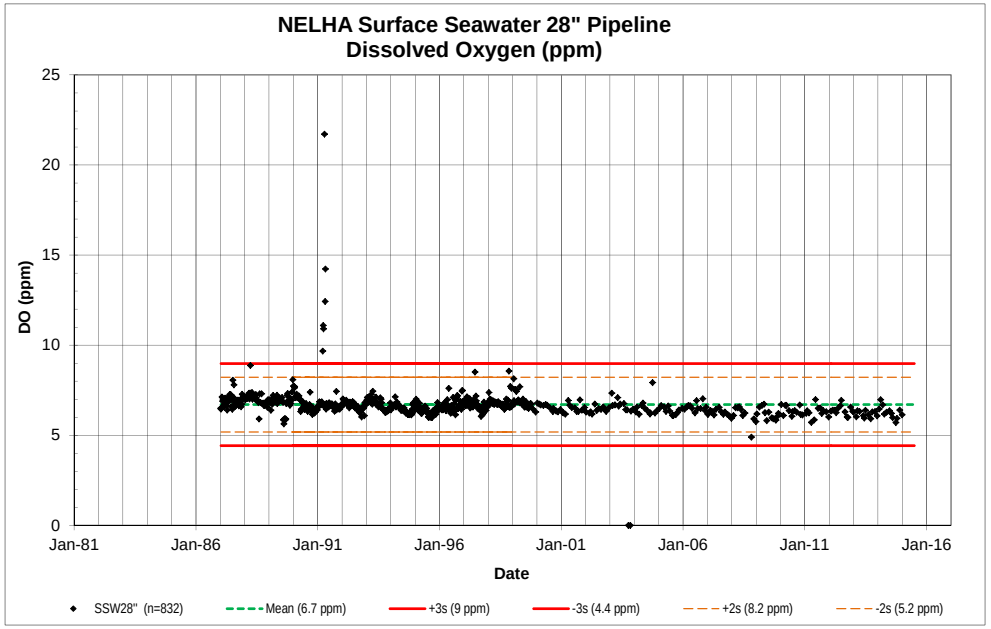
SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m





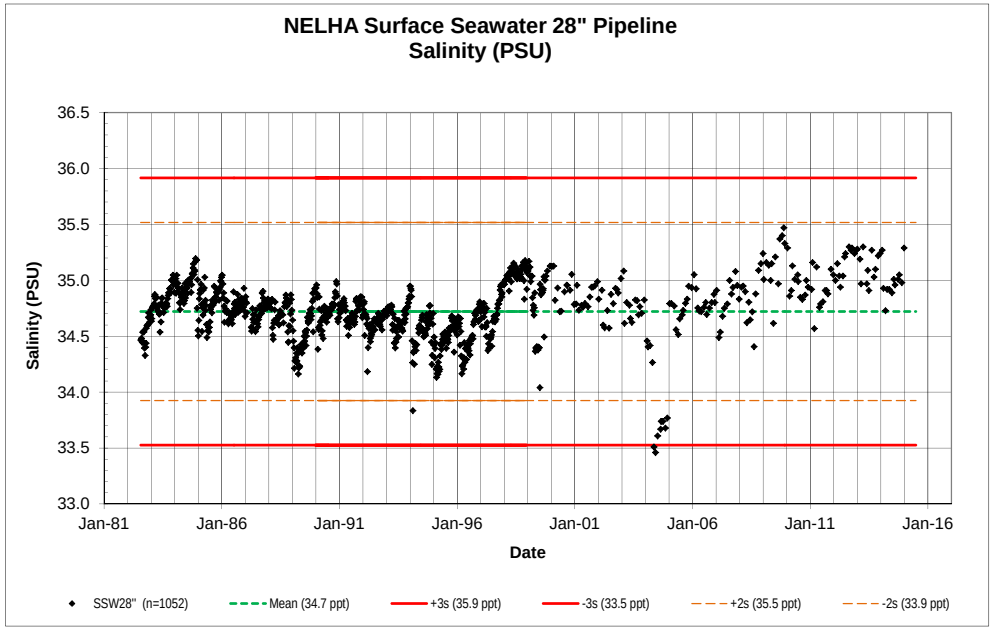


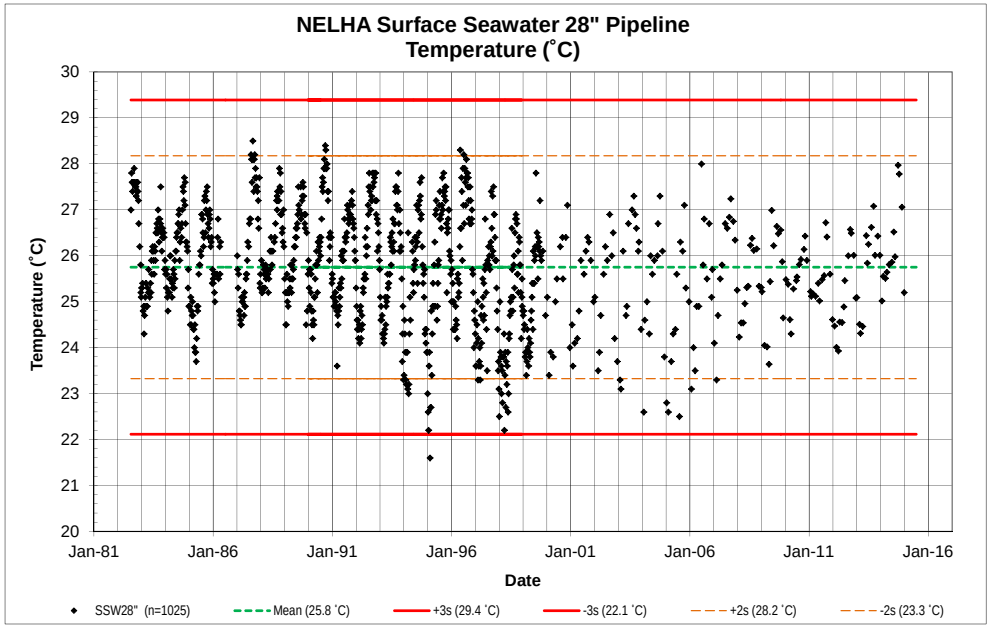


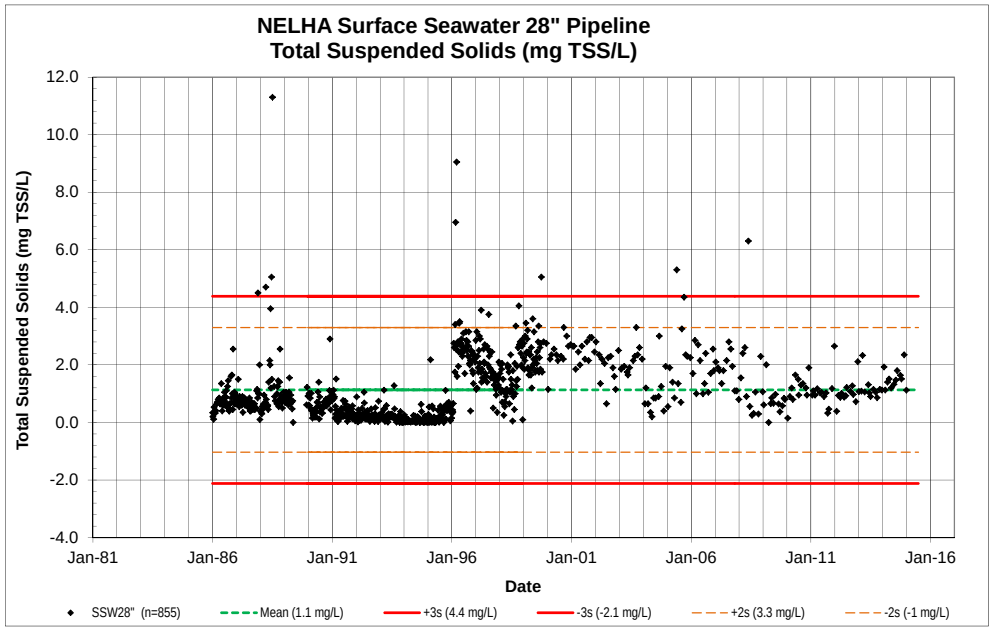
NELHA Water Quality Laboratory

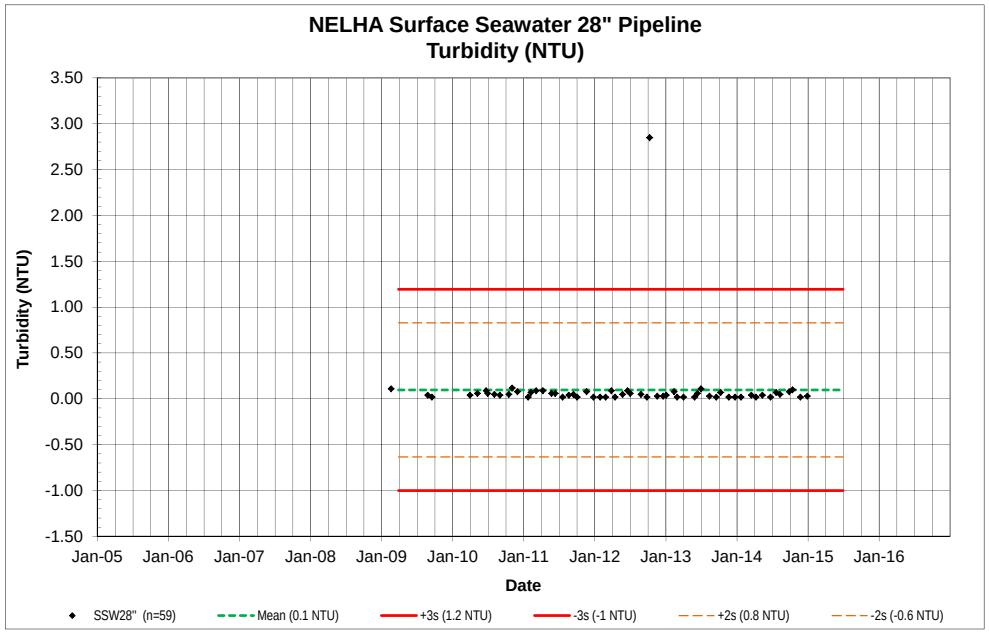
SSW 28"

Intake Depth: 21 m, Offshore Pipe Length: 163 m









NELHA Water Quality Laboratory

SSW 24"

Intake Depth: 10 m, Offshore Pipe Length: 81 m

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW 24"	3/23/05		0.09	2.8	0.0	0.4	0.28	3.9	3.7	105	0.40	12.4	4.1	58	1.05	0.90		2.34	34.721	24.9	8.31	6.84	808	2832
SSW 24"	4/21/05		0.14	4.3	0.0	0.1	0.27	3.8	2.3	65	0.38	11.8	4.4	62		1.95		2.29	34.530	25.1	8.31	6.89	556	4200
SSW 24"	5/26/05	1000	0.13	4.0	0.1	0.8	0.32	4.5	2.6	74	0.43	13.3	3.8	53		3.25		2.31	34.499	24.8	8.26	6.78	2773	9300
SSW 24"	6/16/05	942	0.09	2.8	0.0	0.1	0.47	6.6	1.4	40	0.35	10.8	4.6	64		0.85		2.31	34.686	26.6	8.27	6.55	618	5700
SSW 24"	7/27/05	933	0.09	2.8	0.0	0.6	0.12	1.7	2.5	70	0.31	9.6	3.0	42	1.09	1.20		2.29	34.712	27.7	8.31	6.45	1245	9500
SSW 24"	8/11/05	848	0.10	3.1	0.2	2.4	0.41	5.7	3.2	90	0.34	10.5	2.8	40	0.89	5.50		2.31	34.726	27.6	8.32	6.48	2736	8200
SSW 24"	9/14/05	920	0.08	2.5	0.0	0.3	0.41	5.7	4.1	116	0.31	9.6	4.0	56	1.25	1.65		2.33	34.777	27.8	8.30	6.53	4200	8133
SSW 24"	10/10/05	1000	0.08	2.5	0.0	0.4	0.31	4.3	1.8	51	0.34	10.5	5.0	69	1.11	3.85		2.32	34.830	27.6	8.33	6.55	2933	9100
SSW 24"	11/2/05	903	0.07	2.2	0.1	0.8	0.42	5.9	2.1	60	0.34	10.5	3.6	50	1.16	4.90		2.39	34.947	26.1	8.30	6.70	3050	8600
SSW 24"	12/20/05	859	0.08	2.5	0.2	2.2	0.42	5.9	1.6	46	0.32	9.9	5.2	73	0.89	2.85		2.54	34.934	25.9	8.32	6.79	3500	6800
SSW 24"	1/26/06	916	0.10	3.1	0.1	1.8	0.32	4.5	2.0	56	0.29	9.0	4.2	59		3.80		2.07	35.032	25.0	8.27	6.73	4217	49433
SSW 24"	2/28/06	1005	0.09	2.8	0.1	1.8	0.36	5.0	5.7	160	0.35	10.8	4.4	62		2.05		2.08	34.918	25.0	8.28	6.71	2163	14000
SSW 24"	3/23/06	935	0.10	3.1	0.1	1.0	0.52	7.3	3.1	88	0.33	10.2	4.4	61		1.20		2.24	34.600	24.4	8.27	6.93	2633	9833
SSW 24"	4/18/06	1018	0.09	2.8	0.1	1.5	0.29	4.1	3.8	106	0.32	9.9	6.1	85	0.94	2.95		2.32	34.742	24.8	8.29	6.79	2583	7738
SSW 24"	5/18/06	1010	0.10	3.1	0.1	1.0	0.23	3.2	2.0	56	0.37	11.5	5.2	72	0.92	2.35		2.47	34.661	25.4	8.26	6.66	3600	10600
SSW 24"	6/29/06	944	0.14	4.3	0.2	2.8	0.37	5.2	3.0	85	0.37	11.5	5.6	78	0.97	2.70		2.25	34.699	26.4	8.25	6.66	3883	16000
SSW 24"	7/25/06	1010	0.12	3.7	0.2	2.7	0.32	4.5	2.4	68	0.35	10.8	5.5	77	1.03	2.35		2.26	34.781	26.3	8.25	7.25	3900	10467
SSW 24"	8/10/06	1035	0.13	4.0	0.1	1.0	0.35	4.9	2.0	56	0.38	11.8	5.2	73	0.92	1.65		2.20	34.703	26.9	8.26	7.26	3717	9889
SSW 24"	9/21/06	1035	0.12	3.7	0.2	2.2	0.25	3.5	2.1	60	0.36	11.2	4.6	65	0.94	1.75		2.26	34.752	26.7	8.24	6.66	3438	5950
SSW 24"	10/26/06	1015	0.11	3.4	0.3	4.1	0.44	6.2	2.1	60	0.33	10.2	5.4	75	1.06	1.15		2.38	34.783	27.5	8.30	6.70	3550	8100
SSW 24"	11/30/06	1040	0.14	4.3	0.2	2.5	0.36	5.0	2.2	60	0.39	12.1	5.4	76	1.00	2.70		2.11	34.851	26.5	8.28	6.69	2463	8900
SSW 24"	12/14/06	1024	0.14	4.3	0.1	1.0	0.29	4.1	0.9	26	0.39	12.1	5.6	78	1.00	1.30		2.48	34.780	25.9	8.27	6.72	1963	3813
SSW 24"	1/11/07	910	0.15	4.6	0.2	3.2	0.49	6.9	1.2	33	0.36	11.2	6.1	85	1.01	3.20		2.15	34.885	25.4	8.26	6.44	2638	6967
SSW 24"	2/15/07	900	0.17	5.3	0.1	1.0	0.53	7.4	1.2	34	0.42	13.0	6.4	90	1.03	2.40		2.12	34.379	24.4	8.26	6.60	3188	9100
SSW 24"	3/8/07	830	0.14	4.3	0.1	1.0	0.32	4.5	2.8	79	0.42	13.0	6.4	89	0.96	2.75		1.94	34.578	24.5	8.28	6.65	3100	9088
SSW 24"	4/12/07	830	0.15	4.6	0.1	1.0	0.35	4.9	2.1	58	0.36	11.2	5.4	76	0.92	2.45		1.85	34.701	25.4	8.27	6.57	2775	9778
SSW 24"	5/9/07	900	0.16	5.0	0.1	1.4	0.52	7.3	4.1	115	0.38	11.8	6.9	97	1.23	1.30		2.18	34.751	25.0	8.27	6.38	2450	8863
SSW 24"	6/27/07	820	0.19	5.9	0.4	5.2	0.25	3.5	0.8	22	0.32	9.8	6.6	92		1.90		2.46	34.796	26.3	8.29	6.90	3125	9900
SSW 24"	7/30/07	1305	0.20	6.1	0.0	0.7	0.32	4.5	3.9	109	0.35	10.8	7.0	98		1.25		2.39	34.804	27.0	8.14	6.57		
SSW 24"	8/30/07	840	0.19	5.8	0.2	2.8	0.29	4.0	2.2	62	0.26	7.9	6.4	89		2.20		2.39	34.907	26.9	8.15	7.20		
SSW 24"	9/24/07	936	0.21	6.6	0.2	2.9	0.54	7.5	15.0	420	0.32	9.8	5.4	76		2.65		2.05	35.366	26.8	8.12	6.28		
SSW 24"	10/30/07	1411	0.20	6.3	0.0	0.2	0.36	5.1	8.6	243	0.20	6.2	6.6	92		1.40		2.48	35.074	26.8	8.23	6.53		
SSW 24"	11/27/07	1402	0.22	6.7	0.1	1.3	0.41	5.8	24.6	691	0.20	6.1	4.8	67		1.55		2.78	34.947	26.4	8.22	6.86		
SSW 24"	12/31/07	1027	0.00		0.0	0.7	0.18	2.5	5.0	142	0.00		0.0			1.20		2.50	34.856	25.1	8.15	6.56		
SSW 24"	1/30/08	847	0.08	2.6	0.1	1.2	0.18	2.5	25.7	723	0.00		0.0			1.60		2.40	34.925	24.1	8.12	6.87		
SSW 24"	2/28/08	1122	0.04	1.2	0.2	2.5	0.05	0.7	5.6	157	0.32	9.8	6.2	87		1.00		2.42	34.911	24.4	8.20	6.24		
SSW 24"	3/31/08	1449	0.04	1.2	0.3	4.3	0.05	0.7	3.6	102	0.34	10.5	5.7	79		1.80		2.36	34.730	25.0	8.14	7.10		
SSW 24"	4/25/08	932	0.14	4.2	0.2	2.2	0.15	2.1	5.8	162	0.35	10.8	3.9	55		0.45		2.48	34.649	24.8	8.21	6.57		
SSW 24"	5/23/08	1035	0.09	2.9	0.1	1.6	0.09	1.3	NA	NA	0.23	7.2	4.0	56		1.25		2.52	34.764	25.4	8.31	6.63		
SSW 24"	6/10/08	1049	0.10	3.1	0.0	0.3	0.18	2.5	2.7	77	0.28	8.6	5.0	70		0.56		NA	34.631	25.2	8.24	6.06		
SSW 24"	7/18/08	1031	0.09	2.9	0.1	1.6	0.09	1.3	3.1	88	0.21	6.4	8.7	122		0.77			34.710	26.6	8.10	6.18		
SSW 24"	8/13/08	1051	0.62	19.2	0.2	2.3	0.54	7.5	2.9	81	0.36	11.0	8.9	125		0.59			34.674	26.5	7.99	5.16		
SSW 24"	9/8/08	858	0.07	2.1	0.2	2.3	0.35	4.9	1.9	52	0.29	9.1	8.1	113		1.51			34.77	26.1	7.98	5.68		
SSW 24"	10/23/08	1003	0.09	2.7	0.3	3.7	1.59	22.3	1.8	52	0.48	14.9	8.4	118		0.71			34.88	26.6	8.19	6.28		
SSW 24"	11/28/08	1035	0.15	4.5	0.2	2.3	0.07	1.0	2.2	62	0.38	11.9	5.7	80		1.26			34.81	25.5	8.28	5.88		
SSW 24"	12/30/08	907	0.21	6.4	0.2	3.1	0.36	5.0	1.9	52	0.35	10.7	6.3	88		0.91			34.68	25.3	8.29	6.25		
SSW 24"	1/12/09	1048	0.12	3.6	0.2	2.8	0.12	1.7	2.6	72	0.32	9.9	5.0	70		1.40			35.001	25.0	8.25	6.26		
SSW 24"	2/20/09	1125	0.07	2.2	0.2	3.2	0.19	2.6	1.7	46	0.61	18.9	7.1	99		0.27	0.07		35.250	24.1	8.21	6.81		
SSW 24"	3/30/09	1108	0.20	6.3	1.2	17.1	2.93	41.1	3.3	92	0.44	13.5	8.9	125		0.71			35.189	24.3	8.33	6.27		
SSW 24"	4/30/09	1010	0.25	7.6	0.2	2.5	0.50	7.0	2.3	64	0.48	14.9	5.7	80		0.48			34.963	23.8	8.19	6.72		
SSW 24"	5/15/09	1354	0.16	4.9	0.5	6.6	0.19	2.7	2.3	64	0.86	26.7	8.9	125		0.72			35.07	25.6	8.18	6.02		
SSW 24"	6/10/09	901	0.49	15.3	0.4	5.2	0.26	3.6	3.5	98	0.55	17.0	5.4	75		0.72			34.579	26.6	8.34	5.46		
SSW 24"	7/10/09	835	0.41	12.6	0.7	9.9	0.71	9.9	6.3	178	0.32	9.8	7.6	106		1.44			34.91	26.0	8.29	6.00		
SSW 24"	8/27/09	1024	0.15	4.8	0.2	3.1	0.26	3.7	2.7	77	0.21	6.6	4.1	57		0.74	0.04		35.00	27.3	8.19	5.59		
SSW 24"	9/17/09	1034	0.10	3.0	1.0	13.6	0.36	5.1	9.5	266	0.24	7.4	3.8	53		1.30	0.04		34.24	26.3	7.96	6.86		
SSW 24"	10/26/09	1038	0.08	2.6	0.1	2.0	0.49	6.9	7.0	196	0.23	7.0	4.4	62		1.08			35.45	26.6	8.18	6.02		
SSW 24"	11/19/09	1402	0.14	4.4	0.2	2.7	0.48	6.7	5.2	145	0.35	10.7	5.9	82		0.39			35.35	26.2	8.17	6.40		
SSW 24"	12/3/09	959	0.17	5.2	0.2	2.3	0.49	6.8	3.0	83	0.46	14.1	4.7	66		0.40			35.15	24.9	8.25	6.70		
SSW 24"	1/14/10	1013	0.17	5.2	0.2	3.3	0.23	3.2	1.5	41	0.44	13.7	8.7	122		0.28			35.11	25.4	8.18	6.97		
SSW 24"	2/16/10	1145	0.17	5.2	0.1	2.0	0.34	4.7	14.3	402	0.36	11.3	3.5	49		0.65			34.81	25.3	8.23	5.99		
SSW 24"	3/15/10	1001	0.12	3.6	0.1	0.9	0.11	1.5	9.4	265	0.30	9.2	3.8	53		1.30			34.95	24.5	8.19	6.57		
SSW 24"	4/1/10	902	0.10	3.1	0.2	2.8	0.25	3.5	5.8	164	0.28	8.6	4.5	63		0.60	0.06		35.05	23.8	8.21	6.90		
SSW 24"	5/10/10	913	0.06	1.9	0.2	2.8	0.50	7.0	9.0	252	0.46	14.4	7.2	101		1.20	0.14		34.90	25.3	8.26	6.31		
SSW 24"	6/23/10	941	0.01	0.4	0.4	5.0	0.36	5.0	2.2	63	0.27	8.3	4.4	62		1.50	0.07		34.81	25.5	8.21	6.15		

NELHA Water Quality Laboratory

SSW 24"

Intake Depth: 10 m, Offshore Pipe Length: 81 m

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW 24"	7/1/10	1057	0.02	0.6	0.29	4.0	0.30	4.2	3.6	101	0.3	10.1	8.0	112		1.00	0.05		34.99	25.9	8.22	5.04		
SSW 24"	8/5/10	953	0.04	1.3	0.20	2.8	0.09	1.2	3.6	100	0.3	8.7	5.4	76		0.85	0.05		34.79	26.0	8.20	6.28		
SSW 24"	9/2/10	1013	0.03	1.0	0.20	2.8	0.09	1.3	2.3	65	0.3	9.1	4.6	65		1.35	0.04		34.72	26.3	8.21	6.19		
SSW 24"	10/18/10	943	0.10	3.0	0.20	2.8	0.20	2.8	3.1	87	0.4	12.9	5.4	76		0.85	0.10		34.92	26.3	8.20	6.02		
SSW 24"	11/4/10	1005	0.05	1.5	0.61	8.5	0.59	8.3	6.2	175	0.4	11.7	7.4	104		1.00	0.06		34.99	26.6	8.24	6.00		
SSW 24"	12/1/10	1013	0.11	3.5	0.69	9.7	0.21	2.9	5.8	162	0.4	13.0	5.3	74		1.40	0.14		34.78	25.9	8.22	5.87		
SSW 24"	1/25/11	957	0.19	6.0	0.51	7.2	0.11	1.5	3.2	90	0.6	18.0	5.5	77		1.00	0.05		34.72	25.1	8.21	5.90		
SSW 24"	2/8/11	1009	0.15	4.5	0.40	5.6	0.51	7.2	10.6	296	0.5	14.4	7.6	107		1.30	0.08		35.11	25.2	8.28	6.37		
SSW 24"	3/7/11	1109	0.23	7.0	0.64	9.0	0.46	6.4	2.7	76	0.5	15.0	4.0	56		1.20	0.08		34.38	25.3	8.23	6.25		
SSW 24"	4/11/11	1128	0.18	5.5	0.35	4.9	0.12	1.7	1.2	33	0.5	14.3	9.8	137		1.22	0.06		35.02	25.2	8.17	5.51		
SSW 24"	5/25/11	922	0.09	2.7	0.38	5.3	0.24	3.4	0.9	26	0.4	11.3	5.2	73		1.44	0.09		34.68	25.3	8.26	6.38		
SSW 24"	6/13/11	1036	0.20	6.1	0.53	7.4	0.27	3.8	1.8	50	0.5	14.6	5.9	83		1.33	0.06		34.68	25.1	8.21	7.01		
SSW 24"	7/21/11	919	0.15	4.6	0.37	5.2	0.24	3.3	0.6	18	0.4	13.9	4.9	69		1.44	0.06		34.79	25.6	8.20	6.50		
SSW 24"	8/22/11	1033	0.04	1.2	0.43	6.0	0.16	2.2	1.5	42	0.4	11.2	5.2	72		0.95	0.03		34.89	26.1	8.23	6.60		
SSW 24"	9/15/11	947	0.08	2.5	0.32	4.5	0.13	1.8	1.5	43	0.5	14.0	6.9	96		0.54	0.07		34.72	26.8	8.20	6.10		
SSW 24"	10/4/11	811	0.10	3.2	0.43	6.0	0.19	2.7	2.8	79	0.4	13.6	10.9	153		0.44	0.07		34.89	26.6	8.19	6.02		
SSW 24"	11/21/11	1220	0.13	4.0	0.78	10.9	0.19	2.7	2.0	56	0.4	12.5	5.2	73		0.65	0.13		35.00	25.6	8.19	6.24		
SSW 24"	12/27/11	1033	0.01	0.2	0.70	9.8	0.16	2.3	1.4	38	0.3	9.5	6.3	88		0.64	0.15		34.95	24.6	8.23	6.00		
SSW 24"	1/30/12	1035	0.06	1.8	0.51	7.2	0.19	2.6	2.0	57	0.4	11.1	5.1	71		4.61	1.50		34.95	24.6	8.21	5.87		
SSW 24"	2/27/12	1035	0.06	2.0	0.38	5.3	0.01	0.2	2.5	71	0.4	11.3	6.8	95		1.26	0.12		35.18	24.0	8.23	6.46		
SSW 24"	3/28/12	1015	0.15	4.6	0.02	0.3	0.36	5.0	1.4	39	0.5	14.3	6.8	95		0.89	0.03		34.98	23.9	8.23	6.39		
SSW 24"	4/16/12	1026	0.16	4.9	0.39	5.4	0.12	1.7	0.4	12	0.5	14.3	7.0	98		0.96	0.04		34.74	24.5	8.20	6.21		
SSW 24"	5/24/12	849	0.16	5.1	0.38	5.3	0.21	3.0	2.3	65	0.5	15.9	5.3	74		0.71	0.09		34.86	24.5	8.21	6.57		
SSW 24"	6/19/12	1026	0.15	4.8	0.49	6.8	0.32	4.5	3.6	100	0.4	12.1	6.4	90		0.90	0.09		35.04	25.1	8.14	6.54		
SSW 24"	7/3/12	815	0.06	1.8	0.59	8.3	0.29	4.0	3.0	83	0.4	11.3	4.2	59		1.92	0.03		34.90	25.4	8.20	6.61		
SSW 24"	8/27/12	1105	0.03	1.0	0.61	8.6	0.24	3.3	2.8	79	0.4	13.6	6.2	87		1.28	0.03		35.32	26.4	8.21	6.63		
SSW 24"	9/26/12	1047	0.04	1.3	0.29	4.0	0.26	3.6	1.5	42	0.5	15.1	11.6	162		1.22	0.05		35.24	26.6	8.21	5.90		
SSW 24"	10/10/12	958	0.07	2.1	0.61	8.5	0.26	3.7	3.2	89	0.4	11.9	6.4	89		1.13	0.04		35.23	26.4	8.21	5.88		
SSW 24"	11/19/12	1325	0.21	6.6	0.21	3.0	0.24	3.3	5.1	143	0.4	11.7	4.9	69		1.24	0.06		35.19	26.2	8.24	6.55		
SSW 24"	12/19/12	941	0.15	4.6	0.31	4.3	0.38	5.3	6.0	169	0.5	15.0	6.5	91		1.03	0.02		35.22	25.0	8.26	6.47		
SSW 24"	1/4/13	1016	0.11	3.3	0.39	5.5	0.15	2.1	0.4	12	0.4	13.8	4.9	69		1.16	0.04		35.21	25.0	8.22	6.01		
SSW 24"	2/13/13	1023	0.15	4.5	0.32	4.5	0.01	0.1	2.6	74	0.5	15.2	5.6	78		1.27	0.02		35.10	24.6	8.22	5.79		
SSW 24"	3/18/13	1133	0.14	4.4	0.49	6.9	0.52	7.3	2.3	64	0.4	12.9	4.5	63		0.96	0.03		34.94	24.4	8.22	5.75		
SSW 24"	4/3/13	1237	0.11	3.4	0.18	2.5	0.18	2.5	2.7	75	0.4	13.5	4.1	58		1.22	0.02		35.26	24.6	8.22	5.98		
SSW 24"	5/29/13	952	0.28	8.6	0.33	4.6	0.33	4.6	2.2	61	0.7	21.4	7.7	107		1.47	0.02		34.99	26.5	8.20	5.76		
SSW 24"	6/13/13	1043	0.27	8.3	0.41	5.7	0.41	5.7	2.1	59	0.6	18.0	5.1	71		1.29	0.05		34.92	26.1	8.17	5.69		
SSW 24"	7/1/13	1000	0.20	6.3	0.40	5.6	0.19	2.7	1.7	49	0.6	17.5	6.8	96		0.99	0.07		34.93	26.2	8.24	6.28		
SSW 24"	8/14/13	949	0.19	5.9	0.45	6.3	0.36	5.0	2.1	59	0.4	12.8	5.3	74		1.15	0.03		35.27	26.6	8.23	6.14		
SSW 24"	9/18/13	857	0.19	6.0	0.07	1.0	0.31	4.3	2.9	80	0.5	15.3	5.1	72		0.78	0.02		35.02	27.1	8.21	5.72		
SSW 24"	10/10/13	1022	0.22	6.8	0.39	5.4	0.32	4.5	1.9	54	0.5	16.8	6.8	96		1.52	0.09		35.11	26.4	8.23	5.61		
SSW 24"	11/21/13	1024	0.18	5.7	0.43	6.0	0.49	6.9	2.9	83	0.5	14.1	5.6	79		1.31	0.02		35.22	26.4	8.20	6.08		
SSW 24"	12/23/13	938	0.18	5.7	0.44	6.2	0.53	7.4	1.7	48	0.5	16.8	5.1	72		1.22	0.02		35.17	25.8	8.22	5.78		
SSW 24"	1/23/14	1215	0.16	5.1	0.36	5.0	0.41	5.8	3.1	86	0.5	15.4	6.5	91		2.48	0.02		35.25	25.1	8.21	5.34		
SSW 24"	2/12/14	1118	0.13	4.0	0.35	4.9	0.37	5.2	1.2	35	0.4	13.6	6.7	94		0.77			35.05	25.2	8.21	6.40		
SSW 24"	3/17/14	1037	0.25	7.7	0.54	7.6	0.25	3.5	1.9	54	0.5	16.9	6.5	92		1.46	0.05		34.81	25.7	8.20	6.20		
SSW 24"	4/10/14	941	0.22	6.7	0.47	6.6	0.20	2.8	1.5	43	0.5	15.7	5.4	76		1.07	0.09		34.90	25.7	8.21	6.11		
SSW 24"	5/13/14	1317	0.21	6.6	0.63	8.8	0.33	4.6	1.8	52	0.5	14.2	8.0	112		1.41	0.09		34.94	26.2	8.23	6.07		
SSW 24"	6/24/14	1143	0.22	6.7	0.56	7.8	0.50	7.0	6.9	194	0.8	23.3	6.0	83		1.61	0.03		34.84	26.1	8.20	4.92		
SSW 24"	7/23/14	1055	0.23	7.0	0.49	6.8	0.26	3.7	3.5	99	0.5	15.9	5.7	80		1.18	0.23		34.99	27.6	8.21	6.53		
SSW 24"	8/11/14	1141	0.13	3.9	0.26	3.7	0.38	5.3	0.4	12	0.3	10.4	4.6	64		1.44	0.03		34.94	27.1	8.21	6.01		
SSW 24"	9/28/14	1146	0.18	5.5	0.41	5.8	0.22	3.1	0.8	24	0.5	14.6	7.9	111		1.60	0.07		34.90	28.1	8.22	5.64		
SSW 24"	10/15/14	1156	0.15	4.8	0.15	2.1	0.30	4.2	0.6	16	0.6	18.3	8.9	125		1.69	0.11		34.97	27.7	8.21	5.85		
SSW 24"	11/25/14	1233	0.14	4.3	0.04	0.5	0.29	4.1	0.2	6	0.4	13.0	6.0	84		2.00	0.07		34.97	27.0	8.21	5.60		
SSW 24"	12/30/14	930	0.14	4.2	0.21	2.9	0.41	5.8	0.1	3	0.5	15.9	8.0	113		1.31	0.10		35.26	25.1	8.21	6.42		
SSW 24"	1/1/15																							
SSW 24"	2/1/15																							
SSW 24"	3/1/15																							
SSW 24"	4/1/15																							
SSW 24"	5/1/15																							
SSW 24"	6/1/15																							

NELHA Water Quality Laboratory

SSW 24"

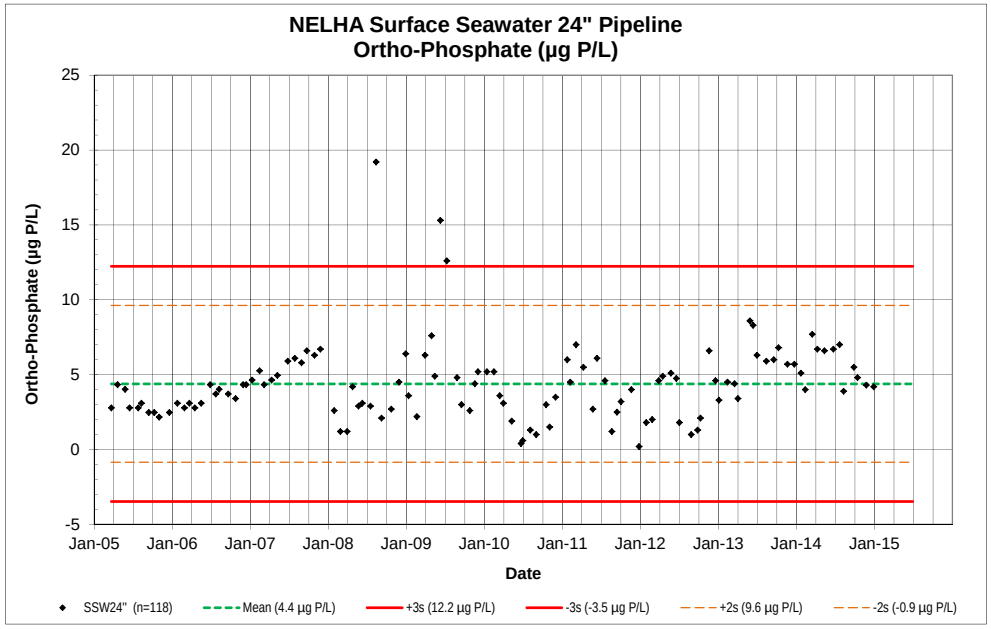
Intake Depth: 10 m, Offshore Pipe Length: 81 m

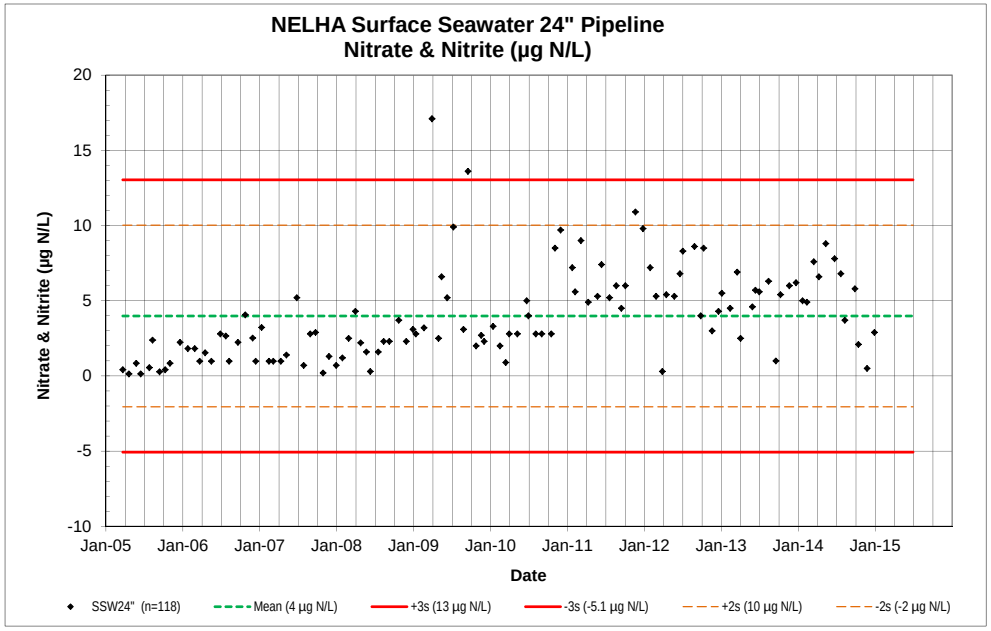
SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW 24"	7/1/15																							
Mean (Mar. '05 - present)			0.14	4.4	0.28	4.0	0.33	4.7	3.53	99.2	0.40	12.5	5.78	82.30	1.02	1.46	0.09	2.31	34.90	25.75	8.22	6.31		
STD DEV			0.09	2.6	0.22	3.0	0.30	4.2	3.81	106.9	0.12	3.4	1.75	22.33	0.10	0.91	0.19	0.18	0.22	0.99	0.06	0.46		
Range																								
UWL	+2s		0.31	9.6	0.7	10.0	0.94	13.2	11.1	313	0.63	19.2	9.3	127.0	1.2	3.3	0.5	2.7	35.3	27.7	8.3	7.2		
LWL	-2s		-0.03	-0.9	-0.1	-2.0	-0.27	-3.8	-4.1	-115	0.16	5.7	2.3	37.7	0.8	-0.4	-0.3	2.0	34.5	23.8	8.1	5.4		
UCL	+3s		0.40	12.2	0.9	13.0	1.24	17.4	15.0	420	0.75	22.6	11.0	149.3	1.3	4.2	0.7	2.8	35.6	28.7	8.4	7.7		
LCL	-3s		-0.12	-3.5	-0.4	-5.1	-0.57	-8.0	-7.9	-222	0.04	2.3	0.5	15.3	0.7	-1.3	-0.5	1.8	34.2	22.8	8.0	4.9		
Data																								
Max. Value			0.62	19.2	1.2	17.1	2.93	41.1	25.7	723	0.86	26.7	11.6	162.4	1.2	5.5	1.5	2.8	35.5	28.1	8.3	7.3		
Min. Value			0.00	0.2	0.0	0.1	0.01	0.1	0.1	3	0.00	6.1	0.0	39.8	0.9	0.3	0.0	1.8	34.2	23.8	8.0	4.9		

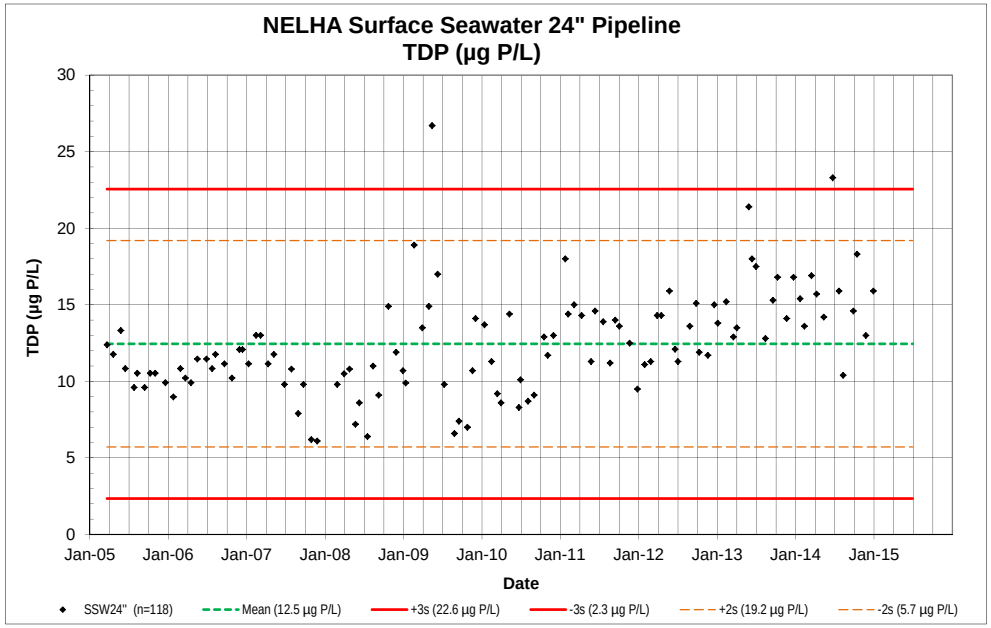
NELHA Water Quality Laboratory

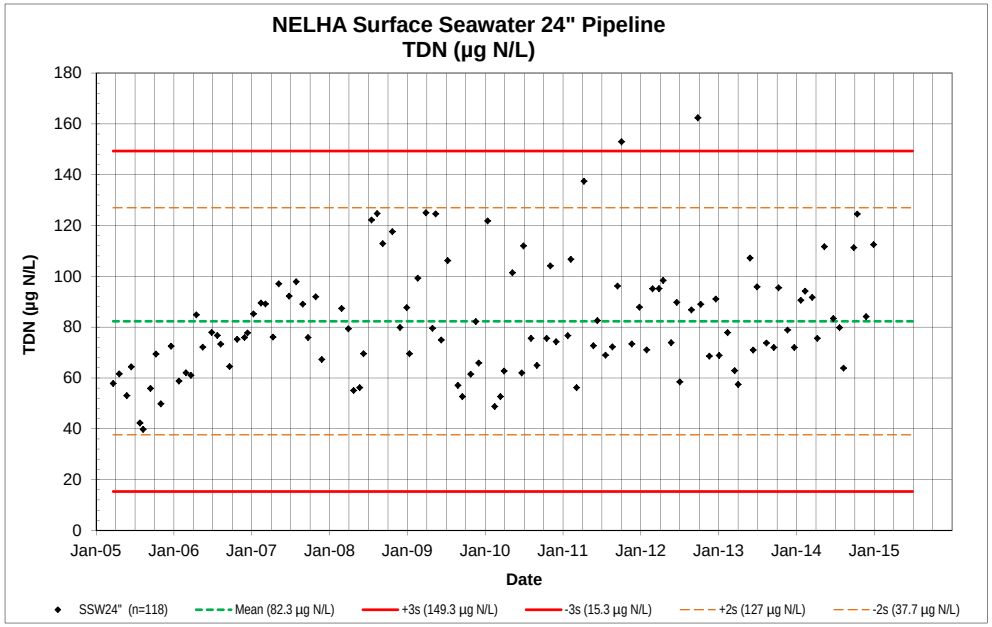
SSW 24" KP

Intake Depth: 10 m, Offshore Pipe Length: 81 m





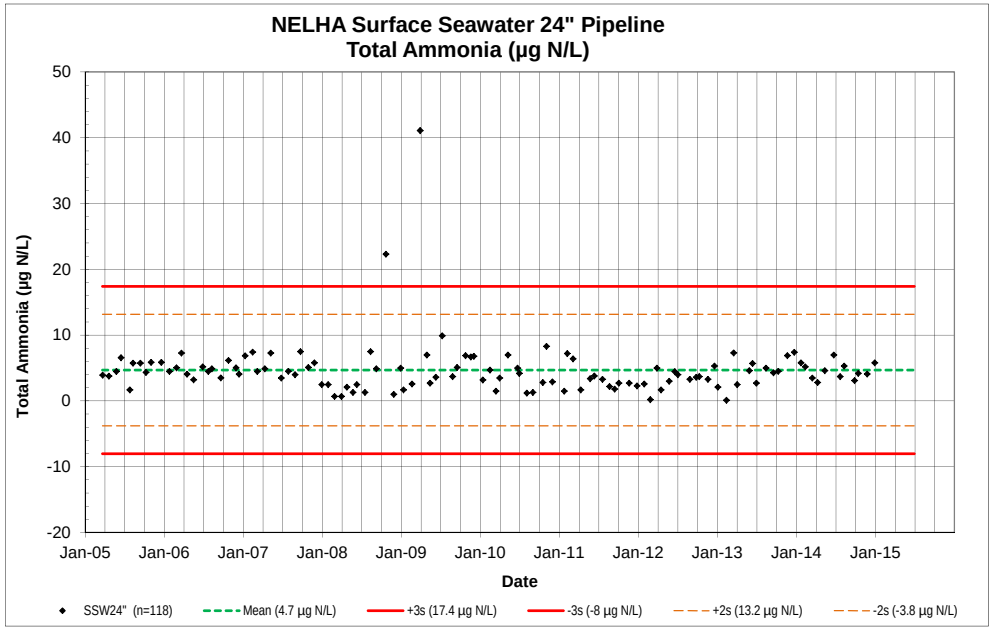


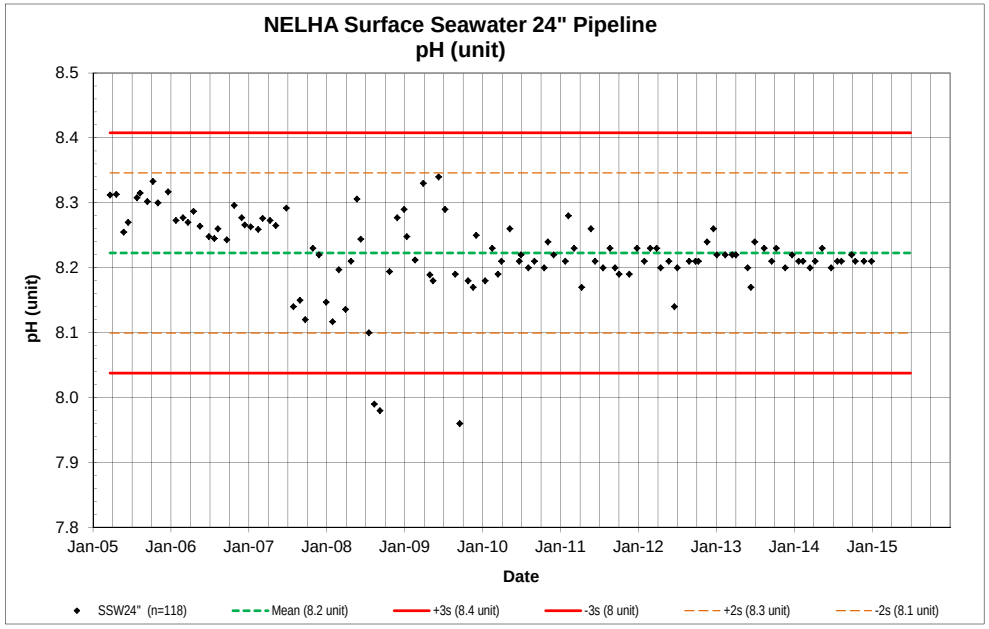


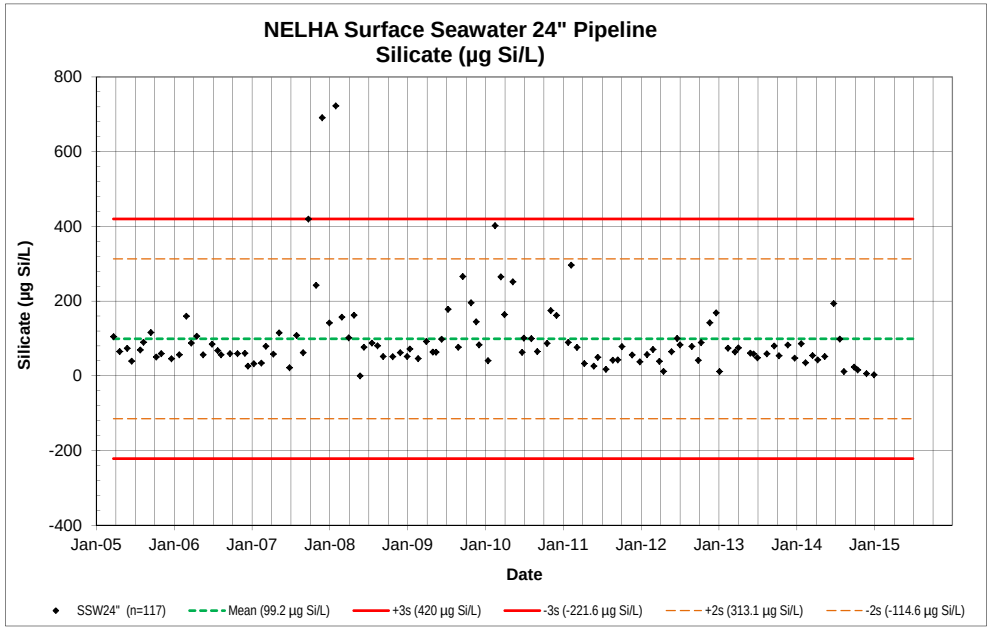
NELHA Water Quality Laboratory

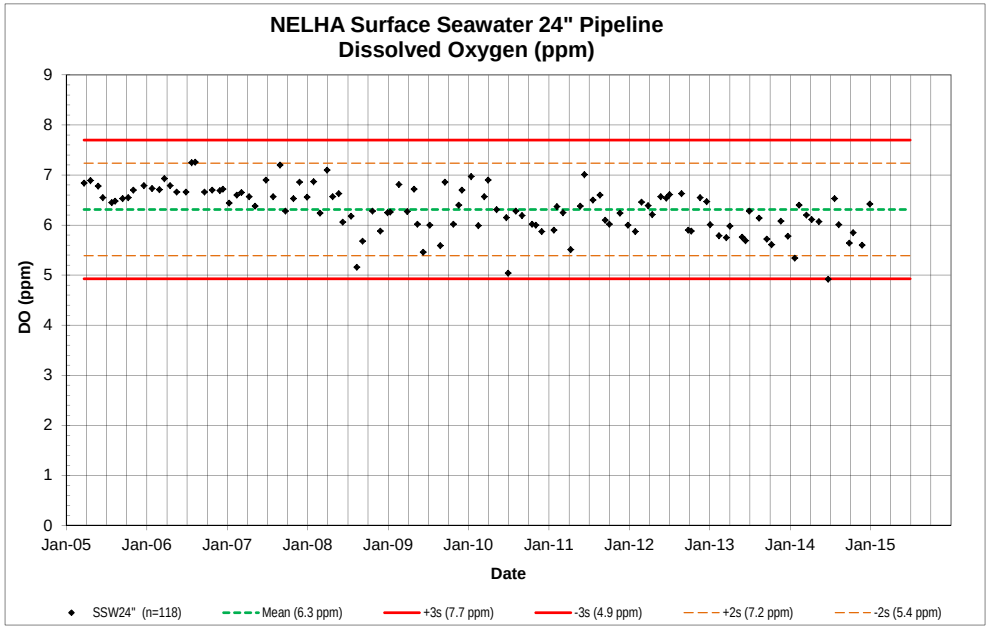
SSW 24" KP

Intake Depth: 10 m, Offshore Pipe Length: 81 m





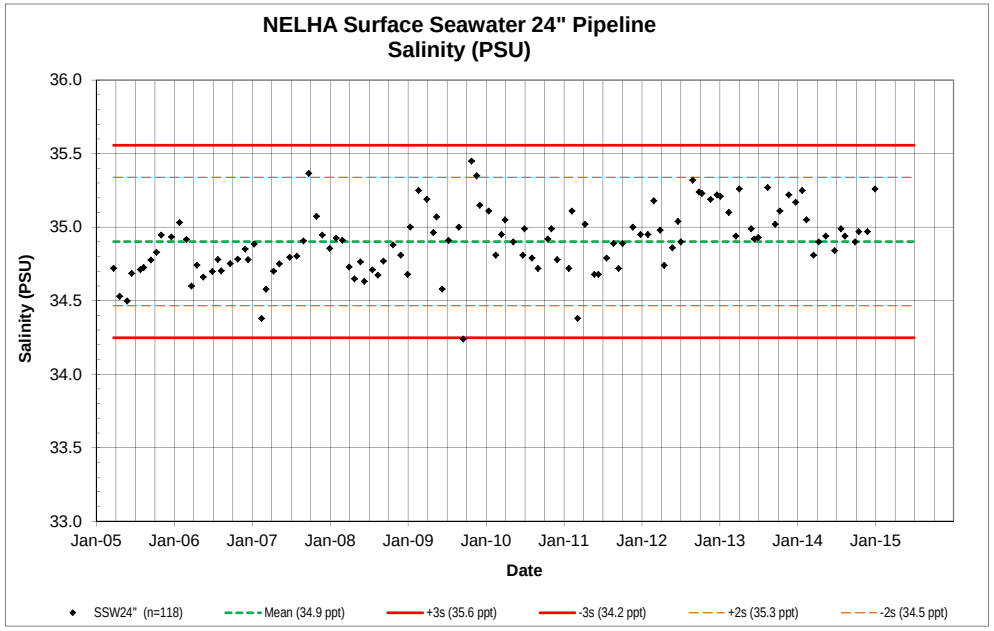


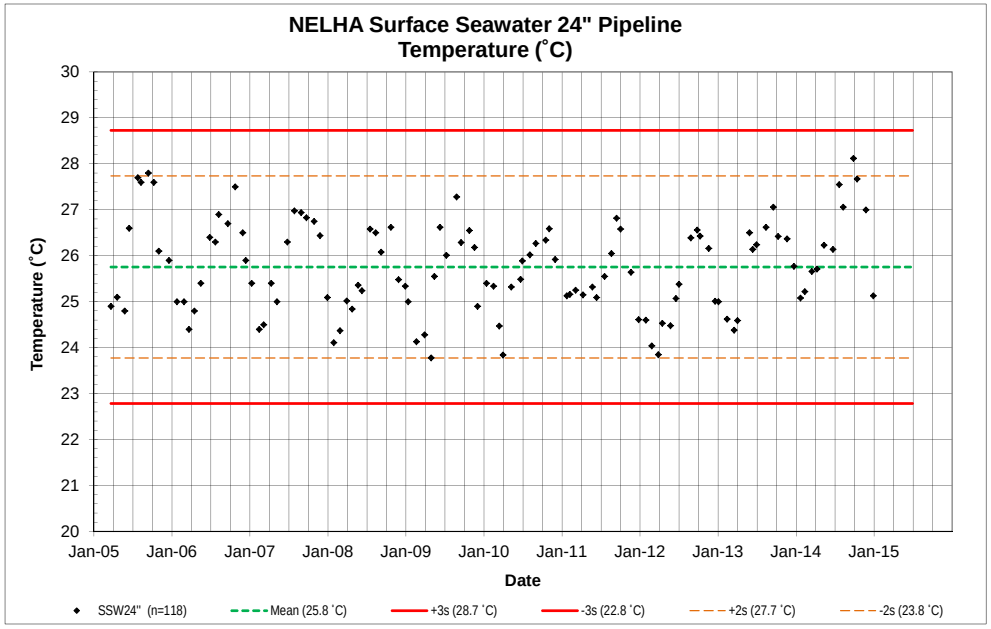


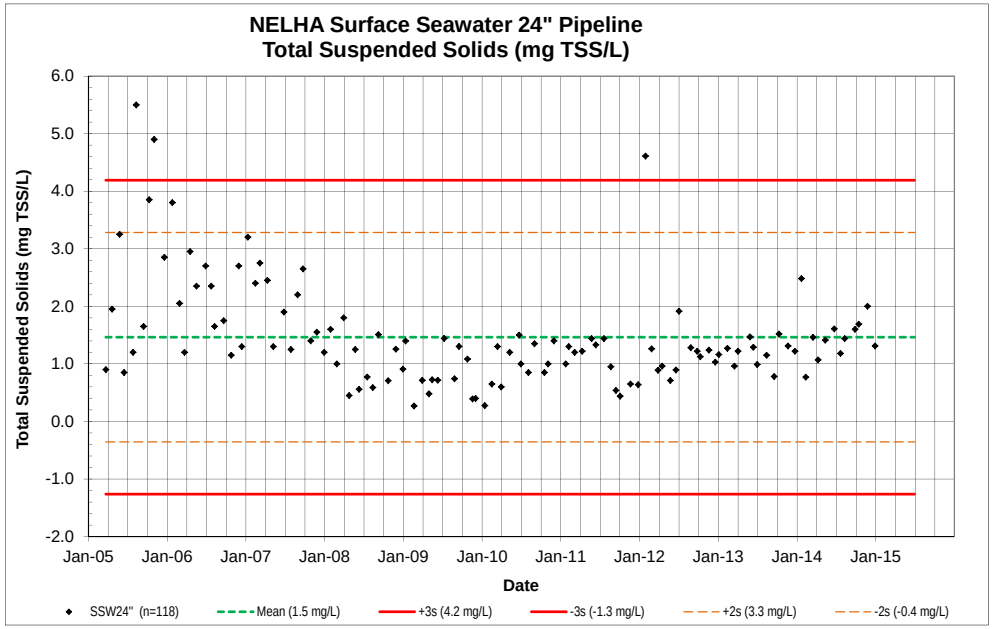
NELHA Water Quality Laboratory

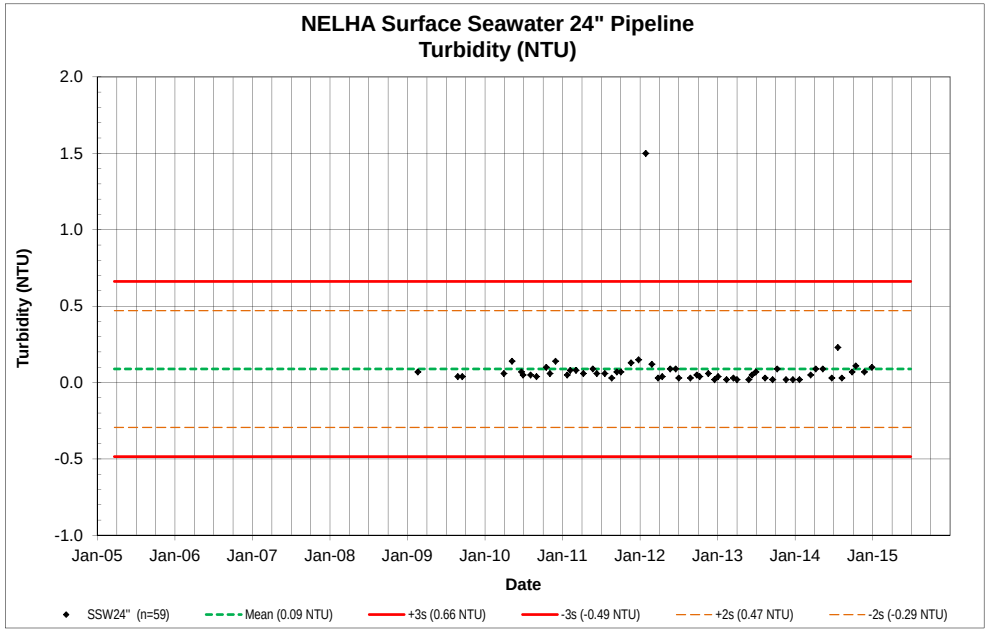
SSW 24" KP

Intake Depth: 10 m, Offshore Pipe Length: 81 m









NELHA Water Quality Laboratory

SSW 55"

Intake Depth: 24 m, Offshore Pipe Length: 165 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW 55"	8/11/05	920	0.09	1.3	0.11	1.5	0.41	5.7	5.1	144	0.34	4.8	3.9	54	0.91	2.15		2.335	34.753	27.4	8.32	6.5	1364	3425
SSW 55"	9/14/05	940	0.09	1.3	0.08	1.1	0.41	5.7	2.1	58	0.35	4.9	3.0	43	1.14	1.00		2.309	34.776	27.9	8.30	6.5	1200	3963
SSW 55"	10/10/05	1025	0.08	1.1	0.08	1.1	0.38	5.3	2.6	73	0.33	4.6	3.0	41	0.86	3.10		2.343	34.870	27.1	8.33	6.6	569	4700
SSW 55"	11/2/05	927	0.08	1.1	0.53	7.4	0.45	6.3	3.5	97	0.36	5.0	5.2	73	1.04	3.05		2.433	34.932	25.7	8.29	6.6	1600	6350
SSW 55"	12/20/05	920	0.10	1.4	0.27	3.8	0.48	6.7	3.4	96	0.32	4.5	4.5	62	1.05	3.40		2.661	34.902	25.7	8.31	6.7	2683	8133
SSW 55"	1/26/06	937	0.10	1.4	0.32	4.5	0.36	5.0	3.8	108	0.31	4.3	4.6	64		0.90		2.241	34.982	25.0	8.27	6.6	1381	9013
SSW 55"	2/28/06	1036	0.11	1.5	0.43	6.0	0.43	6.0	3.4	94	0.38	5.3	5.1	72		1.30		2.206	34.887	25.1	8.28	6.7	1881	7065
SSW 55"	3/23/06	1016	0.12	1.7	0.15	2.1	0.52	7.3	3.2	89	0.37	5.2	5.1	72		1.20		2.195	34.669	24.4	8.27	6.8	1817	7998
SSW 55"	4/18/06	1044	0.09	1.3	0.26	3.6	0.31	4.3	2.4	69	0.31	4.3	5.8	82	0.97	2.55		2.322	34.720	24.7	8.28	7.4	1150	6563
SSW 55"	5/18/06	1040	0.09	1.3	0.07	1.0	0.15	2.1	2.5	69	0.33	4.6	5.0	70	0.92	2.75		2.268	34.756	24.8	8.27	6.8	2006	7163
SSW 55"	6/29/06	920	0.12	1.7	0.16	2.2	0.40	5.6	2.2	63	0.31	4.3	5.8	81	1.02	2.15		2.324	34.718	26.3	8.25	6.4	3617	15000
SSW 55"	7/25/06	1032	0.12	1.7	0.29	4.1	0.34	4.8	3.4	95	0.34	4.8	5.8	82	1.06	1.50		2.264	34.806	25.8	8.26	7.2	2983	10867
SSW 55"	8/10/06	1056	0.12	1.7	0.07	1.0	0.35	4.9	2.4	67	0.36	5.0	5.6	78	0.95	0.95		2.299	34.696	26.8	8.26	7.2	1933	8275
SSW 55"	9/21/06	1054	0.12	1.7	0.16	2.2	0.28	3.9	2.8	79	0.34	4.8	5.1	71	0.96	1.15		2.269	34.722	26.7	8.26	6.8	2375	3400
SSW 55"	10/26/06	1034	0.15	2.1	0.86	12.0	0.47	6.6	5.0	142	0.32	4.5	7.4	103	0.96	2.15		2.448	34.697	27.2	8.28	6.5	3550	12000
SSW 55"	11/30/06	1059	0.14	2.0	0.07	1.0	0.47	6.6	2.1	58	0.35	4.9	5.9	83	1.03	2.55		2.433	34.865	26.5	8.28	6.7	2713	19800
SSW 55"	12/14/06	1110	0.15	2.1	0.26	3.6	0.39	5.5	2.1	59	0.39	5.5	5.4	76	0.95	1.45		2.470	34.738	25.9	8.27	6.8	2013	5163
SSW 55"	1/11/07	1027	0.15	2.1	0.41	5.7	0.41	5.7	3.3	92	0.34	4.8	5.7	80	1.01	2.40		2.133	34.824	25.5	8.28	6.3	1075	4388
SSW 55"	2/15/07	1045	0.21	2.9	0.33	4.6	0.50	7.0	2.8	79	0.46	6.4	5.9	83	1.07	2.05		2.098	34.450	24.5	8.26	6.6	2163	6850
SSW 55"	3/8/07	1045	0.17	2.4	0.28	3.9	0.36	5.0	5.0	141	0.40	5.6	6.1	85	0.97	1.20		1.947	34.498	24.4	8.28	6.7	1950	18167
SSW 55"	4/12/07	1100	0.12	1.7	0.26	3.6	0.38	5.3	4.1	115	0.33	4.6	5.1	71	0.94	2.80		1.994	34.665	25.4	8.28	6.6	2325	8325
SSW 55"	5/9/07	1045	0.18	2.5	0.34	4.8	0.55	7.7	7.9	222	0.44	6.2	5.5	77	0.98	5.50		1.987	34.708	24.9	8.27	6.6	2325	7713
SSW 55"	6/27/07	1025	0.15	4.6	0.34	4.7	0.45	6.3	2.7	75	0.29	9.1	7.4	103		1.55		2.474	34.792	26.2	8.30	7.1	2313	10300
SSW 55"	7/30/07	1330	0.16	5.1	0.04	0.6	0.21	2.9	13.7	384	0.30	9.4	5.3	75		2.60		1.569	35.020	26.5	8.15	6.8		
SSW 55"	8/30/07	853	0.17	5.3	0.13	1.8	0.50	7.0	5.2	147	0.23	7.0	5.0	70		2.65		2.435	34.888	26.6	8.15	6.4		
SSW 55"	9/24/07	946	0.20	6.1	0.19	2.6	0.50	7.0	1.9	52	0.28	8.7	13.1	184		1.10		2.046	35.472	26.9	8.15	6.3		
SSW 55"	10/30/07	1402	0.19	5.9	0.08	1.1	0.46	6.4	2.4	68	0.26	7.9	7.1	100		1.35		2.465	35.014	26.7	8.25	6.1		
SSW 55"	11/27/07	1410	0.19	6.0	0.09	1.3	0.00	0.0	4.7	131	0.22	6.9	4.8	67		1.60		2.415	34.918	26.2	8.23	6.5		
SSW 55"	12/31/07	1043	0.00		0.38	5.3	0.43	6.0	5.0	140	0.00		0.0			0.80		2.529	34.827	25.1	8.16	6.1		
SSW 55"	1/30/08	847	0.10	3.2	0.18	2.5	0.18	2.5	27.5	774	0.00		0.0			1.80		2.380	34.895	24.1	8.12	5.8		
SSW 55"	2/28/08	1035	0.04	1.2	0.29	4.1	0.05	0.7	10.6	299	0.33	10.2	5.9	83		1.05		2.430	34.922	24.1	8.19	6.4		
SSW 55"	3/31/08	1459	0.04	1.2	0.27	3.8	0.05	0.7	4.7	133	0.31	9.7	5.1	72		2.85		2.390	34.810	24.5	8.15	7.0		
SSW 55"	4/25/08	946	0.18	5.5	0.24	3.4	0.15	2.1	4.9	138	0.38	11.9	4.4	62		1.40		2.410	34.606	24.9	8.20	6.8		
SSW 55"	5/23/08	1050	0.14	4.3	0.32	4.5	0.23	3.2	NA	NA	0.23	7.1	4.9	69		0.35		2.340	34.720	25.2	8.31	6.6		
SSW 55"	6/10/08	1056	0.11	3.4	0.18	2.5	0.18	2.5	4.4	124	0.28	8.7	5.6	78		0.66		NA	34.621	25.2	8.24	5.9		
SSW 55"	7/18/08	1010	0.14	4.3	0.32	4.5	0.09	1.3	4.0	111	0.08	2.5	5.2	73		0.44			34.969	26.4	8.09	6.7		
SSW 55"	8/13/08	1111	0.65	20.1	0.09	1.3	0.96	13.5	3.1	88	0.36	11.0	8.6	121		0.62			34.671	26.2	8.02	4.9		
SSW 55"	9/8/08	911	0.07	2.2	0.14	2.0	0.44	6.1	2.4	68	0.30	9.2	7.8	109		0.56			34.81	26.0	8.11			
SSW 55"	10/23/08	1029	0.07	2.1	0.01	0.1	0.47	6.6	1.2	35	0.47	14.6	7.7	108		0.18			35.03	26.5	8.27	6.2		
SSW 55"	11/28/08	1024	0.11	3.5	0.42	5.9	0.10	1.4	3.3	93	0.40	12.3	6.5	92		0.66			35.12	25.1	8.24	6.1		
SSW 55"	12/30/08	927	0.14	4.4	0.31	4.4	0.40	5.6	2.9	81	0.35	10.9	7.0	99		0.77			35.15	25.2	8.22	5.8		
SSW 55"	1/12/09	1125	0.14	4.3	0.30	4.2	0.12	1.7	4.5	128	0.37	11.5	6.2	87		0.28			34.88	25.1	8.24	6.0		
SSW 55"	2/20/09	1054	0.10	3.1	0.42	5.9	0.19	2.7	5.0	140	0.56	17.2	5.6	79		1.60	0.04			24.0	8.17	6.5		
SSW 55"	3/30/09	1040	0.33	10.2	1.26	17.7	3.16	44.2	6.8	192	0.54	16.7	10.5	147		0.32			35.217	23.9	8.24	6.4		
SSW 55"	4/30/09	957	0.24	7.4	0.27	3.8	0.48	6.7	3.0	84	0.45	13.9	5.8	82		0.47			34.965	23.9	8.20	6.3		
SSW 55"	5/15/09	1345	0.15	4.8	0.31	4.3	0.19	2.7	3.1	88	0.78	24.1	7.7	107		0.33			35.08	25.2	8.17	6.1		
SSW 55"	6/10/09	942	0.60	18.5	3.08	43.2	0.31	4.3	3.7	105	0.59	18.4	7.2	101		0.66			34.917	32.1	8.34	4.7		
SSW 55"	7/10/09	953	0.55	17.0	3.71	51.9	1.51	21.1	4.0	111	0.45	13.9	8.7	122		1.19			35.23	31.3	8.21	4.5		
SSW 55"	8/27/09	1050	0.15	4.8	0.22	3.1	0.19	2.7	3.3	94	0.21	6.5	4.6	65		1.41	0.04		35.18	34.1	8.12	4.9		
SSW 55"	9/17/09	1001	0.14	4.3	1.73	24.2	0.24	3.4	7.8	218	0.28	8.6	6.1	85		1.16	0.05		35.29	31.7	7.95	5.2		
SSW 55"	10/26/09	1009	0.05	1.6	0.13	1.8	0.12	1.7	10.7	300	0.18	5.5	4.7	66		1.31			35.42	26.1	8.46	6.3		
SSW 55"	11/19/09	1338	0.14	4.2	0.21	2.9	0.45	6.3	5.3	148	0.36	11.0	6.7	94		0.52			35.44	27.9	8.13	5.0		
SSW 55"	12/3/09	1033	0.15	4.5	0.26	3.7	0.52	7.3	4.2	118	0.49	15.2	6.2	87		1.20			35.37	26.3	8.14	5.5		
SSW 55"	1/14/10	1043	0.25	7.7	1.26	17.6	0.23	3.2	3.1	87	0.45	13.9	5.6	79		0.35			35.10	25.6	8.17	6.1		
SSW 55"	2/16/10	1215	0.21	6.4	1.19	16.6	0.19	2.6	1.4	40	0.46	14.1	5.8	82		0.20			34.89	26.4	8.20	5.5		
SSW 55"	3/15/10	1019	0.13	3.9	0.26	3.6	0.01	0.1	14.2	400	0.35	10.8	8.4	118		1.70			35.06	26.4	8.20	6.1		
SSW 55"	4/1/10	925	0.13	4.1	0.39	5.5	0.21	3.0	4.7	131	0.28	8.6	4.5	63		0.50	0.03		35.08	25.9	8.21	6.3		
SSW 55"	5/10/10	950	0.08	2.6	1.10	15.4	0.41	5.8	11.4	320	0.44	13.7	6.5	92		1.05	0.09		34.97	27.0	8.20	6.1		
SSW 55"	6/23/10	1006	0.01	0.4	0.61	8.5	0.21	2.9	6.1	172	0.30	9.2	6.7	94		1.80	0.07		34.92	25.3	8.23	6.5		

NELHA Water Quality Laboratory

SSW 55"

Intake Depth: 24 m, Offshore Pipe Length: 165 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW 55"	7/1/10	1126	0.02	0.6	0.69	9.7	0.36	5.0	8.3	233	0.4	11.0	6.7	94		1.05	0.16		34.79	25.7	8.22	6.74		
SSW 55"	8/5/10	1023	0.08	2.5	0.66	9.3	0.25	3.5	7.0	197	0.3	9.7	6.2	87		1.30	0.02		34.72	25.8	8.22	6.63		
SSW 55"	9/2/10	1058	0.02	0.5	0.46	6.4	0.09	1.2	4.6	130	0.3	9.7	6.7	94		1.45	0.05		34.77	26.0	8.23	5.98		
SSW 55"	10/18/10	1011	0.16	4.9	1.05	14.7	0.17	2.4	2.0	56	0.5	15.2	6.8	96		0.25	0.09		34.96	28.8	8.19	6.10		
SSW 55"	11/4/10	1030	0.11	3.3	1.39	19.5	0.12	1.7	5.5	155	0.4	12.4	5.4	76		0.75	0.06		34.99	29.1	8.24	5.55		
SSW 55"	12/1/10	1035	0.13	4.0	1.04	14.5	0.01	0.1	5.4	153	0.6	17.5	9.1	127		0.75	0.04		34.84	28.1	8.22	5.48		
SSW 55"	1/25/11	1025	0.24	7.3	1.75	24.5	0.46	6.5	5.8	162	0.6	17.6	7.6	107		1.25	0.07		35.02	24.3	8.17	5.41		
SSW 55"	2/8/11	1027	0.14	4.4	0.65	9.1	0.19	2.6	1.8	51	0.4	13.1	4.3	60		0.95	0.04		35.16	26.9	8.26	5.94		
SSW 55"	3/7/11	1133	0.20	6.1	1.08	15.1	0.24	3.3	2.4	67	0.4	13.5	3.7	51		1.15	0.05		34.70	27.1	8.21	5.83		
SSW 55"	4/11/11	1152	0.21	6.5	0.97	13.6	0.04	0.6	1.3	38	0.5	16.8	6.0	84		1.17	0.08		35.15	27.4	8.17	5.11		
SSW 55"	5/25/11	938	0.09	2.9	0.64	8.9	0.35	4.9	0.9	25	0.4	13.5	5.4	75		0.94	0.04		34.80	27.9	8.25	5.70		
SSW 55"	6/13/11	1104	0.17	5.3	0.64	9.0	0.10	1.4	0.9	26	0.5	15.0	6.1	85		1.21	0.04		34.83	29.8	8.20	6.24		
SSW 55"	7/21/11	929	0.17	5.4	0.31	4.4	0.21	3.0	1.2	33	0.5	14.9	5.7	80		0.96	0.07		34.79	25.5	8.20	6.87		
SSW 55"	8/22/11	1046	0.07	2.1	0.11	1.5	0.07	1.0	0.8	24	0.4	11.3	4.6	64		1.06	0.02		34.97	25.8	8.23	7.09		
SSW 55"	9/15/11	1016	0.06	2.0	0.32	4.5	0.13	1.8	1.7	48	0.4	13.3	8.0	113		0.50	0.06		34.77	26.8	8.22	6.95		
SSW 55"	10/4/11	850	0.09	2.8	0.38	5.3	0.17	2.4	3.4	95	0.4	12.1	4.1	58		0.63	0.08		35.23	26.5	8.18	6.79		
SSW 55"	11/21/11	1243	0.09	2.7	0.16	2.2	0.03	0.4	1.4	41	0.4	13.6	5.8	81		0.88	0.04		35.00	25.6	8.19	6.33		
SSW 55"	12/27/11	1056	0.02	0.5	0.34	4.7	0.10	1.4	0.6	18	0.4	11.7	6.8	96		0.65	0.05		35.05	24.6	8.24	6.61		
SSW 55"	1/30/12	1103	0.04	1.3	0.25	3.5	0.06	0.9	1.7	48	0.4	11.6	6.8	95		1.65	0.08		35.05	24.6	8.22	6.77		
SSW 55"	2/27/12	1108	0.07	2.3	0.33	4.6	0.01	0.1	2.2	61	0.4	11.4	7.1	99		0.87	0.02		35.21	24.0	8.24	6.18		
SSW 55"	3/28/12	1052	0.16	4.9	0.02	0.3	0.36	5.0	1.2	34	0.5	14.0	6.3	88		0.84	0.02		35.06	23.8	8.23	6.97		
SSW 55"	4/16/12	1052	0.14	4.3	0.26	3.6	0.09	1.2	0.1	3	0.4	13.7	6.3	88		0.74	0.08		35.03	24.4	8.25	6.63		
SSW 55"	5/24/12	915	0.15	4.8	0.33	4.6	0.26	3.6	2.6	73	0.5	14.9	5.3	74		0.74	0.02		35.02	24.5	8.23	6.55		
SSW 55"	6/19/12	1042	0.12	3.9	0.41	5.8	0.23	3.2	3.1	88	0.4	13.2	8.2	115		0.73	0.06		35.26	24.9	8.15	6.79		
SSW 55"	7/3/12	849	0.02	0.6	0.43	6.0	0.27	3.8	2.7	76	0.3	10.7	6.3	88		1.87	0.02		35.24	25.3	8.23	7.11		
SSW 55"	8/27/12	1132	0.03	0.8	0.34	4.7	0.39	5.5	3.4	95	0.5	15.2	5.8	82		0.99	0.05		35.31	26.3	8.22	6.10		
SSW 55"	9/26/12	1120	0.05	1.4	0.23	3.2	0.46	6.5	2.2	61	0.5	15.4	10.0	140		3.49	0.04		35.29	26.5	8.23	6.00		
SSW 55"	10/10/12	1025	0.03	0.8	0.31	4.3	0.27	3.8	2.3	63	0.3	10.1	5.1	71		1.08	0.04		35.33	26.4	8.23	6.49		
SSW 55"	11/19/12	1350	0.10	3.0	0.69	9.6	0.26	3.7	6.2	174	0.5	14.1	9.7	136		1.64	0.05		35.25	26.1	8.26	6.82		
SSW 55"	12/19/12	1011	0.14	4.3	0.25	3.5	0.39	5.4	6.4	180	0.4	13.9	5.4	75		1.69	0.03		35.27	25.1	8.26	6.75		
SSW 55"	1/4/13	1044	0.10	3.2	0.43	6.0	0.26	3.7	0.9	24	0.4	12.7	4.1	57		1.24	0.08		35.26	25.0	8.23	6.24		
SSW 55"	2/13/13	1054	0.16	5.1	0.29	4.0	0.06	0.8	2.0	57	0.5	14.9	4.4	62		1.14	0.02		35.22	24.6	8.22	5.90		
SSW 55"	3/1/13	1157	0.15	4.8	0.55	7.7	0.56	7.8	2.0	57	0.4	13.4	5.4	75		8.37	0.41		35.01	24.1	8.22	5.83		
SSW 55"	4/3/13	1247	0.15	4.8	0.21	2.9	0.18	2.5	2.8	80	0.4	12.3	4.2	59		1.43	0.06		35.30	24.2	8.22	6.65		
SSW 55"	5/29/13	936	0.27	8.4	0.23	3.2	0.46	6.4	1.9	53	0.7	20.4	5.2	73		1.54	0.02		34.99	26.4	8.20	6.13		
SSW 55"	6/13/13	1101	0.27	8.4	0.32	4.5	0.56	7.9	2.2	61	0.5	17.0	4.2	60		1.23	0.03		35.05	26.1	8.18	6.09		
SSW 55"	7/1/13	1015	0.22	6.9	0.91	12.8	0.27	3.8	7.7	215	0.5	16.9	7.5	105		1.19	0.38		35.02	26.7	8.24	6.16		
SSW 55"	8/14/13	1034	0.16	4.9	0.39	5.4	0.26	3.7	2.6	72	0.4	12.4	5.0	70		1.09	0.02		35.00	26.7	8.23	6.30		
SSW 55"	9/18/13	839	0.18	5.7	0.01	0.1	0.25	3.5	2.9	80	0.5	15.1	7.4	104		0.85	0.02		35.01	26.9	8.24	6.51		
SSW 55"	10/10/13	1056	0.22	6.9	0.56	7.9	0.34	4.8	3.6	102	0.5	15.9	5.5	77		0.94	0.02		35.12	26.4	8.20	6.45		
SSW 55"	11/21/13	1035	0.18	5.5	0.39	5.4	0.33	4.6	5.1	143	0.5	16.2	5.9	82		0.99	0.02		35.18	26.5	8.21	6.05		
SSW 55"	12/23/13	955	0.20	6.1	0.56	7.9	0.49	6.9	4.3	120	0.5	16.8	5.2	73		0.91	0.02		35.09	25.8	8.21	6.17		
SSW 55"	1/23/14	1225	0.15	4.8	0.66	9.3	0.35	4.9	6.5	181	0.5	14.1	6.7	94		3.02	0.02		35.21	25.4	8.22	6.35		
SSW 55"	2/12/14	1130	0.14	4.4	0.46	6.4	0.34	4.7	3.5	98	0.4	13.4	5.1	72		1.10			34.89	25.5	8.24	6.10		
SSW 55"	3/17/14	1046	0.25	7.8	0.64	8.9	0.21	3.0	5.3	148	0.6	17.1	6.0	84		1.60	0.04		34.72	25.7	8.21	6.74		
SSW 55"	4/10/14	950	0.20	6.3	0.31	4.4	0.18	2.5	3.9	108	0.5	15.4	7.5	105		1.32	0.02		34.94	25.6	8.21	6.12		
SSW 55"	5/13/14	1324	0.19	5.8	0.36	5.0	0.29	4.0	4.3	121	0.4	13.8	5.5	77		1.17	0.02		34.82	25.7	8.23	6.38		
SSW 55"	6/24/14	1054	0.24	7.3	0.51	7.1	0.36	5.0	6.9	194	0.8	23.8	5.2	73		1.58	0.03		34.75	25.9	8.21	6.35		
SSW 55"	7/23/14	1131	0.26	7.9	1.56	21.8	0.46	6.4	13.3	374	0.5	16.8	5.9	82		1.43	0.12		34.76	27.1	8.23	6.36		
SSW 55"	8/11/14	1153	0.18	5.7	1.26	17.7	0.61	8.6	8.6	243	0.4	12.5	9.3	130		1.45	0.10		34.64	27.1	8.21	6.15		
SSW 55"	9/28/14	1123	0.19	5.8	1.11	15.6	0.21	3.0	9.3	260	0.5	15.9	10.3	144		1.48	0.05		34.85	28.2	8.21	6.15		
SSW 55"	10/15/14	1224	0.26	7.9	1.81	25.4	0.38	5.3	13.4	377	0.7	21.5	8.9	125		1.13	0.10		34.73	27.7	8.22	6.22		
SSW 55"	11/25/14	1245	0.19	5.9	1.42	19.9	0.31	4.3	9.7	273	0.5	15.5	8.4	118		1.44	0.05		34.69	27.3	8.22	6.32		
SSW 55"	12/30/14	955	0.20	6.3	1.22	17.1	0.41	5.8	7.2	202	0.5	15.9	8.0	113		1.48	0.10		34.95	25.4	8.21	6.42		
SSW 55"	1/1/15																							
SSW 55"	2/1/15																							
SSW 55"	3/1/15																							
SSW 55"	4/1/15																							
SSW 55"	5/1/15																							
SSW 55"	6/1/15																							

NELHA Water Quality Laboratory

SSW 55"

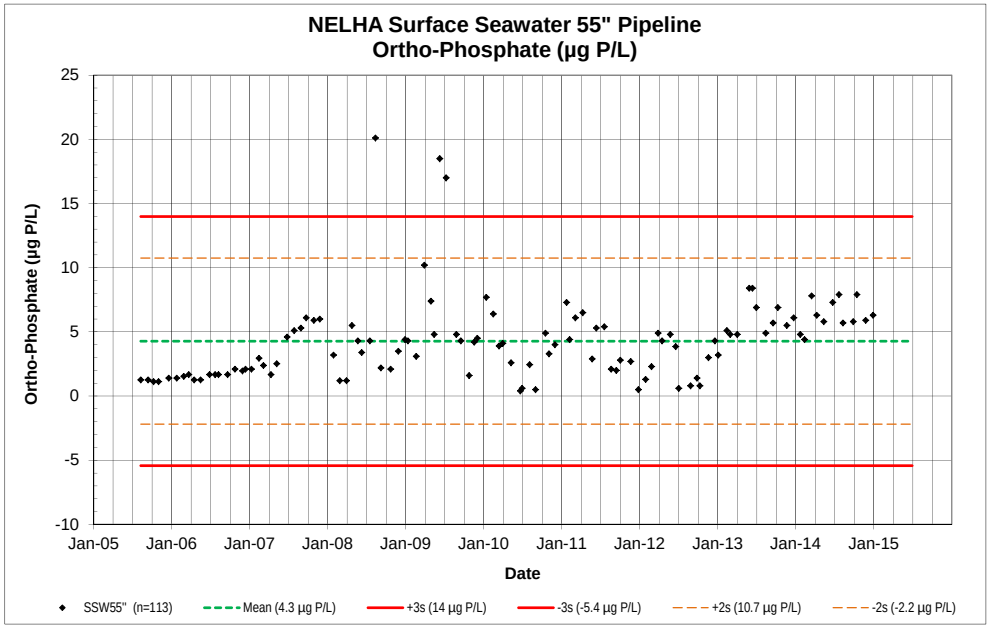
Intake Depth: 24 m, Offshore Pipe Length: 165 m

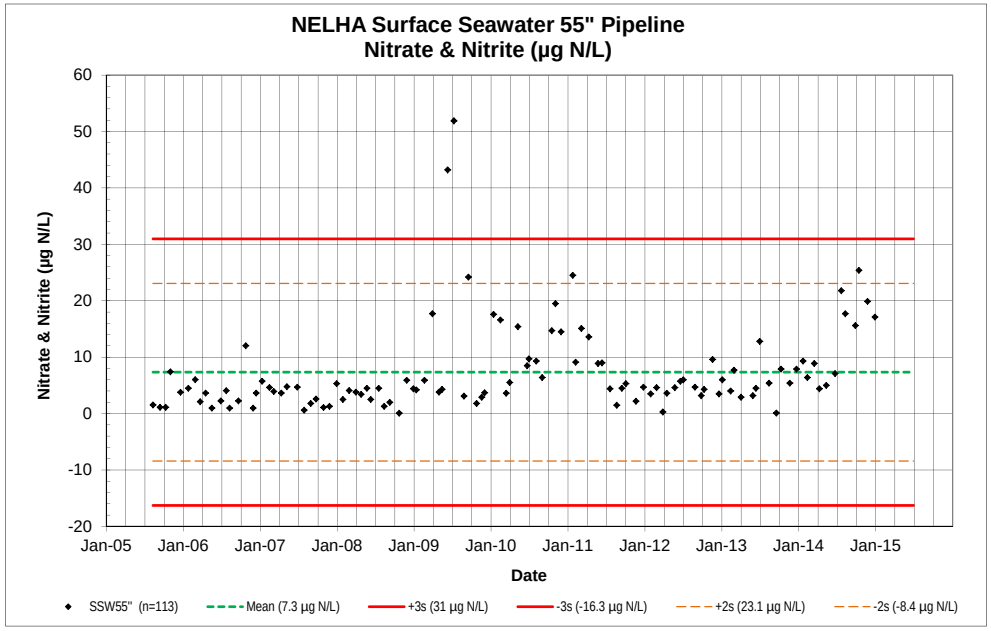
SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
SSW 55"	7/1/15																							
Mean (Aug. '05 - present)			0.15	4.3	0.52	7.3	0.33	4.7	4.47	125.6	0.40	11.5	6.07	86.5	0.99	1.40	0.06	2.290	34.955	26.1	8.22	6.3		
STD DEV			0.10	3.2	0.56	7.9	0.33	4.7	3.65	102.6	0.12	4.7	1.82	23.0	0.07	1.05	0.07	0.207	0.216	1.7	0.06	0.5		
Range																								
UWL	+2s		0.35	10.7	1.65	23.1	1.00	14.0	11.8	331	0.65	20.9	9.7	133	1.12	3.51	0.20	2.704	35.387	29.5	8.34	7.4		
LWL	-2s		-0.05	-2.2	-0.60	-8.4	-0.33	-4.7	-2.8	-80	0.15	2.1	2.4	41	0.85	-0.70	-0.08	1.876	34.523	22.8	8.10	5.2		
UCL	+3s		0.45	14.0	2.21	31.0	1.33	18.7	15.4	433	0.78	25.6	11.5	156	1.19	4.56	0.27	2.911	35.604	31.2	8.40	7.9		
LCL	-3s		-0.15	-5.4	-1.16	-16.3	-0.67	-9.4	-6.5	-182	0.03	-2.5	0.6	17	0.79	-1.75	-0.15	1.669	34.306	21.1	8.04	4.7		
Data																								
Max. Value			0.65	20.1	3.71	51.9	3.16	44.2	27.5	774	0.78	24.1	13.1	184	1.14	8.37	0.41	2.661	35.472	34.1	8.46	7.4		
Min. Value			0.00	0.4	0.01	0.1	0.00	0.0	0.1	3	0.00	2.5	0.0	41	0.86	0.18	0.02	1.569	34.450	23.8	7.95	4.5		

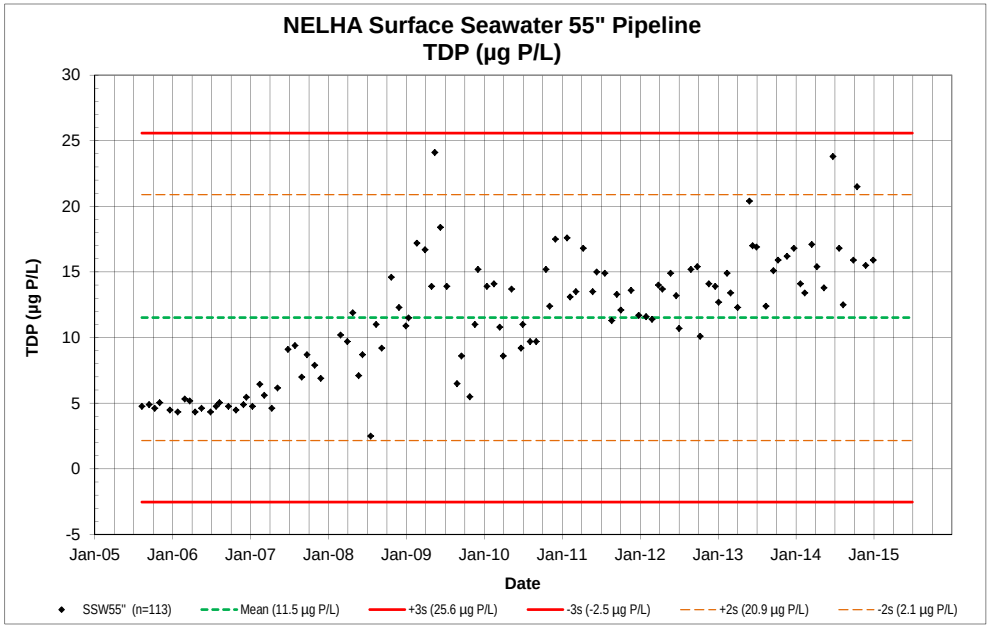
NELHA Water Quality Laboratory

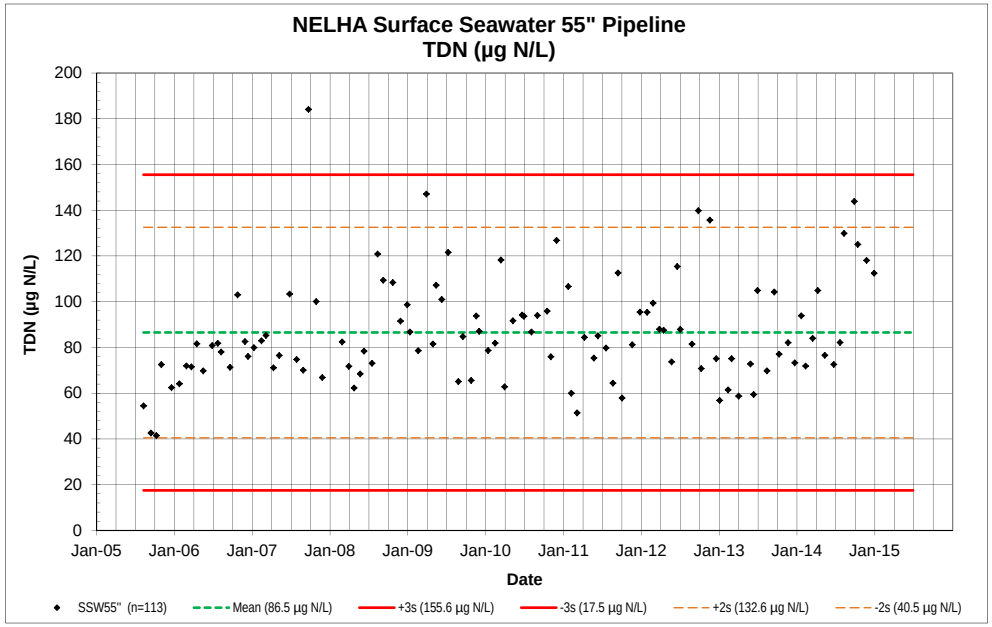
SSW 55"

Intake Depth: 24 m, Offshore Pipe Length: 165 m





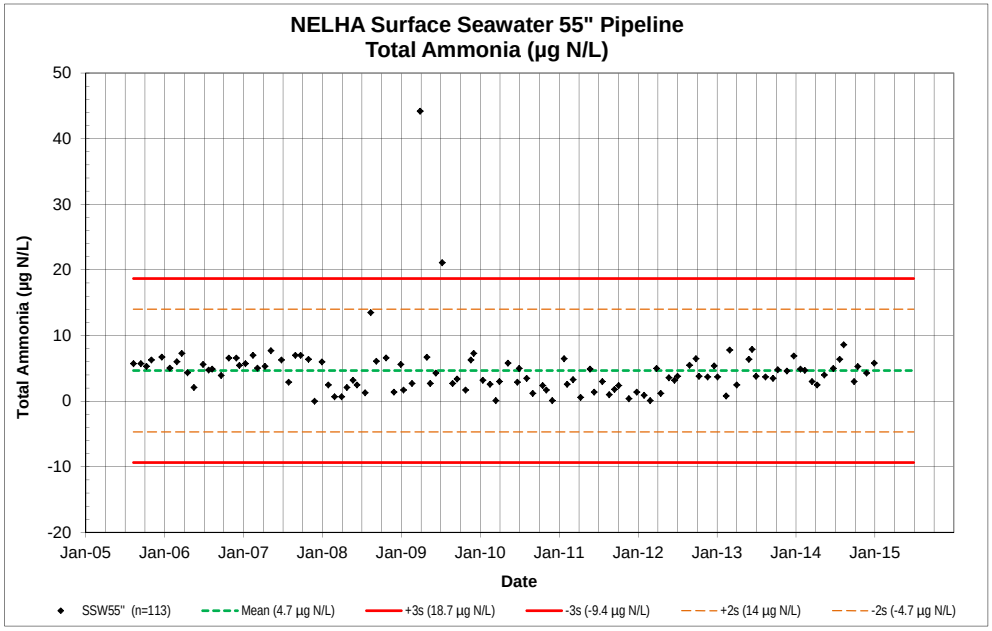


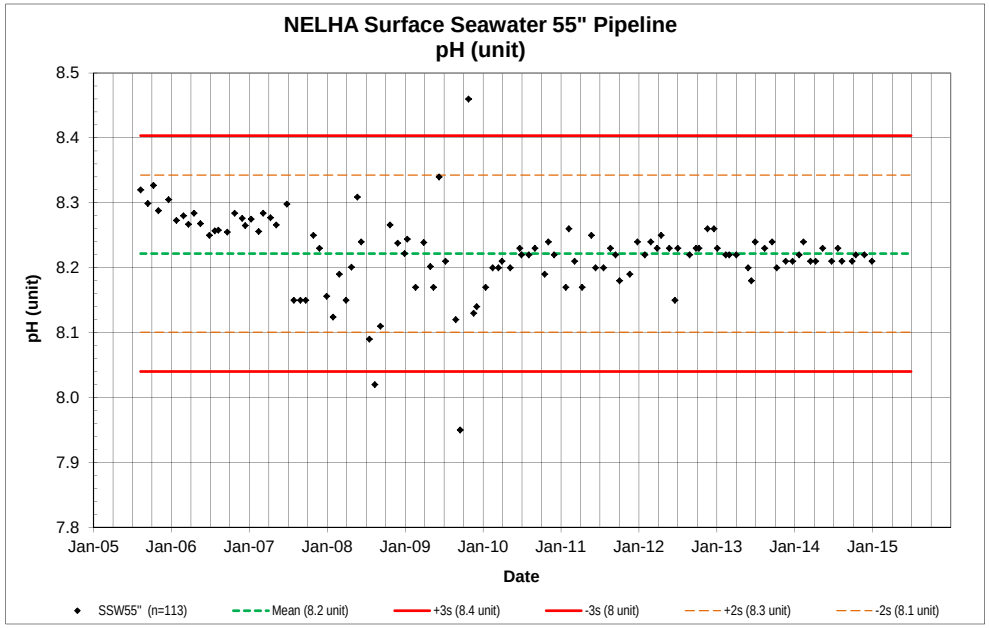


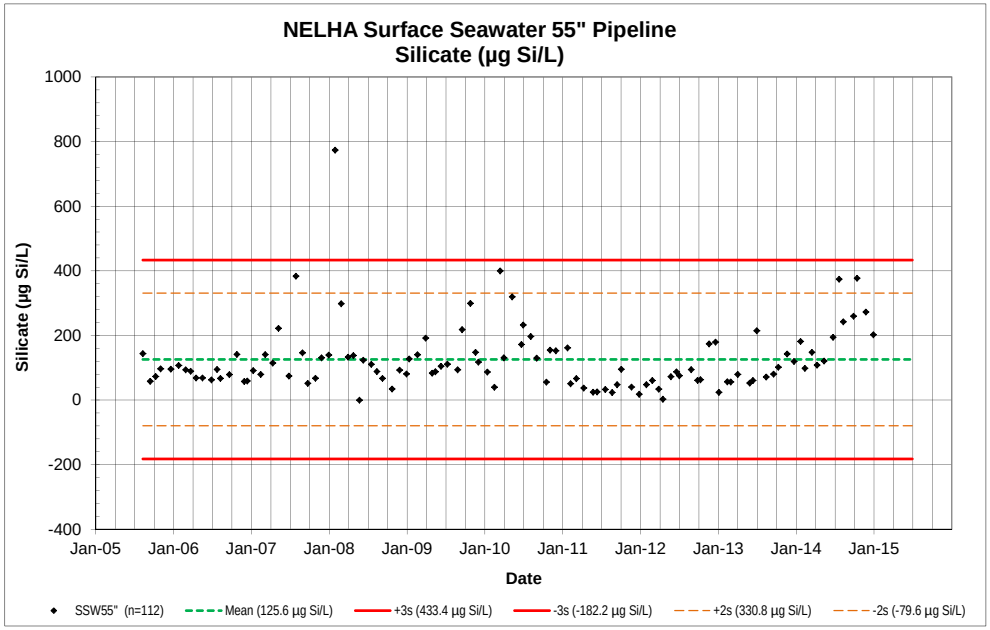
NELHA Water Quality Laboratory

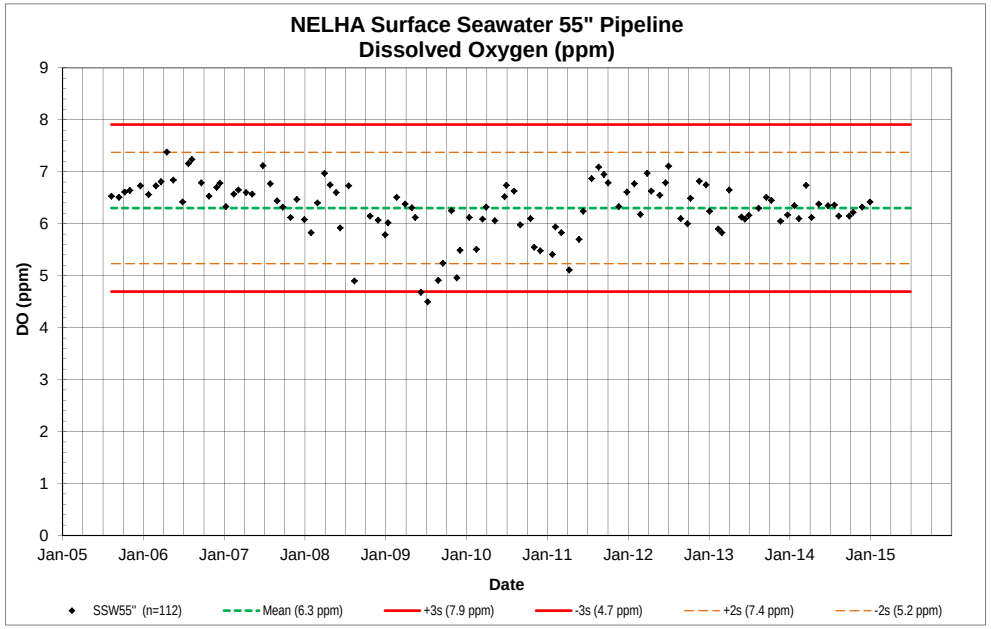
SSW 55"

Intake Depth: 24 m, Offshore Pipe Length: 165 m





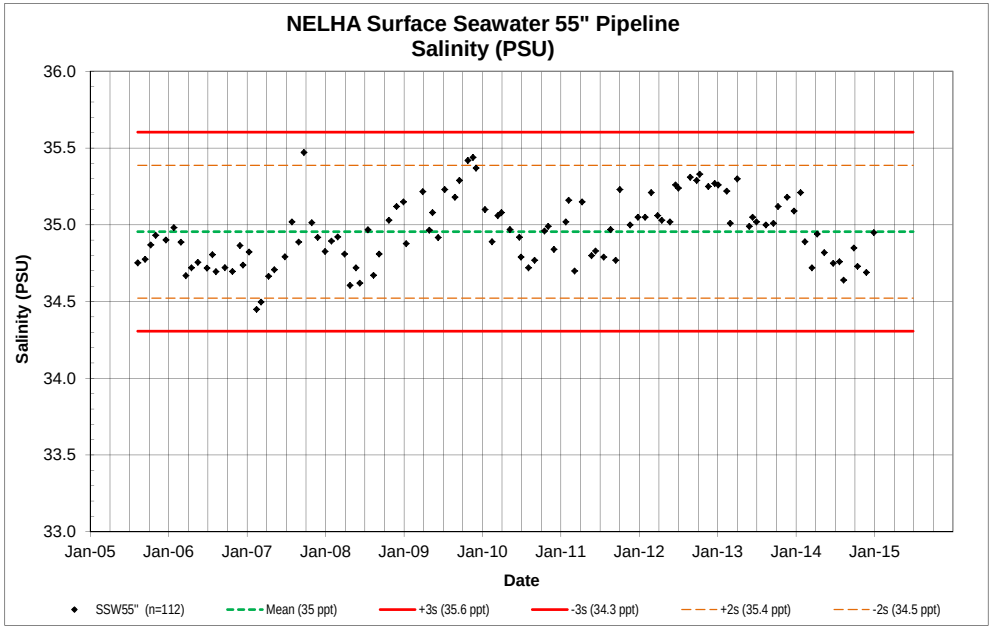


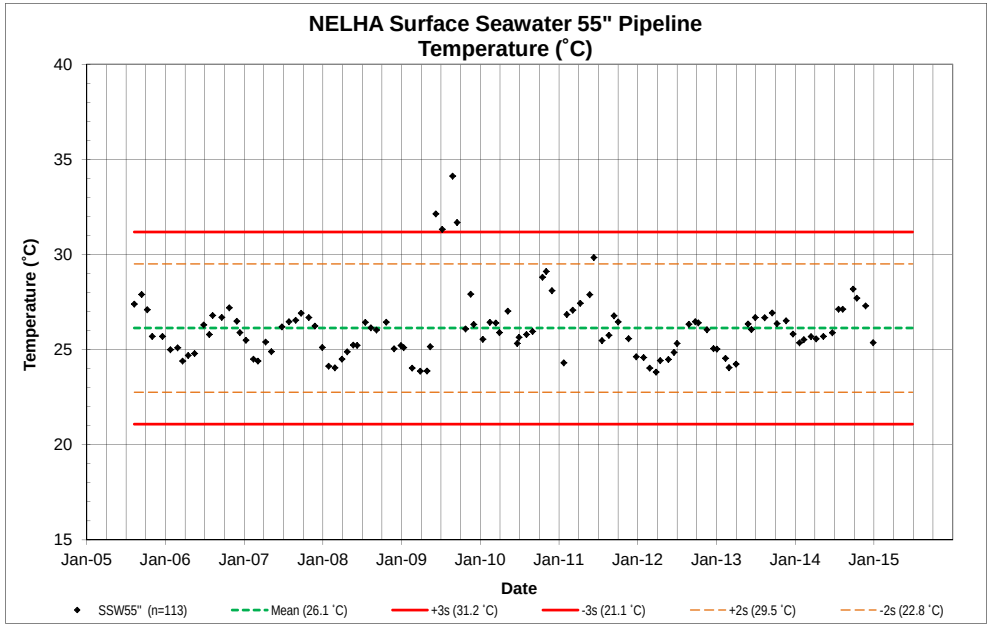


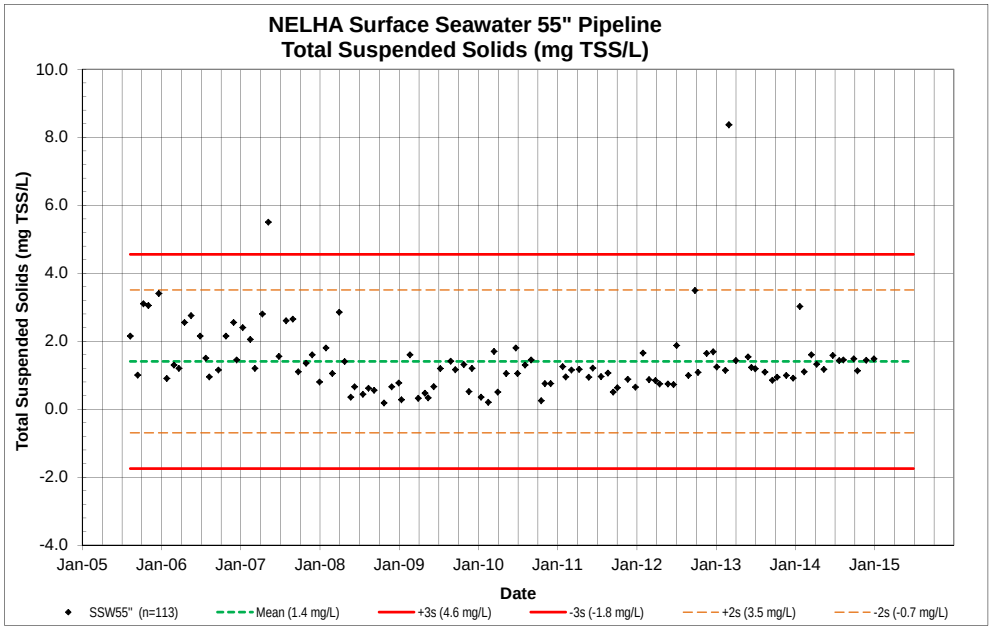
NELHA Water Quality Laboratory

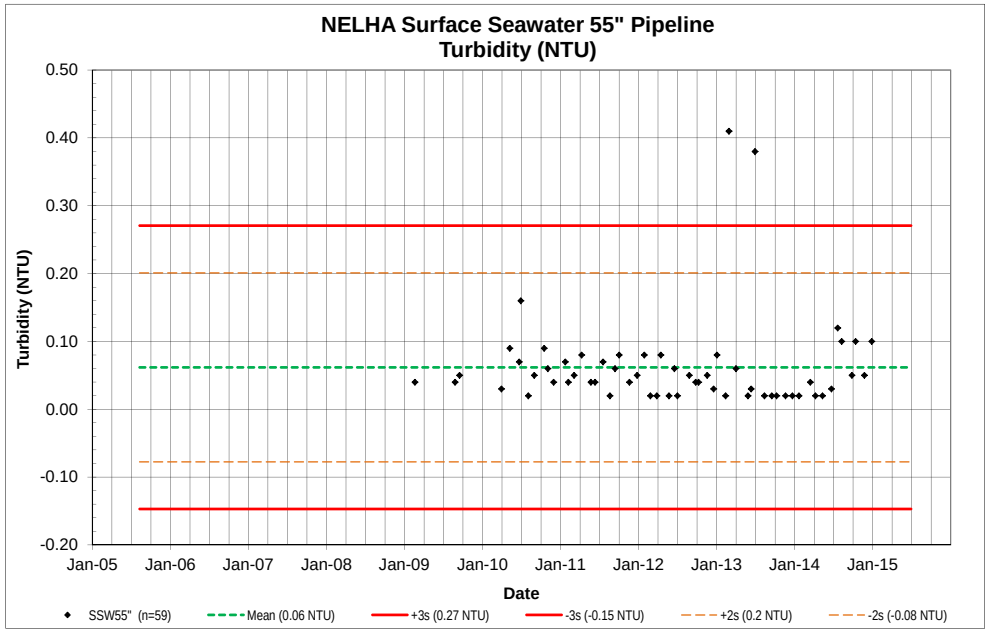
SSW 55"

Intake Depth: 24 m, Offshore Pipe Length: 165 m









NELHA Water Quality Laboratory

DSW 40"

Intake Depth: 674 m, Offshore Pipe Length: 1,916 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW40"	8/16/88		2.9	91	38	529	0.02	0.3	78	2196	3.0	93	41	569	0.24			2.40	34.347	7.3	7.64			
DSW40"	8/31/88		3.1	95	41	572	0.09	1.3	80	2252	3.1	96	44	615	0.28				34.330	7.5	7.69			
DSW40"	9/9/88		3.1	97	41	574	0.00	0.0	83	2320	3.2	98	43	606	0.22			2.40	34.345	7.0	7.64			
DSW40"	9/15/88		3.2	98	41	579	0.00	0.0	86	2405	3.2	99	45	632	0.29			2.38	34.374	7.3	7.51	1.09		
DSW40"	9/23/88		3.1	97	41	571	0.00	0.0	82	2292	3.2	98	43	602	0.25			2.41	34.289	7.5	7.64	1.07		
DSW40"	9/30/88		2.9	88	36	503	0.03	0.4	82	2309	2.9	90	38	538	0.24			2.39	34.379	7.0	7.90	1.06		
DSW40"	10/7/88		3.2	99	42	583	0.00	0.0	86	2402	3.2	99	44	616	0.26			2.41	34.383	7.8	7.82	1.00		
DSW40"	10/14/88		3.1	97	41	574	0.00	0.0	80	2252	3.2	98	43	604	0.25			2.40	34.351	7.4	7.50	1.06		
DSW40"	10/21/88		3.2	98	41	580	0.00	0.0	85	2377	3.2	99	44	612	0.24			2.41	34.326	7.4	7.64	1.03		
DSW40"	10/28/88		3.2	98	41	576	0.00	0.0	83	2320	3.2	100	43	607	0.20			2.38	34.377	7.3	7.55	1.14		
DSW40"	11/4/88		3.1	95	41	571	0.00	0.0	78	2188	3.1	94	44	611	0.30			2.41	34.355	7.8	7.66	1.00		
DSW40"	11/9/88		3.2	98	41	580	0.00	0.0	77	2160	3.4	104	43	604	0.23			2.40	34.020	6.8	7.55	1.06		
DSW40"	11/18/88		3.0	94	40	559	0.00	0.0	82	2317	3.1	95	43	596	0.32			2.41	34.384	7.0	7.59	1.08		
DSW40"	11/25/88		3.1	96	41	573	0.00	0.0	80	2233	3.2	98	43	608	0.31			2.40	34.369	6.9	7.58	1.11		
DSW40"	12/2/88		3.1	95	41	568	0.00	0.0	77	2174	3.1	96	43	597	0.30			2.40	34.348	7.0	8.00	1.09		
DSW40"	12/9/88		3.1	96	41	580	0.00	0.0	83	2328	3.1	96	43	608	0.26			2.40	34.384	7.0	7.63	0.98		
DSW40"	12/16/88		3.1	95	41	571	0.00	0.0	79	2205	3.1	96	43	599	0.30			2.40	34.357	7.1	7.66	1.19		
DSW40"	12/23/88		3.2	98	42	585	0.03	0.4	85	2401	3.2	98	44	616	0.27			2.40	34.405	7.3	7.55	1.13		
DSW40"	12/28/88		3.0	94	40	557	0.00	0.0	79	2222	3.0	94	43	604	0.28			2.42	34.377	7.0	7.62	1.07		
DSW40"	1/4/89		3.0	94	40	560	0.00	0.0	79	2206	3.1	94	43	596	0.28			2.42	34.368	7.1	7.57	1.13		
DSW40"	1/12/89		3.1	95	41	568	0.02	0.3	81	2261	3.1	96	45	629	0.29			2.42	34.379	7.2	7.59	0.97		
DSW40"	1/20/89		3.1	96	41	573	0.00	0.0	81	2261	3.1	96	44	610	0.28			2.42	34.384	6.6	7.56	1.00		
DSW40"	1/27/89		3.1	96	41	572	0.02	0.3	82	2289	3.1	97	44	617	0.28			2.41	34.378	6.8	7.57	0.99		
DSW40"	2/1/89		3.1	96	42	584	0.02	0.3	81	2278	3.2	98	44	620	0.32			2.40	34.398	7.2	7.58	1.07		
DSW40"	2/7/89		3.1	96	41	573	0.00	0.0	84	2373	3.2	98	44	620	0.28			2.41	34.392	6.9	7.62	2.23		
DSW40"	2/15/89		3.1	96	41	570	0.00	0.0	80	2250	3.1	97	44	614	0.28			2.40	34.392	9.0	7.56	1.34		
DSW40"	2/21/89		3.1	95	40	565	0.02	0.3	82	2289	3.1	96	44	620	0.31			2.41	34.371	8.7	7.59	1.09		
DSW40"	2/27/89		3.1	95	40	567	0.00	0.0	82	2306	3.1	96	44	615	0.29			2.42	34.368	7.0	7.57	1.01		
DSW40"	3/6/89		3.1	94	41	577	0.02	0.3	74	2076	3.1	96	44	610	0.26			2.40	34.375	7.4	7.55	1.04		
DSW40"	3/13/89		3.0	93	41	574	0.07	1.0	76	2132	3.0	93	44	613	0.23			2.41	34.369	7.5	7.55	1.14		
DSW40"	3/20/89		3.1	95	42	582	0.05	0.7	81	2284	3.1	96	44	621	0.26			2.41	34.404	7.7	7.60	1.14		
DSW40"	3/28/89		3.1	96	42	592	0.07	1.0	84	2368	3.2	98	45	630	0.29			2.42	34.417	7.0	7.56	1.14		
DSW40"	4/4/89		3.1	96	42	585	0.02	0.3	81	2284	3.1	97	44	619	0.30			2.39	34.399	7.0	7.58	1.11		
DSW40"	4/10/89		3.1	95	41	580	0.00	0.0	79	2216	3.1	97	44	616	0.27			2.43	34.384	7.3	7.55	2.09		
DSW40"	4/18/89		3.1	95	41	578	0.02	0.3	77	2171	3.1	96	44	618	0.22			2.41	34.379	7.0	7.56	1.04		
DSW40"	4/24/89		3.0	94	42	582	0.00	0.0	79	2227	3.1	96	45	625	0.33			2.42	34.368	7.1	7.54	1.15		
DSW40"	5/1/89		3.0	94	42	587	0.00	0.0	84	2366	3.1	96	45	636	0.03			2.43	34.381	8.4	7.54	1.04		
DSW40"	5/8/89		3.1	96	42	594	0.00	0.0	86	2410	3.1	97	46	643	0.25			2.43	34.321	8.2	7.54	1.40		
DSW40"	5/15/89		3.1	96	42	591	0.00	0.0	86	2421	3.1	97	46	639	0.24			2.42	34.402	6.7	7.54	1.07		
DSW40"	5/22/89		3.1	95	42	586	0.00	0.0	84	2354	3.1	97	44	622	0.23			2.42	34.398	6.8	7.52	1.40		
DSW40"	5/30/89		3.1	96	42	594	0.00	0.0	87	2448	3.2	98	45	629	0.20			2.42	34.407	6.8	7.55	1.07		
DSW40"	6/5/89		3.1	95	42	592	0.03	0.4	81	2283	3.1	97	45	630	0.25			2.43	34.397	7.2	7.56	1.09		
DSW40"	6/13/89		3.1	95	41	574	0.00	0.0	87	2448	3.1	97	45	635	0.20			2.43	34.411	7.4	7.57	1.10		
DSW40"	6/19/89		3.1	96	42	594	0.00	0.0	87	2448	3.2	99	45	635	0.26			2.44	34.421	7.1	7.58	1.16		
DSW40"	6/26/89		3.1	95	42	584	0.00	0.0	83	2338	3.2	98	45	625	0.27			2.43		7.2		1.10		

NELHA Water Quality Laboratory

DSW 40"

Intake Depth: 674 m, Offshore Pipe Length: 1,916 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW40"	7/3/89		3.1	95	42	583	0.00	0.0	84	2366	3.1	95	44	623	0.23			2.40	34.410	7.1		1.09		
DSW40"	7/10/89		3.1	96	42	586	0.03	0.4	88	2462	3.1	96	45	632	0.24			2.39	34.419	7.8		1.04		
DSW40"	7/17/89		3.1	96	41	577	0.03	0.4	88	2473	3.2	98	45	626	0.27			2.38	34.429	7.4		1.09		
DSW40"	7/24/89		3.1	96	41	577	0.00	0.0	82	2313	3.1	97	44	621	0.26			2.39	34.392	7.4	7.54	1.04		
DSW40"	8/1/89		3.2	98	42	592	0.03	0.4	89	2500	3.2	98	45	629	0.24			2.38	34.430	7.2	7.53	1.05		
DSW40"	8/7/89		3.1	95	41	573	0.06	0.8	84	2347	3.1	97	44	622	0.29			2.39	34.383	7.5	7.53	0.97		
DSW40"	8/14/89		3.1	96	41	578	0.05	0.7	82	2302	3.1	97	45	623	0.27			2.39	34.385	7.4	7.55	0.93		
DSW40"	8/21/89		3.1	96	42	586	0.03	0.4	84	2366	3.1	97	45	625	0.27			2.39	34.398		7.53	0.90		
DSW40"	8/31/89		3.0	93	41	576	0.03	0.4	79	2217	3.1	95	43	603	0.26			2.37	34.373		7.54	0.97		
DSW40"	9/5/89		3.0	93	41	574	0.03	0.4	76	2148	3.1	95	43	606	0.30			2.39	34.373	7.9	7.56	0.93		
DSW40"	9/11/89		3.0	92	41	570	0.05	0.7	78	2188	3.0	93	44	622	0.24			2.37	34.378	7.6	7.55	1.10		
DSW40"	9/19/89		3.0	94	41	577	0.03	0.4	82	2302	3.1	96	45	633	0.32			2.37	34.394	7.7	7.55	1.13		
DSW40"	9/27/89		3.1	95	42	585	0.05	0.7	85	2377	3.1	95	45	627	0.28			2.37	34.413	7.7	7.58	1.09		
DSW40"	10/3/89		3.0	94	42	589	0.05	0.7	85	2377	3.1	95	43	608	0.27			2.37	34.412	7.9	7.55	1.27		
DSW40"	10/9/89		3.0	94	42	586	0.03	0.4	81	2274	3.0	94	43	604	0.24			2.37	34.388	7.8	7.59	1.09		
DSW40"	10/16/89		3.1	96	43	602	0.03	0.4	88	2462	3.1	97	44	619	0.25			2.37	34.434	7.7	7.55	1.00		
DSW40"	10/23/89		3.0	94	42	585	0.00	0.0	78	2177	3.1	95	44	610	0.31			2.35	34.387	8.0	7.53	1.09		
DSW40"	11/1/89		3.1	95	42	582	0.00	0.0	81	2268	3.1	95	44	612	0.25			2.37	34.377	7.9	7.52	1.07		
DSW40"	11/9/89		3.1	94	41	571	0.02	0.3	81	2278	3.1	95	44	610	0.23			2.60	34.390	7.7	7.55	1.44		
DSW40"	11/13/89		3.1	97	42	586	0.06	0.8	85	2393	3.2	98	45	631	0.27			2.36	34.438	7.6	7.52	1.34		
DSW40"	11/20/89		3.1	95	41	574	0.00	0.0	83	2324	3.1	97	44	618	0.26			2.35	34.405	7.5	7.54	1.37		
DSW40"	11/27/89		3.1	97	41	581	0.02	0.3	87	2450	3.2	98	44	617	0.25			2.37	34.415	7.5	7.51	1.29		
DSW40"	12/7/89		3.1	97	42	586	0.06	0.8	89	2507	3.2	98	45	626	0.25			2.37	34.423	7.6	7.55	1.43		
DSW40"	12/14/89		3.1	95	41	579	0.02	0.3	86	2422	3.1	97	44	610	0.25			2.36	34.402	7.2	7.55	1.31		
DSW40"	12/18/89		3.1	96	41	577	0.02	0.3	85	2393	3.1	97	44	613	0.26			2.36	34.397	7.4	7.54	1.20		
DSW40"	12/26/89		3.1	96	42	582	0.04	0.6	87	2450	3.1	96	44	613	0.23			2.33	34.410	7.2	7.55	1.29		
DSW40"	1/4/90		3.1	96	41	581	0.02	0.3	85	2393	3.1	97	44	615	0.24			2.33	34.397	7.6	7.55	1.17		
DSW40"	1/12/90		1.4	43	25	352	0.00	0.0	104	2930								2.33	34.276	7.5	7.54	1.21		
DSW40"	1/18/90		1.7	52	36	498	0.00	0.0	80	2252	1.7	53	33	458	0.97			2.34	34.435	7.4	7.53	1.26		
DSW40"	1/22/90		1.5	47	33	461	0.00	0.0	100	2799	1.5	46	30	416	0.98			2.34	34.430	7.4	7.54	1.27		
DSW40"	2/1/90		2.1	65	36	507	0.00	0.0	84	2365	2.2	68	36	509	0.80			2.34	34.395	7.5	7.52	1.11		
DSW40"	2/8/90		2.6	81	38	535	0.00	0.0	79	2228	2.7	84	31	437	1.05			2.34	34.410	7.5	7.53	1.49		
DSW40"	2/15/90		2.1	64	31	428	0.23	3.2	80	2244	2.7	84	39	551	0.79			2.34	34.412	7.5	7.55	1.11		
DSW40"	2/20/90		1.5	48	33	461	0.75	10.5	77	2156	2.3	71	40	567	0.84			2.36	34.420	7.5	7.56	1.16		
DSW40"	2/26/90		1.1	35	25	349	0.00	0.0	77	2172	2.0	61	36	507	0.81			2.36	34.417	7.5	7.53	1.17		
DSW40"	3/8/90		2.2	67	30	414	0.00	0.0	99	2775	3.1	94	33	468	0.80			2.36	34.425	7.3	7.55	1.04		
DSW40"	3/13/90		1.9	59	30	423	0.34	4.8	83	2333	2.9	88	44	611	0.89			2.36	34.400	7.5	7.53	1.09		
DSW40"	3/21/90		1.7	54	30	423	0.15	2.1	73	2043	2.5	78	39	539	0.87			2.36	34.416	7.5	7.57	1.06		
DSW40"	3/27/90		2.2	68	33	461	0.15	2.1	72	2011	2.7	83	38	532	0.80			2.37	34.531	7.8	7.56	1.14		
DSW40"	4/2/90		2.6	80	41	579	0.00	0.0	91	2564	2.2	68	44	612				2.36	34.388	7.6	7.52	1.07		
DSW40"	4/9/90		2.2	69	44	611	0.00	0.0	110	3101	1.9	59	41	580				2.37	34.432	7.3	7.55	1.11		
DSW40"	4/16/90		1.8	56	33	457	0.00	0.0	111	3117	1.4	44	29	406				2.36	34.391	7.7	7.59	1.13		
DSW40"	4/23/90		3.0	93	44	613	0.00	0.0			3.1	94	44	614	0.61			2.36	34.428	7.7	7.57	1.13		
DSW40"	4/30/90		3.0	92	43	601	0.00	0.0			3.0	94	43	606				2.35	34.401	7.8	7.55	1.21		
DSW40"	5/7/90		3.0	94	44	612	0.00	0.0			3.1	95	44	622	0.61			2.37	34.120	7.3	7.59	1.13		
DSW40"	5/14/90		3.0	93	43	601	0.10	1.4			3.0	94	44	610	0.57			2.36	34.368	7.5	7.54	1.14		
DSW40"	5/21/90		3.0	94	43	605	0.05	0.7			3.1	96	44	614	0.48			2.36	34.387	7.2	7.59	1.06		
DSW40"	5/29/90		3.0	94	43	608	0.05	0.7			3.1	96	44	618	0.60			2.36	34.389	8.1	7.58	1.11		
DSW40"	6/4/90		3.1	95	44	615	0.01	0.1			3.2	99	45	626	1.68			2.37	34.421	8.1	7.58	1.14		
DSW40"	6/11/90		3.1	96	43	598	0.10	1.4			3.1	97	43	606	2.43			2.37	34.413	8.0	7.58	1.11		
DSW40"	6/18/90		3.1	96	43	597	0.00	0.0			3.3	103	43	606	1.50			2.37	34.396	8.4	7.59	1.12		
DSW40"	6/25/90		3.2	98	43	599	0.02	0.3			3.3	102	43	608	0.66			2.37	34.401	7.7	7.59	1.13		

NELHA Water Quality Laboratory

DSW 40"

Intake Depth: 674 m, Offshore Pipe Length: 1,916 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW40"	7/2/90		3.2	99	43	600	0.02	0.3	87	2436	3.3	103	44	611	2.25			2.38	34.410	7.8	7.60	1.13		
DSW40"	7/6/90		3.2	98	43	604	0.22	3.1	87	2451	3.4	104	44	611				2.36	34.415	7.5	7.58	1.15		
DSW40"	7/13/90		3.2	99	43	598	0.16	2.2	85	2386	3.4	106	44	610	0.90			2.35	34.396	7.9	7.58	1.20		
DSW40"	7/23/90		3.2	99	43	597	0.00	0.0	85	2378	3.4	104	43	605	2.17			2.35	34.390	7.8	7.58	1.13		
DSW40"	7/30/90		3.2	99	42	595	0.00	0.0	82	2312	3.3	103	43	608	1.30			2.36	34.378	8.1	7.56	1.09		
DSW40"	8/6/90		3.2	100	43	598	0.10	1.4	85	2386	3.2	100	43	608	1.47			2.35	34.403	8.1	7.56	1.11		
DSW40"	8/13/90		3.0	92	42	584	0.00	0.0			3.4	106	43	599	2.69			2.36	34.395	8.0	7.57	1.16		
DSW40"	8/20/90		3.0	94	42	590	0.00	0.0			3.3	103	43	607	0.69			2.35	34.409	8.0	7.57	1.11		
DSW40"	8/27/90		3.0	94	42	590	0.00	0.0			3.3	103	43	604	4.88			2.36	34.412	8.9	7.55	1.20		
DSW40"	9/4/90		3.0	94	42	590	0.00	0.0			3.4	104	44	610	3.53			2.35	34.411	7.9	7.54	1.10		
DSW40"	9/10/90		3.0	94	42	587	0.00	0.0			3.3	103	44	610	0.74			2.35	34.394	7.1	7.56	1.07		
DSW40"	9/17/90		2.5	79	41	579	0.00	0.0	97	2716	3.7	114	46	639	0.78			2.33	34.292	8.4	7.55	1.20		
DSW40"	9/24/90		3.2	98	42	584	0.00	0.0	86	2410	3.5	107	43	603	0.81			2.34	34.382	7.9	7.56	1.11		
DSW40"	10/1/90		3.3	102	45	625	0.00	0.0	86	2428	3.5	109	45	636	0.76			2.33	34.389	8.0	7.57	1.17		
DSW40"	10/10/90		2.8	86	37	521	0.00	0.0	99	2766	3.6	112	48	671	0.88			2.33	34.388	7.9	7.57	1.12		
DSW40"	10/15/90		2.8	86	38	527	0.00	0.0	100	2817	3.9	122	50	707	0.63			2.33	34.383	7.6	8.40	1.13		
DSW40"	10/22/90		3.4	105	43	597	0.00	0.0	88	2480	3.4	106	45	631	0.97			2.33	34.369	8.0	7.54	1.10		
DSW40"	10/29/90		3.4	105	43	600	0.00	0.0	87	2445	3.5	108	45	636	0.67			2.34	34.397	8.0	7.55	1.12		
DSW40"	11/5/90		3.3	101	43	603	0.00	0.0	85	2390	3.6	110	45	631	0.65			2.33	34.378	8.0	7.55	1.11		
DSW40"	11/13/90		3.1	95	46	649	0.00	0.0	86	2424	3.3	101	49	682	0.62			2.34	34.398	8.8	7.54	1.09		
DSW40"	11/20/90		3.2	99	45	626	0.00	0.0	88	2470	3.5	109	47	655	0.66			2.33	34.389	7.5	7.55	1.04		
DSW40"	11/28/90		3.1	97	43	597	0.00	0.0	89	2486	3.2	100	44	619	0.67			2.34	34.397	7.2	7.59	1.10		
DSW40"	12/3/90		3.2	98	42	592	0.00	0.0	86	2427	3.3	102	44	615	0.62			3.33	34.392	7.2	7.55	1.06		
DSW40"	12/11/90		3.1	97	47	663	0.00	0.0	86	2421	3.3	102	50	699	0.59			2.33	34.397	7.3	7.56	1.05		
DSW40"	12/17/90		3.2	98	45	633	0.00	0.0	87	2452	3.2	100	47	656	0.53			2.34	34.417	7.4	7.55	1.08		
DSW40"	12/28/90		3.1	96	39	539	0.00	0.0	92	2573	3.4	106	39	545	1.14			2.35	34.423	6.6	7.56	1.08		
DSW40"	1/2/91		3.1	96	42	591	0.04	0.6	89	2486	3.2	98	44	618				2.33	34.424	7.0	7.56	0.97		
DSW40"	1/7/91																	2.33		7.7	7.60	0.94		
DSW40"	1/11/91		3.1	96	45	631	0.13	1.8	87	2440	3.3	102	46	643	0.68				34.402					
DSW40"	1/14/91														0.63			2.33	34.414	7.5	7.56	0.88		
DSW40"	1/24/91		2.9	90	42	595	0.03	0.4	79	2208	3.0	93	45	626	0.61			2.32	34.384	7.6	7.58	0.83		
DSW40"	1/28/91		3.3	101	43	602	0.13	1.8	85	2379	3.3	102	44	622	0.62			2.27	34.427	7.4	7.57	0.96		
DSW40"	2/4/91		3.1	97	42	595	0.14	2.0	79	2213	3.2	100	45	628	1.33			2.26	34.389	7.8	7.55	0.87		
DSW40"	2/11/91		3.2	99	44	613	0.14	2.0	87	2429	3.3	102	47	651	1.39			2.27	34.448	7.8	7.59	1.01		
DSW40"	2/19/91		3.0	94	43	598	0.16	2.2	88	2466	3.1	97	45	623	1.27			2.26	34.407	8.1	7.56	0.88		
DSW40"	2/25/91		2.3	71	32	454	0.02	0.3	105	2943	3.5	108	49	689	1.01			2.26	34.403	7.9	7.59	0.86		
DSW40"	3/4/91		2.6	81	36	497	0.05	0.7	93	2615	3.2	98	45	632	1.08			2.25	34.385	8.4	7.56	0.89		
DSW40"	3/11/91		2.5	77	34	482	0.02	0.3	99	2778	3.4	106	49	681	1.16			2.26	34.371	8.0	7.54	0.89		
DSW40"	3/18/91		2.3	72	34	469	0.00	0.0	104	2912	3.5	107	49	686	1.02			2.24	34.408	7.6	7.51	0.96		
DSW40"	3/27/91		2.3	70	32	445	0.05	0.7	114	3196	3.2	100	46	649	1.00			2.25	34.432	7.8	8.54	1.03		
DSW40"	4/1/91		3.2	99	42	587	0.00	0.0	90	2525	3.3	101	44	619	0.76			2.24	34.350	8.0		0.96		
DSW40"	4/8/91		3.3	101	43	598	0.00	0.0	89	2505	3.3	103	46	642	0.63			2.37	34.416	8.0	7.55	0.99		
DSW40"	4/15/91		3.0	92	41	580	0.13	1.8	78	2193	3.1	97	43	598	0.65			2.37	34.412	8.5	7.53	1.02		
DSW40"	4/23/91		3.2	99	34	475	0.00	0.0	87	2449	3.3	102	36	500	0.71			2.37	34.412	7.9	7.51	1.07		
DSW40"	4/29/91		3.2	98	43	605	0.05	0.7	85	2379	3.2	100	45	626	0.71			2.37	34.396	8.3	7.55	1.02		
DSW40"	5/6/91		3.0	93	42	587	0.11	1.5	86	2413	3.1	96	44	612	0.67			2.37	34.400	8.4	7.54	1.07		
DSW40"	5/13/91		3.0	94	42	588	0.16	2.2	87	2455	3.1	97	44	620	0.69			2.37	34.416	8.3	7.52	1.07		
DSW40"	5/20/91		3.2	98	46	644	0.11	1.5	90	2536	3.2	100	49	691	0.74			2.38	34.411	7.5	7.51	0.98		
DSW40"	5/28/91		3.2	98	45	625	0.31	4.3			3.2	99	46	646	0.71			2.37	34.403	7.7	7.50	1.03		
DSW40"	6/4/91		3.0	94	42	592	0.00	0.0	87	2429	3.1	97	44	622	0.70			2.37	34.389	8.7	7.58	1.07		
DSW40"	6/10/91		3.2	98	37	522	0.24	3.4	87	2429	3.4	104	38	534	0.70			2.37	34.401	8.4	7.55	1.02		
DSW40"	6/17/91		3.2	99	42	588	0.12	1.7	85	2382	3.4	106	44	609	0.80			2.37	34.369	8.9	7.60	1.03		
DSW40"	6/24/91		3.3	102	43	601	0.22	3.1	85	2382	3.5	108	47	651	0.66			2.38	34.412	8.2	7.57	0.67		

NELHA Water Quality Laboratory

DSW 40"

Intake Depth: 674 m, Offshore Pipe Length: 1,916 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW40"	7/1/91		3.3	102	40	566	0.21	2.9	88	2472	3.5	109	46	642	0.65			2.38	34.392	8.7	7.57	0.66		
DSW40"	7/9/91		3.2	99	42	588	0.15	2.1	88	2477	3.5	108	45	626	0.69			2.39	34.404	7.8	7.56	1.06		
DSW40"	7/16/91		3.4	104	42	592	0.07	1.0	84	2354	3.5	108	45	625	0.63			2.38	34.367	8.7	7.56	1.06		
DSW40"	7/22/91		3.3	103	42	594	0.12	1.7	87	2446	3.7	116	45	630	0.55			2.39	34.409	8.2	7.57	1.05		
DSW40"	7/26/91		3.4	104	43	604	0.15	2.1	88	2457	3.4	106	45	630	0.68			2.38	34.371	7.9	7.55	1.02		
DSW40"	8/5/91		3.3	102	43	604	0.18	2.5	85	2382	3.3	103	46	647	0.55			2.38	34.369	8.8	7.49	1.02		
DSW40"	8/15/91		3.3	101	43	597	0.23	3.2	88	2460	3.4	104	44	615	0.65			2.39	34.391	8.2	7.54	1.05		
DSW40"	8/21/91		3.2	99	44	609	0.24	3.4	90	2525	3.6	112	46	637	0.58			2.40	34.453	7.7	7.56	1.13		
DSW40"	8/27/91		3.2	98	43	605	0.15	2.1	88	2474	3.3	101	44	611	0.80			2.39	34.399	8.1	7.56	1.02		
DSW40"	9/6/91		3.1	96	45	625	0.25	3.5	80	2252	3.2	98	48	667	0.69			2.39	34.404	7.7	7.57	1.08		
DSW40"	9/13/91		3.1	95	42	587	0.18	2.5	87	2446	3.1	96	43	601	0.69			2.38	34.380	7.9	7.56	1.08		
DSW40"	9/18/91		3.4	104	43	599	0.25	3.5	91	2542	3.5	107	44	616	0.59			2.39	34.436	7.5	7.59	1.09		
DSW40"	9/25/91		3.1	96	42	592	0.15	2.1	92	2581	3.2	98	46	650	0.61			2.40	34.436	8.2	7.53	1.14		
DSW40"	10/1/91		2.7	85	43	602	0.00	0.0	90	2539	3.0	93	44	622	0.69			2.40	34.428	8.5	7.55	1.14		
DSW40"	10/9/91		2.9	90	42	591	0.00	0.0	91	2542	3.0	92	45	626	0.60			2.39	34.421	8.1	7.53	1.88		
DSW40"	10/25/91		3.4	105	42	587	0.00	0.0	90	2519	3.4	106	44	619	1.04			2.41	34.427	7.7	7.57	1.13		
DSW40"	11/4/91		3.1	97	42	594	0.00	0.0	87	2443	3.3	101	45	625	0.99			2.39	34.395	8.5	7.56	1.09		
DSW40"	11/8/91		3.1	94	41	580	0.00	0.0	87	2449	3.2	99	43	605	1.04			2.39	34.374	8.4	7.57	1.10		
DSW40"	11/14/91		3.1	94	42	588	0.00	0.0	86	2421	3.2	99	44	613	0.69			2.39	34.387	8.2	7.55	1.07		
DSW40"	11/22/91		3.1	94	42	583	0.12	1.7	84	2356	3.2	98	43	602	0.63			2.38	34.372	7.2	7.55	1.00		
DSW40"	11/29/91		3.0	94	43	597	0.25	3.5	86	2413	3.2	99	44	611	0.68			2.35	34.374	7.1	7.55	1.05		
DSW40"	12/6/91		3.1	97	42	583	0.10	1.4	83	2340	3.3	102	43	597	0.64			2.37	34.379	7.3	7.55	1.07		
DSW40"	12/12/91		3.0	93	41	580	0.13	1.8	86	2404	3.2	98	44	612	0.64			2.38	34.377	7.9	7.56	1.04		
DSW40"	12/19/91		3.1	97	42	594	0.15	2.1	85	2393	3.2	100	45	626	0.86			2.38	34.392	7.3	7.55	1.03		
DSW40"	12/23/91		3.2	100	41	577	0.00	0.0	87	2446	3.3	101	43	606	0.65			2.38	34.387	7.4	7.54	1.00		
DSW40"	1/3/92		3.2	100	42	588	0.00	0.0	83	2331	3.3	103	45	632	1.46			2.35	34.400	7.6	7.55	0.89		
DSW40"	1/10/92		3.1	96	41	580	0.14	2.0	84	2351	3.2	98	44	613	0.74			2.36	34.385	7.9	7.56	0.91		
DSW40"	1/16/92		3.2	98	42	590	0.11	1.5	91	2542	3.2	100	44	622	0.69			2.36	34.440	7.1	7.57	1.01		
DSW40"	1/22/92		3.2	98	43	597	0.06	0.8	84	2368	3.3	101	45	623	0.93			2.35	34.385	7.0	7.59	0.91		
DSW40"	1/30/92		3.2	100	43	597	0.13	1.8	84	2348	3.3	102	44	620	0.77			2.36	34.408	7.9	7.56	0.96		
DSW40"	2/6/92		3.2	98	42	590	0.30	4.2	84	2362	3.2	99	44	620	0.79			2.35	34.397	7.3	7.58	0.95		
DSW40"	2/14/92		3.1	97	42	583	0.20	2.8	88	2457	3.2	100	44	615	0.82			2.35	34.411	7.5	7.56	0.89		
DSW40"	2/20/92		3.1	96	44	615	0.08	1.1	85	2390	3.2	98	45	635	0.76			2.35	34.413	8.0	7.57	0.93		
DSW40"	2/27/92		3.1	96	42	581	0.10	1.4	83	2320	3.2	100	43	606	0.77			2.35	34.412	7.5	7.56	0.91		
DSW40"	3/5/92		3.1	95	43	605	0.30	4.2	83	2334	3.1	97	46	637	0.82			2.37	34.404	7.7	7.57	0.97		
DSW40"	3/12/92		3.2	98	42	587	0.00	0.0	82	2289	3.2	100	43	602	0.99			2.35	34.395	8.4	7.55	0.96		
DSW40"	3/20/92		3.2	98	43	601	0.04	0.6	79	2219	3.7	114	49	682	0.68			2.36	34.399	7.4	7.53	0.89		
DSW40"	3/25/92		3.2	98	42	591	0.00	0.0	84	2345	3.3	102	49	681	0.81			2.36	34.420	7.8	7.57	0.95		
DSW40"	4/2/92		3.3	101	42	590	0.00	0.0	84	2351	3.4	104	47	653	1.14			2.36	34.408	8.2	7.58	0.98		
DSW40"	4/9/92		3.3	103	42	591	0.43	6.0	83	2320	3.4	105	44	617	1.03			2.35	34.401	8.0	7.57	0.96		
DSW40"	4/21/92		3.3	101	42	581	0.47	6.6	82	2300	3.6	112	45	627	1.00			2.35	34.384	8.0	7.55	0.97		
DSW40"	4/24/92		3.1	96	41	573	0.24	3.4	80	2247	3.4	106	44	620	0.86			2.35	34.390	7.9	7.55	0.94		
DSW40"	5/1/92		3.2	99	41	577	0.23	3.2	82	2314	3.4	105	50	702	0.86			2.36	34.368	7.8	7.55	0.96		
DSW40"	5/7/92		3.3	101	43	606	0.30	4.2	84	2355	3.5	109	47	658	1.06			2.34	34.412	7.8	7.56	0.98		
DSW40"	5/15/92		3.1	96	43	597	0.27	3.8	86	2423	3.3	101	45	636	1.32			2.36	34.402	8.2	7.54	0.98		
DSW40"	5/21/92		3.0	93	41	576	0.32	4.5	83	2337	3.1	97	43	602	1.27			2.36	34.380	8.5	7.52	0.95		
DSW40"	5/29/92		2.9	91	42	581	0.23	3.2	83	2323	3.1	95	44	616	1.16			2.37	34.393	7.7	7.54	0.89		
DSW40"	6/4/92		3.1	97	41	573	0.00	0.0	83	2325	3.2	99	45	626	1.29			2.36	34.382	7.8	7.55	0.96		
DSW40"	6/9/92		3.0	93	45	635	0.33	4.6	84	2345	3.2	98	49	685	0.66			2.36	34.393	7.5	7.53	0.95		
DSW40"	6/19/92		3.0	92	42	590	0.25	3.5	83	2342	3.1	96	53	748	0.85			2.37	34.398	7.4	7.54	0.97		
DSW40"	6/25/92		3.0	92	42	587	0.31	4.3	85	2373	3.0	94	45	626	0.74			2.38	34.427	7.4	7.54	0.99		

NELHA Water Quality Laboratory

DSW 40"

Intake Depth: 674 m, Offshore Pipe Length: 1,916 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW40"	7/2/92		3.0	93	41	580	0.26	3.6	81	2266	3.1	95	43	608	0.70			2.38	34.386	7.5	7.55	0.97		
DSW40"	7/9/92		3.0	92	42	581	0.80	11.2	80	2247	3.1	96	43	606	0.70			2.37	34.392	8.0	7.54	1.01		
DSW40"	7/16/92		3.0	93	41	574	0.15	2.1	82	2303	3.0	94	42	581	0.77			2.37	34.385	7.8	7.55	0.95		
DSW40"	7/23/92		3.0	94	42	583	0.20	2.8	83	2331	3.1	97	44	619	0.97			2.37	34.399	8.1	7.55	0.99		
DSW40"	7/31/92		3.1	94	43	595	0.00	0.0	86	2412	3.2	98	45	626	0.86			2.37	34.402	7.9	7.50	1.04		
DSW40"	8/6/92		3.2	98	42	590	0.38	5.3	85	2396	3.3	101	44	620	0.79			2.38	34.405	7.8	7.56	1.06		
DSW40"	8/14/92		3.1	95	42	587	0.54	7.6	86	2409	3.3	101	45	632	0.68			2.38	34.410	7.2	7.56	1.09		
DSW40"	8/20/92		3.1	96	41	579	0.00	0.0	82	2300	3.2	99	47	664	0.82			2.37	34.373	7.6	7.56	1.05		
DSW40"	8/27/92		3.1	96	41	579	0.29	4.1	83	2337	3.2	98	45	626	0.75			2.38	34.412	7.5	7.55	1.12		
DSW40"	9/3/92		3.2	98	41	578	0.17	2.4	87	2443	3.3	101	46	649	0.68			2.37	34.391	7.5	7.56	1.09		
DSW40"	9/10/92		3.2	98	42	588	0.09	1.3	86	2407	3.3	103	44	612	0.96			2.38	34.429	7.6	7.55	1.13		
DSW40"	9/17/92		3.2	98	41	571	0.48	6.7	79	2226	3.3	102	49	681	0.68			2.37	34.362	7.4	7.55	1.06		
DSW40"	9/25/92		3.1	97	42	589	0.08	1.1	87	2455	3.2	99	48	668	0.68			2.37	34.396	7.8	7.55	1.11		
DSW40"	10/1/92		3.1	95	42	583	0.00	0.0	83	2342	3.2	99	46	640	0.69			2.38	34.400	7.9	7.57	1.06		
DSW40"	10/8/92		3.1	97	42	591	0.00	0.0	87	2432	3.2	99	46	647	0.62			2.38	34.409	7.8	7.57	1.04		
DSW40"	10/16/92		3.2	98	42	587	0.11	1.5	85	2384	3.2	100	47	658	0.73			2.38	34.399	7.8	7.56	1.10		
DSW40"	10/22/92		3.0	94	40	558	0.37	5.2	80	2253	3.2	98	45	633	1.01			2.36	34.330	8.6	7.56	1.23		
DSW40"	10/29/92		3.1	96	42	581	0.23	3.2	81	2286	3.3	102	44	616	0.75			2.37	34.359	8.0	7.56	1.12		
DSW40"	11/5/92		3.1	97	42	584	0.50	7.0	90	2518	3.3	102	46	643	0.72			2.39	34.388	7.2	7.57	1.08		
DSW40"	11/12/92		3.1	96	40	559	0.42	5.9	85	2396	3.2	100	45	634	0.90			2.38	34.347	8.0	7.57	1.12		
DSW40"	11/19/92		3.1	97	42	590	0.46	6.4	90	2530	3.4	105	45	624	0.73			2.38	34.372	7.7	7.55	1.07		
DSW40"	11/25/92		3.1	96	42	594	0.19	2.7	87	2436	3.4	104	44	618	0.75			2.37	34.346	7.3	7.56	1.06		
DSW40"	12/3/92		2.9	89	38	531	0.33	4.7	72	2011	3.3	101	41	568	0.84			2.37	34.247	7.5	7.56	1.07		
DSW40"	12/10/92		3.0	94	42	586	0.36	5.0	87	2442	3.3	102	44	623	0.79			2.37	34.351	8.1	7.56	1.16		
DSW40"	12/17/92		3.1	95	42	593	0.43	6.0	90	2534	3.3	102	45	626	0.75			2.38	34.386	7.7	7.55	1.11		
DSW40"	12/23/92		3.1	95	42	587	0.39	5.5	87	2431	3.5	108	44	615	0.73			2.38	34.376	7.6	7.58	1.16		
DSW40"	12/30/92		3.1	96	42	589	0.39	5.5	84	2363	3.3	103	45	632	0.80			2.37	34.356	7.7	7.58	1.11		
DSW40"	1/7/93		2.7	84	40	556	0.24	3.4	79	2225	2.9	88	42	590	0.86			2.35	34.369	10.6	7.65	2.07		
DSW40"	1/14/93		3.1	96	42	582	0.48	6.7	83	2318	3.2	98	45	626	0.77			2.36	34.376	7.3	7.55	1.14		
DSW40"	1/21/93		3.1	95	41	577	0.44	6.2	82	2311	3.1	95	45	629	0.80			2.35	34.362	7.9	7.58	1.19		
DSW40"	1/28/93		3.1	95	42	588	0.42	5.9	84	2354	3.1	96	50	698	0.85			2.36	34.383	7.2	7.57	1.11		
DSW40"	2/3/93		3.1	95	43	597	0.27	3.8	84	2347	3.1	96	44	619	0.57			2.36	34.378	7.6	7.57	1.14		
DSW40"	2/11/93		3.1	96	42	587	0.10	1.4	83	2321	3.2	99	43	606	0.58			2.36	34.401	7.7	7.58	1.18		
DSW40"	2/16/93		3.1	96	42	595	0.13	1.8	85	2384	3.3	101	44	621	0.64			2.36	34.427	7.8	7.59	1.16		
DSW40"	2/25/93		3.1	94	42	584	0.06	0.8	82	2301	3.1	95	44	610	0.67			2.36	34.396	7.6	7.59	1.11		
DSW40"	3/3/93		3.0	94	42	587	0.16	2.2	84	2366	3.1	94	45	632	0.69			2.36	34.412	7.7	7.60	1.13		
DSW40"	3/11/93		2.7	83	38	535	0.16	2.2	68	1897	2.8	86	41	571	0.72			2.33	34.294	10.0	7.63	6.06		
DSW40"	3/18/93		3.1	95	42	588	0.21	2.9	85	2395	3.2	98	45	626	0.70			2.35	34.420	7.0	7.59	1.12		
DSW40"	3/24/93		3.1	95	42	591	0.15	2.1	83	2324	3.1	97	46	642	0.67			2.35	34.409	6.9	7.60	1.12		
DSW40"	4/1/93		3.0	94	41	580	0.14	2.0	82	2289	3.1	95	46	647	0.68			2.36	34.385	7.8	7.59	1.12		
DSW40"	4/7/93		3.1	94	41	574	0.13	1.8	82	2291	3.1	96	47	655	0.59			2.35	34.374	7.7	7.61	1.15		
DSW40"	4/15/93		3.1	95	42	586	0.22	3.1	83	2318	3.2	98	45	632	0.72			2.35	34.376	8.3	7.60	1.24		
DSW40"	4/22/93		3.0	94	41	579	0.27	3.8	76	2147	3.1	96	44	621	0.69			2.35	34.358	8.1	7.58	1.20		
DSW40"	4/29/93		3.0	94	37	523	0.36	5.0	81	2265	3.1	96	45	626	0.66			2.35	34.360	8.3	7.58	1.15		
DSW40"	5/6/93		3.1	95	41	579	0.39	5.5	85	2400	3.1	96	46	639	0.68			2.36	34.382	7.8	7.59	1.17		
DSW40"	5/13/93		3.0	92	41	578	0.41	5.7	80	2255	3.0	94	49	682	0.64			2.36	34.372	8.0	7.59	1.16		
DSW40"	5/18/93		3.1	97	42	585	0.45	6.3	86	2418	3.2	98	44	617	0.70			2.36	34.390	7.7	7.58	1.11		
DSW40"	5/27/93		3.1	95	41	574	0.43	6.0	81	2272	3.2	98	45	635	0.74			2.35	34.348	8.4	7.58	1.17		
DSW40"	6/1/93		3.1	95	41	579	0.42	5.9	86	2402	3.1	97	47	665	0.65			2.36	34.391	7.9	7.58	1.15		
DSW40"	6/8/93		3.0	93	41	574	0.19	2.7	83	2331	3.1	95	43	601	0.66			2.35	34.366	8.2	7.58	1.13		
DSW40"	6/16/93		3.0	94	41	574	0.25	3.5	79	2228	3.1	95	43	596	0.65			2.35	34.361	8.2	7.58	1.15		
DSW40"	6/24/93		2.9	89	39	550	0.21	2.9	72	2032	2.9	91	41	577	0.65			2.34	34.300	9.9	7.59	1.26		
DSW40"	6/30/93		3.0	91	40	560	0.31	4.3	75	2111	3.1	94	44	620	0.69			2.34	34.317	9.8	7.57	1.21		

NELHA Water Quality Laboratory

DSW 40"

Intake Depth: 674 m, Offshore Pipe Length: 1,916 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW40"	7/6/93		3.1	95	42	583	0.25	3.5	81	2261	3.1	96	46	643	0.65			2.37	34.372	8.4	7.58	1.15		
DSW40"	7/12/93		3.1	96	42	582	0.37	5.2	82	2303	3.1	97	46	646	0.71			2.37	34.380	8.3	7.58	1.13		
DSW40"	7/19/93		3.0	94	41	577	0.14	2.0	81	2270	3.1	96	44	615	0.65			2.37	34.362	8.4	7.60	1.16		
DSW40"	7/30/93		2.9	91	39	549	0.19	2.7	72	2008	3.0	94	42	582	0.70			2.36	34.305	9.6	7.57	1.23		
DSW40"	8/4/93		3.0	93	41	579	0.21	2.9	82	2297	3.1	95	43	607	0.71			2.39	34.388	8.8	7.56	1.13		
DSW40"	8/10/93		2.9	90	42	588	0.18	2.5	84	2361	3.1	97	44	611	0.71			2.40	34.410	8.1	7.56	1.12		
DSW40"	8/18/93		3.0	94	41	573	0.31	4.3	71	2002	3.1	95	42	595	0.70			2.39	34.376	8.6	7.56	1.06		
DSW40"	8/25/93		3.1	95	42	581	0.19	2.7	83	2318	3.1	96	47	654	0.72			2.39	34.395	9.1	7.58	1.16		
DSW40"	9/2/93		3.1	94	41	574	0.28	3.9	79	2231	3.2	99	49	689	0.68			2.39	34.380	8.5	7.57	1.07		
DSW40"	9/9/93		3.0	94	41	573	0.28	3.9	77	2151	3.2	99	53	737	0.70			2.38	34.379	8.7	7.56	1.15		
DSW40"	9/14/93		3.0	94	41	571	0.16	2.2	77	2157	3.1	97	54	762	0.71			2.37	34.363	9.0	7.58	1.15		
DSW40"	9/21/93		3.1	96	41	575	0.22	3.1	82	2313	3.2	98	45	625	0.69			2.38	34.401	8.6	7.56	1.15		
DSW40"	9/28/93		3.0	94	41	574	0.13	1.8	78	2199	3.0	94	44	612	0.67			2.38	34.389	8.8	7.56	1.13		
DSW40"	10/7/93		3.0	93	42	582	0.17	2.4	73	2056	3.0	93	45	630	0.63			2.33	34.411	8.8	7.56	1.15		
DSW40"	10/12/93		3.1	95	41	578	0.15	2.1	81	2286	3.0	94	46	648	0.58			2.32	34.403	8.4	7.57	1.15		
DSW40"	10/19/93		3.0	94	41	580	0.11	1.5	81	2287	3.1	95	46	638	0.59			2.33	34.414	8.0	7.58	1.14		
DSW40"	10/28/93		3.0	94	41	571	0.25	3.5	78	2186	3.1	95	43	607	0.63			2.32	34.372	8.0	7.57	1.14		
DSW40"	11/2/93		3.1	96	41	578	0.15	2.1	82	2313	3.2	98	44	617	0.62			2.33	34.403	8.3	7.57	1.13		
DSW40"	11/9/93		2.9	90	40	567	0.37	5.2	80	2240	3.1	96	45	627	0.65			2.32	34.367	9.0	7.58	1.11		
DSW40"	11/16/93		3.1	94	42	581	0.11	1.5	83	2321	3.1	96	45	630	0.64			2.33	34.403	8.3	7.58	1.12		
DSW40"	11/23/93		3.0	94	40	567	0.18	2.5	80	2247	3.1	96	44	620	0.67			2.32	34.388	15.3	7.56	1.03		
DSW40"	12/1/93		3.0	94	41	576	0.09	1.3	81	2280	3.1	95	44	615	0.63			2.33	34.394	8.2	7.58	1.14		
DSW40"	12/9/93		3.1	97	41	574	0.02	0.3	80	2258	3.3	101	44	619	0.76			2.32	34.386	8.2	7.58	1.09		
DSW40"	12/14/93		3.1	95	40	566	0.01	0.1	78	2196	3.2	98	44	609	0.75			2.31	34.377	8.8	7.59	1.11		
DSW40"	12/20/93		3.0	93	41	572	0.16	2.2	83	2341	3.1	96	44	621	0.65			2.33	34.398	8.7	7.58	1.21		
DSW40"	12/28/93		3.1	94	41	577	0.33	4.6	84	2356	3.1	96	46	645	0.70			2.33	34.401	7.1	7.59	1.17		
DSW40"	1/6/94		3.1	96	41	579	0.35	4.9	84	2365	3.1	97	44	623	0.81			2.37	34.399	8.4	7.58	1.21		
DSW40"	1/12/94		3.1	97	41	579	0.14	2.0	85	2388	3.0	94	44	622	0.79			2.37	34.399	8.5	7.59	1.25		
DSW40"	1/18/94		3.1	95	11	150	0.05	0.7	81	2264	3.1	97	44	619	0.85			2.37	34.370	7.8	7.59	1.17		
DSW40"	1/26/94		3.0	92	41	575	0.04	0.6	83	2345	3.1	97	46	641	0.74			2.37	34.396	7.5	7.58	1.16		
DSW40"	2/2/94		3.1	95	41	575	0.12	1.7	86	2415	3.1	95	48	672	0.65			2.37	34.400	7.9	7.60	1.22		
DSW40"	2/9/94		3.1	95	42	585	0.28	3.9	86	2403	3.1	96	47	665	0.69			2.37	34.391	8.9	7.60	1.19		
DSW40"	2/15/94		3.1	97	41	576	0.17	2.4	86	2407	3.2	98	51	717	0.64			2.37	34.392	7.6	7.58	1.20		
DSW40"	2/24/94		3.1	94	40	556	0.14	2.0	81	2284	3.1	95	48	665	0.69			2.36	34.353	8.7	7.59	1.24		
DSW40"	3/2/94		3.0	94	41	578	0.08	1.1	80	2249	3.1	97	49	686	0.86			2.37	34.382	7.8	7.59	1.20		
DSW40"	3/9/94		3.1	96	41	568	0.25	3.5	87	2452	3.1	97	45	625	0.78			2.37	34.409	8.9	7.60	1.26		
DSW40"	3/17/94		3.0	94	40	565	0.10	1.4	81	2265	3.1	97	44	617	0.56			2.36	34.350	8.2	7.57	1.20		
DSW40"	3/22/94		3.0	94	41	575	0.02	0.3	84	2372	3.1	95	46	641	0.59			2.37	34.393	7.9	7.58	1.11		
DSW40"	3/29/94		3.0	94	41	569	0.05	0.7	79	2225	3.0	94	45	624	0.58			2.36	34.343	8.5	7.96	1.20		
DSW40"	4/5/94		3.1	95	41	578	0.09	1.3	88	2459	3.2	98	46	638	0.60			2.37	34.405	8.0	7.58	1.22		
DSW40"	4/14/94		3.1	96	41	577	0.10	1.4	86	2407	3.2	99	45	629	0.70			2.37	34.411	7.9	7.59	1.14		
DSW40"	5/12/94		3.1	97	42	582	0.02	0.3	85	2388	3.2	99	45	624	0.73			2.37	34.405	8.4	7.59	1.13		
DSW40"	5/17/94		3.0	94	41	575	0.06	0.8	86	2425	3.1	96	43	608	0.65			2.37	34.406	8.6	7.59	1.17		
DSW40"	5/25/94		3.1	95	41	570	0.09	1.3	82	2293	3.1	95	47	655	0.64			2.36	34.361	8.2	7.57	1.17		
DSW40"	6/1/94		3.1	95	41	579	0.04	0.6	86	2414	3.1	97	51	714	0.58			2.37	34.403	8.5	7.58	1.15		
DSW40"	6/7/94		3.0	93	40	554	0.06	0.8	77	2149	3.0	93	43	604	0.63			2.35	34.343	9.7	7.60	1.30		
DSW40"	6/16/94		3.0	93	41	572	0.01	0.1	84	2364	3.1	95	51	710	0.60			2.37	34.385	9.1	7.58	1.10		
DSW40"	6/23/94		3.0	94	41	579	0.15	2.1	86	2409	3.1	95	44	620	0.65			2.37	34.388	9.0	7.56	1.26		
DSW40"	6/29/94		3.0	94	41	572	0.22	3.1	87	2440	3.1	95	44	622	0.67			2.36	34.374	9.2	7.56	1.24		

NELHA Water Quality Laboratory

DSW 40"

Intake Depth: 674 m, Offshore Pipe Length: 1,916 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW40"	7/5/94		3.1	94	41	573	0.10	1.4	80	2249	3.1	95	44	623	0.65			2.36	34.361	9.7	7.56	1.29		
DSW40"	7/12/94		3.0	94	41	569	0.20	2.8	85	2400	3.1	97	44	615	0.61			2.36	34.364	9.9	7.58	1.25		
DSW40"	7/19/94		3.1	95	41	580	0.20	2.8	89	2505	3.1	97	47	654	0.65			2.38	34.406	9.1	7.57	1.24		
DSW40"	7/27/94		3.0	94	40	556	0.20	2.8	84	2370	3.2	98	45	625	0.64			2.37	34.384	8.5	7.55	1.17		
DSW40"	8/1/94		3.1	95	42	582	0.02	0.3	86	2406	3.1	96	44	618	0.62			2.37	34.398	8.4	7.57	1.19		
DSW40"	8/10/94		3.1	94	41	574	0.21	2.9	84	2356	3.1	95	45	624	0.70			2.37	34.383	7.8	7.57	1.16		
DSW40"	8/16/94		3.0	94	41	574	0.07	1.0	85	2395	3.1	95	45	626	0.65			2.37	34.390	8.7	7.56	1.21		
DSW40"	8/25/94		3.0	93	40	566	0.00	0.0	87	2447	3.2	99	48	671	0.69			2.37	34.364	8.5	7.57	1.22		
DSW40"	8/30/94		3.1	95	41	579	0.09	1.3	87	2445	3.1	95	45	626	0.69			2.37	34.375	8.5	7.57	1.22		
DSW40"	9/7/94		3.1	96	42	582	0.20	2.8	89	2491	3.2	100	46	640	0.65			2.37	34.386	8.7	7.57	1.14		
DSW40"	9/12/94		3.1	95	41	580	0.17	2.4	89	2491	3.2	98	47	652	0.65			2.38	34.423	8.8	7.57	1.20		
DSW40"	9/20/94		3.1	95	41	574	0.04	0.6	85	2401	3.1	96	48	670	0.68			2.37	34.371	9.9	7.58	1.14		
DSW40"	9/26/94		3.1	97	40	566	0.01	0.1	85	2399	3.2	99	53	737	0.68	0.04		2.37	34.363	9.2	7.56	1.15		
DSW40"	10/3/94		3.1	96	41	570	0.07	1.0	87	2447	3.1	95	44	620	0.61	0.01		2.36	34.392	8.6	7.58	1.22		
DSW40"	10/11/94		3.1	96	41	576	0.14	2.0	87	2454	3.2	98	36	498	0.53	0.00		2.36	34.402	8.9	7.59	1.21		
DSW40"	10/20/94		2.9	91	41	571	0.08	1.1	85	2373	3.0	94	30	415	0.45	0.00		2.36	34.356	9.3	7.58	1.16		
DSW40"	10/27/94		3.0	94	40	557	0.56	7.8	106	2991	3.1	96	45	634	0.65	0.12		2.37	34.390	8.0	7.58	1.16		
DSW40"	11/3/94		3.1	96	40	554	0.56	7.8	81	2273	3.2	98	45	628	0.69	0.09		2.36	34.365	10.2	7.58	1.18		
DSW40"	11/9/94		3.1	96	41	576	0.56	7.8	85	2391	3.1	96	45	626	0.63	0.12		2.37	34.388	11.5	7.59	1.21		
DSW40"	11/17/94		3.1	95	42	582	0.56	7.8	88	2470	3.1	96	45	630	0.79	0.07		2.37	34.394	9.1	7.56	1.16		
DSW40"	11/23/94		3.1	96	41	576	0.56	7.8	84	2372	3.1	97	46	641	0.71	0.00		2.37	34.379	9.6	7.59	1.18		
DSW40"	11/29/94		3.0	94	41	578	0.56	7.8	88	2462	3.1	96	45	633	0.63	0.03		2.38	34.393	9.2	7.57	1.23		
DSW40"	12/7/94		3.1	97	41	573	0.56	7.8	85	2390	3.2	98	45	626	0.66	0.12		2.37	34.367	9.4	7.55	1.16		
DSW40"	12/12/94		3.1	95	41	575	0.30	4.2	86	2414	3.2	98	46	638	0.66	0.05		2.36	34.370	10.1	7.56	1.24		
DSW40"	12/20/94		3.1	97	42	584	0.03	0.4	87	2450	3.4	104	47	657	0.69	0.04		2.36	34.381	7.2	7.59	1.13		
DSW40"	12/27/94		3.2	98	42	588	0.04	0.6	88	2470	3.3	101	46	645	0.64	0.18		2.40	34.400	7.9	7.58	1.19		
DSW40"	1/3/95		3.1	96	42	592	0.01	0.1	87	2449	3.2	98	42	589	0.55	0.04		2.33	34.396	7.5	7.59	1.08		
DSW40"	1/10/95		3.2	98	42	586	0.03	0.4	87	2435	3.2	100	45	630	0.62	0.00		2.34	34.376	7.7	7.58	1.22		
DSW40"	1/19/95		3.1	95	41	580	0.22	3.1	88	2464	3.1	96	45	632	0.59	0.04		2.32	34.382	8.4	7.60	1.23		
DSW40"	1/26/95		3.1	97	42	588	0.01	0.1	88	2473	3.2	98	47	655	0.65	0.19		2.33	34.408	7.4	7.57	1.22		
DSW40"	1/31/95		3.0	93	40	563	0.17	2.4	83	2319	3.0	94	43	607	0.64	0.05		2.32	34.376	8.7	7.60	1.45		
DSW40"	2/10/95		3.2	98	42	583	0.04	0.6	90	2514	3.2	99	47	656	0.70	0.27		2.33	34.419	8.1	7.57	1.20		
DSW40"	2/16/95		3.0	94	42	591	0.20	2.8	84	2348	3.1	96	45	626	0.69	0.00		2.33	34.367	7.4	7.58	1.08		
DSW40"	2/24/95		3.1	97	42	592	0.19	2.7	89	2495	3.2	98	45	632	0.65	0.01		2.33	34.415	7.6	7.58	1.08		
DSW40"	3/1/95		3.1	96	41	575	0.32	4.5	89	2502	3.1	96	46	642	0.73	0.03		2.33	34.368	7.8	7.56	1.07		
DSW40"	3/7/95		3.1	97	41	580	0.35	4.9	84	2366	3.2	98	43	597	0.67	0.02		2.33	34.365	13.5	7.55	1.04		
DSW40"	3/16/95		3.2	98	42	588	0.08	1.1	86	2403	3.2	100	45	631	0.62	0.04		2.33	34.370	14.4	7.57	1.01		
DSW40"	3/23/95		3.2	98	42	581	0.38	5.3	85	2395	3.2	98	43	599	0.59	0.02		2.33	34.364	8.6	7.57	1.04		
DSW40"	3/28/95		3.1	97	41	581	0.26	3.6	88	2470	3.2	98	44	618	0.66	0.00		2.34	34.370	8.6	7.58	1.07		
DSW40"	4/6/95		3.1	96	42	591	0.38	5.3	89	2500	3.2	99	47	661	0.69	0.05		2.35	34.385	8.4	7.55	1.11		
DSW40"	4/13/95		3.0	94	42	582	0.33	4.6	86	2426	3.1	96	47	665	0.68	0.01		2.34	34.374	11.1	7.57	1.20		
DSW40"	4/20/95		3.1	97	42	591	0.19	2.7	87	2444	3.1	97	43	608	0.75	0.07		2.41	34.382	9.8	7.57	1.15		
DSW40"	4/27/95		3.0	94	41	573	0.20	2.8	78	2187	3.1	94	46	648	0.74	0.01		2.40	34.334	10.8	7.57	1.23		
DSW40"	5/4/95		3.1	94	42	594	0.18	2.5	87	2441	3.2	98	47	652	0.73	0.00		2.41	34.380	9.6	7.57	1.16		
DSW40"	5/12/95		3.2	98	42	585	0.26	3.6	87	2443	3.2	99	46	647	0.69	0.22		2.41	34.371	11.1	7.54	1.18		
DSW40"	5/16/95		3.1	96	42	588	0.26	3.6	86	2427	3.2	98	46	641	0.74	0.02		2.40	34.361	11.2	7.53	1.18		
DSW40"	5/25/95		3.2	98	42	592	0.24	3.4	86	2425	3.2	98	45	625	0.73	0.01		2.41	34.393	8.9	7.53	1.19		
DSW40"	6/1/95		3.2	98	42	588	0.21	2.9	84	2369	3.2	98	46	647	0.79	0.02		2.41	34.384	10.2	7.53	1.18		
DSW40"	6/8/95		3.2	98	42	588	0.20	2.8	84	2362	3.2	98	46	642	0.73	0.01		2.41	34.384	8.9	7.56	1.21		
DSW40"	6/15/95		3.1	97	42	586	0.25	3.5	83	2337	3.2	98	45	637	0.76	0.02		2.41	34.379	9.2	7.55	1.23		
DSW40"	6/22/95		3.1	97	42	591	0.35	4.9	88	2481	3.2	98	46	641	0.68	0.12		2.42	34.418	9.7	7.53	1.12		
DSW40"	6/30/95		3.1	95	42	585	0.47	6.6	83	2342	3.1	97	46	638	0.67	0.02		2.42	34.391	9.6	7.56	1.05		

NELHA Water Quality Laboratory

DSW 40"

Intake Depth: 674 m, Offshore Pipe Length: 1,916 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW40"	7/5/95		3.1	96	42	584	0.02	0.3	83	2326	3.2	100	44	617	0.62	0.08		2.42	34.379	9.9	7.57	1.13		
DSW40"	7/12/95		3.0	93	41	569	0.09	1.3	83	2325	3.1	96	44	618	0.58	0.10		2.41	34.363	11.2	7.56	1.14		
DSW40"	7/19/95		3.0	93	41	572	0.01	0.1	84	2366	3.1	95	44	617	0.64	0.15		2.41	34.376	8.4	7.58	1.13		
DSW40"	7/27/95		3.0	94	41	575	0.04	0.6	83	2327	3.1	95	45	628	0.63	0.00		2.43	34.371	8.5	7.56	1.10		
DSW40"	8/2/95		3.1	97	41	575	0.36	5.0	88	2458	3.1	97	45	626	0.55	0.17		2.44	34.402	8.2	7.58	1.08		
DSW40"	8/10/95		3.0	93	41	578	0.31	4.3	85	2397	3.0	94	45	635	0.55	0.07		2.44	34.395	8.3	7.57	1.03		
DSW40"	8/16/95		3.0	93	40	566	0.39	5.5	82	2316	3.1	95	41	581	0.56	0.02		2.45	34.371	7.6	7.56	1.05		
DSW40"	8/24/95		3.0	94	42	585	0.25	3.5	82	2306	3.0	93	45	635	0.56	0.00		2.44	34.387	7.4	7.58	0.99		
DSW40"	8/31/95		3.0	94	42	588	0.20	2.8	85	2380	3.0	94	45	637	0.64	0.17		2.44	34.399	8.2	7.58	1.03		
DSW40"	9/6/95		3.1	95	42	582	0.19	2.7	85	2380	3.1	95	44	618	0.61	0.38		2.44	34.384	8.4	7.57	1.04		
DSW40"	9/14/95		3.0	93	41	572	0.31	4.3	82	2305	3.1	94	45	627	0.58	0.18		2.45	34.377	8.4	7.61	0.98		
DSW40"	9/20/95		3.0	94	41	576	0.12	1.7	82	2303	3.1	95	45	634	0.75	0.13		2.44	34.372	8.0	7.67	0.98		
DSW40"	9/27/95		3.0	93	41	574	0.31	4.3	81	2277	3.1	95	45	624	0.70	1.58		2.44	34.369	8.1	7.58	1.00		
DSW40"	10/5/95		3.0	94	41	575	0.52	7.3	82	2314	3.1	95	45	623	0.65	0.33		2.45	34.392	8.8	7.63	0.96		
DSW40"	10/10/95		3.0	93	41	576	0.41	5.7	84	2359	3.1	95	45	632	0.61	0.15		2.46	34.398	8.4	7.66	0.95		
DSW40"	10/19/95		3.0	94	42	581	0.50	7.0	81	2267	3.1	95	43	602	0.78	0.19		2.42	34.381	8.0	7.60	0.92		
DSW40"	10/25/95		3.0	93	42	584	0.30	4.2	82	2293	3.1	94	45	625	0.69	0.43		2.42	34.394	9.4	7.63	0.92		
DSW40"	11/1/95		3.0	94	42	583	0.39	5.5	83	2340	3.1	96	31	438	0.56	0.30		2.42	34.393	10.2	7.61	0.93		
DSW40"	11/8/95		3.0	94	41	577	0.41	5.7	82	2304	3.1	95	44	621	0.64	0.32		2.41	34.394	9.4	7.72	0.92		
DSW40"	11/16/95		3.0	92	41	580	0.47	6.6	78	2193	3.1	96	45	632	0.66	0.36		2.41	34.410	10.8	7.58	0.98		
DSW40"	11/21/95		3.1	96	41	578	0.48	6.7	83	2342	3.1	97	43	598	0.72	0.32		2.41	34.390	10.2	7.59	0.96		
DSW40"	11/27/95		3.1	96	42	594	0.47	6.6	83	2327	3.1	97	44	620	0.67	0.26		2.43	34.404	11.2	7.58	0.95		
DSW40"	12/5/95		3.0	93	42	581	0.29	4.1	82	2289	3.0	94	42	593	0.64	0.06		2.45	34.384	8.4	7.56	1.01		
DSW40"	12/11/95		3.0	94	44	619	0.36	5.0	87	2430	3.1	95	43	606	0.61	0.03		2.46	34.401	8.3	7.56	0.97		
DSW40"	12/21/95		3.0	94	42	582	0.21	2.9	83	2317	3.1	96	45	625	0.51	0.49		2.45	34.397	8.3	7.49	1.00		
DSW40"	12/27/95		3.0	94	42	581	0.07	1.0	83	2339	3.1	97	44	616	0.64	0.00		2.43	34.397	8.3	7.57	1.03		
DSW40"	1/3/96		3.1	94	42	585	0.12	1.7	84	2366	3.1	96	44	615	0.50	0.04		2.41	34.398	8.2	7.67	0.99		
DSW40"	1/10/96		3.0	94	41	574	0.02	0.3	85	2377	3.1	95	41	569	0.91	0.14		2.40	34.388	8.0	7.58	0.88		
DSW40"	1/17/96		3.0	94	41	573	0.01	0.1	81	2274	3.1	97	43	604	0.71	0.38		2.36	34.364	8.3	7.57	0.93		
DSW40"	1/23/96		3.1	95	41	575	0.11	1.5	84	2349	3.1	96	45	634	0.74	0.35		2.39	34.407	8.1	7.58	0.99		
DSW40"	1/31/96		3.1	95	41	573	0.26	3.6	81	2270	3.1	97	39	547	0.63	0.17		2.37	34.368	8.3	7.59	0.97		
DSW40"	2/7/96		3.0	94	43	603	0.40	5.6	81	2268	3.1	97	44	611	0.86	0.85		2.39	34.364	8.9	7.56	0.96		
DSW40"	2/16/96		3.1	94	42	588	0.33	4.6	81	2287	3.1	96	45	634	1.06	1.20		2.38	34.374	8.7	7.55	1.06		
DSW40"	2/22/96		3.0	94	42	585	0.56	7.8	83	2342	3.1	96	48	668	0.99	1.28		2.40	34.411	8.4	7.54	0.88		
DSW40"	2/28/96		3.1	95	42	582	0.40	5.6	85	2383	3.1	97	44	611	0.72	0.85		2.40	34.408	8.7	7.57	0.89		
DSW40"	3/7/96		3.1	95	42	589	0.34	4.8	85	2400	3.2	98	41	578	0.70	0.42		2.38	34.421	8.5	7.57	1.02		
DSW40"	3/14/96		3.0	92	41	573	0.49	6.9	81	2281	3.1	95	43	606	0.70	0.82		2.37	34.388	9.0	7.59	0.98		
DSW40"	3/21/96		3.0	92	41	572	0.57	8.0	79	2232	3.1	94	33	455	0.64	0.00		2.39	34.383	8.8	7.59	0.95		
DSW40"	3/28/96		3.1	95	41	576	0.30	4.2	81	2275	3.1	96	43	600	0.60	1.10		2.38	34.372	9.0	7.56	0.96		
DSW40"	4/3/96		3.1	94	40	567	0.19	2.7	79	2229	3.1	96	45	628	0.64	1.08		2.37	34.376	8.8	7.55	0.96		
DSW40"	4/10/96		3.1	95	41	578	0.44	6.2	83	2333	3.2	99	45	633	0.59	0.92		2.36	34.396	9.1	7.58	10.74		
DSW40"	4/17/96		3.1	96	41	576	0.22	3.1	86	2416	3.2	99	44	613	0.65	0.98		2.35	34.380	8.7	7.66	9.08		
DSW40"	4/24/96		3.1	97	41	577	0.12	1.7	84	2369	3.2	99	45	636	0.66	1.55		2.41	34.398	8.9	7.54	9.16		
DSW40"	4/30/96		3.2	98	41	574	0.07	1.0	82	2296	3.3	101	46	645	0.79	0.20		2.42	34.410	9.1	7.54	9.45		
DSW40"	5/9/96		3.0	94	42	582	0.08	1.1	73	2055	3.1	97	36	503	0.53	0.95		2.42	34.404	8.9	7.54	9.32		
DSW40"	5/17/96		3.1	95	41	569	0.14	2.0	78	2200	3.2	99	33	461	0.49	1.18		2.43	34.373	10.9	7.56	9.26		
DSW40"	5/22/96		3.0	94	41	568	0.16	2.2	80	2234	3.1	96	45	626	0.62	1.15		2.43	34.403	8.6	7.59	9.68		
DSW40"	5/29/96		3.1	95	42	582	0.25	3.5	88	2461	3.2	98	45	626	0.60	1.53		2.43	34.409	8.6	7.55	10.06		
DSW40"	6/5/96		3.0	94	41	578	0.12	1.7	85	2395	3.2	98	44	622	0.65	1.00		2.43	34.386	9.8	7.55	10.45		
DSW40"	6/10/96		3.0	94	42	590	0.05	0.7	86	2429	3.1	96	44	619	0.60	0.80		2.42	34.395	9.2	7.60	10.68		
DSW40"	6/19/96		3.0	94	41	575	0.25	3.5	83	2321	3.1	96	44	621	0.57	0.70		2.42	34.378	8.7	7.56	1.24		
DSW40"	6/28/96		3.0	94	42	582	0.30	4.2	84	2352	3.2	98	45	634	0.59	1.13		2.42	34.391	8.8	7.54	1.14		

NELHA Water Quality Laboratory

DSW 40"

Intake Depth: 674 m, Offshore Pipe Length: 1,916 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW40"	7/5/96		3.1	96	42	586	0.35	4.9	81	2271	3.2	99	47	654	0.67	0.90		2.42	34.405	8.8	7.55	1.08		
DSW40"	7/10/96		3.1	97	41	579	0.24	3.4	85	2376	3.3	101	45	636	0.63	1.38		2.42	34.394	10.1	7.56	1.08		
DSW40"	7/18/96		3.0	92	42	588	0.25	3.5	86	2411	3.0	94	45	635	0.64	1.28		2.44	34.394	10.1	7.59	1.06		
DSW40"	7/25/96		3.0	94	43	596	0.11	1.5	88	2473	3.1	97	46	645	0.64	1.18		2.31	34.422	8.7	7.57	1.16		
DSW40"	8/2/96		3.1	94	42	591	0.36	5.0	88	2479	3.2	98	46	649	0.57	0.90		2.11	34.405	8.2	7.59	1.19		
DSW40"	8/8/96		3.1	94	43	606	0.72	10.1	88	2481	3.1	97	46	638	0.64	0.85		2.28	34.402	8.4	7.56	1.08		
DSW40"	8/14/96		3.0	93	42	594	0.63	8.8	88	2471	3.1	97	43	605	0.60	1.35		2.17	34.388	8.7	7.56	1.04		
DSW40"	8/19/96		3.1	95	42	591	0.40	5.6	81	2281	3.2	99	46	639	0.58	0.78		2.27	34.413	9.3	7.57	0.90		
DSW40"	8/29/96		3.1	95	43	597	0.36	5.0	85	2397	3.1	96	47	652	0.59	1.28		2.27	34.421	8.6	7.56	0.95		
DSW40"	9/5/96		3.1	96	42	593	0.80	11.2	85	2383	3.1	97	47	658	0.63	0.88		2.27	34.429	8.1	7.54	1.01		
DSW40"	9/12/96		3.1	95	42	586	0.09	1.3	84	2370	3.1	96	38	526	0.70	0.77		2.25	34.411	8.1	7.59	0.93		
DSW40"	9/17/96		3.0	94	42	589	0.02	0.3	86	2411	3.1	97	33	465	0.80	1.00		2.26	34.402	8.3	7.53	0.99		
DSW40"	9/25/96		3.0	94	42	591	0.31	4.3	83	2329	3.1	96	42	584	0.83	0.85		2.22	34.399	8.5	7.54	0.96		
DSW40"	9/30/96		3.1	97	42	583	0.15	2.1	84	2362	3.2	99	41	578	0.83	0.20		2.17	34.380	8.7	7.54	0.92		
DSW40"	10/10/96		3.0	94	42	589	0.47	6.6	85	2400	3.1	96	45	625	0.58	0.87		2.23	34.384	8.9	7.56	1.00		
DSW40"	10/14/96		3.1	96	44	617	0.47	6.6	82	2310	3.2	100	45	631	0.66	0.38		2.28	34.384	9.1	7.57	0.93		
DSW40"	10/24/96		3.0	94	42	588	0.40	5.6	83	2345	3.1	96	45	626	0.70	0.75		2.29	34.387	8.7	7.54	0.96		
DSW40"	10/31/96		3.1	97	42	592	0.23	3.2	84	2345	3.2	100	45	634	0.64	0.85		2.36	34.393	8.2	7.53	0.98		
DSW40"	11/8/96		3.0	94	42	589	0.39	5.5	86	2419	3.1	95	44	619	0.62	0.77		2.36	34.395	7.8	7.51	1.01		
DSW40"	11/13/96		3.1	95	41	578	0.29	4.1	86	2404	3.1	97	45	626	0.70	0.92		2.37	34.394	8.3	7.57	1.02		
DSW40"	11/20/96		3.0	93	41	568	0.35	4.9	82	2309	3.1	96	44	611	0.62	1.25		2.34	34.369	7.7	7.52	1.04		
DSW40"	11/27/96		3.0	94	41	570	0.36	5.0	82	2313	3.1	97	46	642	0.68	0.98		2.36	34.388	8.2	7.55	1.04		
DSW40"	12/4/96		3.1	96	42	585	0.37	5.2	89	2491	3.2	98	45	636	0.70	0.95		2.36	34.404	8.2	7.54	0.99		
DSW40"	12/11/96		3.1	96	41	581	0.54	7.6	81	2278	3.2	98	49	679	0.68	0.87		2.35	34.375	8.5	7.55	1.01		
DSW40"	12/18/96		3.1	94	41	570	0.25	3.5	84	2362	3.2	98	44	614	0.70	0.85		2.36	34.403	8.3	7.56	1.00		
DSW40"	12/23/96		3.0	94	40	566	0.33	4.6	82	2302	3.1	96	43	604	0.90	0.68		2.35	34.376	8.5	7.55	1.50		
DSW40"	1/2/97		3.1	95	42	582	0.25	3.5	84	2351	3.1	97	44	613	0.68	0.85		2.36	34.385	8.2	7.56	0.96		
DSW40"	1/9/97		3.0	94	41	572	0.22	3.1	83	2333	3.2	98	43	606	0.60	0.85		2.36	34.381	6.9	7.56	0.96		
DSW40"	1/16/97		3.3	103	41	578	0.05	0.7	88	2485	3.4	106	45	632	0.67	1.00		2.36	34.412	7.8	7.57	0.97		
DSW40"	1/21/97		3.0	94	41	572	0.01	0.1	84	2352	3.1	96	42	594	0.70	0.63		2.15	34.712	8.7	7.57	1.00		
DSW40"	1/28/97		3.0	93	41	570	0.01	0.1	86	2429	3.0	94	43	598	0.69	0.73		2.16	34.932	8.8	7.56	1.01		
DSW40"	2/7/97		3.0	94	42	591	0.01	0.1	83	2334	3.1	95	45	629	0.65	0.98		2.12	34.376	8.4	7.57	1.05		
DSW40"	2/12/97		3.0	94	42	590	0.11	1.5	91	2543	3.1	96	44	610	0.70	0.92		2.16	34.419	8.0	7.59	1.02		
DSW40"	2/19/97		3.1	95	42	583	0.07	1.0	85	2378	3.1	96	44	620	0.53	0.70		2.11	34.391	8.1	7.59	0.98		
DSW40"	2/25/97		3.0	92	42	589	0.09	1.3	87	2447	3.1	95	46	639	0.62	1.00		2.14	34.412	12.6	7.61	1.00		
DSW40"	3/4/97		3.0	91	42	591	0.05	0.7	86	2420	3.0	93	46	640	0.71	1.13		2.14	34.400	8.3	7.61	0.97		
DSW40"	3/12/97		3.0	92	41	579	0.22	3.1	90	2537	3.1	97	43	609	0.71	0.80		2.15	34.383	8.2	7.57	1.00		
DSW40"	3/20/97		3.1	95	41	575	0.11	1.5	88	2472	3.3	101	43	607	0.52	1.25		2.15	34.390	8.2	7.56	0.96		
DSW40"	3/25/97		3.1	94	42	584	0.06	0.8	85	2390	3.2	99	44	622	0.69	0.87		2.12	34.391	8.1	7.55	1.01		
DSW40"	3/31/97		3.1	95	41	575	0.10	1.4	80	2254	3.2	98	45	627	0.62	0.50		2.12	34.358	8.8	7.56	1.03		
DSW40"	4/7/97		3.0	92	41	570	0.36	5.0	83	2327	3.1	95	42	587	0.69	0.52		2.15	34.372	9.0	7.56	0.93		
DSW40"	4/14/97		3.0	92	42	584	0.19	2.7	82	2308	3.0	94	46	649	0.62	0.75		2.67	34.387	8.8	7.59	0.91		
DSW40"	4/24/97		3.1	96	41	580	0.39	5.5	84	2364	3.7	113	42	588	0.69	0.70		2.62	34.373	8.8	7.58	1.02		
DSW40"	5/2/97		3.0	93	42	582	0.34	4.8	79	2207	3.1	97	43	606	0.67	0.70		2.70	34.392	10.3	7.57	0.91		
DSW40"	5/8/97		3.3	103	41	580	0.25	3.5	81	2263	3.6	110	44	616	0.66	0.78		2.65	34.374	8.6	7.59	0.89		
DSW40"	5/13/97		3.2	99	41	573	0.30	4.2	80	2233	4.1	126	42	595	0.67	0.75		2.46	34.377	9.6	7.59	0.96		
DSW40"	5/19/97		3.2	100	41	578	0.33	4.6	84	2368	3.4	106	43	604	0.65	0.95		2.49	34.399	7.7	7.61	0.97		
DSW40"	5/29/97		3.0	93	41	572	0.22	3.1	86	2422	3.1	97	42	594	0.62	0.80		2.49	34.371	8.1	7.58	1.52		
DSW40"	6/3/97		3.0	93	41	573	0.31	4.3	88	2481	3.1	97	43	604	0.70	0.88		2.56	34.379	7.8	7.61	1.06		
DSW40"	6/10/97		3.0	91	41	576	0.31	4.3	89	2504	3.1	95	42	593	0.67	0.80		2.53	34.347	7.7	7.67	1.03		
DSW40"	6/18/97		3.0	93	42	582	0.41	5.7	89	2486	3.2	98	47	651	0.60	0.50		2.51	34.378	7.7	7.56	1.01		
DSW40"	6/23/97		3.1	94	41	577	0.12	1.7	88	2473	3.2	100	42	587	0.65	0.45		2.65	34.359	7.8	7.60	1.06		

NELHA Water Quality Laboratory

DSW 40"

Intake Depth: 674 m, Offshore Pipe Length: 1,916 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW40"	7/3/97		3.1	96	41	575	0.04	0.6	87	2443	3.3	101	43	595	0.66	0.83		2.63	34.362	8.5	7.62	0.99		
DSW40"	7/9/97		3.1	94	41	578	0.23	3.2	87	2431	3.1	97	43	604	0.63	0.68		2.64	34.401	8.8	7.63	0.97		
DSW40"	7/17/97		3.0	94	41	576	0.07	1.0	88	2473	3.2	98	42	588	0.71	0.58		2.55	34.384	9.1	7.61	0.99		
DSW40"	7/25/97		3.1	96	42	584	0.16	2.2	90	2536	3.3	102	45	634	0.58	0.55		2.66	34.416	7.9	7.68	1.00		
DSW40"	7/31/97		3.1	94	41	576	0.16	2.2	90	2540	3.2	98	43	597	0.69	0.65		2.60	34.399	9.3	7.68	1.00		
DSW40"	8/7/97		3.1	94	40	566	0.14	2.0	83	2331	3.2	98	42	585	0.66	0.75		2.53	34.329	11.9	7.70	1.10		
DSW40"	8/13/97		3.1	94	41	574	0.02	0.3	84	2356	3.2	99	43	608	0.64	0.98		2.49	34.406	11.0	7.71	1.01		
DSW40"	8/22/97		3.0	94	41	571	0.14	2.0	85	2375	3.1	97	43	597	0.62	1.83		2.48	34.382	8.6	7.68	1.00		
DSW40"	8/27/97		3.1	95	41	578	0.26	3.6	89	2491	3.2	100	42	589	0.63	0.63		2.49	34.395	10.7	7.68	1.00		
DSW40"	9/3/97		3.1	96	41	577	0.29	4.1	91	2569	3.3	102	42	589	0.65	1.28		2.49	34.384	10.2	7.71	0.97		
DSW40"	9/11/97		3.1	97	41	577	0.21	2.9	87	2453	3.2	98	43	597	0.69	0.78		2.49	34.397	8.4	7.73	0.97		
DSW40"	9/18/97		3.1	95	41	573	0.10	1.4	85	2391	3.3	101	42	582	0.60	0.58		2.49	34.372	8.7	7.73	0.98		
DSW40"	9/25/97		3.1	97	42	585	0.42	5.9	90	2534	3.3	103	43	596	0.63	0.58		2.49	34.400	11.1	7.73	1.02		
DSW40"	9/30/97		3.0	93	41	568	0.38	5.3	85	2376	3.2	98	42	583	0.62	0.75		2.53	34.357	8.1	7.74	0.98		
DSW40"	10/9/97		3.0	94	40	566	0.31	4.3	83	2345	3.1	97	42	585	0.66	0.25		2.53	34.339	8.2	7.72	1.08		
DSW40"	10/16/97		3.1	96	41	574	0.34	4.8	88	2481	3.2	100	42	590	0.59	0.58		2.54	34.393	7.7	7.74	0.98		
DSW40"	10/23/97		3.0	93	41	574	0.19	2.7	86	2413	3.3	101	46	641	0.62	0.70		2.53	34.380	7.3	7.77	1.13		
DSW40"	10/30/97		3.1	97	41	575	0.20	2.8	89	2500	3.3	102	48	671	0.63	0.35		2.54	34.394	7.4	7.74	1.09		
DSW40"	11/6/97		3.1	95	42	587	0.28	3.9	87	2439	3.2	98	46	646	0.63	0.78		2.53	34.392	7.2	7.73	1.12		
DSW40"	11/10/97		3.2	98	43	596	0.28	3.9	90	2537	3.3	102	46	646	0.64	0.60		2.54	34.420	6.9	7.74	1.15		
DSW40"	11/20/97		3.1	94	42	593	0.33	4.6	89	2509	3.2	100	46	641	0.66	0.20		2.52	34.415	6.6	7.71	1.10		
DSW40"	11/25/97		3.1	95	42	585	0.36	5.0	87	2438	3.1	97	46	644	0.68	0.05		2.52	34.378	7.1	7.70	1.07		
DSW40"	12/1/97		3.2	98	41	581	0.33	4.6	89	2513	3.3	102	45	634	0.66	0.13		2.52	34.394	9.4	7.70	1.09		
DSW40"	12/11/97		3.1	97	40	562	0.09	1.3	90	2535	3.2	99	43	600	0.64	0.65		2.52	34.392	8.4	7.71	1.04		
DSW40"	12/18/97		3.1	96	42	582	0.29	4.1	87	2449	3.3	101	43	602	0.62	0.35		2.51	34.370	8.1	7.70	1.07		
DSW40"	12/24/97		3.1	96	42	592	0.20	2.8	92	2589	3.2	100	43	605	0.64	0.70		2.52	34.415	8.4	7.72	1.10		
DSW40"	12/29/97		3.1	95	41	576	0.23	3.2	84	2354	3.2	98	42	593	0.67	0.23		2.51	34.346	8.5	7.72	1.11		
DSW40"	1/6/98		3.1	95	42	588	0.07	1.0	89	2503	3.2	100	42	594	0.62	0.47		2.52	34.397	8.1	7.70	1.04		
DSW40"	1/14/98		3.1	96	42	583	0.02	0.3	88	2474	3.3	101	43	596	0.63	0.73		2.51	34.388	7.1	7.72	1.02		
DSW40"	1/22/98		3.2	98	41	581	0.02	0.3	88	2463	3.3	103	43	596	0.64	0.50		2.52	34.387	7.9	7.71	1.05		
DSW40"	1/29/98		3.2	98	40	564	0.14	2.0	84	2354	3.3	101	42	590	0.63	0.20		2.28	34.361	8.0	7.72	1.14		
DSW40"	2/5/98		3.2	98	42	582	0.09	1.3	87	2433	3.2	100	42	587	0.61	0.20		2.28	34.381	7.9	7.74	1.07		
DSW40"	2/9/98		3.1	97	41	580	0.13	1.8	85	2401	3.2	100	44	619	0.64	0.05		2.28	34.371	7.7	7.74	1.09		
DSW40"	2/17/98		3.1	95	41	570	0.22	3.1	83	2343	3.2	100	44	620	0.62	0.43		2.28	34.359	8.2	7.75	1.20		
DSW40"	2/23/98		3.2	99	41	576	0.21	2.9	89	2512	3.3	103	44	621	0.57	0.20		2.28	34.388	8.2	7.75	1.21		
DSW40"	3/5/98		3.2	99	42	584	0.12	1.7	86	2401	3.3	102	45	633	0.62	0.10		2.28	34.377	8.3	7.54	1.14		
DSW40"	3/12/98		3.3	101	41	572	0.16	2.2	84	2365	3.4	106	44	623	0.60	0.22		2.27	34.383	8.4	7.53	1.18		
DSW40"	3/19/98		3.1	97	41	570	0.22	3.1	85	2398	3.2	100	44	622	0.55	0.15		2.26	34.377	8.6	7.51	1.16		
DSW40"	3/25/98		3.5	107	42	586	0.30	4.2	91	2561	3.6	112	44	622	0.55	0.15		2.27	34.408	8.5	7.53	1.21		
DSW40"	4/2/98		3.3	102	42	584	0.27	3.8	89	2490	3.4	106	44	617	0.57	0.55		2.34	34.386	9.2	7.53	1.13		
DSW40"	4/9/98		3.3	101	41	581	0.17	2.4	83	2340	3.4	104	44	611	0.57	0.50		2.34	34.365	8.1	7.56	1.07		
DSW40"	4/16/98		3.3	101	42	588	0.09	1.3	91	2563	3.4	106	44	621	0.63	0.23		2.34	34.418	7.2	7.55	1.09		
DSW40"	4/20/98		3.3	102	39	543	0.14	2.0	87	2444	3.4	104	43	608	0.63	0.22		2.33	34.371	7.9	7.54	1.10		
DSW40"	4/30/98		3.3	101	42	587	0.21	2.9	94	2648	3.5	107	44	612	0.56	0.70		2.34	34.373	7.1	7.55	1.12		
DSW40"	5/7/98		3.3	101	41	575	0.16	2.2	88	2476	3.4	106	43	605	0.56	0.27		2.34	34.377	7.1	7.53	1.07		
DSW40"	5/15/98		3.2	99	41	579	0.19	2.7	86	2407	3.4	104	42	594	0.55	0.63		2.33	34.345	8.3	7.55	1.11		
DSW40"	5/21/98		3.2	98	42	583	0.10	1.4	81	2269	3.4	104	44	611	0.60	0.28		2.33	34.370	7.7	7.55	1.11		
DSW40"	5/28/98		3.2	100	41	580	0.04	0.6	86	2426	3.3	102	44	620	0.59	0.20		2.34	34.371	8.0	7.56	1.12		
DSW40"	6/4/98		3.3	103	41	580	0.05	0.7	89	2512	3.4	106	46	642	0.70	0.15		2.34	34.395	8.1	7.55	1.11		
DSW40"	6/9/98		3.2	100	41	580	0.10	1.4	89	2498	3.3	103	44	619	0.57	0.50		2.34	34.387	8.6	7.55	1.13		
DSW40"	6/17/98		3.3	101	42	584	0.06	0.8	89	2494	3.4	106	45	629	0.61	0.48		2.34	34.400	7.8	7.54	1.15		
DSW40"	6/23/98		3.2	100	42	585	0.20	2.8	89	2496	3.4	104	44	614	0.61	0.25		2.34	34.384	8.2	7.53	1.13		

NELHA Water Quality Laboratory

DSW 40"

Intake Depth: 674 m, Offshore Pipe Length: 1,916 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW40"	7/1/98		3.3	101	42	587	0.02	0.3	90	2516	3.4	106	44	617	0.57	0.07		2.42	34.392	8.1	7.54	1.11		
DSW40"	7/9/98		3.2	98	41	580	0.05	0.7	87	2435	3.4	106	44	617	0.57	0.52		2.99	34.372	8.0	7.52	1.06		
DSW40"	7/16/98		3.3	101	42	583	0.21	2.9	88	2457	3.4	104	45	625	0.62	0.17		2.38	34.381	8.1	7.54	1.07		
DSW40"	7/23/98		3.2	99	41	576	0.25	3.5	85	2382	3.3	103	44	621	0.62	0.80		2.40	34.344	8.2	7.54	1.14		
DSW40"	7/29/98		3.3	102	41	570	0.16	2.2	86	2404	3.5	107	45	632	0.70	0.22		2.35	34.363	8.2	7.53	1.12		
DSW40"	8/4/98		3.3	102	42	585	0.04	0.6	93	2598	3.4	106	45	634	0.69	0.65		2.38	34.386	7.3	7.53	1.13		
DSW40"	8/13/98		3.2	98	41	569	0.06	0.8	85	2376	3.3	103	45	625	0.69	0.37		2.38	34.338	7.7	7.52	1.13		
DSW40"	8/19/98		3.1	97	42	581	0.07	1.0	86	2410	3.3	102	45	626	0.69	1.02		2.36	34.351	10.1	7.51	1.17		
DSW40"	8/26/98		3.2	100	41	577	0.07	1.0	86	2427	3.4	105	45	631	0.67	0.45		2.34	34.354	8.2	7.52	1.05		
DSW40"	9/3/98		3.3	103	41	571	0.04	0.6	85	2379	3.5	108	45	626	0.69	0.35		2.34	34.357	8.7	7.52	1.05		
DSW40"	9/10/98		3.2	100	41	578	0.04	0.6	83	2320	3.4	106	46	650	0.77	0.38		2.36	34.339	9.2	7.51	1.01		
DSW40"	9/17/98		3.2	100	41	567	0.07	1.0	86	2404	3.5	108	46	645	0.82	1.53		2.37	34.364	10.8	7.50	1.01		
DSW40"	9/21/98		3.3	102	41	571	0.04	0.6	86	2404	3.5	108	46	637	0.71	1.07		2.39	34.378	9.3	7.53	1.04		
DSW40"	10/1/98		3.2	100	41	581	0.03	0.4	84	2370	3.5	107	46	643	0.65	0.78		2.39	34.370	9.6	7.53	1.22		
DSW40"	10/8/98		3.2	98	41	574	0.08	1.1	89	2497	3.4	104	45	628	0.66	0.02		2.37	34.342	9.0	7.52	1.14		
DSW40"	10/14/98		3.2	98	41	580	0.13	1.8	90	2519	3.4	104	45	634	0.68	0.13		2.36	34.373	9.5	7.52	1.18		
DSW40"	10/21/98		3.2	100	41	567	0.11	1.5	82	2309	3.5	107	45	633	0.69	0.85		2.35	34.355	9.7	7.54	1.15		
DSW40"	10/27/98		3.2	99	41	571	0.06	0.8	87	2438	3.4	104	46	639	0.67	1.20		2.36	34.395	9.1	7.56	1.22		
DSW40"	11/6/98		3.1	97	41	569	0.07	1.0	87	2429	3.3	103	43	606	0.70	0.88		2.29	34.399	9.7	7.54	1.04		
DSW40"	11/9/98		3.2	98	42	591	0.01	0.1	86	2413	3.4	106	43	596	0.81	1.28		2.34	34.401	9.3	7.56	1.17		
DSW40"	11/18/98		3.2	98	42	584	0.08	1.1	87	2434	3.4	104	43	600	0.72	1.25		2.33	34.395	9.6	7.55	1.16		
DSW40"	11/23/98		3.2	99	41	578	0.01	0.1	86	2418	3.3	103	44	610	0.71	1.58		2.27	34.375	9.3	7.55	1.13		
DSW40"	11/30/98		3.2	99	41	580	0.05	0.7	86	2425	3.4	105	43	601	0.72	0.65		2.31	34.381	7.5	7.55	1.15		
DSW40"	12/8/98		3.2	98	41	578	0.01	0.1	85	2400	3.3	103	43	605	0.75	0.80		2.21	34.385	8.2	7.56	1.08		
DSW40"	12/17/98		3.2	98	41	568	0.01	0.1	84	2349	3.3	101	43	598	0.74	0.65		2.20	34.363	10.0	7.54	1.15		
DSW40"	12/21/98		3.1	97	41	573	0.04	0.6	83	2325	3.3	102	44	615	0.83	1.15		2.22	34.361	10.0	7.55	1.21		
DSW40"	12/29/98		3.1	95	41	578	0.11	1.5	91	2563	3.2	99	43	602	0.69	0.65		2.23	34.404	9.4	7.54	1.14		
DSW40"	1/5/99		3.1	96	42	591	0.12	1.7	87	2446	3.3	101	43	608	0.72	0.80		2.24	34.403	9.0	7.54	1.08		
DSW40"	1/14/99		3.0	93	41	581	0.01	0.1	86	2406	3.2	98	44	610	0.74	0.90		2.21	34.369	8.7	7.53	1.19		
DSW40"	1/21/99		3.0	94	42	582	0.03	0.4	86	2428	3.2	98	44	615	0.75	0.85		2.23	34.382	8.4	7.53	1.15		
DSW40"	1/26/99		3.1	94	42	591	0.07	1.0	87	2435	3.2	100	43	605	0.68	0.90		2.24	34.380	7.9	7.55	1.07		
DSW40"	2/4/99		3.1	95	41	573	0.11	1.5	88	2457	3.3	102	44	613	0.73	0.73		2.22	34.385	7.8	7.53	1.16		
DSW40"	2/11/99		3.2	98	42	584	0.10	1.4	91	2551	3.2	99	44	615	0.68	1.15		2.24	34.418	7.6	7.55	1.26		
DSW40"	2/18/99		3.0	94	41	581	0.01	0.1	84	2371	3.2	99	43	600	0.70	0.58		2.20	34.343	8.7	7.55	1.35		
DSW40"	2/23/99		3.1	96	42	587	0.01	0.1	90	2532	3.3	101	44	611	0.69	0.88		2.21	34.415	8.1	7.54	1.19		
DSW40"	3/3/99		3.0	93	42	585	0.09	1.3	85	2388	3.0	94	43	602	0.64	1.05		2.19	34.348	8.2	7.52	1.26		
DSW40"	3/9/99		3.1	96	41	573	0.03	0.4	89	2503	3.3	101	42	591	0.64	0.87		2.21	34.395	8.6	7.55	1.08		
DSW40"	3/18/99		3.0	94	40	566	0.03	0.4	84	2350	3.2	99	43	604	0.65	0.95		2.18	34.327	7.6	7.55	1.12		
DSW40"	3/24/99		3.1	95	41	578	0.16	2.2	86	2424	3.2	100	44	610	0.66	0.75		2.18	34.363	7.3	7.55	1.53		
DSW40"	3/30/99		3.1	97	41	567	0.04	0.6	84	2361	3.2	98	43	603	0.66	0.92		2.18	34.338	8.5	7.54	1.15		
DSW40"	4/7/99		3.0	93	40	554	0.03	0.4	89	2491	3.1	97	44	609	0.64	0.87		2.18	34.364	9.0	7.52	1.08		
DSW40"	4/14/99		3.0	93	40	566	0.03	0.4	89	2506	3.1	97	43	599	0.67	0.70		2.22	34.342	8.4	7.51	1.12		
DSW40"	4/21/99		3.1	96	41	578	0.08	1.1	89	2509	3.3	101	44	613	0.63	0.60		2.20	34.384	10.5	7.54	1.09		
DSW40"	4/29/99		3.1	95	41	572	0.02	0.3	88	2459	3.2	100	43	599	0.65	0.73		2.17	34.366	7.7	7.54	1.14		
DSW40"	5/5/99		3.0	93	41	579	0.35	4.9	89	2500	3.4	104	44	612	0.65	0.75		2.19	34.396	8.9	7.52	1.17		
DSW40"	5/12/99		3.0	94	40	560	0.04	0.6	88	2470	3.2	99	43	597	0.66	0.67		2.17	34.393	8.8	7.51	1.15		
DSW40"	5/20/99		3.1	94	41	575	0.03	0.4	85	2385	3.2	99	44	611	0.67	0.85		2.21	34.384	9.5	7.52	1.00		
DSW40"	5/24/99		3.0	94	42	582	0.01	0.1	85	2386	3.2	100	44	620	0.72	0.77		2.24	34.408	9.5	7.53	0.99		
DSW40"	6/3/99		3.1	96	41	577	0.11	1.5	86	2401	3.3	102	45	626	0.66	0.50		2.22	34.383	9.0	7.51	1.05		
DSW40"	6/9/99		3.1	97	41	576	0.17	2.4	84	2359	3.4	104	43	608	0.64	0.55		2.19	34.378	9.4	7.55	1.07		
DSW40"	6/16/99		3.1	97	40	566	0.05	0.7	85	2376	3.3	102	46	639	0.69	1.03		2.26	34.405	8.8	7.53	1.09		
DSW40"	6/24/99		3.1	96	40	567	0.03	0.4	83	2342	3.3	102	44	617	0.69	0.55		2.18	34.399	7.7	7.53	1.01		
DSW40"	6/29/99		3.1	95	41	577	0.02	0.3	83	2317	3.2	99	44	617	0.69	0.98		2.18	34.398	8.4	7.52	0.92		

NELHA Water Quality Laboratory

DSW 40"

Intake Depth: 674 m, Offshore Pipe Length: 1,916 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW40"	7/8/99		3.1	97	41	576	0.03	0.4	88	2468	3.2	99	44	621	0.67	0.80		2.25	34.414	8.3	7.52	0.93		
DSW40"	7/12/99		3.0	93	41	573	0.07	1.0	81	2288	3.2	98	44	610	0.66	0.78		2.43	34.400	7.4	7.51	0.97		
DSW40"	7/20/99		3.1	95	41	573	0.14	2.0	85	2387	3.2	98	44	611	0.69	0.90		2.46	34.395	10.8	7.52	1.04		
DSW40"	7/27/99		3.1	95	41	571	0.27	3.8	80	2260	3.3	101	42	595	0.65	0.35		2.38	34.385	10.0	7.56	1.07		
DSW40"	8/5/99		3.1	97	43	599	0.24	3.4	81	2269	3.4	105	42	595	0.66	0.43		2.40	34.394	7.8	7.56	1.05		
DSW40"	8/11/99		3.0	94	42	585	0.13	1.8	83	2318	3.2	99	42	590	0.63	0.82		2.23	34.408	8.4	7.74	1.05		
DSW40"	8/18/99		3.1	94	41	567	0.15	2.1	80	2239	3.2	100	42	592	0.63	0.90		2.40	34.404	8.1	7.62	1.10		
DSW40"	8/24/99		3.1	94	42	587	0.02	0.3	83	2342	3.2	98	42	593	0.62	0.20		2.43	34.427	8.6	7.55	1.06		
DSW40"	8/31/99		3.0	93	41	573	0.04	0.6	82	2311	3.1	97	44	612	0.61	1.03		2.33	34.420	10.9	7.63	1.06		
DSW40"	9/8/99		3.1	95	42	587	0.02	0.3	83	2320	3.3	103	43	603	0.61	0.90		2.41	34.404	8.3	7.59	1.06		
DSW40"	9/15/99		3.1	96	40	566	0.04	0.6	80	2236	3.3	102	42	592	0.59	0.52		2.38	34.401	8.1	7.59	1.06		
DSW40"	9/20/99		3.0	94	42	589	0.03	0.4	82	2299	3.3	101	44	613	0.63	1.25		2.24	34.412	10.3	7.61	1.09		
DSW40"	9/30/99		3.0	92	40	563	0.09	1.3	82	2297	3.2	98	45	632	0.61	0.82		2.37	34.382	10.3	7.61	1.06		
DSW40"	10/12/99		2.9	90	41	574	0.17	2.4	79	2231	3.1	95	42	590	0.62	1.05		2.25	34.424	8.1	7.56	1.15		
DSW40"	11/3/99		3.0	93	41	578	0.10	1.4	89	2494	3.2	98	43	603	0.60	0.48		2.26	34.403	8.4	7.58	1.11		
DSW40"	12/15/99		3.0	92	40	557	0.04	0.6	81	2264	3.2	98	41	575	0.68	5.50		2.24	34.358	9.2	7.54	1.15		
DSW40"	1/10/00		3.1	94	43	595	0.15	2.1	89	2486	3.1	95	43	602	0.61	0.63		2.31	34.457	8.8	7.55	1.56		
DSW40"	2/7/00		3.1	96	41	578	0.25	3.5	80	2259	3.3	101	42	588	0.68	0.98		2.31	34.331	8.6	7.57	1.25		
DSW40"	3/1/00		3.2	98	42	587	0.16	2.2	88	2480	3.3	102	42	595	0.63	0.88		2.35	34.403	8.0	7.57	1.20		
DSW40"	4/10/00		3.1	95	41	576	0.06	0.8	86	2425	3.1	95	44	613	0.71	0.80		2.34	34.393	10.3	7.57	1.21		
DSW40"	5/15/00		3.0	94	41	571	0.04	0.6	84	2345	3.2	98	44	614	0.64	1.00		2.28	34.367	7.6	7.59	1.12		
DSW40"	6/6/00		3.1	94	42	585	0.04	0.6	83	2334	3.1	97	44	614	0.68	1.05		2.32	34.334	7.5	7.54	1.00		
DSW40"	7/26/00		3.1	96	42	581	0.03	0.4	91	2545	3.2	100	43	598	0.66	1.20		2.39	34.399	7.7	7.57	1.04		
DSW40"	8/30/00		3.0	94	42	584	0.03	0.4	83	2320	3.2	98	43	595	0.64	0.98		2.32	34.364	8.0	7.54	1.03		
DSW40"	9/6/00		3.1	95	42	585	0.02	0.3	89	2508	3.2	98	43	596	0.64	0.17		2.55	34.411	6.9	7.53	1.03		
DSW40"	10/20/00		3.1	95	42	592	0.06	0.8	82	2295	3.1	97	45	625	0.66	1.03		2.57	34.393	8.9	7.59	1.00		
DSW40"	11/14/00		3.1	96	43	599	0.14	2.0	85	2390	3.3	101	44	622	0.73	0.77		2.22	34.402	10.9	7.55	0.98		
DSW40"	12/20/00		3.1	96	43	605	0.30	4.2	89	2488	3.2	100	45	630	0.78	0.48		2.48	34.409	7.6	7.55	0.96		
DSW40"	1/23/01		2.9	91	40	562	0.02	0.3	84	2364	3.2	98	43	609	0.70	0.85		2.36	34.359	7.6	7.53	0.91		
DSW40"	2/5/01		3.1	94	43	601	0.07	1.0	85	2390	3.2	99	44	612	0.70	0.90		2.39	34.393	6.9	7.53	0.90		
DSW40"	3/5/01		3.0	93	43	600	0.03	0.4	86	2421	3.2	99	43	603	0.70	0.40		2.42	34.365	7.6	7.50	0.86		
DSW40"	4/16/01		3.1	94	42	591	0.01	0.1	85	2379	3.2	98	42	586	0.60	0.55		2.37	34.368	7.8	7.53	0.98		
DSW40"	5/9/01		3.1	95	41	577	0.29	4.1	81	2275	3.2	99	43	599	0.73	1.13		2.26	34.371	7.7	7.51	0.96		
DSW40"	6/8/01		3.0	94	41	577	0.04	0.6	84	2345	3.1	95	45	625	0.66	0.85		2.26	34.371	7.4	nd	0.95		
DSW40"	7/24/01		3.1	95	41	571	0.02	0.3	80	2258	3.2	100	44	620	0.59	1.03		2.30	34.405	8.9	7.51	0.08		
DSW40"	8/22/01		3.1	97	40	566	0.03	0.4	77	2149	3.3	101	44	614	0.61	0.73		2.35	34.388	8.3	7.49	0.91		
DSW40"	9/18/01		3.1	97	41	578	0.09	1.3	81	2272	3.3	102	45	631	0.61	0.45		2.34	34.403	8.6	7.53	0.87		
DSW40"	10/9/01		3.1	97	41	578	0.09	1.3	81	2272	3.3	102	45	636	0.63	0.88		2.33	34.409	10.1	7.52	0.96		
DSW40"	11/6/01		3.3	102	42	594	0.02	0.3	81	2262	3.4	106	44	612	0.63	1.30		2.32	34.420	7.1	7.53	0.99		
DSW40"	12/18/01		3.0	93	40	562	0.20	2.8	82	2300	3.0	94	42	595	0.61	1.05		2.31	34.391	7.3	7.52	0.99		
DSW40"	1/8/02		3.2	98	42	595	0.26	3.6	84	2370	3.3	102	42	594	0.86	0.53		2.31	34.402	7.0	7.55	0.90		
DSW40"	2/27/02		3.1	97	41	576	0.08	1.1	82	2299	3.3	102	42	593	0.68	0.35		2.34	34.387	8.6	7.54	1.07		
DSW40"	3/19/02		3.1	97	42	585	0.11	1.5	82	2307	3.2	100	42	594	0.70	0.75		2.39	34.378	7.7	7.55	1.04		
DSW40"	4/9/02		3.2	98	43	603	0.04	0.6	92	2591	3.3	103	42	584	0.57	0.45		2.39	34.418	7.2	7.52	0.93		
DSW40"	5/21/02		3.2	98	42	590	0.10	1.4	84	2368	3.3	103	42	585	0.58	0.63		2.37	34.417	7.6	7.54	1.11		
DSW40"	6/18/02		3.0	94	41	571	0.05	0.7	81	2283	3.2	99	43	596	0.53	0.90		2.38	34.375	7.1	7.55	1.28		
DSW40"	7/17/02		3.1	95	41	580	0.01	0.1	86	2410	3.2	100	45	628	0.60	0.90		2.38	34.395	7.1	7.56	1.19		
DSW40"	8/22/02		3.1	95	41	575	0.08	1.1	84	2367	3.2	99	41	568	0.58	0.77		2.41	34.356	9.0	7.54	1.23		
DSW40"	9/24/02		3.1	96	42	591	0.17	2.4	88	2459	3.2	100	41	572	0.54	0.55		2.39	34.376	6.9	7.57	3.23		
DSW40"	10/16/02		3.1	97	39	546	0.25	3.5	86	2408	3.3	102	42	586	0.62	0.75		2.40	34.378	9.8	7.56	0.71		
DSW40"	11/6/02		3.1	94	42	581	0.14	2.0	82	2314	3.2	100	40	558	0.60	0.85		2.38	34.360	8.5	7.55	0.89		
DSW40"	12/19/02		3.1	96	42	585	0.07	1.0	84	2363	3.2	98	41	568	0.60	0.77		2.37	34.395	8.6	7.55	0.66		
DSW40"	1/29/03		3.1	96	43	599	0.08	1.1	108	3028	3.3	102	39	546	0.52	0.65		2.39	34.424	7.5	7.56	1.10		
DSW40"	2/10/03		3.1	94	41	577	0.02	0.3	87	2443	3.2	98	45	625	0.55	0.70		2.38	34.426	7.6	7.56	1.12		
DSW40"	3/18/03		3.1	95	42	588	0.03	0.4	85	2400	3.2	100	59	825	0.51	0.75		2.13	34.429	9.3	7.56	1.13		
DSW40"	4/29/03		3.2	98	42	587	0.08	1.1	111	3123	3.3	102	48	670	0.52	0.65		2.28	34.413	7.6	7.58	1.12		
DSW40"	5/13/03		3.1	96	42	593	0.03	0.4	90	2523	3.2	99	47	663	0.52	0.55		2.31	34.432	7.8	7.58	1.12		
DSW40"	6/5/03		3.1	94	38	536	0.04	0.6	84	2345	3.2	100	45	636	0.51	0.73		2.24	34.404	8.6	7.61	1.08		

NELHA Water Quality Laboratory

DSW 40"

Intake Depth: 674 m, Offshore Pipe Length: 1,916 m

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW40"	7/31/03		3.1	96	42	592	0.05	0.7	87	2452	3.3	101	49	684		0.85		2.27	34.371	10.0	7.55	1.19		
DSW40"	8/27/03		3.1	94	39	548	0.07	1.0	80	2259	3.2	100	50	698		0.68		2.27	34.395	9.0	7.59	0.95		
DSW40"	9/17/03		3.1	97	40	563	0.09	1.3	81	2265	3.3	103	44	615		3.18		2.33	34.390	8.8	7.53	0.84		
DSW40"	10/7/03		3.1	95	41	573	0.25	3.5	82	2309	3.3	101	51	707		1.18		2.33	34.400	7.7	7.54	NO DATA		
DSW40"	11/4/03		3.1	94	38	530	0.05	0.7	94	2644	3.2	99	44	612		0.75		2.31	34.414	8.1	7.56	NO DATA		
DSW40"	11/14/03											0		0						7.5		1.00		
DSW40"	12/16/03		3.0	93	41	573	0.50	7.0	81	2262	3.3	103	45	626		1.25		2.04	34.411	7.7	7.53	1.72		
DSW40"	1/27/04		3.0	94	41	574	0.30	4.2	79	2211	3.3	102	45	630		0.75		2.14	34.394	9.6	7.53	1.24		
DSW40"	2/10/04		3.0	93	41	569	0.07	1.0	80	2250	3.3	102	44	611		1.08		2.20	34.395	8.9	7.53	1.24		
DSW40"	3/15/04		3.2	99	40	561	0.12	1.7	83	2337	3.4	104	46	646		0.38		2.25	34.448	9.9	7.54	0.87		
DSW40"	4/21/04		3.1	96	42	586	0.30	4.2	86	2405	3.2	99	44	621		1.05		2.34	34.402	8.7	7.54	1.28		
DSW40"	5/12/04		3.1	95	40	563	0.20	2.8	83	2333	3.3	103	44	622		0.65		2.34	33.540	10.0	7.56	1.39		
DSW40"	6/7/04		3.0	93	40	561	0.15	2.1	78	2180	3.2	99	45	628		0.80		2.32	33.390	8.7	7.53	1.71		
DSW40"	7/8/04		3.0	92	40	567	0.19	2.7	85	2385	3.2	98	44	612	0.55	2.60		2.40	33.340	10.7	7.55	1.44		
DSW40"	8/24/04		3.0	92	40	563	0.27	3.8	75	2110	3.1	96	43	607		0.92		2.39	33.320	9.1	7.55	1.35		
DSW40"	9/2/04		3.1	94	41	573	0.10	1.4	90	2526	3.2	98	45	629		0.35		2.37	33.400	7.7	7.55	1.69		
DSW40"	10/1/04		3.0	92	40	559	0.11	1.5	89	2508	3.2	99	48	666		0.93		2.37	33.390	8.8	7.59	1.26		
DSW40"	11/8/04		3.0	93	41	570	0.14	2.0	89	2499	3.2	99	48	671		0.55		2.37	33.290	8.1	7.55	1.61		
DSW40"	12/7/04		3.0	94	42	582	0.21	2.9	93	2610	3.2	98	49	682		0.98		2.37	33.330	8.3	7.58	1.59		
DSW40"	1/11/05		3.1	94	42	591	0.04	0.6	95	2676	3.4	104	45	627		0.60		2.40	34.431	8.1	7.63	1.61		
DSW40"	2/8/05		3.1	95	43	596	0.04	0.6	90	2523	3.3	103	49	686		1.25		2.41	34.396	7.9	7.62	1.69		
DSW40"	3/23/05		3.0	91	41	568	0.20	2.8	90	2538	3.2	98	45	627	0.85	0.90		2.40	34.335	9.9	7.61	1.54	2	109
DSW40"	3/23/05		3.0	93	40	566	0.18	2.5	92	2577	3.2	99	44.3	620	0.76	0.73		2.40	34.337	5.8	7.61	1.25	1	2036
DSW40"	4/21/05		3.0	94	40	560	0.21	2.9	90	2538	3.2	98	40.8	572		0.65		2.34	34.385	5.9	7.61	1.24	1	667
DSW40"	4/21/05		3.0	94	41	571	0.21	2.9	90	2532	3.2	98	42	582		0.80		2.36	34.362	9.1	7.61	1.66	1	61
DSW40"	5/26/05	925	3.0	92	40	560	0.20	2.8	82	2300	3.2	98	42.1	590		2.13		2.36	34.335	6.2	7.57	1.25	<1	253
DSW40"	5/26/05	905	2.9	91	39	542	0.21	2.9	81	2275	3.1	96	41	577		1.25		2.36	34.320	12.1	7.57	1.56	1	58
DSW40"	6/16/05	917	3.0	94	40	562	0.43	6.0	92	2575	3.2	98	43.0	603		1.38		2.37	34.416	5.7	7.58	1.26	1	136
DSW40"	6/16/05	840	2.9	91	40	554	0.43	6.0	83	2331	3.0	94	43	598		0.98		2.35	34.346	10.5	7.58	1.54	1	136
DSW40"	7/27/05	825	3.0	94	39	551	0.06	0.8	87	2450	3.2	99	42	595	0.66	1.18		2.38	34.385	12.1	7.60	1.48	<1	25
DSW40"	7/27/05	909	3.0	94	40	558	0.04	0.6	89	2506	3.3	101	41.7	584	0.67	0.18		2.37	34.386	5.9	7.60	no data	<1	58
DSW40"	8/11/05	740	3.0	94	41	568	0.26	3.6	89	2502	3.2	99	44	613	0.71	1.50		2.40	34.411	11.9	7.62	1.46	2	214
DSW40"	8/11/05	825	3.0	93	39	549	0.25	3.5	88	2468	3.2	98	42.3	592	0.54	1.75		2.40	34.418	5.9	7.62	1.26	<1	36
DSW40"	9/14/05	808	3.1	95	41	577	0.33	4.6	90	2521	3.4	104	42	587	1.05	1.73		2.36	34.409	10.0	7.60	1.61	<1	58
DSW40"	9/14/05	855	3.1	95	40	566	0.28	3.9	90	2521	3.3	101	43.9	615	0.59	1.33		2.36	34.430	5.9	7.60	1.21	1	1
DSW40"	10/10/05	912	3.0	94	42	587	0.26	3.6	86	2409	3.2	99	44	623	0.61	0.80		2.38	34.361	8.5	7.61	1.41	<1	67
DSW40"	10/10/05	942	3.1	95	42	588	0.25	3.5	86	2419	3.2	99	43.4	608	0.76	1.78		2.40	34.739	6.3	7.61	1.14	<1	39
DSW40"	11/2/05	802	3.0	94	42	590	0.27	3.8	87	2445	3.2	100	45	632	0.75	1.33		2.60	34.396	8.4	7.61	1.53	77	558
DSW40"	11/2/05	834	3.1	94	41	581	0.24	3.4	92	2577	3.3	102	44.1	618	0.85	3.00		3.00	34.397	6.3	7.60	1.23	30	119
DSW40"	12/20/05	809	3.0	94	41	576	0.38	5.3	87	2431	3.2	98	43	601	0.79	1.13		2.67	34.371	7.4	7.62	1.57	163	1178
DSW40"	12/20/05	839	3.0	94	41	577	0.38	5.3	88	2460	3.2	99	43.3	606	0.71	1.45		2.64	34.375	6.2	7.63	1.38	101	1119
DSW40"	1/26/06	854	3.0	93	41	568	0.25	3.5	88	2481	3.1	96	42.4	594		1.40		2.31	34.365	6.4	7.58	1.12	1	131
DSW40"	1/26/06	937	3.0	93	41	579	0.23	3.2	89	2494	3.2	98	44	623		1.20		2.27	34.378	9.1	7.59	1.35	20	75
DSW40"	2/28/06	915	3.1	96	41	571	0.30	4.2	86	2406	3.4	106	43.4	608		0.63		2.27	34.355	6.5	7.60	1.00	6	328
DSW40"	2/28/06	820	3.1	94	40	566	0.28	3.9	98	2744	3.5	107	44	622		0.88		2.28	34.348	9.8	7.60	1.05	3	267
DSW40"	3/23/06	900	3.0	93	40	558	0.38	5.3	92	2597	3.2	100	41.3	578		2.60		2.23	34.345	6.2	7.58	1.15	7	281
DSW40"	3/23/06	820	3.0	92	40	556	0.41	5.7	88	2457	3.2	98	42	590		0.82		2.25	34.318	8.6	7.59	1.11	3	42
DSW40"	4/18/06	954	3.1	95	43	599	0.17	2.4	85	2373	3.3	103	41.3	578	0.72	1.50		2.35	34.387	6.8	7.59	1.13	2	78
DSW40"	4/18/06	857	3.0	94	40	562	0.17	2.4	81	2275	3.2	98	40	563	0.63	1.43		2.41	34.373	9.5	7.59	1.07	2	64
DSW40"	5/18/06	950	3.1	95	41	570	0.05	0.7	88	2463	3.3	101	39.0	546	0.55	1.25		2.36	34.331	6.6	7.56	1.02	3	122
DSW40"	5/18/06	905	3.0	94	40	562	0.05	0.7	85	2373	3.3	102	41	571	0.56	1.33		2.36	34.355	8.9	7.58	1.39	6	97
DSW40"	6/29/06	1005	3.0	93	41	574	0.21	2.9	83	2342	3.1	97	45.4	636	0.72	1.48		2.32	34.388	6.6	7.58	0.97	7	125
DSW40"	6/29/06	1045	2.9	91	41	567	0.23	3.2	82	2309	3.2	99	45	632	0.60	2.10		2.28	34.390	10.0	7.60	1.31	7	294

NELHA Water Quality Laboratory

DSW 40"

Intake Depth: 674 m, Offshore Pipe Length: 1,916 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW40"	7/25/06	850	2.9	89	41	570	0.27	3.8	82	2300	3.1	96	39	546	0.56	1.20		2.33	34.383	14.3	7.58	1.21	3	75
DSW40"	7/25/06	945	2.9	89	41	580	0.24	3.4	84	2348	3.1	94	38.5	539	0.61	1.05		2.32	34.400	6.6	7.57	1.23	1	67
DSW40"	8/10/06	925	2.9	89	39	545	0.17	2.4	84	2356	3.1	97	39	542	0.54	0.95		2.31	34.396	12.6	7.58	1.41	3	633
DSW40"	8/10/06	1008	2.9	90	40	564	0.22	3.1	84	2348	3.2	98	38.4	537	0.56	0.73		2.33	34.474	6.6	7.58	1.22	3	8
DSW40"	9/21/06	900	2.9	91	42	592	0.09	1.3	87	2455	3.1	96	39	547	0.52	0.93		2.33	34.415	7.7	7.59	3.32	27	39
DSW40"	9/21/06	1015	3.0	92	41	576	0.10	1.4	88	2463	3.2	98	38.6	541	0.56	1.00		2.34	34.446	6.8	7.57	1.32	16	56
DSW40"	10/26/06	850	3.0	92	44	611	0.20	2.8	86	2410	3.1	97	40	561	0.61	1.20		2.53	34.392	8.4	7.60	1.58	44	1491
DSW40"	10/26/06	950	3.0	92	44	611	0.38	5.3	85	2390	3.1	97	41.9	586	0.63	1.10		2.82	34.388	6.5	7.59	1.11	59	25300
DSW40"	11/30/06	925	2.9	90	41	578	0.20	2.8	85	2387	3.1	97	41	569	0.64	1.48		2.74	34.379	7.8	7.58	1.65	3	114
DSW40"	11/30/06	1020	3.0	92	42	581	0.21	2.9	84	2368	3.2	98	39.9	559	0.61	1.23		2.56	34.367	6.8	7.57	1.07	4	611
DSW40"	12/14/06	935	2.9	90	39	539	0.19	2.7	79	2210	3.1	96	39	542	0.53	1.48		2.71	34.357	9.7	7.59	1.70	243	458
DSW40"	12/14/06	1006	2.9	90	38	536	0.21	2.9	79	2208	3.1	95	38.6	541	0.59	1.30		2.72	34.354	7.0	7.58	1.06	229	394
DSW40"	1/11/07	1006	2.7	83	38	531	0.39	5.5	78	2182	2.9	89	40.0	560	0.63	1.35		2.24	34.439	8.7	7.67	1.92	176	1164
DSW40"	1/11/07	930	2.7	83	37	518	0.36	5.0	75	2115	3.1	95	40	565	0.61	1.53		2.34	34.437	9.7	7.66	2.07	327	956
DSW40"	2/2/07	930	2.6	80	35	492	NA	NA	72	2017	2.8	86	NA	NA						11.4				
DSW40"	2/5/07	930	2.6	79	35	487	NA	NA	71	1983	2.7	85								9.4	7.70			
DSW40"	2/6/07	1425																		7.8				
DSW40"	2/7/07	1600																		8.2				
DSW40"	2/8/07	1525																		7.7				
DSW40"	2/15/07	1015	2.5	78	34	475	0.39	5.5	69	1946	2.8	86	39.1	548	0.71	1.13		2.08	34.422	9.8	7.73	2.17	TNTC	11500
DSW40"	2/15/07	930	2.5	77	33	462	0.32	4.5	68	1910	2.7	84	36	503	0.68	1.40		2.25	34.413	11.9	7.74	2.47	TNTC	10600
DSW40"	2/20/07																			6.5			61	209
DSW40"	3/8/07	1025	2.9	91	42	590	0.32	4.5	83	2340	3.1	96	45.1	631	0.57	1.55		2.36	34.387	6.6	7.59	1.19	147	400
DSW40"	3/8/07	950	2.9	90	40	556	0.29	4.1	80	2250	3.1	96	44	616	0.57	1.33		2.08	34.364	8.9	7.60	1.60	37	272
DSW40"	3/9/07																			6.2				
DSW40"	3/15/07																			6.8				
DSW40"	4/12/07	1041	3.0	91	37	511	0.24	3.4	84	2345	3.1	97	37.4	524	0.55	1.73		2.22	34.392	6.8	7.59	1.07	7	139
DSW40"	4/12/07	930	2.9	91	37	517	0.13	1.8	84	2356	3.2	99	39	547	0.56	1.78		2.15	34.393	8.2	7.63	1.60	18	147
DSW40"	5/9/07	1025	3.0	92	45	628	0.29	4.1	85	2399	3.2	98	41.1	576	0.65	1.63		2.23	34.394	6.5	7.58	1.03	112	214
DSW40"	5/9/07	945	3.0	93	50	705	0.24	3.4	99	2780	3.4	104	41	579	0.66	1.90		2.06	34.391	8.7	7.61	1.55	207	381
DSW40"	6/27/07	950	2.9	91	44	621	1.11	15.6	81	2262	0.0		0.0			1.63		2.54	34.384	7.0	7.59	0.99	85	342
DSW40"	6/27/07	900	3.0	93	44	612	0.01	0.1	76	2141	0.0		0			1.33		2.48	34.391	8.2	7.61	1.52	145	344
DSW40"	7/30/07	1015	3.1	95	44	623	0.01	0.1	92	2573	2.4	75	40	560		3.08		2.41	34.420	10.1	7.43	1.11		
DSW40"	7/30/07	1143	3.0	93	44	616	0.04	0.5	85	2384	2.9	88	40.9	573		3.55		2.48	34.408	5.9	7.38	1.24		
DSW40"	8/29/07	1215	3.0	92	44	618	0.01	0.1	79	2217	2.8	85	43	609		1.18		2.48	34.412	11.4	7.67	1.02		
DSW40"	8/29/07	1305	3.0	92	44	615	0.30	4.2	81	2263	2.6	82	44.9	630		1.43		2.45	34.600	5.8	8.12	1.06		
DSW40"	9/24/07	1145	3.1	96	47	657	0.01	0.1	46	1296	0.0		0			1.08		1.68	34.429	9.5	7.74	1.03		
DSW40"	9/24/07	1355	3.1	96	45	625	0.01	0.1	81	2281	0.0		0.0			1.13		2.38	34.394	6.4	8.17	1.15		
DSW40"	10/30/07	959	3.1	95	43	608	0.42	5.9	78	2185	0.0		0			0.73		NA	34.346	8.9	7.67	1.06		
DSW40"	10/30/07	1131	3.2	100	46	647	0.01	0.1	85	2378	0.0		0.0			0.65		2.55	34.371	6.1	7.53	1.17		
DSW40"	11/27/07	1138	0.0		0		0.00				0.0		0			0.75		2.41	34.401	10.4	7.65	1.23		
DSW40"	11/27/07	1301	0.0		0		0.00		0		0.0		0.0			0.95		2.60	34.399	5.9	8.00	1.36		
DSW40"	12/28/07	1537	2.5	77	39	543	0.18	2.5	95	2666	0.0		0.0			0.58		2.54	34.409	6.0	7.69	1.49		
DSW40"	12/28/07	1417	2.4	74	37	517	0.11	1.5	79	2223	0.0		0			0.78		2.59	34.367	7.7	7.59	1.19		
DSW40"	1/29/08	1217	0.0		0		0.00				0.0		0			0.73		2.44	34.388	7.4	7.63	1.18		
DSW40"	1/30/08	917	2.4	76	39	542	0.18	2.5	99	2776	0.0		0.0			0.85		2.47	34.403	6.3	7.56	1.44		
DSW40"	2/28/08	1406	2.9	89	43	595	0.05	0.7	80	2248	2.6	81	42.6	597		0.75		2.47	34.392	5.9	7.68	1.24		
DSW40"	2/28/08	1306	2.9	91	43	598	0.05	0.7	78	2180	2.7	82	45	626		0.85		2.40	34.395	9.6	7.68	1.14		
DSW40"	3/31/08	1259	2.9	89	43	597	0.05	0.7	77	2169	2.5	78	41.9	587		2.15		2.46	34.510	6.0	7.52	1.47		
DSW40"	3/31/08	1117	2.9	90	43	599	0.05	0.7	86	2410	2.6	80	43	603		2.18		2.46	34.300	8.5	7.57	1.15		
DSW40"	4/25/08	923	2.7	83	NA	NA	0.15	2.1	81	2272	2.6	81	39.9	559		0.70		2.37	34.390	6.0	7.88	1.20		
DSW40"	4/25/08	855	2.8	86	NA	NA	0.15	2.1	79	2228	2.6	82	40	559		0.48		2.43	34.372	9.2	7.60	1.18		
DSW40"	5/23/08	924	2.6	81	42	590	0.09	1.3	NA	NA	2.6	81	42.1	590		0.40		2.37	34.386	6.4	7.64	1.23		
DSW40"	5/23/08	1216	2.6	81	43	601	0.09	1.3			2.6	81	57	799		0.93		2.34	34.407	9.4	7.64	1.20		
DSW40"	6/10/08	940	2.6	79	40	564	0.18	2.5	85	2394	2.4	75	42.6	596		0.70		NA	34.377	6.2	7.62	1.33		
DSW40"	6/10/08	1138	2.6	80	40	565	0.18	2.5	69	1949	2.5	76	42	595		0.50			34.363	8.8	7.65	1.11		

NELHA Water Quality Laboratory

DSW 40"

Intake Depth: 674 m, Offshore Pipe Length: 1,916 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW40"	7/18/08	1340	2.6	81	43	601	0.09	1.3	69	1928	2.1	66	41	576		0.17			34.535	10.0	7.60	1.86		
DSW40"	7/18/08	1406	2.6	81	42	590	0.09	1.3	86	2421	2.0	61	42.3	593		0.19			34.442	7.3	7.77	1.45		
DSW40"	8/13/08	1243	2.3	72	34	474	0.96	13.4	61	1701	2.2	70	40	556		0.55			34.408	12.0	7.63	NA		
DSW40"	8/13/08	1202	2.3	72	33	468	0.46	6.5	64	1798	2.2	67	39.4	551		0.34			34.403	9.3	7.64	NA		
DSW40"	9/8/08	1008	2.6	82	41	567	0.06	0.8	73	2053	1.9	58	36	504		0.22			34.50	12.8	7.53	1.53		
DSW40"	9/8/08	1036	2.5	78	41	567	0.35	4.9	73	2058	1.8	56	35.6	499		0.40			34.46	6.1	7.61	1.67		
DSW40"	10/23/08	1203	2.6	80	40	558	0.30	4.2	66	1866	2.7	84	46	647		0.30			34.49	11.8	7.50	1.61		
DSW40"	10/23/08	1112	2.6	79	40	556	0.46	6.5	66	1865	2.6	82	47.4	664		0.13			34.45	6.2	7.64	1.71		
DSW40"	11/28/08	1120	2.9	89	43	606	0.23	3.2	82	2308	2.7	85	44	617		1.19			34.43	12.1	7.69	2.42		
DSW40"	11/28/08	1057	2.8	86	42	595	0.29	4.0	81	2265	2.7	84	45.5	638		0.04			34.42	6.6	7.70	1.26		
DSW40"	12/30/08	939	2.4	75	41	569	0.33	4.6	73	2053	2.6	81	42.7	599		0.17			34.56	8.7	7.60	1.60		
DSW40"	12/30/08	1006	2.4	75	40	562	0.33	4.6	89	2509	2.6	81	43	601		0.08			34.57	12.1	7.65	1.48		
DSW40"	1/12/09	1152	2.7	85	38	535	0.12	1.7	75	2108	2.7	82	47.0	659		0.35			34.360	8.9	7.71	1.60		
DSW40"	1/12/09	1218	2.8	86	39	539	0.12	1.7	70	1954	2.8	87	42	583		0.68			34.362	12.8	7.66	1.55		
DSW40"	2/20/09	1309	2.7	82	40	562	3.28	46.0	85	2377	2.9	91	46.5	651		0.58	0.18		34.740	27.8	7.64	0.43		
DSW40"	2/20/09	1338	2.5	77	41	571	0.31	4.3	94	2651	2.8	85	46	643		0.83	0.18		34.21	11.0	7.61	1.68		
DSW40"	3/30/09	1306	2.8	86	27	382	0.19	2.6	72	2016	2.9	89	34.2	479		0.48			34.594	34.0	7.17	0.02		
DSW40"	3/30/09	1333	2.3	72	38	530	0.06	0.9	80	2242	2.4	73	37	517		0.46			34.664	11.5	7.53	1.46		
DSW40"	4/30/09	1032	3.7	116	15	207	0.51	7.2	82	2292	3.2	98	26.0	365		0.60			34.440	32.3	7.97	0.05		
DSW40"	4/30/09	1046	2.9	89	38	533	0.43	6.0	87	2453	2.4	75	46	648		0.53			34.555	12.3	7.63	1.67		
DSW40"	5/15/09																							
DSW40"	5/15/09	1415	3.1	97	40	561	0.19	2.7	85	2376	3.4	107	46	640		0.37			34.58	13.6	7.72	1.47		
DSW40"	6/10/09	1046	3.0	92	39	547	0.16	2.2	73	2062	2.8	86	39.5	553		0.24			34.391	9.1	7.68	1.36		
DSW40"	6/10/09	1234	3.1	96	40	562	0.16	2.2	87	2446	3.1	95	42	594		0.25			34.495	10.1	7.25	1.35		
DSW40"	7/10/09	1058	2.6	80	31	439	0.11	1.6	73	2039	2.4	76	34	482		0.25			34.66	13.2	7.64	1.57		
DSW40"	7/10/09	1039	2.6	80	31	429	0.44	6.2	59	1646	2.2	70	32.6	457		0.54			34.54	8.5	7.66	1.83		
DSW40"	8/27/09	1131	2.7	85	32	450	0.52	7.3	92	2571	2.6	81	38	528		0.40	0.02		34.54	10.3	7.56	1.43		
DSW40"	8/27/09	1003	2.6	81	33	463	0.34	4.7	74	2068	2.4	74	36.9	517		0.42	0.02		34.48	9.0	8.01	4.10		
DSW40"	9/17/09	1159	2.7	83	40	557	0.12	1.7	53	1475	2.9	90	42	583		3.99	0.17		34.59	8.8	8.15	1.50		
DSW40"	9/17/09	1138	2.2	69	30	421	0.54	7.5	42	1170	2.6	82	34.2	479		1.41	0.36		34.57	6.5	8.15	3.31		
DSW40"	10/26/09	1105	3.2	98	45	624	0.17	2.4	88	2469	3.2	98	45	637		0.79			34.53	9.3	7.57	1.12		
DSW40"	10/26/09	1053	3.0	93	43	607	0.26	3.6	86	2417	2.9	91	44.5	624		0.46			34.50	5.8	7.60	1.69		
DSW40"	11/19/09	1450	3.0	93	40	555	0.36	5.0	87	2445	3.0	94	45	633		0.35			34.61	9.1	7.49	1.07		
DSW40"	11/19/09	1419	3.1	96	40	555	0.27	3.8	86	2426	3.1	95	42.5	596		0.23			34.59	6.0	7.48	1.48		
DSW40"	12/3/09	928	3.1	95	40	561	0.34	4.8	91	2557	3.0	92	44.3	621		0.65			34.47	6.7	7.67	1.16		
DSW40"	12/3/09	911	3.1	95	40	560	0.34	4.8	91	2549	3.0	93	47	665		0.53			34.51	9.0	7.57	1.11		
DSW40"	1/14/10	940	3.1	97	41	580	0.69	9.6	85	2394	3.1	96	44.6	625		0.33			34.54	7.4	7.63	1.46		
DSW40"	1/14/10	830	3.1	98	42	585	0.72	10.1	88	2461	3.2	98	45	629		0.33			34.44	8.6	7.66	1.50		
DSW40"	2/16/10	1120	3.1	95	44	614	0.38	5.3	90	2517	3.2	100	45.5	638		0.88			34.34	6.8	7.57	1.09		
DSW40"	2/16/10	1055	3.0	94	43	607	0.28	3.9	83	2331	3.1	96	45	628		0.25			34.32	7.8	7.60	1.11		
DSW40"	3/15/10	917	3.1	95	43	597	0.10	1.4	91	2563	3.1	95	44.9	629		1.05	0.06		34.33	7.3	7.56	1.05		
DSW40"	3/15/10	840	3.1	96	43	597	0.10	1.4	90	2532	3.1	97	45	625		0.47			34.32	8.5	7.41	1.02		
DSW40"	4/1/10	835	3.3	102	41	571	0.29	4.0	87	2450	3.0	94	43.9	614		0.23	0.10		34.42	7.1	7.57	1.05		
DSW40"	4/1/10	823	3.3	101	41	576	0.34	4.7	90	2522	3.2	99	46	651		1.00	0.17		34.41	7.8	7.59	1.24		
DSW40"	5/10/10	840	2.9	90	42	584	0.52	7.3	91	2542	3.0	92	42.9	601		0.73	0.14		34.38	6.8	7.56	1.13		
DSW40"	5/10/10	828	2.9	90	42	587	0.86	12.0	94	2641	3.0	92	44	621		1.19	0.07		34.42	7.8	7.56	1.19		
DSW40"	6/23/10	914	3.0	93	44	616	0.22	3.1	95	2659	2.9	91	45.6	638		0.50	0.10		34.39	6.0	7.60	1.28		
DSW40"	6/23/10	853	3.0	92	44	617	0.23	3.2	95	2664	3.0	93	46	647		0.45	0.15		34.43	7.5	7.69	1.29		

NELHA Water Quality Laboratory

DSW 40"

Intake Depth: 674 m, Offshore Pipe Length: 1,916 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW40"	7/1/10	933	2.9	91	43	603	0.31	4.4	90	2530	3.0	94	48	666		0.70	0.06		34.30	7.8	7.56	1.20		
DSW40"	7/1/10	954	3.0	92	43	608	0.24	3.3	95	2679	2.9	91	45.6	638		0.55	0.06		34.29	6.0	7.55	1.30		
DSW40"	8/5/10	856	3.0	93	41	580	0.21	2.9	85	2400	3.0	94	45	625		0.93	0.10		34.36	7.8	7.62	1.23		
DSW40"	8/5/10	933	3.0	93	41	579	0.21	2.9	86	2417	3.0	94	44.5	624		0.93	0.02		34.38	6.0	7.55	1.31		
DSW40"	9/2/10	916	3.0	92	42	592	0.14	1.9	80	2237	3.0	94	47	653		0.75	0.02		34.26	7.6	7.53	1.30		
DSW40"	9/2/10	928	2.9	90	42	582	0.16	2.2	77	2169	3.0	93	47.2	661		0.75	0.03		34.17	7.1	7.54	1.37		
DSW40"	10/18/10	917	3.1	96	44	621	0.10	1.4	87	2448	3.2	99	46	646		0.50	0.10		34.18	7.2	7.59	1.48		
DSW40"	10/18/10	923	3.1	96	44	614	0.13	1.8	86	2405	3.2	100	47.4	663		0.45	0.12		34.18	6.3	7.57	1.54		
DSW40"	11/4/10	925	2.9	90	42	585	0.06	0.9	84	2364	3.0	92	45	636		0.35	0.05		34.40	8.3	7.60	1.30		
DSW40"	11/4/10	945	2.9	90	42	583	0.19	2.6	80	2257	3.0	92	45.4	636		0.60	0.07		34.39	6.5	7.58	1.34		
DSW40"	12/1/10	947	3.0	93	43	601	0.01	0.1	90	2522	2.9	90	49.6	695		0.27	0.10		34.31	6.3	7.58	1.24		
DSW40"	12/1/10	921	3.0	92	43	601	0.05	0.7	87	2454	2.9	90	50	695		0.40	0.05		34.34	8.0	7.61	1.17		
DSW40"	1/25/11	939	3.1	97	43	599	0.37	5.2	87	2431	3.1	95	47.4	664		0.57	0.07		34.35	6.3	7.56	1.21		
DSW40"	1/25/11	914	3.1	97	43	603	0.29	4.1	88	2460	3.1	95	47	664		0.65	0.04		34.35	7.7	7.54	1.56		
DSW40"	2/8/11	955	3.2	99	43	606	0.54	7.5	90	2515	3.3	102	47.6	667		0.60	0.08		34.39	6.1	7.66	1.34		
DSW40"	2/8/11	936	3.2	98	43	604	0.45	6.3	89	2493	3.3	101	46	646		0.68	0.06		34.39	8.1	7.66	1.32		
DSW40"	3/7/11	1042	3.2	98	43	597	0.42	5.9	88	2481	3.2	98	44.9	629		0.50	0.08		34.38	6.2	7.56	1.46		
DSW40"	3/7/11	1023	3.1	97	43	597	0.38	5.3	90	2527	3.2	100	44	623		0.58	0.10		34.38	7.8	7.60	1.40		
DSW40"	4/11/11	1046	3.1	95	44	621	0.11	1.5	94	2638	3.1	95	50.3	705		0.59	0.05		34.62	6.0	7.64	1.20		
DSW40"	4/11/11	948	3.0	94	45	626	0.06	0.9	87	2447	3.0	92	50	704		0.56	0.13		34.62	7.9	7.62	1.36		
DSW40"	5/25/11	1150	3.0	94	43	603	0.29	4.1	85	2390	3.0	93	46.4	650		0.70	0.08		34.39	7.3	7.60	1.87		
DSW40"	5/25/11	849	3.0	93	43	608	0.19	2.7	87	2443	3.1	95	47	658		0.51	0.08		34.37	8.0	7.64	2.49		
DSW40"	6/1/11	947	3.0	93	44	615	0.16	2.3	84	2366	3.0	93	47.8	670		0.84	0.03		34.33	6.1	7.60	1.70		
DSW40"	6/13/11	924	3.0	93	43	600	0.11	1.5	85	2395	3.0	92	48	673		0.63	0.08		34.36	8.8	7.63	1.69		
DSW40"	7/21/11	818	3.1	98	42	592	0.14	1.9	89	2500	3.2	98	46	649		0.69	0.02		34.35	8.3	7.57	1.30		
DSW40"	7/21/11	847	3.2	99	42	594	0.19	2.7	85	2394	3.2	99	44.7	627		0.55	0.02		34.31	6.1	7.53	1.47		
DSW40"	8/22/11	940	3.0	92	42	584	0.01	0.1	89	2493	3.0	94	44	621		0.48	0.04		34.29	8.2	7.58	1.57		
DSW40"	8/22/11	1015	3.1	95	42	590	0.04	0.6	91	2558	3.2	98	46.9	656		0.48	0.02		34.30	5.8	7.57	1.61		
DSW40"	9/15/11	808	2.9	91	40	566	0.07	1.0	83	2341	2.9	91	44	611		0.41	0.05		34.33	8.4	7.56	1.25		
DSW40"	9/15/11	824	3.0	92	41	570	0.11	1.5	84	2354	3.0	93	43.6	610		0.28	0.04		34.32	6.1	7.56	1.33		
DSW40"	10/4/11	1214	3.0	92	41	578	0.07	1.0	81	2286	3.0	92	44	611		0.26	0.02		34.54	9.1	7.55	1.23		
DSW40"	10/5/11	1156	3.0	92	41	581	0.04	0.6	80	2260	3.0	92	44.1	618		0.32	0.02		34.46	6.3	7.58	1.28		
DSW40"	11/21/11	1047	3.1	95	43	605	0.02	0.3	86	2408	3.1	95	47	664		0.36	0.05		34.30	8.4	7.67	1.00		
DSW40"	11/21/11	1126	3.1	95	43	596	0.02	0.3	82	2299	3.0	92	47.5	665		1.86	0.02		34.31	6.6	7.65	1.08		
DSW40"	12/27/11	1015	3.0	92	43	603	0.15	2.1	85	2386	3.0	92	49.1	687		0.42	0.06		34.20	6.3	7.57	1.18		
DSW40"	12/27/11	1000	2.9	91	43	600	0.04	0.6	86	2418	3.0	93	46	647		0.47	0.02		34.21	7.5	7.62	1.28		
DSW40"	1/30/12	1011	2.9	91	43	600	0.08	1.1	85	2401	2.9	91	47.1	660		0.34	0.07		34.40	6.3	7.52	1.16		
DSW40"	1/30/12	934	2.9	90	43	601	0.08	1.1	86	2403	2.9	90	47	656		0.43	0.02		34.53	7.8	7.66	1.22		
DSW40"	2/27/12	1019	3.0	93	42	584	0.01	0.1	85	2388	2.7	85	48.9	685		0.56	0.05		34.40	6.1	7.53	1.24		
DSW40"	2/27/12	959	2.9	91	42	582	0.01	0.1	84	2360	2.8	87	46	649		2.01	0.06		34.37	7.9	7.58	1.19		
DSW40"	3/28/12	943	3.0	93	38	534	0.37	5.2	80	2251	2.8	88	43.2	605		0.44	0.02		34.38	6.2	7.55	1.01		
DSW40"	3/28/12	909	2.9	90	38	527	0.36	5.0	79	2212	2.7	84	42	586		0.49	0.02		34.33	7.9	7.57	1.03		
DSW40"	4/16/12	946	3.2	99	43	601	0.01	0.1	80	2251	3.2	98	48.0	673		0.52	0.02		34.40	6.2	7.56	1.01		
DSW40"	4/16/12	934	3.1	97	43	596	0.01	0.2	78	2203	3.1	97	46	648		0.28	0.02		34.39	7.8	7.46	1.05		
DSW40"	5/24/12	952	3.2	99	44	620	0.15	2.1	86	2422	3.2	99	47.6	666		0.51	0.04		34.27	6.1	7.55	1.26		
DSW40"	5/24/12	1042	3.2	98	44	617	0.16	2.3	86	2423	3.3	103	46	644		0.48	0.05		34.31	7.8	7.52	1.10		
DSW40"	6/19/12	953	3.0	94	43	600	0.32	4.5	78	2192	3.0	93	45.8	641		0.37	0.02		34.44	6.2	7.46	1.09		
DSW40"	6/19/12	925	3.0	93	43	599	0.62	8.7	79	2229	2.9	90	45	634		0.52	0.07		34.42	8.0	7.75	1.15		

NELHA Water Quality Laboratory

DSW 40"

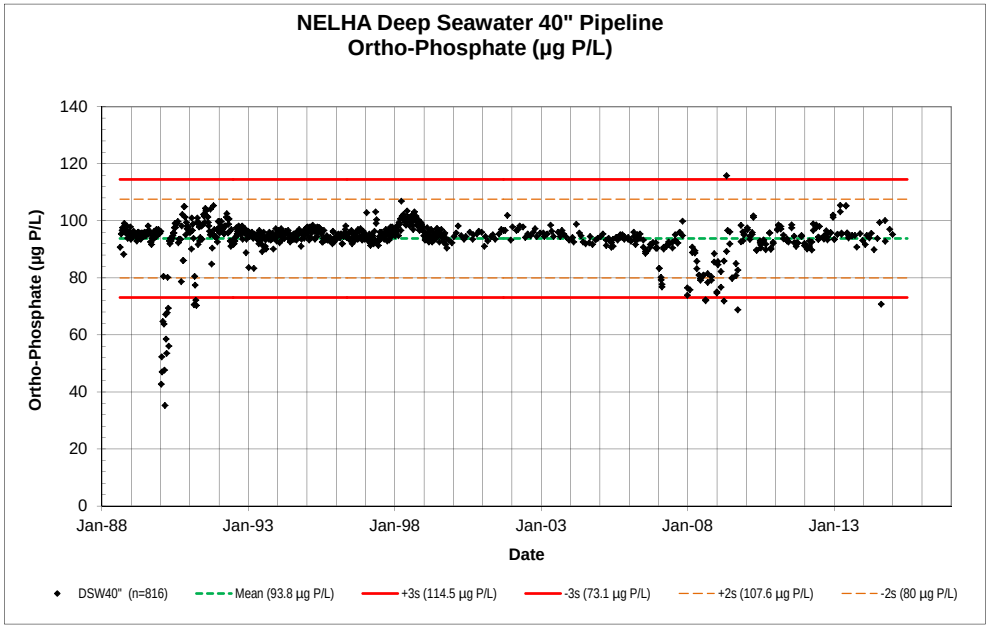
Intake Depth: 674 m, Offshore Pipe Length: 1,916 m

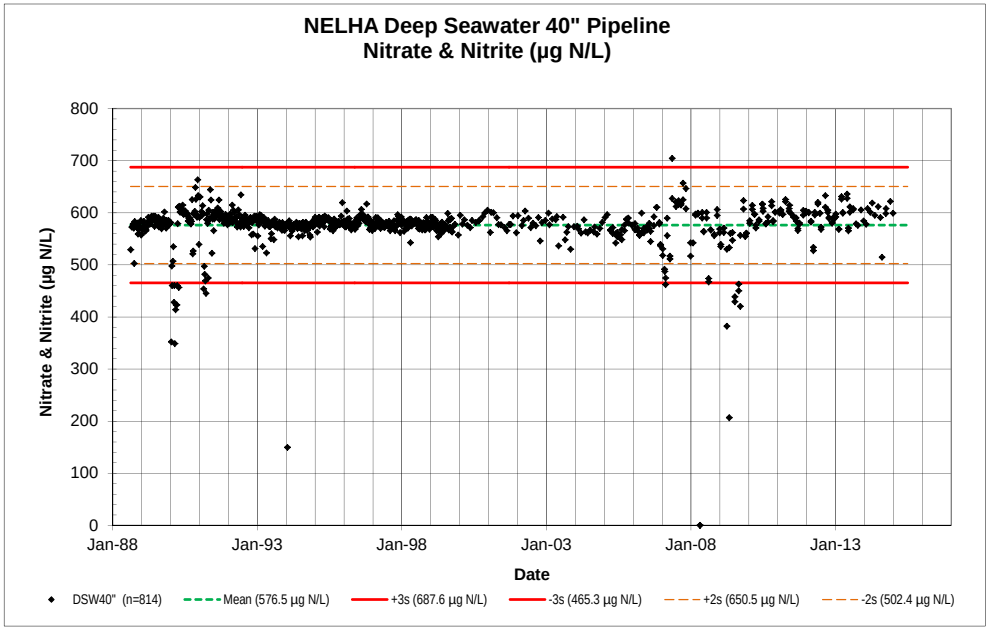
SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW40"	7/3/12	942	3.0	94	41	568	0.31	4.3	80	2257	3.2	99	43	599		0.55	0.02		34.58	7.8	7.57	1.29		
DSW40"	7/3/12	958	3.2	98	41	573	0.21	3.0	78	2182	3.2	100	41.6	583		1.16	0.02		34.57	6.1	7.61	1.68		
DSW40"	8/27/12	1016	3.0	94	44	611	0.12	1.7	92	2588	3.2	98	47	662		0.45	0.02		34.35	7.3	7.57	1.35		
DSW40"	8/27/12	1029	3.1	95	45	633	0.19	2.7	93	2608	3.1	95	48.4	678		0.52	0.03		34.44	5.6	7.58	1.30		
DSW40"	9/26/12	1003	3.1	95	43	601	0.02	0.3	93	2616	3.3	101	49	689		0.64	0.05		34.46	8.3	7.42	1.31		
DSW40"	9/26/12	1015	3.1	97	43	605	0.13	1.8	94	2646	3.2	100	46.2	648		0.69	0.03		34.46	6.2	7.44	1.35		
DSW40"	10/10/12	915	3.0	93	42	591	0.10	1.4	89	2506	3.1	97	47	655		0.55	0.03		34.42	7.7	7.44	1.29		
DSW40"	10/10/12	930	3.0	94	42	589	0.12	1.7	89	2508	3.1	96	47.7	668		1.68	0.04		34.45	5.8	7.51	1.30		
DSW40"	11/19/12	1303	3.1	96	41	580	0.14	1.9	87	2440	3.2	98	50.6	709		0.43	0.02		34.28	6.0	7.61	1.41		
DSW40"	11/19/12	1249	3.1	96	42	582	0.09	1.3	89	2505	3.1	97	44	611		0.50	0.10		34.30	8.0	7.66	1.41		
DSW40"	12/19/12	918	3.3	101	42	589	0.21	3.0	89	2500	3.4	105	52.2	731		0.68	0.04		34.35	6.0	7.57	1.42		
DSW40"	12/19/12	906	3.3	102	42	593	0.16	2.3	89	2506	3.3	102	44	613		0.60	0.02		34.22	7.4	7.61	1.42		
DSW40"	1/4/13	945	3.0	93	42	592	0.06	0.9	87	2441	3.0	94	45.7	640		1.89	0.04		34.24	6.0	7.65	1.56		
DSW40"	1/4/13	933	3.0	94	43	598	0.11	1.6	90	2519	3.0	94	44	617		0.44	0.02		34.22	7.9	7.68	1.55		
DSW40"	2/13/13	956	3.1	95	41	568	0.01	0.1	81	2279	3.1	95	44.8	628		0.67	0.02		34.38	6.2	7.59	1.89		
DSW40"	2/13/13	937	3.08	95	41	568	0.01	0.1	84	2371	3.1	96	44	620		0.74	0.02		34.43	7.4	7.59	1.73		
DSW40"	3/18/13	1104	3.4	105	45	631	0.36	5.1	88	2463	3.2	100	49.3	691		0.65	0.03		34.39	6.0	7.57	1.70		
DSW40"	3/18/13	1046	3.33	103	45	626	0.39	5.4	87	2452	3.3	103	47	665		1.08	0.02		34.42	7.3	7.59	1.47		
DSW40"	4/3/13	1154	3.1	96	43	601	0.02	0.3	86	2423	3.1	96	47.5	665		0.55	0.02		34.43	5.8	7.58	1.55		
DSW40"	4/3/13	1137	3.08	95	43	599	0.01	0.2	85	2387	3.0	94	45.1	632		0.55	0.02		34.38	8.0	7.60	1.25		
DSW40"	5/29/13	1040	3.4	105	45	636	0.16	2.3	91	2560	3.4	106	50.0	701		1.34	0.02		34.44	5.8	7.53	1.36		
DSW40"	5/29/13	852	3.40	105	45	628	0.19	2.6	91	2558	3.4	107	50.6	709		0.65	0.02		34.50	8.0	7.57	1.41		
DSW40"	6/13/13	1007	3.1	96	40	565	0.37	5.2	81	2269	2.9	91	43.6	610		0.49	0.06		34.43	6.1	7.50	1.16		
DSW40"	6/13/13	945	3.09	96	41	571	0.32	4.5	85	2380	3.0	92	42.9	601		0.60	0.02		34.41	8.2	7.46	1.23		
DSW40"	7/1/13	918	3.0	94	44	611	0.19	2.7	85	2395	3.2	99	48.2	675		0.65	0.04		34.42	5.9	7.59	1.26		
DSW40"	7/1/13	903	3.1	95	43	601	0.08	1.1	87	2435	3.1	97	47	657		0.49	0.03		34.41	8.0	7.61	1.23		
DSW40"	8/14/13	932	3.1	95	43	608	0.11	1.5	88	2465	3.0	93	47	655		0.77	0.02		34.39	7.7	7.54	1.30		
DSW40"	8/14/13	942	3.1	95	43	606	0.12	1.7	87	2442	3.0	93	53	738		0.58	0.02		34.42	5.8	7.54	1.30		
DSW40"	9/18/13	953	3.1	95	41	579	0.20	2.8	81	2287	2.9	90	43	603		0.54	0.02		34.47	6.2	7.54	1.40		
DSW40"	10/10/13	930	2.9	91	41	576	0.24	3.4	81	2269	2.9	91	43	602		0.62	0.02		34.48	6.2	7.57	1.37		
DSW40"	11/21/13	958	3.1	96	43	606	0.50	7.0	84	2371	3.0	94	45	637		0.70	0.02		34.58	6.1	7.53	1.66		
DSW40"	12/23/13	925	3.0	93	42	584	0.36	5.0	81	2272	2.9	90	42	589		0.64	0.02		34.49	6.4	7.59	1.41		
DSW40"	1/23/14	1150	3.0	92	41	578	0.11	1.5	80	2257	3.0	92	43	609		1.21	0.02		34.29	6.4	7.55	1.60		
DSW40"	2/12/14	1046	3.06	95	43	608	0.43	6.0	87	2456	3.0	92	45	630		0.81			34.49	5.9	7.56	1.76		
DSW40"	3/17/14	1019	3.03	94	43	601	0.04	0.6	87	2447	2.9	89	45	634		0.73	0.03		34.42	5.8	7.59	1.54		
DSW40"	4/10/14	1109	3.09	96	44	619	0.09	1.3	90	2519	2.9	90	45.9	642		0.60	0.02		34.47	5.7	7.60	1.75		
DSW40"	5/13/14	1402	2.90	90	42	595	0.30	4.2	82	2309	2.9	89	45.1	632		0.74	0.02		34.50	5.8	7.61	1.90		
DSW40"	6/24/14	1237	3.03	94	44	612	0.76	10.6	77	2167	3.3	102	46.0	644		0.91	0.03		34.66	6.2	7.63	1.45		
DSW40"	7/23/14	1202	3.21	99	42	591	0.67	9.4	81	2280	3.1	95	45.2	634		0.63	0.05		34.68	6.0	7.57	1.46		
DSW40"	8/11/14	1111	2.29	71	37	515	0.33	4.6	74	2080	2.3	71	39.3	550		0.76	0.08		34.43	5.9	7.55	1.26		
DSW40"	9/29/14	1200	3.23	100	43	599	0.21	3.0	83	2328	3.3	102	46.3	648		0.84	0.07		34.66	6.2	7.59	1.28		
DSW40"	10/1/14	1247	3.00	93	43	608	0.30	4.2	80	2245	3.0	94	48.3	676		0.66	0.09		34.52	6.1	7.51	1.17		
DSW40"	11/25/14	1218	3.13	97	44	622	0.21	2.9	84	2360	3.1	96	48.1	673		1.13	0.04		34.50	6.0	7.64	1.22		
DSW40"	12/30/14	1016	3.07	95	43	599	0.14	1.9	86	2417	3.1	96	49.1	687		0.74	0.03		34.53	6.1	7.56	1.24		
DSW40"	1/1/15																							
DSW40"	2/1/15																							
DSW40"	3/1/15																							
DSW40"	4/1/15																							
DSW40"	5/1/15																							
DSW40"	6/1/15																							
DSW40"	7/1/15																							
Mean (Aug. '86 - present)			3.0	94	41.0	576	0.2	2.5	84.4	2374	3.1	97	43.5	617	0.67	0.73	0.05	2.37	34.39	8.2	7.58	1.28		
STD DEV			0.3	7	3.6	37	0.2	2.7	6.6	165	0.4	8	6.0	47	0.31	0.55	0.05	0.1	0.12	1.9	0.09	0.98		
Range																								
UWL	+2s		3.6	108	48	651	0.56	7.8	98	2704	4.0	113	55.5	712	1.29	1.84	0.15	2.58	34.616	12.0	7.76	3.25		
LWL	-2s		2.4	80	34	502	-0.21	-2.9	71	2044	2.2	80	31.5	522	0.05	-0.38	-0.05	2.15	34.154	4.4	7.41	-0.69		
UCL	+3s		3.9	114	52	688	0.75	10.5	104	2869	4.4	122	61.4	759	1.60	2.39	0.20	2.69	34.732	13.9	7.84	4.23		
LCL	-3s		2.2	73	30	465	-0.40	-5.6	65	1879	1.8	72	25.5	475	-0.26	-0.93	-0.10	2.05	34.038	2.5	7.32	-1.68		
Data																								
Max. Value			3.7	116	50.3	705	3.3	46	113.8	3196	4.1	126	58.9	825	4.88	5.50	0.36	3.33	34.93	34.0	8.54	10.74		
Min. Value			0.0	35	0.0	150	0.0	0	0.0	1170	0.0	0	0.0	0	0.03	0.00	0.02	1.68	33.29	5.6	7.17	0.02		

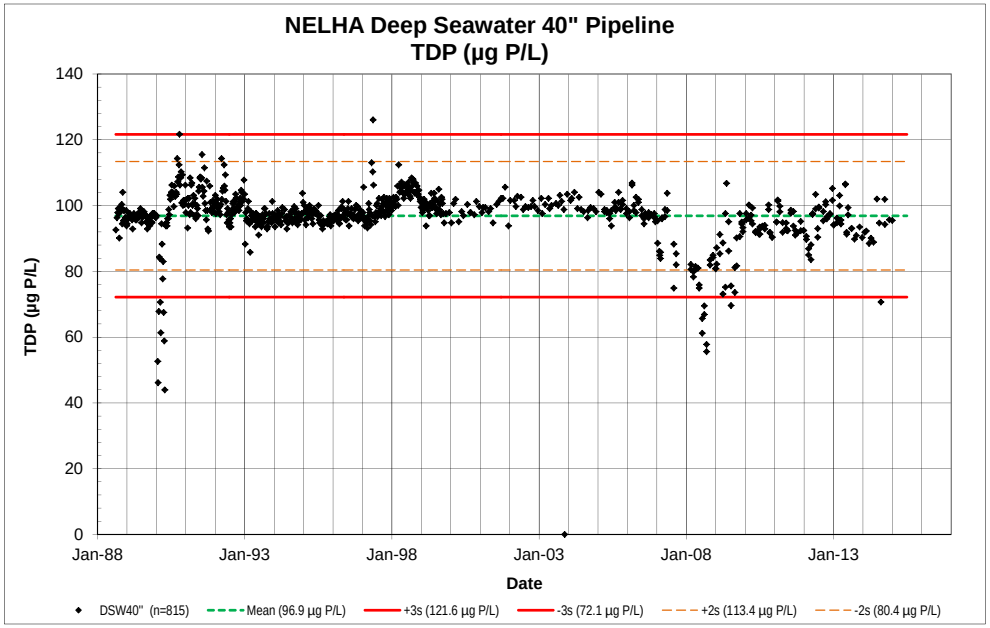
NELHA Water Quality Laboratory

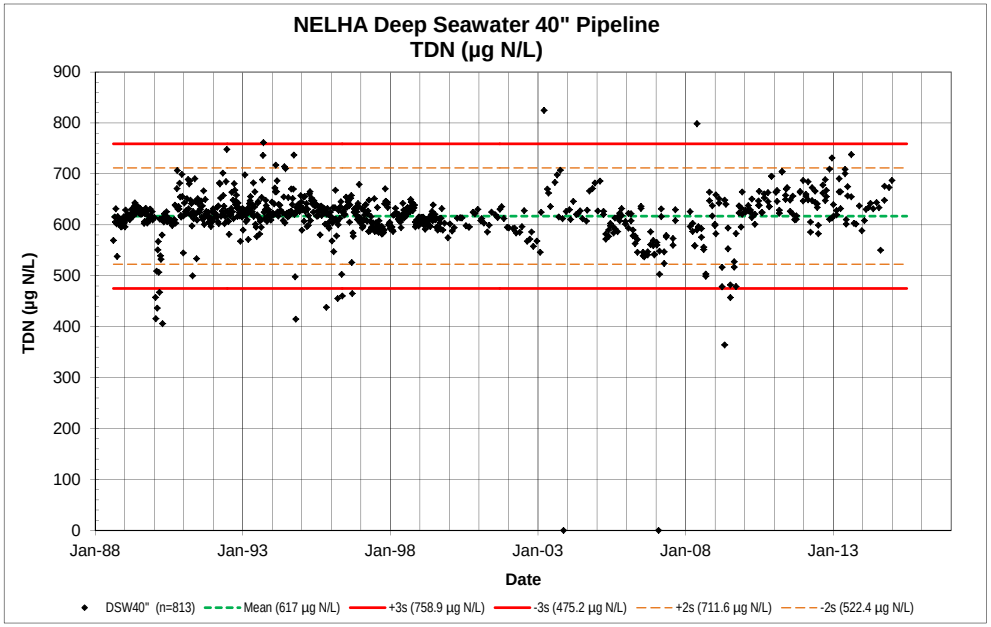
DSW 40"

Intake Depth: 674 m, Offshore Pipe Length: 1,916 m





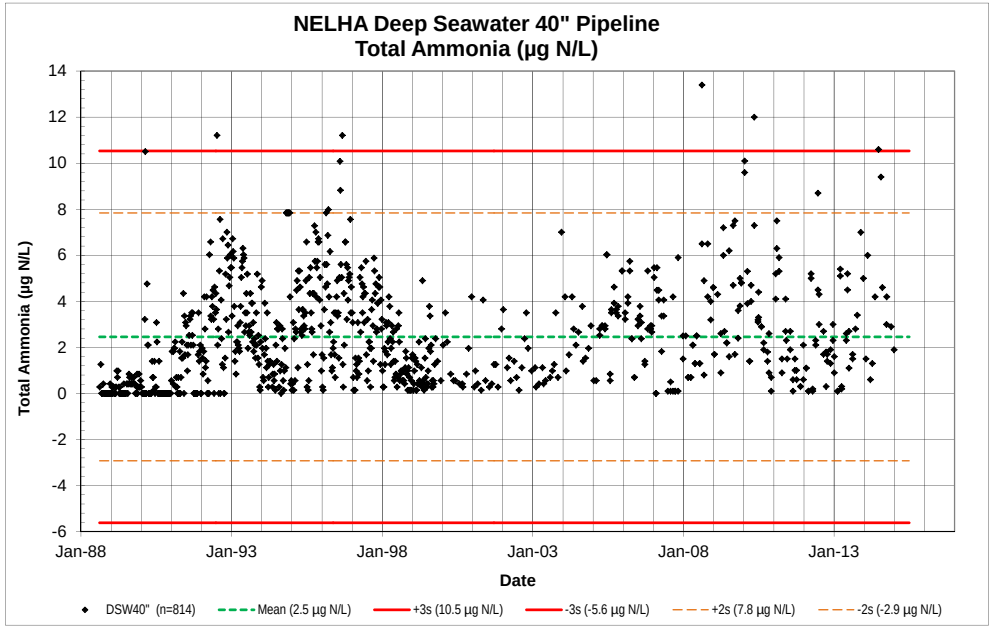


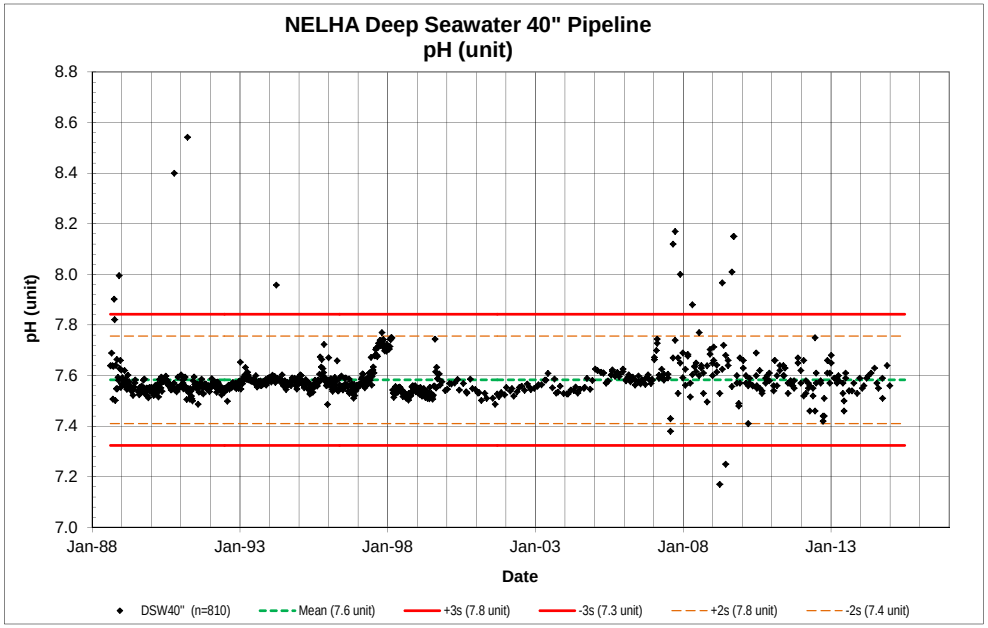


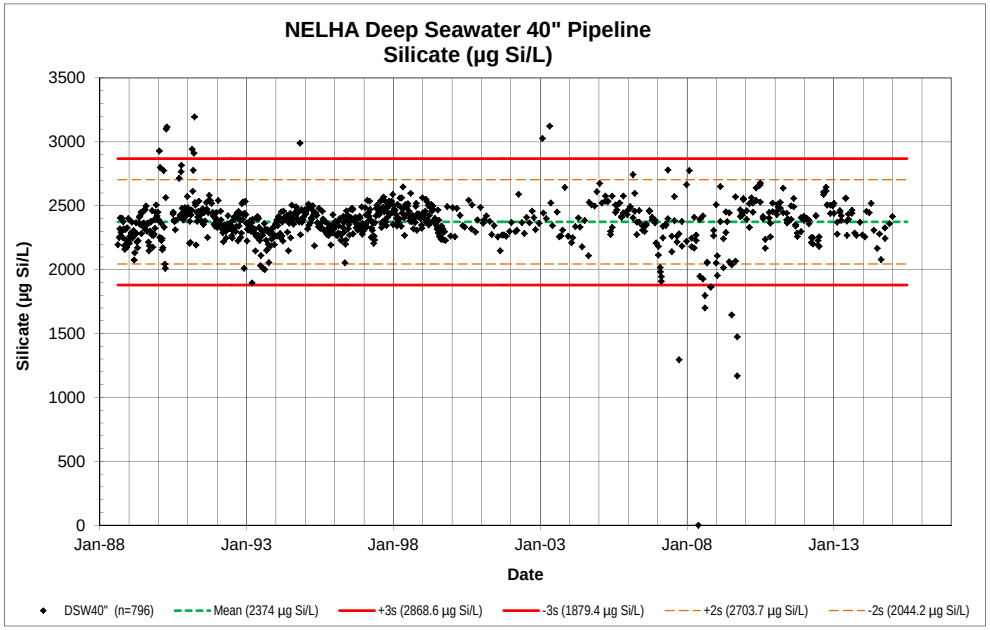
NELHA Water Quality Laboratory

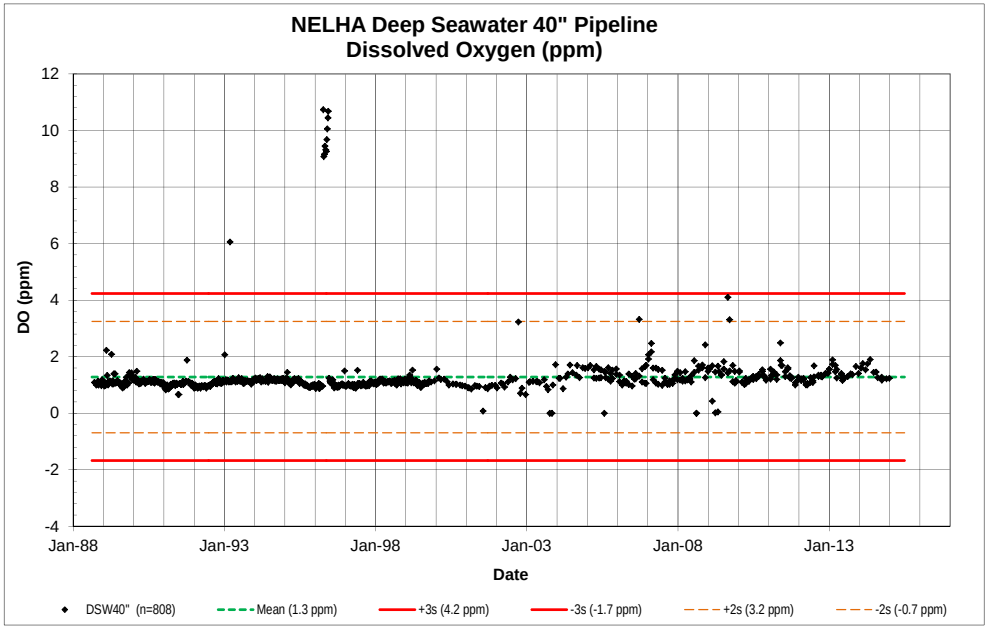
DSW 40"

Intake Depth: 674 m, Offshore Pipe Length: 1,916 m





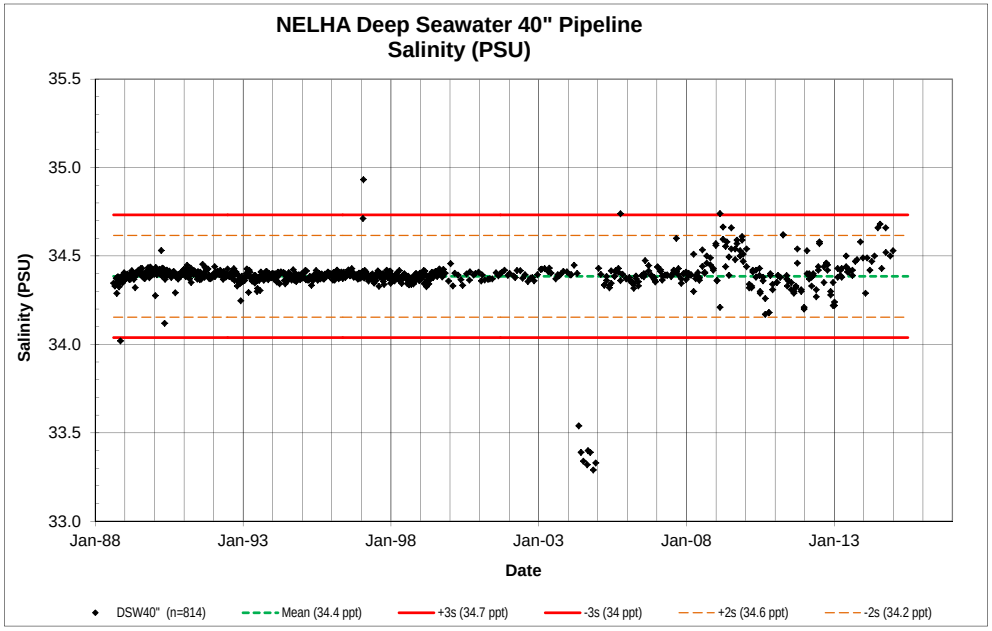


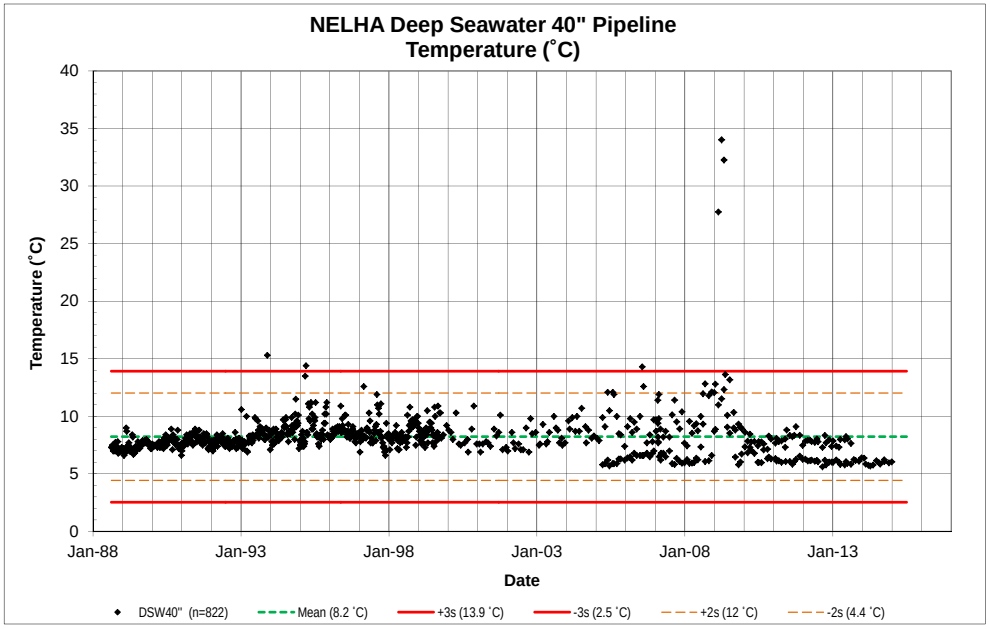


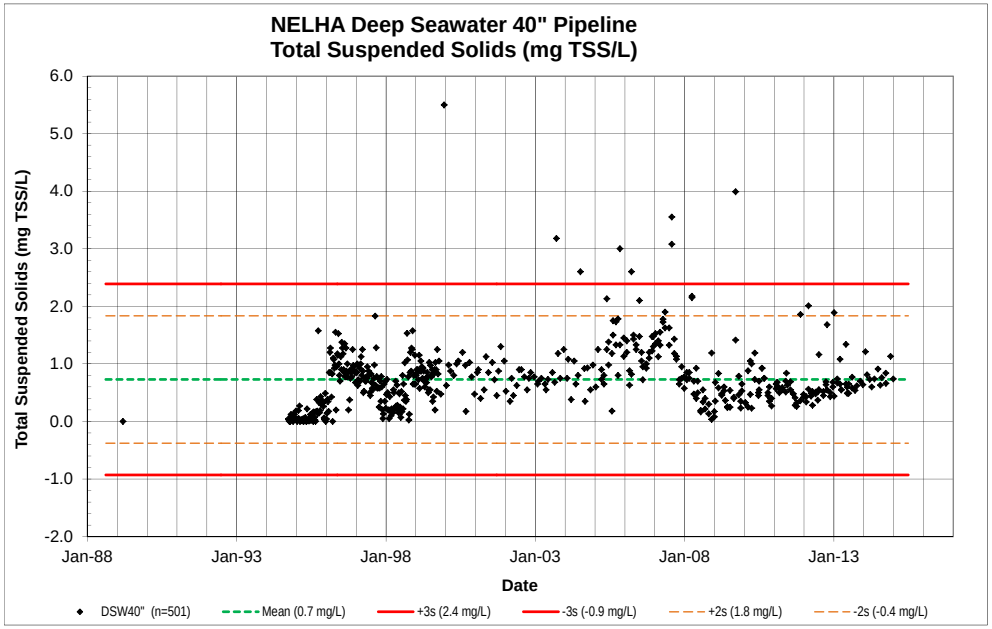
NELHA Water Quality Laboratory

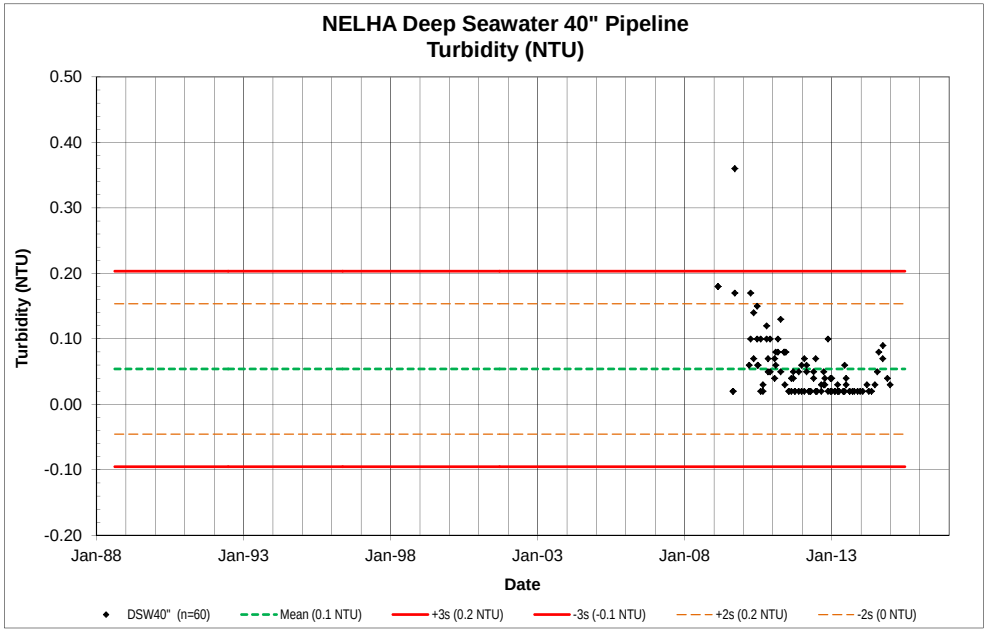
DSW 40"

Intake Depth: 674 m, Offshore Pipe Length: 1,916 m









NELHA Water Quality Laboratory

DSW 18"

Intake Depth: 628 m, Offshore Pipe Length: 1,834 m

SITE ID	DATE	TIME	PO_4^{3-}		NO_3^- & NO_2^-		NH_4^+ & NH_3		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW18"	3/23/05		2.9	90	40	564	0.22	3.1	85	2384	3.2	99	44.7	626	0.56	0.45		2.37	34.310	7.2	7.63	1.32	31	5888
DSW18"	4/21/05		3.0	93	40	560	0.21	2.9	84	2357	3.1	96	39.4	552		0.50		2.35	34.353	6.9	7.62	1.31	8	167
DSW18"	5/26/05	1000	2.9	90	38	531	0.22	3.1	77	2172	3.1	97	41.2	576		4.10		2.37	34.315	7.6	7.59	1.40	38	133
DSW18"	6/16/05	942	2.9	89	38	529	0.41	5.7	80	2249	3.1	94	40.1	561		0.90		2.35	34.345	7.3	7.59	1.38	5	183
DSW18"	7/27/05	933	2.9	91	38	534	0.07	1.0	80	2253	3.1	97	42.2	590		0.60		2.38	34.334	7.4	7.62	1.43	33	242
DSW18"	8/11/05	848	2.9	90	39	545	0.25	3.5	81	2287	3.1	96	40.9	573		1.53		2.36	34.341	7.5	7.63	1.35	119	392
DSW18"	9/14/05	920	3.0	93	39	551	0.31	4.3	82	2304	3.2	99	43.6	611		0.92		3.00	34.317	7.0	7.59	1.20	27	105
DSW18"	10/10/05	1000	3.0	92	41	568	0.24	3.4	80	2254	3.2	99	43.8	613	0.71	1.33		2.38	34.304	6.8	7.61	1.28	10	53
DSW18"	11/2/05	903	2.9	91	39	551	0.26	3.6	80	2239	3.1	96	43.2	605	0.78	0.77		3.00	34.318	6.8	7.60	1.38	68	131
DSW18"	12/20/05	859	2.8	87	38	531	0.41	5.7	72	2019	3.0	94	41.2	576	0.59	1.18		2.59	34.278	7.4	7.60	1.58	50	192
DSW18"	1/26/06	916	3.0	91	41	568	0.25	3.5	85	2389	3.1	97	43.6	611		1.23		2.24	34.351	6.8	7.58	1.05	27	131
DSW18"	2/28/06	1005	3.1	96	40	561	0.43	6.0	83	2330	3.4	107	45.4	636		0.85		2.29	34.330	6.7	7.59	1.05	14	64
DSW18"	3/23/06	935	3.0	92	40	562	0.38	5.3	84	2356	3.3	101	42.2	591		0.85		2.24	34.331	6.9	7.58	1.15	19	42
DSW18"	4/18/06	1018	3.0	92	41	573	0.17	2.4	79	2210	3.0	94	40.1	561	0.59	1.50		2.32	34.344	7.2	7.59	1.13	37	64
DSW18"	5/18/06	1010	2.9	89	38	532	0.15	2.1	76	2134	3.1	96	40.3	564	0.63	1.25		2.36	34.303	7.3	7.59	1.23	106	428
DSW18"	6/29/06	944	2.9	90	39	543	0.24	3.4	77	2149	3.1	96	43.2	605	0.72	1.75		2.32	34.335	7.8	7.59	1.23	138	622
DSW18"	7/25/06	1010	2.9	89	40	566	0.26	3.6	80	2255	3.1	95	36.1	506	0.63	1.23		2.33	34.388	7.8	7.59	1.26	97	139
DSW18"	8/10/06	1035	2.8	86	39	548	0.26	3.6	77	2149	3.0	94	37.9	531	0.58	1.40		1.94	34.334	7.6	7.57	1.26	56	136
DSW18"	9/21/06	1035	2.8	88	41	567	0.08	1.1	76	2137	3.0	94	37.8	529	0.60	1.30		2.07	34.347	7.6	7.59	1.26	213	247
DSW18"	10/26/06	1015	2.9	90	43	601	0.29	4.1	82	2306	3.1	96	40.4	565	0.62	0.78		2.65	34.378	7.5	7.61	1.18	288	589
DSW18"	11/30/06	1040	2.8	88	41	570	0.19	2.7	79	2205	3.1	96	37.4	524	0.58	1.95		2.73	34.350	7.4	7.58	1.07	460	1891
DSW18"	12/14/06	1024	2.9	90	39	539	0.21	2.9	79	2205	3.1	96	37.1	520	0.57	2.13		2.41	34.362	7.3	7.58	1.29	384	1763
DSW18"					Pipeline sheared																			
DSW18"	12/3/09	1007	3.0	93	39	547	0.4	5.1	86	2419	3.0	91	42.4	594		0.75			34.42	7.0	7.60	1.14		
DSW18"	1/14/10	1021	3.1	95	41	572	0.3	4.8	83	2334	3.1	96	42.7	598		0.13			34.56	7.1	7.81	1.48		
DSW18"	2/16/10	1200	2.9	91	42	595	0.3	3.8	78	2202	3.0	94	44.5	623		0.58			34.34	7.2	7.61	1.26		
DSW18"	3/15/10	949	3.1	95	42	593	0.1	1.4	96	2688	3.0	93	44.8	627		0.57			34.34	6.8	7.58	1.26		
DSW18"	4/1/10	908	3.2	98	40	563	0.2	3.1	85	2379	3.1	97	44.3	621		0.23	0.04		34.41	6.7	7.59	1.13		
DSW18"	5/10/10	917	2.9	89	41	574	0.3	4.1	94	2651	2.9	91	42.5	596		0.90	0.08		34.36	7.0	7.56	1.43		
DSW18"	6/23/10	950	2.9	91	43	603	0.1	1.5	90	2530	3.0	91	45.8	642		0.50	0.05		34.37	6.9	7.59	1.34		
DSW18"	7/1/10	1103	2.87	89	43	596	0.2	2.7	85	2389	2.9	90	45.9	643		0.60	0.05		34.27	7.0	7.58	1.46		
DSW18"	8/5/10	1000	2.92	90	42	585	0.0	0.5	90	2520	2.9	89	45.2	633		1.45	0.31		34.31	21.3	7.54	1.45		
DSW18"	9/2/10	1004	2.78	86	42	584	0.2	3.2	80	2241	2.9	89	45.2	634		0.93	0.35		34.33	22.9	7.53	0.85		
DSW18"	10/18/10	949	3.02	93	44	621	0.1	1.4	83	2341	3.1	95	48.1	674		0.30	0.26		34.23	22.2	7.54	1.17		
DSW18"	11/4/10	1012	2.75	85	41	581	0.0	0.5	98	2754	2.8	88	44.1	617		0.50	0.64		34.44	22.0	7.56	1.10		
DSW18"	12/1/10	1019	2.96	92	43	599	0.0	0.6	89	2494	2.9	91	46.9	658		0.23	0.16		34.36	21.7	7.56	1.01		
DSW18"	1/25/11	1006	3.12	97	43	608	0.3	4.4	89	2502	3.1	97	45.4	636		0.60	0.18		34.40	21.1	7.52	2.02		
DSW18"	2/8/11	1014	3.11	96	43	599	0.6	8.4	88	2462	3.2	99	46.8	656		0.63	0.21		34.43	22.1	7.62	1.12		
DSW18"	3/7/11	1112	3.13	97	43	599	0.3	4.7	89	2500	3.2	101	45.6	639		0.68	0.06		34.34	21.9	7.64	1.19		
DSW18"	4/11/11	1135	3.08	95	45	626	0.1	1.3	91	2553	3.1	96	49.1	687		0.62	0.13		34.69	21.5	7.55	1.06		
DSW18"	5/25/11	928	2.91	90	43	600	0.2	2.6	88	2478	2.8	86	46.0	644		0.83	0.26		34.39	22.1	7.60	1.73		
DSW18"	6/13/11	1045	2.86	89	44	615	0.2	3.1	87	2438	2.9	89	46.8	656		0.68	0.10		34.41	21.9	7.58	1.25		
DSW18"	7/21/11	913	3.02	94	42	591	0.2	2.6	88	2476	3.0	93	44.8	627		0.57	0.05		34.30	22.9	7.53	0.99		
DSW18"	8/22/11	1026	2.79	86	42	584	0.0	0.1	92	2571	2.8	86	45.4	635		0.49	0.08		34.40	23.9	7.58	1.19		
DSW18"	9/15/11	1000	2.74	85	40	563	0.1	0.9	85	2390	2.8	86	42.7	597		0.37	0.10		34.38	23.5	7.48	1.46		
DSW18"	10/4/11	818	2.74	85	41	576	0.0	0.3	84	2371	3.0	92	44.1	618		0.24	0.07		34.41	23.6	7.42	1.04		
DSW18"	11/21/11	1227	2.98	92	43	596	0.0	0.6	84	2348	3.0	91	47.5	665		0.30	0.02		34.29	19.2	7.65	0.99		
DSW18"	12/27/11	1041	2.91	90	43	602	0.1	1.3	86	2407	2.9	89	47.6	667		0.16	0.05		34.28	16.4	7.54	1.10		
DSW18"	1/30/12	1042	2.71	84	43	596	0.0	0.1	84	2355	2.8	87	46.7	654		1.08	0.05		34.51	16.9	7.51	1.06		
DSW18"	2/27/12	1042	2.92	90	42	582	0.0	0.1	84	2347	2.7	84	46.3	649		0.49	0.04		34.45	17.1	7.54	1.10		
DSW18"	3/28/12	1024	2.84	88	38	529	0.4	5.0	80	2246	2.7	83	41.4	579		0.52	0.03		34.41	16.1	7.54	0.98		
DSW18"	4/16/12	1034	3.01	93	43	596	0.0	0.3	79	2211	2.9	91	47.2	661		0.51	0.05		34.50	18.0	7.56	0.88		
DSW18"	5/24/12	859	3.20	99	44	616	0.1	1.9	88	2475	3.2	99	47.9	671		0.50	0.05		34.21	7.1	7.51	1.26		
DSW18"	6/19/12	1034	3.04	94	42	593	0.4	6.1	78	2194	2.9	91	45.5	638		0.52	0.05		34.57	6.9	7.66	1.10		

NELHA Water Quality Laboratory

DSW 18"

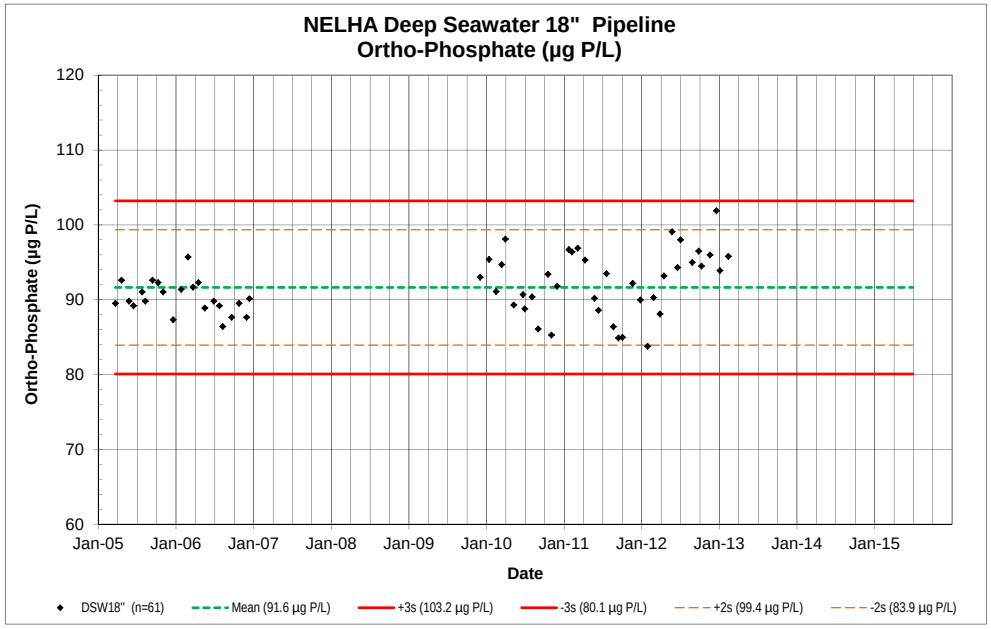
Intake Depth: 628 m, Offshore Pipe Length: 1,834 m

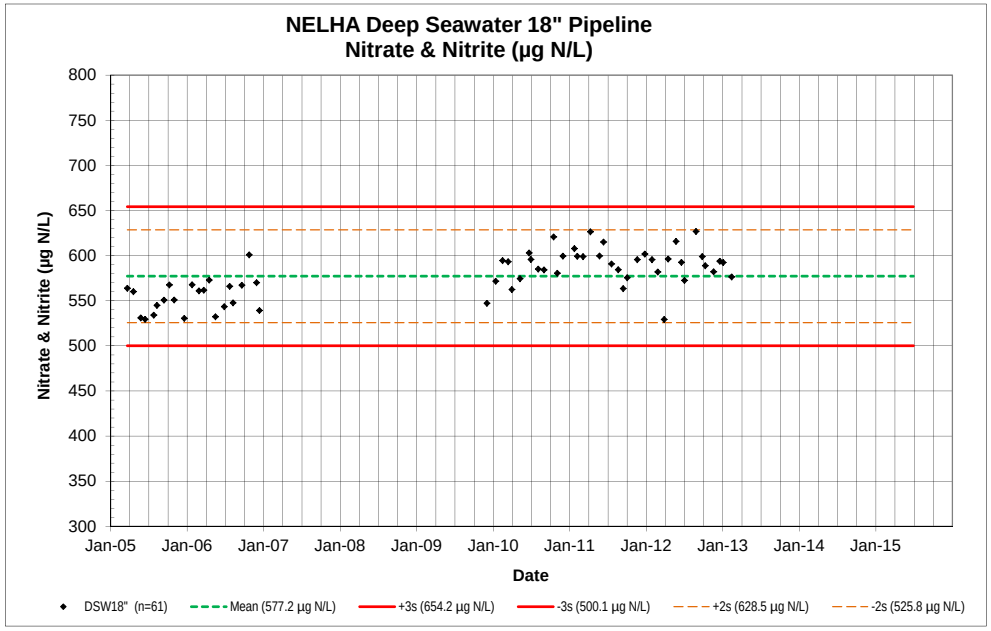
SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW18"	7/3/12	822	3.16	98	41	573	0.2	3.0	78	2182	3.1	97	45.5	637		1.03	0.02		34.48	7.1	7.45	1.35		
DSW18"	8/27/12	1112	3.07	95	45	627	0.2	3.0	91	2565	3.0	94	47.4	664		1.08	0.06		34.41	6.5	7.55	1.29		
DSW18"	9/26/12	1055	3.12	97	43	599	0.2	2.6	93	2611	3.1	97	46.1	645		0.69	0.03		34.46	6.2	7.44	1.35		
DSW18"	10/10/12	1005	3.05	95	42	589	0.1	2.1	89	2490	3.0	94	45.7	640		0.52	0.10		34.44	6.4	7.48	1.30		
DSW18"	11/19/12	1331	3.10	96	42	582	0.1	1.5	90	2517	3.2	99	46.2	648		0.53	0.02		34.33	6.8	7.62	1.41		
DSW18"	12/19/12	954	3.29	102	42	594	0.2	2.8	90	2538	3.3	101	45.3	634		0.70	0.02		34.31	6.7	7.56	1.46		
DSW18"	1/4/13	1025	3.03	94	42	592	0.1	0.9	90	2534	3.0	93	44.5	623		0.42	0.02		34.42	6.8	7.62	1.46		
DSW18"	2/13/13	1033	3.09	96	41	576	0.0	0.1	81	2280	3.1	96	42.5	596		0.55	0.02		34.36	6.9	7.56	1.72		
DSW18"	3/18/13	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	4/3/13	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	5/29/13	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	6/13/13	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	7/1/13	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	8/14/13	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	9/18/13	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	10/10/13	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	11/21/13	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	12/23/13	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	1/23/14	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	2/12/14	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	3/17/14	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	4/10/14	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	5/13/14	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	6/24/14	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	7/23/14	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	8/11/14	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	9/29/14	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	10/1/14	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	11/25/14	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	12/30/14	No Sample - 18" DSW Pump Broken - Leaking Gate Valve Replaced																						
DSW18"	1/1/15																							
DSW18"	2/1/15																							
DSW18"	3/1/15																							
DSW18"	4/1/15																							
DSW18"	5/1/15																							
DSW18"	6/1/15																							
DSW18"	7/1/15																							
Mean (Mar. '05 - present)			3.0	92	41	577	0.20	2.8	84	2366	3.0	94	44	614	0.63	0.84	0.11	2.41	34.37	7.19	7.57	1.26	101	618
STD DEV			0.1	4	2	26	0.13	1.8	6	155	0.1	5	3	42	0.07	0.61	0.13	0.25	0.08	0.33	0.06	0.21	126	1279
Range																								
UWL	+2s		3.21	99	45	629	0.46	6.4	95	2676	3.3	103	49.8	698	0.76	2.06	0.36	2.91	34.535	7.8	7.69	1.67		
LWL	-2s		2.71	84	38	526	-0.06	-0.8	73	2056	2.7	85	37.8	530	0.49	-0.37	-0.15	1.91	34.209	6.5	7.46	0.84		
UCL	+3s		3.33	103	47	654	0.59	8.2	101	2831	3.5	108	52.8	740	0.82	2.67	0.49	3.17	34.616	8.2	7.75	1.88		
LCL	-3s		2.59	80	36	500	-0.19	-2.7	68	1901	2.6	80	34.8	488	0.43	-0.98	-0.27	1.65	34.127	6.2	7.40	0.63		
Data																								
Max. Value			3.3	102	45	627	0.60	8.4	98	2754	3.4	107	49.1	687	0.78	4.10	0.64	3.00	34.690	23.9	7.81	2.02	460	5888
Min. Value			2.7	84	38	529	0.01	0.1	72	2019	2.7	83	36.1	506	0.56	0.13	0.02	1.94	34.210	6.2	7.42	0.85	5	42

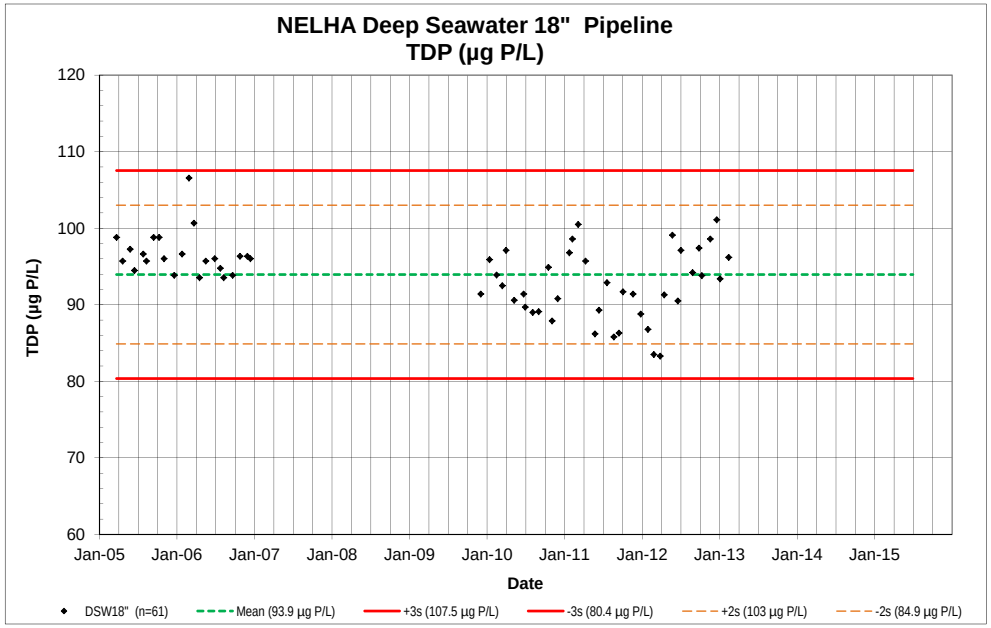
NELHA Water Quality Laboratory

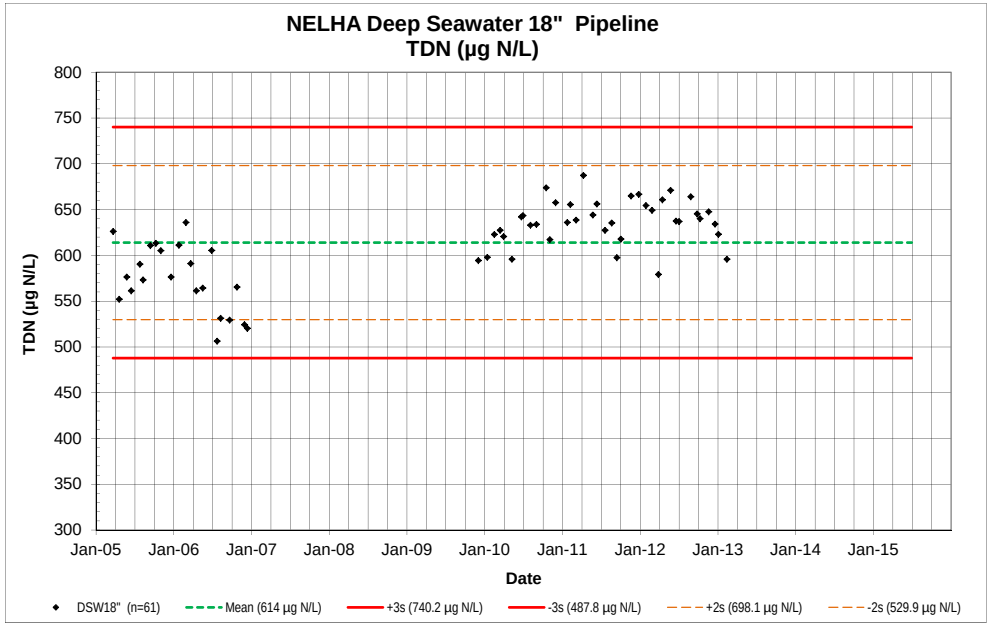
DSW 18" KP

Intake Depth: 628 m, Offshore Pipe Length: 1834 m





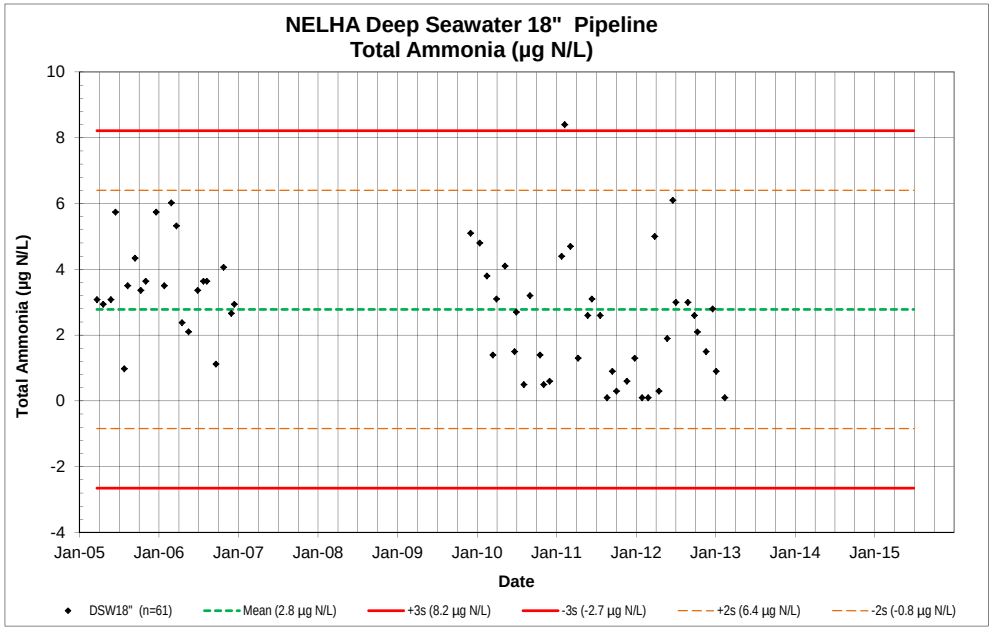


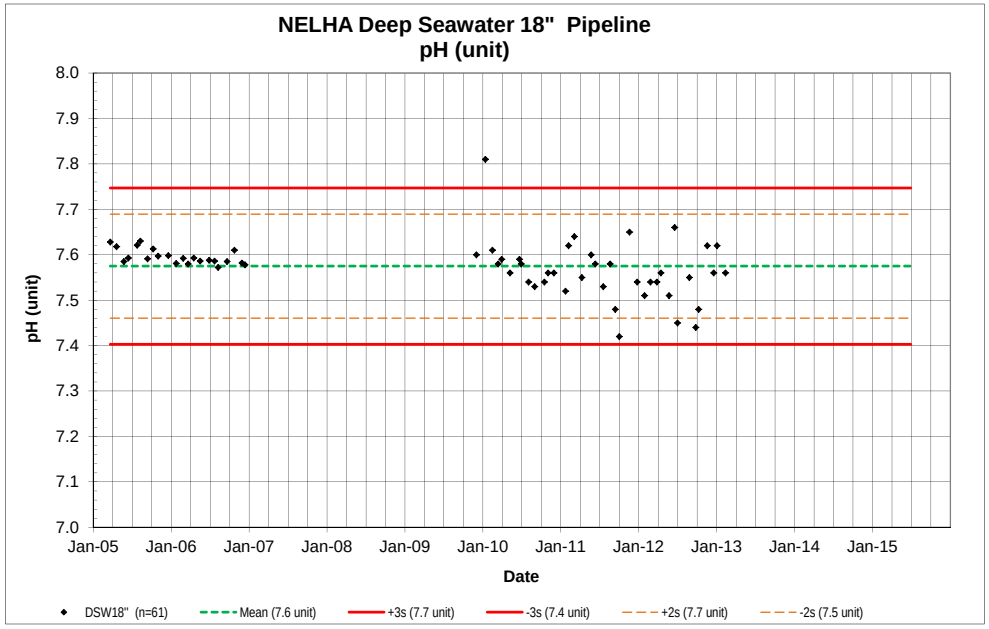


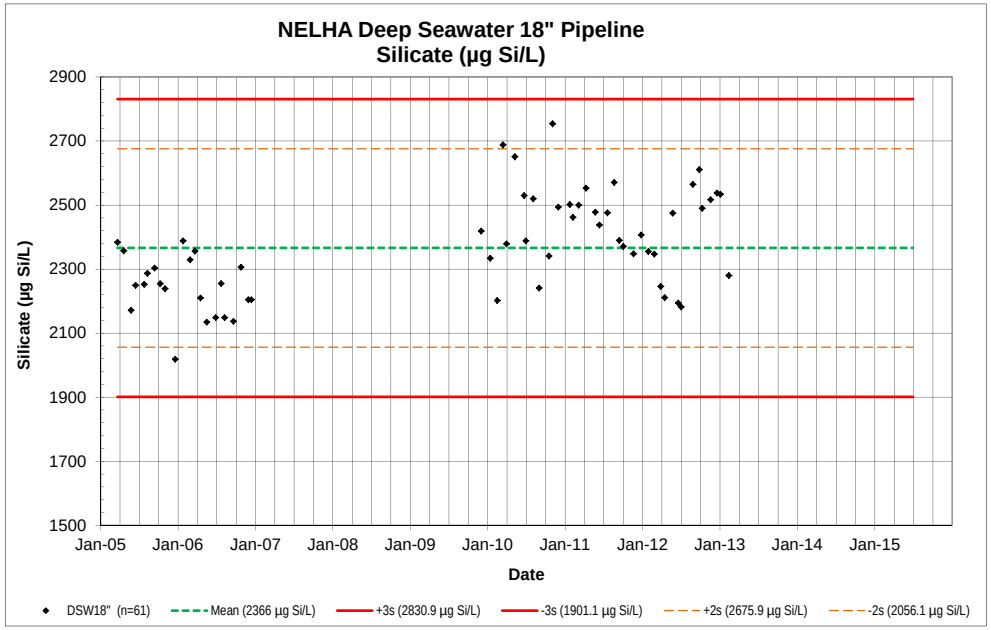
NELHA Water Quality Laboratory

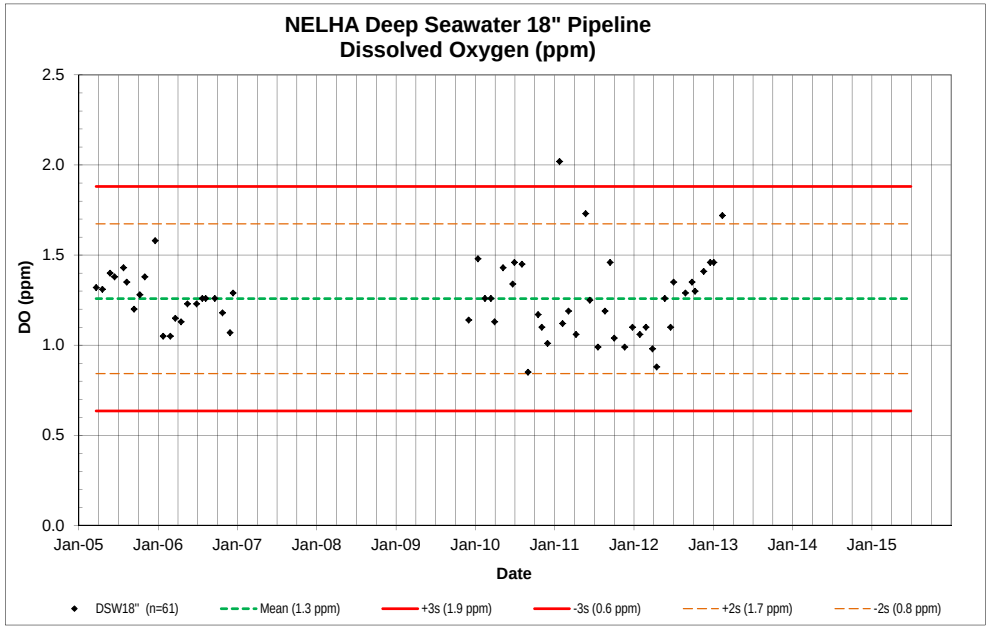
DSW 18" KP

Intake Depth: 628 m, Offshore Pipe Length: 1834 m





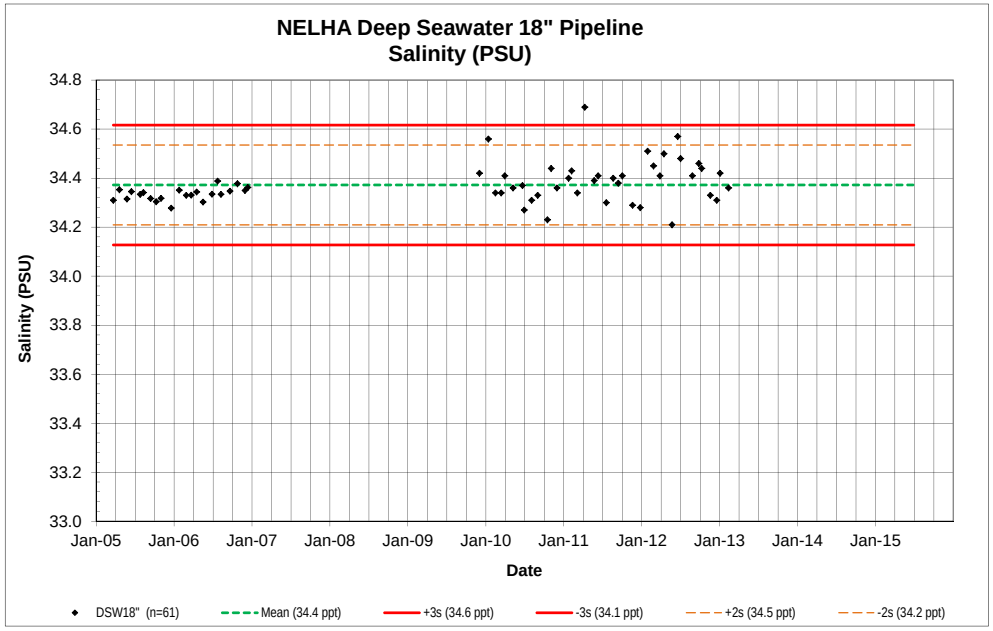


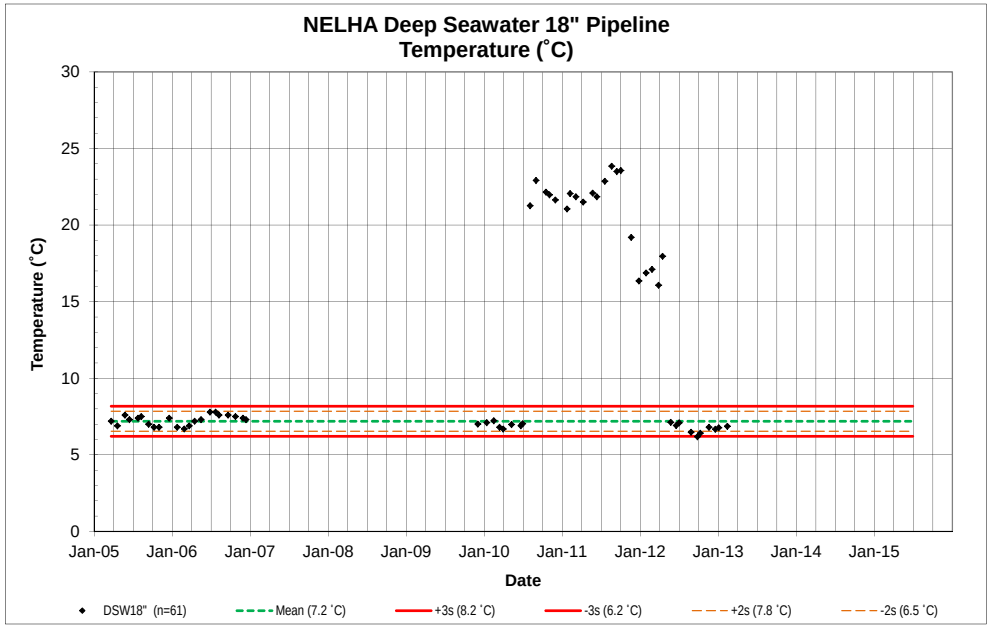


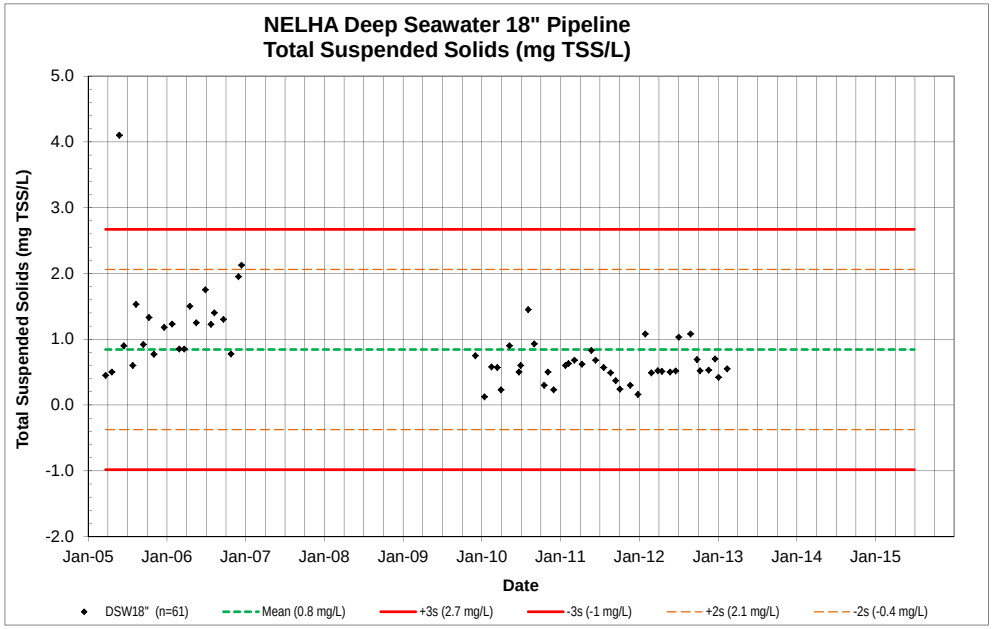
NELHA Water Quality Laboratory

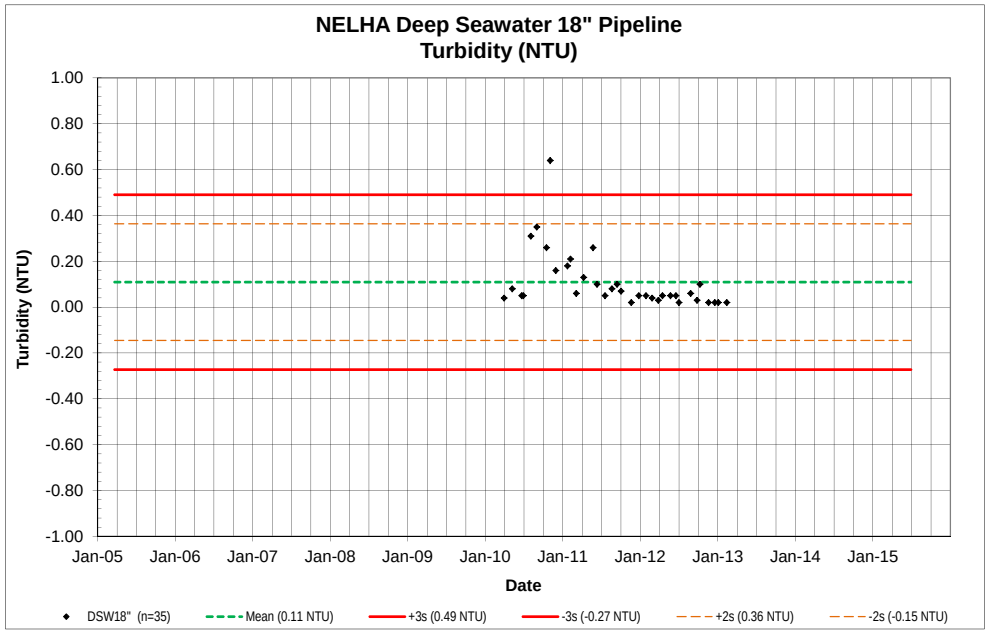
DSW 18" KP

Intake Depth: 628 m, Offshore Pipe Length: 1834 m









NELHA Water Quality Laboratory

DSW 55"

Intake Depth: 915 m, Offshore Pipe Length: 3,124 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW 55"	8/11/05	920	3.0	94	41	568	0.27	3.8	105	2946	3.2	99	43	604		1.75		2.39	34.469	5.8	7.65	1.45	43	309
DSW 55"	9/14/05	940	3.1	96	41	578	0.33	4.6	106	2971	3.3	102	44	610		1.48		2.39	34.479	5.5	7.61	1.50	21	50800
DSW 55"	10/10/05	1025	3.1	96	43	603	0.23	3.2	109	3064	3.3	102	46	644	0.74	1.55		2.41	34.498	5.1	7.64	1.64	6	5854
DSW 55"	11/2/05	927	3.1	95	43	597	0.27	3.8	106	2974	3.3	101	45	628	0.56	1.03		2.58	34.491	5.4	7.62	1.59	147	247
DSW 55"	12/20/05	920	3.1	95	42	589	0.38	5.3	105	2952	3.2	100	45	625	0.51	1.20		2.63	34.461	5.5	7.63	1.69	35	189
DSW 55"	1/26/06	937	3.0	94	41	576	0.25	3.5	108	3019	3.2	98	43	600		1.65		2.25	34.468	5.8	7.60	1.47	27	564
DSW 55"	2/28/06	1036	3.2	98	41	578	0.34	4.8	103	2893	3.6	110	45	635		1.08		2.18	34.465	5.8	7.61	1.48	143	400
DSW 55"	3/23/06	1016	3.0	94	41	571	0.45	6.3	103	2893	3.2	99	43	605		0.85		2.24	34.469	5.7	7.60	1.39	18	122
DSW 55"	4/18/06	1044	3.1	95	42	584	0.19	2.7	103	2893	3.1	96	42	588	0.56	1.40		2.36	34.466	5.7	7.63	1.48	788	1011
DSW 55"	5/18/06	1040	3.1	96	42	581	0.21	2.9	106	2977	3.3	103	43	595	0.56	1.60		2.34	34.472	6.0	7.60	1.39	29	156
DSW 55"	6/29/06	920	3.1	96	41	581	0.27	3.8	100	2809	3.2	99	41	568	0.63	1.65		2.06	34.467	5.8	7.60	1.31	51	203
DSW 55"	7/25/06	1032	3.0	92	42	587	0.25	3.5	99	2772	3.2	98	40	558	0.58	1.08		1.79	34.483	6.5	7.59	1.52	136	533
DSW 55"	8/10/06	1056	2.9	90	41	576	0.27	3.8	97	2719	3.1	97	40	555	0.62	0.83		2.06	34.403	6.5	7.59	1.54	113	302
DSW 55"	9/21/06	1054	3.0	91	43	605	0.08	1.1	99	2789	3.0	94	40	558	0.55	1.03		2.02	34.480	5.4	7.59	1.41	15	44
DSW 55"	10/26/06	1034	3.0	92	44	616	0.27	3.8	98	2764	3.2	99	43	601	0.56	0.95		2.51	34.470	6.0	7.61	1.38	61	297
DSW 55"	11/30/06	1059	3.0	92	41	580	0.22	3.1	99	2766	3.2	98	40	558	0.56	1.58		2.50	34.478	6.0	7.60	1.34	22	67
DSW 55"	12/14/06	1110	3.0	94	40	566	0.29	4.1	96	2685	3.2	100	40	558	0.55	1.25		2.43	34.461	5.8	7.59	1.28	13	47
DSW 55"	1/11/07	1027	3.0	94	43	597	0.36	5.0	98	2752	3.2	100	45	636	0.60	2.13		2.41	34.476	5.8	7.60	1.35	94	736
DSW 55"	2/15/07	1045	3.1	95	42	590	0.44	6.2	98	2755	3.4	104	45	625	0.62	1.43		2.38	34.480	6.1	7.62	1.35	26	158
DSW 55"	3/8/07	1045	3.0	92	44	619	0.25	3.5	102	2865	3.2	99	45	629	0.55	1.78		2.39	34.470	6.1	7.62	1.40	43	256
DSW 55"	4/12/07	1100	2.9	89	39	545	0.23	3.2	98	2758	3.1	97	40	557	0.58	1.28		2.28	34.481	6.0	7.62	1.37	105	1803
DSW 55"	5/9/07	1045	3.0	93	50	705	0.24	3.4	99	2780	3.4	104	42	594	0.65	0.90		2.07	34.472	5.8	7.62	1.47	30	128
DSW 55"	6/27/07	1025	3.0	94	46	642	0.01	0.1	91	2552	3.1	96	50	701		1.23		2.55	34.474	6.2	7.63	1.34	178	1378
DSW 55"	7/30/07	1335	3.1	96	45	636	0.11	1.5	96	2700	2.5	77	42	587		1.15		2.52	34.650	5.5	7.61	1.58		
DSW 55"	8/30/07	907	3.0	93	44	622	0.01	0.1	90	2533	2.6	79	43	603		1.00		2.47	34.506	5.9	7.81	1.47		
DSW 55"	9/24/07	952	3.0	93	45	629	0.05	0.7	96	2705	2.4	73	49	690		1.03		1.99	34.680	5.6	7.96	1.56		
DSW 55"	10/30/07	1353	3.0	92	43	608	0.01	0.1	99	2783	2.6	80	49	682		0.73		2.60	34.484	5.6	7.49	1.50		
DSW 55"	11/27/07	1416	3.2	98	49	685	0.69	9.6	95	2670	3.3	102	52	734		0.83		2.54	34.522	5.3	7.63	1.84		
DSW 55"	12/31/07	1105	2.7	83	40	562	0.66	9.3	69	1926	3.2	100	50	694		0.40		2.53	34.482	5.5	7.65	1.61		
DSW 55"	1/30/08	902	2.9	89	43	603	0.55	7.7	88	2474	3.0	93	47	662		0.75		2.42	34.500	5.6	7.70	2.25		
DSW 55"	2/28/08	1306	2.9	89	42	590	0.05	0.7	90	2529	2.6	79	42	587		0.68		2.72	34.490	5.4	7.63	1.67		
DSW 55"	3/31/08	1117	2.9	91	44	613	0.05	0.7	90	2536	2.6	81	44	620		1.35		2.50	34.560	5.4	7.55	1.55		
DSW 55"	4/25/08	855	2.8	86	NA	NA	0.15	2.1	97	2715	2.6	81	41	579		0.48		2.48	34.478	5.6	7.62	1.62		
DSW 55"	5/23/08	1210	2.6	81	43	605	0.49	6.9	NA	NA	2.4	73	45	637		0.65		2.43	34.450	5.7	7.71	1.68		
DSW 55"	6/10/08	1105	2.6	80	41	576	0.18	2.5	89	2507	2.4	75	43	598		0.53		NA	34.450	5.4	7.65	1.74		
DSW 55"	7/18/08	1018	2.6	81	43	605	0.09	1.3	95	2676	2.1	65	42	594		0.30			34.56	5.6	7.89	1.59		
DSW 55"	8/30/08	1121	2.7	84	41	581	0.43	6.0	91	2543	2.8	86	50	698		0.40			34.441	5.2	7.74	1.32		
DSW 55"	9/8/08	920	2.6	82	42	582	0.15	2.1	89	2512	2.3	72	45	632		0.45			34.50	5.6	7.66	NA		
DSW 55"	10/23/08	1029	2.7	83	42	583	0.39	5.5	85	2377	2.8	86	48	678		0.48			34.55	6.4	7.71	1.61		
DSW 55"	11/28/08	1012	3.0	92	44	616	0.32	4.5	94	2649	2.7	85	47	656		0.30			34.52	5.7	7.68	1.66		
DSW 55"	12/30/08	919	2.7	83	43	599	0.33	4.6	89	2509	2.7	85	45	633		0.36			34.59	5.5	7.65	1.88		
DSW 55"	1/12/09	1134	3.0	92	42	592	0.12	1.7	92	2594	2.9	91	47	656		0.70			34.43	5.1	7.63	1.59		
DSW 55"	2/20/09	1044	2.5	78	41	575	0.31	4.3	94	2651	2.9	90	46	639		0.92	0.06		34.72	6.1	7.46	1.56		
DSW 55"	3/30/09	1047	2.2	67	35	493	0.11	1.6	74	2072	2.4	73	38	535		0.25			34.69	5.6	7.69	1.55		
DSW 55"	4/30/09	949	3.0	92	39	542	0.55	7.7	83	2340	2.4	76	46	648		0.27			34.53	5.4	7.65	1.62		
DSW 55"	5/15/09	1338	3.3	102	42	587	0.19	2.7	88	2479	3.5	108	47	654		0.21			34.63	5.6	7.62	1.66		
DSW 55"	6/10/09	949	3.2	98	40	566	0.16	2.2	92	2596	3.1	95	42	586		0.21			34.51	6.1	7.63	1.50		
DSW 55"	7/10/09	1005	2.4	76	28	393	0.42	5.9	66	1845	2.2	70	32	452		0.44			34.69	5.2	7.65	1.44		
DSW 55"	8/27/09	1057	2.9	89	36	499	0.19	2.7	96	2693	2.6	80	40	558		0.37	0.02		34.65	5.2	8.26	1.40		
DSW 55"	9/17/09	952	2.3	71	34	480	0.23	3.2	54	1512	2.6	82	35	491		0.78	0.05		34.65	5.7	8.19	1.55		
DSW 55"	10/26/09	1009	3.0	94	45	637	0.09	1.3	105	2953	3.2	98	44	622		0.46			34.56	5.3	7.60	1.53		
DSW 55"	11/19/09	1345	3.1	97	41	570	0.50	7.0	105	2945	3.1	96	44	616		0.50			34.67	5.6	7.51	1.30		
DSW 55"	12/3/09	1017	3.1	96	41	568	0.44	6.1	106	2976	3.0	93	43	606		0.78			34.58	5.2	7.67	1.66		
DSW 55"	1/14/10	1032	3.2	98	42	595	0.24	3.3	102	2873	3.2	99	44	620		0.60			34.60	5.5	7.66	1.59		
DSW 55"	2/16/10	1207	3.1	96	45	626	0.29	4.1	107	3008	3.2	98	47	652		1.05			34.44	5.0	7.62	1.64		
DSW 55"	3/15/10	1030	3.1	96	44	610	0.10	1.4	112	3159	3.1	96	45	635		0.73	0.02		34.47	5.3	7.58	1.96		
DSW 55"	4/1/10	919	3.2	100	42	583	0.06	0.9	114	3210	3.3	102	43	605		0.18	0.08		34.52	5.2	7.59	1.98		
DSW 55"	5/10/10	942	3.0	93	43	600	0.32	4.5	112	3156	3.1	95	46	649		0.55	0.05		34.44	5.5	7.59	1.79		
DSW 55"	6/23/10	1013	3.0	93	44	620	0.18	2.5	109	3048	3.0	92	46	640		0.27	0.06		34.51	5.5	7.61	2.05		

NELHA Water Quality Laboratory

DSW 55"

Intake Depth: 915 m, Offshore Pipe Length: 3,124 m

SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW 55"	7/1/10	1120	3.0	92	44	610	0.08	1.1	106	2987	3.0	94	47	662		0.58	0.04		34.37	5.4	7.61	1.96		
DSW 55"	8/5/10	1016	3.0	94	42	588	0.04	0.6	102	2866	3.0	93	44	622		0.70	0.02		34.52	6.0	7.57	1.56		
DSW 55"	9/2/10	1052	3.0	93	43	608	0.34	4.8	97	2734	3.2	98	46	647		0.80	0.02		34.42	6.5	7.57	1.62		
DSW 55"	10/18/10	1002	3.2	98	45	623	0.20	2.8	100	2817	3.3	101	48	669		0.43	0.07		34.33	5.9	7.58	1.92		
DSW 55"	11/4/10	1025	3.0	92	43	601	0.04	0.5	98	2754	3.1	95	45	632		0.45	0.03		34.51	5.7	7.61	1.59		
DSW 55"	12/1/10	1029	3.0	93	44	613	0.01	0.1	108	3020	3.0	93	48	670		0.30	0.04		34.40	5.4	7.56	1.57		
DSW 55"	1/25/11	1016	3.2	98	44	619	0.26	3.6	103	2892	3.2	98	50	703		0.50	0.05		34.47	5.5	7.54	1.54		
DSW 55"	2/8/11	1023	3.2	99	44	614	0.36	5.0	103	2879	3.3	101	46	648		0.68	0.06		34.51	5.4	7.63	1.68		
DSW 55"	3/7/11	1126	3.2	100	44	611	0.33	4.6	107	3000	3.2	101	46	638		0.50	0.05		34.40	5.2	7.61	1.90		
DSW 55"	4/11/11	1146	3.1	95	46	643	0.09	1.2	105	2961	3.2	99	50	706		0.59	0.04		34.77	5.3	7.61	1.53		
DSW 55"	5/25/11	938	3.0	94	43	604	0.19	2.6	107	2992	3.1	95	46	644		0.62	0.05		34.48	5.4	7.63	2.75		
DSW 55"	6/13/11	1058	3.0	94	45	637	0.10	1.4	108	3025	3.1	95	48	677		0.59	0.04		34.52	5.2	7.61	1.96		
DSW 55"	7/21/11	935	3.2	100	43	608	0.12	1.7	106	2987	3.2	100	45	635		0.64	0.02		34.46	5.2	7.56	1.67		
DSW 55"	8/22/11	1054	3.1	96	43	605	0.03	0.4	110	3076	3.1	96	46	641		0.62	0.02		34.44	4.9	7.58	2.01		
DSW 55"	9/15/11	1011	3.0	94	41	570	0.10	1.4	98	2746	3.0	93	43	596		0.19	0.02		34.34	5.6	7.58	1.60		
DSW 55"	10/4/11	844	3.0	94	43	599	0.02	0.3	101	2833	3.1	95	45	624		0.47	0.02		34.63	5.4	7.62	1.71		
DSW 55"	11/21/11	1238	3.1	96	44	619	0.01	0.1	103	2895	3.1	96	47	663		0.20	0.02		34.47	5.2	7.63	1.66		
DSW 55"	12/27/11	1051	3.0	92	44	616	0.11	1.6	105	2962	3.0	94	47	661		0.42	0.12		34.32	5.1	7.62	1.59		
DSW 55"	1/30/12	1055	2.9	90	44	621	0.03	0.4	100	2797	2.9	91	47	655		0.31	0.05		34.48	5.2	7.63	1.65		
DSW 55"	2/27/12	1058	3.0	94	43	602	0.01	0.1	98	2747	2.9	89	47	665		0.49	0.03		34.51	5.3	7.55	1.40		
DSW 55"	3/28/12	1044	3.0	92	39	550	0.21	3.0	92	2593	2.8	87	43	602		0.48	0.02		34.49	5.2	7.57	1.45		
DSW 55"	4/16/12	1045	3.2	100	44	616	0.04	0.6	97	2727	3.2	98	48	673		4.31	0.04		34.50	5.3	7.59	1.40		
DSW 55"	5/23/12	911	3.2	100	45	633	0.11	1.6	101	2838	3.2	99	48	665		0.44	0.03		34.33	5.5	7.56	1.81		
DSW 55"	6/19/12	1050	3.1	95	44	611	0.31	4.3	95	2658	3.1	95	46	646		0.42	0.02		34.63	5.3	7.65	1.86		
DSW 55"	7/3/12	837	3.2	99	43	605	0.24	3.4	99	2778	3.2	99	45	634		1.10	0.06		34.64	5.4	7.57	1.68		
DSW 55"	8/27/12	1125	3.1	95	45	627	0.14	1.9	110	3079	3.3	101	50	702		0.52	0.03		34.50	5.0	7.56	1.56		
DSW 55"	9/26/12	1114	3.2	98	44	616	0.51	7.2	111	3125	3.2	100	47	661		0.88	0.05		34.51	4.7	7.47	1.69		
DSW 55"	10/10/12	1019	3.1	96	44	610	0.13	1.8	109	3070	3.2	99	47	661		0.57	0.02		34.58	4.9	7.52	1.64		
DSW 55"	11/19/12	1345	3.2	99	43	606	0.18	2.5	107	2995	3.2	100	45	625		0.55	0.02		34.43	4.9	7.62	1.73		
DSW 55"	12/19/12	1005	3.4	104	44	613	0.14	2.0	108	3044	3.4	104	46	645		0.61	0.03		34.43	5.1	7.58	1.78		
DSW 55"	1/4/13	1037	3.1	95	44	614	0.19	2.7	107	2996	3.1	96	45	635		0.60	0.02		34.47	5.2	7.63	1.88		
DSW 55"	2/13/13	1047	3.1	98	43	596	0.01	0.1	99	2779	3.2	99	45	633		0.49	0.02		34.47	5.2	7.59	2.10		
DSW 55"	3/18/13	1149	3.4	105	47	660	0.41	5.8	108	3039	3.4	105	48	679		0.74	0.02		34.53	4.8	7.59	2.00		
DSW 55"	4/3/13	1252	3.1	96	44	614	0.09	1.3	103	2883	3.1	96	46	641		0.55	0.03		34.60	5.0	7.61	2.08		
DSW 55"	5/29/13	941	3.5	107	47	656	0.20	2.8	110	3086	3.3	103	50	696		0.61	0.02		34.56	5.1	7.58	1.87		
DSW 55"	6/13/13	1110	3.1	97	42	590	0.34	4.7	99	2781	3.0	93	43	608		0.51	0.05		34.66	5.2	7.55	1.71		
DSW 55"	7/1/13	1015	3.1	97	45	624	0.15	2.1	106	2972	3.1	98	47	659		0.62	0.02		34.43	5.1	7.62	2.43		
DSW 55"	8/14/13	1043	3.1	95	44	622	0.09	1.3	101	2842	3.0	94	46	638		0.50	0.02		34.36	5.2	7.55	1.69		
DSW 55"	9/18/13	846	3.1	95	43	606	0.08	1.1	102	2863	3.0	94	45	632		0.47	0.02		34.46	5.5	7.48	2.52		
DSW 55"	10/10/13	1105	3.1	95	43	607	0.26	3.6	100	2808	3.0	93	45	628		0.49	0.02		34.59	5.4	7.56	1.64		
DSW 55"	11/21/13	1042	3.1	96	45	625	0.29	4.1	102	2858	3.1	95	46	649		0.38	0.02		34.58	5.1	7.54	1.79		
DSW 55"	12/23/13	1003	3.0	93	42	584	0.36	5.0	100	2804	2.9	90	42	589		0.72	0.02		34.60	5.2	7.58	1.74		
DSW 55"	1/23/14	1230	3.0	94	44	616	0.20	2.8	104	2930	3.0	92	46	639		1.24	0.02		34.55	5.1	7.58	1.93		
DSW 55"	2/12/14	1134	3.0	94	45	624	0.25	3.5	106	2984	3.0	92	45	630		0.60			34.41	4.8	7.58	2.18		
DSW 55"	3/17/14	1052	2.9	90	44	612	0.16	2.3	100	2815	3.1	95	45	635		0.88	0.02		34.54	5.1	7.58	1.78		
DSW 55"	4/10/14	954	3.1	95	45	630	0.32	4.5	103	2879	3.0	93	46	640		0.81	0.04		34.44	5.2	7.58	1.90		
DSW 55"	5/13/14	1334	3.0	91	44	621	0.26	3.7	104	2911	3.0	92	46	640		0.68	0.02		34.55	5.0	7.58	2.47		
DSW 55"	6/24/14	1111	3.1	97	45	637	0.29	4.1	95	2655	3.3	103	47	656		0.82	0.04		34.41	5.1	7.62	1.90		
DSW 55"	7/23/14	1138	3.2	98	43	604	0.51	7.1	102	2868	3.1	95	45	630		0.66	0.12		34.60	5.2	7.59	1.98		
DSW 55"	8/11/14	1203	2.3	71	38	539	0.31	4.4	87	2433	2.3	72	40	554		0.76	0.09		34.56	5.4	7.54	1.75		
DSW 55"	9/29/14	1123	3.3	102	44	616	0.44	6.2	83	2328	3.3	103	46	648		0.88	0.10		34.57	5.1	7.56	1.97		
DSW 55"	10/15/14	1234	3.1	97	45	628	0.33	4.6	101	2831	3.1	96	46	650		0.70	0.04		34.48	5.1	7.67	1.79		
DSW 55"	11/25/14	1251	3.2	98	46	639	0.10	1.4	100	2805	3.1	97	49	689		0.69	0.03		34.52	5.2	7.60	1.77		
DSW 55"	12/30/14	1005	3.1	97	43	600	0.20	2.8	102	2869	3.1	97	49	689		0.76	0.10		34.48	5.0	7.56	1.93		
DSW 55"	1/1/15																							
DSW 55"	2/1/15																							
DSW 55"	3/1/15																							
DSW 55"	4/1/15																							
DSW 55"	5/1/15																							
DSW 55"	6/1/15																							

NELHA Water Quality Laboratory

DSW 55"

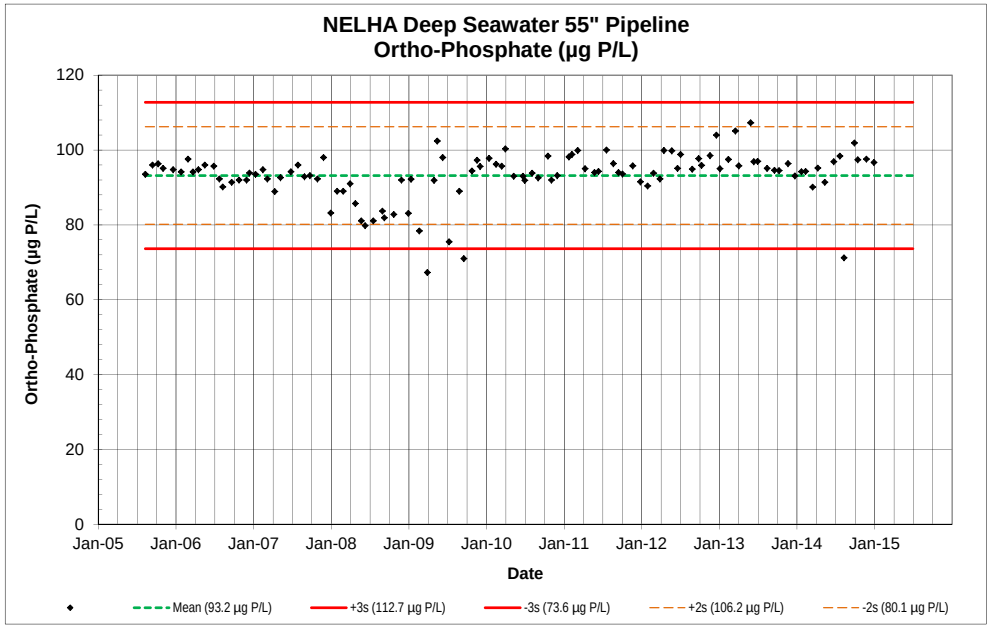
Intake Depth: 915 m, Offshore Pipe Length: 3,124 m

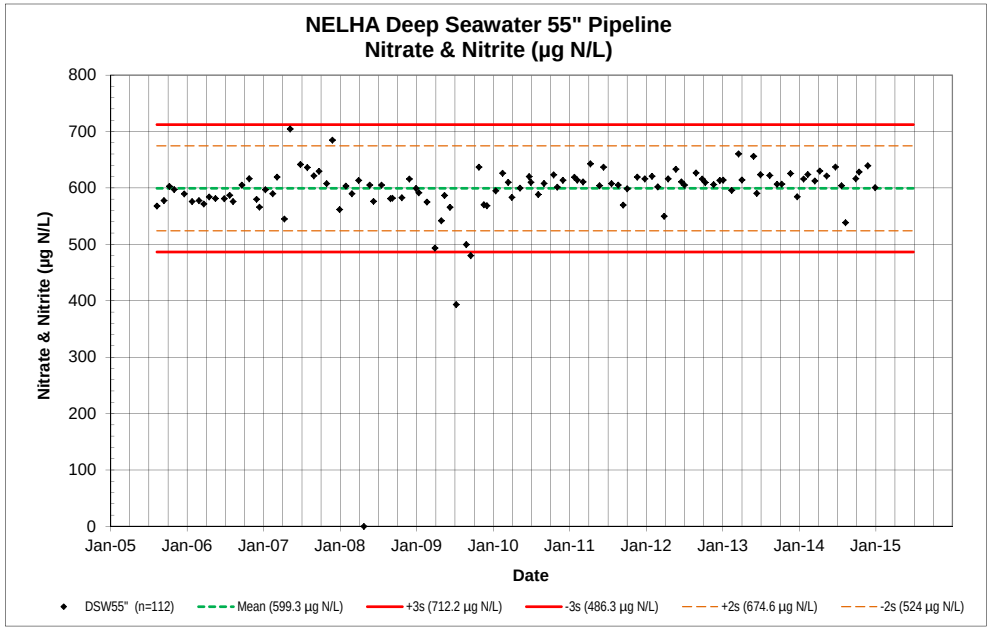
SITE ID	DATE	TIME	PO_4^{3-}		$NO_3^- \& NO_2^-$		$NH_4^+ \& NH_3$		Si		TDP		TDN		TOC	TSS	Turbidity	ALK	SALINITY	TEMP	pH	DO	Vibrio	Total Count
	M/D/Y	(2400)	(µM)	(µg P/L)	(µM)	(µg N/L)	(µM)	(µg N/L)	(µM)	(µg Si/L)	(µM)	(µg P/L)	(µM)	(µg N/L)	(mgC/L)	(mg/L)	(NTU)	(mEq/L)	(PSU)	(˚C)	(unit)	(ppm)	CFU/100mL	Marine Agar CFU/100mL
DSW 55"	7/1/15																							
Mean (Aug. '05 - present)			3.0	93	42.8	599	0.2	3.2	99.1	2783	3.0	94	45.0	630	0.6	0.78	0.04	2.37	34.51	5.45	7.62	1.69		
STD DEV			0.2	7	2.7	38	0.2	2.1	9.4	263	0.3	9	3.2	44	0.05	0.52	0.03	0.21	0.08	0.38	0.10	0.27		
Range																								
UWL	+2s		3.4	106	48	675	0.53	7.4	118	3309	3.6	111	51	719	0.69	1.82	0.09	2.78	34.676	6.2	7.83	2.22		
LWL	-2s		2.6	80	37	524	-0.07	-1.0	80	2257	2.4	76	39	542	0.48	-0.26	-0.01	1.95	34.339	4.7	7.41	1.15		
UCL	+3s		3.6	113	51	712	0.68	9.5	127	3572	3.9	120	54	763	0.74	2.33	0.12	2.99	34.761	6.6	7.94	2.49		
LCL	-3s		2.4	74	35	486	-0.22	-3.1	71	1994	2.2	67	36	498	0.43	-0.78	-0.04	1.74	34.254	4.3	7.31	0.88		
Data																								
Max. Value			3.5	107	50	705	0.69	9.6	114	3210	3.6	110	52	734	0.7	4.31	0.12	2.72	34.770	6.5	8.26	2.75		
Min. Value			2.2	67	28	393	0.01	0.1	54	1512	2.1	65	32	452	0.5	0.18	0.02	1.79	34.320	4.7	7.46	1.28		

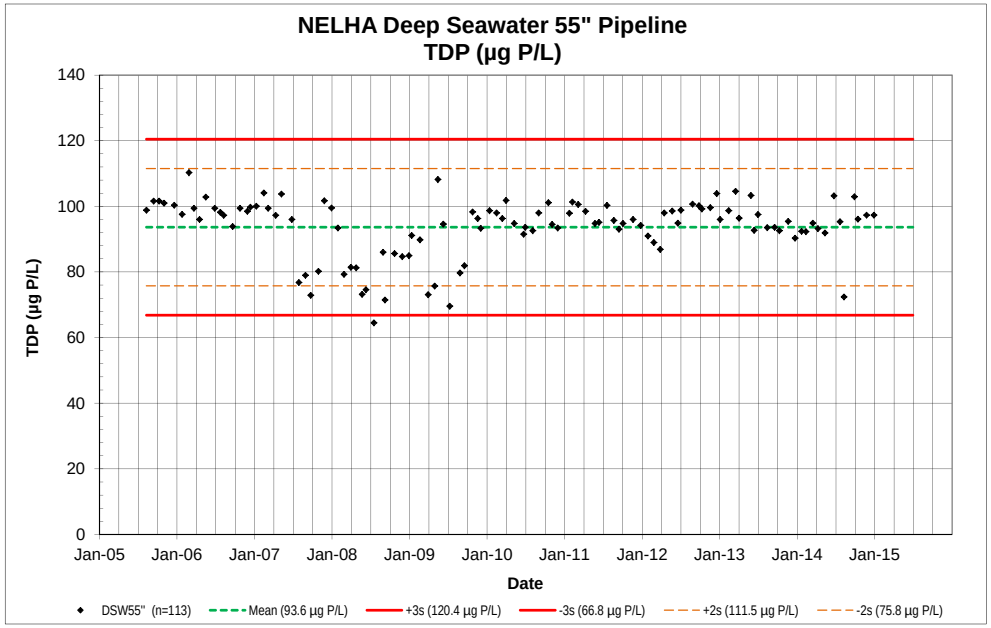
NELHA Water Quality Laboratory

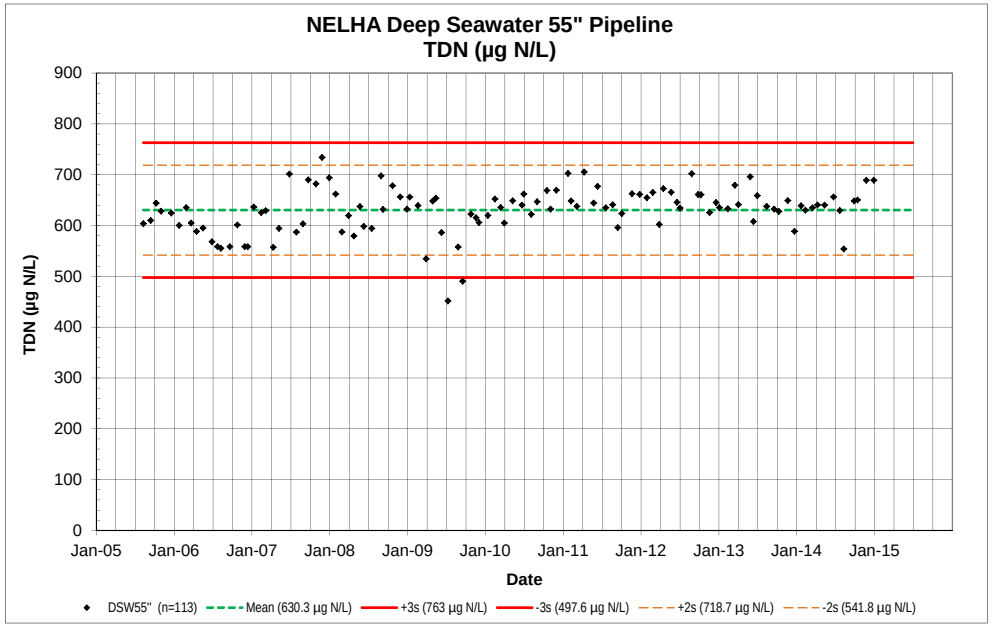
DSW 55"

Intake Depth: 915 m, Offshore Pipe Length: 3,124 m





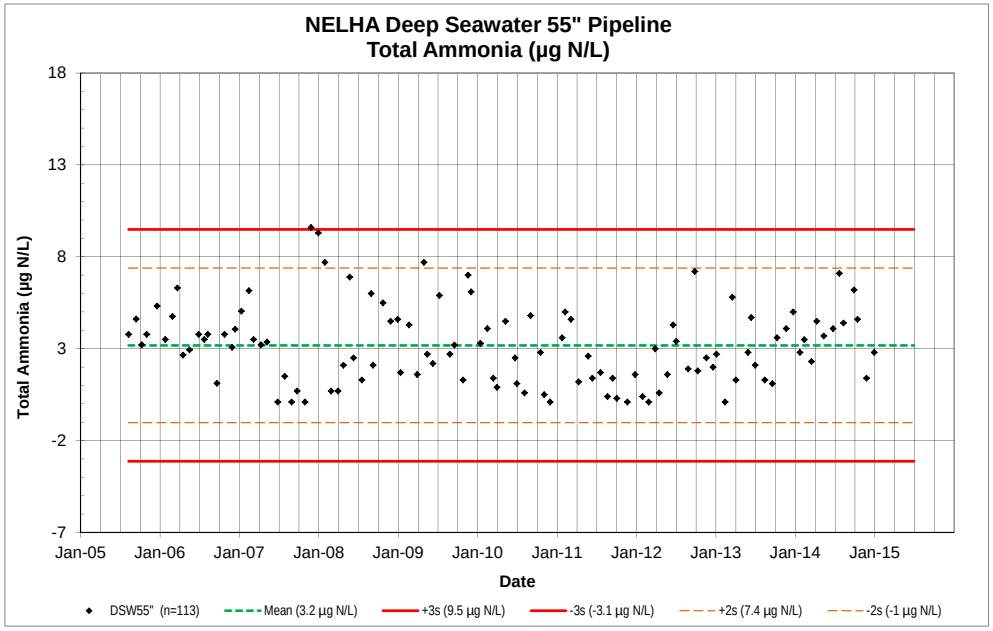


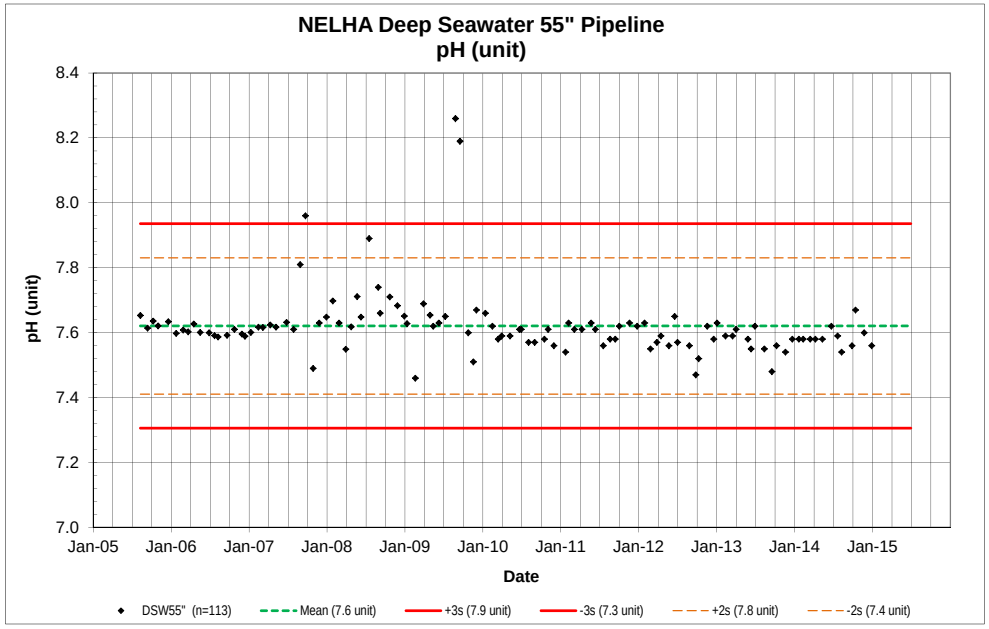


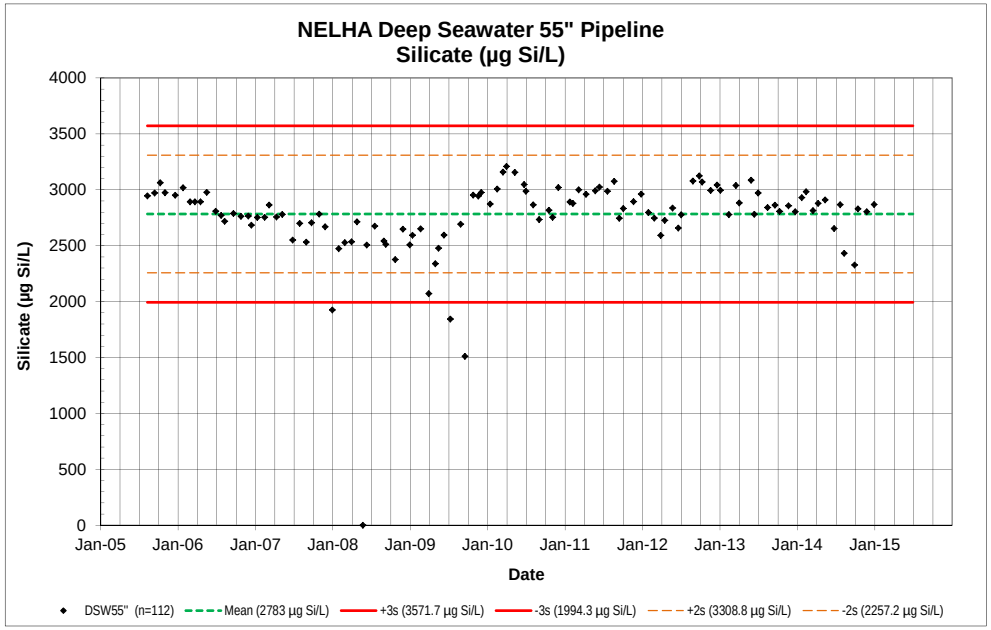
NELHA Water Quality Laboratory

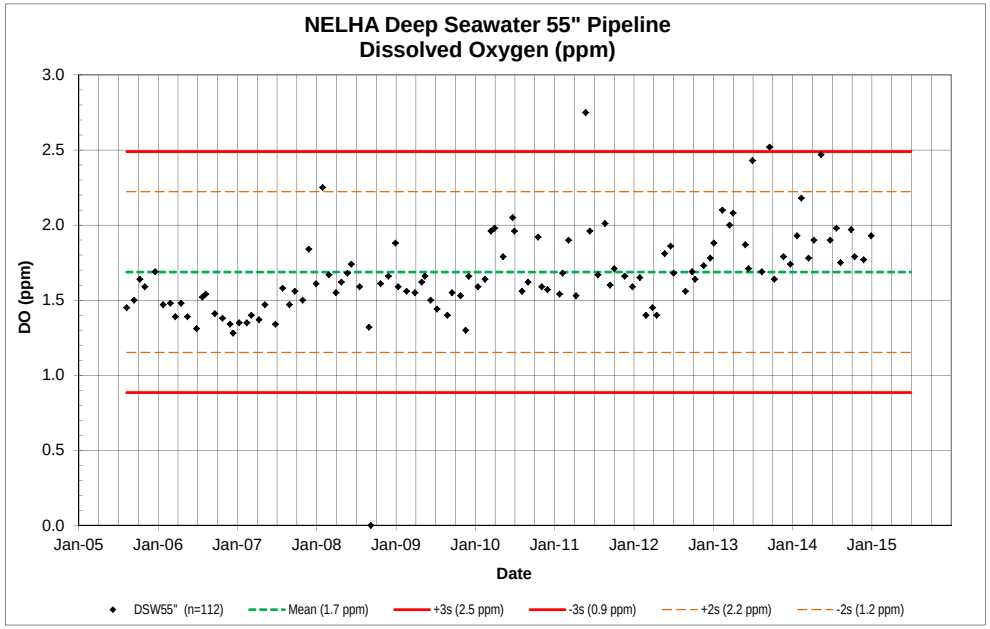
DSW 55"

Intake Depth: 915 m, Offshore Pipe Length: 3,124 m





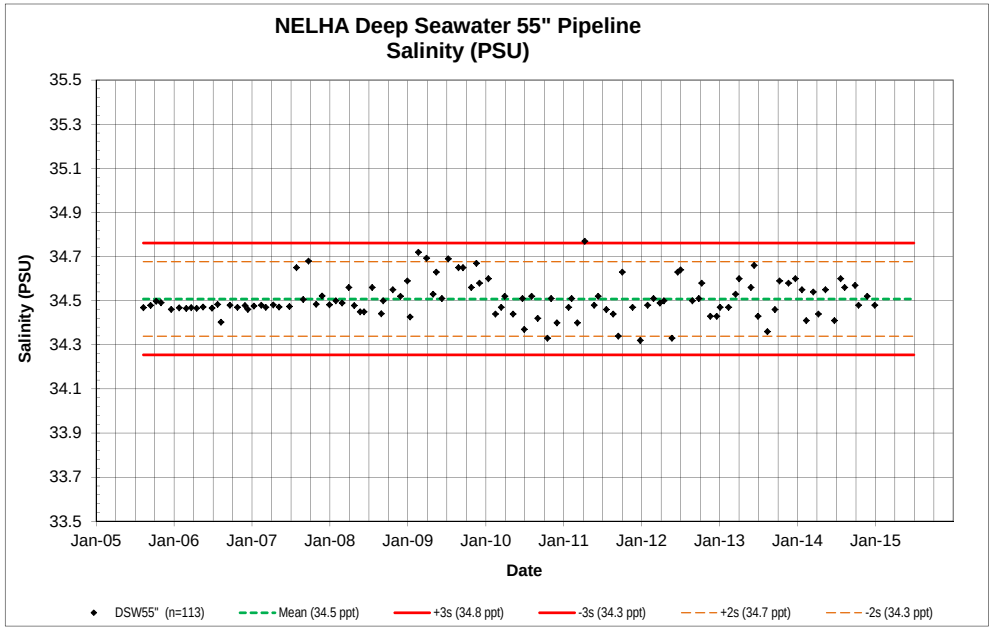


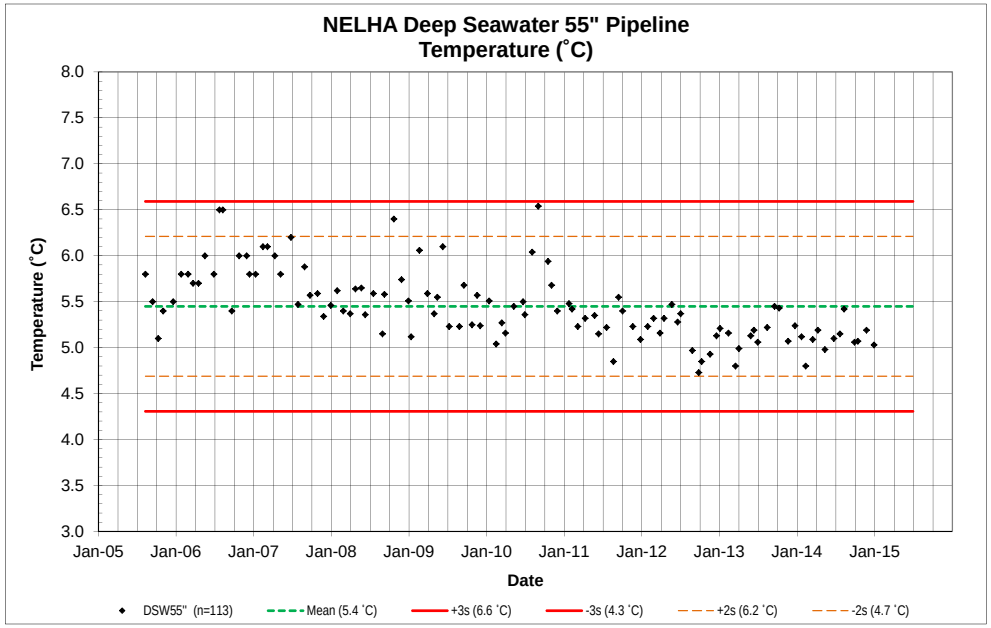


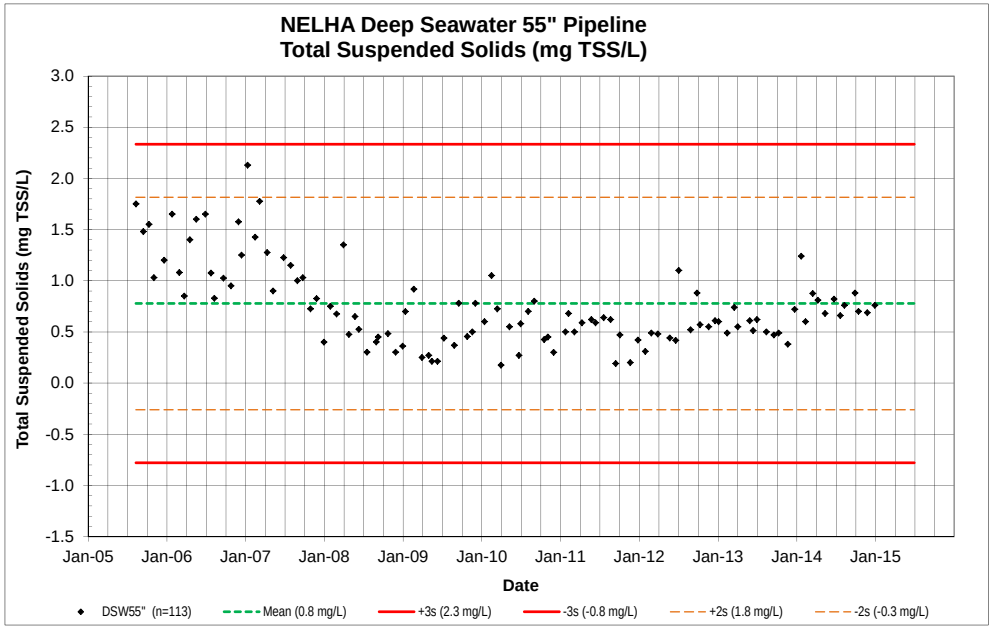
NELHA Water Quality Laboratory

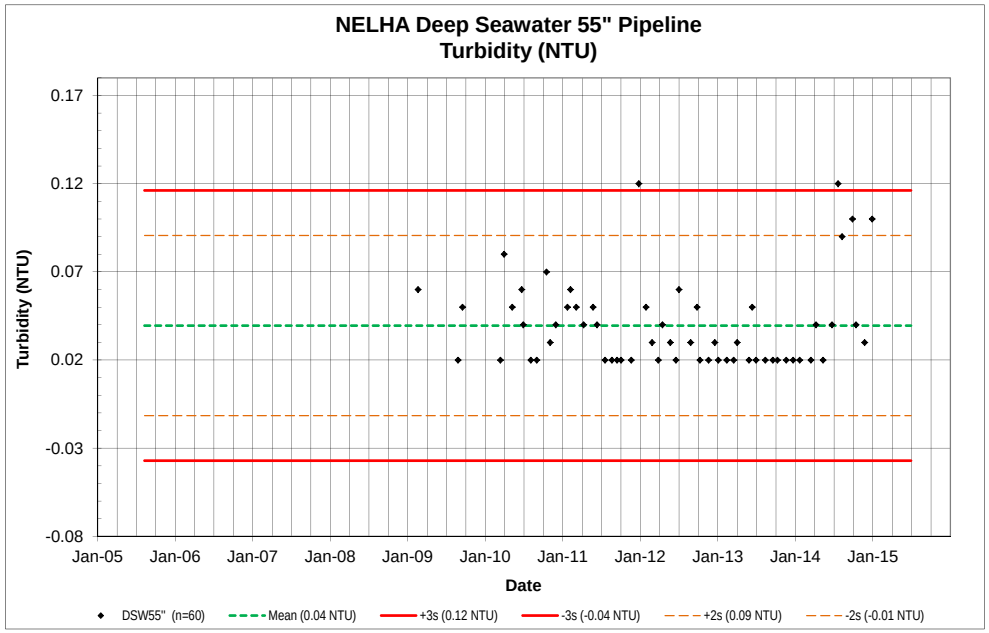
DSW 55"

Intake Depth: 915 m, Offshore Pipe Length: 3,124 m









APPENDIX D

Seawater Disposal Data Tables……Appendix D-1

Discharge GPS:
Latitude: 19° 42'47.88"N
Longitude: 156° 2'41.73"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
293	24	4

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/03/11	BIA #1	950	8.16	34.68	25.27	5.30	3.8	2.0	115		38		3.0			6367	
05/19/11	BIA #1	1250	8.28	34.79	18.83	6.16	5.6	2.0	337		68		5.0			7518	
09/01/11	BIA #1	1112	8.56	34.38	14.33	13.39	6.9	2.0	303		41		7.4			8787	
12/08/11	BIA #1	1040	8.44	34.44	13.36	11.50	7.0	2.0	287		49		5.9			9097	
02/29/12	BIA #1	1045	8.27	34.81	16.13	7.74	4.0	2.0	505	233	63	47	8.0	34.0	718	9254	
05/31/12	BIA #1	844	7.99	34.61	15.94	7.70	5.2	2.0	432	268	77	53	5.6	43.0	1105	9900	
08/02/12	BIA #1	818	7.93	34.59	15.19	7.48	4.4	2.1	393	177	66	48	6.0	1.0	987	10185	
11/15/12	BIA #1	811	7.83	34.32	12.87	9.17	2.7	2.0	433	234	75	59	5.8	26.8	1327	10823	
02/20/13	BIA #1	908	7.83	34.83	14.53	7.81	6.4	2.2	587	296	79	65	7.4	43.0	917	10842	
05/16/13	BIA #1	805	7.86	34.73	16.70	7.79	7.1	2.8	442	161	81	36	5.5	67.6	1018	10666	
09/04/13	BIA #1 (composite)	813	7.75	34.17	13.12	8.95	5.0	2.6	3221	3117	308	337	10.5	54.0	934	10833	Problem with recirculation system
12/11/13	BIA #1	807	7.69	34.22	14.20	7.30	5.4	2.0	1131	933	129	128	8.8	54.4	1128	10097	
02/26/14	BIA #1	812	7.84	34.54	12.18	8.32	4.8	2.0	336	105	60	42	5.6	55.7	552	11619	
06/19/14	BIA #1	1116	8.39	34.51	17.16	9.63	3.7	3.8	395	80	58	31	6.8	69.5	610	11170	
09/04/14	BIA #1	821	7.97	34.59	16.94	7.59	6.3	2.8	557	159	58	22	9.5	58.6	317	11238	
12/17/14	BIA #1	845	7.83	35.04	11.87	9.60	4.8	2.0	1029	730	47	29	21.8	33.8	583	10958	
Mean			8.04	34.58	15.54	8.46	5.2	2.3	656	541	81	75	7.7	45.1	850	9960	
Std. Dev.			0.27	0.24	3.25	1.95	1.3	0.5	731	851	64	87	4.2	19.3	293	1442	
n=			16	16	16	16	16	16	16	12	16	12	16	11	12	16	

Discharge GPS:
Latitude: 19° 42'50"N
Longitude: 156° 2'46"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
14	10	7

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/03/11	BIA #2	957	7.90	34.63	17.79	7.37	3.5	2.0	379		78		4.9			1924	
05/19/11	BIA #2	1231	7.94	34.72	19.64	6.47	3.0	2.0	379		69		5.5			2420	
09/01/11	BIA #2	1121	7.89	34.76	17.95	7.93	23.0	2.9	633		99		6.4			2989	
12/08/11	BIA #2	1053	7.92	34.62	17.41	7.97	1.2	7.5	927		126		7.4			3136	
02/29/12	BIA #2	1059	7.98	34.48	17.26	7.87	3.3	2.0	444	231	63	54	7.0	60.0	1153	3168	
05/30/12	BIA #2	822	7.85	34.63	17.05	7.50	3.8	2.0	482	282	70	62	6.9	58.8	1265	3256	
08/02/12	BIA #2	826	7.86	34.76	17.82	6.52	1.5	2.0	408	393	64	41	6.4	12.0	1185	3410	
11/15/12	BIA #2	819	7.83	34.72	17.41	7.91	3.0	2.0	623	297	73	57	8.5	55.7	1287	3578	
02/20/13	BIA #2	921	7.80	35.03	17.60	7.38	7.0	3.3	522	233	78	50	6.7	38.1	1155	3572	
05/16/13	BIA #2	813	7.87	34.84	18.55	6.68	4.2	2.3	453	234	76	35	6.0	44.0	1175	3434	
09/04/13	BIA #2	819	7.80	34.53	18.38	6.46	3.5	2.0	411	275	75	56	5.5	39.0	1205	3287	
12/11/13	BIA #2	817	7.79	34.33	17.52	6.90	2.4	2.0	479	368	70	66	6.8	35.0	1186	3083	
02/26/14	BIA #2	818	7.85	34.84	14.32	8.34	4.2	2.0	386	184	59	42	6.5	35.1	930	3542	
06/19/14	BIA #2	1139	8.31	34.64	15.64	9.24	4.2	2.0	327	138	67	47	4.9	34.5	1192	3269	
09/04/14	BIA #2	830	7.91	34.51	14.78	7.69	3.7	2.0	428	152	51	28	8.4	28.7	785	3139	
12/17/14	BIA #2	850	7.82	34.51	12.62	8.75	4.4	2.0	1005	634	51	35	19.7	32.2	662		
Mean			7.90	34.66	16.98	7.56	4.7	2.5	518	285	73	48	7.3	39.4	1098	3147	
Std. Dev.			0.12	0.17	1.78	0.82	5.0	1.4	194	134	18	12	3.5	13.7	197	445	
n=			16	16	16	16	16	16	16	12	16	12	16	12	12	15	

Discharge GPS:
Latitude: 19° 42'50"N
Longitude: 156° 2'46"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
12	6	7

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/03/11	BIA #3	1005	7.98	34.68	20.96	6.64	3.0	2.0	301		66		4.6			675	
05/19/11	BIA #3	1224	7.99	34.89	20.89	6.36	2.6	2.0	402		85		4.7			853	
09/01/11	BIA #3	1132	8.01	34.81	19.82	7.28	4.6	2.0	353		51		6.9			1056	
12/08/11	BIA #3	1059	7.94	34.72	18.90	7.55	5.0	2.0	410		70		5.9			1109	
02/29/12	BIA #3	1107	7.99	34.95	18.64	7.34	3.1	2.0	413	288	58	65	7.1	75.0	1260	1120	
05/30/12	BIA #3	828	7.93	34.68	19.09	7.38	3.5	2.0	389	209	59	50	6.6	50.0	913	1148	
08/02/12	BIA #3	831	7.96	34.90	19.82	6.95	1.8	2.0	368	213	75	53	4.9	48.0	865	1204	
11/15/12	BIA #3	826	7.91	35.06	19.48	7.35	3.5	2.0	508	244	76	62	6.7	54.4	1030	1262	
02/20/13	BIA #3	924	7.84	35.05	19.19	6.92	3.4	2.0	415	252	78	56	5.3	44.0	885	1260	
05/16/13	BIA #3	816	7.90	34.86	20.10	6.55	4.1	2.0	387	184	66	47	5.8	67.1	950	1210	
09/04/13	BIA #3	822	7.87	34.57	20.04	5.84	3.8	3.1	400	221	72	54	5.6	70.2	1068	1154	
12/11/13	BIA #3	820	7.78	34.35	19.12	6.20	4.7	2.0	371	222	60	58	6.2	49.5	1047	1083	
02/26/14	BIA #3	820	7.87	34.74	19.00	6.65	4.9	2.0	396	207	71	55	5.6	54.8	976	1244	
06/19/14	BIA #3	1142	7.83	34.58	17.81	6.92	3.5	2.0	410	278	80	76	5.1	53.2	1935	1145	
09/04/14	BIA #3	832	7.91	34.74	19.96	7.19	3.7	2.0	427	204	67	51	6.3	75.8	1024	1097	
12/17/14	BIA #3	852	7.85	35.15	19.40	6.97	5.1	2.0	505	226	65	49	7.8	41.1	975	1087	
Mean			7.91	34.80	19.51	6.88	3.8	2.1	403	229	69	56	5.9	56.9	1077	1107	
Std. Dev.			0.07	0.21	0.81	0.48	0.9	0.3	50	31	9	8	0.9	12.0	289	152	
n=			16	16	16	16	16	16	16	12	16	12	16	12	12	16	

Discharge GPS:
Latitude: 19° 42'51"N
Longitude: 156° 2'46"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
14	12	7

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/03/11	BIA #4	1014	7.94	34.57	14.36	7.91	2.5	2.0	412		70		5.9			1561	
05/19/11	BIA #4	1214	8.03	34.91	19.83	6.69	2.9	2.0	354		56		6.3			1960	
09/01/11	BIA #4	1138	7.95	34.83	18.10	7.91	4.0	2.0	392		54		7.3			2416	
12/08/11	BIA #4	1104	7.94	34.76	17.52	7.75	1.3	11.8	1565		241		6.5			2534	
02/29/12	BIA #4	1109	7.93	34.99	17.07	7.62	3.2	6.4	701	392	77	53	9.1	33.0	1113	2560	
05/30/12	BIA #4	833	7.92	34.70	17.57	7.71	2.6	2.0	411	263	58	50	7.1	39.5	1171	2635	
08/02/12	BIA #4	839	7.94	34.84	18.44	7.40	1.8	2.0	376	262	65	51	5.8	17.0	1084	2758	
11/15/12	BIA #4	830	7.94	35.02	18.65	7.72	2.5	2.0	470	261	62	49	7.6	30.3	1079	2895	
02/20/13	BIA #4	927	7.86	35.05	17.90	7.26	1.9	2.0	401	274	59	49	6.8	39.0	1067	2890	
05/16/13	BIA #4	820	7.94	34.85	18.82	7.01	13.2	2.2	345	223	61	46	5.6	25.4	1122	2780	
09/04/13	BIA #4	826	7.87	34.56	19.33	6.21	3.5	2.0	496	237	80	56	6.2	47.1	1068	2666	
12/11/13	BIA #4	823	7.78	34.90	18.42	6.90	2.7	2.0	370	241	95	53	3.9	23.4	1127	2500	
02/26/14	BIA #4	823	7.87	34.80	17.73	7.87	2.3	2.0	443	246	78	59	5.7	22.6	1106	2873	
06/19/14	BIA #4	1145	7.85	34.58	18.83	6.29	3.1	2.8	413	252	85	66	4.9	32.7	1623	2655	
09/04/14	BIA #4	835	7.92	34.75	18.17	7.23	3.7	2.0	472	275	86	65	5.5	60.0	1248	2553	
12/17/14	BIA #4	857	7.77	35.02	16.98	7.50	5.1	2.0	527	305	68	67	7.7	42.7	1288	2526	
Mean			7.90	34.82	17.98	7.31	3.5	3.0	509	269	81	55	6.4	34.4	1175	2548	
Std. Dev.			0.07	0.16	1.24	0.55	2.7	2.6	295	44	44	7	1.2	12.1	158	348	
n=			16	16	16	16	16	16	16	12	16	12	16	12	12	16	

Blue Ocean Mariculture LLC Seawater Disposal Log

Discharge GPS:
Latitude: 19°43'20.94"N
Longitude: 156° 3'19.02"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
29	16	8

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
10/21/10	Kona Blue Composite	945	8.16				0.8	2.0	151	13.6	16	4.7	9.4	39	38.1	705	
02/10/11	KPH (SE)	944	8.18	35.00	25.09	5.73	1.8	2.0	222		29		7.7			854	
05/18/11	KPH (SE)	927	8.20	34.89	26.20	6.58	4.6	2.0	109		20		5.5			1326	
09/14/11	KPH (SE)	910	8.08	34.87	26.50	6.37	1.9	2.0	204		22		9.3			1308	
12/07/11	KPH (SE)	1018	7.97	34.85	25.12	6.37	0.9	2.0	162		38		4.3			525	
03/08/12	KPH (SE)	815	8.01	34.89	24.03	5.03	1.6	2.0	151	25	46	22	3.3	54	67	408	
06/06/12	Blue Ocean Mariculture (SE)	844	8.18	34.94	25.50	5.92	2.0	2.0	189	16	26	10	7.3	41	53	453	
08/09/12	Blue Ocean Mariculture (SE)	908	8.11	35.29	26.66	6.48	2.3	2.0	356	37	65	36	5.5	133	90	416	
11/21/12	Blue Ocean Mariculture (SE)	1007	8.21	35.47	25.89	6.02	2.1	2.8	88	46	15	12	5.9	51	53	522	
02/28/13	Blue Ocean Mariculture (SE)	929	8.09	35.43	24.40	6.29	3.7	2.0	319	24	54	25	5.9	63	44	690	
05/30/13	Blue Ocean Mariculture (SE)	859	8.16	35.02	27.03	4.80	4.2	2.0	193	31	18	14	10.7	52	52	486	
09/05/13	Blue Ocean Mariculture (SE)	901	8.10	34.87	27.04	5.96	4.1	2.0	264	17	48	19	5.5	33.0	63	496	
12/18/13	Blue Ocean Mariculture (SE)	931	8.13	35.01	25.82	5.64	5.7	2.1	154	14	18	11	8.6	15.0	85	656	
03/06/14	Blue Ocean Mariculture (SE)	851	8.09	34.88	25.23	5.50	4.6	2.0	237	17	27	13	8.9	53.0	59	391	
06/19/14	Blue Ocean Mariculture (SE)	857	8.04	34.61	26.42	6.75	3.8	2.0	263	23	80	18	3.3	24.1	83	614	
09/25/14	Blue Ocean Mariculture (SE)	905	8.14	35.14	28.15	4.27	3.9	2.0	251	27	24	5	10.5	25.9	11	668	
12/18/14	Blue Ocean Mariculture (SE)	955	8.00	35.38	25.65	6.80	2.9	2.0	244	32	47	33	5.2	82.7	3	290	
03/12/15	Blue Ocean Mariculture (SE)	1122	8.12	34.75	25.56	6.50	2.3										
Mean			8.11	35.02	25.90	5.94	3.0	2.1	209	25	35	17	6.9	51.2	54	636	
Std. Dev.			0.07	0.25	1.02	0.71	1.4	0.2	71	10	19	10	2.4	30.4	26	292	
n=			18	17	17	17	16	17	17	13	17	13	17	13	13	17	

Discharge GPS:
Latitude: 19°43'20.49"N
Longitude: 156° 3'21.26"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
29	16	8

Date mm/dd/yy	Sample Name	Time 2400	pH unit	Sal. PSU	Temp. ˚C	DO mg/L	TSS mg/L <30 mg/L	BOD mg/L <30 mg/L	Total Nitrogen µg/L	Nitrate & Nitrite µg/L	Total Phosphorous µg/L	Ortho-Phosphate µg/L	N : P	Ammonia µg/L	Silicate µg/L	Combined Discharge H2O kgal/day	Comment
			SM4500-H	SM2520-B		SM4500-O G	SM2540D	SM5210B	SM4500-NO3- F		SM 4500-P F			SM 4500-NH3 G			
12/07/11	KPH Hatchery Effluent	1012	8.16	34.93	24.22	7.01	6.4	9.0	1232		65		19.0			175	
03/08/12	KPH Hatchery Effluent															0.0	Not in use, no sample taken
06/06/12	BOM (Hatchery)															0.0	Not in use, no sample taken
08/09/12	BOM (Hatchery)															0.0	Not in use, no sample taken
11/21/12	BOM (Hatchery)															0.0	Not in use, no sample taken
02/28/13	BOM (Hatchery)															0.0	Not in use, no sample taken
05/30/13	BOM (Hatchery)															0.0	Not in use, no sample taken
09/05/13	BOM (Hatchery)	857	7.38	34.74	26.61	6.78	6.8	2.0	698	9	76	10	9.2	147.8	68	176.8	
12/18/13	BOM (Hatchery)															0.0	Not in use, no sample taken
03/06/14	BOM (Hatchery)															0.0	Not in use, no sample taken
06/19/14	BOM (Hatchery)	851	7.75	34.63	26.26	6.84	4.4	2.6	396	5	65	15	6.1	210.9	87	219.4	
09/25/14	BOM (Hatchery)	902	8.10	35.01	28.07	4.08	2.5	2.0	175	5	26	5	6.9	55.2	10	238.6	
12/18/14	BOM (Hatchery)	950	7.76	35.46	25.66	6.40	3.9	2.0	343	5	32	3	10.6	87.8	2	115.9	
03/12/15	BOM (Hatchery)																Not in use, no sample taken
Mean			7.83	34.95	26.16	6.22	4.8	3.5	569	6	53	8	10.3	125	42	71	
Std. Dev.																98	
n=			5	5	5	5	5	5	5	4	5	4	5	4	4	5	

Discharge GPS:
Latitude: 19°43'19.83"N
Longitude: 156° 3'21.75"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
8	6	2

Date mm/dd/yy	Sample Name	Time 2400	pH unit	Sal. PSU	Temp. ˚C	DO mg/L	TSS mg/L <30 mg/L	BOD mg/L <30 mg/L	Total Nitrogen µg/L	Nitrate & Nitrite µg/L	Total Phosphorous µg/L	Ortho-Phosphate µg/L	N : P	Ammonia µg/L	Silicate µg/L	Combined Discharge H2O kgal/day	Comment
			SM4500-H	SM2520-B		SM4500-O G	SM2540D	SM5210B	SM4500-NO3- F		SM 4500-P F			SM 4500-NH3 G			
03/08/12	KPH Quarantine Effluent	800	7.94	18.35	24.06	6.33	1.7	2.0	502	468	61	58	8.2	10.0	9436	21.5	
06/06/12	BOM (Quarantine)															0.0	Not in use, no sample taken
08/09/12	BOM (Quarantine)															0.0	Not in use, no sample taken
11/21/12	BOM (Quarantine)	1003	8.24	35.25	25.66	6.90	3.7	2.0	445	11	41	5	10.9	4.0	43	27.5	
02/28/13	BOM (Quarantine)															0.0	Not in use, no sample taken
05/30/13	BOM (Quarantine)															0.0	Not in use, no sample taken
09/05/13	BOM (Quarantine)															0.0	Not in use, no sample taken
12/18/13	BOM (Quarantine)	926	7.38	11.30	24.63	7.35	1.1	2.0	827	765	94	88	8.8	38.2	14354	34.6	County water mix
03/06/14	BOM (Quarantine)	853	8.01	10.08	23.63	6.96	1.5	2.0	926	896	99	97	9.4	21.4	15950	51.9	County water mix
06/19/14	BOM (Quarantine)	844	7.57	34.61	26.27	6.73	3.0	2.0	308	3	32	7	9.7	203.5	75	43.9	
09/25/14	BOM (Quarantine)	858	8.15	35.00	28.51	3.95	3.2	2.0	105	5	13	4	8.4	12.6	10	47.7	
12/18/14	BOM (Quarantine)															0.0	Not in use, no sample taken
03/12/15	BOM (Quarantine)	1125	8.10	34.66	25.10	6.23	3.0										
Mean			7.91	25.61	25.41	6.35	2.5	2.0	519	358	56	43	9.2	48.3	6645	19	
Std. Dev.			0.32	11.85	1.64	1.13	1.0	0.0	311	410	35	44	1.0	77.0	7544	21	
n=			7	7	7	7	7	6	6	6	6	6	6	6	6	6	

Discharge GPS:
Latitude: 19°43'19.83"N
Longitude: 156° 3'21.75"W

Seawater DIsposal Trench Dimensions

L (ft)	W (ft)	D (ft)
8	6	2

Date mm/dd/yy	Sample Name	Time 2400	pH unit	Sal. PSU	Temp. ˚C	DO mg/L	TSS mg/L <30 mg/L	BOD mg/L <30 mg/L	Total Nitrogen µg/L	Nitrate & Nitrite µg/L	Total Phosphorous µg/L	Ortho-Phosphate µg/L	N : P	Ammonia µg/L	Silicate µg/L	Combined Discharge H2O kgal/day	Comment
			SM4500-H	SM2520-B		SM4500-O G	SM2540D	SM5210B	SM4500-NO3- F		SM 4500-P F			SM 4500-NH3 G			
09/05/13	Ice Machine Effluent	852	7.49	34.22	21.10	4.50	2.0	2.0	623	598	102.6	103.4	6.1	7.9	2336	1.4	
12/18/13	Ice Machine Effluent	936	7.54	34.71	19.24	5.52	3.3	2.0	790	565	89	86	8.8	38.6	14822	1.5	
03/06/14	Ice Machine Effluent	906	7.45	41.13	16.52	5.79	1.1	2.0	630	569	98	96	6.4	12.4	2233	2.6	
06/19/14	Ice Machine Effluent															3.9	No Sample
09/25/14	Ice Machine Effluent															7.0	No Sample
12/18/14	Ice Machine Effluent	1000	7.51	34.90	20.87	4.86	1.7	2.0	692	603	109	105	6.4	3.7	2385	8.3	
03/12/15	Ice Machine Effluent	1130	7.52	34.46	21.15	5.45	2.7										
Mean			7.50	35.88	19.78	5.22	2.2	2.0	684	584	100	97	6.9	15.7	5444	4	
Std. Dev.			0.03	2.94	1.98	0.53	0.8	0.0	77	20	8	9	1.3	15.7	6252	3	
n=			5	5	5	5	5	4	4	4	4	4	4	4	4	6	

Cellana LLC Seawater Disposal Log

Discharge GPS:
Latitude: 19°44'4"N
Longitude: 156° 3'11"W

Seawater Disposal Trench Dimensions
L (ft.) W (ft.) D (ft.)
Leach Field

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (Kgal/day)	Comment
09/21/11	C1 Disp. Field Access Pt South	1427	8.07	53.13	33.84	4.63	4.6	2.0	638		124		5.1			20	
12/08/11	C1 Disp. Field Access Pt South	952	7.39	35.12	28.37	4.35	1.2	2.5	121		20		6.1			0	
03/08/11	C1 Disp. Field Access Pt South	1000	7.80	35.10	28.37	4.21	1.8	2.0	94	9	33	15	2.8	15	148	0	
06/07/12	C1 Disp. Field Access Pt South	1010	7.81	35.26	29.37	3.73	11.4	2.0	1544	17	50	27	30.9	1240	137	62	
08/15/12	C1 Disp. Field Access Pt South	800	7.28	35.20	30.66	2.94	3.0	2.0	515	164	57	38	9.0	152	919	27	
11/15/12	C1 Disp. Field Access Pt South	1313	7.72	34.78	20.30	6.37	2.4	2.0	863	695	108	97	8.0	13	2459	28	
02/27/13	C1 Disp. Field Access Pt South	1031	7.25	34.53	25.60	4.50	4.2	2.0	726	580	113	103	6.4	51	2462	18	
05/30/13	C1 Disp. Field Access Pt South	1050	7.73	35.69	27.01	6.40	28.7	15.7	1429	674	234	210	6.1	90	2435	30	composite sample (centrifuge and pond)
09/05/13	C1 Disp. Field Access Pt South	1050	7.39	34.47	29.48	2.54	4.6	2.2	1312	690	533	555	2.5	548	2683	51	
12/18/13	C1 Disp. Field Access Pt South	1058	7.48	34.22	27.49	3.46	41.9	15.0	858	628	187	163	4.6	49	2820	55	
03/06/14	C1 Disp. Field Access Pt South	1104	7.56	34.27	24.72	6.98	7.6	5.2	693	585	107	97	6.5	19	2284	44	
06/19/14	C1 Disp. Field Access Pt South	955	7.52	33.95	28.83	4.90	14.8	3.8	743	557	143	131	5.2	94	3806	35	
09/25/14	C1 Disp. Field Access Pt South	1100	7.41	34.65	30.10	4.95	4.2	2.0	713	578	106	98	6.7	15	2181	35	
12/24/14	C1 Disp. Field Access Pt South	910	7.35	34.54	25.44	4.91	2.6	2.0	784	649	125	119	6.3	11	2432	7	
Mean			7.55	36.07	27.83	4.63	9.5	4.3	788	485	139	138	7.6	191	2064	29	
Std. Dev.			0.24	4.93	3.21	1.29	11.9	4.8	422	261	127	143	6.9	362	1101	19	
n=			14	14	14	14	14	14	14	12	14	12	14	12	12	12	

Discharge GPS:
Latitude: 19°44'4"N
Longitude: 156° 3'11"W

Seawater Disposal Trench Dimensions
L (ft.) W (ft.) D (ft.)
Leach Field

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (Kgal/day)	Comment
09/21/11	C2 Disp. Field Access Pt North	No Sample														0	
12/08/11	C2 Disp. Field Access Pt North	No Sample														0	
03/08/12	C2 Disp. Field Access Pt North	No Sample														0	
06/07/12	C2 Disp. Field Access Pt North	1018	8.18	35.38	29.93	5.32	1.5	2.0	96	6	19	7	5.1	6.8	21	62	
08/15/12	C2 Disp. Field Access Pt North	815	8.74	0.71	25.89	6.38	33.7	2.8	1392	1299	174	158	8.0	41.0	20432	27	
11/15/12	C2 Disp. Field Access Pt North	1319	7.84	34.10	21.59	6.71	1.8	2.7	869	686	104	94	8.4	10.3	2480	28	
02/27/13	C2 Disp. Field Access Pt North	1043	8.01	39.60	24.72	5.45	4.6	10.1	721	214	155	72	4.7	3.0	1508	18	
05/30/13	C2 Disp. Field Access Pt North	1050	7.62	34.93	28.50	5.41	3.5	2.0	691	608	104	94	6.6	4.0	2307	30	
09/05/13	C2 Disp. Field Access Pt North	1059	8.31	3.24	35.31	4.39	2.2	3.2	1727	1486	242	235	7.1	40	16898	51	
12/18/13	C2 Disp. Field Access Pt North	1106	7.72	35.12	21.13	7.09	8.7	4.3	632	565	99	95	6.4	3.0	2197	55	
03/06/14	C2 Disp. Field Access Pt North	1104	7.65	34.70	23.64	5.87	3.6	2.0	702	615	95	97	7.4	25.3	2481	44	
06/19/14	C2 Disp. Field Access Pt North	959	7.89	4.35	26.29	5.82	3.7	9.1	1045	139	614	572	1.7	235.4	22988	35	
09/25/14	C2 Disp. Field Access Pt North	1104	7.94	38.55	27.15	5.88	6.8	3.3	1464	257	293	190	5.0	445.5	5906	35	
12/24/18	C2 Disp. Field Access Pt North	925	7.96	26.05	24.38	4.22	1.7	2.0	3823	3381	766	811	5.0	95.4	18605	7	
Mean			7.99	26.07	26.23	5.69	6.5	4.0	1197	841	242	220	5.9	83	8711	28	
Std. Dev.			0.33	15.37	4.03	0.88	9.3	2.9	984	960	236	247	1.9	139	8958	21	
n=			11	10	11	11	11	11	11	11	11	11	11	11	11	11	

Cyanotech Corporation Seawater Disposal Log

Discharge GPS:
Latitude: 19°43'42.14"N
Longitude: 156° 3'19.30"W

Seawater Disposal Trench Dimensions
L (ft) W (ft) D (ft)

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/02/11	C1 (seawater removal pump)	1345	6.84	34.18	15.79	7.39	2.5	3.3	909		149		6.1			76	
05/05/11	C1 (seawater removal pump)	903	7.70	34.75	14.35	5.35	4	5.4	997		144		6.9			334	
09/21/11	C1 (seawater removal pump)																Rerouted to SW Sump
Mean			7.27	34.47	15.07	6.37	3.35	4.35	953		147		6.5			205	
Std. Dev.			0.61	0.40	1.02	1.44	1.20	1.48	62		4		0.6			183	
n=			2	2	2	2	2	2	2	0	2	0	2	0	0	2	

Discharge GPS:
Latitude: 19°43'34.12"N
Longitude: 156° 3'18.49"W

Seawater Disposal Trench Dimensions
L (ft) W (ft) D (ft)

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/02/11	Cyanotech #2 Bug Removal															40	No Sample
05/11/11	Cyanotech #2 Bug Removal	1351	6.66	34.17	19.57	6.43	8.2	4.5	1252		193		6.5			170	
09/28/11	Cyanotech #2 Bug Removal	1247	6.36	34.39	15.80	8.04	2.4	5.2	1805		366		4.9			184	
12/07/11	Cyanotech #2 Bug Removal	1330	5.98	33.88	18.68	7.64	62.6	9.9	2721		961		2.8			124	
02/16/12	Cyanotech #2 Bug Removal	1515	6.79	33.52	17.87	7.42	13.0	7.6	2663	2038	534	344	5.0	26	2531	68	
05/30/12	Cyanotech #2 Bug Removal	1226	6.50	34.31	18.02	7.90	4.2	3.8	1206	962	165	140	7.3	38	2445	232	
09/20/12	Cyanotech #2 Bug Removal	1436	7.62	34.44	17.91	7.66	5.3	11.1	1685	1339	228	180	7.4	39	2652	270	
12/05/12	Cyanotech #2 Bug Removal	1329	6.40	33.87	17.26	7.46	4.8	7.9	1386	520	553	438	2.5	267	5927	108	
03/20/13	Cyanotech #2 Bug Removal	1225	7.04	33.60	15.81	10.46	5.6	7.6	1715	1283	223	186	7.7	95	2695	64	
05/30/13	Cyanotech #2 Bug Removal	1311	6.74	34.25	18.92	7.46	8.1	7.5	1982	1265	286	206	6.9	0	2605	247	
09/05/13	Cyanotech #2 Bug Removal	1332	6.19	33.54	21.49	6.13	5.8	13.4	1240	844	211	158	5.9	7	2505	296	
12/18/13	Cyanotech #2 Bug Removal	1407	6.36	35.30	18.04	7.35	54.3	14.6	968	976	428	161	2.3	60	2363	199	
03/06/14	Cyanotech #2 Bug Removal	1355	6.31	34.15	16.79	8.01	21.8	11.8	2528	952	650	149	3.9	63	2447	134	
06/19/14	Cyanotech #2 Bug Removal	1423	6.35	34.24	17.83	7.57	14.7	7.3	1605	694	298	197	5.4	129	3144	291	
10/01/14	Cyanotech #2 Bug Removal	1447	6.48	34.36	19.44	7.40	11.9	5.8	1298	639	179	119	7.2	113	2374	301	
12/24/14	Cyanotech #2 Bug Removal	1337	6.59	34.52	17.28	7.47	36.2	19.0	2350	1100	398	192	5.9	46	2667	301	TSS weight due to bugs
Mean			6.56	34.17	18.05	7.63	17.3	9.1	1760	1051	378	206	5.4	74	2863	199	
Std. Dev.			0.39	0.46	1.47	0.94	18.9	4.2	572	405	220	92	1.8	73	987	85	
n=			15	15	15	15	15	15	15	12	15	12	15	11	12	16	

Discharge GPS:
Latitude: 19°43'29.04"N
Longitude: 156° 3'19.11"W

Seawater Disposal Trench Dimensions
L (ft) W (ft) D (ft)

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/08/11	Cyanotech #3 (SW Sump)	1405	7.64	34.34	11.58	7.78	2.3	2.0	630		106		5.9			220	
05/05/11	Cyanotech #3 (SW Sump)	903	7.70	34.75	14.35	5.35	3.1	2.0	612		99		6.2			994	
09/01/11	Cyanotech #3 (SW Sump)	919	7.70	34.22	12.69	6.97	3.0	2.0	689	534	110	97	6.3			1436	
12/07/11	Cyanotech #3 (SW Sump)	1031	7.43	29.44	12.41	8.51	8.3	14.2	1338		450		3.0			1122	
02/16/12	Cyanotech #3 (SW Sump)	1518	6.75	32.82	15.05	8.52	6.3	4.0	885	548	152	122	5.8	37	3100	598	
05/30/12	Cyanotech #3 (SW Sump)	1215	7.18	34.01	18.22	7.24	2.6	2.3	750	612	125	119	6.0	23	2564	1877	
08/22/12	Cyanotech #3 (SW Sump)	1324	7.25	27.98	21.42	7.30	5.2	4.8	911	573	168	133	5.4	49	6499	2193	
12/05/12	Cyanotech #3 (SW Sump)	951	7.48	29.83	14.30	7.97	10.3	20.1	1287	1047	185	150	7.0	12	2662	1359	
03/20/13	Cyanotech #3 (SW Sump)	1251	6.92	12.94	19.12	8.49	6.7	6.5	1073	232	312	219	3.4	89	16051	489	
05/30/13	Cyanotech #3 (SW Sump)	1322	6.91	34.82	20.58	5.95	5.1	2.5	749	637	102	91	7.3	0	2405	3203	
09/05/13	Cyanotech #3 (SW Sump)	1336	7.03	25.25	22.42	6.79	6.3	7.0	1005	418	163	100	6.2	17	7418	3853	
12/18/13	Cyanotech #3 (SW Sump)	1420	6.51	27.32	19.19	7.48	6.7	14.2	2174	446	480	390	4.5	46	4934	2567	
03/06/14	Cyanotech #3 (SW Sump)	1346	7.06	25.83	18.27	7.59	5.2	4.8	941	435	177	128	5.3	26	4867	1710	
06/19/14	Cyanotech #3 (SW Sump)	1433	7.19	34.33	20.53	6.23	6.0	4.9	758	583	108	100	7.0	15	3201	3780	
09/24/14	Cyanotech #3 (SW Sump)	1441	7.38	34.17	21.28	6.50	5.0	4.4	855	500	125	72	6.8	7	3112	3913	
12/24/14	Cyanotech #3 (SW Sump)	1337	6.59	34.52	17.28	7.47	9.7	6.2	1063	677	183	147	5.8	72	2974	3913	
Mean			7.17	30.41	17.42	7.26	5.7	6.4	983	557	190	144	5.8	33	4982	2077	
Std. Dev.			0.37	5.79	3.55	0.93	2.4	5.3	382	187	119	83	1.2	27	3848	1308	
n=			16	16	16	16	16	16	16	13	16	13	16	11	12	16	

Discharge GPS:
Latitude: 19°43'28.89"N
Longitude: 156° 3'16.22"W

Seawater Disposal Trench Dimensions
L (ft) W (ft) D (ft)
Trickle Field

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/08/11	Cyano #4 Trickle Field	1616	7.67	34.44	18.08	6.18	1.8	2.0	604		97		6.2			148	
05/05/11	Cyano #4 Trickle Field	928	7.74	34.33	17.58	6.66	3.5	2.0	649		88		7.4			664	
09/01/11	Cyano #4 Trickle Field	929	7.72	34.43	17.42	6.74	2.1	2.0	619	532.2	82	80.8	7.5			718	
12/07/11	Cyano #4 Trickle Field	1041	7.49	34.20	16.64	6.60	1.3	2.0	651		87		7.5			461	
02/16/12	Cyano #4 Trickle Field	1522	7.6	34.52	33.66	4.05	1.0	2	665	589	93	85	7.2	9	2357	247	
05/30/12	Cyano #4 Trickle Field																Rerouted to SW Sump
Mean			7.64	34.38	20.68	6.05	1.91	2.00	638	561	89	83	7.2	9	2357	448	
Std. Dev.			0.10	0.12	7.28	1.14	0.97	0	25	40	6	3	0.5			250	
n=			5	5	5	5	4	5	5	2	5	2	5	1	1	5	

Discharge GPS:
Latitude: 19°43'33.30"N
Longitude: 156° 3'20.02"W

Seawater Disposal Trench Dimensions
L (ft) W (ft) D (ft)
Leach Field

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/30/11	Cyano #5 (Leach Field)	800	7.67	34.57	15.97	3.57	2.3	2.0	633		96		6.6			252	
05/05/11	Cyano #5 (Leach Field)	916	7.58	34.76	12.90	1.78	2.5	2.0	662		97		6.8			1153	
09/01/11	Cyano #5 (Leach Field)	857	7.64	34.34	15.84	1.54	1.7	2.0	643	575	93	89	6.9			1247	
12/07/11	Cyano #5 (Leach Field)															0	No sample, no cooling water during winter months
02/16/12	Cyano #5 (Leach Field)															0	No sample, no cooling water during winter months
05/30/12	Cyano #5 (Leach Field)	1230	7.57	34.31	19.90	2.31	0.9	2.0	666	623	101	100	6.6	1.5	2479	1123	
09/20/12	Cyano #5 (Leach Field)	1439	7.40	34.66	23.29	1.93	2.3	2.0	708	600	109	98	6.5	0.3	2549	1314	
12/05/12	Cyano #5 (Leach Field)															0	No sample, no cooling water during winter months
03/20/13	Cyano #5 (Leach Field)	1231	7.73	0.67	26.78	6.19	37.2	18.7	2023	34	1119	875	1.8	177	16290	287	
05/30/13	Cyano #5 (Leach Field)																Rerouted to SW Sump
Mean			7.60	28.89	19.11	2.89	7.8	4.8	889	458	269	290	5.9	59.4	7106	597	
Std. Dev.			0.11	13.82	5.22	1.77	14.4	6.8	556	283	416	390	2.0	101.4	7954	592	
n=			6	5	6	6	5	6	6	4	6	4	6	2	3	6	

Discharge GPS:
Latitude: 19°43'00.0"N
Longitude: 156°02'13"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
8	8	7.9

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H+	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/03/11	Destiny #1	816	8.16	53.58	22.19	5.00	3.8	2.0	1042		176		5.9			0.3	
05/19/11	Destiny #1	819	7.64	54.79	22.82	4.73	3.8	2.0	1026		168		6.1			0.2	
08/24/11	Destiny #1	923	7.53	53.80	17.17	7.00	4.0	2.0	999		160		6.2			0.3	
12/08/11	Destiny #1	1021	7.58	53.97	13.50	7.38	0.9	2.0	994		155		6.4			0.2	
03/01/12	Destiny #1	1000	7.57	53.67	15.66	6.86	3.5	2.0	1010	1075	157	159	6.4	31	4356	0.2	
05/23/12	Destiny #1	1005	7.90	53.60	28.40	4.60	2.4	2.0	1041	961	165	166	6.3	14	4705	0.2	
09/20/12	Destiny #1															0.0	No Discharge (Facility not in operation)
12/05/12	Destiny #1															0.0	No Discharge (Facility not in operation)
03/21/13	Destiny #1															0.0	No Discharge (Facility not in operation)
05/16/13	Destiny #1	949	7.20	37.83	27.50	4.36	1.9	2.0	627	543	252	234	2.5	1	12356	0.1	
09/04/13	Destiny #1	951	7.29	35.05	29.91	2.05	2.5	2.0	567	510	154	156	3.7	6.7	8408	0.1	
12/11/13	Destiny #1															0.0	No discharge-preform production only
02/26/14	Destiny #1															0.1	No discharge-preform production only
06/25/14	Destiny #1															0.2	No discharge-preform production only
09/24/14	Destiny #1															0.2	No discharge-preform production only
12/17/14	Destiny #1															0.3	No discharge-preform production only
Mean			7.61	49.54	22.14	5.25	2.85	2.00	913	772	173	179	5.5	13	7456	0	
Std. Dev.			0.31	8.13	6.21	1.77	1.10	0.00	197	288	33	37	1.5	13	3746	0	
n=			8	8	8	8	7	8	8	4	8	4	8	3	4	0	

Dew Point Systems Seawater Disposal Log

Discharge GPS:
Latitude: 19°43'42.78"N
Longitude: 156° 3'31.18"W

Seawater Disposal Trench Dimensions
L (ft) W (ft) D (ft)
Leach Field

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
09/18/13	DPS #1	1015	7.54	34.66	10.51	4.49	3.1	2.0	603	566	90	87	6.7	7	2243	0.1	
12/18/13	DPS #1	1142	7.59	34.66	13.31	5.81	1.9	2.0	614	593	103	97	5.9	2	2391	0.1	
Mean			7.57	34.66	11.91	5.15	2.5	2.0	608	579	96	92	6.3	4	2317	0	
Std. Dev.			0.04	0.00	1.98	0.93	0.8	0.0	8	19	10	7	0.6	4	105	0	
n=			2	2	2	2	2	2	2	2	2	2	2	2	2	0	

Discharge GPS:
Latitude: 19°42'56.45"N
Longitude: 156° 2'20.23"W

Seawater Disposal Trench

L (ft)	W (ft)	D (ft)
37	8	8

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/17/11	HDM #1	1047	7.54	53.14	12.35	4.16	3.9	<2.0	986		165		6.0			67	
05/18/11	HDM #1	1055	7.61	52.95	9.36	8.29	3.8	2.0	1007		155		6.5			67	
08/24/11	HDM #1	1000	7.54	52.89	11.75	4.30	3.0	2.0	960		161		6.0			59	
12/14/11	HDM #1	1035	7.56	52.47	11.11	7.17	1.4	2.0	951		141		6.7			62	
03/07/12	HDM #1	945	7.58	53.58	9.89	7.89	2.9	2.0	990	905	158	152	6.3	14.0	4165	80	
05/23/12	HDM #1	1031	7.56	52.21	8.92	7.83	2.8	2.0	1026	957	158	165	6.5	14.0	4095	89	
08/16/12	HDM #1	1057	7.67	29.43	10.21	8.00	1.6	2.0	498	458	77	72	6.5	10.0	2288	87	
11/15/12	HDM #1	958	7.50	43.51	11.28	7.82	3.1	2.0	1196	894	138	137	8.7	2.4	3959	77	
02/21/13	HDM #1	1100	7.46	39.42	11.79	8.50	2.9	2.0	872	837	128	129	6.8	2.4	3845	93	
05/16/13	HDM #1	1032	7.55	44.38	15.95	6.71	5.3	2.0	791	762	100	107	7.9	1.0	3492	86	
09/04/13	HDM #1	1046	7.52	53.64	9.77	9.37	2.9	2.0	999	981	160	164	6.2	43.0	4251	85	
12/11/13	HDM #1	1034	7.40	40.11	9.10	7.01	2.4	2.0	759	704	134	121	5.7	30.0	3211	84	
03/06/14	HDM #1	1331	6.96	31.56	13.19	7.91	4.1	2.0	680	641	94	103	7.2	40.8	2881	93	
06/25/14	HDM #1	1016	7.40	50.01	11.28	6.73	4.8	2.0	931	884	148	147	6.3	2.3	5811	86	
10/01/14	HDM #1	1121	7.42	52.64	17.25	10.43	4.8	2.0	979	935	157	160	6.2	29.0	5735	84	
01/07/15	HDM #1	1100	7.56	37.12	18.94	6.36	3.2	2.0	771	744	116	116	6.7	3.7	3434	85	
Mean			7.49	46.19	12.01	7.41	3.3	2.0	900	809	137	131	6.6	16.0	3931	80	
Std. Dev.			0.16	8.37	2.97	1.60	1.1	0.0	166	153	27	29	0.8	15.6	1033	11	
n=			16	16	16	16	16	15	16	12	16	12	16	11	12	16	

Indo-Pacific Sea Farms Seawater Disposal Log

Discharge GPS:
Latitude: 19°43'43.28"N
Longitude: 156° 3'26.98"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
12	8	6

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/17/11	IPSF #1	1005	7.86	35.54	19.40	6.23	2.9	2.0	327		64		5.1			67.7	
06/09/11	IPSF #1	852	7.92	34.54	18.22	6.18	4.5	2.0	341		65		5.2			69.5	
09/22/11	IPSF #1	932	7.89	34.58	20.55	6.36	5.1	2.0	288		54		5.3			80.4	
12/15/11	IPSF #1	950	7.92	34.60	19.04	6.95	3.9	2.0	376		48		7.8			67.8	
03/08/12	IPSF #1	1035	8.09	34.97	21.07	6.12	1.8	2.0	306	151	58	40	5.3	29	717	67.7	
05/31/12	IPSF #1	901	8.00	34.77	19.83	7.33	3.6	2.0	424	122	53	33	8.0	25	817	70.8	
09/13/12	IPSF #1	1111	8.09	35.00	22.17	6.88	3.2	2.0	387	117	55	34	7.0	26	877	67.7	
12/13/12	IPSF #1	906	7.91	35.04	19.63	7.43	3.3	2.0	342	165	49	31	7.0	47	837	65.7	
03/21/13	IPSF #1	931	7.90	34.37	19.46	8.25	3.3	2.0	285	167	58	45	4.9	40	980	67.7	
05/30/13	IPSF #1	1114	8.19	35.06	23.08	6.72	3.4	2.0	308	114	59	37	5.2	26	845	67.7	
09/05/13	IPSF #1	1011	8.05	34.67	22.16	6.50	3.1	2.0	283	121	54	35	5.2	23	939	67.7	
12/18/13	IPSF #1	1034	7.98	34.89	19.14	6.91	2.5	2.3	362	228	68	51	5.3	31	1165	67.7	
03/06/14	IPSF #1	1004	8.06	34.77	21.40	8.06	4.8	2.0	311	98	53	31	5.9	37	608	71.7	
06/26/14	IPSF #1	1011	8.08	34.83	21.32	6.52	3.5	4.0	339	151	46	35	7.3	32	1073	67.7	
09/25/14	IPSF #1	1001	8.02	34.96	25.26	4.45	4.4	2.2	523	149	56	14	9.4	51	747	67.7	
12/24/14	IPSF #1	945	7.93	34.98	21.80	4.61	2.7	2.0	567	187	62	50	9.1	37	657	70.6	
Mean			7.99	34.85	20.85	6.59	3.5	2.2	361	147	56	36	6.5	34	855	69	
Std. Dev.			0.09	0.27	1.81	1.02	0.9	0.5	82	36	6	10	1.5	9	165	3	
n=			16	16	16	16	16	16	16	12	16	12	16	12	12	16	

Kampachi Farms LLC Seawater Disposal Log

Discharge GPS:
Latitude: 19°43'40"N
Longitude: 156° 3'32"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
16	16	3

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
10/21/10																	
02/10/11																	
05/12/11	Kona Blue SK (1)	1001	8.18	34.83	25.89	6.14	2.3	2.0	135		17		7.9			190	
08/18/11	Kampachi Farms 1, SK	1057	8.12	34.96	26.71	5.47	2.9	2.0	234		29		8.1			159	
12/01/11	Kampachi Farms 1, SK															0	No Discharge
02/16/12	Kampachi Farms 1, SK															0	No Discharge
05/17/12	Kampachi Farms 1, SK	832	8.16	34.91	24.99	6.46	2.6	2.0	122	7	17	4	7.2	11	29	146	
08/08/12	Kampachi Farms 1, SK	800	8.07	35.15	26.33	6.47	2.6	2.0	165	11	22	1	7.5	17	130	167	
12/05/12	Kampachi Farms 1, SK	827	8.12	35.34	24.96	5.59	3.0	2.0	215	16	15	14	14.8	62	78	154	
02/27/13	Kampachi Farms 1, SK															0	No Discharge
05/15/13	Kampachi Farms 1, SK	834	8.09	34.88	26.20	5.53	2.4	2.0	205	9	27	8	7.7	51	47	161	
08/28/13	Kampachi Farms 1, SK	854	8.10	34.72	26.90	5.93	3.1	2.0	233	12	29	4	8.0	34	52	152	
12/12/13	Kampachi Farms 1, SK	1059	7.96	35.16	26.12	4.65	2.0	2.0	226	6	33	9	6.8	129	44	185	
03/05/14	Kampachi Farms 1, SK	849	8.11	34.84	25.00	6.11	2.3	2.0	166	9	22	13	7.7	134	49	150	
06/26/14	Kampachi Farms 1, SK																No Discharge
09/24/14	Kampachi Farms 1, SK	907	8.12	34.89	27.93	5.34	3.1	2.0	152	15	23	4	6.6	6	8	68	
12/17/14	Kampachi Farms 1, SK	955	8.10	35.24	25.94	6.00	4.3	2.0	248	11	26	6	9.5	10	4	104	
Mean			8.10	34.99	26.09	5.79	2.8	2.0	191	11	24	7	8.4	50	49	117	
Std. Dev.			0.06	0.20	0.91	0.54	0.6	0.0	44	3	6	4	2.3	50	38	70	
n=			11	11	11	11	11	11	11	9	11	8	11	9	9	11	

Discharge GPS:
Latitude: 19°43'39.22"N
Longitude: 156° 3'33.51"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
4	4	2

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
10/21/10																	
02/10/11																	
5/12/11	Kona Blue Grouper (1)	1005	8.19	34.80	25.99	6.14	2.5	2.0	103		17		6.1			66	
08/18/11	Kampachi Farms 2 Grouper 1	1048	8.14	30.27	26.19	5.90	2.3	2.0	121		19		6.4			55	
12/01/11	Kampachi Farms 2 Grouper 1															0	No Discharge
02/16/12	Kampachi Farms 2 Grouper 1															0	No Discharge
05/17/12	Kampachi Farms 2 Grouper 1															0	No Discharge
08/08/12	Kampachi Farms 2 Grouper 1															0	No Discharge
12/05/12	Kampachi Farms 2 Grouper 1															0	No Discharge
02/27/13	Kampachi Farms 2 Grouper 1	1000	8.04	35.29	24.88	5.76	3.3	2.0	248	8	32	14	7.8	72	43	43	
05/15/13	Kampachi Farms 2 Grouper 1	838	8.06	34.98	25.76	5.48	2.4	2.0	270	9	37	20	7.2	133	29	81	
08/28/13	Kampachi Farms 2 Grouper 1	846	8.13	34.83	26.48	6.01	2.9	2.0	124	10	30	18	4.2	28	49	76	
12/12/13	Kampachi Farms 2 Grouper 1															0	No Discharge
03/05/14	Kampachi Farms 2 Grouper 1															0	No Discharge
06/26/14	Kampachi Farms 2 Grouper 1															0	No Discharge
09/24/14	Kampachi Farms 2 Grouper 1	900	7.97	34.98	27.89	5.19	3.1	2.5	702	18	45	1	15.7	493	8	68	
12/17/14	Kampachi Farms 2 Grouper 1	947	8.06	35.56	25.91	6.07	4.3	2.0	423	22	29	3	14.5	156	4	104	
Mean			8.08	34.39	26.16	5.79	3.0	2.1	284	13	30	11	8.8	176	27	33	
Std. Dev.			0.07	1.84	0.91	0.35	0.7	0.2	216	6	10	9	4.5	184	20	38	
n=			7	7	7	7	7	7	7	5	7	5	7	5	5	7	

Discharge GPS:
Latitude: 19°43'40"N
Longitude: 156° 3'33"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
8.5	4.75	2.5

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
10/21/10																	
02/10/11																	
5/12/11																	
08/18/11	Kampachi Farms 3, Grouper 2	1051	8.14	34.55	26.50	5.66	1.9	2.0	64		10		6.4			159	
12/01/11	Kampachi Farms 3, Grouper 2	914	8.11	34.99	25.13	6.00	1.1	2.0	212		34		6.2			126	
02/16/12	Kampachi Farms 3, Grouper 2	830	8.17	35.11	24.51	4.95	0.5	2.0	100	9	16	6	6.3	33	24	198	
05/17/12	Kampachi Farms 3, Grouper 2	828	8.12	34.80	25.08	5.81	1.9	2.0	202	9	22	9	9.2	95	22	146	
08/08/12	Kampachi Farms 3, Grouper 2	824	8.12	35.13	26.03	5.71	1.9	2.0	103	10	19	5	5.4	32	43	167	
12/05/12	Kampachi Farms 3, Grouper 2	823	8.14	35.34	24.95	6.27	1.8	2.0	146	13	21	10	7.0	31	72	154	
02/27/13	Kampachi Farms 3, Grouper 2	1005	8.07	35.26	24.71	5.81	2.9	2.0	152	9	27	16	5.6	34	53	122	
05/15/13	Kampachi Farms 3, Grouper 2	841	8.07	34.95	26.03	5.24	2.0	2.0	125	9	32	21	3.9	74	46	161	
08/28/13	Kampachi Farms 3, Grouper 2	850	8.08	34.80	26.55	6.11	7.9	2.0	182	12	28	12	6.5	44	48	152	
12/12/13	Kampachi Farms 3, Grouper 2	1103	8.06	35.20	26.31	5.50	2.1	2.0	121	5	21	10	5.8	41	41	185	
03/05/14	Kampachi Farms 3, Grouper 2	845	8.09	34.82	24.63	6.34	2.8	2.0	177	8	24	12	7.5	44	50	277	
06/26/14	Kampachi Farms 3, Grouper 2	848	8.06	34.90	26.14	6.10	2.7	2.0	155	7	30	18	5.2	64	62	127	
09/24/14	Kampachi Farms 3, Grouper 2	903	8.07	34.97	26.75	5.65	2.7	2.0	279	17	35	9	8.0	100	10	68	
12/17/14	Kampachi Farms 3, Grouper 2	950	8.08	35.35	25.70	6.06	3.0	2.0	29	13	28	7	1.0	83	4	104	
Mean			8.10	35.01	25.64	5.80	2.5	2.0	146	10	25	11	6.0	56	40	153	
Std. Dev.			0.03	0.23	0.79	0.39	1.7	0.0	64	3	7	5	1.9	26	21	49	
n=			14	14	14	14	13	14	14	12	14	12	14	12	12	14	

Discharge GPS:
Latitude: 19°43'38.88"
Longitude: 156° 3'34.77"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
4	4	2.5

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
10/21/10	Kona Blue Main	1000	8.16				0.8	<2.0	157	10.7	12	0.8	13.1	57	153.6	287	
02/10/11	Kona Blue Main	752	8.18	35.04	25.19	5.00	2.3	2.0	277		43		6.4			241	
05/12/11	Kona Blue Main	1012	8.18	33.38	26.04	6.04	2.4	2.0	183		23		8.0			226	
08/18/11	Kampachi Farms 4, Main	1043	8.05	34.63	26.78	5.57	2.0	2.0	239		25		9.6			189	
12/01/11	Kampachi Farms 4, Main	911	8.09	34.97	25.07	6.73	0.7	2.0	162		22		7.4			150	
02/16/12	Kampachi Farms 4, Main															0	No Discharge
05/17/12	Kampachi Farms 4, Main	815	8.15	33.95	24.97	6.64	1.4	2.0	138	7	21	7	6.6	4	72	180	
08/08/12	Kampachi Farms 4, Main	828	8.06	35.07	26.31	6.16	2.1	2.0	178	27	25	8	7.1	80	137	206	
12/05/12	Kampachi Farms 4, Main	812	8.12	35.27	25.09	6.42	2.7	2.0	164	12	22	11	7.5	58	86	190	
02/27/13	Kampachi Farms 4, Main	958	8.10	35.48	25.31	6.12	2.9	2.0	183	8	28	14	6.5	16	113	122	
05/15/13	Kampachi Farms 4, Main	843	8.10	34.92	26.29	5.37	6.5	2.0	192	9	25	7	7.7	26	67	188	
08/28/13	Kampachi Farms 4, Main	843	8.03	34.31	26.72	5.82	3.9	2.0	266	6	69	46	3.8	128	78	178	
12/12/13	Kampachi Farms 4, Main	1111	8.03	34.89	26.52	5.34	3.4	2.0	351	26	41	14	8.6	67	271	228	
03/05/14	Kampachi Farms 4, Main															0	No Discharge
06/26/14	Kampachi Farms 4, Main	846	8.12	34.88	26.61	6.39	7.5	2.6	129	6	25	15	5.1	6	65	131	
09/24/14	Kampachi Farms 4, Main	857	8.12	35.05	28.22	4.92	12.8	2.0	193	13	25	3	7.6	7	15	68	
12/17/14	Kampachi Farms 4, Main																No Discharge
Mean			8.11	34.76	26.09	5.89	3.7	2.0	201	12	29	12	7.5	45	106	162	
Std. Dev.			0.05	0.57	0.94	0.60	3.3	0.2	62	8	14	13	2.1	40	70	81	
n=			14	13	13	13	12	13	14	10	14	9	14	10	10	14	

Discharge GPS:
Latitude: 19°43'39"N
Longitude: 156° 3'34"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
10	10	3

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
10/21/10																	
02/10/11																	
5/12/11																	
08/18/11	Kampachi Farms 5, K	1040	8.20	35.04	26.42	5.26	2.7	2.0	102		15		6.8			49	
12/01/11	Kampachi Farms 5, K	926	8.15	35.03	24.65	5.16	0.3	2.0	133		21		6.3			44	
02/16/12	Kampachi Farms 5, K	840	8.19	35.05	24.18	5.90	1.3	2.0	140	24	15	24	9.3	22	250	70	
05/17/12	Kampachi Farms 5, K	838	8.15	35.00	24.99	5.15	2.2	2.0	119	7	20	9	6.0	23	22	90	
08/08/12	Kampachi Farms 5, K	835	8.16	35.18	26.17	5.25	2.3	2.0	97	8	16	6	6.1	19	57	103	
12/05/12	Kampachi Farms 5, K	817	8.16	35.29	24.89	5.03	2.8	2.0	79	10	19	8	4.2	13	63	95	
02/27/13	Kampachi Farms 5, K	953	8.11	35.33	25.39	7.20	2.0	2.0	129	9	29	18	4.5	17	49	43	
05/15/13	Kampachi Farms 5, K	847	8.05	34.75	26.21	5.28	2.0	2.0	140	9	27	8	5.2	47	49	81	
08/28/13	Kampachi Farms 5, K	838	8.08	34.83	26.77	5.71	2.4	2.0	119	8	48	38	2.5	67	51	76	
12/12/13	Kampachi Farms 5, K	1109	7.96	35.10	26.41	5.20	2.1	2.0	338	9	33	10	10.2	140	46	114	
03/05/14	Kampachi Farms 5, K	842	8.00	34.83	24.48	6.07	2.5	2.0	277	9	34	13	8.1	134	49	150	
06/26/14	Kampachi Farms 5, K	841	8.00	34.79	25.84	6.71	3.3	2.6	236	7	41	22	5.7	131	60	127	
09/24/14	Kampachi Farms 5, K	852	8.10	35.00	27.59	6.24	3.8	2.0	343	17	47	15	7.3	35	25	68	
12/17/14	Kampachi Farms 5, K	945	7.89	35.34	25.82	4.42	3.2	2.0	285	11	32	5	8.9	136	4	104	
Mean			8.09	35.04	25.70	5.61	2.3	2.0	181	11	28	15	6.5	65	60	87	
Std. Dev.			0.09	0.20	0.98	0.74	0.9	0.2	93	5	11	10	2.1	54	62	32	
n=			14	14	14	14	13	14	14	12	14	12	14	12	12	14	

Keahole Solar Power LLC Seawater Disposal Log

Discharge GPS:
Latitude: 19°42'50.72"N
Longitude: 156° 2'6.35"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
8	8	7

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/09/11	KSP #1 Maintance Cooling	900	7.45	34.99	15.77	5.12	2.4	2.0	670		108		6.2			0.5	
06/08/11	KSP #1 Maintance Cooling	848	7.53	34.55	10.40	5.14	2.7	2.0	607		92		6.6			0.5	
08/24/11	KSP #1 Maintance Cooling	1131	7.64	34.45	13.68	6.93	1.5	2.0	629		96		6.6			0.8	
12/08/11	KSP #1 Maintance Cooling	813	7.53	34.30	14.87	3.28	0.7	2.0	675		87		7.8			0.5	
03/01/12	KSP #1 Maintance Cooling	730	7.70	31.32	22.34	4.03	2.1	2.0	608	590	85	83	7.2	5.0	2877	1.0	
06/07/12	KSP #1 Maintance Cooling	945	7.64	34.27	29.96	3.46	2.4	2.0	645	615	92	58	7.0	5.0	2921	0.4	
08/09/12	KSP #1 Maintance Cooling	930	7.61	34.52	15.96	5.98	2.2	2.0	657	605	92	84	7.1	1.0	2936	1.0	
11/21/12	KSP #1 Maintance Cooling	920	7.58	34.60	23.46	4.60	1.4	2.0	908	641	103	99	8.8	4.0	3004	0.8	
02/21/13	KSP #1 Maintance Cooling	834	7.44	34.35	17.72	5.81	2.5	2.0	619	608	94	95	6.6	5.2	2888	0.7	
05/16/13	KSP #1 Maintance Cooling	932	7.52	34.51	7.95	2.39	5.1	2.0	662	597	141	69	4.7	2.5	2784	0.9	
09/04/13	KSP #1 Maintance Cooling	929	7.20	34.33	27.39	3.16	6.1	2.0	185	0	62	79	3.0	91.0	3369	0.0	
12/11/13	KSP #1 Maintance Cooling															0.0	Plant Shut Down (Bankruptcy)
02/26/14	KSP #1 Maintance Cooling															0.0	Plant Shut Down (Bankruptcy)
Mean			7.53	34.20	18.14	4.54	2.6	2.0	624	522	96	81	6.5	16.2	2968	0.6	
Std. Dev.			0.14	0.98	6.90	1.40	1.6	0.0	168	231	19	14	1.5	33.0	189	0.4	
n=			11	11	11	11	10	11	11	6	11	7	11	6	7	10	

Discharge GPS:
12 19°42'50.84"N
Longitude: 156° 2'5.45"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
8	8	7

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/09/11	KSP #2 Power Cooling	925	7.51	34.43	9.20	6.00	2.4	2.0	685		106		6.5			50.0	
06/08/11	KSP #2 Power Cooling	835	7.57	34.54	18.10	6.07	1.7	2.0	620		96		6.5			49.9	
08/24/11	KSP #2 Power Cooling	1147	7.64	34.70	31.64	2.40	1.9	2.0	643		98		6.6			76.8	
12/08/11	KSP #2 Power Cooling	833	7.57	34.20	8.36	1.71	0.2	2.0	639		93		6.9			53.9	
03/01/12	KSP #2 Power Cooling	805	7.56	34.39	8.71	2.80	0.9	2.0	635	620	89	96	7.1	15.0	2862	95.1	
06/07/12	KSP #2 Power Cooling	935	7.56	34.43	16.61	6.42	2.0	2.0	636	628	103	104	6.2	2.1	2966	44.2	
08/09/12	KSP #2 Power Cooling	921	7.52	34.78	14.79	3.45	9.2	2.0	1104	604	158	88	7.0	5.9	2907	98.4	
11/21/12	KSP #2 Power Cooling	911	7.52	34.42	8.74	6.93	2.6	2.0	728	676	99	98	7.4	2.0	2884	75.4	
02/21/13	KSP #2 Power Cooling	823	7.87	34.64	18.50	5.43	1.6	2.0	631	607	90	93	7.0	3.9	2882	70.1	
05/16/13	KSP #2 Power Cooling	920	7.57	34.73	19.58	6.92	2.7	2.0	648	595	119	78	5.4	9.3	2793	88.5	
09/04/13	KSP #2 Power Cooling	925	7.30	34.65	27.72	1.68	3.1	2.0	384	280	101	106	3.8	61.5	2966	0.0	
12/11/13	KSP #2 Power Cooling																Plant Shut Down (Bankruptcy)
Mean			7.56	34.54	16.54	4.53	2.6	2.0	668	573	105	95	6.4	14.2	2894	63.9	
Std. Dev.			0.13	0.18	7.84	2.13	2.4	0.0	168	132	20	9	1.0	21.3	61	28.4	
n=			11	11	11	11	9	11	11	7	11	7	11	7	7	11	

Discharge GPS:
Latitude: 19°43'28"N
Longitude: 156° 3'22"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
150	8	3.5

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/16/11	KOF #1	1049	7.49	22.10	22.01	6.37	5.0	2.0	1149		161		7.1			79	
06/01/11	KOF#1	758	7.60	25.30	18.90	7.11	2.4	2.0	995		129		7.7			100	
09/14/11	KOF#1	1019	7.63	25.11	18.92	8.33	2.8	2.0	889		112		7.9			41	
12/14/11	KOF#1	837	7.47	23.59	18.77	7.79	1.4	2.0	1311		124		10.6			8	
02/16/12	KOF#1	900	8.07	34.95	21.79	6.72	4.4	2.0	353	96	56	35	6.3	76	464	166	
05/31/12	KOF#1	938	8.03	34.47	14.89	8.89	14.7	2.0	700	102	139	36	5.0	24	425	516	
08/16/12	KOF#1	1121	8.29	34.71	16.23	11.36	2.4	2.0	425	287	66	54	6.4	25	908	593	
12/12/12	KOF#1	947	8.06	34.50	13.14	13.92	11.7	2.9	361	26	42	18	8.6	14	287	911	
02/28/13	KOF#1	938	8.00	34.51	12.63	11.68	14.6	2.5	273	25	40	24	6.9	18	195	1038	
05/16/13	KOF#1	1010	8.31	34.60	14.63	11.53	14.1	2.2	351	30	65	47	5.4	13	233	1117	
09/04/13	KOF#1	1057	8.28	34.46	14.27	9.78	28.3	3.5	415	31	64	25	6.5	33	152	1156	
12/11/13	KOF#1	1100	8.19	34.71	13.70	10.22	9.4	2.0	210	81	47	44	4.4	28	264	940	
02/26/13	KOF#1	1040	8.32	34.46	11.73	11.71	2.0	2.0	165	49	39	25	4.2	11	283	967	
06/25/14	KOF#1	1053	8.42	34.58	12.82	12.88	24.3	7.0	497	68	101	33	4.9	44	1302	885	
09/24/14	KOF#1	1113	8.45	34.65	12.75	10.87	3.0	2.0	1820	1739	85	82	21.4	30	361	880	
12/17/14	KOF#1	1045	8.03	32.83	14.48	9.79	2.3	5.7	738	429	71	54	10.4	38.2	2197	836	
Mean			8.04	31.85	15.73	9.93	8.9	2.7	666	247	84	40	7.7	30	589	640	
Std. Dev.			0.33	4.73	3.32	2.25	8.4	1.5	462	486	39	18	4.1	18	607	423	
n=			16	16	16	16	16	16	16	12	16	12	16	12	12	16	

Discharge GPS:
Latitude: 19°43'27.84"N
Longitude: 156° 3'20.48"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
8	7	4

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/16/11	KOF#2																No Discharge
06/01/11	KOF#2																No Discharge
09/14/11	KOF#2																No Discharge
12/14/11	KOF#2																No Discharge
02/16/12	KOF#2																No Discharge
05/31/12	KOF#2																No Discharge
08/16/12	KOF#2																No Discharge
12/12/12	KOF#2																No Discharge
02/28/13	KOF#2																No Discharge
05/16/13	KOF#2																No Discharge
09/04/13	KOF#2																No Discharge
12/11/13	KOF#2	1104	8.12	34.60	11.02	9.61	6.7	3.8	318	196	71	61	4.5	10.0	1032	313	
02/26/14	KOF#2	1045	8.13	34.54	9.23	10.70	22.1	2.0	400	175	75	53	5.3	20.6	1075	322	
06/25/14	KOF#2	1056	8.26	34.54	11.27	10.48	7.8	2.9	263	101	64	45	4.1	21.6	1416	295	
09/24/14	KOF#2	1119	8.26	34.60	11.27	10.37	21.9	4.4	2491	1598	539	101	4.6	37.2	1016	293	
12/17/14	KOF#2	1050	8.01	33.95	10.09	10.04	24.8	2.0	1009	151	182	52	5.5	20.2	811	279	
Mean			8.16	34.45	10.58	10.24	16.7	3.0	896	444	186	62	4.8	22	1070	301	
Std. Dev.			0.11	0.28	0.90	0.43	8.7	1.1	941	646	203	22	0.6	10	219	17	
n=			5	5	5	5	5	5	5	5	5	5	5	5	5	5	

Kona Clams Seawater Disposal Log

Discharge GPS:
Latitude: 19°43'41.25"N
Longitude: 156° 3'34.16"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
0	0	0

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
02/29/12	Kona Clams	815	8.04	35.24	23.58	6.16	3.0	2.0	94	3	18	2.5	5.2	2.0	17	0.03	
05/30/12	Kona Clams	914	8.28	34.93	25.14	5.75	1.6	2.0	184	7	20	7	9.2	2.8	47	0.03	
08/23/12	Kona Clams	834	8.13	35.30	25.61	6.31	2.8	2.0	71	3	13	0	5.5	2.8	55	74	
11/21/12	Kona Clams	816	6.85	35.36	24.31	6.21	5.2	2.0	198	3	10	0	19.8	6.2	20	105	
03/20/13	Kona Clams	804	8.20	35.23	23.11	6.55	1.8	2.0	215	37	47	19	4.6	15.4	69	32	
05/30/13	Kona Clams	813	8.06	34.90	26.82	8.30	2.7	2.0	222	15	26	6	8.5	8.3	26	35	
09/05/13	Kona Clams	807	7.98	34.59	25.58	5.41	5.3	4.1	127	2	38	25	3.3	7.6	54	26	
12/18/13	Kona Clams															26	No Sample
03/06/14	Kona Clams	816	7.30	34.20	22.29	6.40	3.1	2.0	178	1	31	6	5.8	8.0	17	64	
																	Terminated lease
Mean			7.86	34.97	24.56	6.39	3.2	2.3	161	9	25	8	7.7	6.6	38	40	
Std. Dev.			0.51	0.40	1.51	0.86	1.4	0.7	57	12	13	9	5.2	4.4	21	35	
n=			8	8	8	8	8	8	8	7	8	6	8	8	8	7	

Kona Coast Shell Fish LLC Seawater Disposal Log

Discharge GPS:
Latitude: 19°43'38"N
Longitude: 156° 3'26"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
91	20	12

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
10/20/10	KCSF Effluent Trench	1040	8.14				1.4	2.0	500		81		6.2			932	
02/09/11	KCSF Effluent Trench	1052	8.24	34.95	24.55	6.98	7.5	2.0	397		66		6.0			751	
05/18/11	KCSF Effluent Trench	1012	8.13	34.63	17.04	8.03	2.3	2.0	278		48		5.8			820	
09/14/11	KCSF Effluent Trench	941	8.05	34.55	22.36	6.76	2.3	2.0	203		38		5.3			300	
12/01/11	KCSF Effluent Trench	1003	8.22	34.81	18.16	7.80	1.8	2.0	375		45		8.3			310	
02/29/12	KCSF Effluent Trench	930	7.92	34.66	15.40	8.22	16.1	2.3	580	407	91	70	6.4	5.0	1625	630	
05/23/12	KCSF Effluent Trench	914	7.92	34.52	15.14	8.03	1.9	2.0	464	303	69	55	6.7	3.4	1201	725	
08/09/12	KCSF Effluent Trench	810	7.80	34.82	15.19	7.15	2.6	2.0	408	363	59	58	6.9	7.0	1460	702	
11/15/12	KCSF Effluent Trench	855	7.83	34.77	11.75	8.56	1.4	2.0	537	393	69	60	7.8	7.4	1410	737	
02/20/13	KCSF Effluent Trench	1057	7.79	34.88	14.62	9.43	2.4	2.0	427	320	67	58	6.4	3.2	1376	815	
05/15/13	KCSF Effluent Trench	1009	8.01	34.87	14.91	8.34	5.9	2.5	471	338	78	65	6.0	16.4	1413	803	
08/28/13	KCSF Effluent Trench	1002	8.02	34.32	17.76	9.58	3.8	2.6	458	370	88	87	5.2	8.8	1379	757	
12/12/13	KCSF Effluent Trench	1044	8.04	34.88	19.51	6.34	3.2	2.0	194	110	32	26	6.1	7.7	518	642	
03/05/14	KCSF Effluent Trench	928	8.18	34.55	15.66	7.88	7.6	2.0	230	154	47	40	4.9	12.7	770	720	
06/26/14	KCSF Effluent Trench	1000	7.98	34.82	18.21	7.41	2.8	4.1	315	239	53	49	6.0	6.2	1407	760	
09/04/14	KCSF Effluent Trench	942	8.14	34.84	22.07	7.30	3.1	2.0	226	94	47	52	4.8	41.7	473	729	
12/18/14	KCSF Effluent Trench	1105	7.96	35.13	18.19	8.44	1.4	2.0	413	286	77	60	5.4	7.5	1021	782	
03/12/15	KCSF Effluent Trench	1009	7.88	34.28	16.63	7.20	2.8	2.0						100.0	2810		
Mean			8.01	34.72	17.48	7.85	3.9	2.2	381	281	62	57	6.1	17.5	1297	701	
Std. Dev.			0.14	0.22	3.24	0.88	3.6	0.5	120	109	18	15	0.9	26.8	586	164	
n=			18	17	17	17	18	18	17	12	17	12	17	13	13	17	

Discharge GPS:
Latitude: 19°43'36.26"N
Longitude: 156° 3'30.60"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
15	12	6

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
12/02/10	Kona Cold Lobster	953	7.67	34.24			2.1	2.0	652	597	98	94	6.6	4	2716	458	
02/03/11	Kona Cold Lobster	933	7.81	34.65	7.19	9.00	2.4	2.0	627		102		6.1			389	
05/11/11	Kona Cold Lobster	917	7.70	34.60	6.36	11.16	3.5	2.0	663		95		7.0			338	
08/18/11	Kona Cold Lobster	917	7.72	34.31	6.91	9.58	1.8	2.0	663		101		6.6			386	
12/01/11	Kona Cold Lobster	954	7.71	34.20	8.11	10.22	2.4	2.9	1118		157		7.1			395	
02/16/12	Kona Cold Lobster	954	7.78	34.50	7.50	11.37	2.1	2.0	726	580	100	93	7.3	38	2308	494	
05/31/12	Kona Cold Lobster	825	7.60	34.29	7.53	10.21	3.5	2.2	805	582	127	108	6.3	49	2299	475	
08/16/12	Kona Cold Lobster	1000	7.65	34.51	7.29	11.43	3.5	2.0	762	572	112	96	6.8	27	2385	411	
12/12/12	Kona Cold Lobster	956	7.59	34.75	10.59	10.49	3.5	2.5	987	598	147	111	6.7	94	2444	368	
02/28/13	Kona Cold Lobster	952	7.51	34.83	7.62	11.90	5.3	6.1	1243	706	129	114	9.7	150	2267	340	
05/15/13	Kona Cold Lobster	902	7.63	34.48	7.42	10.37	5.1	2.0	960	640	122	104	7.9	83	2475	326	
08/28/13	Kona Cold Lobster	912	7.62	34.75	7.83	10.90	3.8	2.0	744	603	110	110	6.8	41	2290	349	
12/12/13	Kona Cold Lobster	1035	7.47	34.77	7.92	9.28	7.5	2.7	1012	627	118	97	8.6	204	2121	388	
03/05/14	Kona Cold Lobster	907	7.58	34.89	7.48	10.52	3.4	2.0	736	603	104	104	7.1	40	2253	485	
06/26/14	Kona Cold Lobster	909	7.59	34.58	7.68	12.08	3.5	2.6	613	538	90	91	6.8	20	2975	498	
09/04/14	Kona Cold Lobster	854	7.68	34.60	8.14	8.15	3.3	2.4	823	566	108	97	7.6	112	2085	361	
12/18/14	Kona Cold Lobster	1115	7.49	35.33	7.49	10.22	8.8	4.0	1452	624	158	111	9.2	165	2342	373	
03/12/15	Kona Cold Lobster	839	7.54	34.47	7.19	10.73	5.8	2.5									
Mean			7.63	34.60	7.66	10.45	4.0	2.6	858	603	116	102	7.3	79	2382	402	
Std. Dev.			0.09	0.27	0.87	1.03	1.9	1.0	238	41	21	8	1.0	62	239	58	
n=			18	18	17	17	18	18	17	13	17	13	17	13	13	17	

Kona Deep Corporation Seawater Disposal Log

Discharge GPS:
Latitude: 19°42'53"N
Longitude: 156°02'32"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
12	12	11

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
08/24/11	Kona Deep Trench	1102	7.72	30.00	14.29	8.31	1.8	2.0	764		108		7.1			31	
12/07/11	Kona Deep Trench	914	7.47	30.69	14.10	7.90	0.7	2.0	802		105		7.6			61	
03/07/12	Kona Deep Trench	900	7.59	34.50	11.89	6.97	1.9	2.0	620	586	99	94	6.3	0	2756	52	
05/23/12	Kona Deep Trench	1049	7.71	24.23	15.69	8.08	1.4	2.0	828	775	113	109	7.3	3.6	8806	49	
08/16/12	Kona Deep Trench															25	No sample (facilty not in operation)
12/12/12	Kona Deep Trench															20	No sample (facilty not in operation)
03/28/13	Kona Deep Trench															13	No sample (facilty not in operation)
05/16/13	Kona Deep Trench	1040	7.51	39.04	13.06	8.33	2.7	2.0	740	665	117	98	6.3	0.5	3041	20	
09/04/13	Kona Deep Trench															10	No sample (facilty not in operation)
12/11/13	Kona Deep Trench	1046	7.46	34.86	10.42	8.20	2.0	2.0	622	605	130	105	4.8	10	2789	9	Deep Seawater AC Discharge
02/26/14	Kona Deep Trench	1024	7.62	34.69	9.74	8.64	1.8	2.0	715	634	108	106	6.6	5	2864	8	Deep Seawater AC Discharge
06/25/14	Kona Deep Trench	1025	7.51	34.75	12.97	8.20	3.6	2.2	610	586	97	99	6.3	4	3726	11	Deep Seawater AC Discharge
09/24/14	Kona Deep Trench	1059	7.60	35.91	14.49	8.21	3.2	2.0	703	669	102	101	6.9	3	2925	11	Deep Seawater AC Discharge
12/17/14	Kona Deep Trench	1032	7.57	34.68	9.8	8.94	2.4	2.0	691	650	110	108	6.3	2	3011	11	Deep Seawater AC Discharge
Mean			7.58	33.34	12.65	8.18	2.16	2.0	709	646	109	102	6.6	4	3740	24	
Std. Dev.			0.09	4.08	2.10	0.51	0.86	0.1	76	62	10	5	0.8	3	2070	18	
n=			10	10	10	10	9	10	10	8	10	8	10	6	8	14	

Discharge GPS:
Latitude: 19°43'5.53"N
Longitude: 156° 2'15.58"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
35	16	8

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
10/20/10	Koyo Concentrate	950	7.74	47.00			1.0	<2.0	838		130		6.4			146	
10/20/10	Koyo 1st filter SW	1000	7.75	47.00			0.2	2.0	804		127		6.3			146	
02/09/11	Koyo Concentrate	1020	7.75	47.68	11.56	7.48	2.3	2.0	925		149		6.2			184	
02/09/11	Koyo 1st filter SW	1016	7.70	47.53	10.88	7.75	2.0	2.0	925		151		6.1			184	
05/18/11	Koyo Concentrate	1130	7.66	46.77	15.27	7.30	3.8	2.0	861		137		6.3			150	
05/18/11	Koyo 1st filter SW	1117	7.65	46.95	12.37	7.83	3.3	2.0	846		139		6.1			150	
08/24/11	Koyo Composite	937	7.61	47.35	11.19	8.00	3.0	2.0	849		141		6.0			383	
12/14/11	Koyo Composite	1015	7.67	46.02	13.21	8.15	0.9	2.0	893		129		6.9			312	
02/29/12	Koyo Composite	1000	7.66	45.22	10.95	8.66	2.8	2.0	861	813	118	128	7.3	1.0	3635	327	
05/23/12	Koyo Composite	939	7.64	42.36	12.40	8.43	1.6	2.0	927	770	134	141	6.9	6.7	3514	209	
08/15/12	Koyo Composite	921	7.49	50.30	15.90	6.85	3.6		1062	887	113	112	9.4	3.0	4317		BOD check std not compliant, resampled on 8/23
08/23/12	Koyo Composite	910	7.56	45.76	14.17	8.33	3.0	2.0	855	849	135	133	6.3	2.5	4100	265	
12/05/12	Koyo Composite	913	7.55	48.20	11.69	8.39	2.5	2.0	855	841	139	114	6.2	6.9	4171	238	
02/28/13	Koyo Composite	914	7.41	55.65	10.49	9.47	3.7	2.0	1089	1053	159	165	6.8	12.2	4818	177	
05/29/13	Koyo Composite	919	7.48	55.57	15.44	6.44	3.9	2.0	1149	1118	188	188	6.1	4.2	5047	78	
09/04/13	Koyo Composite	1007	7.44	58.97	14.34	6.31	3.0	2.0	1087	1045	175	180	6.2	41.4	4803	79	
12/11/13	Koyo Composite	1018	7.42	47.97	13.41	6.85	3.0	2.0	907	764	157	148	5.8	24.6	3835	79	
02/26/14	Koyo Composite	1006	7.51	59.82	11.38	7.63	3.3	2.0	1251	1092	184	177	6.8	12.3	5005	80	
06/25/14	Koyo Composite	1039	7.46	50.36	10.42	8.33	4.5	2.0	980	930	162	166	6.0	2.0	6162	148	
09/24/14	Koyo Composite	1036	7.41	50.61	10.93	8.00	3.6	2.0	990	891	119	157	8.3	37.8	3948	259	
Mean			7.58	49.35	12.56	7.79	2.7	2.0	948	921	144	151	6.6	12.9	4446	189	
Std. Dev.			0.12	4.65	1.81	0.82	1.1	0.0	121	126	21	26	0.9	14.1	753	89	
n=			20	20	18	18	17	18	20	12	20	12	20	11	12	19	

Discharge GPS:
Latitude: 19°43'47.16"N
Longitude: 156° 3'31.22"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
110	30	16

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
07/28/10	Makai Research Compound	847	7.94				1.2	2.0	398		62		6.4			230	
02/02/11	Makai Research Compound	828	8.28				1.0	2.0	463		78		5.9			246	
05/18/11	Makai Research Compound	1025	7.90	34.77	14.97	7.15	3.2	2.0	409		60		6.8			424	
08/17/11	Makai Research Compound	1111	7.96	34.55	14.87	6.58	2.3	2.0	406		64		6.3			232	
11/30/11	Makai Research Compound	1018	8.02	34.62	15.76	7.23	3.0	2.0	373		61		6.1			240	
02/09/12	Makai Research Compound	1038	7.93	34.79	15.58	6.36	4.6	2.0	356		60		5.9			331	
05/16/12	Makai Research Compound	1132	7.91	34.60	16.08	5.32	1.1	2.0	450		68		6.6			320	
08/01/12	Makai Research Compound	1028	7.80	34.55	13.70	4.71	3.7	2.0	456	385	63	58	7.2	1.4	1517	320	
11/08/12	Makai Research Compound	1103	7.94	34.96	18.70	6.11	5.3	2.0	360	273	50	44	7.2	5.0		652	
02/14/13	Makai Research Compound	1005	7.78	34.77	15.67	4.67	2.1	2.0	404	320	61	63	6.6	5.9	1225	668	
05/09/13	Makai Research Compound	1010	7.90	34.81	18.04	4.98	3.0	2.0	326	266	57	44	5.7	1.3	1062	646	
08/22/13	Makai Research Compound	1113	7.38	34.39	9.15	3.11	2.1	2.0	421	343	63	61	6.7	6.7	1324	607	
12/05/13	Makai Research Compound	959	7.85	34.85	16.51	4.48	1.8	4.5	437	359	61	56	7.1	3.6	1340	708	
02/25/14	Makai Research Compound	1148	7.84	34.69	16.41	5.27	2.3	2.0	411	335	65	57	6.3	5.8	1312	703	
05/14/14	Makai Research Compound	1200	7.93	34.73	18.23	7.67	4.9	2.0	372	313	60	55	6.2	11.0	1262	720	
08/13/14	Makai Research Compound	1215	7.83	34.91	20.26	5.22	3.2	2.6	413	307	64	56	6.5	14.9	1172	870	
12/10/14	Makai Research Compound	1335	7.87	35.05	18.31	5.00	2.6	2.0	388	320	65	56	5.9	1.6	1123	972	
02/26/15	Makai Research Compound	1115	8.26	35.03	18.02	5.41	1.3	2.0	697	339	92	50	7.6	3.9	1051		
Mean			7.91	34.75	16.27	5.58	2.7	2.2	419	324	64	55	6.5	6	1239	523	
Std. Dev.			0.19	0.18	2.56	1.19	1.3	0.6	78	35	9	6	0.5	4	144	243	
n=			18	16	16	16	17	18	18	11	18	11	18	11	10	17	

Discharge GPS:
Latitude: 19°43'36.26"N
Longitude: 156° 3'30.60"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
27	22	8

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
07/28/10	Makai 55"	901	7.67				1.2	2.0	640		101		6.3			4.7	
02/02/11	Makai 55"	949	7.68				1.2	2.0	625		101		6.2			5.0	
05/18/11	Makai 55"	820	7.66	34.46	6.05	2.38	3.0	2.0	655		101		6.5			8.7	
08/17/11	Makai 55"	1211	7.69	34.38	5.18	1.89	1.8	2.0	636		96		6.6			4.7	
11/30/11	Makai 55"	939	7.65	34.25	7.20	2.29	1.1	2.0	651		101		6.4			4.9	
02/09/12	Makai 55"	949	7.50	34.40	6.24	2.40	2.5	2.0	611		97		6.3			6.7	
05/16/12	Makai 55"	1045	7.57	34.47	5.79	1.86	1.5	2.0	660		104		6.3			6.5	
08/01/12	Makai 55"	940	7.48	34.23	7.30	2.50	1.9	2.0	675	604	103	94	6.6	1.4	2796	12.3	
11/08/12	Makai 55"	1002	7.50	34.67	7.15	2.94	1.8	2.0	622	592	91	95	6.8	6.1		13.3	
02/14/13	Makai 55"	1005	7.78	34.77	15.67	4.67	2.1	2.0	636	597	99	104	6.4	7.2	2824	13.6	
05/09/13	Makai 55"	852	7.43	34.43	6.40	2.81	2.3	2.0	679	607	102	98	6.7	0.7	2787	13.2	
08/22/13	Makai 55"	1028	7.30	34.38	7.40	2.71	2.1	2.0	633	604	97	97	6.5	3.5	2650	12.4	
12/05/13	Makai 55"	923	7.41	34.35	6.40	2.53	0.6	2.0	651	624	97	96	6.7	3.8	2733	14.4	
02/25/14	Makai 55"	1050	7.44	34.54	6.55	4.09	1.6	2.0	644	632	98	94	6.6	3.9	2905	14.3	
05/14/14	Makai 55"	1111	7.49	34.61	6.29	2.58	3.4	2.0	648	649	100	103	6.5	4.0	2968	14.3	
08/13/14	Makai 55"	1131	7.41	34.54	7.09	3.92	2.7	2.0	760	611	104	106	7.3	42.5	2646	14.3	
12/10/14	Makai 55"	1244	7.33	34.59	6.92	3.34	2.0	3.0	727	660	109	109	6.7	1.0	2897	14.3	
02/26/15	Makai 55"	1013	8.25	34.48	7.25	2.54	3.8	2.0	2110	705	302	97	7.0	5.6	2693		
Mean			7.57	34.47	7.18	2.84	2.0	2.1	737	626	111	99	6.6	7	2790	10	
Std. Dev.			0.22	0.15	2.35	0.79	0.8	0.2	345	34	48	5	0.3	12	111	4	
n=			18	16	16	16	17	18	18	11	18	11	18	9	10	17	

Marine Mammal Center Seawater Disposal Log

Discharge GPS:
Latitude: 19°43'17.01"N
Longitude: 156° 3'16.56"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
8.3	8.3	5.17

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
10/16/14	MMC 1	951	7.93	34.93	25.62	6.28	6.2	3.2	652	340	73	59	8.9	4.7	1473	125	
10/23/14	MMC 1	927	7.96	35.04	24.79	5.90	6.1	2.0	381	305	69	63	5.6	15.3	1272	125	
10/30/14	MMC 1	914	7.99	34.99	26.01	5.23	6.2	2.0	294	192	63	52	4.7	15.4	820	125	
11/06/14	MMC 1	904	8.00	34.83	26.59	5.91	5.6	2.0	305	149	77	62	4.0	45.3	599	125	
12/10/14	MMC 1	914	7.88	35.02	25.01	6.41	3.6	2.0	382	116	93	16	4.1	0.9	748	125	
Mean			7.95	34.96	25.60	5.95	5.5	2.2	403	220	75	50	5.4	16	982	125	
Std. Dev.			0.05	0.08	0.73	0.46	1.1	0.5	145	98	11	20	2.0	17	372	0	
n=			5	5	5	5	5	5	5	5	5	5	5	4	5	5	

Discharge GPS:
Latitude: 19°43'17.23"N
Longitude: 156° 3'16.70"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
8.3	8.3	4.83

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
10/16/14	MMC 2	959	8.19	34.95	28.18	6.23	3.6	2.0	253	51	54	39	4.7	26.6	95	72.0	
10/23/14	MMC 2	932	8.18	35.16	27.59	6.03	3.9	2.0	180	30	53	49	3.4	38.2	44	72.0	
10/30/14	MMC 2	919	8.08	34.99	26.90	5.63	4.6	2.0	257	95	65	63	3.9	59.9	332	72.0	
11/06/14	MMC 2	909	8.12	34.79	27.41	6.23	4.4	2.0	172	44	44	32	3.9	14.2	212	72.0	
12/10/14	MMC 2	921	7.89	34.98	23.78	6.35	4.1	2.0	399	200	67	73	6.0	27.0	646	72.0	
Mean			8.09	34.97	26.77	6.09	4.1	2.0	252	84	57	51	4.4	33	266	72	
Std. Dev.			0.12	0.13	1.73	0.28	0.4	0.0	91	69	9	17	1.0	17	240	0	
n=			5	5	5	5	5	5	5	5	5	5	5	5	5	5	

Discharge GPS:
Latitude: 19°43'4.79"N
Longitude: 156° 2'35.88"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
55	42	10

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/17/11	MT #1	1221	7.65	34.40	20.18	4.19	5.7	4.9	1987		261		7.6			258	
06/03/11	MT #1	1316	7.72	34.90	22.06	4.37	8.5	3.8	1588		234		6.8			249	
09/14/11	MT #1	829	7.70	35.00	24.06	5.64	9.5	3.9	880		119		7.4			266	
12/14/11	MT #1	913	7.75	34.96	21.58	4.18	8.5	3.8	1192		130		9.2			253	
02/16/12	MT #1	800	7.44	34.87	20.11	5.21	5.7	3.0	1008	308	132	65	7.6	356	792	295	
05/23/12	MT #1	823	7.77	34.89	23.36	4.30	11.7	4.2	966	165	133	49	7.3	399	362	331	
08/09/12	MT #1	1007	7.69	34.43	23.47	5.35	5.8	4.3	1397	490	189	150	7.4	550	891	273	
12/12/12	MT #1	926	7.68	35.21	22.44	4.82	5.4	6.2	1377	301	184	76	7.5	509	654	339	
02/27/12	MT #1	913	7.65	35.11	21.13	5.35	4.6	6.2	1807	679	198	113	9.1	533	652	328	
05/16/13	MT #1	847	7.50	35.20	25.18	4.70	34.3	14.5	2993	597	362	122	8.3	1338	308	352	
09/04/13	MT #1	912	7.75	34.93	24.36	4.63	5.8	4.8	1446	521	169	106	8.6	607	511	314	
12/11/13	MT #1	910	7.57	34.48	21.88	5.91	6.6	5.3	1415	614	106	106	13.3	635	752	323	
02/26/14	MT #1	841	7.73	34.86	21.00	5.33	5.4	3.3	1316	354	179	77	7.3	443	679	372	
06/25/14	MT #1	847	7.62	34.84	25.46	5.01	7.9	4.3	1352	483	181	92	7.5	562	427	346	
09/24/14	MT #1	931	7.57	34.61	24.88	4.28	5.6	7.3	1506	486	188	122	8.0	714	680	375	
12/17/14	MT #1	915	7.68	34.88	22.83	5.13	6.1	4.4	1283	453	184	88	7.0	397	749	336	
Mean			7.65	34.85	22.75	4.90	8.6	5.3	1470	454	184	97	8.1	587	621	313	
Std. Dev.			0.09	0.25	1.73	0.55	7.1	2.7	497	148	63	28	1.6	259	181	42	
n=			16	16	16	16	16	16	16	12	16	12	16	12	12	16	

Discharge GPS:
Latitude: 19°42'56"N
Longitude: 156° 2'05"W

Seawater Disposal Trench Dimensions
L (ft) W (ft) D (ft)
Leach Field

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
06/01/11	NELHA #1 (Gateway SWAC)	1011	7.65	34.45	13.32	7.72	2.0	2.0	662		102		6.5			36.0	
08/17/11	NELHA #1 (Gateway SWAC)	1250	7.65	34.33	11.53	8.05	3.8	2.0	648		95		6.8			36.0	
11/30/11	NELHA #1 (Gateway SWAC)	916	7.66	34.53	10.08	8.22	0.6	2.0	636		103		6.2			35.0	
02/09/12	NELHA #1 (Gateway SWAC)	1018	7.63	34.44	11.61	8.17	2.4	2.0	651		93		7.0			35.0	
05/16/12	NELHA #1 (Gateway SWAC)	1106	7.61	34.35	11.02	7.40	2.5	2.0	652		102		6.4			33.8	
08/01/12	NELHA #1 (Gateway SWAC)	959	7.59	34.23	13.79	7.74	2.8	2.0	1569	596	275	95	5.7	1.8	2856	31.5	
11/08/12	NELHA #1 (Gateway SWAC)	1023	7.56	34.71	13.20	8.57	2.4	2.0	625	592	93	96	6.7	6.6		31.8	
02/14/13	NELHA #1 (Gateway SWAC)	927	7.44	34.34	11.53	6.74	2.1	2.0	648	597	94	93	6.9	2.0	2839	33.0	
05/09/13	NELHA #1 (Gateway SWAC)	947	7.56	34.04	13.12	7.73	5.7	2.0	672	616	97	95	6.9	3.4	2921	30.8	
08/22/13	NELHA #1 (Gateway SWAC)	1009	7.52	34.37	15.66	7.19	5.2	3.2	769	609	98	97	7.8	8.9	2758	30.2	
12/05/13	NELHA #1 (Gateway SWAC)	940	7.57	34.50	13.56	7.54	3.1	2.0	692	625	95	100	7.3	1.5	2829	30.6	
02/25/14	NELHA #1 (Gateway SWAC)	1030	7.48	34.25	13.82	8.77	3.0	3.4	716	630	91	95	7.9	4.2	2776	32.1	
05/14/14	NELHA #1 (Gateway SWAC)	1052	7.45	34.35	12.43	7.61	3.6	2.9	705	647	104	103	6.8	4.9	2924	32.0	
08/13/14	NELHA #1 (Gateway SWAC)	1051	7.49	34.65	14.88	7.24	2.8	2.0	679	602	106	104	6.4	8.9	2572	31.8	
12/10/14	NELHA #1 (Gateway SWAC)	1130	7.46	34.74	14.17	7.99	4.6	2.0	721	659	110	107	6.6	0.6	2832	31.8	
02/26/15	NELHA #1 (Gateway SWAC)	948	8.48	34.64	10.77	8.36	3.4	2.0	785	705	57	110	13.9	0.4	2721		
Mean			7.61	34.43	12.78	7.82	3.1	2.2	739	625	107	99	7.2	3.9	2803	32.8	
Std. Dev.			0.24	0.19	1.57	0.54	1.3	0.5	226	34	46	6	1.9	3.1	104	1.9	
n=			16	16	16	16	15	16	16	11	16	11	16	9	10	15	

Discharge GPS:
Latitude: 19°42'55"N
Longitude: 156° 2'13"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
45	30	6

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/30/11	NELHA #2 (55" Spillway)	1057	7.60	34.35	6.08	4.87	2.6	2.0	632		101		6.3			72	
06/01/11	NELHA #2 (55" Spillway)	945	7.63	34.40	6.15	3.69	2.0	2.0	662		102		6.5			72	
08/17/11	NELHA #2 (55" Spillway)	1223	7.87	34.81	18.52	4.55	2.1	2.0	505		77		6.6			90	
11/30/11	NELHA #2 (55" Spillway)	928	7.99	34.61	14.93	5.18	0.9	2.0	371		60		6.2			112	
02/09/12	NELHA #2 (55" Spillway)	958	7.94	34.95	15.43	4.98	1.9	2.0	651		93		7.0			72	
05/16/12	NELHA #2 (55" Spillway)	1055	7.59	34.35	6.14	7.55	1.8	2.0	661		105		6.3			72	
08/01/12	NELHA #2 (55" Spillway)	947	7.53	34.37	7.42	2.78	2.6	2.0	701	604	98	94	7.2	0.1	2807	72	
11/08/12	NELHA #2 (55" Spillway)	1014	7.47	34.55	7.02	2.88	1.9	2.0	604	593	93	95	6.5	4.1		72	
02/14/13	NELHA #2 (55" Spillway)	916	7.46	34.72	6.66	6.49	2.3	2.0	655	604	95	94	6.9	3.7	2867	72	
05/09/13	NELHA #2 (55" Spillway)	842	7.51	34.55	7.69	2.85	2.3	2.0	620	610	95	95	6.5	0.7	2767	72	
08/22/13	NELHA #2 (55" Spillway)	1018	7.60	34.58	12.26	3.83	3.3	2.0	570	529	86	87	6.7	7.6	2426	72	
12/05/13	NELHA #2 (55" Spillway)	932	7.64	34.84	9.52	2.90	1.8	2.0	626	580	86	90	7.3	0.0	2645	72	
02/25/14	NELHA #2 (55" Spillway)	1041	7.76	34.81	12.90	4.05	1.7	2.0	515	496	81	57	6.3	0.8	2256	72	
05/14/14	NELHA #2 (55" Spillway)	1101	7.61	34.78	7.75	4.11	1.6	2.0	664	587	93	95	7.1	14.8	2705	72	
08/13/14	NELHA #2 (55" Spillway)	1120	7.48	34.54	7.03	5.41	2.4	2.0	811	612	108	109	7.5	21.3	2630	72	
12/10/14	NELHA #2 (55" Spillway)	1158	7.41	34.64	6.58	5.33	3.6	2.0	721	659	109	108	6.6	0.5	2828	72	
02/26/15	NELHA #2 (55" Spillway)	1003	8.34	34.42	7.51	2.37	2.8	2.0	745	713	83	87	9.0	2.9	2582	72	
Mean			7.67	34.60	9.39	4.34	2.2	2.0	630	599	92	92	6.8	5.1	2651	75.4	
Std. Dev.			0.24	0.19	3.89	1.42	0.7	0.0	101	57	12	14	0.7	6.9	192	10.3	
n=			17	17	17	17	16	17	17	11	17	11	17	6	10	17	

Discharge GPS:
Latitude: 19°42'44"N
Longitude: 156° 2'54"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
28	20	6

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/30/11	NELHA #3 (SRT 55")	1057	7.60	34.35	6.08	4.84	0.8	2.0	647		106		6.1			43.9	
06/01/11	NELHA #3 (SRT 55")	1033	7.62	34.49	7.00	2.34	2.7	2.0	652		98		6.7			43.9	
08/17/11	NELHA #3 (SRT 55")	1216	7.71	34.40	6.38	2.75	4.4	2.0	715		105		6.8			43.9	
11/30/11	NELHA #3 (SRT 55")	938	7.68	34.28	5.83	2.22	8.3	2.0	666		104		6.4			43.9	
02/09/12	NELHA #3 (SRT 55")	947	7.60	34.47	6.18	1.67	9.5	2.0	617		96		6.4			43.9	
05/16/12	NELHA #3 (SRT 55")	1043	7.57	34.55	5.93	1.45	1.9	2.0	669		106		6.3			43.9	
08/01/12	NELHA #3 (SRT 55")	938	7.59	34.37	6.58	1.82	2.8	2.0	721	609	98	96	7.4	5.6	2817	43.9	
11/08/12	NELHA #3 (SRT 55")	1002	7.55	34.69	6.19	1.96	2.6	2.0	683	595	92	95	7.4	28.7		43.9	
02/14/13	NELHA #3 (SRT 55")	912	7.36	34.59	5.95	3.05	1.6	2.0	713	597	96	95	7.4	2.1	2806	43.9	
05/09/13	NELHA #3 (SRT 55")	850	7.49	34.54	5.82	2.17	2.2	2.0	686	610	100	96	6.9	10.4	2796	43.9	
08/22/13	NELHA #3 (SRT 55")	1026	7.39	34.45	6.62	1.89	3.1	2.0	668	603	96	95	7.0	4.9	2646	43.9	
12/05/13	NELHA #3 (SRT 55")	921	7.50	34.56	5.84	1.52	1.5	2.0	669	621	92	99	7.3	0.4	2703	43.9	
02/25/14	NELHA #3 (SRT 55")	1049	7.50	34.43	5.65	2.08	1.8	2.0	400	632	109	99	3.7	13.1	2916	43.9	
05/14/14	NELHA #3 (SRT 55")	1110	7.51	34.80	6.05	2.71	2.7	2.0	673	635	100	103	6.7	3.7	2929	43.9	
08/13/14	NELHA #3 (SRT 55")	1130	7.44	34.60	6.04	3.27	2.4	2.0	680	607	107	106	6.3	13.4	2651	43.9	
12/10/14	NELHA #3 (SRT 55")	1240	7.44	34.79	6.08	2.03	3.5	2.0	769	660	112	105	6.8	4.3	2878	43.9	
02/26/15	NELHA #3 (SRT 55")	1011	8.32	34.64	5.54	1.95	2.8	2.0	909	715	92	91	9.9	15.6	2712	43.9	
Mean			7.58	34.53	6.10	2.34	3.2	2.0	679	626	101	98	6.8	9.3	2785	43.9	
Std. Dev.			0.21	0.15	0.37	0.82	2.3	0.0	97	35	6	5	1.2	8.2	104	0.0	
n=			17	17	17	17	16	17	17	11	17	11	17	10	10	17	

Discharge GPS:
Latitude: 19°43'23"N
Longitude: 156° 3'16"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
64	22	10

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/30/11	NELHA #4 (SRT-5)	1122	7.61	34.38	9.24	8.63	2.1	2.0	631		106		6.0			36.0	
06/02/11	NELHA #4 (SRT-5)	937	7.60	34.55	27.58	4.20	2.6	2.0	665		105		6.3			36.0	
08/17/11	NELHA #4 (SRT-5)	1204	7.74	34.43	13.58	7.80	2.1	2.0	707		103		6.9			36.0	
11/30/11	NELHA #4 (SRT-5)	956	7.69	34.34	20.96	5.97	1.7	2.0	657		100		6.6			36.0	
02/09/12	NELHA #4 (SRT-5)	930	7.59	34.61	19.93	6.33	1.5	2.0	640		94		6.8			36.0	
05/16/12	NELHA #4 (SRT-5)	1034	7.59	34.47	25.94	3.41	2.1	2.0	674		104		6.5			36.0	
08/01/12	NELHA #4 (SRT-5)	929	7.59	34.48	26.88	3.60	2.4	2.0	670	614	97	95	6.9	1.4	2812	36.0	
11/08/12	NELHA #4 (SRT-5)	No sample - Flow diverted for perculation test for new SIS Sump														0.0	
02/14/13	NELHA #4 (SRT-5)	No sample - Flow diverted for perculation test for new SIS Sump														0.0	
05/09/13	NELHA #4 (SRT-5)	No sample - No Flow														0.0	
08/22/13	NELHA #4 (SRT-5)	1040	7.54	34.34	15.46	8.00	2.5	2.0	662	606	101	99	6.6	34.8	2773	36.0	
12/05/13	NELHA #4 (SRT-5)	913	7.55	34.78	14.12	7.38	0.5	2.0	674	636	94	100	7.2	0.1	2808	36.0	
02/25/14	NELHA #4 (SRT-5)	1100	7.55	34.45	13.20	7.83	1.7	2.0	659	629	105	102	6.3	0.7	2854	36.0	
05/14/14	NELHA #4 (SRT-5)	1124	7.59	34.47	16.51	7.04	2.5	2.0	679	641	102	104	6.7	1.7	2940	36.0	
08/13/14	NELHA #4 (SRT-5)	1145	7.55	34.65	17.70	6.82	6.5	2.1	881	635	113	111	7.8	31.7	2645	36.0	
12/10/14	NELHA #4 (SRT-5)	1258	7.43	34.44	14.93	7.01	2.6	2.0	725	661	108	108	6.7	0.5	2912	36.0	
02/26/15	NELHA #4 (SRT-5)	1027	8.22	34.50	13.54	8.32	3.1	2.0	771	719	96	92	8.0	0.8	2659	36.0	
Mean			7.63	34.49	17.83	6.60	2.4	2.0	692	643	102	101	6.8	9.0	2800	29.6	
Std. Dev.			0.18	0.12	5.67	1.72	1.3	0.0	65	35	6	6	0.6	15.0	107	14.1	
n=			14	14	14	14	13	14	14	8	14	8	14	4	8	14	

Discharge GPS:
Latitude: 19°43'23"N
Longitude: 156° 3'16"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
1	1	0.5

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/30/11	NELHA #5 (SRT-5 2")	1127	7.64	34.47	5.67	5.67	1.7	2.0	650		100		6.5			7.2	
06/02/11	NELHA #5 (SRT-5 2")	933	7.61	34.25	28.55	3.69	1.0	2.0	665		105		6.3			7.2	
08/17/11	NELHA #5 (SRT-5 2")	1139	7.73	34.49	14.71	2.83	2.8	2.0	713		103		6.9			7.2	
11/30/11	NELHA #5 (SRT-5 2")	949	7.64	34.30	21.25	1.95	1.0	2.0	634		102		6.2			7.2	
02/09/12	NELHA #5 (SRT-5 2")	930	7.59	34.61	19.93	6.33	5.5	2.0	629		98		6.4			7.2	
05/16/12	NELHA #5 (SRT-5 2")	1032	7.54	34.42	26.12	1.54	2.1	2.0	697		104		6.7			7.2	
08/01/12	NELHA #5 (SRT-5 2")	926	7.57	34.50	26.82	1.83	2.0	2.0	657	605	99	99	6.6	0.4	2829	7.2	
11/08/12	NELHA #5 (SRT-5 2")	944	7.60	34.74	22.38	2.05	2.8	2.0	601	591	96	97	6.3	11.4		7.2	
02/14/13	NELHA #5 (SRT-5 2")	858	7.43	34.47	24.55	2.01	5.5	2.0	554	597	99	97	5.6	2.0	2828	7.2	
05/09/13	NELHA #5 (SRT-5 2")	907	7.48	34.45	28.02	1.99	1.6	2.0	626	609	99	95	6.3	0.5	2843	7.2	
08/22/13	NELHA #5 (SRT-5 2")	1036	7.44	34.40	14.99	2.53	2.6	2.0	630	608	92	96	6.9	3.4	2769	7.2	
12/05/13	NELHA #5 (SRT-5 2")	905	7.49	34.65	14.51	2.07	1.6	2.0	664	625	98	100	6.8	0.1	2822	7.2	
02/25/14	NELHA #5 (SRT-5 2")	1057	7.51	34.48	13.47	3.70	2.0	2.0	654	630	86	103	7.6	0.4	2845	7.2	
05/14/14	NELHA #5 (SRT-5 2")	1118	7.53	34.54	16.67	1.77	3.1	2.0	655	641	100	104	6.5	2.5	2938	7.2	
08/13/14	NELHA #5 (SRT-5 2")	1138	7.46	34.54	17.39	2.38	2.2	2.0	705	604	107	106	6.6	13.6	2614	7.2	
12/10/14	NELHA #5 (SRT-5 2")	1254	7.38	34.75	14.02	1.66	3.0	2.0	719	667	88	108	8.2	4.8	2926	7.2	
02/26/15	NELHA #5 (SRT-5 2")	1022	8.21	34.59	13.67	1.99	2.9	2.0	723	713	96	93	7.5	2.0	2638	7.2	
Mean			7.58	34.51	18.98	2.71	2.6	2.0	657	626	98	100	6.7	3.7	2805	7.2	
Std. Dev.			0.19	0.13	6.41	1.39	1.3	0.0	45	36	6	5	0.6	4.6	107	0.0	
n=			17	17	17	17	16	17	17	11	17	11	17	7	10	17	

Discharge GPS:
Latitude: 19°43'22"N
Longitude: 156° 3'21"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
8	8	1.5

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/30/11	NELHA #6 (Kau Pump Station)	1136	7.65	34.36	7.42	2.29	8.3	2.0	601		94		6.4			14.4	
06/01/11	NELHA #6 (Kau Pump Station)	1044	7.70	34.50	9.10	2.33	9.7	2.0	576		85		6.8			14.4	
08/17/11	NELHA #6 (Kau Pump Station)	1131	7.71	34.66	8.48	2.20	3.2	2.0	689		94		7.3			14.4	
11/30/11	NELHA #6 (Kau Pump Station)	1007	7.71	34.36	7.97	1.52	6.3	2.0	605		96		6.3			14.4	
02/09/12	NELHA #6 (Kau Pump Station)	918	7.82	34.56	14.47	3.96	8.2	2.0	241		34		7.1			14.4	
05/16/12	NELHA #6 (Kau Pump Station)	1015	8.01	34.76	21.76	5.81	0.9	2.0	278		40		7.0			14.4	
08/01/12	NELHA #6 (Kau Pump Station)	919	8.14	34.92	26.04	6.22	1.9	2.0	148	61	22	11	6.8	3.2	241	14.4	
11/08/12	NELHA #6 (Kau Pump Station)	938	8.08	34.85	21.15	6.02	1.3	2.0	171	114	28	20	6.1	20.9		14.4	
02/14/13	NELHA #6 (Kau Pump Station)	845	7.87	34.94	16.08	5.51	3.0	2.0	247	259	54	48	4.6	2.4	1045	14.4	
05/09/13	NELHA #6 (Kau Pump Station)	916	8.08	35.17	23.10	5.00	4.2	2.0	504	408	79	66	6.4	1.3	1615	14.4	
08/22/13	NELHA #6 (Kau Pump Station)	1047	7.87	34.66	10.87	3.81	2.2	2.0	503	449	78	76	6.4	4.8	1707	14.4	
12/05/13	NELHA #6 (Kau Pump Station)	855	7.48	34.65	8.30	1.66	1.6	2.0	534	492	71	78	7.5	1.8	1901	14.4	
02/25/14	NELHA #6 (Kau Pump Station)	1109	7.85	34.44	9.32	5.03	2.6	2.0	620	589	104	99	6.0	2.2	2288	14.4	
05/14/14	NELHA #6 (Kau Pump Station)	1132	7.89	34.51	7.91	3.89	7.5	2.0	688	606	105	101	6.5	17.4	2362	14.4	
08/13/14	NELHA #6 (Kau Pump Station)	1138	7.46	34.54	17.39	2.38	5.5	2.0	242	105	36	23	6.8	8.2	424	14.4	
12/10/14	NELHA #6 (Kau Pump Station)	1305	7.60	34.75	9.73	5.23	3.6	2.0	460	371	74	63	6.2	5.8	1311	14.4	
02/26/15	NELHA #6 (Kau Pump Station)	1036	8.42	34.67	16.47	4.25	4.1	2.0	408	312	51	47	7.9	1.4	954	14.4	
Mean			7.84	34.66	13.86	3.95	4.3	2.0	442	342	67	57	6.6	6.3	1385	14.4	
Std. Dev.			0.25	0.22	6.20	1.61	2.7	0.0	185	191	28	31	0.7	6.7	725	0.0	
n=			17	17	17	17	16	17	17	11	17	11	17	11	10	17	

Discharge GPS:
Latitude: 19°43'42"N
Longitude: 156° 3'35"W

Seawater Disposal Trench Dimensions
L (ft) W (ft) D (ft)
Leach Field

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
06/08/11	NELHA #7 (Lab)	922	7.58	34.25	8.56	2.22	2.8	2.0	646		98		6.6			64.9	
08/17/11	NELHA #7 (Lab)	1055	7.68	34.34	8.77	2.72	0.9	2.0	690		103		6.7			64.9	
11/30/11	NELHA #7 (Lab)	1032	7.69	34.33	9.56	1.84	0.7	2.0	649		98		6.6			64.9	
02/09/12	NELHA #7 (Lab)	1058	7.55	34.43	11.03	6.87	1.8	2.0	680		95		7.2			64.9	
05/16/12	NELHA #7 (Lab)	1218	7.60	34.32	9.62	2.28	0.9	2.0	655		102		6.4			64.9	
08/01/12	NELHA #7 (Lab)	1037	7.55	34.40	11.56	5.89	2.4	2.0	706	592	94	93	7.5	2.6	2407	64.9	
11/08/12	NELHA #7 (Lab)	910	7.42	35.00	9.25	2.84	1.7	2.0	592	576	92	95	6.4	6.2		64.9	
02/14/13	NELHA #7 (Lab)	1016	7.35	34.55	9.18	5.29	2.1	2.0	563	585	93	66	6.0	6.0	2330	64.9	
05/09/13	NELHA #7 (Lab)	1023	7.44	34.48	9.58	3.34	2.1	2.0	620	592	93	91	6.6	0.4	2365	64.9	
08/22/13	NELHA #7 (Lab)	1057	7.79	34.40	18.31	4.66	3.3	2.0	649	596	94	98	6.9	2.8	2382	64.9	
12/05/13	NELHA #7 (Lab)	1019	7.48	34.55	9.17	2.21	1.3	2.0	638	608	93	95	6.9	3.5	2357	64.9	
02/25/14	NELHA #7 (Lab)	1206	7.47	34.41	9.45	3.06	2.1	2.0	641	613	105	99	6.1	2.3	2404	64.9	
05/14/14	NELHA #7 (Lab)	1212	7.57	34.78	12.24	5.89	2.9	2.0	666	625	98	101	6.8	2.8	2408	64.9	
08/13/14	NELHA #7 (Lab)	1228	7.49	34.55	13.41	7.02	3.1	2.0	678	591	103	104	6.6	1.9	2260	64.9	
12/10/14	NELHA #7 (Lab)	1325	7.42	34.86	12.54	4.06	2.5	2.0	719	636	104	105	6.9	0.6	2316	64.9	
02/26/15	NELHA #7 (Lab)	1132	8.03	34.57	18.58	5.75	3.7	2.0	738	705	90	99	8.2	1.3	2247	64.9	
Mean			7.57	34.51	11.30	4.12	2.1	2.0	658	611	97	95	6.8	2.8	2348	64.9	
Std. Dev.			0.17	0.21	3.15	1.78	0.9	0.0	45	36	5	11	0.5	1.9	59	0.0	
n=			16	16	16	16	13	16	16	11	16	11	16	9	10	16	

Discharge GPS:
Latitude: 19°43'22.14"N
Longitude: 156° 3'24.35"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
11	11	3

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/03/11	Central Sump	1144	8.05	34.40	23.59	6.60	2.5	2.0	215		32		6.7			50.5	
06/24/11	Central Sump	804	8.13	34.48	22.89	5.64	2.8	2.0	299		40		7.5			58.3	
09/29/11	Central Sump	855	8.02	34.93	25.17	6.37	2.4	2.0	172		21		8.2			54.9	
12/14/11	Central Sump	846	7.85	34.70	23.21	6.32	0.9	2.1	230		21		11.0			61.4	
03/08/12	Central Sump	839	8.14	34.15	23.81	6.53	1.0	2.0	178	60	26	19	6.8	17.0	729	58.8	
06/06/12	Central Sump	825	7.98	34.55	24.09	5.24	2.4	2.0	185	53	32	15	5.8	12.4	341	56.3	
08/23/12	Central Sump	815	7.82	34.98	24.33	6.03	2.8	2.1	264	87	26	12	10.2	15.0	506	56.1	
12/06/12	Central Sump	826	8.08	34.33	23.92	6.97	2.5	2.0	210	93	27	14	7.8	2.4	802	55.1	
02/28/13	Central Sump	821	8.18	34.65	23.00	5.84	1.9	2.0	358	44	56	15	6.4	10.6	344	35.7	
05/30/13	Central Sump	837	8.12	34.80	24.63	6.60	2.8	2.0	167	87	33	22	5.1	13.8	324	42.6	
09/05/13	Central Sump	837	8.02	34.66	23.87	5.76	2.9	2.0	141	96	41	20	3.4	10.6	374	42.8	
12/18/13	Central Sump	853	7.92	34.81	23.64	5.65	3.6	2.7	182	63	29	24	6.3	13.6	272	48.0	
03/06/14	Central Sump	838	8.06	34.80	23.73	5.56	2.9	2.0	157	26	22	8	7.1	4.9	136	41.7	
06/25/14	Central Sump	823	8.01	34.48	24.62	6.14	3.9	2.1	168	73	30	20	5.6	36.2	714	50.4	
09/25/14	Central Sump	821	7.83	34.86	25.95	6.40	3.3	2.0	207	66	32	10	6.5	1.0	215	61.8	
12/18/14	Central Sump	928	7.95	35.35	24.12	6.78	3.0	2.0	235	96	38	19	6.2	7.6	342	50.0	
03/12/15	Central Sump	835	7.67	34.47	22.72	6.01	9.6	3.0									
Mean			7.99	34.67	23.96	6.14	3.0	2.1	211	70	32	17	6.9	12.1	425	52	
Std. Dev.			0.14	0.29	0.83	0.48	1.9	0.3	57	22	9	5	1.8	9.1	215	8	
n=			17	17	17	17	16	17	16	12	16	12	16	11	12	16	

Discharge GPS:
Latitude: 19°43'22.79"N
Longitude: 156° 3'25.79"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
13	9	3

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/03/11	OR #2 (west)	1158	8.16	34.68	25.70	6.60	1.8	2.0	206		30		6.9			50.5	
06/24/11	OR #2 (west)	810	8.25	35.19	25.36	6.05	2.7	2.0	209		32		6.5			58.3	
09/29/11	OR #2 (west)	900	8.19	36.58	26.00	7.42	3.3	2.0	156		21		7.4			54.9	
12/14/11	OR #2 (west)	851	8.21	34.98	23.34	6.41	1.3	2.0	249		18		13.8			61.4	
03/08/12	OR #2 (west)	843	8.14	35.80	24.27	4.89	2.3	2.0	181	1	30	1	6.0	3.0	513	61.2	
06/06/12	OR #2 (west)	831	7.64	34.92	25.97	0.42	4.2	20.7	918	5	164	15	5.6	4.5	2526	56.3	
08/23/12	OR #2 (west)	819	7.87	34.99	23.52	5.06	3.7	2.2	363	62	51	2	7.1	9.0	799	56.1	
12/06/12	OR #2 (west)	831	8.03	34.86	19.37	3.81	2.5	3.0	332	142	46	12	7.2	0.5	1800	55.1	
02/28/13	OR #2 (west)	825	7.83	36.39	22.00	3.65	5.3	4.8	1795	33	321	18	5.6	51	1366	35.7	
05/30/13	OR #2 (west)	841	8.14	34.66	24.73	5.62	7.2	2.8	372	36	56	17	6.6	46	383	42.6	
09/05/13	OR #2 (west)	840	8.16	35.89	24.34	7.19	45.5	5.8	710	0	117	6	6.1	6.0	1899	42.8	
12/18/13	OR #2 (west)	858	7.99	35.14	22.73	6.14	7.6	4.0	437	47	46	17	9.5	12.0	235	48.0	
03/06/14	OR #2 (west)	841	8.12	34.73	23.26	6.56	4.0	2.0	244	14	23	8	10.7	25.2	70	41.7	
06/25/14	OR #2 (west)	827	8.23	35.06	23.68	8.86	66.8	2.8	617	3	100	14	6.2	12.4	299	50.4	
09/25/14	OR #2 (west)	826	7.99	34.51	24.37	6.70	11.4	3.2	435	162	61	32	7.1	42.6	1117	61.8	
12/18/14	OR #2 (west)	934	8.04	35.77	22.47	7.16	6.5	3.5	388	51	46	11	8.4	30.5	276	50.0	
03/12/15	OR #2 (west)	825	7.86	34.16	20.70	4.04	12.4	5.4									
Mean			8.05	35.19	23.64	5.68	11.1	4.1	476	46	73	13	7.6	20.2	940	52	
Std. Dev.			0.17	0.67	1.82	1.94	17.7	4.4	409	54	77	8	2.2	18.2	798	8	
n=			17	17	17	16	17	17	16	10	16	11	16	11	12	16	

Discharge GPS:
Latitude: 19°43'23.26"N
Longitude: 156° 3'25.47"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
12	7	3.5

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/03/11	OR #3 (east)	1158	8.16	34.68	25.70	5.70	1.8	2.0	206		30		6.9			50.5	
06/24/11	OR #3 (east)	837	8.02	34.72	23.33	5.94	2.8	3.7	192		35		5.5			58.3	
09/29/11	OR #3 (east)	905	8.06	34.14	25.34	6.31	0.8	2.0	219		28		7.8			54.9	
12/14/11	OR #3 (east)	854	8.09	34.91	22.72	6.51	0.7	2.0	221		21		10.5			61.4	
03/08/12	OR #3 (east)	846	8.13	35.11	23.64	5.18	1.7	2.0	181	78	33	21	5.5	10.0	359	58.8	
06/06/12	OR #3 (east)	834	8.13	34.98	23.50	5.82	2.1	2.0	178	80	33	17	5.4	1.8	333	56.3	
08/23/12	OR #3 (east)	824	8.02	35.07	23.26	6.35	2.3	2.0	198	140	31	22	6.4	2.0	621	56.1	
12/06/12	OR #3 (east)	834	8.06	34.88	22.14	6.04	4.1	2.0	200	115	32	19	6.3	0.9	491	55.1	
02/28/13	OR #3 (east)	829	7.98	35.28	22.45	6.07	2.2	2.0	156	67	33	20	4.8	14.1	267	35.7	
05/30/13	OR #3 (east)	845	8.19	34.83	25.05	6.43	3.2	2.0	241	103	34	26	7.1	0.1	427	42.6	
09/05/13	OR #3 (east)	844	8.01	34.69	24.08	5.43	2.9	2.0	196	137	41	28	4.8	5.7	570	42.8	
12/18/13	OR #3 (east)	901	8.00	35.12	23.89	5.91	4.5	2.0	205	123	37	27	5.5	3.8	513	48.0	
03/06/14	OR #3 (east)	846	8.11	34.83	24.36	5.86	2.4	2.0	109	13	19	10	5.9	22.5	72	41.7	
06/25/14	OR #3 (east)	830	8.02	34.79	24.28	6.30	5.3	2.0	183	91	36	21	5.1	11.2	539	50.4	
09/24/14	OR #3 (east)	832	8.03	34.87	25.27	6.47	4.0	2.0	284	132	38	18	7.4	5.6	471	61.8	
12/18/14	OR #3 (east)	937	8.00	35.23	24.36	5.64	2.6	2.0	131	30	24	9	5.5	19.4	80	50.0	
03/12/15	OR #3 (east)	828	8.01	34.50	22.86	5.90	10.7	2.0									
Mean			8.06	34.86	23.90	5.99	3.2	2.1	194	92	32	20	6.3	8.1	395	52	
Std. Dev.			0.06	0.28	1.05	0.38	2.3	0.4	41	41	6	6	1.5	7.4	180	8	
n=			17	17	17	17	15	17	16	12	16	12	16	10	12	16	

Pacific Planktonics Seawater Disposal Log

Discharge GPS:
Latitude: 19°43'38"N
Longitude: 156° 3'32"W

Seawater Disposal Trench Dimensions

L (ft.)	W (ft.)	D (ft.)
11	9	9

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
07/22/10	Pacific Planktonics	930	8.00				2.1	2.0	273		45.9		5.9			11.5	
07/28/10	Pacific Planktonics	930	8.12				1.2	2.0	234		37		6.3				
02/03/11	Pacific Planktonics	845	8.25	23.87	23.58	7.15	3.4	2.0	430		42		10.2			7.2	
05/12/11	Pacific Planktonics	941	8.15	34.64	25.57	5.77	3.0	2.0	183		27		6.8			13.5	
08/18/11	Pacific Planktonics	859	8.13	34.98	25.60	6.51	2.5	2.0	168		27		6.2			19.6	
12/01/11	Pacific Planktonics	943	8.13	35.01	24.31	6.09	1.1	2.0	223		39		5.7			21.1	
02/16/12	Pacific Planktonics	947	8.17	35.16	23.93	5.52	2.6	2.0	352	32	33	22	10.7	71	0	58.6	
05/17/12	Pacific Planktonics	902	8.10	34.82	24.99	5.14	3.3	2.0	296	38	40	21	7.4	71	19	66.9	
08/08/12	Pacific Planktonics	958	8.13	35.15	26.32	6.12	2.7	2.0	318	80	46	29	6.9	54	29	55.8	
11/14/12	Pacific Planktonics	1016	8.18	35.48	25.90	6.60	3.8	2.0	373	104	61	40	6.1	60	44	57.3	
02/20/13	Pacific Planktonics	1010	8.04	35.60	24.02	5.90	19.9	3.7	614	152	86	37	7.2	164	71	45.6	Trench almost empty, tuna tank H2O supply off
05/15/13	Pacific Planktonics	918	8.06	35.05	26.39	5.47	4.8	2.1	564	180	79	61	7.1	111	44	46.1	
09/05/13	Pacific Planktonics	1132	7.99	35.11	26.84	5.77	1.2	2.0	403	163	48	32	8.4	46	39	46.1	
12/12/13	Pacific Planktonics	1025	8.15	35.23	25.51	5.85	5.7	2.6	351	47	36	15	9.8	35	58	7.2	Debris from bucket scraping wall during collection
03/05/14	Pacific Planktonics	917	8.17	34.33	23.05	5.51	2.8	2.0	295	28	24	13	12.3	26	43	7.6	
06/26/14	Pacific Planktonics	917	8.12	34.79	25.55	5.76	5.0	4.6	340	31	51	14	6.7	33	60	7.2	
09/24/14	Pacific Planktonics	917	8.10	35.06	27.39	5.20	4.0	2.0	275	23	16	13	17.5	36	7	7.2	
12/18/14	Pacific Planktonics	1005	8.04	35.43	24.90	5.53	1.7	2.0	256	12	21	4	12.4	9	4	7.5	
03/12/15	Pacific Planktonics	902	8.06	34.53	23.18	6.37	12.5	2.3	600	77	99	56	6.1	153	186		
Mean			8.11	34.37	25.12	5.90	4.4	2.3	345	74	45	28	8.4	67	46	29	
Std. Dev.			0.07	2.73	1.28	0.53	4.5	0.7	130	58	22	17	3.1	48	47	23	
n=			19	17	17	17	19	19	19	13	19	13	19	13	12	17	

Discharge GPS:
Latitude: 19°43'31.49"N
Longitude: 156° 3'26.02"W

Discharge Trench Dimensions

L (ft)	W (ft)	D (ft)
49	7	4

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/10/11	RHSF Composite	917	8.17	34.73	24.72	5.69	2.8	2.0	117		20		6.0			337	
06/09/11	RHSF Composite	802	8.29	34.80	25.33	6.61	2.5	2.0	94		13		7.2			424	
09/21/11	RHSF Composite	820	8.20	35.12	26.31	6.84	0.7	2.0	85		12		7.1			473	
12/14/11	RHSF Composite	822	8.07	34.04	24.38	4.73	1.6	2.0	124		3		41.3			386	
03/07/12	RHSF Composite	800	8.05	35.15	23.17	6.53	2.6	2.0	213	8	18	5	11.8	15.0	26	358	
06/07/12	RHSF Composite	808	8.21	35.00	25.14	6.31	2.2	2.0	146	11	19	3	7.7	8.4	48	363	
08/15/12	RHSF Composite	830	8.20	35.18	25.79	5.19	3.3	2.0	209	5	8	2	26.1	21.0	76	322	
12/06/12	RHSF Composite	855	8.29	35.16	24.53	6.40	2.6	2.0	174	4	12	2	14.5	22.2	66	197	
02/27/13	RHSF Composite	855	8.02	35.26	23.91	6.42	2.7	2.6	212	4	28	19	7.6	28.5	54	297	
05/15/13	RHSF Composite	808	8.19	35.03	26.14	6.04	2.7	2.0	157	10	18	8	8.6	20.4	61	287	
08/28/13	RHSF Composite	806	8.20	34.57	26.29	6.57	3.2	2.0	128	2	50	35	2.6	5.4	78	283	
12/11/13	RHSF Composite	743	7.91	35.09	24.52	6.30	2.3	2.0	305	73	29	7	10.6	7.9	47	300	
03/05/14	RHSF Composite	809	8.08	34.62	23.01	6.00	3.5	2.0	165	7	16	4	10.3	13.5	43	182	
06/25/14	RHSF Composite	815	8.08	34.94	25.96	6.74	3.8	2.0	159	6	22	7	7.3	14.0	61	261	
09/24/14	RHSF Composite	804	7.92	35.21	27.56	6.93	3.4	2.0	201	3	26	6	7.7	5.2	1	282	
12/17/14	RHSF Composite	815	8.05	35.39	24.59	5.82	2.2	2.0	206	16	21	3	9.7	10.3	4	261	
Mean			8.12	34.96	25.08	6.20	2.6	2.0	168	12	20	8	11.6	14.3	47	313	
Std. Dev.			0.12	0.34	1.22	0.60	0.8	0.2	56	19	11	9	9.4	7.4	25	76	
n=			16	16	16	16	15	16	16	12	16	12	16	12	11	16	

Shrimp Improvement Systems Hawaii LLC
#1 Seawater Disposal Log

Discharge GPS:
Latitude: 19°43'22.65"N
Longitude: 156° 3'16.92"W

Seawater Disposal Trench Dimensions

L (ft.)	W (ft.)	D (ft.)
64	22	10

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (Kgal/day)	Comment
07/21/10	SIS Composite	930	8.20				36.2	18.6	1754		485		3.6				
08/26/10	SIS Composite	930	8.15				46.0	17.8	1341		356		3.8				
08/26/10	SIS Composite	930	8.15				78.0	20.1	1399		359		3.9			215	
10/21/10	SIS Composite	915	8.18				34.4	7.8	1162	33	228	0	5.1				
12/02/10	SIS Composite	902	7.92	34.50			37.4	9.3	1293	118	249	84	5.2	427	538	309	
02/02/11	SIS Composite	1330	8.07	34.70	20.44		14.4	9.7	784		221		3.5			308	
05/11/11	SIS Trench Grab	1315	7.87	34.52	26.41	4.74	25.0	16.6	1773		362		4.9			234	
08/18/11	SIS Trench Grab	847	7.52	34.87	22.58	3.07	7.1	7.6	1164		177		6.6			256	
11/30/11	SIS Trench Grab	955	7.36	35.10	23.68	0.20	9.9	10.1	1782		430		4.1			232	
02/09/12	SIS Trench Grab	926	7.50	34.88	22.62	0.06	6.5	10.9	1470		337		4.4			298	
06/07/12	SIS Trench Grab	834	7.65	34.69	24.42	0.53	10.3	12.9	1333	4	226	55	5.9	435	916	310	
08/15/12	SIS Composite	1000	8.26	35.31	26.53	6.56	18.4	34.8	1632	38	303	52	5.4	178	629	290	
11/08/12	SIS Trench Grab	950	7.47	35.55	24.50	6.55	16.2	14.0	1860	34	420	89	4.4	853		352	
02/14/13	SIS Trench Grab	852	7.44	35.81	23.03	6.18	33.8	17.7	1884	35	351	197	5.4	868	251	246	
05/09/13	SIS Trench Grab	910	7.46	35.22	25.95	5.85	23.5	18.7	1887	58	415	86	4.6	464	375	213	
08/22/13	SIS Trench Grab	1040	7.61	34.61	24.02	5.52	21.5	13.8	1564	177	233	118	6.7	490	945	312	
12/05/13	SIS Trench Grab	910	7.53	35.29	22.33	6.02	17.6	16.1	1496	165	245	129	6.1	751	722	278	
02/25/14	SIS Trench Grab	1102	7.38	34.88	21.68	6.02	20.1	10.8	1735	189	331	118	5.2	610	909	303	
05/14/14	SIS Trench Grab	1126	7.59	34.61	23.56	5.89	18.3	6.3	1508	205	229	114	6.6	764	779	149	
08/13/14	SIS Trench Grab	1148	7.27	34.43	25.71	5.40	17.8	8.7	2087	149	430	227	4.9	1181	949	316	
12/10/14	SIS Trench Grab	1300	8.05	34.44	26.16	7.40	24.4	7.5	1428	119	202	27	7.1	213	959	350	
02/26/15	SIS #3 (Office Sump)	1030	8.01	34.88	21.60	6.45	15.8	20.8	418	200	54	127	7.8	568	734		
Mean			7.76	34.91	23.84	4.78	24.2	14.1	1489	109	302	102	5.2	600	725	276	
Std. Dev.			0.33	0.40	1.86	2.43	15.9	6.5	383	73	104	61	1.2	280	237	53	
n=			22	18	17	13	22	22	22	14	22	13	22	13	12	18	

Shrimp Improvement Systems Hawaii LLC
#2 Seawater Disposal Log

Discharge GPS:
Latitude: 19°43'39.47"N
Longitude: 156° 3'29.78"W

Seawater Disposal Trench Dimensions

L (ft.)	W (ft.)	D (ft.)
9	8	4

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (Kgal/day)	Comment
03/10/11	HHA #1 (Kona Section Sump)	1026	7.96	34.63	25.20	6.02	11.4	2.2	473		64		7.4			155	
06/08/11	HHA #1 (Kona Section Sump)	1122	8.11	34.90	26.17	5.71	3.1	2.0	287		46		6.2			184	
09/21/11	HHA #1 (Kona Section Sump)	843	8.01	34.90	24.21	5.32	4.3	2.0	415		66		6.3			161	
12/14/11	HHA #1 (Kona Section Sump)	937	7.97	35.02	22.92	5.20	8.2	3.7	728		53		13.7			112	
03/01/12	HHA #1 (Kona Section Sump)	900	8.08	35.29	24.47	5.20	3.6	2.2	414	44	47	10	8.8	113	13	77	
06/06/12	HHA #1 (Kona Section Sump)	1000	8.15	34.93	25.60	5.67	4.2	2.2	421	21	57	18	7.4	109	33	78	
08/22/12	SIS #2 (Kona Section Sump)															0	No effluent- no production during facility upgrade
11/21/12	SIS #2 (Kona Section Sump)															0	No effluent- no production during facility upgrade
02/21/13	SIS #2 (Kona Section Sump)															0	No effluent- no production during facility upgrade
05/30/13	SIS #2 (Kona Section Sump)	958	7.77	35.54	27.33	3.08	18.1	17.3	1995	46	422	71	4.7	284	108	7	Composite (tank bottom and flow through)
09/05/13	SIS #2 (Kona Section Sump)	959	7.65	35.39	22.28	5.62	13.8	6.0	1392	361	195	104	7.1	324	1431	115	
12/18/13	SIS #2 (Kona Section Sump)	1001	7.94	35.09	21.04	6.62	29.4	10	1178	44	253	11	4.7	152	716	101	
03/06/14	SIS #2 (Kona Section Sump)	954	8.02	34.93	23.19	6.62	29.6	18	2168	1506	244	91	8.9	100	76	128	
06/19/14	SIS #2 (Kona Section Sump)	917	7.35	35.33	25.86	3.50	16.4	13.8	2983	179	506	137	5.9	1531	524	65	
09/25/14	SIS #2 (Kona Section Sump)															0	No effluent- no production during facility upgrade
12/24/14	SIS #2 (Kona Section Sump)															0	No effluent- no production during facility upgrade
Mean			7.91	35.09	24.39	5.32	12.90	7.22	1132	314	178	63	7.4	373	414	74	
Std. Dev.			0.24	0.27	1.88	1.12	9.73	6.43	903	539	164	51	2.5	518	525	66	
n=			11	11	11	11	11	11	11	7	11	7	11	7	7	11	

Shrimp Improvement Systems Hawaii LLC
#3 Seawater Disposal Log

Discharge GPS:
Latitude: 19°43'44.26"N
Longitude: 156° 3'27.69"W

Seawater Disposal Trench Dimensions

L (ft.)	W (ft.)	D (ft.)
55	13	7

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (Kgal/day)	Comment
03/03/11	HHA #2 (Office Sump)	1050	7.98	34.70	25.33	5.83	7.4	2.1	470		57		8.2			288	
06/08/11	HHA #2 (Office Sump)	1138	8.10	34.72	26.74	5.19	4.7	2.0	329		51		6.5			342	
09/21/11	HHA #2 (Office Sump)	836	8.03	35.19	26.98	5.66	9.8	2.8	579		88		6.6			299	
12/14/11	HHA #2 (Office Sump)	944	7.95	35.15	24.60	3.98	13.4	3.3	728		53		13.7			208	
03/01/12	HHA #2 (Office Sump)	936	8.04	35.32	24.83	4.25	6.6	3.4	595	74	82	21	7.3	103	56	143	
06/06/12	HHA #2 (Office Sump)	1017	8.12	35.22	26.31	4.99	10.4	7.2	1023	32	271	14	3.8	146	22	145	
08/22/12	SIS #3 (Office Sump)	1221	8.28	35.13	26.63	5.29	14.0	7.2	939	47	97	6	9.7	139	531	2	
11/21/12	SIS #3 (Office Sump)	837	7.92	34.51	25.52	5.30	13.5	4.9	1627	1242	247	247	6.6	503	1806	7	
02/21/13	SIS #3 (Office Sump)	914	7.67	36.24	22.89	4.25	32.4	11.0	1663	158	219	85	7.6	564	203	30	
05/30/13	SIS #3 (Office Sump)	946	7.76	35.91	24.15	5.44	25.2	21.6	3252	169	596	516	5.5	2102	1001	7	Composite (tank bottom and flow through)
09/05/13	SIS #3 (Office Sump)	953	7.89	35.09	25.48	5.31	14.9	7.1	1075	205	191	61	5.6	216	863	344	
12/18/13	SIS #3 (Office Sump)	957	7.80	35.26	21.69	6.18	22.1	12.8	1784	439	254	95	7.0	587	514	302	
03/06/14	SIS #3 (Office Sump)	943	8.08	34.88	23.76	6.89	9.1	5.2	459	74	50	27	9.2	62	677	300	
06/19/14	SIS #3 (Office Sump)	911	7.60	34.74	22.64	6.20	20.8	12.8	2563	38	542	125	4.7	485	410	382	
09/25/14	SIS #3 (Office Sump)	931	7.56	34.91	23.21	3.95	33.9	5.2	1813	204	272	49	6.7	366	877	439	
12/24/14	SIS #3 (Office Sump)	850	7.53	35.17	23.86	5.52	17.5	13.3	2102	80	361	201	5.8	999	49	512	
Mean			7.89	35.13	24.66	5.26	16.0	7.6	1313	230	214	121	7.2	523	584	234	
Std. Dev.			0.22	0.44	1.59	0.83	8.8	5.4	845	338	171	145	2.3	566	514	162	
n=			16	16	16	16	16	16	16	12	16	12	16	12	12	16	

Taylor Shellfish-Kona Seawater Disposal Log

Discharge GPS:
Latitude: 19°43'46.86"N
Longitude: 156° 3'30.21"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
19	12	8

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
12/02/10	T#1 Main Office	1044		34.05			29.4	5.9	2309	1645	631	349.6	3.7	334	1619	510	
02/09/11	T#1 Main Office	821	7.79	34.36	18.55	6.38	17.9	3.0	1899		373		5.1			614	
05/11/11	T#1 Main Office	842	7.80	34.25	19.00	5.67	11.4	2.0	1644		267		6.2			630	
08/18/11	T#1 Main Office	930	7.80	34.38	19.01	4.13	14.0	3.3	1724		307		5.6			592	
12/08/11	T#1 Main Office	915	7.77	34.46	21.50	4.14	11.9	2.1	2154		231		9.3			622	
02/29/12	T#1 Main Office	900	7.85	34.89	21.28	4.72	4.7	2.0	1834	1575	182	154	10.1	113	750	648	
05/17/12	T#1 Main Office	1003	7.61	34.21	20.39	4.23	16.2	2.9	1532	1318	245	223	6.3	169	1380	665	
08/08/12	T#1 Main Office	915	7.66	34.47	19.33	4.79	7.9	4.0	3425	2585	366	245	9.4	179	1192	613	
12/06/12	T#1 Main Office	922	7.63	34.31	20.04	4.37	3.3	2.0	1660	1330	263	244	6.3	145	1231	470	
02/21/13	T#1 Main Office	1005	7.51	34.87	20.38	5.04	6.2	2.5	2100	1803	269	242	7.8	158	1055	570	
05/15/13	T#1 Main Office	938	7.53	34.75	22.14	4.36	6.7	2.7	1984	1503	318	257	6.2	269	1119	523	
08/28/13	T#1 Main Office	926	7.85	34.52	21.06	6.54	17.2	4.7	1584	1245	162	94	9.8	71	1064	561	
12/12/13	T#1 Main Office	1000	7.41	34.66	19.87	7.01	5.3	2.0	1414	1376	280	310	5.1	43	1282	576	
03/05/14	T#1 Main Office	941	7.73	34.47	18.41	6.03	12.9	3.1	2683	2416	548	445	4.9	84	946	634	
06/26/14	T#1 Main Office	927	7.81	34.79	22.07	5.42	7.3	7.7	987	837	134	123	7.4	94	1164	629	
09/04/14	T#1 Main Office	907	7.79	34.90	23.20	4.86	10.9	3.5	2082	1440	336	189	6.2	361	1029	554	
12/18/14	T#1 Main Office	1021	7.57	34.65	5.05	5.05	8.7	3.9	2201	1831	255	168	8.6	171	1289	630	
03/12/15	T#1 Main Office	925	7.63	34.11	17.06	6.40	24.1	6.8									
Mean			7.69	34.51	19.31	5.24	12.0	3.6	1954	1608	304	234	6.9	169	1163	591	
Std. Dev.			0.13	0.27	4.00	0.94	6.9	1.7	545	472	127	95	1.9	98	214	53	
n=			17	18	17	17	18	18	17	13	17	13	17	13	13	17	

Discharge GPS:
Latitude: 19°43'45.69"N
Longitude: 156° 3'30.19"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
11	10	8

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
12/02/10	T#2 New Hatchery	1050					10.9	2.3	2132.3	1930	196.4	149.2	10.9	218	997	449	
02/09/11	T#2 New Hatchery	848	7.77	34.22	18.73	7.47	24.0	5.2	2337		306		7.6			543	
05/11/11	T#2 New Hatchery	858	7.95	33.82	17.23	7.46	9.6	2.3	1508		308		4.9			557	
08/18/11	T#2 New Hatchery	940	7.80	34.54	18.31	6.46	10.1	2.2	1286		202		6.4			523	
12/08/11	T#2 New Hatchery	920	7.84	34.59	18.47	7.72	18.3	3.1	1756		209		8.4			551	
02/29/12	T#2 New Hatchery	921	7.67	34.82	19.06	6.86	10.5	2.2	1401	1078	231	178	6.1	124	1108	574	
05/17/12	T#2 New Hatchery	1016	7.84	34.44	20.21	6.99	6.0	2.0	1198	1125	161	171	7.4	130	1132	588	
8/8//12	T#2 New Hatchery	930	7.75	34.63	18.37	7.02	4.7	2.0	1015	759	134	99	7.6	122	1154	538	
12/06/12	T#2 New Hatchery	939	7.77	34.68	18.92	7.12	3.3	2.3	1562	1284	240	231	6.5	133	965	412	
02/21/13	T#2 New Hatchery	1023	7.69	34.47	18.54	6.17	42.3	2.4	926	578	269	107	3.4	119	1423	501	
05/15/13	T#2 New Hatchery	950	7.74	34.87	22.46	5.62	14.0	6.7	3615	2766	350	212	10.3	414	1059	459	
08/28/13	T#2 New Hatchery	936	7.65	34.48	20.03	7.12	7.2	4.2	1824	1513	291	252	6.3	478	1211	492	
12/12/13	T#2 New Hatchery	1011	7.43	34.74	17.74	5.62	5.5	2.0	1616	1457	249	258	6.5	162	1319	505	
03/05/14	T#2 New Hatchery	954	7.73	34.43	16.50	7.15	10.0	2.0	1566	1245	266	231	5.9	135	1634	557	
06/26/14	T#2 New Hatchery	939	7.77	34.60	20.19	7.22	10.4	14.1	1760	1407	321	212	5.5	170	1858	553	
09/04/14	T#2 New Hatchery	918	7.71	33.80	20.50	5.96	32.1	5.8	2258	1625	409	244	5.5	326	1618	486	
12/18/14	T#2 New Hatchery	1027	7.59	35.13	19.32	6.36	24.6	3.0	2033	1602	269	215	7.6	232	1095	553	
03/12/15	T#2 New Hatchery	938	7.62	34.34	17.35	7.58	15.9	4.8									
Mean			7.72	34.51	18.94	6.82	14.4	3.8	1753	1413	259	197	6.9	212	1275	520	
Std. Dev.			0.12	0.34	1.44	0.67	10.4	3.0	628	544	69	52	1.8	120	278	48	
n=			17	17	17	17	18	18	17	13	17	13	17	13	13	17	

Discharge GPS:
Latitude: 19°43'44.98"N
Longitude: 156° 3'30.67"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
26	21	4

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
12/02/10	T#3 Baby Clams	1044		34.51			2.7	2.0	1670.9	1466	202.9	170.9	8.2	157	1271	325	
02/09/11	T#3 Baby Clams	854	7.88	34.09	19.63	6.39	13.6	2.0	1546		192		8.1			395	
05/11/11	T#3 Baby Clams	901	7.79	34.61	19.06	6.59	10.7	2.0	1302		133		9.8			405	
08/18/11	T#3 Baby Clams	948	7.87	34.33	16.70	5.75	16.4	2.4	1491		192		7.8			380	
12/08/11	T#3 Baby Clams	924	7.92	34.53	18.77	6.33	4.3	2.0	1578		163		9.7			401	
02/29/12	T#3 Baby Clams	928	7.85	34.93	19.38	5.78	8.3	2.0	1349	1101	107	69	12.6	90	974	418	
05/17/12	T#3 Baby Clams	1020	7.83	34.71	20.33	5.39	4.2	2.0	2004	879	468	123	4.3	150	869	428	
08/08/12	T#3 Baby Clams	938	7.81	34.58	17.08	6.67	5.9	2.0	1267	942	149	81	8.5	94	1347	382	
12/06/12	T#3 Baby Clams	946	7.76	33.93	19.07	6.08	8.4	3.0	1707	1230	265	125	6.4	88	1647	291	
02/21/13	T#3 Baby Clams	1028	7.67	34.80	18.74	6.37	8.2	2.0	1595	1221	188	109	8.5	98	1094	356	
05/15/13	T#3 Baby Clams	954	7.65	34.77	20.43	5.27	8.0	2.1	1524	1093	174	102	8.8	198	1156	325	
08/28/13	T#3 Baby Clams	944	7.81	34.29	18.68	6.27	7.3	2.0	1446	1136	163	48	8.9	253	1478	348	
12/12/13	T#3 Baby Clams	1016	7.59	34.87	17.86	5.21	3.2	2.0	1395	1313	149	122	9.3	116	1446	358	
03/05/14	T#3 Baby Clams	1000	7.81	33.46	19.11	5.72	23.3	3.8	1737	1196	356	157	4.9	161	1031	396	
06/26/14	T#3 Baby Clams	948	7.90	34.73	19.43	7.81	10.4	12.0	1129	824	137	48	8.2	95	1682	393	
09/04/14	T#3 Baby Clams	926	7.81	34.60	19.51	6.55	11.0	3.6	1687	1233	287	86	5.9	146	1404	345	
12/18/14	T#3 Baby Clams	1034	7.80	34.97	20.09	5.62	6.8	3.0	1879	1582	132	43	14.2	84	1112	393	
03/12/15	T#3 Baby Clams	945	7.70	34.28	17.05	7.02	5.4	4.3									
Mean			7.79	34.50	18.88	6.17	8.8	3.0	1547	1170	203	99	8.5	133	1270	373	
Std. Dev.			0.09	0.39	1.12	0.67	5.1	2.4	225	215	93	41	2.5	51	256	37	
n=			17	18	17	17	18	18	17	13	17	13	17	13	13	17	

Discharge GPS:
Latitude: 19°43'45.21"N
Longitude: 156° 3'30.85"W

Seawater Disposal Trench Dimensions
L (ft) W (ft) D (ft)

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
09/13/12	T#4 Hatchery (Steady State)	828	7.87	35.15	23.26	6.00	2.6	2.0	245	115	37	18	6.6	13	408		
09/13/12	T#4 Hatchery (Tank Discharge)	837	7.98	35.18	23.78	6.28	4.0	2.0	1964	1661	68	60	28.9	86	401	98	
12/06/12	T#4 Hatchery	930	8.19	34.82	23.54	6.39	8.3	3.0	1092	807	57	41	19.2	59	753	75	
02/21/13	T#4 Hatchery	1011	8.01	34.60	22.36	6.07	2.7	2.0	833	607	64	53	13.0	59	1264	91	
05/15/13	T#4 Hatchery	943	8.07	34.93	23.59	5.11	18.6	2.0	1154	834	77	55	15.0	53	597	84	
08/28/13	T#4 Hatchery	931	8.08	34.73	24.94	5.87	5.9	2.3	566	358	47	41	12.0	55	389	90	
12/12/13	T#4 Hatchery	1005	7.88	34.91	23.34	5.24	2.7	2.0	2464	2255	100	103	24.6	119	542	92	
03/05/14	T#4 Hatchery	948	8.17	34.78	22.11	6.22	4.1	2.0	2002	1701	62	57	32.1	79	456	101	
06/26/14	T#4 Hatchery	932	8.17	34.63	24.44	6.01	4.7	8.4	1910	1793	64	66	29.8	123	679	101	
09/04/14	T#4 Hatchery	912	8.14	33.89	24.12	6.52	4.6	2.0	2360	2061	125	126	18.9	78	1096	89	
12/18/14	T#4 Hatchery	1021	8.07	34.84	22.77	5.30	2.7	2.0	1533	1274	70	59	21.9	3	748	101	
03/12/15	T#4 Hatchery	932	8.06	34.61	21.75	5.65	2.5	3.5									
Mean			8.06	34.76	23.33	5.89	5.3	2.8	1466	1224	70	62	20.2	66	667	92	
Std. Dev.			0.11	0.33	0.95	0.47	4.5	1.8	740	721	24	30	8.2	37	289	9	
n=			12	12	12	12	12	12	11	11	11	11	11	11	11	10	

Discharge GPS:
Latitude: 19°43'40.47"N
Longitude: 156° 3'30.45"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
30	8	5

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/16/11	Troutlodge 1 (Main)	915	7.77	34.72	19.35	6.99	2.6	2.0	295		43		6.9			675	
06/08/11	Troutlodge 1 (Main)	1033	7.81	34.67	19.40	7.16	3.3	3.7	650		92		7.1			812	
09/28/11	Troutlodge 1 (Main)	1631	7.33	34.65	14.26	6.82	7.5	3.4	896		198		4.5			590	
12/07/11	Troutlodge 1 (Main)	1546	7.02	34.35	12.74	6.60	4.1	2.0	875	495	136	273	6.4	481	2072	144	
03/07/12	Troutlodge 1 (Main)	1400	7.23	34.46	11.18	7.17	12.0	5.9	1229	495	299	273	4.1	481	2072	65	
05/24/12	Troutlodge 1 (Main)	828	7.32	34.55	9.95	7.98	7.0	4.2	1126	554	263	239	4.3	632	3037	288	
08/16/12	Troutlodge 1 (Main)	944	7.28	34.97	10.97	7.81	7.0	4.0	1467	551	291	274	5.0			485	
11/14/12	Troutlodge 1 (Main)	1022	7.33	34.57	8.37	6.26	5.6	4.0	1911	576	281	279	6.8	691	2261	421	
02/20/13	Troutlodge 1 (Main)	1021	7.38	34.56	10.38	9.80	7.5	3.1	1465	580	244	236	6.0	690	2218	363	
05/09/13	Troutlodge 1 (Main)	819	7.51	34.66	8.85	9.11	2.2	2.0	742	547	114	114	6.5	156	2120	339	
08/22/13	Troutlodge 1 (Main)															0.0	No Sample (facility not in operation)
12/05/13	Troutlodge 1 (Main)															0.0	No Sample (facility not in operation)
02/25/14	Troutlodge 1 (Main)															0.0	No Sample (facility not in operation)
05/14/14	Troutlodge 1 (Main)															0.0	No Sample (facility not in operation)
08/13/14	Troutlodge 1 (Main)															0.0	No Sample (facility not in operation)
12/10/14	Troutlodge 1 (Main)															0.0	No Sample (facility not in operation)
02/26/15	Troutlodge 1 (Main)																No Sample (facility not in operation)
Mean			7.40	34.62	12.55	7.57	5.9	3.4	1066	543	196	241	5.8	522	2297	261	
Std. Dev.			0.24	0.17	3.99	1.13	3.0	1.2	472	35	93	59	1.2	203	371	275	
n=			10	10	10	10	10	10	10	7	10	7	10	6	6	10	

Discharge GPS:
Latitude: 19°43'41.65"N
Longitude: 156° 3'30.18"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
12	12	10

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
03/16/11	Troutlodge 2 (Sub)	928	8.08	34.83	23.85	5.56	2.1	2.0	63		17		3.7			19	
06/08/11	Troutlodge 2 (Sub)	1047	8.15	34.81	25.61	6.00	2.1	2.0	54		16		3.4			10	
09/28/11	Troutlodge 2 (Sub)	1635	8.14	35.14	25.99	5.45	1.4	2.0	78		13		6.0			6	
12/07/11	Troutlodge 2 (Sub)	1551	7.93	34.88	24.44	5.38	1.2	2.0	132		12		11.0			1	
03/07/12	Troutlodge 2 (Sub)	1413	8.21	35.23	23.67	5.63	2.8	2.0	76	6	18	4	4.2	1.0	17	0	
05/24/12	Troutlodge 2 (Sub)	833	8.19	35.05	23.77	5.51	2.0	2.0	67	8	19	7	3.5	3.6	56	0	
08/16/12	Troutlodge 2 (Sub)	949	8.17	35.26	25.64	5.67	2.5	2.0	168	11	18	2	9.3	5.0	70	2	
11/14/12	Troutlodge 2 (Sub)	1031	8.24	35.56	25.26	6.16	2.8	2.0	90	9	18	5	5.0	1.8	56	1	
02/14/13	Troutlodge 2 (Sub)	1027	8.06	35.79	23.75	5.62	3.8	2.0	280	8	30	15	9.4	24	60	0	
05/09/13	Troutlodge 2 (Sub)	822	8.10	34.95	25.62	5.57	1.8	2.0	72	5	22	13	3.3	2.8	41	1	
08/22/13	Troutlodge 2 (Sub)	951	8.07	34.86	27.56	6.76	2.2	2.0	240	104	36	28	6.7	44	80	108	
12/05/13	Troutlodge 2 (Sub)	841	8.13	35.40	26.12	5.27	1.7	2.0	77	14	8	10	9.6	2.9	78	108	
02/25/14	Troutlodge 2 (Sub)															0	No Sample (facility not in operation)
05/14/14	Troutlodge 2 (Sub)															0	No Sample (facility not in operation)
08/13/14	Troutlodge 2 (Sub)															0	No Sample (facility not in operation)
12/10/14	Troutlodge 2 (Sub)															0	No Sample (facility not in operation)
02/26/15	Troutlodge 2 (Sub)															0	No Sample (facility not in operation)
Mean			8.12	35.15	25.11	5.72	2.2	2.0	116	21	19	11	6.3	10.5	57	15	
Std. Dev.			0.08	0.31	1.22	0.41	0.7	0.0	75	34	8	8	2.9	15.3	21	35	
n=			12	12	12	12	12	12	12	8	12	8	12	7	8	8	

Discharge GPS:
Latitude: 19°42'50.77"N
Longitude: 156° 2'13.12"W

Seawater Disposal Trench Dimensions

L (ft)	W (ft)	D (ft)
13	7	6.3

Date (mm/dd/yy)	Sample Name	Time (2400)	pH (unit) SM4500-H	Sal. (PSU) SM2520-B	Temp. (˚C)	DO (mg/L) SM4500-O G	TSS (mg/L) <30 mg/L SM2540D	BOD (mg/L) <30 mg/L SM5210B	Total Nitrogen (µg N/L) SM4500-NO3- F	Nitrate & Nitrite (µg N/L)	Total Phosphorous (µg P/L) SM 4500-P F	Ortho-Phosphate (µg P/L)	N : P (ratio)	Ammonia (µg N/L) SM 4500-NH3 G	Silicate (µg Si/L)	Discharge Volume (kgal/day)	Comment
10/16/14	WHEA #1	852	8.09	34.72	25.98	6.20	3.6	2.0	248	60	26.9	13.4	9.2	14.2	430	158	
10/23/14	WHEA #1	855	8.11	34.88	27.21	6.39	6.3	2.0	169	54	27	13	6.3	23.6	350	158	
10/30/14	WHEA #1	854	7.98	34.71	24.95	6.27	5.2	2.0	268	125	51	25	5.2	10.0	713	158	
11/06/14	WHEA #1	847	7.93	34.44	24.86	6.55	5.1	2.0	352	92	38	16	9.2	7.4	640	158	
12/10/14	WHEA #1	1105	8.08	34.97	24.23	6.23	3.7	2.0	285	224	37	47	7.7	1	958	158	
Mean			8.04	34.74	25.45	6.33	4.8	2.0	264	111	36	23	7.5	11.2	618	158	
Std. Dev.			0.08	0.20	1.17	0.14	1.2	0.0	66	69	10	14	1.8	8.4	241	0	

APPENDIX E

NELHA Environmental Incident Report Form…… Appendix E-1

NELHA ENVIRONMENTAL INCIDENT REPORT FORM

Instructions: The NELHA Water Quality Laboratory will investigate and complete this form for any type of petroleum product or hazardous materials/waste spill or environmental monitoring incident discovered or investigated within the NELHA facility. A copy of this report will be provided to NELHA Management Team and to the Tenant where the incident occurred. Signatures will be required by the NELHA Executive Director and Tenant to close out the Environmental Incident Report Form.

1. NELHA Water Quality Laboratory Personnel Involved in Spill/Incident Reporting:

Name, Title, and Phone Number: _____

_____

2. Company Involved in the Spill/Incident Reporting:

Company Name: _____

Name, Title, and Phone Number: _____

_____

3. Incident Discovery, Location and Conditions:

Monitoring Location (Well, Trench, Pond, Ocean Transect): _____

Tenant Notification (Time and Date): _____

GPS Datum: _____

Street Address: _____

Weather Conditions: _____

4. General Spill Information:

Common Name of Spilled Substance: _____

Trade Name and Supplier of Spilled Substance: _____

Quantity Spilled (Estimate): _____

Describe Concentration of Material (Estimate): _____

Identify the Discharge Point: _____

Describe Environmental Damage (i.e., fish kill?): _____

_____

Date of Spill: _____/_____/_____

Time Spill Started: _____ AM _____ PM Time Spill Ended: _____ AM _____ PM

5. Actions taken:

To Contain Spill or Impact of Incident: _____

_____

_____

To Cleanup Spill or Recover from Incident: _____

_____

_____

NELHA ENVIRONMENTAL INCIDENT REPORT FORM

To Remove Cleanup Material: _____

_____

_____

To Document Disposal: _____

_____

_____

To Prevent Reoccurrence (Corrective Action): _____

_____

_____

_____

_____

Date Corrective Action Implemented: _____

6. Reporting the Spill:

List all agencies contacted; include names, dates, and phone numbers for people you spoke with:

_____

_____

_____

7. Additional Notes/Information (if necessary):

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

8. Signatures:

NELHA Executive Director: _____

Date: _____

Tenant: _____

Date: _____

APPENDIX F - Discharge Monitoring Report-Quality Assurance 34 Study

Discharge Monitoring Report-Quality Assurance 34 Study …...…….. Appendix F-1

PERFORMANCE EVALUATION

Scheduled Study

DMRQA 34

WPCHEM_MICRO / DMRQA 34

21-Mar-2014 through 11-Jul-2014

RT3653
RTC Labcode

US EPA Labcode

Participating Laboratory:

Natural Energy Lab of HI Authority
Keith Olson
73-4460 Queen Kaahumanu Hwy., 101
KAILUA KONA HI 96740

Thank you for participating in study DMRQA 34. Additional information about this study may be found online at www.rt-corp.com/reporting. If it is your first time to our website give me a call and I will simplify the initial registration process. If you have any questions or comments about this study please contact me:

Sigma-Aldrich, RTC Inc.
2931 Soldier Springs Rd.
Laramie, WY 82070 USA
1-307-742-5452
www.rt-corp.com

This report shall not be reproduced except in full, without written approval of the laboratory. The data and results reported in this document are the property of the participating laboratory and are confidential.If you wish to appeal an evaluation listed in this report please contact our QA Supervisor at 1(307) 742-5452 or RTCreports@sial.com

Sincerely,

Jennifer Duhon
Proficiency Testing Coordinator

Dataset

NELHA DMRQA 34

Dataset Analyst
Olson, Keith

RTC is accredited to perform PT programs for the scope of accreditation to ISO/IEC 17043 under ACLASS cerfticate AP-1469.

Demands

Method: SM 5210 B 20th ED (1997)

Method Number 20134809

	Result Units	Assigned Value	Accept. Window	Z	Evaluation
5-day BOD [1, 4] 1530 / PE1130-20ML - Lot LRAA3500 /Analyst: KRO/ Analysis Date: 7/8/14	**40.4** mg/L	**38.3**	19.5 to 57.1	**0.34**	**Acceptable**
	Evaluation Criteria - **1**		*Evaluation Parameter* - **a:0.6237, b:0.7022, c:0.0928, d:0.6636**		

Miscellaneous Analytes

Method: EPA 180.1

Method Number 10011402

	Result Units	Assigned Value	Accept. Window	Z	Evaluation
Turbidity [1, 4] 2055 / PE1081-20ML - Lot LRAA3700 /Analyst: KRO/ Analysis Date: 6/3/14	**15.6** NTU	**14.4**	11.9 to 16.9	**1.43**	**Acceptable**
	Evaluation Criteria - **1**		*Evaluation Parameter* - **a:1.0040, b:-0.0368, c:0.0475, d:0.1575**		

Method: SM 4500-H+ B 18th ED (1990)

Method Number 20022406

	Result Units	Assigned Value	Accept. Window	Z	Evaluation
pH [1, 4] 1900 / PE1210-20ML - Lot LRAA3684 /Analyst: KRO/ Analysis Date: 6/3/14	**6.57** Units	**6.57**	6.37 to 6.77	**0.00**	**Acceptable**
	Evaluation Criteria - **1**			*Evaluation Parameter* - **a:1, b:0, c:0, d:0.066667**	

Nutrients

Method: SM 4500-NH3 D 20th ED (1997)

Method Number 20109006

	Result Units	Assigned Value	Accept. Window	Z	Evaluation
Ammonia as N [1, 4] 1515 / PE1195-20ML - Lot LRAA3554 /Analyst: KRO/ Analysis Date: 6/9/14	**5.25** mg/L	**5.25**	4.06 to 6.44	**0.00**	**Acceptable**
	Evaluation Criteria - **1**		*Evaluation Parameter* - **a:0.9923, b:0.0567, c:0.0583, d:0.0914**		

Method: SM 4500-NO3¯ D 20th ED (1997)

Method Number 20113604

	Result Units	Assigned Value	Accept. Window	Z	Evaluation
Nitrogen, total [4] 1866 / PE1051-2ML - Lot LRAA3388	**16.63** mg/L	**15.9**	10.8 to 21.0	**0.43**	**Acceptable**
	Evaluation Criteria - **1**		*Evaluation Parameter* - **a:0.9645, b:0.1885, c:0.1035, d:0.0225**		

Method: SM 4500-NO3¯ E 20th ED (1997)

Method Number 20114403

	Result Units	Assigned Value	Accept. Window	Z	Evaluation
Nitrate+nitrite as N [1, 4] 1820 / PE1195-20ML - Lot LRAA3554 /Analysis Date: 6/9/14	**11.42** mg/L	**10.5**	8.73 to 12.2	**1.60**	**Acceptable**
	Evaluation Criteria - **1**		*Evaluation Parameter* - **a:0.9957, b:-0.0010, c:0.0509, d:0.0400**		

Method: SM 4500-P E 20th ED (1997)

Method Number 20123802

	Result Units	Assigned Value	Accept. Window	Z	Evaluation
Orthophosphate as P [1, 4] 1870 / PE1195-20ML - Lot LRAA3554 /Analysis Date: 6/9/14	**1.03** mg/L	**0.990**	0.841 to 1.14	**0.81**	**Acceptable**
	Evaluation Criteria - **1**			*Evaluation Parameter* - **a:1, b:0, c:0.05, d:0**	
Phosphorus, total [1, 4] 31910 / PE1051-2ML - Lot LRAA3388 /Analyst: KRO/ Analysis Date: 6/5/14	**6.98** mg/L	**6.99**	5.85 to 8.13	**-0.03**	**Acceptable**
	Evaluation Criteria - **1**		*Evaluation Parameter* - **a:0.9932, b:0.0084, c:0.0506, d:0.0254**		

End of NELHA DMRQA 34

Sample Information

Complex Nutrients - WP

PE1051-2ML / Lot LRAA3388

	Units	Gravimetric Value	Study Mean	Study Std. Dev.
Kjeldahl nitrogen, total (TKN) 1795 Nutrients	mg/L	16.3 ± 0.0833	16.1	1.03
Organic nitrogen 1865 Nutrients	mg/L	16.3		
Nitrogen, total 1866 Nutrients	mg/L	16.3	16.0	1.93
Phosphorus, total 31910 Nutrients	mg/L	7.03 ± 0.0359	7.02	0.442

Turbidity - WP

PE1081-20ML / Lot LRAA3700

	Units	Gravimetric Value	Study Mean	Study Std. Dev.
Turbidity 2055 Miscellaneous Analytes	NTU	14.4 ± 0.0734	14.5	1.17

Demand - WP

PE1130-20ML / Lot LRAA3500

	Units	Gravimetric Value	Study Mean	Study Std. Dev.
5-day BOD 1530 Demands	mg/L		39.5	7.46
Carbonaceous BOD (CBOD) 1555 Demands	mg/L		35.4	7.40
Chemical oxygen demand (COD) 1565 Demands	mg/L	61.6 ± 0.314	60.6	5.67
Dissolved organic carbon (DOC) 1710 Demands	mg/L	24.4 ± 0.124		
Total organic carbon (TOC) 2040 Demands	mg/L	24.4 ± 0.124	24.4	1.29

Simple Nutrients - WP

PE1195-20ML / Lot LRAA3554

	Units	Gravimetric Value	Study Mean	Study Std. Dev.
Ammonia as N 1515 Nutrients	mg/L	5.23 ± 0.0267	5.22	0.388
Nitrate as N 1810 Nutrients	mg/L	10.5 ± 0.0535	10.4	0.559
Nitrate+nitrite as N 1820 Nutrients	mg/L	10.5 ± 0.0535	10.5	0.613
Orthophosphate as P 1870 Nutrients	mg/L	0.990 ± 0.00506	0.996	0.0731

pH - WP

PE1210-20ML / Lot LRAA3684

	Units	Gravimetric Value	Study Mean	Study Std. Dev.
pH 1900 Miscellaneous Analytes	Units	6.57 ± 0.0335	6.60	0.0678

Definitions and Interpretation of Statistical Analysis:

Assigned Value: Value attributed to a particular quantity and accepted, sometimes by convention, as having an uncertainty appropriate for a given purpose. See ISO/IEC 17043 for additional information. In general the assigned value is the value used to assess proficiency and may or may not be the made to value (gravimetric value).

Accept. Window: The range of values that constitute acceptable performance for a laboratory participating in this PT study.

Z: A Z-Score tells how a single data point compares to normal data. A Z-Score says not only whether a point was above or below average, but how unusual the measurement is. Generally, a method result with a Z-Score less than |2| is considered to be in control, a Z-Score between |2| and |3| is considered 'Questionable', but still within control and a Z greater than |3| is considered not acceptable and the method is out of control. Calculated as **Z = (Reported Value - Assigned Value) / Proficiency Std. Dev.**

Proficiency Std. Dev.: Standard deviation calculated based on **Evaluation Criteria.**

Study Mean: Statistical study mean calculated using a robust statisitical model (RTC employs the 'Biweight Program'). Robust statistical techniques to minimize the influence that extreme results can have on estimates of the mean and standard deviation. NOTE - These techniques assign less weight to extreme results, rather than eliminate them from a data set.

Study Std. Dev.: Standard deviation calculated from study data using robust statisicals (Biweight).

Gravimetric Value: The 'prepared to' value, determined by gravimetric means. The uncertainty associated to this value is standard uncertainty and based on RTC's gravimetric tolerances.

Evaluation Criteria:

1 - Regression Equation - Acceptance windows based on TNI adopted equation of proficiency value +/- 3 proficiency standard deviations and check limits of proficiency value +/- 2 proficiency standard deviations. Proficiency value and proficiency standard deviation are calculated from gravimetric variables a, b, c, & d as proficiency value = a * gravimetric + b and proficiency standard deviation = c * gravimetric + d.

2 - Study Robust Mean and c,d regression - Acceptance windows based on TNI adopted equation of proficiency value +/- 3 proficiency standard deviations and check limits of proficiency value +/- 2 proficiency standard deviations. Proficiency value and proficiency standard deviation calculated from robust study mean and variables c & d as proficiency value = robust mean and proficiency standard deviation = c * proficiency value + d.

3 - Fixed Limits - Acceptance windows based on span of gravimetric percentage from gravimetric as gravimetric +/- gravimetric * percentage.

4 - Adjustable Fixed Limits - Acceptance windows base on a span of gravimetric percentage from gravimetric as gravimetric +/- gravimetric * lowPercentage where gravimetric < break and gravimetric +/- gravimetric * highPercentage where gravimetric >= break.

5 - Study Statistics - Acceptance windows based on a number of standard deviations span from the study mean as study mean +/- (deviations * standard deviation).

6 - Log Transform Statistics - Acceptance windows based on lognormal distributed data. Acceptance windows = mean(lognormal) +/- span * standard deviation(lognormal).

7 - Reserved

8 - Regression Equation 2SD - Acceptance windows based on EPA equation of proficiency value +/- 2 proficiency standard deviations. Proficiency value and proficiency standard deviation are calculated from gravimetric variables a, b, c, & d as proficiency value = a * gravimetric + b and proficiency standard deviation = c * gravimetric + d. Generally reserved for drinking water studies.

Proficiency Test Item Preparation, Homogeneity and Stability Assessment - RTC uses proprietary and published methods for the manufacture, homogeneity and stability testing of proficiency test items. RTC's proficiency test materials meet requirements of

ISO Guide 34. For more information contact RTC. Additionally RTC complies with TNI Volume 3 'General Requirements for Environmental Proficiency Test Providers', EL-V3-2009, 2009 for all TNI Fields of Proficiency Testing analytes.

Metrological Traceability - All preparations are made using balances calibrated annually traceable to NIST standards. Where appropriate analytical measurements are traceable through an unbroken chain to NIST standards, or a Certified Reference Material manufactured under ISO Guide 34 in conjunction with ISO/IEC 17025.

Statistical Analysis - RTC uses robust statistics to calculate study means and standard deviations - Reference - Kafadar, K, *A Biweight Approach to the One-Sample Problem*, Journal of the American Statistical Association, Vol. 77, No. 378, June, 1982, pp. 416-424.

Additional Information - Go to www.rt-corp.com/reporting for additional information on summary statistics for specific methods, advice on the interpretation of the statistical analysis, and additional comments/recommendations. If you failed an analyte it may be required to perform a corrective action and/or retest. RTC recommends that you contact your accreditation body for specific instruction.

Program analyte accrediting footnotes

[1] NELAC Compliant, covered by RTC's ACLASS Proficiency Testing Provider accreditation, Cert. AP-1469
[4] ISO 17043 Accredited, covered by RTC's ACLASS Proficiency Testing Provider accreditation, Cert AP-1469

Authorizing Officer: _____ Date: 8/1/2014
Patrick Brumfield, ASQ CQA
QA Manager

This section of the report is for informational purposes only.
If unsure about specific accreditation requirements please contact your state coordinator.

PASS RATE

Number of Reported Results:	**8**
Number of Passing Results:	**8**
Pass Rate:	**100.00%**

APPENDIX G – Critique of “A Review of Coastal Monitoring…in West Hawaii

Critique of “A Review of Coastal Monitoring…in West Hawaii …...……..Appendix G-1

NATURAL ENERGY LABORATORY OF HAWAII AUTHORITY

An Attached Agency of the Department of Business, Economic Development & Tourism, State of Hawaii

October 23, 2008

NELHA's Critique of ***"A Review of Coastal Monitoring Data for Development in West Hawaii***"

This critique will focus on six inaccuracies and omissions in regards to NELHA's Comprehensive Environmental Monitoring Program (CEMP) in ***"A Review of Coastal Monitoring Data for Development in West Hawaii"*** (UH Hilo Coastal Review) on page 38, 48 and 51, Figure 7A-G, and Table 6.

1. The NELHA Water Quality Laboratory measures temperature, salinity, pH, dissolved oxygen, chl-a, turbidity, nutrients, tide state, and biota monitoring of its anchialine ponds on a quarterly basis since 1993 with the exception of biota monitoring which is performed on a biannual basis. This was not reflected in Table 6 on page 38 in the UH Hilo Coastal Review.

2. The authors of the UH Hilo Coastal Review stated on page 51 that there was "suspiciously high fecal indicator bacterial cell concentrations" at site C24. NELHA has evaluated site C24 from 1989-1993 on a monthly sampling frequency and from 1993 – 2007 on a quarterly sampling frequency for Enterococcus in accordance to the State of Hawaii, Department of Health (HDOH), Title 11 Chapter 54 Specific criteria for recreational areas. The criteria states "at locations where sampling is less frequent than 5 samples per 25-30 days, no sample shall exceed the single sample maximum" of 89 CFU per 100mL. NELHA has never exceeded this standard at site C24. **NELHA Figure # 1**

3. The authors of the UH Hilo Coastal Review did not evaluate NELHA's six nearshore marine water transect location with respect to the HDOH, Title 11 Chapter 54 West Hawaii Area-Specific rules to determine trends to the nearshore marine environment. The report's conclusions regarding NELHA's nearshore marine water quality were solely based on an inland single sample groundwater seepage location site C24.

4. Sample site C24 is *not* a wastewater trench (page 39) or a disposal trench (page 48 and 51). The sampling period evaluated for C24, 1992 – 1997, was before any development occurred in the HOST Park Region except for the SMA mandated beach park amenities and access road. Therefore, there was no impact from NELHA tenants because they did not exist.

5. The authors of the UH Hilo Coastal Review incorrectly applied the HDOH, Title 11 Chapter 54 West Hawaii Area-Specific rules on sample site C24 due to the fact it does not fit the specified transect sampling criteria of 1m, 10m, 50m, 100m, and 500m distances extending seaward.

6. The authors of the UH Hilo Coastal Review chose to highlight results from site C24, a single sample lava rock embayment location with a historical groundwater seepage ~80m inland from the shoreline, as having 2 orders of magnitude greater nutrient concentrations as compared to the HDOH, Title 11 Chapter 54 West Hawaii Area-Specific multiple station transect rules for samples having a salinity greater than 32ppt. Sample site C24 had an average salinity of 17.4 ppt. A better tool for evaluating this sample location for the analytes NO_3 & NO_2, PO_4, TDN, and TDP would be a mixing plot model as mandated by the HDOH, Title 11 Chapter 54 West Hawaii Area-Specific rules when the salinity of any sample within a transect is less than 32 ppt. However this location is not a transect, and does not clearly fall into any regulatory classification. **NELHA Figure # 2**

Conclusion

NELHA respectfully requests the authors to correct the inaccuracies and omissions in the UH Hilo Coastal Review. In particular, its statements on page 38, 48, and 51 regarding site C24 being a HOST Park wastewater or disposal trench with high nutrient and fecal indicator data. In addition, NELHA would like Table 6 to correctly state the analytes that NELHA routinely measures in its anchialine pond monitoring program. Finally, NELHA welcomes a thorough review of all of its nearshore transect data to the HDOH, Title 11 Chapter 54 West Hawaii Area-Specific.

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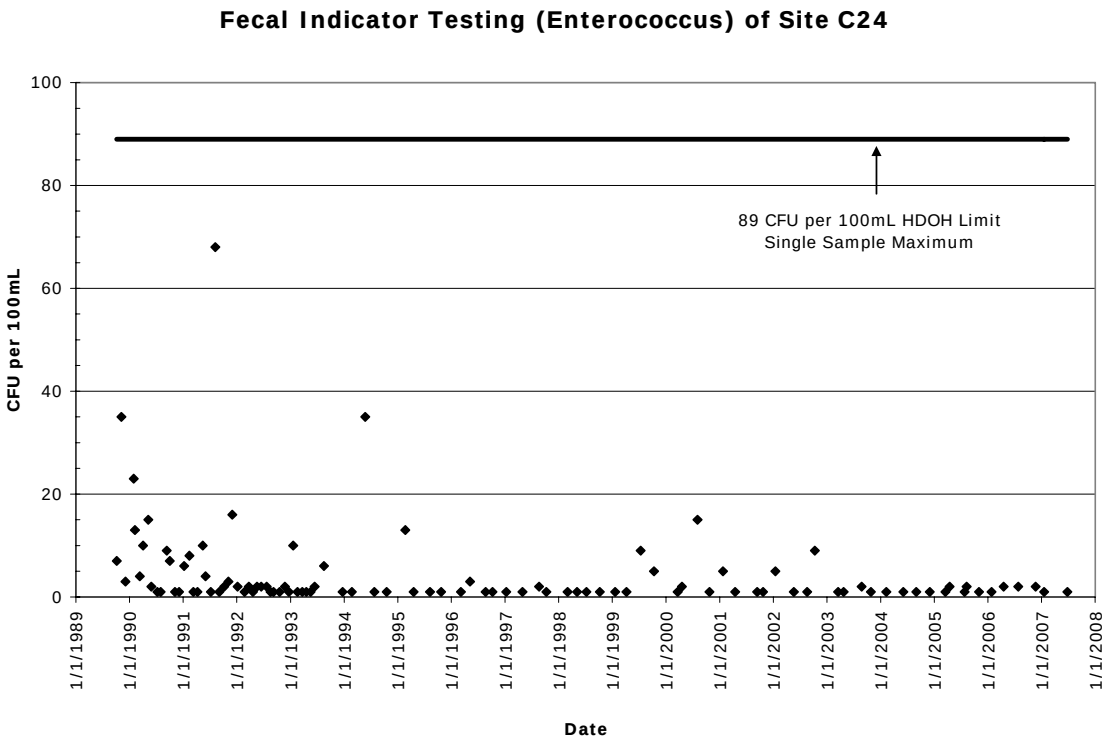
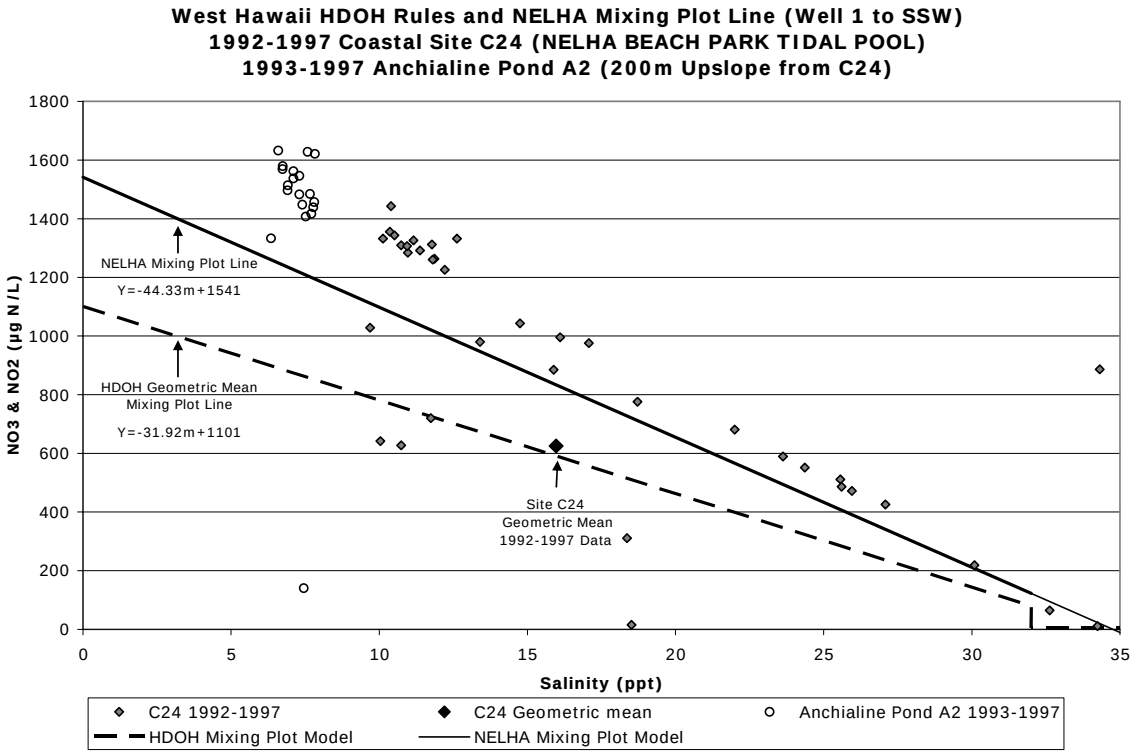


NELHA Figure #1



NELHA Figure #2