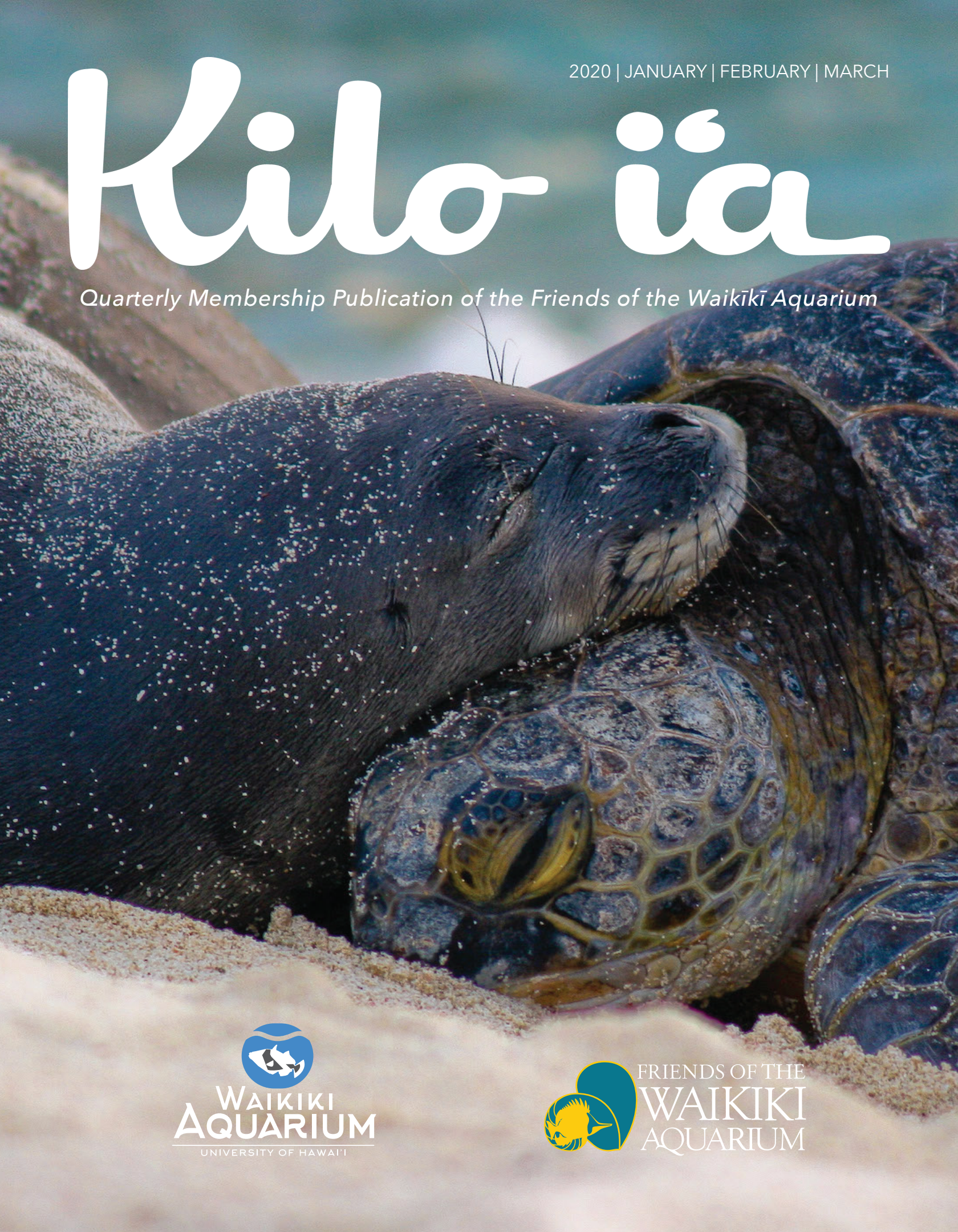


2020 | JANUARY | FEBRUARY | MARCH

Kilo iā

Quarterly Membership Publication of the Friends of the Waikīkī Aquarium





WAIKĪKĪ AQUARIUM MESSAGE

Kilo I'a
Issue Number 209
2020 | JANUARY |
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MANA'O

Traditionally, the kilo i'a was an expert of fish and marine life. He studied the behaviors and movements of i'a. The kilo stood at a high point of land overlooking the ocean to watch for an expected school of fish and steered the fishermen in the school's direction. The success of surrounding the school was entirely up to the kilo.

Happy New Year from the Waikīkī Aquarium! On behalf of the Aquarium staff and volunteers, thank you for your ongoing support of our mission to inspire and promote understanding, appreciation and conservation of Pacific marine life. We look forward to welcoming you in 2020 for other memorable opportunities to peer into the beauty and majesty of Hawai'i's underwater paradise.

In October 2019, I had the pleasure of meeting Tiare Terry, an inspiring young woman and champion of coral reefs. At such a young age, Tiare is a fierce proponent of protecting Hawai'i's coral reefs, and is actively taking steps to stop global warming and prevent coral bleaching. When she was just a sophomore, Tiare published a contributing article in *T S Times*, the seasonal publication of T S Restaurants, titled, "From Coral Reefs to Coral Graveyards: How Global Warming Has Killed 50% of Our Beloved Coral Reefs," in which she addressed the causes of coral bleaching and how community members can make a significant difference in the quest to stop global warming.

At a time when scientists are anticipating another massive coral bleaching event that could rival the unprecedented events of 2014 and 2015, it's inspiring to know that there are young people like Tiare who are not only educating themselves on the value of preserving coral reefs, but are actively working to do so. The next generation is filled with leaders like Tiare who understand the importance of sustainable practices in order to save the world's coral reefs, and it brings me great joy and hope for the future.

If you're inspired by Tiare's story and compelled to do your part in order to save our coral reefs, there are many ways to help. Simple steps you can take in the new year include participating in invasive algae cleanups, raising awareness of coral bleaching, and reducing your carbon footprint.

Dr. Andrew Rossiter,
Director, Waikīkī Aquarium



UPCOMING EVENTS

Upcoming Seminar: "Discoveries from the Deep: New Limu from Hawai'i's Mesophotic Reefs," Dr. Alison Sherwood

**Wednesday, February 19, 3:30 pm in the
Waikīkī Aquarium Classroom**

Collections made by submersibles or using technical diving have yielded thousands of new algal specimens that we are analyzing in the context of what we know about the shallow water algae of Hawai'i, as well as the mesophotic (deep water) flora of other regions of the Pacific. In this seminar, Dr. Alison Sherwood will present background and new data highlighting recent discoveries of algal diversity from the mesophotic coral ecosystems of the Hawaiian Islands. She will look at several case studies from different groups of algae to examine patterns of diversity. Over the next several years, her team will be characterizing as many of these collections as possible to describe new biodiversity and to learn more about how unique these mesophotic algae are relative to the shallow water species, and to investigate the ecological role of mesophotic algal communities in the Hawaiian archipelago.

Other Upcoming Seminars

January 15, 2020

Sea Turtles in the Pacific Islands by Dr. Camryn Allen

February 4, 2020

Cetaceans (whales and dolphins) in
Papahānaumokuākea by Dr. Robin W. Baird

February 13, 2020

Nānā I Ke Kumu: Look to the Source by Kalani Quiocho

Ke Kani O Ke Kai 2020

Join the Friends of the Waikīkī Aquarium this summer for the return of our annual Ke Kani O Ke Kai summer concert series, featuring live local entertainment under the stars on the Aquarium lawn. Presented by Outrigger Hotels and Resorts, this year's concerts will feature some of Hawai'i's top artists, with food and refreshments available for purchase from new and returning restaurants.

The five-night concert series takes place every other Thursday evening as follows:

June 18, 2020

July 2, 2020

July 16, 2020

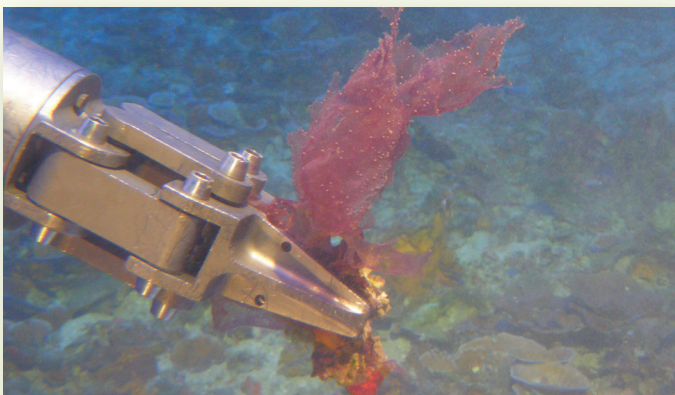
July 30, 2020

August 13, 2020

Doors open at 5:30 p.m., with the concerts starting at 7 p.m. and concluding at around 9:30 p.m. Guests are encouraged to bring their own low sand chairs or beach mats for seating.

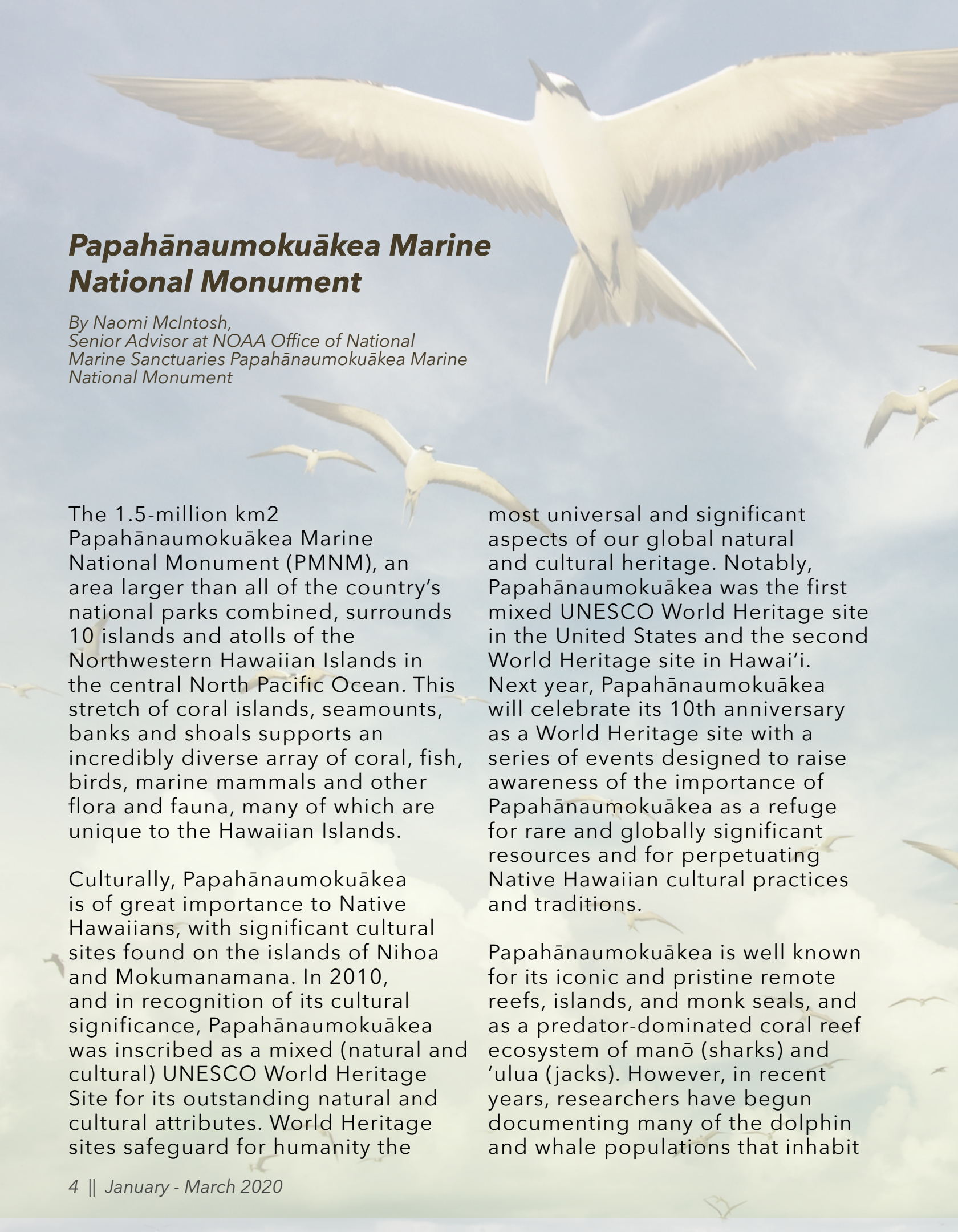
Tickets are priced at \$50 for adults, \$20 for children (ages 5-12) and free for children 4 and under. Tickets for FOWA members are priced at \$30 for adults and \$15 for children. Special series pricing, including single admission to all five concerts, will be available for \$200 general admission (\$75 for children) and \$120 for FOWA members (\$45 for children). Food, beer, wine and other beverages will be sold separately. No outside food or beverages are permitted.

Stay tuned for this year's spectacular Ke Kani O Ke Kai lineup, to be announced shortly!



*The newly described red alga, *Martensia abbottiae*, being collected by submersible from mesophotic depths in the main Hawaiian Islands.*





Papahānaumokuākea Marine National Monument

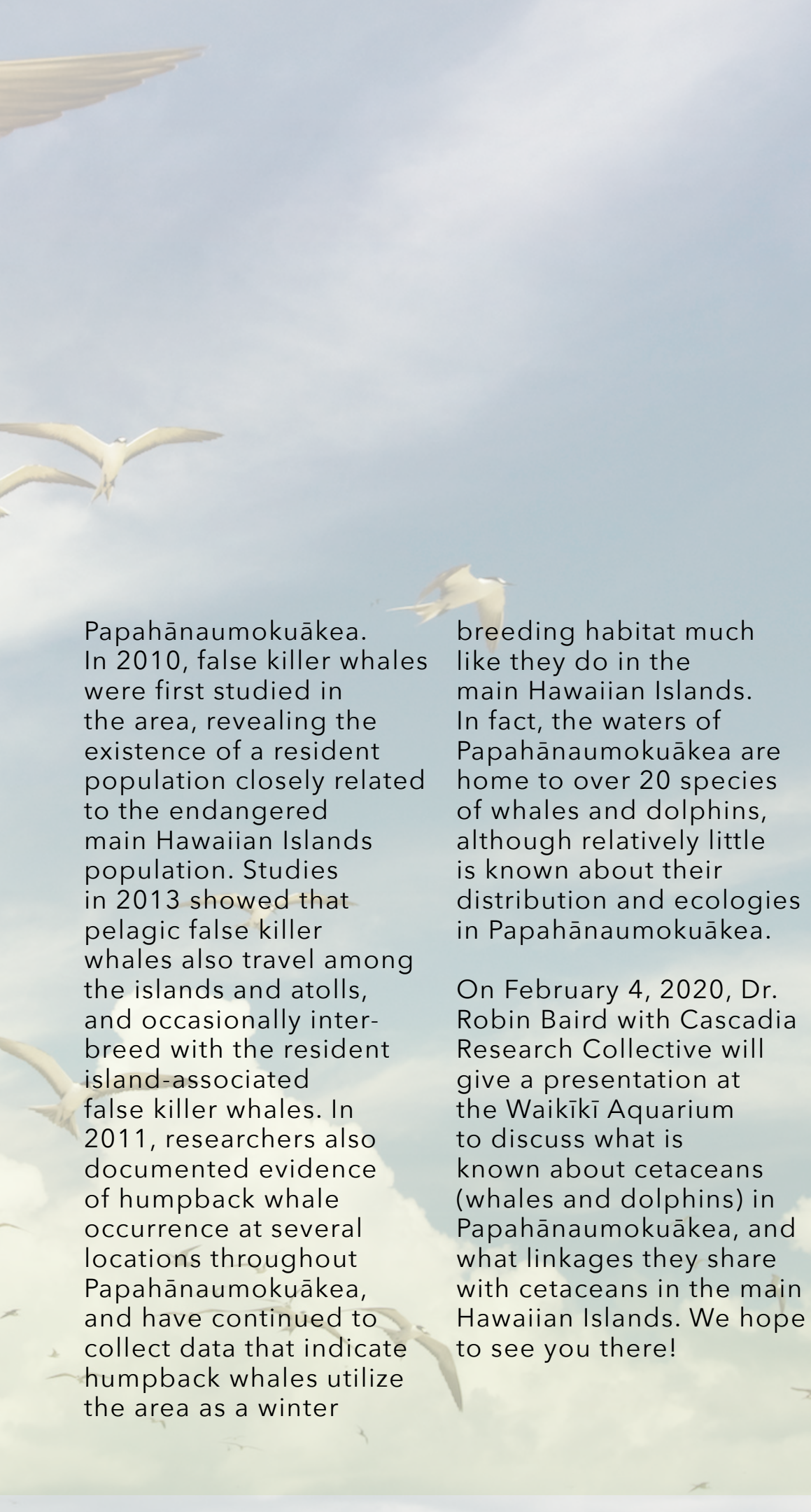
*By Naomi McIntosh,
Senior Advisor at NOAA Office of National
Marine Sanctuaries Papahānaumokuākea Marine
National Monument*

The 1.5-million km² Papahānaumokuākea Marine National Monument (PMNM), an area larger than all of the country's national parks combined, surrounds 10 islands and atolls of the Northwestern Hawaiian Islands in the central North Pacific Ocean. This stretch of coral islands, seamounts, banks and shoals supports an incredibly diverse array of coral, fish, birds, marine mammals and other flora and fauna, many of which are unique to the Hawaiian Islands.

Culturally, Papahānaumokuākea is of great importance to Native Hawaiians, with significant cultural sites found on the islands of Nihoa and Mokumanamana. In 2010, and in recognition of its cultural significance, Papahānaumokuākea was inscribed as a mixed (natural and cultural) UNESCO World Heritage Site for its outstanding natural and cultural attributes. World Heritage sites safeguard for humanity the

most universal and significant aspects of our global natural and cultural heritage. Notably, Papahānaumokuākea was the first mixed UNESCO World Heritage site in the United States and the second World Heritage site in Hawai'i. Next year, Papahānaumokuākea will celebrate its 10th anniversary as a World Heritage site with a series of events designed to raise awareness of the importance of Papahānaumokuākea as a refuge for rare and globally significant resources and for perpetuating Native Hawaiian cultural practices and traditions.

Papahānaumokuākea is well known for its iconic and pristine remote reefs, islands, and monk seals, and as a predator-dominated coral reef ecosystem of manō (sharks) and 'ulua (jacks). However, in recent years, researchers have begun documenting many of the dolphin and whale populations that inhabit



Papahānaumokuākea. In 2010, false killer whales were first studied in the area, revealing the existence of a resident population closely related to the endangered main Hawaiian Islands population. Studies in 2013 showed that pelagic false killer whales also travel among the islands and atolls, and occasionally inter-breed with the resident island-associated false killer whales. In 2011, researchers also documented evidence of humpback whale occurrence at several locations throughout Papahānaumokuākea, and have continued to collect data that indicate humpback whales utilize the area as a winter

breeding habitat much like they do in the main Hawaiian Islands. In fact, the waters of Papahānaumokuākea are home to over 20 species of whales and dolphins, although relatively little is known about their distribution and ecologies in Papahānaumokuākea.

On February 4, 2020, Dr. Robin Baird with Cascadia Research Collective will give a presentation at the Waikīkī Aquarium to discuss what is known about cetaceans (whales and dolphins) in Papahānaumokuākea, and what linkages they share with cetaceans in the main Hawaiian Islands. We hope to see you there!

Ho'ike'ike Pili Kai Papahānaumokuākea Celebration, Sunday, February 16, 9 am - 4 pm

Thanks to a grant by Hawai'i Tourism's Community Enrichment Program, Waikīkī Aquarium presents Ho'ike'ike Pili Kai, a series of three full-day celebrations in 2020 to delight kama'āina and visitors alike. The series kicks off with the first-ever Papahānaumokuākea Celebration on Sunday, February 16 from 9 am - 2 pm, marking the 10th anniversary of Papahānaumokuākea Marine National Monument as a World Heritage site for its valuable natural and cultural attributes.

In partnership with NOAA's Office of National Marine Sanctuaries, Papahānaumokuākea Marine National Monument, and other community partners, the Waikīkī Aquarium opens its doors for families to enjoy hands-on educational activities inspired by one of the largest marine conservation regions in the world. To commemorate this milestone anniversary, the Aquarium will host a variety of ocean education and sustainability activities featuring the islands and atolls of Papahānaumokuākea. Special guest artist Patrick Ching will also unveil a new Papahānaumokuākea coloring book.

Funding provided by Hawai'i Tourism through the Community Enrichment Program.



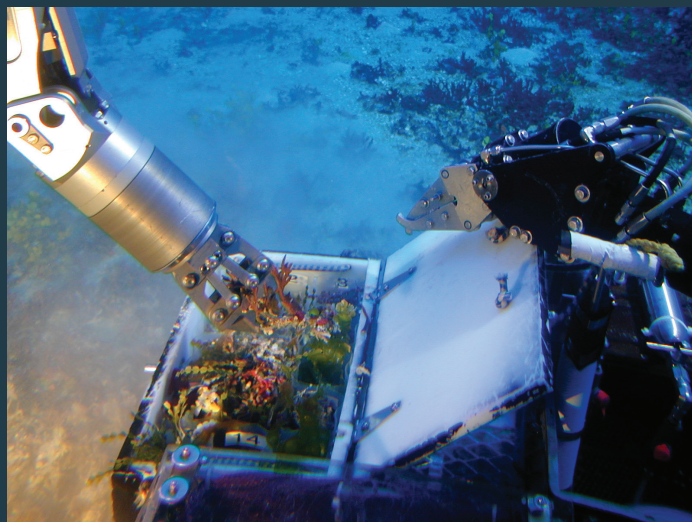
Discoveries from the Deep: New Limu from Hawai'i's Mesophotic Reefs

By Alison Sherwood,
Professor of Botany and Interim Associate Dean,
College of Natural Sciences, University of Hawai'i at Mānoa

Many people can recognize the more common seaweeds, or algae, along Hawai'i's shallow water coastlines. Examples include the familiar forms of sea lettuce (*Ulva*), ogo (*Gracilaria*), and limu kala (*Sargassum*). Imagine, however, a Hawaiian marine environment that most of us will never even visit, where biodiversity is abundant and mostly undiscovered. Mesophotic Coral Ecosystems, which, in Hawai'i, extend from approximately 30 to 150 meters in depth (or more), are precisely such an environment.

Through funding provided by the National Science Foundation and the National Fish and Wildlife Foundation, we are collaborating with the Papahānaumokuākea Marine National Monument staff and researchers who've made extensive collections of Hawaiian mesophotic algae using technical diving and submersibles in order to gain insight into how unique the deep-water flora is in relation to what we already know about the algae from Hawai'i's shallow water habitats.

Developing a comprehensive species checklist is a critical first step to learning more about these organisms. Under a changing climate, it will be important to know whether these deep reefs can serve as refugia for shallow water species—a scenario that would be supported if we demonstrate a high degree of species and population overlap between shallow and deep environments. We're also investigating the ecological role of these mesophotic algae, examining whether there are biogeographic connections between these algae and those from either shallow or deep habitats in other parts of the world.



Using a combination of microscopy and DNA-based analyses, so far, we've found approximately 92 percent of the species we've studied in detail are new: these are species that have never been seen before. Our current project is to name these organisms. Over the past couple of years, we've described new species in both the green and red algae, and continue our efforts with ongoing projects to describe more species of red, green, and brown algae. Now, as a clearer picture of the algal flora of these deep-water habitats emerges, we look forward to putting our new knowledge of the Hawaiian mesophotic flora to work as we conquer new tasks: understanding the role these algae play in these unique ecosystems, and investigating the adaptations that led to such a treasure-trove of unique species.

*Photos courtesy of University of Hawai'i
Undersea Research Lab Staff*

CLASSES & ACTIVITIES

Hawaiian Reef Animals

Mondays (except holidays) at 10:00 AM

Sneak a peek behind the scenes and learn about Hawaiian reef animals. Hold a sea star, feel a sea cucumber and feed an anemone. This half-hour program is a great addition to any visit to the Waikīkī Aquarium. Perfect for families with children four and up. For groups of five to 12 people, a private class can be arranged. \$2/person plus Aquarium admission.

Behind the Scenes

Wednesdays (except holidays) at 3:00 PM

Learn how our staff and volunteers care for our exhibits and animals with a behind-the-scenes tour! Peek behind the glass to inspect the tanks and explore the exhibits, then visit the Coral Farm and Jelly Hale, where sea jellies are raised. Accessibility is limited. Minimum age: 8 years; youngsters must be accompanied by an adult. Members: \$10 for adults and \$6 for children ages 7-12 (Non-members: \$16 for adults and \$10 for children ages 7-12, plus Aquarium admission).



Exploring the Reef at Night*

Wednesday, January 8, 2020 from 6:30 to 8:30 PM

Wednesday, January 22, 2020 from 6:30 to 8:30 PM

Friday, March 6, 2020 from 7:00 to 9:00 PM

Calling all thrill-seekers! Search for night-active crabs, lobsters and eels, then look for sleeping parrotfishes, triggerfishes and day octopuses in their dens. Participants should be comfortable in the ocean (day and night), be able to walk on uneven terrain, and see in low-light conditions. Bring a waterproof flashlight. Minimum age: 6 years; youngsters must be accompanied by an adult. Members: \$15 for adults and \$10 for children ages 7-12 (Non-members: \$20 for adults and \$15 for children).

**Note: Due to tide shifts and conditions, we are only able to offer this experience from late fall to early spring.*

SEASQUIRTS



FIND THE WORDS!



GOOD REEF VISITOR WORD FIND

THE REEF PROVIDES LIVING SPACE FOR MARINE LIFE OF ALL KINDS

BRITTLE STAR
MORAY EEL
SURGEONFISH

BUTTERFLYFISH
OCTOPUS
TRIGGERFISH

CORAL
SEA TURTLE
URCHIN

CRAB
SHARK
WORM

DAMSELFISH
SNAIL

LOBSTER
STING RAY

Artwork by A. Tsukamoto



Scavenger Hunt

Living Reef

1

SOFT CORALS HAVE POLYPS WITH
_____ TENTACLES. STONY

CORALS HAVE POLYPS WITH
_____ TENTACLES.

2

NAME 3 CORAL SPECIES ON
DISPLAY IN THIS EXHIBIT

1)

2)

3)

GALLERY 1

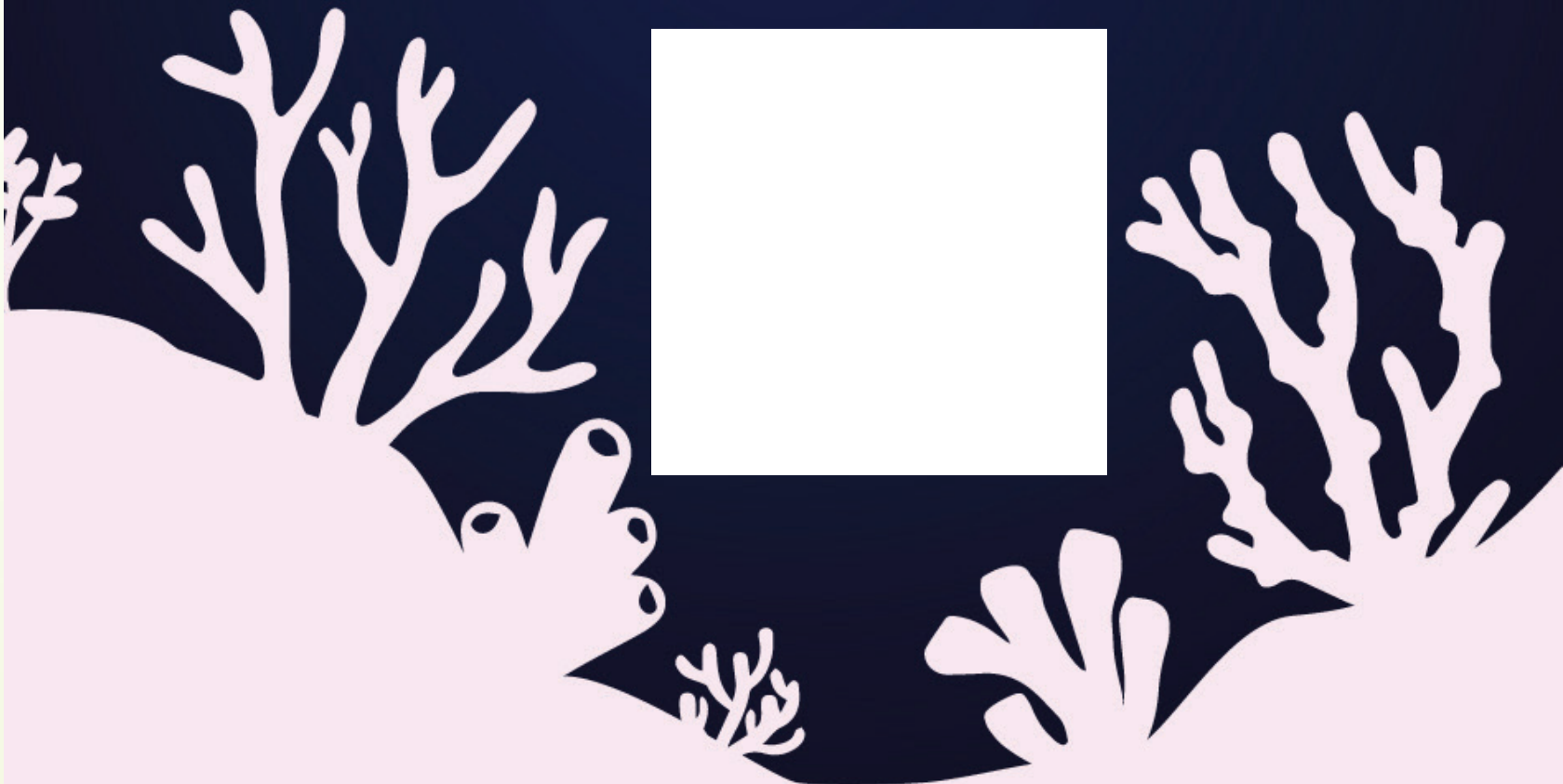
3

WHAT IS THE SCIENTIFIC NAME
OF THE LEAF SCORPIONFISH?

4

GALLERY 4

DRAW TWO TYPES OF FISH YOU
SEE IN TANK 42.



ANSWERS: 1) 8,6 3) TAENIANOTUS TRIACANTHUS

NEW & RENEWING MEMBERS

Brian & Cynthia Acosta
Lionel & Christine Aguiar
Shirley Alvaro
Ricky Amii
Colin & Laurie Anderson
Abbe & Elizabeth Anderson
Wesley Anzai
Liane Arakawa
Jon & Olga Archambeau
Kaori Arnone
Mr. Douglas and Dr. Ivy Asano
Mr. and Mrs. Babcock
Dr. Arlene Baldillo and Dr. Dwight Lin
Donald & Susan Bartley
Dorsey & Katherine Bass
Frances & Ladd Baumann
Sean & Wendy Baumes
Frank & Sara Baumholtz
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Davis & Lisa Benjamin
Zachary & Lorna Berg
Marilyn & Emily Boock
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Kulani Fernandez
Keaka Fernandez
Georgine Flores
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Natsuyo & Ranceford Yoshida
Howard Yoshiura
Dirk & Stacy Yoshizawa
Ponomaikalani Yoshizawa-Brown
Lauren Young
John & Shari Young

A close-up photograph of two harlequin shrimp on a coral reef. The shrimp are white with bright red spots and stripes. They have long, thin antennae and legs. The background is a blurred view of the reef with various corals and rocks.

CRITTER CORNER

Harlequin SHRIMP

The sight of a harlequin shrimp never fails to delight crowds of people, enchanted by its vibrant, almost psychedelic appearance. The distinctive spotted shrimp has flattened claws on the ends of its first pair of walking legs, which are important to its unusual feeding habit—harlequin shrimp are specialized predators on certain types of seastars. Reported to eat primarily Linckia seastars, the harlequin shrimp locates its prey by smell, using the petal-like sensory attenules on its head. Some researchers report that, after following the seastar's scent, the shrimp grasps one of the star's arms with its walking legs, and by doing a "hand stand" on its two large claws, it lifts the star's arm from the bottom. The shrimp then crawls underneath and completely overturns the slow-moving seastar, leaving it vulnerable to the shrimp's attack. The harlequin shrimp feeds on the tube feet and soft tissues by piercing the tough skin and internal skeletal framework with specialized claws and feeding limbs.

Although Harlequin shrimp live well below the intertidal zone on coral reefs in Hawai'i and throughout the Indo-Pacific, they are

relatively rare on reefs. Individuals rarely exceed two inches in length, and are frequently found in male-female pairs. Aquarists highly prize this ornate species, despite its need for a specialized diet of live seastars.

The harlequin shrimp is a decapod crustacean, and belongs to a group that includes many familiar shrimp and prawns, as well as lobsters, crabs, and hermit crabs. All crustaceans are members of the phylum Arthropoda, the animal grouping that's characterized by having an external skeleton and jointed limbs.

Harlequin shrimp may mate for life, and are fiercely protective of their family territory. Once the pair finds a suitable home in the reef, they're known to stay within the area for months or even years. Unfortunately, since the relationship between the shrimp and coral reefs is symbiotic, the bleaching and destruction of coral reefs has a negative impact on their habitat. Thankfully, communities everywhere are working to conserve coral reef systems, so we're confident this won't be the final act for the harlequin shrimp!

VOLUNTEER SPOTLIGHT

Volunteer Appreciation Event

On Monday, December 2, 2019, we had the pleasure of bringing together our hardworking and passionate volunteers for a special Volunteer Appreciation event. From 6 to 8 p.m., over 150 of our volunteers enjoyed a belated Thanksgiving dinner as they interacted with fellow volunteers and made special holiday memories.

The event began with a delicious turkey dinner by A Catered Experience along with the potluck pupu and desserts provided by attendees. Volunteers also enjoyed a holiday photo booth by Event Photo Solutions and participated in fun and creative “Build A Marshmallow Tower” and candy guessing games for the chance to win a

variety of prizes. Mahalo to our event sponsors Aqua-Aston Hotels, Diamond Head Luau, Duke’s Waikiki, Friends of the Waikīkī Aquarium, Hula Grill, Kualoa Ranch, and Maui Brewing Company for donating our door prizes!

Our Holiday Volunteer Appreciation event is one of two appreciation events we host annually to express our gratitude for the wonderful members of our volunteer ‘ohana who keep the Aquarium operating by donating over 19,000 hours of service every year. Mahalo for your support!



RECENT EVENTS

Distinguished Lecture Series

On Thursday, October 17, 2019, we had the pleasure of hosting Dr. Tim Tricas of the University of Hawai'i at Mānoa for his lecture titled "The 'Choral' Reef Fish of Hawai'i: Many Fish, Many Sounds, and Many Pictures." Sponsored by our long-time partner Matson and hosted at the Tenney Theatre at St. Andrew's Schools, Dr. Tricas's lecture offered insights on Hawai'i's coral reefs, the approximately 600 species of fish that inhabit them, and the new bio-acoustic technique that's invaluable to coral reef research. Stay tuned for more information on our next Distinguished Lecture for 2020!



Makahiki

On Saturday, November 2, 2019, we celebrated the Hawaiian New Year and season, Makahiki, with an authentic Hawaiian procession and series of fun and challenging games. Following a traditional procession of Akua Lono and Akua Pa'ani, guests enjoyed a variety of pa'ani (games) with Umi Kai o Pa Kai A Lua, including Ulumaika (stone bowling), Moa pahe'e (dart slide), Kulakula'i (chest slapping), Hakaka a moa (lua using feet, legs, shoulders, and head), Pa uma (wrist wrestling), Honuhonu (sitting game), and Konane (checkers).

Fall Fest 2019

On Saturday, November 16, 2019, we celebrated FOWA members and the Hawai'i community alike with a full day of family friendly events, including Waikiki Laulima and 2019 Members' Night.

From 9 a.m. to 2 p.m. in partnership with the Honolulu Police Department (HPD) District 6 (Waikiki) Community Policing Team and Jefferson Elementary School, the Aquarium hosted Waikiki Laulima, a canned food drive for the Hawaii Foodbank and special family day. Event highlights included a creative visual display courtesy of LEAHI - LEGO Enthusiasts Association of Hawaii, hands-on fun with Pigtails & Crewcuts, and an education station by the Aquarium. HPD's Waikiki Community Policing Team's blue light, SWAT and canine units were also on-site for guests to enjoy.



The festivities continued from 5:30 to 8 p.m. with Members' Night, an evening full of fun! We rocked out to Uncle Wayne and the Howling Dog Band and enjoyed a variety of activities along with delicious food from Simply Ono and Banán. Hope to see you all next year!

Mahalo to everyone who joined us for an unforgettable Fall Fest 2019!



FOWA HAPPENINGS

FOWA Website is Now Live!

The year 2019 brought many exciting opportunities and changes for the Friends of the Waikīkī Aquarium, one of which was the launch of our new website! In order to provide members with the most up-to-date news and potential members with membership benefits and information, we launched a new site dedicate to FOWA. We're pleased by the site's fresh look, beautiful imagery and responsive design, and we hope you'll enjoy browsing through it as much as we do. Visit **fowaquarium.org** today!

Ways to Support FOWA in 2020

Thanks to your support, the Friends of the Waikīkī Aquarium were able to make significant contributions to the Aquarium in 2019, one of which was the upgrading of umbrellas on-site. The new umbrellas offer much-needed shade for our hardworking volunteers who provide educational outreach at the Edge of the Reef and Monk Seal exhibits. They also provide our guests with a breezy place to enjoy the refreshing Hawai'i air. Your donations to FOWA helped to fund this project, so mahalo nui loa!

As we look to the future and eagerly await what the new year will bring, we're asking the community to consider supporting our organization by giving in one of the following ways:

- **Maintain your membership:** For existing FOWA members, one of the easiest ways you can give is by simply maintaining your membership! Best of all, membership renewals can now be accessed online at our fowaquarium.org. Enjoy the ease of immediately signing into the system and saving your paperwork from anywhere. Your membership documents will still be mailed to you as normal.
- **Huki Up!** Last quarter, we launched our new Huki Up campaign, which is inspired by the Hawaiian concept of huki, or, "to pull or tug; to draw, stretch, or reach; to support." Continuing our campaign for 2020, we're asking members to consider rounding up your membership fee to include a donation to FOWA. When you opt to "huki up" at a value of \$25 or more, you'll receive a limited-edition FOWA dry bag!



SEA WALL OF FAME

Mahalo to all for supporting the Waikīkī Aquarium through generous donations. The beautiful exhibits at the Aquarium and the valuable research and conservation efforts taking place behind the scenes are the direct results of your support.

Freeman Foundation
John R. Halligan Charitable Fund
Nadao & Mieke Yoshinaga Foundation
Kalapa Family Charitable Fund,
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Madelyn Ross Fund of the Hawaii Community
Foundation
Weissman Family Foundation

Marilyn & Steven Katzman
Dr. & Mrs. Ted Grisell
David Lawrence
Dennis & Susan Mathewson
Tina Nakasone

Duke's Waikiki
Matson Ka Ipu 'Aina Program
Garden Club of Honolulu
Hui Ku Maoli Ola

MAHALO TO OUR MEMBERS' NIGHT 2019 SPONSORS & PARTNERS



MAHALO TO OUR PARTICIPANTS





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January - March 2020



Save the Date: Ke Kani O Ke Kai 2020

June 18, 2020

July 2, 2020

July 16, 2020

July 30, 2020

August 13, 2020

Stay tuned for information on how to purchase tickets!