



the PIPELINE

Powered by the Natural Energy Laboratory of Hawaii Authority
Hawaii Ocean Science and Technology Park

Summer 2024
Volume 6, Issue 1

More than 50 Participants Join AquaHack Workshop

what's inside?

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Taking Part of Governor's Marine Affairs Committee

Moving into a Blue Future – Just recently, Governor Josh Green had appointed new members to the Marine Affairs, with Dr. David Karl as Chair of the Governor's Advisory Committee.

He will lead the committee to promote a sustainable blue economy in Hawaii.



The 16-member committee is a collective of like-minded leaders who are passionate about encouraging and sustaining a robust, blue economy.

I am honored to be part of this committee and look forward to serving to the best of my ability. I hope his focus on the blue economy will become part of his legacy

The Committee will update a 1974 report on the state of Hawaii and the ocean, focusing on economic diversification and environmental well-being which is a positive step towards a sustainable future for Hawaii.

The Governor aims to encourage a robust blue economy for Hawaii. Scores of jobs that will address food security and billions of dollars will boost our state's economy.

He has confidence in our expertise to dive ahead into a blue future. We aim to fulfill our purpose. To read more on Governor Green's plans, visit <https://hahana.soest.hawaii.edu/MAC/>

- Greg



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the PIPELINE

HOST Park - Powered by the Natural Energy Laboratory of Hawaii Authority

About NELHA

The mission of the Natural Energy of Hawaii Authority (NELHA) is to develop and diversify the Hawaii economy by providing resources and facilities for energy and ocean-related research, education, and commercial activities in an environmentally sound and culturally sensitive manner.

NELHA TEAM

Bryan Babbitt, Eng. Projects Coord.
Greg Barbour, Executive Director
Brian Berg, Utility Electrician
Chad Debina, Gen. Labor
Faustine Edge, Administrative Asst.
Alex Leonard, Chief Projects Mgr.
Pam Madden, Water Quality Lab Mgr.
Bryce Matsuoka, Groundskeeper & Maint.
Rae Nguyen, Mktg. & Leasing Spc.
Keith Olson, Chief Ops & Science Ofc.
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THINK NORWEGIAN: NELHA and the University of Hawaii NSF's ClirAIM delegation visited in Bergen, Norway to better understand their success in building a comprehensive aquaculture ecosystem. The visit was hosted by HATCH Innovation Services and Deputy Director Laurence Sombardier represented NELHA.

The trip focused on fostering connections and understanding best practices within Norway's aquaculture industry. Sombardier explored established clusters for aquaculture and seafood production, with a focus on integrating learnings back into Hawaii to develop a successful local model.



Norway has successfully produced a several billion-dollar aquaculture industry over 30 years and are the world's second largest exporter of seafood.

While their long coastline and protected fjords with excellent water exchange provide a competitive advantage, their success stems from persistent efforts in fostering a rich research and entrepreneurial environment to promote innovative aquaculture technologies.



Norway's current focus is on sustainably farmed seafood and stakeholders and investors are increasingly interested in onshore production facilities for high-value finfish.

The group witnessed a collaborative, future-oriented approach to the industry to solve the challenges associated with rising costs, disease control, optimization, feed, environmental protection and product traceability.

"This visit provided valuable insights that could benefit HOST Park," said Sombardier. "With UH's expertise in project attraction, NELHA is proposing to host more engagement events to attract entrepreneurial ventures."



Potential areas of focus include algae bioproducts, recirculating aquaculture systems (RAS) facilities, and seriola farming.

NELHA welcomes suggestions to further develop the aquaculture sector at HOST Park.



Photo courtesy of Meredith Pfenning.

Aqu



Photo courtesy of Meredith Pfenning.



Photo courtesy of Sarah Karner.



Photo courtesy of Meredith Pfenning.

"The impetus for organizing the workshop was to help bring Hawaii's talent to their next level - we've now connected a solid network of innovators that will lead the charge."

Dylan Howell of Hatch Blue



aHack

All-Day Workshop Fosters Innovation in Hawaii's Sustainable Aquaculture

BOOSTING THE ECONOMY: Funded by a grant from the U.S. Economic Development Administration (EDA) to focus on aquaculture innovation, the University of Hawaii NSF's Climate Resilient Aquaculture Innovation Megahub (CliRAIM) partnered with Hatch Blue to host AquaHack, a one-day intensive workshop at HOST Park on April 18.

Flights, food and fare was all paid for at this NELHA-sponsored event where over 50 participants joined in for a full day of learning and networking.

That included ocean enthusiasts, tech entrepreneurs and scientists seeking positive social, environmental and economic change in Hawaii.

The workshop agenda included informative presentations, tours of the HOST Park facilities,

facilitated round-table discussions, and ample opportunities for attendees to connect with industry peers.

The event concluded with a Hi Ocean Pau Hana open to the broader community, featuring additional food and recreational activities.

Hatch's CREST Accelerator program is a valuable resource for mission-driven blue economy startups looking to scale their impact across the industry. This accelerator is made possible by a grant NELHA secured from the EDA.

Their first on-site workshop kicks off July 8 with industry trips to Norway, Singapore and Vietnam.

Learn more at Hatch.Blue.



OPERATION

PIPELINE RECOVERY

NELHA Leads Successful Recovery of Ocean Pipeline, Eyes Permanent Solution

By: Alex Leonard, Chief Projects Manager

IT TAKES A TEAM: A collaborative effort led by the Natural Energy Laboratory of Hawaii Authority (NELHA) successfully retrieved a 224-foot section of a 16-inch diameter HDPE pipe that was discovered adrift off the coast of Keahole Point on May 1.

It is believed the pipe is a segment of defunct pipeline 16A - one of six installed in the late 1980s by Ocean Farms Hawaii, a former tenant of NELH (the predecessor of current-day NELHA).

The company went bankrupt in 1993, leaving behind the pipelines, portions of which have broken free from their ballast, posing a significant hazard to navigation due to their tendency to float at or just below the water's surface.

NELHA, responsible for managing the lands and waters surrounding Keahole, has dealt with similar incidents in recent years as steel hardware securing the pipelines to the seabed has deteriorated.

The pipelines, each originally about 6,000 feet long and descending to depths of 1,100 feet, are intertwined and twisted around each other, complicating their removal.



Anticipating continued challenges, NELHA has initiated temporary measures, replacing critical hardware on accessible sections of the pipes.

However, a long-term solution is needed. With funding secured from the Legislature, an underwater survey was conducted to map the



remaining pipelines and document features relevant to their potential recovery and removal.

Engineers from **Makai Ocean Engineering** used this information to prepare risk analyses for various methods of mitigating the problem, including re-ballasting the pipes in place.

NELHA and the Makai team have concluded that the most reliable and cost-effective solution is to completely remove the pipes using a variety of methods.

Plans and project specifications for this operation are nearing completion, with the next

step being to solicit the necessary funds.

All of us at NELHA thank the following for their help in making this recovery a success: Terri and Jeff Leicher and their team at Jack's Diving Locker, Isemoto Contracting Co. Ltd., the offshore crew from **Blue Ocean Mariculture** and the PacLOOS lab at SOEST.

A special shout-out goes to Dustin McCasland, the fisherman who called in the initial sighting of the floating pipe.



NELHA Takes Action to Improve Seawater Quality for Aquaculture Tenants

A WORKING SOLUTION: The Natural Energy Laboratory of Hawaii Authority (NELHA) is dedicated to providing the best possible seawater quality for its aquaculture tenants.

In response to recent water quality concerns, Dr. Jim Wyban, a leading expert in aqua and agricultural technology, reviewed potential causes at a May board meeting.

NELHA is committed to helping tenants resolve the issue. A comprehensive report by Dr. Wyban is expected soon. It will detail his initial assessment, potential causes, and best practices to improve water quality. This includes specific actions to minimize future impacts on larval survival and ensure the long-term success.

Seawater Quality INVESTIGATION

Photo: Tetrachrome



Years of NELHA: *A Golden Jubilee Celebration* **E mālama ke a’o, e ‘oi ka na’auao!**

Care for the teachings (practice) and increase the knowledge!

WHAT’S TO COME: We’re thrilled to embark on the incredible journey of NELHA’s 50th anniversary.

To commemorate this milestone, we’re honored to share the Hawaiian phrase “E mālama ke a’o, e ‘oi ka na’auao!”

This translates to “*Care for the teachings (practice) and increase the knowledge!*”

Mahalo to Kumu Keala Ching for guiding us to this meaningful phrase and to Jane Clement of the Hawaii County Mayor’s Office for their support.

Get ready for a celebration filled with amazing participants!

We have a growing list of companies showcasing their work through delicious food, engaging activities, and insightful farm tours and demonstrations.

Mark your calendars! You won’t want to miss this.



Stay tuned for more updates on NELHA’s social media or visit our website.

Thinking of joining? There’s still time!

Contact Rae (rae.tt.nguyen@hawaii.gov) and she’ll be happy to share all the event details with you.

NELHA Welcomes Two New Research Advisory Committee Members



NELHA is pleased to announce the appointment of two new members of the Research Advisory Committee: **Cherie Kauahi** and **Ned Murphy**.



Kauahi’s extensive educational background in Tropical Conservation Biology, Environmental and Marine Science and Murphy’s background in oceanography, biogeochemistry, related technologies and business experience will serve well in reviewing prospective business proposals.

NELHA extends a warm welcome to its newest RAC members and look forward to their valuable contributions in the years to come!

HOST

WHEA Students Shine at Annual Exhibition



Photo courtesy of WHEA.

RIGHT ON! West Hawaii Explorations Academy proudly presented its Annual Exhibition of Learning Show!

Students from 6th to 12th grade showcased an array of projects they have developed over the year to community members.

The event was a tremendous success, filled with inspiring presentations from our talented students.

To learn more about WHEA, visit whea.net.

Blue Ocean Barns Secures Additional \$8.25M in Series A Funding

BIG BUCKS: In April, 2024, **Blue Ocean Barns** completed an extension to its Series A fundraising, adding \$8.25M and key strategic investors in foreign markets to its investor family. This infusion of capital will enable the company to fund its R&D and optimization of technologies in Hawai'i.



Blue Ocean Barns will continue exporting innovation and technology as it scales up 50-acre and larger farms in locations near our customers' ranching, feedlot and dairy operations.

Enabled by a grant from Elemental Excelsior, Blue Ocean Barns partnered with Merriman's and Hawai'i Island Goat Dairy (HIGD) to pioneer the world's first low emissions goat cheeses.

Community involvement was a key objective of this deployment, with local high school and UH students helping to analyze on-farm methane data.

Today, Blue Ocean Barns continues to supply HIGD's entire herd so that they can distribute highly sustainable products at farmers' markets, restaurants and retailers.



Photos courtesy of Blue Ocean Barns.

PARK *Happenings*

ASU Leads Innovative Reef Restoration Program

GOING FOR GOLD: Arizona State University leads the 'Āko'ako'a Reef Restoration Program, a unique effort to revitalize coral reefs along Hawaii Island's 120-mile west coast.

This program distinguishes itself by incorporating Hawaiian cultural knowledge alongside education, science, and government collaboration.

The program's goal is to cultivate a deeper connection between people and coral reefs, particularly in the face of climate change.



Photo courtesy of Matt Gutierrez.

A significant milestone was reached on April 25th with the opening of a coral nursery. This marks the official start of restoration efforts, where cutting-edge science will be used to nurture coral back to health.

The nursery embodies the program's commitment to blending cultural traditions, education, and scientific expertise to revive West Hawaii's coral reefs. Learn more at akoakoa.org.

Cyanotech Gummies Satisfy the Sweet Tooth

CRAVING FOR SWEETS: Cyanotech and Nutrex Hawaii has made their #1 selling BioAstin® Hawaiian Astaxanthin® available in a new delicious and nutritious gummy format.

The sugar-free, vegan, non-GMO gummies offer 12mg of natural BioAstin® Hawaiian Astaxanthin®, enriched with vitamin D3, and provide the same great science-backed health and wellness benefits you know and love.

BioAstin® Hawaiian Astaxanthin® is the only choice for natural astaxanthin grown here in Hawaii.



Photo courtesy of Cyanotech.

Farm grown in open-air ponds under an abundance of nourishing, natural Hawaiian sunlight, Cyanotech/ Nutrex Hawaii has been sustainably, responsibly, and naturally cultivating microalgae here in Kona's HOST Park for 40 years and has never been made in a lab.

You can find the gummies locally at Long's and KTA or online at nutrex-hawaii.com.

HOST

Award-Winning Keeper of the Bay Documentary Lands on PBS Hawai'i

A LOVE LETTER TO THE SEA: After completing the film festival circuit and winning multiple awards, the Keeper of the Bay documentary, co-produced by HOST Park tenant **Dear Ocean, Inc.**, has been released on PBS Hawai'i. The film follows Cindi Punihaole as she works to protect Kahalu'u Bay from over-tourism and environmental degradation.

It highlights her dedication to balancing tradition and modern science, showcasing her inventive solutions to mitigate human impact on the fragile marine ecosystem.

You can find out more about the film and follow the link to watch it streaming on PBS Hawai'i on the Dear Ocean website.



Photo courtesy of Dr. Christine Zalewski.

Hawaii Served First Low-Methane Burger Thanks to Symbrosia and Ola Brew

JOIN THE MOOV-MENT: Foodies take delight as there's a new player in town.

Featuring grass-fed beef from cows given Symbrosia's seaweed feed-additive, it represents a significant step towards a more sustainable and eco-friendly food industry in Hawai'i.

This collaboration between **Symbrosia** and Ola Brew showcases how local businesses can lead the way in making a positive impact on our planet.

To learn more, visit Symbrosia.co.



Photo courtesy of Symbrosia.

PARK *Happenings*

Blue Ocean Mariculture Wins 2024 Mayor's Sustainability Achievement Award

WHAT AN HONOR! Blue Ocean Mariculture is honored to accept the 2024 Mayor's Sustainability Achievement Award.

This award celebrates the remarkable efforts of individuals, businesses, and organizations committed to advancing sustainability within Hawai'i County.

It also acknowledges exceptional initiatives to achieve greater sustainability and resilience at a grassroots level.

Learn more at [Blue Ocean Mariculture](#).



Photo courtesy of Blue Ocean Mariculture.

Seatrec's Subsea Robot Powers Ocean Data Collection

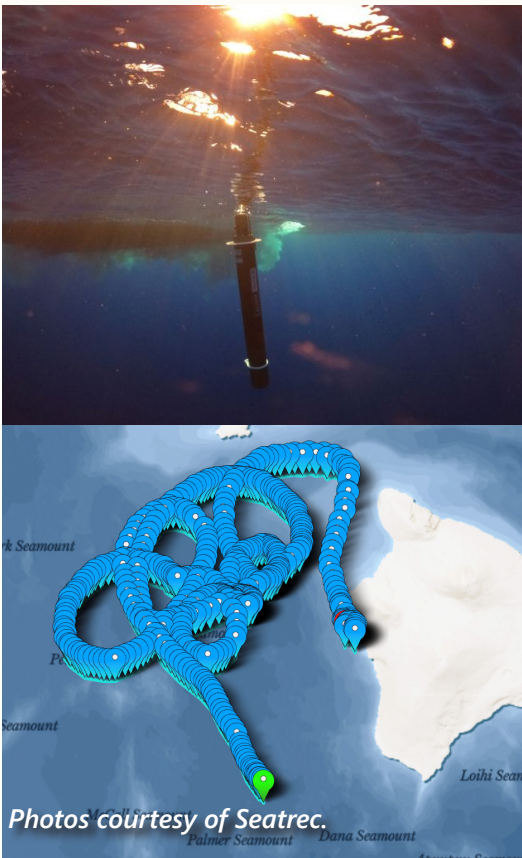
POWERED ON: Seatrec deployed an infiniTE™ Float off the coast of Kona since January 26.

This is the first subsea robot that can be completely powered by the ocean's temperature differences.

Since its launch, this float has been profiling as deep as 1,000 meters every six hours.

In contrast to the conventional float that profiles once every ten days due to limited battery capacity, this float is delivering 40x more data to support the emerging blue economy.

Seatrec harvests ocean energy from temperature variations. Visit [Seatrec](#) to learn more about their projects.



Photos courtesy of Seatrec.



Students at Ke Kula 'o Nāwahīokalani'ōpu'u School, Kea'au work together during the scavenger hunt.

HOST Park School Tour Program Draws Over 700 Students

MOLDING YOUNG MINDS: HOST Park's school tour program has been a huge success, welcoming over 700 students since its launch.

The program caters to all ages, from elementary schools to community colleges, attracting students from all across the state of Hawaii and even as far as New Zealand.

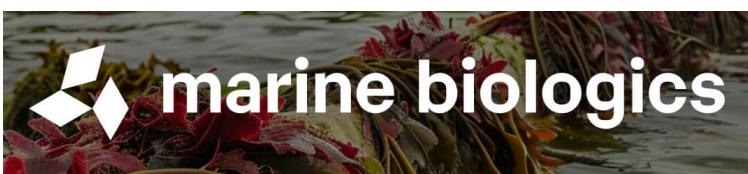
The tours offer a unique opportunity to explore the diverse range of companies housed within the tech park.

Students get hands-on learning experiences about fields like OTEC (Ocean Thermal Energy Conversion) and aquaculture.

They also gain valuable insights into the variety of career paths available through the park's many businesses.

This community outreach program fosters a culture of innovation and education, inspiring the next generation of Hawaii's workforce.

NEW TENANT @ HOST PARK



E KOMO MAI! Please welcome our newest tenant **Marine Biologics** situated at Hale Iako.

Marine Biologics is a biotech business designing industrial compounds from macroalgae. The company is working to build new chemical supply chains to meet the demands of the bioeconomy. For more information, visit marinebiologics.com.

ops news

NELHA Operations Averts Pipeline Disruption

An Easy Problem Turns Into a Difficult Solution

By: Keith Olson, Chief Operations Officer

BACKGROUND: NELHA operates a 45 psi above ground 12" HDPE pipeline to services clients at higher elevation with surface seawater in HOST Park. The original metric size (315mm) HDPE pipe has a 12" IPS sized HDPE pipe repair section that was installed a few years back with two 12" long mechanical restrained couplings.

PROBLEM: Day time pipe expansion and night time pipe contraction caused the 12" pipeline move like a snake on the lava rock. The mechanical restrained coupling couldn't maintain a grip on the smaller diameter metric pipe when the pipeline was shifting position. At times the couplings were dangerously close to releasing the pipe from its grip with less than 2" of pipe being held inside the coupling.

SOLUTION: The OPS team added fabricated clamps, realigned and leveled the pipe, and secured it with gravel to prevent future movement.

OUTCOME: The pipe insertions distance into the couplings have not change since the May 8, 2024, shutdown. A permanent fix would require installing a new 1.3-mile 12" HDPE pipeline.

Electrofusion of the coupling was considered, however, due to the age of the pipe and the two different size OD, it was considered a risky solution.

NELHA Operations Dept. will continue to monitor the pipe. NELHA is confident that the solution in place will bridge the time gap until the new pipeline solution is implemented in the future.



Explore the Possibilities...

HOST PARK

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