

Papahānaumokuākea Marine National Monument
Agency Report to the Reserve Council
May 12 – August 20, 2020

Agency: NOAA/NOS/ONMS/PMNM
Presented by: Athline Clark, Superintendent
Date: August 20, 2020

Agency Accomplishments & Recent Activities

Agency Coordination

PMNM Employee Volunteers to Help COVID-19 Patients

From May 4th to 31st, PMNM's Science Operation Associate, Stephen Matadobra, volunteered with a FEMA response to help the Navajo Nation as they surpassed New York with the highest rate of COVID-19 per capita infection rate. The pandemic was further exacerbated by the underserved Indian Reservation's limited access to resources with more than 30% of homes without running water, limited options for grocery's and some without electricity. With a background in emergency medicine, Steve worked directly with COVID-19 patients alongside a shorthanded staff of nurses, doctors and other medical professionals staffing up to 18 hour shifts. Describing his experience as both depressing and enlightening, Steve reflected on how the people of the Navajo Nation were amazingly close-knit people with a great spirit, and were very welcoming with a sense of Aloha very similar to the people of Hawaii. "They were extremely appreciative despite the effects of the pandemic ripping through their community." Through this experience, Steve has brought back a wealth of knowledge to help our Pacific Island Region deal with our current situation. His take home message as we move towards reopening is to take the situation seriously and follow the science. He stressed that facemasks, PPE, social distancing and washing your hands kept him and other medical staff safe. We greatly appreciate his unselfish effort to help others during these unprecedented times and be that positive light. For more information, contact Athline.Clark@noaa.gov.



Left; NOAA Diver Matadobra preparing to do a NOAA Scientific Dive (Leonard/NOAA). Right; Matadobra in PPE while volunteering to help with COVID-19 patients (Matadobra/NOAA)

Hau‘oli Lā Piha Makahiki Papahānaumokuākea! Happy Anniversary to Papahānaumokuākea!

On Monday June 15, 2020 Papahānaumokuākea celebrated it’s 14th anniversary with a virtual birthday party at noon. There were 134 people who registered to attend this celebration event with 92 who attended. Seven presenters shared a few words in honor of their favorite memories of the place and of people who have helped in this journey over the years. Guest speakers included John Armor, ONMS Director, William Aila, Jr. current RAC Chair, Tim Johns, former RAC Chair and current and former Superintendents from ONMS and USFWS. Through presentations, words of wisdom and song, the celebration of Papahānaumokuākea lasted for about an hour. Many who have been a part of the management and support of the site joined in the celebration. For more information, contact: Athline.Clark@noaa.gov



Hau‘oli Lā Hānau Papahānaumokuākea!

NFWF Grant Awardees for PMNM Announced

On June 24, the National Fish and Wildlife Foundation announced grant awards from the Papahānaumokuākea Research and Conservation Fund. Funded proposals included Community Engagement Programming for PMNM Discovery Center (\$200k to NMSF), Marine Debris Removal (\$299k to Papahānaumokuākea Marine Debris Project), Responding to Invasive Species and Hurricane Walaka Impacts (\$299k to University of Hawai‘i), Discovering Deepwater Habitats and Species in PMNM (\$122k to University of Hawai‘i), Understanding Impacts of the Invasive Alga (\$120k to College of Charleston), and Equipping Albatross with Radar-Detecting Tags to Monitor Fishing Around Papahānaumokuākea (\$216k to University of Oregon). The core portion of the funding was provided by ONMS, with greater than 1:1 matching funds contributed by grant applicants and NFWF donors. For more information, contact athline.clark@noaa.gov.

Constituency Building and Outreach

PMNM provides technical support for distance learning events

MDC staff provided technical support for National Marine Sanctuaries Webinar series and Kaua'i Ocean Discovery First Friday Speaker series. The talks featured Dr. Robin Baird, Research Biologist at Cascadia Research Collective and Dr. Mark Deakos, Hawai'i Association for Marine Education and Research. Dr. Baird's talk focused on Studying Whales and Dolphins in the Hawaiian Archipelago and Dr. Deako's talk presented new evidence of two genetically distinct Hawai'i manta ray populations separated by a mere 50 km. To view the talks visit: <https://sanctuaries.noaa.gov/education/teachers/webinar-series-archives.html>

PMNM partners with the Waikiki Aquarium

During the State of Hawai'i's stay-at-home order, the [Waikiki Aquarium](#) unveiled a variety of free virtual experiences and online educational resources for both residents and visitors to enjoy. Papahānaumokuākea was featured during the month of June and contributed talks on Mōlī or Laysan Albatross (*Phoebastria immutabilis*), Limu and Hurricane Walaka.

PMNM Scientist Gives Presentation to The Nature Conservancy Hawai'i

On June 10, PMNM research coordinator Randy Kosaki gave an online presentation to scientists, staff, and interns of TNC Hawai'i. The general focus was on the natural resources of PMNM, with an emphasis on exploration of mesophotic (deep) coral ecosystems. The primary audience was this year's cohort of TNC Marine Fellowship Conservation Program, joined by all other TNC Hawai'i staff. About 30 people logged in to the presentation. For more information, contact randall.kosaki@noaa.gov.

4th Annual (Virtual) World Oceans Day Celebration with Ko Olina

For the fourth year in a row, Ko Olina Resort in partnership with NOAA and PMNM and other community partners hosted a World Oceans Day Celebration. The event was held virtually on Saturday, June 13th. The virtual celebration featured storytelling with special guests, musical performances by Hawai'i's top entertainers, and education and sustainability activities with a strong career focus. The event was hosted by Kimi Werner, U.S. National Spearfishing Champion, culinary chef and award-winning artist. The 3-hour special event is accessible and can be viewed at: <https://www.facebook.com/OiwiTV/videos/819529471911665/>. For more information contact: naomi.mcintosh@noaa.gov, kahi.fuji@noaa.gov, and andy.collins@noaa.gov



Event was widely advertised on social media by our media production partner `Oiwi TV. Photo: `Oiwi TV



Dr. Cam Allen and Leon Geschwind host a live, interactive presentation on sea turtles during the program. Photo: Kahi Fuji

Papahānaumokuākea celebrates 10 years as a World Heritage site

On July 30, Papahānaumokuākea Marine National Monument marked 10 years as a mixed World Heritage site recognized for its natural and cultural attributes. Papahānaumokuākea is the only mixed World Heritage site in the United States. For more information, view [here](#).

Papahānaumokuākea celebrates a (Virtual) Get into your Sanctuary Day

The first-ever virtual Get Into Your Sanctuary celebrations over the July 31-August 2 weekend brought our expansive sanctuary system to the public in an innovative way. MDC staff joined sanctuary sites throughout the nation in bringing the place to the people through Facebook Live or Watch Party events. MDC's Watch Party included pre-recorded videos of Hawaiian cultural protocol and engagement with the conservation ethic of Aloha `Āina. Staff moderated the chat and provided relevant online resources during the broadcast to encourage our online audience to explore the rich natural and cultural resources of [Papahānaumokuākea Marine National Monument](#), see the impact of marine debris on the monument, and to reflect on our everyday actions and choices that affect our connections to and through the ocean. For more information, contact Malia.Evans@noaa.gov



Education

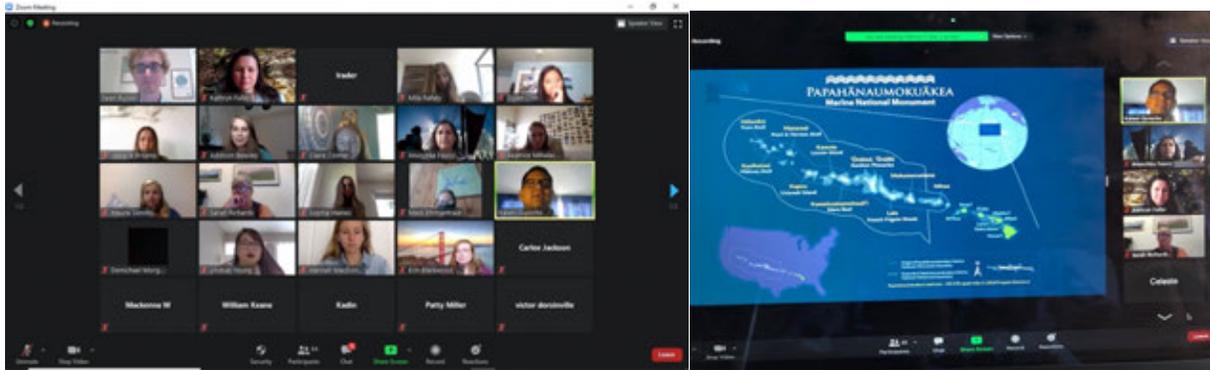
Stories in the Stone: Archaeology in Papahānaumokuākea Marine National Monument

On May 18, MDC educator Malia Evans presenting on the archaeological and ethnohistorical landscapes of PMNM for the [NOAA Live! Webinar Series](#). The partnership between NOAA's Regional Collaboration Network, Woods Hole Sea Grant, and the Woods Hole Oceanographic Institution targets grades 2-8. The interactive webinar hosted 238 participants from twenty states and five countries and almost 500 engagements. View the recording here:

<https://www.youtube.com/watch?v=nEhiGFMpcxU&list=PL1CGd4Scv4GICVRODGA8RRvzoCNN1IL8H&index=25>

PMNM Share About Ocean Heritage during National Marine Educators Association's Virtual Student Conference

On July 16, PMNM Native Hawaiian Program Specialist Kalani Quioco presented as an invited speaker for the National Marine Educators Association's (NMEA) Virtual Student Conference. The conference was open to full-time students, ages 13 and up, and the ages of student participants ranged from 13 to 27 years old with the median age of 17 years old. There were about 75 participants from all over the country and included some international students as well. The conference included a career panel of four speakers which showcased the work and experience of several marine conservation professionals and student research presentations. Kalani's presentation was entitled, "Understanding yourself can have an ocean of influence: a body of water, heritage, identity" and was inspired by the mission of both the NOAA Office of National Marine Sanctuaries and Papahānaumokuākea Marine National Monument, and the NMEA's Ocean Literacy initiative. The story shared about Native Hawaiian culture and heritage related to the ocean and used Hawaiian cultural metaphors and concepts to convey the lessons and experiences of Kalani's life which led to his current service and stewardship of Papahānaumokuākea.



Virtual presentation by Kalani Quiocho

2018 Exploration of Strange “Off-Ridge” Seamounts in Papahānaumokuākea Marine National Monument

As part of the National Marine Sanctuaries Webinar Series, and Mokuḗāpapa’s Third Thursday by the Bay Lecture Series, 502 formal and informal educators, students, and families registered for the 2018 Exploration of Strange “Off-Ridge” Seamounts in Papahānaumokuākea Marine National Monument by Dr. Christopher Kelley. 294 people attended the live presentation. 97% of attendees who completed the follow-up evaluation agreed that the content of the webinar made them understand that national marine sanctuaries and marine national monuments help protect the ocean and Great Lakes. 43% stated they plan to use this content within the next year, and 37% aren't sure yet. 100% of attendees are "very likely" and "likely" to attend a future presentation in the National Marine Sanctuaries Webinar Series with 99% likely to recommend this webinar series to others. If you are interested in being a guest presenter or would like more information about this webinar series, please contact Justin.Umholtz@noaa.gov and Malia.Evans@noaa.gov.

Notorious and Delicious: Exploring Sustainable Seafood

MDC Educator, Justin Umholtz co-hosted the webinar “Notorious & Delicious: Exploring Sustainable Seafood,” presented by Chef Allen Susser and viewed by 260 people from across the world. For more information, contact Justin.Umholtz@noaa.gov.

MDC APP Development

MDC Educator, Malia Evans’ APP Development class selected her proposal to create a prototype that will form the basis of a visitor app to Mokuḗāpapa Discovery Center. For more information, contact Malia.Evans@noaa.gov

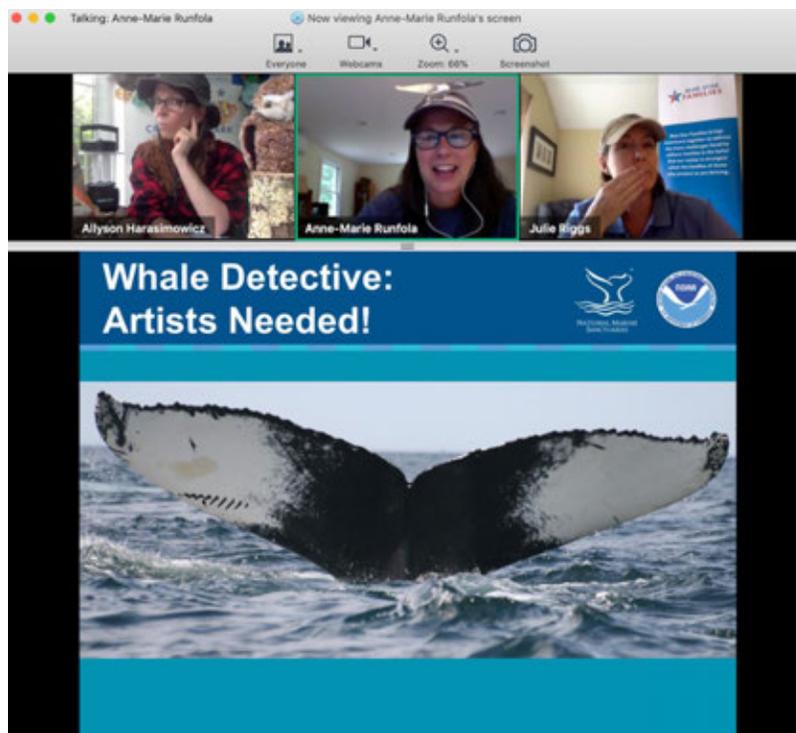
PMNM's EPP Scholars Present at Virtual Symposium

On July 27 and 29, PMNM's two NOAA Educational Partnership Program (EPP) undergraduate scholars presented the results of their summer internships in the virtual EPP Summer Symposium. Ms. Paola Santiago (University of Puerto Rico), mentored by Atsuko Fukunaga and Randy Kosaki, presented on "Habitat Characterization Using Three-Dimensional Reconstruction of Mesophotic Reefs in the Northwestern Hawaiian Islands". Mr. Sheldon Rosa (University of Hawai'i at Hilo), mentored by Kalani Quiocho and Randy Kosaki, presented on

"Identifying Marine Cultural Keystone Species for the Hawaiian Archipelago". Mr. Rosa received a third place award in the "Social Science and Weather-Ready Nation" category. Although the formal internship is finished, Ms. Santiago will continue working with Fukunaga and Kosaki on the same project, with the ultimate goal of peer-reviewed publication of her results. Similarly, Mr. Rosa hopes to expand on this work in graduate school. For more information, contact randall.kosaki@noaa.gov.

Support for Blue Star Military Families Campfire Webinar

On Friday, August 7th ONMS hosted a webinar in partnership with Blue Star Military Families Campfire Series. Blue Star Webinars is an on-demand program that delivers relevant content to military families on their schedule, as well as peer-to-peer networking and learning opportunities. For this campfire webinar Ann-Marie Runfola from Stellwagen Bank NMS and Stephanie Gandulla from Thunder Bay NMS gave interactive presentations with webinar hosting and moderation support from Andy Collins of Papahānaumokuākea MNM and Grace Bottotta from ONMS HQ. 136 families registered and 87 attended the broadcast with a 95.5% attention rate. Many participants submitted questions, were very engaged, and also submitted their drawing of a humpback whale from the guided activity. For more information contact Andy Collins, andy.collins@noaa.gov

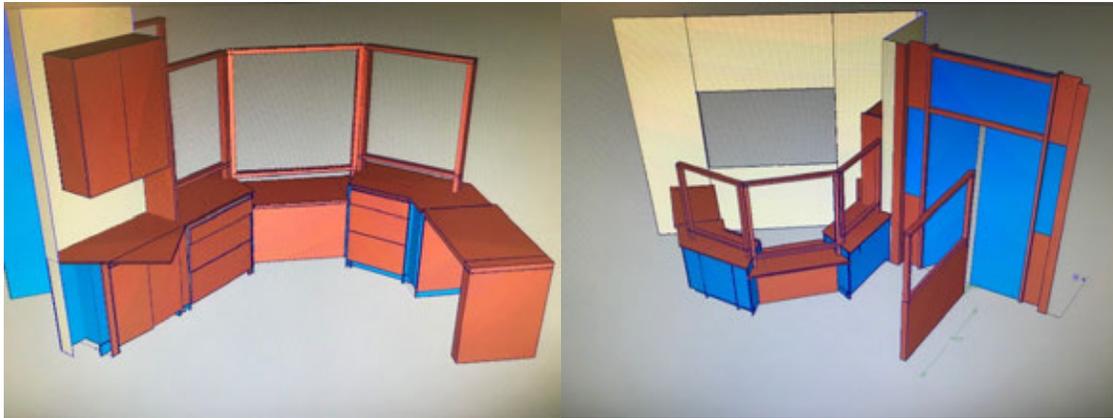


Caption: Anne-Marie Runfola/SBNMS leads a humpback whale drawing activity. Screen capture: Andy Collins/ONMS

Mokupāpapa Discovery Center (MDC) Report for May 12 to August 20, 2020

During the MDC closure, staff members remain committed to providing virtual learning opportunities to connect the community to PMNM and sanctuary sites throughout the country and have attended numerous webinars and training modules to incorporate best practices to enhance our online programming.

MDC staff also have been discussing how we make our center as safe, welcoming and engaging as possible; and how we learn from, support and inspire all of our community. Staff are beginning to discuss and plan for what a post-pandemic future will look like for visitor centers across the marine sanctuary system? MDC events coordinator Clayton Watkins has been envisioning modifications to MDC in anticipation of re-opening in the future. He is working on possible design elements to protect staff and visitors and create a safe interactive public space within MDC to help prevent the spread of COVID-19 and/or other contagions.



CAD drawings by Clayton Watkins for MDC's entrance include protective plexiglass panels at the front desk and entrance to maintain safe social distancing (Credit: Clayton Watkins/NOAA).

The Mokuapāpapa Discovery Center continues to support collaborations within the community. A research project funded by UH Hilo's Center for Tropical and Subtropical Aquaculture is utilizing native limu (macroalgae) collected from MDC to develop new aquaculture methods for native species. The *Caulerpa lentillifera* grown in MDC's aquarium filtration tank will enable researchers to determine optimal conditions for culture. MDC Manager Virginia Branco has cultivated a long-term relationship with Dr. Karla McDermid of UH Hilo's Marine Science Department and initiated the donation. Utilizing MDC grown macroalgae helps to protect the dwindling supply of native limu in our natural ecosystem while providing marine science students material for study. For more information, contact Malia.Evans@noaa.gov.

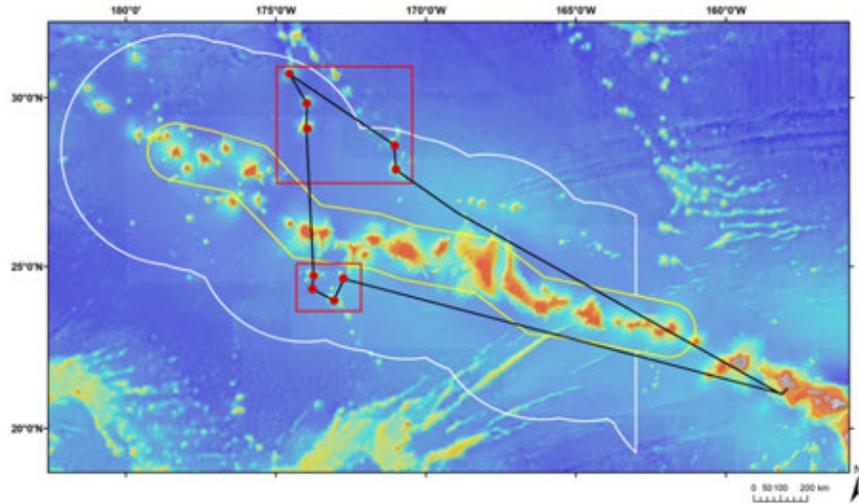


Caulerpa lentillifera (sea grapes) is widely consumed throughout the Pacific-Asia region thus ideal for aquaculture development (Photo: Karla McDermid/UH Hilo).

Research & Field Operations

PMNM Scientists Receive \$1 Million Grant for Deep-Sea Exploration

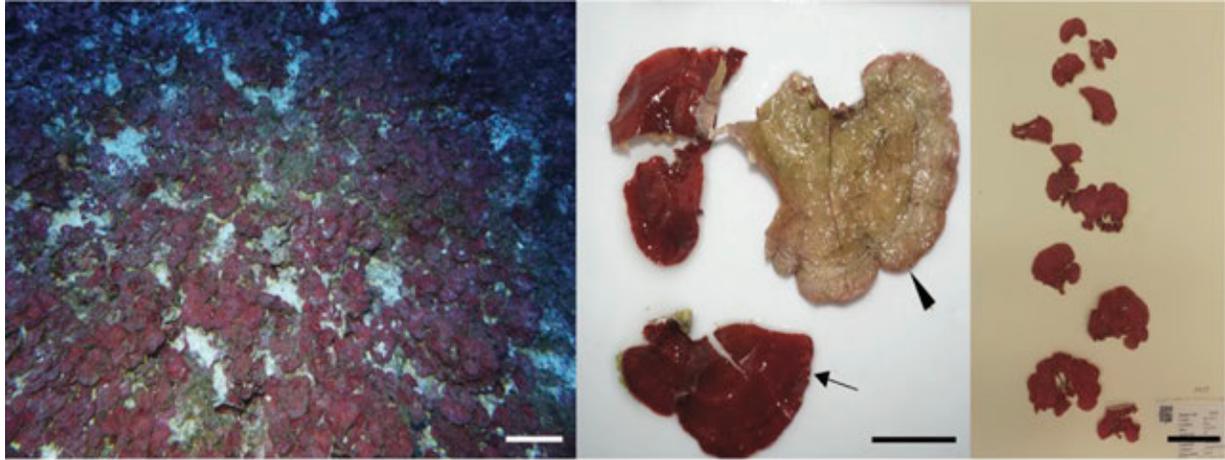
On May 12, PMNM scientists and proposal PIs Randy Kosaki and Atsuko Fukunaga were notified that ONMS will receive a \$1,000,000 grant from the National Oceanographic Partnership Program. The grant will support 33 days of deep-sea exploration aboard the Ocean Exploration Trust's vessel E/V *Nautilus*. In partnership with NOAA's Deep Sea Coral Research and Technology Program and the Oceanography Dept. of the Univ. of Hawai'i, the *Nautilus* will conduct telepresence-aided exploration of deep seamounts in PMNM's expansion area. Of particular interest are two clusters of seamounts. The linear arrangements of these two clusters suggest formation at a mid-ocean hot spot, but the orientation of their long axes suggests that they did not originate at the Hawaiian hotspot. It is hypothesized they formed in the southeast Pacific 80 million years ago during the Cretaceous period, and during subsequent years were tectonically rafted into the vicinity of the Hawaiian Archipelago. The proposed exploration will collect rock samples to confirm their age and geologic origin, and conduct biological surveys to investigate their communities and biodiversity. For more information, contact randall.kosaki@noaa.gov.



Map of PMNM showing the proposed cruise track (black), the northern and southern seamount clusters (red boxes), and the proposed mapping/dive sites (red dots). The yellow line surrounding the island chain represents the old 50-nm boundary of PMNM, and the white line represents the new 200-nm boundary.

Deep Reef Alga Discovered By PMNM Scientists Named After Deceased Rebreather Diver

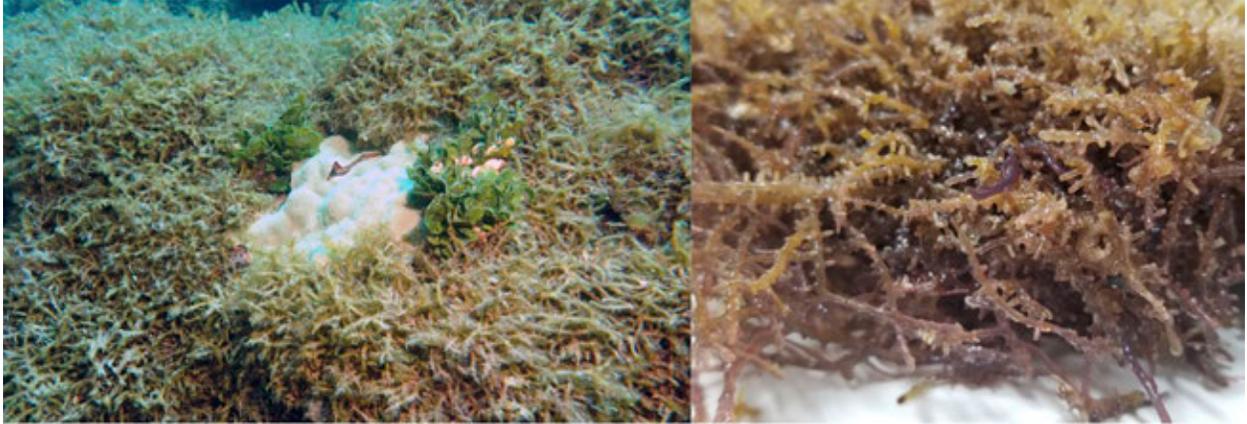
On June 15, a new species of mesophotic algae discovered by PMNM scientists was named in honor of rebreather diver and ichthyologist Dr. Joshua Copus. Copus was lost on a 380 ft. dive on an expedition to the Solomon Islands in November 2019. As a Univ. of Hawai'i graduate student, Copus participated in seven PMNM rebreather cruises to the NWHI between 2013 and 2019. His Ph.D. was awarded posthumously in May 2020. PMNM scientists Brian Hauk, Randy Kosaki, and Jason Leonard collected the type specimens of the alga on rebreather dives to 310 ft. at Kure Atoll, where this species was the dominant benthic cover at some sites. Copus was their dive buddy on two of the three dives when these specimens were collected. Named *Sonderophycys copusii*, CO1 and rbcL DNA sequences indicated that these specimens were distinct from all other known species of this genus. The peer-reviewed paper describing *S. copusii* by Alison Sherwood, Monica Paiano, Heather Spalding, and Randy Kosaki is available online at <https://www.e-algae.org/upload/pdf/algae-2020-35-5-20.pdf>. For more information, contact randall.kosaki@noaa.gov.



(Left) Bed of *Sonderophycus copusii* sp. nov. at Kure Atoll at 310 ft., illustrating the dominance of this species in these deep algal assemblages (scale bar 10 cm). (Center) Live specimens prior to being processed, showing both dorsal (arrow) and ventral (arrowhead) views (scale bar 3 cm). (Right) Image of the holotype (scale bar 5 cm).

Potential Invasive Alga Discovered on 2019 PMNM Cruise Named as a New Species

On July 7, research scientists from the University of Hawai‘i, PMNM, and other institutions named a new species of red algae from Pearl and Hermes Atoll. It was first noted in low abundances in 2016, and in August 2019 it was found to have increased in abundance to outbreak levels, exhibiting significant invasive characteristics. The previously unidentified alga was found in thick mats of up to several thousand square meters each, smothering and killing corals and all other benthic life beneath it. It remains unknown whether the new alga is a native species, or whether it represents an accidental or natural introduction from overseas. Specimens were examined with light microscopy and genetic analyses, placing it in the genus *Chondria*. Further genetic and morphological comparisons failed to match the new discovery to any known species of *Chondria*. The new species epithet, *tumulosa*, refers to its mound-forming morphology. Understanding the factors behind this outbreak is now one of the highest research priorities for PMNM. The peer-reviewed paper describing *C. tumulosa* is available online from the journal PLoS ONE at <https://doi.org/10.1371/journal.pone.0234358>. A [press release](#) was coordinated with the University of Hawai‘i, resulting in thousands of news stories, including [Associated Press](#), Washington Post, LA Times, ABC News, USA Today, Science Daily, and the [New York Times](#). For more information, contact randall.kosaki@noaa.gov.



(Left) Chondria tumulosa overgrowing the endemic native coral Porites evermanni. (Right) Close-up of a Chondria tumulosa mat in the lab. Photos: Taylor Williams/U.H. Hilo and NOAA