



THE PIPELINE

RESEARCH CAMPUS EXPANDS

A 3 acre facility which was once a desalination plant has been acquired by NELHA for the purpose expanding its research campus. The current campus at the end Makako Bay Road at Keahole Point is close to full capacity. And more space is needed for startups and small projects.

The mauka research facility includes 30,000 square feet of warehouse, lab and office space. Most of the outdoor space is paved and the facility includes all utilities except for surface sea water which we hope to add in the future.

FEMA funds, received in response to the devastation of NELHA property in Puna, were used for the purchase, which was carried out through an RFP process.

This campus will allow NELHA to accommodate projects at HOST Park while we continue to seek funding and finalize the design/construction of the 7 acre Innovation Village. Location is close to the highway next to Koyo USA. If you are interested in utilizing space in the mauka research campus, please contact leasing@nelha.org.

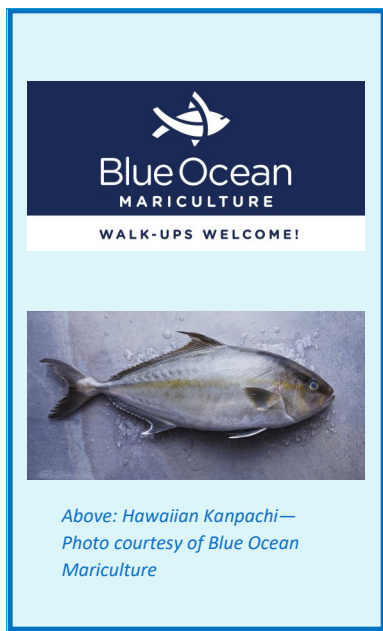


Above: HOST Park Mauka Research Campus warehouse and office building.



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KONA COLD LOBSTERS UNDER NEW OWNERSHIP

Blue Ocean Mariculture recently acquired Kona Cold Lobsters, which will continue to operate out of the same location and offer a variety of fresh seafood products for purchase. Products include Hawaiian Kanpachi which is responsibly farmed at HOST park and raised in pens off Keahole point.

The walk-up facility also offers imported lobster, manila clams, Dungeness crab, and a

variety of oysters. From HOST park farms, they offer limu, abalone, shrimp and sea salt.

Blue Ocean Mariculture respects the history of Kona Cold Lobster and is proud to continue the legacy of offering premium seafood available to our community. Feel free to walk-up and purchase or place an order for pick up:

808-556-2227

Hours are from 8am-2pm

“You can start late, look different, be uncertain, and still succeed.” Misty Copeland.

HOLIDAY BEST WISHES FROM NELHA EXECUTIVE DIRECTOR

Happy Holidays! From our NELHA family to yours, we thank you for all your support this year. Best wishes for a healthy, happy, and peaceful New Year and prosperity throughout 2023. Don't forget to support the other businesses at HOST Park (see page 3 of this newsletter). There are plenty unique opportunities from good eats to charitable donations to the growing number of businesses oriented towards ocean conservation. Be Safe and don't worry, we had this newsletter **SANTA-tized!**

Greg Barbour

WHAT IS NEW WITH HOST CLIENTS?

Please join us in welcoming new clients to the park and congratulate others on their progress. Ryan Westerberg, software developer, swooped up the last office in Hale Iako.

[The Nature Conservancy](#) has leased out some of the last remaining available space in the research campus at Keahole Point to support their reef conservation projects and efforts.

Several projects have received approval in concept for expansions. These include [Symbrosia](#) which is planning to expand into a 10 to 15 acre parcel to produce Asparagopsis seaweed to help reduce methane emissions from cattle.

[Kona Butterfish Company](#), a startup founded by two HOST Park veterans, Hiroshi Arai and Don MacQuarrie, also obtained an approval in concept for a similar sized project. They plan to produce sablefish, also known as black cod or butterfish in the islands for the Hawaii market.

Another exciting and innovative project that received an approval in concept is a seawater to fuel project by Sea Dragon Energy Inc.

Kona Cold Lobsters was acquired (see above for more details).

There has also been a bit of construction as companies such as Blue Ocean Barns, Kowa Premium Seafoods (dba Big Island Abalone) and Mats 4 proceed with building out their projects.

SUPPORT HOST PARK BUSINESSES THIS SEASON

Each holiday season, we like to remind everyone that Host Park businesses can help you with your season's gift giving.

Consider purchasing foods produced right here at HOST Park for your holiday meals or as gifts. You can purchase direct from businesses such as [Cyanotech](#), [Big Island Abalone](#), [Kona Sea Salt](#), or from Blue Ocean Mariculture (see top of page 2), which distributes a large variety of seafoods including Hawaiian Kanpachi from [Blue Ocean Mariculture](#).

You may be interested in unique products such as captive bred marine life to support healthier reef aquariums from [Indo Pacific Sea Farms](#). Or ocean inspired fine art by [Catherine di Napoli](#).

Also, unique experiences at HOST Park make great gifts: popular farm tours are currently available at [Big Island Abalone](#), [Kanaloa Octopus Farm](#), [Ocean Rider Sea Horse Farm](#), [Sea Salts of Hawaii Farm](#) and [Keahole Center for Sustainability](#). Click on the hyperlinks provided to sign up directly with the various organizers.

And for that person that has everything, perhaps the ideal gift is a donation to ocean conservation causes such as those supported by [Ke Kai Ola monk seal hospital](#) which is run by [The Marine Mammal Center](#). The [Nature Conservancy](#) also seeks to protect Hawai'i's diversity and gladly accepts donations.

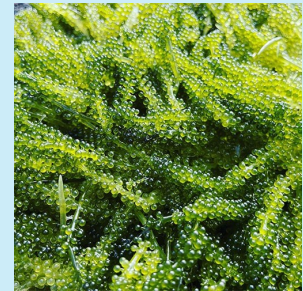
Finally, if you are in need of an event space for Christmas, the [Sea Salts of Hawaii Farm](#) can provide a nice covered lanai and beautiful oceanfront grounds as well as a charming rustic tasting room, the Moku Nui Room, that is also used as educational space on Papahānaumokuākea and the Salt [Farm's Give Back Program of 1%](#) of its proceeds going to PMDP Hawaii for marine debris clean up at the Monument.



Left: Ipo shows a variety of products produced at Kona Sea Salt.

Middle: Kona Sea Salt facility and tasting experience.

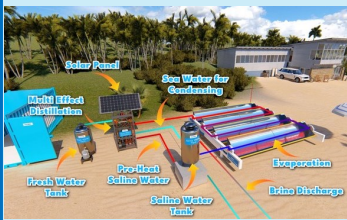
Above: Kona Sea Salt Give back project. Photos courtesy of Kona Sea Salt.



Above: A few of the products offered at Blue Ocean Mariculture market facility (located where Kona Cold Lobster used to be). Walk up or order via phone. Photos courtesy of BOM.

Another American Made Challenge Solar Prize Win!

Hawai'i Innovation led by Arif Rahman and supported by NELHA is a [Ready! Semifinalist winner](#) of the Solar 6 Prize. The team is developing a small scale, low cost, off grid deployable CSP solar thermal desalination system (see below) which they hope to demonstrate at HOST Park.



Above: Submerged membranes in Pacific Filtration System demonstration at the NELHA makai research campus. Photo courtesy of PFS.

MAUNA LOA ERUPTION

The view from the NELHA administrative offices at HOST Park after Thanksgiving week included an unusual and striking red glow produced by the Mauna Loa eruption (see photo below).

Although only 35 miles away, HOST Park was protected by 8,000 ft Hualalai mountain and was never at risk. That said, the park is atop a 200 year old Hualalai lava flow and the Kiholo area, north of the park, is on an equally recent (in geological times of course) flow from Mauna Loa. Should an eruption from Mauna Loa or Hualalai cause lava to flow again in our direction, we would have considerable time to evacuate.

Meanwhile the biggest risk to HOST Park during a similar eruption is air quality which has thankfully returned to acceptable levels. The eruption subsided considerably and then stopped. Data from an air quality sensor at the neighboring KOA airport is available through our website and the PurpleAir project in [real time](#).



Photo courtesy of Dean Towle

NEED HELP WITH FILTRATION?

[Pacific Filtration Systems LLC](#) has developed a project at HOST Park to demonstrate the effectiveness of a polymeric flat plate ultrafiltration system in treating seawater and various wastewater effluents. The project involves the installation of three tanks: the incoming effluent tank, the submerged membrane filter tank and the permeate tank, along with the piping connections, pumps and blower.

The effluent tank may include aeration to provide for a biological treatment to the effluent prior to entering the membrane tank. This process is intended to reduce the organic content of the effluent prior to filtration in order to maximize the flux (flow) rate through the membranes. Such a combined approach to wastewater treatment is known as a membrane bioreactor (MBR).

Ultrafiltration can drastically reduce the level of bacteria and viruses (99.9999%) in the effluent so it can be safely reused in various applications such as aquaculture recirculating systems. Other applications include the pretreatment of seawater for desalination as well the treatment of domestic sewage.

Pacific Filtration Systems joined HOST Park in 2022 and believes their submerged filter technology to be robust, low maintenance, durable and innovation. It could be particularly helpful in aquaculture applications. Feel free to reach out to Bill Morton (bill.morton@pacificfiltrationsystems.com; 805-719-1236) for a live demonstration or have questions on how this tech might benefit your operations.

A live demonstration will also be taking place on December 20 from 3 to 5PM. Feel free to drop by. Project is located by the teahouse in the research campus.

IRONMAN RACE UPDATE

The 2022 Ironman Championship Race took place over two days to accommodate the large amount of people who qualified during the pandemic while championship events in Kona were placed on hold. Race officials and NELHA staff worked hard to minimize disruption to HOST Park clients as the marathon portion takes place in the park. As promised, NELHA conducted a follow-up survey to obtain feedback and understand concerns regarding future races.

We received 25 responses to the survey. 84% of the responders felt that the Thursday race was disruptive to business activities whereas only 40% felt that was the case for the Saturday race.

Ironman has subsequently issued a [press release](#) announcing that they will return to a single race format which will take place on Saturday 14, 2023. This race will be for women while the men's race will take place in Kona the following year. The change will reduce the disruptions, economic impact and inconveniences to the West Hawaii Island community and HOST Park companies. In 2023, the marathon portion is expected to take place at HOST Park as it has since the race first started in Kona.

This year, Ironman produced and distributed a [short video about HOST Park/NELHA](#) in which they highlighted tours and products at HOST Park.



Nelha ED makes the marathon turn 15 mn ahead of the first woman at the Ironman Thursday Oct 6 race while the small crowd chants "turn, Greg, turn".

*"We need men who dream of things that never were." John F. Kennedy.
By the way, we are quite sure JFK meant "people", not just "men"!*

MAKAI DEVELOPS SMALL SCALE SWAC

Interested in low-cost cooling using cold seawater? Makai Ocean Engineering is in the process of developing a simple Sea Water Air Conditioning (SWAC) unit which uses their proprietary titanium foil plates.

Makai can manufacture these right here at HOST Park. The cold seawater flows through the inside of the titanium foil plates (pictured on right) and a standard 20" box fan is used to circulate air through it, eliminating complicated controls and pumps.

A single unit can cool about 2kW (1/2 ton, or a little more than a standard window air conditioning unit) using 3 gpm of cold sea-

water. The Makai team measured a max capacity of 8kW (2 tons, or 5 window units) using 30gpm as produced by a prototype unit currently running in their lab at HOST Park.

Makai plans to incorporate a thermostat and seawater control valve with the unit. The customer would need to supply cold seawater to the inlet port and provide a drain both for seawater and condensate.

These small SWAC units could be ideal for cooling containers and small office spaces at HOST Park. Please contact Mike Eldred at Michael.Eldred@makai.com for more information.



Above: Titanium foil plates stack as seen on prototype SWAC unit at Makai Ocean Engineering Lab in HOST Park. Photo courtesy of MOE.



WOMEN IN OCEAN FOOD COMMUNITY DAY - ASIA

HATCH completed their studio with focus on female-led startups in ocean food innovation in Bali this past November. [Read more.](#)

HATCH NETWORKING EVENTS GAINING POPULARITY

This past fall, HATCH started quarterly networking events to bring together HOST Park enthusiasts.

The Christmas event had close to 200 attendees, many of which got to win over \$1,000 in fabulous prizes from HOST Park companies as well as West Hawaii businesses such as Polynesian Paddling Products, Amount Coffee, The Spoon Shop, Ola Brew and others.

Did we mention Kona Kanpachi tacos were on the menu?



HATCH Christmas pau hana event December 8

If you wish to be on the HATCH distribution list for these events, please reach out to dylan@hatch.blue

“Words are the clothing of our thoughts.” Jonathan Swift.

How are we doing?

If you are a HOST Park client, you should have received a link to the 2022 NELHA Satisfaction Survey. Please let us know if that is not the case (nelha@nelah.org).

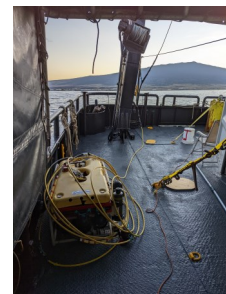
The survey has only 10 easy questions and an area to input questions and comments if so desired. It should take very little time to complete, and will help NELHA staff in making improvements to better meet park client needs.



ROV PIPELINE SURVEY



In mid-November, did you notice a strange-looking ship lingering just off-shore of Keahole Point for about a week? That was the RV Norseman II, which homeports in Homer Alaska. It was commissioned to support an ROV survey to locate and map six seawater intake pipelines that were installed by a past HOST Park tenant in the late 1980s. The pipelines are no longer in use and their ballast hardware is starting to fail – three segments have broken free already, with a 1,200 Feet-long piece drifting all the way to Maui, where NELHA staff eventually recovered it and removed it from the ocean. In order to avoid similar occurrences in future, an ocean engineering firm has been contracted to review the data and imagery collected during November’s ROV survey and provide NELHA plans and recommendations on how best to mitigate the situation.



Above left: RV Norseman II in background off Keahole Point research campus.

Lower Left: ROV Operators monitor inspection progress.

Lower Right: ROV unit on ship deck waiting for deployment.

Photos courtesy of Alex Leonard

FROM THE DEEP

NELHA was fortunate and appreciates the opportunity to provide a site for training with the Hawaii County Fire Department Hawaii County Fire Department Rescue Company 7A & 7C and Hazmat Company 21A & 21C. Confined space training for HFD rescue was completed at NELHA Research Campus pump station on December 14, 2022 (see photo below) in the unlikely event a NELHA staff member accidentally falls into a seawater sump when performing critical maintenance or emergency repairs to the pump system.



The rescue training was possible in part because it could be coordinated with a scheduled seawater service interruption on December 14th. All maintenance objectives were accomplished and the shut down/restart was successful. We appreciate everyone's patience and cooperation. These types of activities will help to ensure a robust seawater distribution system and allow NELHA to continue providing consistent and quality seawater delivery.



55" PUMP STATION MICROGRID BREAKS GROUND

The Encored microgrid project, in partnership with the Republic of Korea and the State of Hawaii through NELHA and the UH Hawaii Natural Energy Institute, has broken ground on a 500kW PV array and 760 kWh battery storage system. Equipment has started arriving, land has been prepared!



Above: Battery equipment received at NELHA warehouse

MOON WORK SIMULATION

HOST Park provided a lunar landscape on November 10 to Hilo's PISCES and the Intl Moonbase Alliance for operation of the PICES 700 lb planetary rover (named Hehelani). The event was part of a workshop and symposium in California and the rover was operated remotely (see photo below). [Read more.](#)





*Above: Joe Wilson holding
Keahole Point Lobster
(courtesy of Phil Wilson)*

IN MEMORY OF JOE WILSON

Please join us in paying our respects to Joe Wilson who recently passed this summer. Joe moved to the Island of Hawaii in 1986 and with his brother, Phil Wilson, started one of the first successful aquaculture ventures at HOST Park. Although the Wilson brothers started their lobster aquaculture adventure in Monterey Bay, they became full fledged forward-thinking commercial aquaculture pioneers through the creation of Kona Cold Lobsters on the Island of Hawaii in 1993.

Joe was passionate, extremely knowledgeable, could fix anything and after conducting R&D on the Hawaiian spiny lobster, devel-

oped a Keahole Point Lobster product based on Maine lobster which was, and is to this date, a popular item in Hawaii restaurants.

Joe was possibly the best known ambassador for NELHA. He had much integrity and was a very generous man. He embodied the aloha spirit in every relationship and in every aspect of his life. His animated stories will be remembered and sorely missed by everyone who knew him and was lucky to share time with him.

Memorials may be made in loving memory of Joe to the [Amyloidosis Foundation](#).

NATURAL ENERGY LABORATORY
OF HAWAII AUTHORITY
73-4460 Queen Kaahumanu Hwy.
#101
Kailua Kona, HI 96740

Phone: 808-327-9585
nelha.hawaii.gov
E-mail: nelha@nelha.org



NATURAL ENERGY LABORATORY OF HAWAII AUTHORITY (NELHA)

NELHA administers the world's premier energy and ocean technology park. This unique master-permitted park is located on 870 acres of prime coastal property in Kailua-Kona Hawaii and offers R&D support facilities for the development of renewable energy and ocean technologies through demonstration projects that utilize the unique resources found at the park. NELHA continually brings ashore high quality, pristine supplies of both warm surface and cold deep seawater 24 hours a day which allows for various tests to take place with intent to reap economic potentials from the dual temperature seawater delivery system and high solar insolation. Tenants located in HOST Park work at the pre-commercial, commercial, research and educational levels. It is the largest diversified economic development project in the State and is solely focused on developing green economic projects.