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Quarterly Membership Publication of the Friends of the Waikīkī Aquarium

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Kilo I'a Issue Number 208 2019 | OCTOBER | NOVEMBER | DECEMBER

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WRITE TO US AT

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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. This summer, record-breaking temperatures were tracked around the globe and in Hawai'i, where temperatures exceeded 90 degrees F for several days in a row. These conditions, while certainly uncomfortable, are also potentially life-threatening. In the sea around our islands, water temperatures are also higher than normal—around three degrees higher than what we typically experience at this time of year.

A recent scientific analysis by the National Oceanic and Atmospheric Administration has predicted that these temperatures will continue to rise, and that within the next two months Hawai'i will experience a coral bleaching event that matches or exceeds the unprecedented bleaching events of 2014 and 2015. In those years, west Hawai'i experienced a 50 percent mortality rate, and Maui a 20 to 30 percent mortality rate. Although corals can recover from moderate levels of heat, if such temperatures are prolonged, many corals will die.

The 50 percent coral mortality rate that Australia's Great Barrier Reef experienced between 2013 and 2017 has been largely attributed to a similar extended spell of above-average temperatures. The state's Department of Land and Natural Resources, Division of Aquatic Resources (DAR) has already documented some bleaching, in addition to paling (an early sign of impending bleaching) of corals in west Hawai'i.

These are certainly dire times, so what can you do to help?

First, help by fulfilling DAR's request that swimmers, snorkelers and divers report where and when they see both bleaching and healthy corals. The healthy corals may provide invaluable insights into how some corals are better able to survive, and may complement the multi-pronged studies of this phenomenon currently underway at the University of Hawai'i's Institute of Marine Biology on Coconut Island. Sightings of bleaching and healthy corals should be reported to DAR at http://hawaiicoral.org.

Another way to help is by supporting the Waikiki Aquarium. We are internationally renowned for our expertise in coral propagation, and house many threatened or rare Hawaiian corals in our Coral Ark holding facility. We have decided to expand this program to three times its present size in order to house native corals. Time is of the essence, and our objective is to identify heatresistant corals and to propagate these as a source for replanting reefs that have been severely affected. To achieve this, we have introduced a matching funds program, where every dollar you donate to this program will be matched. If you're interested in supporting the Aquarium in this way, please email me at andrewro@hawaii.edu.



Dr. Andrew Rossiter, Director, Waikīkī Aquarium

FOWA MESSAGE

Aloha,

We enjoyed quite a summer at the Aquarium! Our Ke Kani O Ke Kai summer concert series was a great success, and it was wonderful to reconnect with old Aquarium friends and meet new ones, including many of our generous sponsors. I also had the opportunity to meet and work with some of our 200+ volunteers, all of whom are an integral part of making the concerts a huge success and keeping the programs at the Aquarium running. We are so fortunate to have such a dedicated group of volunteers as part of our 'ohana!

A healthy ecosystem requires different organisms, each one playing its individual role, to maintain itself and prosper. Just like a marine ecosystem, it takes a diverse community to keep an organization like the Aquarium thriving. From the hardworking staff and volunteers to our sponsors and devoted board members and you, our members, we all contribute to making the Aquarium a place visitors and locals want to visit and provide opportunities to support our mission.

In the spirit of community support, we are excited to announce the launch of our first annual Huki Up Campaign this fall. Huki in Hawaiian means to pull, and it also means to support. Just as in the song "Hukilau, many people are needed to pull up the net, which is then celebrated with a gathering. This annual campaign will generate funding to provide continued support for our Volunteer and Educational Programs as well as capital improvement projects. To celebrate, we invite you to attend the annual Members' Night on Saturday, November 16 for music, food and fun education activities for keiki. We will also be giving out a limited number of FOWA logo items for those who participate in the campaign. Please see details on the Huki Up Campaign and Members' Night on page 5.

We invite you to explore more ways to contribute and increase your impact on the Aquarium. Whether you decide to volunteer or participate in the Huki Up Campaign, let's give the Aquarium opportunities to thrive and flourish!



Lee Higa-Okamoto Director, Friends of the Waikīkī Aquarium



The Friends of the Waikīkī Aquarium (FOWA) is the membership organization of the Waikīkī Aquarium. Its purpose is to support the mission of the Waikīkī Aquarium to inspire and promote understanding, appreciation and conversation of Pacific marine life. The members of FOWA are individuals and organizations interested in the purposes of the Waikīkī Aquarium.

FOWA's Board of Directors is the governing body of this support organization made up of committed and generous individuals who support the Waikīkī Aquarium in numerous ways.

BOARD OF DIRECTORS

Christopher Cole - Co-Chair Dirk Yoshizawa - Co-Chair Beth Churchill - Vice Chair Chuck Kelley - Secretary Jennifer Isobe - Co-Treasurer Alan Matsui - Co-Treasurer Tim Guard Charlie Loomis Monica Salter Nancy Taylor Bryan Tepper Dave White

Fish Soundscapes Can Help Monitor Coral Reef Health

Dr. Tim Tricas, Department of Biology, University of Hawai'i at Mānoa

Almost anyone who's taken a walk has heard the rush of wind through the trees, the songs of birds, the clicks of insects, the barking of dogs, and the sound of passing vehicles. Few of us, however, have submerged our heads in water over a coral reef to hear the boom of a crashing wave, the pops of snapping shrimp, the chirps of fish, the moans of whales, and the hum of a passing motorboat. This cacophony of sound represents the "soundscapes" of the land and the coral reef environments, which can vary in composition based on their location, time of day, weather conditions, local inhabitants, and proximity to humans. The soundscape allows us to hear and recognize our environment, even without opening our eyes or testing the habitat with our other senses.

Hawai'i's coral reefs have a diverse number of fish species that produce sounds during their daily activities. Divers using underwater rebreathers are able to follow the fish for long periods of time and record the sounds produced during their natural behaviors. Many of these sounds are unique to different species, such as the knock sound of the 'ū'ū (mempachi) when approached by a potential predator, the train of grunts produced by a female humuhumu (triggerfish) when guarding her nest from egg predators, the brief click of a spawning lau'ipala (yellow tang), or the booming pulses of a pyramid butterflyfish used to attract a mate. Healthy coral reefs are of great value in Hawai'i because they serve as a key food resource, attract tourists, and protect coastal communities from the destruction of waves and storms. Many coral reefs around the world are declining due to warming ocean temperatures and other environmental impacts. It is vital, then, for coral reef managers and the general public to be aware of the condition of their reefs, and be able to monitor for changes in the environment. However, the living reefs around the main Hawaiian Islands cover an area of about 600 square miles, with more than 4,000 square miles of reef in the Papahānaumokuākea Marine National Monument to the northwest. Can managers possibly use the fish soundscape at these distant locations to provide an indication of coral reef health?

One example is the uhu parrotfish, a prominent herbivore and major agent of community balance on the coral reef. The uhu has a large, parrot-like beak that is used to excavate coral rock and feed on the algal matrix on the bottom. Their feeding activity controls blooms of algae, creates new patches of coral reef for juvenile corals, and distributes coral sand to cement and strengthen the reef. A very unique type of sound is produced during each bite as the beak scrapes the bottom. Long-term underwater recordings of this sound can be used to estimate the feeding activity of these important reef custodians without having to enter the water to observe them. Thus, we can listen to the "uhu soundscape" to obtain important information on their maintenance of the living reef.

FOWA members are the heartbeat of our organization, and we're so excited to celebrate our fantastic members at this year's FOWA Fall Fest: Members' Night 2019. On Saturday, November 16 from 5:30 to 8 p.m., the Aquarium is opening its doors for members to enjoy fun activities, live entertainment, delicious food and more at this popular annual event.

Throughout the evening, FOWA members and the general public will enjoy prize giveaways, live entertainment, and hands-on educational activities courtesy of the Waikīkī Aquarium, the Department of Facility Maintenance Storm Water Quality Branch, and others. Food will be available for purchase from Simply Ono and Banán, with a portion of the proceeds to be donated to FOWA. Drinks will also be available for purchase, courtesy of Kona Brewing Co. and Pepsi.

Free for FOWA members, the annual Members' Night event is also open to the Hawaii community. Admission for non-members is \$10 per adult and \$5 per child (4-12 years old). Purchase your tickets today at www.eventbrite. com/e/fowa-fall-fest-members-night-2019tickets-67094927735.

Mahalo to Maya Lutao & Family!

Maya Lutao may be little, but she's making a big difference for the Friends of the Waikīkī Aquarium! She celebrated her 1st birthday in May, and in lieu of gifts, Maya had her friends and family make a donation to FOWA. She raised over \$3,000 to support the Aquarium's mission to inspire and promote understanding, appreciation, and conservation of Pacific marine life. Mahalo to Maya Lutao and her family for the generous donation!



Huki Up Campaign

In 'ōlelo Hawai'i, *huki* is translated as "to pull or tug; to draw, stretch, or reach; to support." Inspired by the concept of *huki*, we're inviting you to upgrade your FOWA membership with our new Huki Up campaign. Please consider rounding up your membership fee to include a donation of \$25 or more to the Friends of the Waikīkī Aquarium. When you opt to "huki up," you'll also receive a special surprise gift!

Membership Upgrades

- Seniors \$35 to \$60+
- Individual \$45 to \$70+
- Grandparent or Family \$65 to \$90+
- Family Plus \$90 to \$115+

Ways to join include:

Online: Register online at www.waikikiaquarium.org using a credit card

Mail: Download then submit a form-fillable Membership Application Form. **Mail to:** Friends of Waikīkī Aquarium 2777 Kalākaua Avenue Honolulu, HI 96815

Phone: Call our Membership Office at (808) 440-9054



We welcome your donations towards a specific item on our wishlist. If you have any questions please contact MaryLou Foley at (808) 440-9027.

RESEARCH

\$500 WATER QUALITY EQUIPMENT

\$500 MICROSCOPE & LAB EQUIPMENT

LIVE EXHIBITS

\$400 LIVE FOOD FOR SEAHORSES (1 week)

\$300 SQUID, SMELT, & HERRING (1 week)

> \$500 LED LIGHTING

\$1,500 FOOD PREP COMMERCIAL BLENDER

> \$2,500 ICE MAKING MACHINE

\$1,200-7,500 RADIO AIR TIME

\$25,000 ENERGY EFFICIENT AQUARIUM IDENTITY MINI SUV

GRAPHICS

\$2,200 CANON IMAGE LARGE FORMAT INKJET PRINTER

\$2,000 GRAPHICS WORKSTATION

EDUCATION \$500 FISH ID CARDS

\$300 COLORING TABLE POSTERS

INFORMATION TECHNOLOGY

\$5,000 DIGITAL DISPLAY

VOLUNTEER SUPPORT

\$960 SONY ALPHA 711 CAMERA

\$480 INTERPRETIVE STATION UMBRELLA MISTER

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\$360 FOLDABLE BABY STROLLER

\$150 STAND ALONE HAND SANITIZERS

FACILITIES

\$600 SOUND SYSTEM

> **\$300** PODIUM

\$500 OUTDOOR LIGHTING SYSTEM

OPERATIONS & MAINTENANCE

\$2,500 WIDE AREA FLOOR VACUUM

> \$425 SHINDAIWA EDGER

\$350 NATIVE HAWAIIAN PLANTS

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Hawaiian Reef Animals

Mondays (except holidays) at 1:00 PM

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).

Aquarium's Top 5

Wednesdays (except holidays) at 1:00 PM

What animals are the most interesting to Aquarium guests? Learn more about our giant clam, those weird and wonderful seahorses, and other fish unique to the Aquarium during this short presentation, followed by a brief visit to the exhibits. Free with Aquarium admission.

Exploring the Reef at Night*

Friday, October 25, 2019 from 7:00 to 9:00 PM Saturday, November 23, 2019 from 6:30 to 8:30 PM Monday, December 9, 2019 from 6:30 to 8:30 PM Wednesday, January 8, 2020 from 6:30 to 8:30 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.





h. yellowbar parrottish, i. tantail tiletish, j. leat scorpiontish, k. bearded armorhead

a. spaghetti worm, b. rice coral, c. raccoon butterflyfish, d. banded coral shrimp, e. convict tang, f. dragon (moray) eel, g. tiger shark,

WAIKĪKĪ AQUARIUM **GCAVERIGER** HUNT



The sea anemone and the _____ protect each other from other fish and predators.





Draw two types of coral structures

3 VISIT GALLERY 2

How many sea stars do you see in Tank 22?



DUTSIDE EXHIBITS

What is the difference between a monk seal and a seal lion

Outside Exhibits. Sea lion has ears, monk seals do not use their flippers to walk, monk seals are solitary. while seal lions typically live in groups.

dailery 1. Clown Anemonetish

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 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 Frances & Ladd Baumann Sean & Wendy Baumes Frank & Sara Baumholtz Jaime & Melvin Benevides Davis & Lisa Benjamin Zachary & Lorna Berg Marilyn & Emily Boock Aimee & Gilbert Borrego Jordan & Zachary Boswell Dr. Kent W. Bridges and Dr. Nancy L. Furumoto Jimmy Brown and Kristin Muramo to-Brown Brady & Catherine Brown Trevor & Beth Brown Glenn & Linda Byers Vicente Cabalse Jr Anthony & Lovelyn Cabe Della & Todd Cahill Dr. Jeanne Carney and Anna Root Paula & David Carroll John & Susan Casper Ms. DeeAnn Celestino-Young Mr. and Mrs. Young Laurene Chan Elizabeth Chang Matthew & Gabi Chapman Matthew & Gabi Chapman Tan Yan Chen Elizabeth & Won-Yee Cheng-Leever Atsushi Chida Ms. Kristin Chong Clayton & Bridget Choo Devin & Sengsoth Choy Nelson N. Chun & Deborah Macer Chun Bradley & Penelope Chun Elizabeth Churchill Edward & Janet Clark Laura & Joel Clark Joleen Coito Teta Collins Renae Collister Evelyn Cox and Frank Stanton Mr. & Mrs. Eddie Davis Jasmin & Jonathan De Guzman Jose & Guia Deguzman John & Amber Delos Reyes Clark & Valerie Diamond Dan & Megan Dietrich Christine Dorrepaal Olivia Drago Sally E. Dunan Nobuko Earhart Dustin & Jen Eaton Kayla Eidson Todd & Jennifer Elrod Mrs. Stephanie England and Mrs. Brianne Smith Danielle & Kristopher Enos Michael & Susan Erne Kishore Erukulapati Roberto & Jenny Escalante Darci Evans-Higgins and Christopher Higgins M. Eleanor Fahrenwald Kulani Fernandez Keaka Fernandez Georgine Flores Daniel & Cherish Frates Michael & Elaine Freeth Rachel & Kirk Fritz Robin & Linda Fujikawa Jinny & James Fujimori Elizabeth & Dolores Furr Susan Gajan Elizabeth & Tehila Galea Reina Garcia

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The leopard coral (*Plectropomus*

grouper leopardus) is a large,

red to greenish brown fish covered in regularly spaced bright blue spots, and with a characteristic blue ring around the eye (may be broken up). Leopard coral groupers can rapidly change their color, and often assume a mottled pattern when hunting. Additionally, natural coloration of the leopard coral grouper can vary with diet, time of day, and their surrounding habitat. For example, a bright red fish color reflects a diet of prey items containing astaxanthin, such as micro-algae, krill, and shrimp.

With a particular penchant for prawns, the leopard coral grouper could be considered somewhat lazy, as it will rarely move outside of its small territory. (And who can blame them? After all, many of us like to sit at home on our couch eating our favorite food!)

Found throughout the tropical western Pacific Ocean, leopard coral groupers can often be seen in and around coral reefs, where they're snacking on prawns, crustaceans and fish. Here they display two distinct methods of hunting – ambush and prowling – which they do during daylight hours (most often at dusk and dawn). Interestingly, they may also change their skin color when feeding. With the ambush technique, this small predator will hide, remaining quiet and still before attacking passing prey. With the prowling technique, the fish will creep toward their target before suddenly attacking at great speed.

The Leopard Coral Grouper

CRITTER

CORNER

The largest growth period for this crafty fish, also known as coral trout, is in the first three years of its life. After the first three years, the fish slows until it finally reaches about two feet (60 cm) in length. Leopard coral groupers are also known to live up to the ripe old age of 18 years, and can weigh over 50 pounds (22 kg).

Leopard coral groupers are a favorite target fish for all sectors of the fishery because they are a good food fish and command high market prices locally and overseas. They also have a relatively high spawning frequency and annual fertility rate, which helps their population remain abundant and stable, even in the face of commercial fishing.

Another interesting fact is that these groupers are protogynous hermaphrodites, as they all begin life as females and may change their sex to male later in life. Research has indicated the rate and timing of this sex change differs in different areas of their native range.

Luckily, this species may be raised through aquaculture as well. Look for our new exhibit in Gallery 4 with groupers that were provided by the Finfish Aquaculture Department at the Oceanic Institute of Hawai'i Pacific University.

Kilo <u>'la || 11</u>



Taking Care of Our Aquatic Resources

By Brian J. Neilson, Administrator, Division of Aquatic Resources

The people of Hawai'i have always had a special relationship with their environment and its resources. From the uppermost reaches of streams to the deepest accessible ocean waters, aquatic life is woven into Hawaiian culture and traditions. At the Division of Aquatic Resources (DAR), it's our mission "to work with the people of Hawai'i to manage, conserve and restore the state's unique aquatic resources and ecosystems for present and future generations."

Accomplishing our mission comes with a number of challenges. Hawai'i is home to threatened and endangered species, like monk seals and sea turtles, whose survival we need to ensure. Habitat degradation results from a number of human activities. Invasive species can have devastating impacts on local ecosystems. Similarly, while fisheries need to be managed for subsistence, recreational, and commercial purposes, adequate data is often difficult to obtain. Global climate change and ocean acidification are causes for serious concern.

Although funding is also a challenge, we're fortunate to receive federal grants for sport fish restoration and coral reef management projects, among others. We also enhance our effectiveness by partnering with academic and non-governmental organizations. As a result, some of our research projects are at the cutting edge of technology. We use environmental DNA to detect the presence of invasive species, then formulate appropriate response plans. Computer software generates 3D models of reefs, and aerial surveys help us evaluate their health. Similarly, baited remote underwater video enables us to determine species composition and size distribution of fishes from estuaries to deep bottomfish habitat. DAR biologists conduct field surveys of stream, estuary, and marine resources on a continuing basis. Data obtained from these surveys is analyzed, and if analyses reveal potential problems, we need to take action. We also analyze data from commercial catch reports and recreational fishing surveys to look for trends.

Most people think of government agencies as being regulatory, and that is admittedly an important part of what we do. A big part of managing aquatic resources is managing people. If, for example, we need to reduce fishing pressure in an area or on a species, we'll do that through the administrative rule process or by working with the legislature. We also need to do a good job explaining to fishers why we're taking a particular approach. Although our agency doesn't enforce rules, we hope that if people understand the need for a new rule, they'll cooperate with us. In addition to helping us out in this regard, our education staff also works to develop a sense of stewardship for our aquatic resources and encourage *pono* fishing practices.

For a number of years, DAR staff has been assisting community groups with developing plans for their own community-based fishery management areas. We see this as an important part of our path forward, a path that's being refined in a process we are calling the 30 x 30 Initiative. You'll be hearing a lot more about the 30 x 30 Initiative in the coming months.

For a more in-depth look at some of DAR's projects, please visit https://dlnr.hawaii.gov/dar/divisionoverview/ and browse the various links. What we've described here is really just scratching the surface of everything the Division is all about.



A biologist conducts a benthic survey, noting coral species and condition.



A fishing education class, where pono practices are taught.



A student measures a native 'o'opu akupa as part of a stream sampling study.

STAFF AND VOLUNTEER SPOTLIGHTS

Staff Spotlight: Joshua Maxwell

I was born and raised in New Jersey and fell in love with the ocean when I was 16 during mv first time scuba diving in Cozumel, Mexico. Since then, I've kept aquariums to maintain a conduit to the ocean. After college, I worked at an aquarium store where I

learned reef aquarium husbandry along with more specialized knowledge about the animals that I've come to love-coral! It was this first job that taught me how to care for corals and build aquarium ecosystems around them. My hobby became my passion as I learned more and more about these important invertebrates and the threats facing them. My most recent professional experience was at the Liberty Science Center, where I maintained public exhibits and gained experience in public outreach through teaching others how to protect our oceans and waterways.

I am now very fortunate to work at the Waikīkī Aquarium as the new Coral Biologist. My main duty, as you can imagine, is to take care of corals that make up a large part of our exhibits. I have several exhibit assignments, and I also engage in coral aquaculture to grow our own colonies of coral and spread them throughout our exhibits and with other institutions. A good 90 percent of my time is spent ensuring the health of our current corals, invertebrates like our anemones and giant clams, and other associated reef inhabitants, while the other portion of my time is spent scouting the oceans, researching future exhibits, and assisting in outreach endeavors with students and the public. My main goal is one of outreach: to inspire the next generation of marine biologists and oceanographers by displaying the beauty of our exhibits and to continue to teach others how to protect our oceans, lakes, rivers, and all other bodies of water that we have come to rely on and admire.

My favorite marine invertebrates organisms probably encompass the entire subclass of stony hexacorallia corals. My favorite vertebrates are the wrasses, as they make up the most colorful and beautiful fish family in the sea.

Volunteer Spotlight: Larry Kamemoto

From the classroom to the farm to the Aquarium, Larry Kamemoto's passions have taken him in many different directions, yet all of them center on educating the local community. An educator and farmer by trade, Larry has served as a Waikīkī Aquarium volunteer for the past 31 years, dedicating over 1,000 lifetime volunteer hours to sharing his passion for Hawai'i's marine life with Aquarium visitors from around the world.

Larry joined the Waikīkī Aquarium volunteer team in January 1988 as a way to meet and interact with others with similar interests. Since then, he has led hundreds of tours and introduced visitors to a wide range of exhibits, from the Edge of the Reef to the Northwestern Hawaiian Islands exhibit. Throughout his time as a volunteer, Larry has been beloved by visitors and fellow volunteers alike, always offering a funny story or quip to entertain all with whom he interacts.

As one of our longest standing volunteers, we were saddened to bid farewell to Larry when he retired

this past Septemeber. We will dearly miss his enthusiasm for the ocean and dedication to educating the next generation. Mahalo Larry for bringing joy and excitement to the Waikīkī Aquarium!

RECENT EVENTS

Ke Kani O Ke Kai 2019

Mahalo for joining us at this year's Ke Kani O Ke Kai summer concert series! Our popular summer series returned in June with a star-studded lineup of award-winning local artists including Kalani Pe'a, Kupaoa, Josh Tatofi, and Streetlight Cadence, along with delicious food from restaurant partners like Laverne's, Banán, La Tour Café, Simply Ono and more.

Stay tuned for information on next year's summer concert series lineup. Until then, mahalo for your support!

37th Annual Hawaiian Slack Key Guitar Festival

On Saturday, August 10, the Waikīkī Aquarium hosted the 37th Annual Hawaiian Slack Key Guitar Festival, a popular musical tradition that began in 1982. This year's festival featured 15 of Hawai'i's most talented artists in the slack key guitar genre. Food and drinks were also available for purchase throughout the day.

Beach Cleanups Around O'ahu

Mahalo to the dedicated volunteers who joined us this fall for beach cleanups around O'ahu. On Saturday, August 17 we took to Kalama Beach Park to remove trash, plastics and other harmful debris from the area. We continued our beach cleanup efforts on Sunday, September 22 in Waimanalo, working hard to keep our ocean clean and litter-free while reducing our Single-Use Disposable Plastics (SUDs) footprint.

Ocean Talks Seminar Series

In September we kicked off Ocean Talks, a free public education initiative featuring some of the latest research in ocean conservation. Our ongoing seminar series involves partnerships with Hawai'i's leading researchers, organizations, and agencies, and showcases the cutting-edge research that contributes to the health and wellness of our oceans today. So far we've welcomed the following two very special lecturers to the Aquarium Classroom:

Kimberly Peyton, PhD:

September 4, 2019

"Juvenile Fishes in Hawaii Use Estuaries (Muliwai) as Nursery Grounds"

Hawai'i's estuaries (muliwai) are critical nursery grounds for coastal species, valued for fishing and cultural practices as well as for their biological diversity. This talk explained how the Department of Land and Natural Resources (DLNR) Division of Aquatic Resources (DAR) is researching this under-studied ecosystem to improve management practices in muliwai.

Ryan Okano, PhD:

September 18, 2019

"Hawaii's Limu Initiative"

Historically, limu were a consistent facet of a simplistic yet nutritious diet. And while limu still holds a place of importance in modern Hawai'i, many view it as underappreciated. This talk highlighted DAR's concerted effort to broaden the utilization and appreciation of limu through both education as well as restoration efforts.



Ke Kani O Ke Kai



Ke Kani O Ke Kai



Beach Clean Up



Beach Clean Up

UPCOMING EVENTS

Ocean Talks Seminar Series

Ocean Talks, our revamped ongoing seminar series, continues this October with talks on everything from citizen science to Salvinia molesta, an invasive water fern. What began as an enrichment opportunity for Waikīkī Aquarium volunteers has evolved into a free public education initiative that highlights the latest research contributing to the health and wellness of our oceans.

All Ocean Talk seminars take place from 3:30 to 4:30 p.m. in the Aquarium Classroom. The schedule is as follows:

Daniel Lager:

October 23, 2019 "Controlling the Spread of the Invasive Salvinia molesta in Kaua'i Streams"

After learning of an increasing population of the invasive water fern Salvinia molesta on the Kilauea River in 2016, the DAR Aquatic Invasive Species Team has since determined island-wide stream distributions on Kaua'i by successfully employing a new sampling method. This talk will cover the new method, and how this information can be used to target the timing of control efforts to maximize their effectiveness.

The Ocean Talks seminars are free and open to the public. Reserve your seat at www.eventbrite.com.

Distinguished Lecture Series

On Thursday, October 17, 2019, Dr. Tim Tricas of the University of Hawai'i at Mānoa will share 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, as part of FOWA's Distinguished Lecture Series. Sponsored by long-term partner Matson, the discussion, "The 'Choral' Reef Fish of Hawai'i: Many Fish, Many Sounds, and Many Pictures," will take place at 6 p.m. in the Tenney Theatre at St. Andrew's Schools. Admission is free to the public.

See page 4 to learn more about Dr. Tricas's current research, and the library of reef fish sounds that are currently used to interpret long-term acoustic recordings from wild fish populations.

Paint For Your Soul

MONK SEAL - October 19, 2019 10am to 12pm REDTOOTHED TRIGGERFISH - October 29, 2019 6pm to 8pm

Participate in Paint For Your Soul, a series of painting events for the community to enjoy throughout October. Attendees will learn from talented local artists and receive expert tips to paint their own monk seal or redtoothed triggerfish. The total cost is \$35 per class, with a portion of the proceeds benefiting the Waikīkī Aquarium. All supplies in addition to guided instruction are included. Children under the age of 13 must be accompanied by an adult. Register at www. paintforyoursoul.com.









University of Hawai'i at Mānoa Waikīkī Aquarium 2777 Kalākaua Avenue Honolulu, HI 96815-4027

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Give a Sea-sational Gift this Holiday Season!

Gift Certificate for Membership at the Waikīkī Aquarium Sandy Claws is coming to town, and we're inviting the community to dive into the holiday season with special Christmas membership packages. On sale now, these exclusive membership offerings are perfect holiday gifts for the marine enthusiasts in your life.

Waikīkī Aquarium memberships allow families and ocean adventurers of all ages to enjoy unlimited admission to the Aquarium and participation in Aquariumsponsored activities and events for a full year. Best of all, membership contributions are tax deductible!

We're happy to offer five Christmas membership gift categories, including the Family Plus Membership (two adults, their children and two guests) for \$90, Family Membership (two adults and their children) for \$65, Grandparents Membership (two grandparents and up to six grandchildren) for \$65, Individual Membership for \$45 and Senior Membership (ages 65+) for \$35. Children must be under 18 years of age to qualify as a child and be covered by membership.

Take the stress out of holiday gift shopping and opt for Waikīkī Aquarium Christmas membership—a gift that's education and sea-sational!



