

Papahānaumokuākea Marine National Monument
Agency Report to the Reserve Advisory Council
April 15, 2017 – June 23, 2017

Agency: NOAA/NOS/ONMS/PMNM
Presented by: Athline Clark, Superintendent
Date: July 13, 2017

Agency Accomplishments & Recent Activities

Agency Coordination

Dr. Kem Lowry Recognized as NMSF Volunteer of the Year Nominee at CHOW Event (CBO-3.8)

On June 13, 2017, Reserve Advisory Council Citizen-At-Large Representative Dr. Kem Lowry was recognized as a National Marine Sanctuary Foundation Volunteer of the Year Nominee at the 15th Annual Ocean Awards Gala during Capitol Hill Oceans Week. Dr. Lowry has served as a Reserve Advisory Council member for 15 years. He now provides leadership as the council Secretary, guiding the meetings of our Advisory Council. He actively led several of the subcommittees and provided guidance on how best to improve the management plan evaluation process, overall planning process, and site capacity-building needs. He is currently engaged in the development of a Native Hawaiian Plan for Papahānaumokuākea. His sage advice on combining an indigenous knowledge approach with Western thing helps to shape a plan that is uniquely integrated. For more information, contact nicole.evans@noaa.gov.



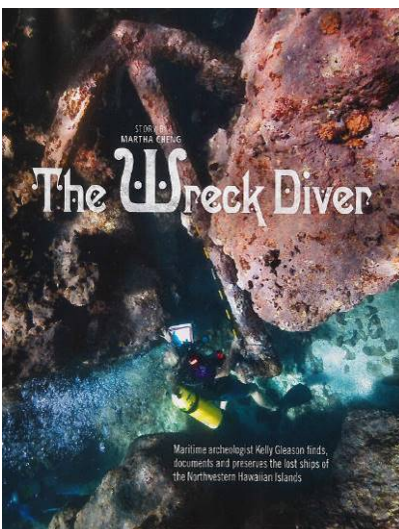
Reserve Advisory Council Citizen-At-Large Representative Dr. Kem Lowry (Credit: Toni Parras/NOAA)

Constituency Building & Outreach

PMNM Maritime Archaeologist Featured in *Hana Hou!* Magazine (CBO- 3.1, MH-2.2)

The April-May 2017 issue of *Hana Hou!* magazine featured an article entitled “The Wreck Diver,” describing the explorations and discoveries of PMNM’s maritime archaeologist Dr. Kelly Keogh. The article describes the discovery and documentation of numerous historic shipwrecks, including the *Two Brothers*, captained by George Pollard, Jr., whose previous command on the whaleship *Essex* ended with its famous sinking at the hands of an angry sperm whale. The *Essex* inspired Herman Melville to write *Moby Dick*. The article also mentions that PMNM has special exhibits of historic NWHI shipwreck artifacts at the Nantucket Whaling Museum and at the Mokupāpapa Visitor Center in Hilo. *Hana Hou!* is the in-flight magazine of Hawaiian Airlines. Its bi-monthly circulation exceeds 135,000 copies, and reaches over 11.1 million air passengers annually.

For more information, contact kelly.gleason@noaa.gov.



The April-May 2017 issue of Hana Hou! magazine features an article about PMNM's maritime archaeologist Kelly Keogh's exploration of sunken ships in the NWHI.

PMNM Participates in Several Earth Day Events (CBO-2.3, 3.1, OEL-1.1, 1.3, NHCH-5.1)

- On April 21, PMNM staff shared a booth with the HIHWNMS at the Moloka'i Earth Day Event, where PMNM Graphic/Web designer Kahi Fujii engaged approximately 200 guests in talking about the unique features of the Monument, its recent expansion, and threats faced from climate change. For more information, contact Kahi.Fujii@noaa.gov.
- On April 22, PMNM staff hosted a booth at the Waikīkī Aquarium's 10th Annual Mauka to Makai Environmental Expo, an annual event that highlights the impact people make on water sources from mauka (mountains) to makai (ocean). The booth featured a spin-the-wheel game featuring PMNM's unique animals and features, a marine creature clay-making activity, fun and educational activity sheets, and a monk seal photo booth. Approximately 4,062 people attended the event, mostly families and small children. For more information, contact Andy.Collins@noaa.gov or Nicole.Evans@noaa.gov.
- Also on April 22, PMNM staff hosted a booth at the Honolulu Zoo's Aloha Aina Festival. The booth featured marine life rubbing sheets, photo booth and a "How will you malāma 'āina?" mini mural. Approximately 200 people visited the booth. For more information, contact Toni.Parras@noaa.gov.



From left to right: PMNM staff host booths on Molokai, the Honolulu Zoo, and the Waikīkī Aquarium for Earth Day. (Credits: NOAA)

PMNM Featured for a Month of Lectures at Hanauma Bay's Theatre Thursdays (CBO-2.3, 3.1, NHCH-5.1, MH-2.2, MCS-3.2)

In May, the Hanauma Bay Nature Preserve Theatre Thursday lecture series featured PMNM staff and partners presenting on various work taking place in the Monument. The lectures were:

- **May 4** - Dr. Chris Kelly, deep-sea biologist with the University of Hawai'i at Mānoa's Undersea Research Lab, discussed the *Biology and Geology of Deep Seamounts in Papahānaumokuākea*
- **May 11** - Dr. Kelly Keogh, maritime archaeologist for Papahānaumokuākea, talked about *Maritime Resources of Midway Atoll and the Battle of Midway 75th Commemoration*
- **May 18** - Dr. Carl Meyer, a marine biologist with the University of Hawai'i at Mānoa's Hawai'i Institute of Marine Biology, presented on *Fish Tracking throughout the Archipelago*
- **May 25** - Kalani Quiocho, Native Hawaiian specialist for Papahānaumokuākea, talked about *the Cultural Heritage of Papahānaumokuākea*

Approximately 40 people attended each lecture. For more information, contact Athline.Clark@noaa.gov.



PMNM participates in various activities in support of the 75th Anniversary Commemoration of the Battle of Midway (MH-1.2, 3.1, CBO-2.3, 3.1)

On May 16, a six-person field team returned from Midway Atoll following two weeks of maritime heritage and alien invasive survey work, funded by a grant from NOAA's Office of Exploration and Research. The team, comprised of staff from PMNM, NOAA Fisheries, and National Park Service's Submerged Resources Center, conducted magnetometer surveys to explore for sunken aircraft sites associated with the Battle of Midway, as well as alien invasive species surveys on maritime heritage sites in the Midway Atoll lagoon. The project included logistical support from USFWS staff at Midway Atoll. The team is currently reviewing and analyzing results from the project. For more information, contact Kelly.Keogh@noaa.gov.



The field team at Midway Atoll. (Credit: Brett Seymour/USFWS)

On May 31, PMNM participated in the opening reception of an expanded Battle of Midway exhibit at the Pacific Aviation Museum, to which PMNM contributed content and expertise. ONMS-NMSF funds supported the development of three interactive kiosks to assist with outreach efforts to commemorate and honor the Battle of Midway, which were unveiled at the opening. The opening reception was attended by approximately 200 people and took place during a two-day Battle of Midway Symposium hosted by the Pacific Aviation Museum. For more information, contact Athline.Clark@noaa.gov.



Left: NOAA Superintendent for PMNM Athline Clark gives a short speech during the opening ceremony. Right: the two remaining Battle of Midway veterans (center) unveil the three kiosks funded by ONMS-NMSF at the Pacific Aviation Museum. (Credits: Toni Parras/NOAA)

On Monday, June 5, PMNM participated in a livestream event at the World War II Valor in the Pacific National Monument in Pearl Harbor. The event featured speakers from USFWS, NPS, and the Navy and showcased a livestream broadcast of the commemoration event taking place at Midway Atoll National Wildlife Refuge and Battle of Midway National Monument within the PMNM. The event, which was attended by approximately 150 people, also connected viewers to other livestream events taking place around the country. For more information, contact Kelly.Keogh@noaa.gov.



Remembrance Reef on display at the USS Arizona. (Credit: Amy Olliffe/USFWS)

Also on June 5, NOAA’s Mokuāpāpapa Discovery Center held an event to commemorate the anniversary and host the livestream broadcast from the USS *Midway* in San Diego, CA and from Midway Atoll in Papahānaumokuākea. Hawai‘i County Mayor Harry Kim give a short talk, as did USFWS Pacific Refuge and Monument Supervisor Barry Stieglitz, who spoke about Midway history, the Battle of Midway, and Papahānaumokuākea. Mokuāpāpapa staff gave a short virtual tour of the historic sites of Midway Atoll using the new ONMS PAC-funded Liquid Galaxy exhibit (which is still being installed and configured for a grand opening during Get Into Your Sanctuary Day in August). In addition, the Center unveiled a new Battle of Midway exhibit. Funded by ONMS, the three-sided exhibit features interpretive panels about this significant WWII battle, the maritime heritage discoveries in PMNM since the battle, a commemorative plaque to honor those who fought and sacrificed during the Battle of Midway, and an interactive kiosk display that walks viewers through the events of the battle. To accommodate events across the country, the MDC event was held at 7:30 AM HST on a weekday, which definitely had an impact on attendance, with only 17 people attending. Despite the low attendance, it was a historic and emotional event. For more information, contact Andy.Collins@noaa.gov.



Left: Hawai‘i County Mayor Harry Kim gives an emotional speech during the Battle of Midway 75th event on the tragedy of war and the beauty of conservation. (Credit: Andy Collins/NOAA) Right: PMNM Education Coordinator Andy Collins takes visitors on a virtual tour of Midway Atoll’s historic sites using the new Liquid Galaxy exhibit. (Credit: Clayton Watkins/NOAA)



Left: The three-sided stand-alone Battle of Midway display was designed and built in Hilo and intended to be a prototype for future exhibits that do not require additional wall space and are moveable to make space for events. The kiosk rests on a retractable roller system, and also can fold flat to make it easier to move. Middle: Interpretive panels describe the battle and recent work to document downed aircraft at Midway Atoll. Right: The exhibit features an iPad kiosk that describes the events of the Battle of Midway in great detail. (Credits: Clayton Watkins/NOAA)

World Oceans Day and Year of the Hawaiian Monk Seal Celebration (TES-1.5, CBO-2.3, 3.1, NHCH-5.1)

To celebrate World Oceans Day, the Year of the Hawaiian Monk Seal and the return of the voyaging canoe Hōkūle‘a from her three-year worldwide voyage. NOAA Pacific Region and partners held a movie on the beach event on June 10th. More than 1,000 people attended, with many local families and young children, a large percentage of which were military families and underserved audiences from O‘ahu’s west side. The event was partially funded by a NOAA Fisheries Species in a Spotlight Grant coordinated through the National Marine Sanctuary Foundation, NOAA Pacific Region funding, and in partnership with Ko Olina Resort, The Marine Mammal Center, Hawai‘i Tourism Authority, Aulani, a Disney Resort and Spa, along with other community and business partners. The lead coordination for the event was through the Office of National Marine Sanctuaries. Informational and activity booths by NOAA and conservation partners were open prior to the film and during the live music by award winning Hawaiian artists. More than 200 people visited the Papahānaumokuākea booth. The highlight of the event was a special sunset showing of Disney’s blockbuster film *Moana*. This is the first year for this event and partnership, and NOAA Pacific Region intends to make this an annual event. For more information, contact Andy Collins andy.collins@noaa.gov.



*Left: NOAA Pacific Region and conservation partners had informational and activity tents at the World Oceans Day Event. Right: Disney's film Moana was the highlight of the event and the rain held out.
(Credit: Andy Collins/NOAA)*

PMNM Scientists Meet with NMSAS Research Coordinator (CBO-2.3, 3.4)

On June 16, PMNM scientists Randy Kosaki, Jon Martinez, and Atsuko Fukunaga met with NMSAS Research Coordinator Dr. Mareike Sudek to discuss future collaborative research activities between the two sites. In recent years, PMNM rebreather divers have conducted two rebreather-based Crown of Thorns Starfish eradication expeditions to NMSAS. Earlier this year, the PMNM rebreather team conducted deep reef surveys of fishes and black corals at depths of up to 100 m at NMSAS. This September, Mareike Sudek will join PMNM's 25-day Reef Assessment and Monitoring Program (RAMP) monitoring cruise to the NWHI, and will learn advanced 3D photogrammetric techniques to quantify the structural complexity of coral reefs. Future collaborative opportunities may include continued deep reef exploration, passive acoustic monitoring, and coordination of coral reef monitoring activities. For more information, contact randall.kosaki@noaa.gov.

PMNM Scientist Presents on NWHI Coral Reef Research at B-WET Teacher Workshop (CBO-3.1, MCS-3)

On June 13, PMNM deputy superintendent Randy Kosaki gave a presentation to a teacher workshop sponsored by the Waikīkī Aquarium and funded by a NOAA Bay Watershed Education and Training (B-WET) grant. Approximately 35 teachers participated in the workshop. The workshop, held at the Waikīkī Aquarium, included a detailed explanation by Kosaki of the inhabitants of the mesophotic fishes and corals on display in the NWHI tank at the Aquarium. The rare fishes were collected on a PMNM research cruise on NOAA ship *Hi'ialakai*. For more information, contact randall.kosaki@noaa.gov.

PMNM Native Hawaiian youth urge UN leaders to save the ocean: #MyOceanPledge (CBO-2.3, 3.1, NHCH-5.1)

On June 8 – World Oceans Day, the Kānehūnāmoku Voyaging Academy, Hālau Kū Māna Public Charter School, and PMNM collaborated to send a small delegation of Native Hawaiian youth to the United Nations' World Ocean Day event in New York City to represent the only Marine World Heritage site in Hawai'i, Papahānaumokuākea. They joined other children from more than 10 UNESCO marine World Heritage sites to launch The Ocean Pledge on stage inside the Generally Assembly Hall and to call upon world leaders to sign their commitment towards ocean protection. HSH Prince Albert of Monaco II was the first to sign the pledge which read 'I pledge to protect the ocean for future generations.' People from across the globe are invited to sign the pledge digitally on the website of UNESCO's World Heritage Marine Programme, and on social media using #MyOceanPledge. The children traveled from some of the most remote places on Earth to highlight the global nature of the threats posed to the ocean, and the need for collective action.

To view the #MyOceanPledge video by the UNESCO World Heritage Marine Programme visit, <http://whc.unesco.org/en/myoceanpledge/>. For more information, contact kalani.quiocho@noaa.gov



Top Left: Children from more than 10 UNESCO marine World Heritage sites pose at the United Nations Headquarters in New York City. Top Right: Representing PMNM, Native Hawaiian youth pose before entering the United Nations' General Assembly Hall in New York City. (L-R) Isaiah Pule, Kaleo Kamai, Kaleihulu Victor, Ku'ulei Fujiyama, and Kamana'o Morton. Bottom Native Hawaiian youth pose with the flag of Hawai'i and traditional bamboo and conch trumpets at the United Nations. (L-R) Kaleo Kamai, Kaleihulu Victor, Ku'ulei Fujiyama. (Credits: Anuhea Awo-Chun)

Education

PMNM Native Hawaiian Program Receives Preserve America Grant (NHCH-2.1)

On March 30, the PMNM Native Hawaiian Program project proposal entitled “Voices of Papahānaumokuākea: Hawaiian Oral Histories on Cultural Heritage in Large Scale Marine Protection” was announced as one of ten recipients for the 2017 NOAA Preserve America Initiative Internal Funding Program. This project will help to gain insight into indigenous principles, philosophies, and unique epistemologies deeply embedded in native worldview and the relationship between people and place. PMNM Native Hawaiian Program Specialist Kalani Quiocho will work with Huliauapa'a, a non-profit organization whose purpose is to educate and empower students, communities, and professionals for the stewardship of the wahi kūpuna (ancestral places) of Hawai'i; the NOAA Voices from the Fisheries website, and the Monument Management Board, which includes representatives from the Office of Hawaiian Affairs. A series of ethnographic interviews will capture the important role that the Native Hawaiian community had in historical timeline events, including: a) designation of the Northwestern

Hawaiian Islands Coral Reef Ecosystem Reserve (NWHICRER) in 2000 by President Clinton; b) creation of the NWHI Marine Reserve in 2005 by the State of Hawai‘i; c) establishment of Papahānaumokuākea Marine National Monument in 2006 by President Bush; d) inscription as the first, and currently only, mixed (natural and cultural) UNESCO World Heritage Site in the country in 2010; and e) the most recent expansion of the Monument by President Obama in 2016. The interviews will be used to create a short film and a number of video clips that will be accessible through various media outlets and featured at various museums and interpretive centers in Hawai‘i and potentially elsewhere. For more information, contact Kalani.Quiocho@noaa.gov or see http://preserveamerica.noaa.gov/pdfs/paig17_recip.pdf.

PMNM Teaches Geology Lesson to Lunalilo Elementary Students (OEL-1.1, 1.3, NHCH-5.1)

On April 25, PMNM Education Specialist Kainoa Kaulukukui-Narikawa taught Lunalilo Elementary 2nd graders an interactive geology lesson. Students learned about how the Hawaiian archipelago was formed and the forces that lead to the formation of high islands, atolls and seamounts. Approximately 40 students and two teachers were in attendance. Lunalilo Elementary School is a Title 1 school, with 58 percent of their students qualifying for free or reduced lunches. For more information, contact Kainoa.Kaulukukui@noaa.gov.

PMNM Teaches Coral Lessons at Hau'ula Elementary School (OEL-1.1, 1.3, NHCH-5.1)

On April 10, 17, 24 & 27, PMNM Education Specialist Kainoa Kaulukukui-Narikawa visited Hau‘ula Elementary School to teach each class of kindergarten through third graders about the amazing structures and special adaptations of the coral polyp. Students learned about the symbiotic relationship between zooxanthellae algae and coral polyps, how coral polyps hunt, and what they eat. Students really enjoyed pretending to be a coral polyp and using their fingers as tentacles to hunt for popcorn “zooplankton.” Approximately 170 students and nine teachers participated. Hau‘ula Elementary School is a Title 1 school, with 67 percent of their students qualifying for free or reduced lunches. For more information, contact Kainoa.Kaulukukui@noaa.gov.

PMNM Staff and Partners Lead Trip to Ka‘ena Point Natural Area Reserve (OEL-1.1, 1.3, NHCH-5.1)

On May 6, PMNM staff and partners facilitated a hike and field experience at Ka‘ena Point for teachers and educators from across the state as part of the Nā Hopena A‘o (HĀ) Summit. HĀ is a framework of learner outcomes constructed by the Hawai‘i DOE’s Office of Hawaiian Education anchored in Hawaiian values, language, culture and history. The group hiked the grueling Keawe‘ula trail to Ka‘ena Point NAR, where participants rotated among three 30-minute stations. FWS Education Specialist Amy Olliffe and FWS Intern Kristy Lapenta taught participants about the fauna of Ka‘ena point, and the group observed humpback whales offshore, Hawaiian monk seals hauled out along the shoreline, and many seabird species including the Laysan albatross. DLNR Outreach & Education Specialist Kekai Mar and Restoration Manager David Anderson taught about the unique dune ecosystem of Ka‘ena and led the group in identifying rare native plant species and removal of invasive plants from sensitive Shearwater nesting areas. PMNM Education Specialist Kainoa Kaulukukui-Narikawa and Wai‘anae Intermediate School Science Coach Kekaha Spencer taught about the geology and Hawaiian cultural significance of Ka‘ena Point. Over 250 teachers and educators gathered from across the state to take part in the HĀ Summit, and 25 participated in the Ka‘ena Point field experience. For more information, contact Kainoa.Kaulukukui@noaa.gov or visit <http://www.hawaiipublicschools.org/TeachingAndLearning/StudentLearning/HawaiianEducation/Pages/HA.aspx>.



The view of the Keawe 'ula trail from within the Ka'ena Point. (Credit: Kainoa Kaulukukui-Narikawa/NOAA)

PMNM Staff and Partners Help Waianae Intermediate Students Navigate Change (OEL-1.1, 1.3, NHCH-5.1)

From May 1-5, PMNM Education Specialist Kainoa Kaulukukui-Narikawa taught students a set of three lessons to prepare students for their Ka'ena Point NAR experience and overnight stay at Camp Mokule'ia the following week. During the first lesson, students learned about the cultural significance of Ka'ena and the ways that the dune ecosystem at Ka'ena is similar to that found on some of the atolls of PMNM. During the second lesson, students learned about native plant and animal species that are found in both PMNM and within the Ka'ena NAR. During the third lesson, students learned about the issue of marine debris and completed an albatross bolus dissection. A total of 90 students participated in the in-classroom lessons. Wai'anae Intermediate School is a Title 1 school, with 78 percent of their students qualifying for free or reduced lunches.



Wai‘anae Intermediate students separate natural and man-made items while completing an albatross bolus dissection. (Credits: Kainoa Kaulukukui-Narikawa/NOAA)

On May 8 & 9, the Navigating Change program at Camp Mokule‘ia hosted 40 eighth grade students and three chaperones from Wai‘anae Intermediate School. Navigating Change hopes to change behaviors by rooting students in indigenous Hawaiian cultural knowledge, creating an awareness of ecological problems, and demonstrating how daily decisions can help resolve those problems. Camp Mokule‘ia Program Directors and PMNM Education Specialist Kainoa Kaulukukui-Narikawa led students through a series of educational activities, including: a marine debris clean-up and sort; a plankton and sand lesson; a night sky observation that included constellation and star identification; a lesson on the Hawaiian star compass, celestial navigation and wayfinding; an invasive plant removal and native plant out-planting; and various other PMNM-centered educational games.



Wai‘anae Intermediate students work together to put together a Hawaiian star compass puzzle at Camp Mokule‘ia. (Credit: Kainoa Kaulukukui-Narikawa/NOAA)

On May 9, the Wai‘anae students went on a special hike and field experience at Ka‘ena Point facilitated by PMNM staff and partners. The group left Camp Mokule‘ia before sunrise and took the Waialua trailhead to Ka‘ena Point NAR, where participants rotated among three 30-minute stations. FWS Education Specialist Amy Oliffe and FWS Intern Keely Hassett provided participants with binoculars to observe the fauna of Ka‘ena point including Hawaiian monk seals hauled out along the shoreline and many seabird species including the Laysan albatross and wedge-tailed shearwaters. DLNR Outreach and Education Specialist Kekai Mar and Restoration Manager David Anderson taught participants about the unique dune ecosystem of Ka‘ena and helped to remove invasive plants from sensitive shearwater nesting areas. PMNM Education Specialist Kainoa Kaulukukui-Narikawa and Wai‘anae Intermediate Teacher Bridgitte Russo showed students how to record phenology (cyclic and seasonal) data on three native plant species, ‘ohai (*Sesbania tomentosa*), naupaka (*Scaevola taccada*) and naio (*Myoporum sandwicense*).



Left: Wai‘anae students pull invasive weeds while at Ka‘ena Point NAR. Middle: Students pile invasive weeds into special composting bins. Right: Students record data on native plant species found within Ka‘ena Point NAR. (Credits: Kainoa Kaulukukui-Narikawa/NOAA)

For more information, contact Kainoa.Kaulukukui@noaa.gov.

PMNM Staff Presents at Nā Kama Kai Ocean Safety & Conservation Clinic (OEL-1.1, 1.3, NHCH-5.1, TES-1.5)

On May 14 and June 11, PMNM staff presented at the ‘Ewa Beach Park Nā Kama Kai clinic and Waimanalo Beach Park Nā Kama Kai clinic. Nā Kama Kai Ocean Safety & Conservation clinics, which occur once a month at different beach communities around the island of O‘ahu, aim to nurture a love of the ocean and a sense of responsibility for the environment. Participants rotate through five stations: Polynesian navigation with the Polynesian Voyaging Society, ocean safety, stand up paddle boarding, canoe paddling, and stewardship and conversation with PMNM Education Specialist Kainoa Kaulukukui-Narikawa or PMNM Communications Manager Toni Parras. For more information, visit www.nakamakai.org or contact Kainoa.Kaulukukui@noaa.gov or Toni.Parras@noaa.gov.



Left: kids enter the water for fun and ocean safety learning. Right: PMNM Communications Manager Toni Parras teaches kids about the endangered Hawaiian monk seal. (Credits: Toni Parras/NOAA)

PMNM Staff Participate in SAND Camp for High School Students (OEL-1.1, 1.3, NHCH-5.1, TES-1.5)

In mid-June, PMNM field technician Keo Lopes, deputy superintendent Randy Kosaki, and intern Lauren Kapono participated as instructors in SAND (Snorkeling and New Discovery) Camp, a ten-day summer marine science camp for high school students. The camp teaches reef ecology, organism ID, and basic coral reef survey methods, including fish and benthic transects. After learning the techniques during "dirt dives" on shore, the students practice the techniques in the water, and eventually complete an in-situ project to test a hypothesis of their own creation. Held on Hawai‘i Island, the camp, which was offered at

no cost to the students, was funded in its entirety by a grant from NMFS PIRO. For more information, contact randall.kosaki@noaa.gov.



Students practice coral reef survey methods at SAND Camp before entering the water. (Credit: Lauren Kapono/NOAA)

Mokupāpapa Discovery Center (MDC) Highlights (MCS-3.4; CBO-3.1; OEL-1.6)

Since April 15, the Mokupāpapa Discovery Center has welcomed 12,946 visitors. MDC staff also participated in numerous outreach, educational and community support activities, highlighted below.

- April 17-23, Hilo was packed with activities and visitors for the Merrie Monarch Festival. As part of the weeklong festivities, MDC hosted the Contemporary Hawaiian Quilt Show in the upstairs gallery, inspiring many new visitors to the facility.
- May 1-7, The biggest activity of the week was the hosting of Ka ‘Umeke Kā‘eo Papaku Makawalu Science Symposium for two days. Sixth-eighth grade students with the Hawaiian immersion public charter school practiced and then presented their year-long field projects in ‘olelo Hawai‘i (Hawaiian) and English to a panel of parents, teachers and agency representatives who had supported them. Topics ranged from limu (algae/seaweed) studies to native tree soil macro-nutrient comparisons. Ka ‘Umeke Kā‘eo qualifies as a Title 1 school (79.9 percent of the student body).
- May 8-14, the big event of the week was the hosting of the Hawai‘i Technology Academy’s (HTA) 2017 Learning Exhibition. Approximately 120 people came to see HTA students present their science and technology final projects. MDC also hosted and participated in the monthly Downtown Improvement Association meeting, working to bring more visitors to the area.

- Sylvester Orosco, Hawaiian Monk Seal response Manager and Animal Care Specialist for Ke Kai Ola (part of The Marine Mammal Center), spoke to a gathering of 40 people at May's Third Thursday Lecture by the Bay. Mr. Orosco highlighted 2017 as the Year of the Monk Seal, shared current knowledge on the highly endangered Hawaiian monk seal, and signed up volunteers to help with the monk seal count that weekend (May 20). Part of the facility was also rented out for a first birthday lu'au, where at least 125 community members celebrated and also joined the general public to learn and enjoy from the downstairs exhibits.
- MDC staff also welcomed longtime supporter and early advocate for the Northwestern Hawaiian Islands Coral Reef Ecosystem, Craig McLean, who is now Acting Chief Scientist and NOAA Assistant Administrator for Oceanic and Atmospheric Research. Included in the visit was Darren Lerner, Director of Sea Grant, and Darryl Kuniyuki, Director of Mauna Loa Observatory (MLO), along with staff from MLO. The visit also provided a special opportunity to showcase MDC's newest exhibit, Liquid Galaxy.
- PMNM Education Program Coordinator Andy Collins and MDC Acting Manager Virginia Branco hosted a Remembrance Ceremony for the 75th Anniversary of the Battle of Midway on June 5. The event, attended by 28 people, included a live broadcast from Midway National Wildlife Refuge and speeches by Hawai'i Island Mayor Harry Kim and U.S. Fish and Wildlife Service Refuge and Monument Supervisor for the Hawaiian and Pacific Islands Barry Stieglitz.
- MDC staff welcomed 687 visitors to a "World Celebration of the Ocean" event focusing on World Ocean Day, 2017 as the Year of the Hawaiian Monk Seal, and honoring the *Hōkūle'a* as it returns from its three year worldwide voyage (<http://www.hokulea.com/>).





Top Left: Kahuku Elementary (O'ahu) fourth graders write their questions and observations as they examine various jaw and skull replicas. (Credit: Justin Umholtz/NOAA) Top Right: HTA students and families peruse the final project posters. (Credit: Clayton Watkins/NOAA) Middle Left and Right: PMNM Education Coordinator Andy Collins shows off the new Liquid Galaxy exhibit and provides a tour of the facility. (Credit: Virginia Branco/NOAA) Bottom Left: Hawai'i Island Mayor Harry Kim and USFWS Refuge and Monument Supervisor Barry Stieglitz during the Midway Remembrance Ceremony. Bottom Middle: The Hawaii Tribune-Herald coverage of the Celebration of the Ocean event. Bottom Right: High school volunteers take a second to show the activities they helped with during the big day. (Credits: Virginia Branco/NOAA)

Research & Field Operations

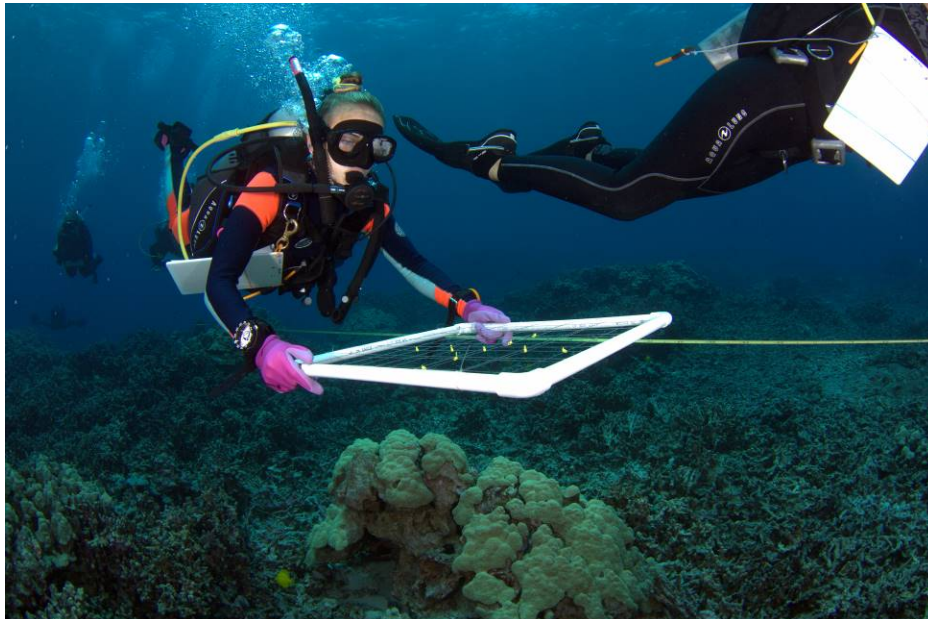
Mission Embarks to Explore the Sunken Heritage of Midway Atoll (MH-1.2, 3.1)

On May 2, maritime archaeologists embarked on an expedition to Midway Atoll to explore for sunken artifacts related to the historic Battle of Midway, one of the most decisive U.S. victories of World War II. This research will add an important maritime heritage component to what is known of the broader history of World War II in the Pacific. Archival research identifies at least 31 plane crashes within three miles of Midway Atoll, which is now Midway Atoll National Wildlife Refuge and Battle of Midway National Memorial, a part of Papahānaumokuākea Marine National Monument (PMNM). Researchers will spend two weeks exploring the shallow waters within three miles of Midway Atoll, where the famous air battle took place, in advance of the 75th Anniversary Commemoration of the Battle that will take place the first week of June 2017. This is a collaborative effort funded by NOAA's Office of Exploration and Research (OER), with support from National Parks Service, U.S. Fish and Wildlife Service, and the National

Marine Fisheries Service. For more information, contact Kelly.Gleason@noaa.gov or visit <http://www.papahanaumokuakea.gov/news/midway-expedition.html>.

PMNM Supports QUEST Field Course (MCS-1.2, 3.2, AC-3.2, CBO-3.3)

From May 13-17, PMNM staff supported the Quantitative Underwater Ecological Surveying Techniques (QUEST) field course at Kealakekua Bay on the island of Hawai'i. QUEST is an undergraduate for-credit course offered through the University of Hawai'i that teaches SCUBA-based coral reef ecological monitoring techniques. PMNM Deputy Superintendent Randy Kosaki guided students through field surveying exercises and mentored students on career paths in the fields of marine science and conservation. Kosaki also gave lectures on ongoing research efforts to characterize the unique biodiversity of PMNM, and described how students can get involved with research activities in the Northwestern Hawaiian Islands by applying for an internship to participate in PMNM research. Selected students will be further trained on O'ahu, and will sail as scientific divers on PMNM's signature Reef Assessment and Monitoring (RAMP) coral reef monitoring cruise. For more information, contact Randall.Kosaki@noaa.gov.



University of Hawai'i student divers learning quantitative benthic data collection techniques during QUEST. (Credit: Jeff Kuwabara/University of Hawai'i Marine Option Program).

Staff Changes

New Hires:

Keolohilani Lopes Jr., JIMAR/Field Logistics Technician

Departures:

Tia Brown, Permit & Policy Coordinator

Calendar

July 18-20 Hawaii Conservation Conference - Honolulu Convention Center

August 12 Get Into Your Sanctuary Day

October 20 (Friday) 8:30 AM - 2:00 PM SOEST Open House UH Manoa campus
October 21 (Saturday) 10:00 AM - 2:00 PM SOEST Open House UH Manoa campus