

KAHO'OLAWE

KO HEMA LAMALAMA | *Newsletter of the Kaho'olawe Island Reserve Commission* | Spring 2022

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Welcome to *Ko Hema Lamalama*, the newsletter of the Kaho'olawe Island Reserve. Uncle Harry Mitchell interpreted this name as **the southern beacon**, which served as a source of light to weary travelers voyaging beyond the pillars of Kahiki. Let *Ko Hema Lamalama* aid us in sharing a source of light from Kaho'olawe and the restoration of Hawaiian culture across Hawai'i nei.

PROGRESS + PROCESS

From the Director...



Executive Director
Michael K. Nāho'opī'i

After a recent DLNR Administrator's meeting, one of the other division heads asked me about KIRC strategic goals and performance metrics. I could have responded with the first part of our vision statement:

"The kino (physical manifestation) of Kanaloa is restored. Forests and shrublands of native plants and other biota clothe its slopes and valleys. Pristine ocean waters and healthy reef ecosystems are the foundation that supports and surrounds the island."

From this perspective, the metrics are what percentage of the desolate hard pan has been vegetated, the number of native seedlings have been planted, and how many acres of native ecosystems have been restored.

I could have also referred to our community based "I OLA KANALOA" strategic plan that lists the eight program areas in which we are focusing efforts to accomplish four primary goals:

Pilina `Āina, Renewing Connections: Honoring the natural environment and revitalizing relationships through Kanaloa Kaho`olawe.

Paepae Ola, Live Sustainably: Cultivating and utilizing the resources of Kanaloa Kaho`olawe in a responsible and sustainable manner.

`Ike Kūhohonu, Elevating Knowledge: Refining, mastering and expanding Hawaiian skills and practices nurtured by Kanaloa Kaho`olawe.

Kūkulu Ea. Realizing Identity: Affirming the sacredness of Kanaloa Kaho`olawe as a foundation for the Hawaiian nation.

Instead, I talked about the importance of the process and how the journey made by the many individual steps we and our volunteers are taking to achieve these goals is just as important, and maybe more meaningful, than the actual goals themselves. The second part of our vision for Kaho`olawe states:

"Nā po'e o Hawai'i (the people of Hawai'i) care for the land in a manner, which recognizes the island and ocean of Kanaloa as a living spiritual entity. Kanaloa is a pu'uhonua and wahi pana (a place of refuge, a sacred place) where native Hawaiian cultural practices flourish."

As volunteers come to the island to help restore and accomplish our vision for Kaho`olawe, they are learning how to heal and restore the land. Since we bring a diverse group of people from many walks of life, they are also learning how to work together for a common cause. The many lessons our volunteers learn on Kaho`olawe about healing, cooperation and the connection, both to the `āina (land) and each other, is something that they will take back to their own communities when they return home. It's this experience with Kaho`olawe that is just as important as the actual work that is being done on island.

A handwritten signature in black ink, likely of Michael K. Nāho'opī'i.



▲ KIRC volunteers work with staff to collect 'a'ali'i seed pods from plants on Kaho`olawe.

Then the pods are processed using weed eaters (see Cover photo) to easily
▼ remove the husk.



Cover photo: KIRC Restoration Manager, Paul Higashino, and volunteer, Robynn Yoshida, processing 'a'ali'i seeds in the field with a weed eater.

He 'a'ali'i ku makani mai au; I am a wind-resisting 'a'ali'i;
'a'ohe makani nana e kula'i. no gale can push me over.

A boast meaning "I can hold my own even in the face of difficulties."
The 'a'ali'i bush can stand the worst of gales, twisting and bending
but seldom breaking off or falling over.

Ōlelo No'eau #507, Mary Kawena Pukui,
Ōlelo No'eau: Hawaiian Proverbs & Poetical Sayings



▲ 'A'ali'i sprouted from seed placed in
kīpuka pōhaku on hardpan (below).



▲ The seed is then either planted
and scattered on Kaho'olawe, or
germinated and grown to seedlings at a nursery facility on Maui. Plants
started on Maui are transported to Kaho'olawe during monthly accesses
and outplanted by KIRC volunteers.

▼ House Representative Amy Perruso, outplanting an 'a'ali'i seedling in
the Hakioawa watershed on Kaho'olawe.



▲ The processed seed is transferred to a
colander and the seeds are separated
from the remaining organic matter.





▲ MHS teacher, Gregory Jones, planting 'aki'aki seedlings in Honokanai'a



▲ MHS student, Amanda Santiago conducting a transect survey in the waters of Honokanai'a



▲ Hui o Na'ulu student volunteers placing gravel bags along eroded sections of the K-1 road

Education is a cornerstone of the KIRC's mission to provide safe and meaningful access to the Reserve and its resources. This past year, a total of 22 students from local Maui high schools were able to learn from Kaho'olawe and the KIRC staff through a partnership that was supported by a NOAA PIRO Marine Education and Training mini-grant and made possible by an all-star teacher-student team: Gregory Jones and Amanda Santiago.

Gregory Jones, a Marine Science teacher at Maui High School (MHS), agreed to partner with the KIRC in 2019 for a NOAA mini-grant and worked with the KIRC Ocean Program staff to develop a series of Maui-based workshops that prepared students for an optional culminating week-long access to Kaho'olawe. What the KIRC staff didn't know, was that Mr. Jones had already been to Kaho'olawe, first visiting the Reserve in 2010 as a volunteer with the KIRC.

Inspired by that experience, when he became a teacher in 2012 he had a crazy idea that "there should be a high school club that does conservation work and gets kids involved with KIRC and other projects." Unfortunately, like so many amazing teachers, Mr. Jones got swamped with teaching and parenting his own children for the next decade and didn't have the wherewithal to pursue it. So when Dean Tokishi, KIRC Ocean Program Manager, approached Jones and asked if he would be interested in working with the KIRC for our grant, what was his response: "Holy smokes, yes."

Amanda Santiago was a student in Mr. Jones' Marine Science class and was among the first group of MHS students to go on access to Kaho'olawe for Spring Break 2021 under the NOAA mini-grant project. While on island, she approached Mr. Jones about doing her Senior Project on Kaho'olawe. Her idea: starting a club for kids to teach them about Kaho'olawe and then bringing the group to island to volunteer. Great minds think alike! Greg immediately offered to be her advisor and suggested that she work with him to found Hui o Na'ulu - The Cloud Bridge Club.

As the Hui o Na'ulu president, Amanda spent the first part of this school year helping Mr. Jones get the club off the ground and organizing the hui's Spring Break 2022 access to Kaho'olawe. Throughout the year, other club activities included setting up engagements as conservation volunteers at work sites on Maui, inviting and hosting guests at MHS to work on an outdoor classroom/club space with native plantings, and setting up a nearby nursery area to propagate natives in the hope of exchanging them with KIRC during future volunteer accesses.

Hui o Na'ulu's membership is diverse, with students coming from all grade levels and multiple participants from faculty and staff joining in on the fun. The group as a whole is enthusiastic about future opportunities to work with KIRC and provide more students with safe and meaningful access to Kaho'olawe.

▼ Hui o Na'ulu student volunteers collecting pili grass seeds on Kaho'olawe.





A once-in-a-lifetime trip to Kahoʻolawe resulted in a major learning and bonding experience for a group of University of Hawaiʻi at Mānoa College of Social Sciences students. Under the guidance of Professor Dave Beilman, nine capstone students in the Department of Geography and Environment spent four days volunteering on the

sacred island with a controversial history. Kahoʻolawe was first used as ranch land and then by the U.S. military as a training ground and bombing range. The latter led to protests in the 1970s and was the start of Native Hawaiian activism that continues to this day.

The students gathered information, such as analyzing satellite images, historical aerial photographs and documents, and archaeological sites for their final capstone projects, along with performing maintenance work to the vegetation and roads.

“Kahoʻolawe is at the intersection of Hawaiʻi history, social justice, and environmental devastation and restoration. It’s been hugely rewarding to learn from and give back to the island with the students,” Beilman said.

During the trip from March 11–14, Skyler McMachen and other students helped remove invasive species, plant native species and performed general maintenance.

“Taking part in such a special and unique trip with my classmates was definitely a bonding experience. My most memorable moment was while planting native plants on the northern part of the island and looking out over the water and being able to see Lānaʻi, Molokaʻi, Maui and tiny glimpses of the Big Island, all from a different perspective than most people get,” McMachen said. “For my project, I am looking at radiocarbon dates for archaeological sites, so being able to see the island and the actual areas the sites were located was very helpful. It made it easier to visualize the area and where it is in relation to other sites.”

Beilman and the students worked closely with and received approvals for the expedition from the Kahoʻolawe Island Reserve Commission (KIRC) and Protect Kahoʻolawe ʻŌhana (PKO). KIRC was created by the state Legislature to manage the Kahoʻolawe Island Reserve while it is held in trust for a future Native Hawaiian sovereign entity. KIRC is administratively attached to the state Department of Land and Natural Resources. PKO is a grassroots organization

dedicated to Kahoʻolawe and the principles of Aloha ʻĀina throughout Hawaiʻi. PKO strengthens its relationship with the land and pays respect to the spirits of the land.

Māhie Lee’s research project is on ʻike kūpuna (ancestral insights, experiences and perspectives), and includes compiling a file of Hawaiian newspaper articles, songs and chants about Kahoʻolawe. Lee knew about PKO and its activism, but did not know about the current land agreement and the role of the state. She was very interested in seeing how KIRC operated on the island.

“The folks on the island were great. They were welcoming and gracious, and they went out of their way to answer all of our questions and take us to different sites around the island. It was evident that they respected the culture, the history, and their roles as stewards, not owners, of the land,” Lee said. “This was the ultimate learning trip, and I will remember and talk about it forever. I hope future geography capstone classes get to experience it as well.”

Christian Lamer-Wolfewicz’s project involves using satellite imagery and geographic information systems to determine how the climate events of El Niño and La Niña are impacting the vegetation health on Kahoʻolawe.

“Kahoʻolawe will be a very memorable experience for me. The staff at KIRC was very accommodating and they all had a wealth of knowledge that really showed that this commission really wants to preserve the history and heal the land so that future generations can continue the work,” Lamer-Wolfewicz said. “Going through this experience, I want to answer my research question and give some useful information to KIRC. After seeing the lack of vegetation in some areas and the efforts by KIRC to revegetate, it helped me narrow down what I needed to analyze.”

“The projects these students have developed provide an awesome example of the type of learning that can be done on Kahoʻolawe,” said Maggie Pulver, public information specialist for the KIRC. “The Reserve, and its many cultural, environmental, historical and geographical resources, provide an expansive classroom for students of all ages and disciplines. In fact, one of the goals outlined in I Ola Kanaloa!, the current strategic plan guiding active projects ‘on-the-ground’ in the Reserve, is to honor the natural environment and revitalization of cultural relationships through Kahoʻolawe by establishing programs for learning. These types of student partnerships directly contribute to that goal and help us to see what is possible when we look to place and culture for knowledge.”

—By Marc Arakaki
Content Producer, Office of Communications
University of Hawaiʻi at Mānoa

PROJECTS + PARTNERSHIPS



▲ *Gear, equipment and supplies for the 11-person volunteer group that conducted the first project clean-up*



▲ *KIRC Kanapou Base Camp facilities*



▲ *KIRC staff accommodations in Kanapou*



The world's oceans are littered with marine debris. Huge amounts of plastics, metals, rubber, paper, textiles, derelict fishing gear, derelict vessels, and other lost or discarded items enter the marine environment every day. Anything human-made and solid can become marine debris once lost or littered, both on land and at sea. Marine debris is found in every corner of the world, from the deepest parts of the sea floor, to ice in the Arctic, and even on the remote shorelines of Kaho'olawe.

One of Kaho'olawe's most prominent features is Kanapou Bay. Stretching from Lae o ka Ule in the north to Lae o Halona in the south (seem map on back cover), the broad bay occupies much of the island's eastern coast. Most of the bay is rimmed by steep cliffs, except for a small stretch of sandy beach, known today as Keoneuli, at its deepest inland point. Sitting at the bottom of the Alenuihāhā Channel, Kanapou Bay is subject to a constant barrage of marine debris. Tangled piles of salt bleached driftwood, marine debris and other flotsam line the beach, carried to Kanapou's shores by the prevailing trade winds and the ocean currents of the North Pacific gyre.

Funded by a grant from the Fishing for Energy (FFE) Program, the KIRC Ocean and Operations program staff recently completed the first of three marine debris clean-up activities at Keoneuli Beach in Kanapou. FFE is a partnership between the NOAA Marine Debris Program, Covanta, the National Fish and Wildlife Foundation (NFWF), and Schnitzer Steel Industries with the mission to prevent and reduce the impacts of derelict fishing gear on marine and coastal habitats. "Derelict fishing gear" generally includes fishing line, nets, traps, and baskets.

Every year marine species, from crustaceans and fish to marine mammals and birds, become trapped or entangled in derelict fishing gear. Lost gear can also accumulate over time, contributing to the many "patches" of debris that exist across the world's oceans. These patches smother marine habitats when they sink from the weight of the catch, and can further damage these ecosystems when storms drag the debris along the ocean floor and coral reefs. These floating garbage patches also pose significant threats to both vessels and active fishing gear, adversely impacting maritime communities and industries.



One of several large piles of marine debris collected from Keoneuli Beach and aggregated above the high water mark to be removed from the island via helicopter later this year.



▲ *Keoneuli Beach before (left) and after (right) the clean-up.*

A major priority of the KIRC Kanapou Clean-Up Project, and the FFE program, is to keep all of the debris removed from Kahoʻolawe out of Maui's landfills by giving it a second life, either through innovative research and design or as energy. Some of the debris collected during this project, like large nets, buoys and baskets, will be incorporated into flood and erosion control devices that will reduce destructive water flows during storm events and catch sediment in mauka planting areas.

The remaining derelict gear collected by the KIRC will be airlifted off of Kahoʻolawe by helicopter during the third clean-up and transported to the local FFE partner facilities to be processed and, ultimately, converted into energy. Approximately one ton of derelict nets can produce enough electricity to power one home for 25 days.

The most sustainable solution though, is prevention. Through outreach and education, both with project volunteers and social media posts, the KIRC aims to inform the public about the effects of derelict fishing gear on the Reserve in hopes of inspiring action in our communities back on Maui and across Hawai'i.

To date, over 53 tons of marine debris have been removed from Keoneuli Beach. The current project aims to restore 2.82 acres of shoreline by removing at least 5 tons of derelict fishing gear from Keoneuli Beach. Gabrielle Schuerger, Executive Director of Mālama Maui Nui and one of the KIRC volunteers who participated in the first project clean-up, estimated the group removed more than 3 tons of debris from the shoreline during the four day access. With two clean-up activities scheduled for later this summer, the KIRC project team expects to exceed its project goal.

KIRC volunteer carrying derelict fishing gear and lost gas can above the high water mark.



▲ *KIRC volunteers modeling wearable marine debris*



▼ *Kanapou Clean-up Crew that removed an estimated 3 tons of derelict fishing gear and other marine debris from the shores of Keoneuli Beach.*





Once the home of a thriving native Hawaiian dryland forest and at least eleven documented temporal wetlands, centuries of uncontrolled ungulate grazing, decades of bombing and live fire military training and several large-scale wildfires have left much of Kaho'olawe's native ecosystems damaged and degraded. The erosive forces of wind and water continue to remove topsoil from much of the island at an estimated rate of more than 1.8 million tons each year.

More than a quarter of the island's surface is nothing more than bare hardpan and previous studies have shown that much of the remaining soil on Kaho'olawe lacks many of the components needed for a healthy soil profile. Supported by a grant from the Pacific Birds Joint Venture and Ducks Unlimited, Inc., the KIRC Restoration team, in partnership with 'Ūkiu Farms, a Maui-based family owned and operated company, initiated a project that aims to develop and test a novel technique using biochar that could improve the health and productivity of Kaho'olawe soil.

Biochar is a carbon-based soil enrichment additive made through a process called pyrolysis where biomass, from plant and agricultural waste products, is completely converted into charcoal. This process occurs naturally in fire-adapted ecosystems, creating some of the most fertile soils in the world. The intentional production and use of biochar by ancient, Indigenous cultures dates back more than 2,000 years.

With a higher surface area and porosity compared to other soil amendments, biochar is better able to retain water and nutrients in the root zone, making them more available to plants and creating ideal conditions for the growth of beneficial microbiotic communities. In addition, charring the biomass results in much of the carbon being "fixed" into a more stable form that effectively retained in the soil for centuries.

Our partners at 'Ūkiu Farms utilize hardwoods from invasive species and non-treated scraps from a local high-end cabinetry shop, simultaneously supporting native habitat restoration and the diversion of waste from landfills here on Maui. The idea came into being during the 2020 COVID shutdown. "There was a sudden surge in home gardening and every store on Maui ran out of potting soil," Joseph Imhoff, co-owner and operator of 'Ūkiu Farms, shares when asked about how this work started. "We established a locally-sourced method for biochar and compost tea production so Maui residents wouldn't have to depend on mainland products."



▲ *Kiawe scrap log garden boxes installed in the project site at Keanakeiki.*



▲ *KIRC Natural Resource Specialist, Jamie Bruch, explaining the project goals to volunteers in Keanakeiki.*



▲ *Kiawe log garden boxes filled with experimental biochar soil additive mixture in the project site at Kamōhio.*

PROJECTS + PARTNERSHIPS



▲ Mixture of leaf litter and lichen harvested from areas on Kaho'olawe with thriving native vegetation.



▲ Joe Imhoff, co-owner and co-operator of 'Ūkiu Farms, at the facility in Makawao, Maui.



▲ Cultivation of microorganisms and brewing of compost tea at the KIRC Base Camp facility in Honokanai'a.



▲ Soaking charred substrate and mulch in the compost tea and adding the mixture to the planter boxes

For this project, the charred substrate was prepared at the 'Ūkiu Farms facility on Maui, then transported to Kaho'olawe where it was soaked in a compost tea that was made using naturally occurring compost and leaf litter from Kaho'olawe which contains the necessary and appropriate microorganisms needed for a healthy soil profile. Compost teas, which are aerated liquid extracts of compost, are known to improve soil productivity and plant nutrient quality by introducing, maintaining, or increasing the living, beneficial microorganisms present in compost. The hope is that the product will provide a foundation for a regenerative system that promotes a healthy microbiome needed to enhance topsoil conditions over the long-term.

The biochar technique is currently being tested in Keanakeiki and Lua O Kealialalo, where the KIRC Restoration team is actively working to enhance the temporal ephemeral wetlands in those areas by removing invasive species and outplanting native seedlings. Both wetlands are noted in the Pacific Bird Habitat Joint Venture – Strategic Plan for Wetland Conservation in Hawaii (2006) as offering “unparalleled” restoration potential for endangered Hawaiian waterbirds, including several species of “high concern” under the U.S. Shorebird Conservation Plan. Experimental vegetation plots have been set up in the project sites, and a comparison of soil samples taken before and after the installation of the plots to determine the effects of the biochar additive compared to the products currently used for outplanting native seedlings. The project is slated to run through June.

KILO +KAKO'O

Ka manu ka'upu hālō 'ale o ka moana.

The ka'upu, the bird that observes the ocean.

Said of the careful observer.

'Ōlelo No'eau #1479, Mary Kawena Pukui,

'Ōlelo No'eau: Hawaiian Proverbs & Poetical Sayings



▲ *Single Naupakapaka kahakai seedling observed in Keanakeiki by KIRC Ocean Program Manager, Dean Tokishi*

▼ *Feral cat tracks observed along the beach at Keanakeiki, forming a "highway" ten feet wide and over 100 feet long.*



How do you kilo? Share your photos of your own observations in your place on Instagram and tag us @kircmaui!



▲ *Remnants of the ephemeral wetland in Keanakeiki flooded the previous month by a heavy rain event*

▼ *Small manō (shark) found dead, entangled in marine debris on Kanapou Beach.*



KAKO'O KAHO'OLAWE

Kako'o Kaho'olawe is a campaign to support restoration and access. We invite participation via membership, partnerships and legislative support. By building consensus that there is value in the historical, cultural, ecological and community building resources shared through Kaho'olawe, we aim to share this special place now and for generations to come.

Benefits Include	Patron	Benefactor	Sustainer
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VIP access to Maui Ocean Center	✓	✓	
KIRC Logo Tee or Hat (<i>while supplies last</i>)	✓	✓	
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Send this completed form with your donation to:
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