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PIPELINE

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

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Cold Start Warm Finish Fun Run a Community Triumph!

what's inside?

Executive Director's Message	2	Beautifying HOST Park	9
Annual Report 2025 Now Available	3	Water, Water, Everywhere!	10
Cold Start Warm Finish Run a Success!	4-5	Global OTEC Anchors at HOST Park	11
A Look into the Past	6-7	Welcome New HOST Park Tenants!	12
Cultivating the Next Generation	8	What's That Sound?	13

Connecting Our Past to Our Future and a Year of Firsts

As we move forward into 2026, I am incredibly proud of the momentum we are building across all facets of our mission, from our technical infrastructure to our community roots.

We recently celebrated this progress with our Cold Start Community Run, an event that perfectly captured the energy and collaborative spirit of the HOST Park family.

This spirit of transparency and growth is further reflected in our newly released 2025 Annual Report, which provides a comprehensive look at the economic milestones and operational successes that defined our past year.

Beyond the numbers, we remain deeply committed to honoring the history of this land; I invite you to explore our “Stories of Place” initiative now available online, where we celebrate the cultural heritage of the Keahole coastline and the legacy of the Pā‘aiea fishpond. By bridging our ancestral past with our innovative future, we continue to cultivate a campus that truly serves the people of Hawaii.

Riley Saito

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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

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Annual Report 2025

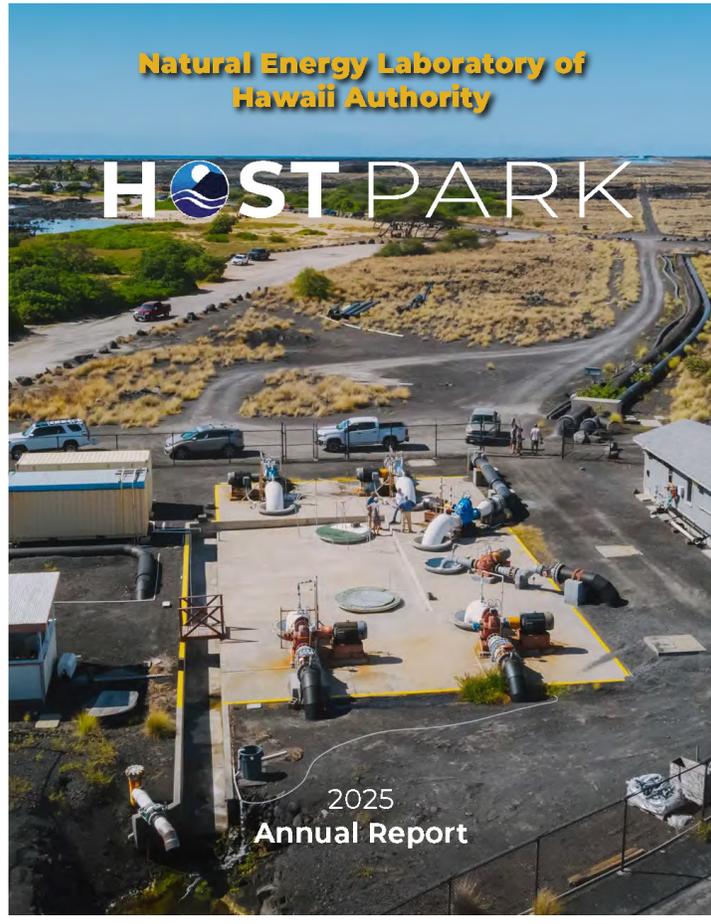
Report Highlights Economic Growth and Cultural Milestones

NELHA has released its 2025 Annual Report, detailing a year of significant expansion and a deepened commitment to the cultural landscape of the HOST Park.

This growth was bolstered in 2025 by the arrival of nine new companies, including **Captura, Corp., Kona Sablefish Company, Sea Dragon Energy, Global OTEC, OceanBit, OceanWell, NeuralX, HLE Pro, LLC, and Salty Dog Brine Shrimp.**

Operational excellence remained a top priority throughout the year. The technical team demonstrated exceptional agility by repairing multiple waterline breaks and successfully retrieving a hazardous breakaway ocean pipeline within just two days.

Beyond day-to-day operations, NELHA looked toward the future by developing a comprehensive 10-year maintenance plan and completing an innovative offshore imaging survey to locate freshwater reservoirs hidden beneath the seafloor.



Under the new leadership of Executive Director Riley M. Saito, the park also made significant strides in community and cultural alignment.

This commitment to honoring the land's heritage is further reflected in Phase II of NELHA's marketing efforts, which focus on the storied history of Pā'aiea.

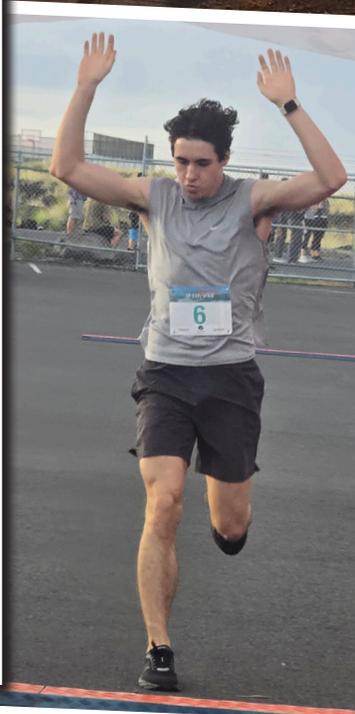
By illuminating the history of this buried landscape, the project bridges the gap between ancient Hawaiian aquaculture and

the modern innovation occurring at HOST Park today.

NELHA remains focused on navigating resource challenges while pioneering new frontiers in renewable energy and marine conservation.

The full 2025 Annual Report is available at nelha.hawaii.gov/resources/library.

Cold Start **WARM FINISH** 5K/10K RUN/WALK A RESOUNDING SUCCESS!



The sold-out inaugural Cold Start, Warm Finish 5k/10k Run welcomed runners and walkers to experience our unique coastal course and signature deep-sea water cooling stations.

From the Keiki Dash to Health & Wellness Market, the day was a celebration of our park's spirit and the incredible support of our tenants.

With participants already clamoring for next year's date, this debut has further establishes and highlights health and aloha at HOST Park.

Mahalo to **Cyanotech/Nutrex Hawaii, Global OTEC, Ke Ka Ola - The Marine Mammal Center, Kona Coast Nutrients, Kona Limu Co., Kona Salt Farm and Matsuyama's Food & Fuel!**



a look into the past ...

Pā'aiea: Honoring the Ancestral Footprints at HOST Park

Tracing the geological and cultural signatures of Hawai'i's lost great fishpond.

The landscape of HOST Park is often viewed through the lens of modern innovation, yet the ground itself holds a profound history resting just beneath the surface.

As part of Phase 2 of HOST Park's cultural history project, the focus shifts to Pā'aiea, a massive royal fishpond that once defined the North Kona coastline before it was transformed by the 1801 lava flow from Hualālai.

Stretching nearly three miles in length and over a mile in width, Pā'aiea was one of the largest loko i'a (fishponds) in the islands.

The year 1801 marked a permanent shift with lava from Hualālai advancing across the coastal plain eventually filling the massive pond.

While the water was replaced by stone, the event left behind a unique geological signature.

The distinctive orange-hued, "rust-colored" lava visible today from Queen Ka'ahumanu Highway is the result of thermal oxidation—a reaction that occurred the moment the molten flow met the cool waters of Pā'aiea.

This oxidized plateau serves as a permanent map of where the pond once thrived.

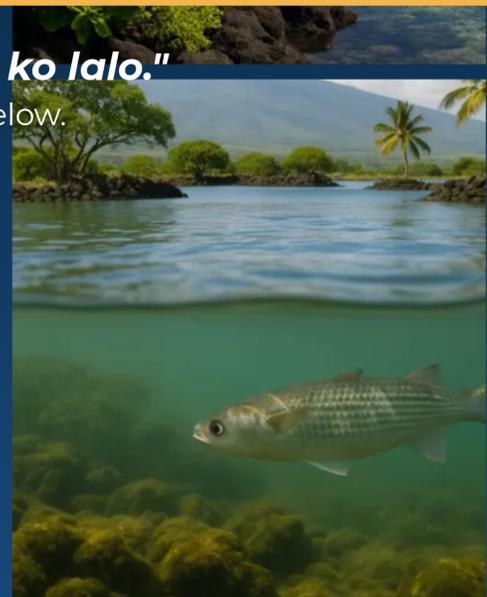
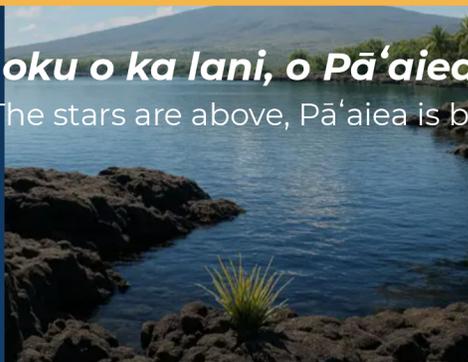
"O na hoku o ka lani, o Pā'aiea ko lalo."

~ The stars are above, Pā'aiea is below.

WHERE IT BEGINS

PĀ'AIEA, THE STORIED FISHPOND OF KAMEHAMEHA

Buried beneath a rust-colored flow of pāhoehoe lies a place of abundance, engineering, and legend. Pā'aiea, once an enormous, thriving loko i'a on the North Kona coast was filled by lava flows in 1801. What was lost from the landscape still lives in the winds, the stones, and the knowledge passed forward.





LOKO I'A AS COMPLETE ECOSYSTEMS

Bobby Camara explains how traditional Hawaiian fishponds functioned as diverse ecosystems supporting multiple species including fish, limu, and honu, all harvested sustainably. This multi-species approach contrasts sharply with modern single-species aquaculture.



FISHING WITH DIRT

Ka'uhane Morton describes how people at Pā'aiea used resources efficiently in harsh volcanic terrain. 'Ōpae 'ula mixed with red dirt created palu for fishing, while 'a'ali'i provided fuel for small fires. Water was precious, carried in ipu wai from cherished sources, and 'uala grew in rock-encircled pu'e gardens with mulch.



TRADITIONAL VS. MODERN AQUACULTURE

Hannah Springer contrasts traditional Hawaiian loko i'a, where fish swim freely and feed on naturally growing limu, with modern fish cages that rely on imported feed. Like the difference between free-range and feedlot animals, this comparison raises important questions about sustainability and protein quality in aquaculture.

This cultural initiative aims to bridge the gap between the modern research campus and its ancestral roots. By documenting the history of Pā'aiea, the project honors the spirit of stewardship and the sophisticated knowledge of land and sea that has always been central to this region.

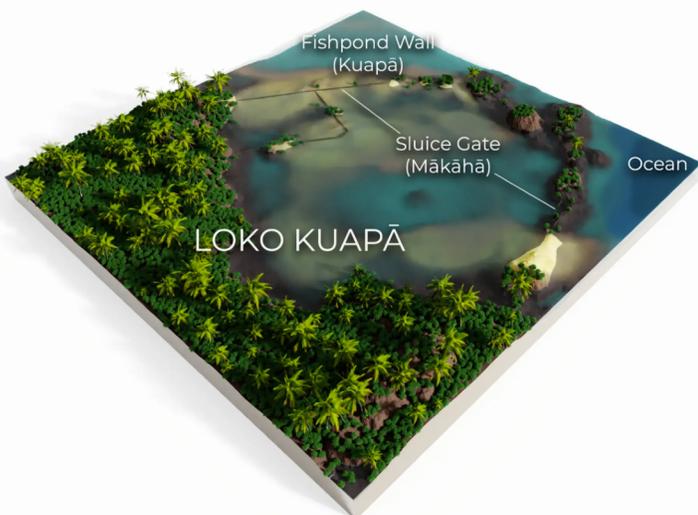
The transition from ancient aquaculture to modern ocean science represents a continuation of a long legacy of resource management and innovation at Keāhole Point.

The full history of this storied landscape, including interactive maps, geological insights, and ancestral knowledge, is now available as part of the "Stories of Place" digital collection.

This resource provides a deeper understanding of the ground upon which the HOST Park community operates today. Visit: www.hostpark.io/paaiea-a-storied-landscape-of-change

LOKO KUAPĀ

Loko Kuapā were the most common type, built with seawalls (kuapā) in shallow water or on reefs. These walls connected natural embayments or rock points, creating enclosed areas with controlled water flow through sluice gates called mākāhā. Pā'aiea was a loko kuapā, using the natural curves of the coastline between Keāhole and Ka'elehuluhulu to create what historical accounts describe as a pond three miles wide.



In 1801, this landscape was a shimmering expanse of water, dotted with hundreds of small islets that mirrored the night sky. This was Pā'aiea, the prized 3-mile-long royal fishpond of King Kamehameha, before it was forever transformed by the lava of Hualālai.



CULTIVATING THE **NEXT GENERATION**

HISE Students Explore Innovation at HOST Park

Last summer, HOST Park served as a vital classroom for the inaugural Hawaii International Science Experience (HISE), a student-led initiative designed to bridge the gap between global scientific inquiry and local cultural wisdom.

Hosted by the Pacific International Space Center for Exploration Systems (PISCES), the five-day program brought together nearly 40 high school students and educators from Hawaii, New York, and Japan to explore the Big Island's unique research landscape.

During their visit, the students engaged directly with the cutting-edge sustainable technologies, gaining a firsthand look at how ocean resources and renewable energy drive innovation in our community.

Students had the opportunity to see Direct Ocean Capture (DOC) technology in action at the newly operational **Captura** pilot plant, learning how this innovative system extracts CO₂ from seawater using only renewable electricity and ocean water.

This visit provided a real-world example of the circular economy at work within HOST Park, as the captured carbon is intended for use by local aquaculture tenants to reduce their environmental footprint.

By engaging with Captura's team, the students saw firsthand how NELHA serves as a global launchpad for scalable solutions to the climate crisis.

This collaborative environment allowed local students to act as ambassadors for Hawaii's scientific potential, fostering international connections and inspiring the next generation of STEM leaders.

As NELHA continues to serve as a premier test bed for clean energy and sustainable aquaculture, programs like HISE highlight the importance of our facility not just as an economic engine, but as an essential hub for educational exchange and community-driven innovation.



Beautifying HOST Park

The landscape at HOST Park is seeing a significant refresh as the NELHA operations team rolls out a series of campus-wide improvements.

While these efforts ensure the park is in peak condition for the Cold Start Community Run, the benefits extend far beyond race day, focusing on the long-term safety, accessibility, and professional aesthetic of the facility for all tenants.

The crew has been hard at work addressing the daily wear and tear that comes with managing an 870-acre innovation hub.

This includes a dedicated effort to restore roadways by filling potholes along main corridors and access roads, which provides smoother transit for heavy equipment, delivery vehicles, and daily commuters alike.

In addition to pavement repairs, systematic weed control using seawater and the clearing of naupaka overgrowth are underway to maintain clear sightlines at intersections and preserve the integrity of the park's infrastructure.

Furthermore, intensive cleaning of road shoulders and common areas has helped remove debris, ensuring the park remains a safe environment for motorists and pedestrians and the many employees who utilize the perimeter for walking and outdoor exercise.

By investing in the shared spaces and essential roads of the campus, NELHA continues to maintain a facility that is as functional as it is welcoming for the entire HOST Park community.

WATER, WATER, EVERYWHERE!

New chemical and toxicity testing confirms no contamination or toxicity in HOST Park seawater systems.

By **Pam Madden**, NELHA Water Quality Lab Manager

NELHA continues to make progress on the recommended list of action items aimed at improving water quality for larval rearing that were specified in the 2024 investigative report of seawater quality issues for both HOST Park and Keahole Point Larval Group (KPLG) hatcheries.

The Expanded Chemical Testing Initiative was designed to more fully understand and characterize the quality of our surface and deep seawater being delivered to clients.

We are pleased to report that there is no indication of contamination from the 5 parameters tested – total dissolved gas, metals, pesticides, herbicides, and total petroleum hydrocarbons.

Additionally, to try and pinpoint the potential source of water impacting larval survival rates a special study using a series

of toxicity (aka - bioassay) tests was also performed.

Three rounds of samples were collected in 2025, at 8 different sampling locations, and submitted to an accredited bioassay testing laboratory in Texas.

Following EPA methods, lethal and sub-lethal data utilizing marine shrimp and fish species were used to investigate the effects of synergistic, antagonistic, and additive effects of all chemical, physical, and additive components which could adversely affect the physiological and biochemical functions of the organisms.

We are pleased to report that there was no indication of toxicity observed in any of our pump sump stations, pipeline distribution point, or representative client hatchery facilities.

The full reports can be found on our website, [here](#).

RIDING THE TIDE

Global OTEC Anchors in Hawaii

Global OTEC, a UK-based developer of ocean energy systems, has officially established its U.S. presence at HOST Park to accelerate the commercialization of deep-sea thermal power.

Led by founder and CEO Dan Grech, Global OTEC signed a lease agreement in December 2025 with NELHA to begin the next phase of its technical development.

This move follows the successful deployment of “Don,” a floating demonstration platform in Gran Canaria, which was supported by the largest European Union OTEC funding to date through the Horizon-Europe program.

OTEC or ocean thermal energy conversion generates electricity by leveraging the temperature difference between warm surface water and cold deep-ocean water.



Head of Facilities Ben Martin and CEO Dan Grech pose for the camera at HOST Park.



Global OTEC site at HOST Park.



PowerModule will be installed in 2027.

Unlike wind or solar energy, OTEC provides a constant “baseload” power supply, making it a critical candidate for decarbonizing tropical regions and remote offshore industries.

The company’s primary focus at the Hawaii site is the OTEC Power Module®, a proprietary system designed to scale power delivery for offshore applications.

Engineers will spend the coming months on detailed design and testing, with a goal of installing the power module at HOST Park in 2027.

Following the Hawaii demonstration, Global OTEC plans to move the module offshore to prove that modular systems can be scaled for large-scale industrial use.

The company is positioning the technology as a versatile

alternative to conventional renewables, particularly for deep-water assets that cannot easily connect to a land-based grid.

Learn more at globalotec.co.

Welcome!

It's a pleasure to welcome five new teams since our last newsletter whose creativity and technical drive are a perfect fit for our park. We look forward to the breakthroughs they'll achieve here. E Komo Mai!



Global OTEC is a renewable energy company that develops innovative Ocean Thermal Energy Conversion (OTEC) systems to provide clean, 24/7 baseload power to tropical islands and offshore industries.

By harnessing the temperature difference between warm surface water and cold deep seawater, their modular technology offers a sustainable and storm-resistant alternative to fossil fuel dependence in equatorial regions. More at globalotec.co.

HLE Pro LLC is a professional event media company based in Hawaii that specializes in high-quality livestreaming, videography, and photography services. They cater to a wide range of occasions. Learn more at hlepro.co



A start-up aquaculture research company, **Salty Dog Brine Shrimp, LLC** is producing brine shrimp cysts in a controlled environment at the Makai Research Campus to provide live feed. For more info, email fishboy266@yahoo.com.

An AI technology company that specializes in revolutionizing aquaculture, **NeuralX** provides real-time motion analytics and computer vision for fish farms.



Their platform enables precise monitoring of fish biomass, population counts, and health indicators, helping operators reduce feed costs and optimize harvest efficiency. Learn more at neuralx.ai



OceanWell is a water technology company that uses modular deep-sea "water farms" to provide a sustainable and energy-efficient alternative to traditional desalination.

By placing filtration pods at depths of 400 meters, their system harnesses natural hydrostatic pressure to drive the reverse osmosis process, reducing energy consumption by up to 40% while protecting marine ecosystems from harmful brine and intake hazards. For more info, visit oceanwell.com.

what's that SOUND?



It's the newest workhorse of the NELHA Water Quality Lab! Affectionately referred to as "Sea Biscuit" this state-of-the-art SEAL Analytical AA500 Segmented Flow Analyzer (SFA) is the newest instrument addition to the lab for processing all nutrient samples.

Pam Madden has been busy in the lab these past couple of months getting "Sea Biscuit" fully optimized and customized for processing a wide range of nutrient samples spanning across ocean, pipeline, groundwater, and client effluent profiles, all while achieving ultra-low detection limits!

This new laboratory instrument replaces the old "Ursula" nutrient auto-analyzer, an Astoria-Pacific A2 unit, which served the lab for almost 20 years. It was purchased in 2007 and far exceeded the normal operating lifespan of instrumentation, and we are thrilled that the timing and grant funding helped make this upgrade possible!

Explore the Possibilities...

HOST PARK



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Research | Demonstration
Commercialization**

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