



E/V *Nautilus* Expedition Reveals Deep-Sea Wonders

From September 1-28, the Ocean Exploration Trust (OET) and partners conducted a telepresence-enabled expedition in Papahānaumokuākea Marine National Monument (PMNM). Papahānaumokuākea is a sacred place, a realm of the gods, from which Kānaka 'Ōiwi believe life evolved, and to which souls return after death. With this understanding, the expedition name Ala 'Aumoana Kai Uli (Path of the Deep Sea Traveler) was crafted with members of the PMNM Native Hawaiian Cultural Working Group, OET and PMNM staff. The name speaks to the respectful deep-sea research that was conducted on the expedition while also affirming our collective kuleana, responsibility and accountability in protecting our shared ocean.

The E/V *Nautilus*' remotely operated vehicles (ROVs) and acoustic sonars were deployed to better understand the deep-sea resources within the largely unexplored northwestern section of PMNM, including the geology and biology of various unmapped seamounts. The survey area also included historically-significant shipwrecks associated with the Battle of Midway where non-intrusive, ROV-based archaeological characterizations were conducted.

Exploration resulted in the first visual survey of Imperial Japanese Navy (IJN) *Akagi*, the first detailed views of United States Ship *Yorktown* since it was located 25 years ago, and a survey of IJN *Kaga*. The surveys of the ships' final resting places were aimed at documenting these historically significant wrecks, examining their condition, and honoring all those who lost their lives.

Native Hawaiian culture, knowledge, language and protocols were incorporated throughout expedition activities, including a reverent hula at sunset to honor the 3,400 American and Japanese sailors and airmen who perished in the battle.



E/V Nautilus cameras captured a curious dumbo octopus while exploring Woollard Seamount. Photo: Ocean Exploration Trust/NOAA

Lalo Resilience

Located in Papahānaumokuākea Marine National Monument, the tiny islets and surrounding reefs of Lalo are critical habitat for Hawaiian green sea turtles, Hawaiian monk seals, and seabirds. However, a rapidly changing climate threatens these ecosystems and associated marine and terrestrial habitats. Increased regional sea surface temperature and ocean heat content has resulted in mass coral bleaching seven times in the last 20 years, four of which occurred in the last 10. Sea level rise, coupled with storms and high tides have resulted in flooding, inundation, and the loss of terrestrial habitat. The Lalo Resilience planning effort aims to formulate a deep understanding of the scope and timing of impacts on various natural and cultural resources within Lalo. This information will establish a range of research, monitoring, and management measures that can be implemented to mitigate these impacts. A collaborative process involving the monument's co-managing agencies and climate collaborators produced a series of workshops, webinars, working group meetings, and special sessions over the last three years. The co-produced Lalo Resilience Action Plan will engage co-managing agencies and the resources they bring to bear to protect and maintain healthy ecosystems and ecosystem services over the coming decades.



Aerial view of Lalo. Photo: Papahānaumokuākea Marine Debris Project

Superintendent's Corner

As we wrap up our final newsletter of 2023, I can't help but reflect on the amazing partnerships we've supported over the past year in Papahānumokuākea; specifically relating to our science, conservation, and outreach and education programs. Our partnership with the Papahānumokuākea Native Hawaiian Cultural Working Group's Nomenclature Committee continues to push the boundaries of conventional scientific naming and enforce the connection between Native Hawaiians and the Northwestern Hawaiian Islands through the naming of new species in 'ōlelo Hawai'i. To date, eleven new alga species have been given Hawaiian scientific names, with ten more in the works. In conservation, our partnership with the Papahānumokuākea Marine Debris Project, a local Hawai'i-based non-profit, continues to support clean-up activities through the direct removal of marine debris in Papahānumokuākea. Since the non-profit formed in 2020, they have removed over 700,000 lbs of debris from Papahānumokuākea, including over 200,000 lbs in 2023. And lastly, I hope everyone had a chance to witness the incredible dives conducted by Ocean Exploration Trust's research vessel Nautilus as researchers explored historic shipwrecks and seamounts throughout Papahānumokuākea. This partnership in support of our outreach and education efforts was unprecedented as it continues to share the importance of Papahānumokuākea across the globe. Mahalo and imua Papahānumokuākea.

Eric Roberts

National Marine Sanctuary Designation for Papahānumokuākea Update

The process to consider designating marine portions of Papahānumokuākea as a national marine sanctuary under the National Marine Sanctuaries Act is moving forward.

NOAA's Office of National Marine Sanctuaries, along with co-management partners, is now working on a series of documents to include a draft sanctuary management plan, draft environmental impact statement, and proposed sanctuary regulations. NOAA's Office of National Marine Sanctuaries is also working closely with the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Advisory Council, the Papahānumokuākea Native Hawaiian Cultural Working Group, and the Western Pacific Regional Fishery Management Council. These draft documents will be available to the public early in 2024. For more information about the process, visit the [Monument website](#).

The Designation Timeline

Step 1: Public Scoping

November 19, 2021–January 1, 2022

Current Step: Review of Public Comments and Preparation of Draft Documents

February 2022–Spring 2024

Step 3: Release Draft Designation Documents and Provide for Public Comment Period

Target: Spring 2024

Step 4: Prepare Final Designation Documents

Target: Spring 2024–Fall 2024

Step 5: Publish Final Designation Documents

Target: Fall 2024

Step 6: Sanctuary Designation

Target: Fall 2024

Mokupāpapa

Where Nature, Culture, and Education Are One



Credit: Travis Counsell

ONMS/PMNM staff Brian Hauk, Dr. Chelsie Counsell, Colt Davis, Jason Leonard, and Keo Lopes were joined by scientists from the State of Hawaii Division of Aquatic Resources, NOAA Diving Center, University of Alabama Birmingham, and College of Charleston on the 23-day Chondria mission to Papahānaumokuākea.

Research Mission to Study Nuisance Alga

This summer, researchers conducted a 23-day expedition in Papahānaumokuākea aboard the 220 ft. vessel Kahana II. The primary mission was to study the nuisance alga, *Chondria tumulosa*, that was discovered in the monument in 2016 and is overgrowing some of the most pristine coral reefs in Hawai'i. Visual surveys were used to assess the spread of this alga and measure its abundance in ways that can be repeated in future years. Monitoring efforts confirmed the highest densities of this alga are currently at Manawai. *Chondria* is now known to exist at the three northernmost atolls of Papahānaumokuākea: Manawai (Pearl and Hermes Atoll), Kuaihelani (Midway), and Hōlanikū (Kure). The team conducted research to better understand the biology of this alga species, the factors that have allowed it to spread so rapidly, the impact of its presence on the reef ecosystem, and the effectiveness of biosecurity measures used to prevent further spread. In addition to the research on *Chondria*, the team recovered and deployed acoustic recording devices, and surveyed the early stages of recovery for coral reefs damaged by hurricane Walaka (2018) at Lalo (French Frigate Shoals) as well as at buoy grounding and coral bleaching recovery sites at Kapou (Lisianski). Gathering information on nuisance species helps to aid in management strategies including how to mitigate the spread of this species to other parts of the archipelago.

See the NOAA [Web Story](#) for additional details.

Mokupāpapa (MDC) continues to be the place for high impact collaboration, learning and partnerships. Over the summer, our partners the MEGA Lab and East Hawai'i Cultural Center hosted a week-long camp called Youth Artists Hawai'i (YAH). The inaugural science/art camp allowed 35 students (ages 9-14) to express their environmental concerns through an artistic medium while engaging in learning activities with MEGA Lab scientists and Mokupāpapa educators. In September, the Papahānaumokuākea Native Hawaiian Cultural Working Group (CWG) held a three day meeting at MDC with over 50 in attendance, including monument co-trustees. Our Kenyan K. Beals Community Robotics Center continued to host over 100 keiki and adults for community robotics activities each weekend, and held several robotics workshops, linking science and technology skills to future marine careers.

Together with our Hilo Museum Square partners we hosted a successful World Ocean Day event at MDC and in Kalākaua Park that attracted 900 keiki and adults. Over the summer MDC also supported five interns from the University of Hawai'i [Project Hokulani](#), whose goal is to support Native Hawaiian high school students to enter STEM fields through a culturally responsive, strength—and work—based enrichment program. As the Fall school year kicks off, MDC is also seeing many requests for field trips to the center, and several large school groups have already visited. Finally, the MDC education team was recognized for the Earth, Sea, Sky educational partnership with 'Imiloa Astronomy Education Center and Hawai'i Volcanoes National Park through a prestigious NPS Excellence in Education Award in August. More than 1,700 students from Hawai'i Island have completed Earth, Sea, Sky field trips, visiting all three sites, learning through a shared curriculum which relates to the Kumulipo Hawaiian creation chant and connects outer space with living organisms on Earth.



Credit: UH MEGA Lab

Youth Artists Hawai'i Summer Camp at Mokupāpapa and the co-located MEGA Lab space.

Kanoe Morishige

Meet The Staff



What is your role and how long have you worked at PMNM?

My role is to support the weaving of 'Ōiwi (Native Hawaiian) knowledge systems, values, and practices as a continuation of a 20+ year legacy of 'Ōiwi leadership, engagement, and advocacy in all aspects of co-management of Papahānaumokuākea. My work continues to maintain pilina (relationships) that honor the knowledge, experiences, and guidance from the Papahānaumokuākea Native Hawaiian Cultural Working Group.

What is your background prior to working at PMNM?

For the past fifteen years through her work in the non-profit organization, Nā Maka Onaona, I have been working alongside local communities perpetuating Native Hawaiian knowledge systems and utilizing institutional scientific tools to support communities of kilo (conscious observers) working towards 'Āina Momona, healthy and productive lands, oceans, and communities. Through this organization and as Ph.D. candidate at UH Mānoa, I co-led community-based intertidal monitoring across Hawai'i including Papahānaumokuākea to better understand the seasonal changes of Hawaiian intertidal systems with a focus on endemic Hawaiian 'opihi (limpets) and hā'uke'uke (helmet urchins) through an 'Ōiwi worldview.

What are you working on now?

I am working collaboratively with PMNM staff on different projects and initiatives including 'Ōiwi engagement within the sanctuary designation process to collectively support a permanent foundation where 'Ōiwi knowledge, values, practices, and relationships to the communities we answer to are equally valued with other pillars of co-management.

What do you enjoy about working at PMNM?

I love working in service of our 'Ōiwi communities and the legacy that was built by amazing Kānaka 'Ōiwi kūpuna and leaders who were strategic and inclusive in their role to shape the way that Papahānaumokuākea is cared for as an 'Āina Akua (realm of the gods).

What is your hope for PMNM in the future?

Papahānaumokuākea continues to thrive as an 'Āina Akua through a deeper understanding of cultivating healthy relationships between kanaka (humans) and nature through an 'Ōiwi worldview. I hope that wisdom and knowledge of our kūpuna (ancestors) will set the example of creating culturally-grounded foundations, frameworks, values, and processes of biocultural co-management in Hawai'i.

Get Into Your Sanctuary Day Celebration

Papahānaumokuākea Marine National Monument O'ahu staff partnered with Ko Olina Resort and local conservation organizations to celebrate **Get Into Your Sanctuary Day** on Saturday, July 22. The event was held at Mā'ili Beach Park on O'ahu and featured a beach clean up, a community art mural, a marine debris art exhibit, local entertainment and ocean awareness and educational activities. Attendees engaged with organizations including the Boys and Girls Clubs of Nānākuli and Wai'anae, the Division of Aquatic Resources, and the Wai'anae High School Marine Learning Center. Talented Hawai'i artists Ruben Aira, Mark Cunningham and Susan Scott displayed art created from recycled objects, including discarded surfboards. Over 290 pounds of trash was collected from the coastline while local musicians and a hālau hula provided entertainment. The celebration in this large Native Hawaiian community aims to strengthen our relationship and raise awareness about the natural and cultural importance of our sanctuaries and monuments and highlight ways we can make a difference to mālama, care for, our shared ocean. 'A'ohe hana nui ke alu 'ia. No task is too big when done together by all.

Welcome to the Team

Vicki Lam

We welcome Vicki Lam, our new Graphics and Web Designer. Born and raised in Honolulu, Vicki began her pursuit of photography, photoshop, and web design at an early age. She graduated from The New School with a Bachelor of Arts with Honors at Eugene Lang College for Liberal Arts and Parsons School of Design. Most recently, Vicki was the Executive Marketing Assistant at Girl Scouts of Hawai'i, where she supported events, and designed and produced collateral. Aloha, Vicki!

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Papahānaumokuākea is co-managed by the National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, State of Hawai'i, and Office of Hawaiian Affairs. This newsletter highlights some of the initiatives of the NOAA Office of National Marine Sanctuaries and partners.