

Kilo iā

2016 | APRIL | MAY | JUNE

RESEARCH AND CONSERVATION

**TWILIGHT
TIMES: AN AGE
OF DISCOVERY
A STORY ON
CORAL**

page 7

**LIVE FEEDS
ON DECK
A STORY ON
PLANKTON**

page 12

Pictured: Dr. Andrew Rossiter, Director, with Waikiki Beach Marriott chefs who hosted the Carbon Networks Workshop welcome reception.



DIRECTOR'S MESSAGE

Spring is upon us, but the last days of winter brought a flurry of activities and good fortune. Throughout the holidays, we received generous donations in support of our efforts here at the Waikiki Aquarium. We received two new wheelchairs from Don and Judi Young through our School of Wishes campaign and a generous donation from Marilyn and Steve Katzman in support of our Hawaiian monk seals.

The Waikiki Aquarium was also a recipient of the 2015 Freeman Foundation Grant to support our commitment to ocean education for Title 1 school children. During the 2015-2016 school year, this grant will serve over 3,000 students and families through class visits to the Aquarium, as well as community outreach.

Elsewhere in the community, the Waikiki Aquarium continues to make a positive impact through the dedication of our volunteers. We continue to fulfill our mission to "inspire and promote understanding, appreciation and conservation of Pacific marine life" through beach cleanups and enrichment programs with our partner organizations.

In February, we hosted the Carbon Networks Workshop in partnership with the Pacific Science Center of Seattle and the Exploratorium of San Francisco. Representatives from various institutions attended the four-day workshop featuring guest speakers from the Hawai'i Institute of Marine Biology (HIMB), Center for Microbial

Ecology (C-MORE), Pacific Island Ocean Observing System (PacIOOS) and the National Oceanic and Atmospheric Administration (NOAA). Discussions focused on issues such as ocean acidification and climate change and the affect they are having on our ocean ecosystem.

And of course, we look forward to the upcoming Ke Kani O Ke Kai concert series. As in years past, we welcome a stellar list of local entertainers to our main stage, with proceeds benefitting upcoming projects at the Waikiki Aquarium. Be sure to get your tickets early, as they tend to sell quickly. We look forward to seeing you there!

Dr. Andrew Rossiter
Director, Waikiki Aquarium

Kilo i'a

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ENVIRONMENTALLY FRIENDLY INKS

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.

Cover Photo Credit: Michael Lum

RECENT EVENTS

9TH INTERNATIONAL ALOHA KOI SHOW

On February 13 and 14, the Waikiki Aquarium hosted the 9th Annual International Aloha Koi Show, which featured hundreds of top-quality koi for exhibition and display. We welcomed koi experts, who gave educational seminars explaining the significant role that color, pattern and other characteristics play in the quality of koi. Our guests also enjoyed a variety of authentic Japanese performances and activities. A big thank you to Armstrong Builders and Pagoda Hotel for sponsoring another successful event attended by almost 2,000 visitors.



The college students who used their artistic skills to bring the 9th Annual Aloha Koi Show to life.



Prized koi from throughout Hawai'i and the U.S. mainland were on display for our 9th Annual International Aloha Koi Show.

BEACH CLEAN UP

Over 60 volunteers joined us for a beach clean up on January 17, at Sandy Beach and Wawamalu Beach Park, to help protect Pacific marine life. Participants included groups from the Cub Scouts Pack 1, University of Hawai'i, Hawai'i Pacific University, Hawai'i Air Force and the U.S. Marine Corps. In a collective effort, we removed trash and other debris from the surrounding beach and park areas to provide a clean and healthy environment for marine life.



Volunteers stepped out to remove debris from Sandy and Wawamalu beaches in January.

CELEBRATION OF WHALES

We made a splash this January with a special celebration of whales during the whale watch season. The Aquarium hosted Patty Miller from NOAA Hawai'i Humpback Whale Sanctuary on January 21 for whale-related activities, and ocean-enthusiasts were invited to join the Sanctuary Ocean Count project to help monitor humpback whales in Hawai'i.



NOAA representatives educated the public at the Waikiki Aquarium in celebration of whale watching season.

112TH BIRTHDAY CELEBRATION

In March we celebrated our 112th birthday at the Waikiki Aquarium, while our partners at the Moana Surfrider celebrated their 115th anniversary. The First Lady of Waikiki kicked off its yearly celebration with a special concert and dinner featuring award-winning slack key guitar player, singer and composer, Makana & Friends, with a portion of the proceeds benefiting the Aquarium.

On March 19, the Aquarium held a birthday event attended by more than 2,000 visitors who enjoyed education and conservation displays by NOAA and Aquarium staff, and entertainment from Iolani Jazz Band.



UPCOMING EVENTS

MONK SEAL MONTH



MONK SEAL MONTH

The Waikiki Aquarium is home to our two Hawaiian monk seals, Maka and Hoailona, who will be celebrating their birthdays in May with a fin-tastic celebration complete with a special birthday ice cake. Throughout the month of May, visitors will also enjoy activities and educational presentations that focus on the preservation of the endangered Hawaiian monk seal.



KE KANI O KE KAI

KE KANI O KE KAI

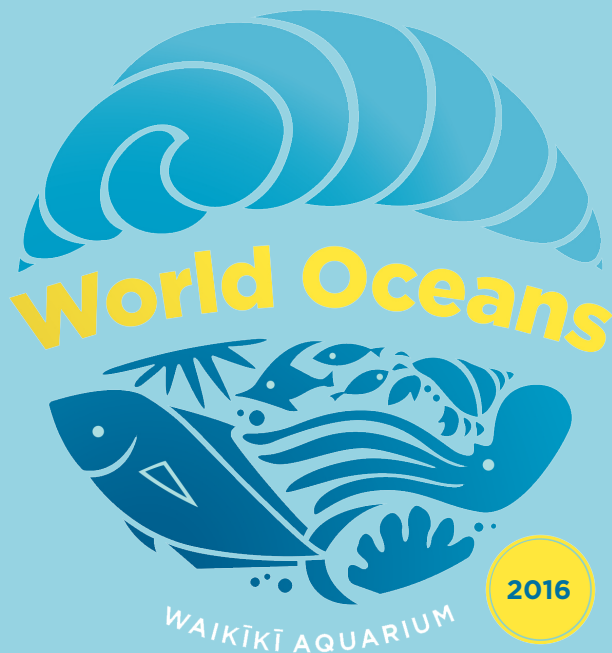
Sing into summer with our Ke Kani O Ke Kai summer concert series starting in June! Guests will enjoy an evening under the stars featuring some of Hawai'i's favorite entertainers and delicious local cuisine. The five-concert series will be held on June 9, June 23, July 7, July 21 and August 4. Doors open at 5:30 p.m. and the concerts begin at 7 p.m., with Aquarium galleries remaining open throughout the evening. Visit our website to purchase tickets for the season.



SAVE THE DATE



Our Ke Kani O Ke Kai concert series dates are as follows:
June 9, June 23, July 7, July 21, August 4



Celebrate with us!

This year's international theme is "Healthy Oceans, Healthy Planet." Join us as we clean neighboring beaches, host educational activities and highlight those in the community that are making an effort to protect the ocean.

Ka Ike o Ka Moana: The Knowledge of the Ocean

May 25 – June 9

Honolulu Hale

This educational and artistic journey will feature works of art by Sunday Drawing in Mānoa and Hawai'i Watercolor Society, along with informational displays by the National Ocean and Atmospheric Administration and the Waikiki Aquarium in conjunction with the City & County of Honolulu, Mayor's Office of Culture & the Arts.

Pacific Islands Ocean Observing System (PacIOOS)

The Pacific Islands Ocean Observing System (PacIOOS) believes that ocean data and information can help save lives. Collecting ocean data on the most recent conditions, forecasting future events and developing new user-friendly tools not only protects the environment but also supports the economy and resources. In collaboration with a large network of partners, PacIOOS provides valuable data to inform decision-making in Pacific communities. Based within the School of Ocean and Earth Science and Technology (SOEST) at the University of Hawai'i in Mānoa, PacIOOS is one of 11 regional associations that make up the U.S. Integrated Ocean Observing System. As part of the Waikiki Aquarium's World Oceans Month celebration, PacIOOS will provide an opportunity for the public to learn more about what they do and how everyone can do their part to keep our oceans clean.

Outrigger Resorts' OZONE Day

June 4, 2016 10 a.m. – 2 p.m.

Waikiki Aquarium Lawn

Get in the OZONE with Outrigger Resorts to celebrate OZONE Day with games, activities and entertainment. OZONE (Outrigger's ZONE) is a global conservation initiative centered on protecting the health of coral reefs and the ocean.

Ocean Observing in the Pacific Islands Region with Fiona Langenberger

June 1 12 to 1 p.m.

Waikiki Aquarium classroom

PacIOOS collects, manages, and delivers information on ocean conditions and provides forecasting data to improve on-the-ground decision making throughout the U.S. Pacific Islands. Learn more about this unique and diverse region and how PacIOOS helps to fill ocean observation needs to address local challenges.

PacIOOS: Monitoring Nearshore Water Quality in Hawai'i with Gordon Walker, Oceanographic Specialist

June 15 12 p.m. – 1 p.m.

Waikiki Aquarium classroom

The PacIOOS Near Shore Water Quality Group measures the interactions between water coming from land and the near shore ocean environment. Seven sensors provide timely data to monitor changes in coastal waters, and provide early warning of polluted runoff, sewage spills and more. Find out more about the information that the team collects and learn how to read the data.

Tracking Hawai'i's Sharks with Mr. Royer & Danny Coffey

June 29 12 p.m. – 1 p.m.

Waikiki Aquarium classroom

The Hawai'i Institute of Marine Biology Shark Research Group is using cutting-edge technology to examine the behavioral ecology and physiology of tiger sharks, scalloped hammerhead sharks and bluntnose sixgill sharks (a deep sea shark). Discover how oxygen sensors, satellite tags and other technology can help to reveal new information about these fascinating animals.

Afternoons at the Aquarium

June 1, 8, 15, 22, 29 3 p.m.

Waikiki Aquarium

Join our Education Department for special keiki activities throughout the month of June and be sure to visit The Shop for a special seahorse display, along with our other marine animal collections.

Animal Parenting

June 11 11 a.m.

Aquarium Galleries

Learn more about seahorses and unusual animal parenting.

Ke Kani O Ke Kai Summer Concert Series

June 9 and 23

Waikiki Aquarium

Ticket required – visit our website for ticket info.
www.waikikiaquarium.org

Patrick Ching: Painting in Paradise

June 25 10 a.m. – 12 p.m.

Waikiki Aquarium

Join local nature artist Patrick Ching and learn more about Hawaiian monk seals, as he shares tips about creating your own monk seal art.



Visit our website for the full list of activities.

<http://www.waikikiaquarium.org/interact/annual-events/world-oceans-month/>

VOLUNTEER SPOTLIGHT

National Volunteer Week *April 10 -16, 2016*

April 10-16, 2016 is National Volunteer Week and the perfect time to say Mahalo to the Aquarium's 250+ volunteers who donate their time in support of our mission. Week after week, these volunteers, ranging in age from 18 to 80, share their passion for marine life conservation and education with our guests. The Aquarium staff would like to express our sincere appreciation to our wonderful volunteer ohana!

The Waikiki Aquarium is fortunate to have so many talented individuals helping to fulfill our mission. These volunteers provide more than 17,000 hours of service each year and are the backbone of our educational outreach. If you are interested in volunteering, please visit our website or call the Volunteer Office at 808-440-9020.



An underwater photograph featuring a massive, intricate orange coral structure that dominates the left and center of the frame. The coral has a delicate, branching, and fan-like appearance. In the upper right background, a scuba diver is visible, providing a sense of scale to the enormous coral. The water is a clear, deep blue. The title 'TWILIGHT TIMES:' is overlaid in large, white, sans-serif capital letters across the middle of the coral.

TWILIGHT TIMES:

An Age of Discovery

*By Sonia J. Rowley, Postdoctoral Research Fellow,
University of Hawai'i at Mānoa
CSO, Association for Marine Exploration*



The surface waters of Nikalap, Pakin Atoll, 20 m (66 ft)

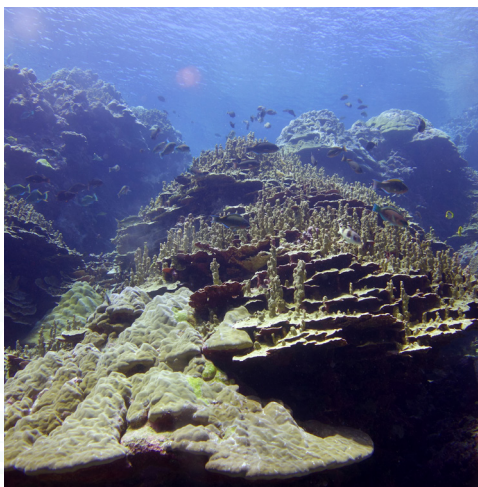
Tropical Pacific coral reefs are important sources of marine biodiversity, with the greater proportion of these reefs (~80%) actually existing between the depths of 30-150 m (100-500 ft). The mysteries of these 'Twilight' reefs (aka. Mesosphotic Coral Ecosystems) are only recently being revealed through technological advances in closed circuit rebreather diving. Previously overlooked - being too precarious for conventional SCUBA and too shallow to justify the cost of a submersible - twilight reefs continuously disclose breathtaking levels of biodiversity with each dive yielding species and behavioural interactions new to science.



Annella sp., Pohnpei, FSM, 98 m (322 ft)

For over two decades, our uniquely experienced dive team from the Association for Marine Exploration, Bishop Museum, and the University of Hawai'i continues to develop rebreather technology and explore the unknown twilight reefs across the tropical Pacific. Of those explored, twilight reefs within

the tropical Pacific are typically dominated by gorgonian (sea fan) corals, with an endless diversity of beautiful fishes darting among their branches. Older in the fossil record than their prolific counterparts, the Scleractinia (hard corals), these slow growing archives of the ocean often provide nursery grounds and a protective habitat for many new species, including the charismatic pygmy seahorse. Yet still, so little is known of these twilight reefs that they have become a conservation priority (e.g., IUCN) in the hope that they may act as refugia against environmental and/or anthropogenic disturbance.



Coral castles of Montipora and Porites lutea, Nikalap, Pakin Atoll, 10 m (33 ft)

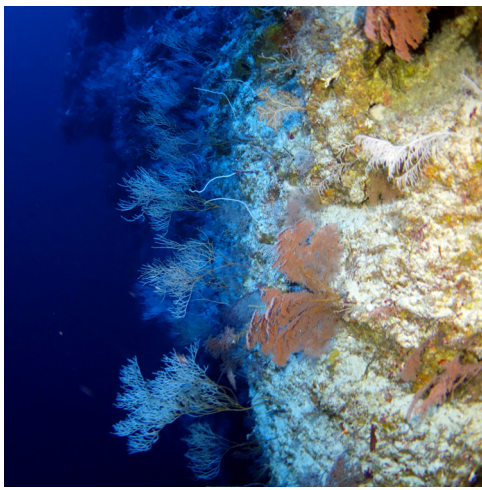
From the coral castles of the shallows, the reef begins to change with increasingly fascinating adaptations to a life of attenuating sun's energy. Descending down into the deep, history presents itself with each ancient sea level stand seemingly correlated with a sharp change in temperature. Glacial sea level cycles of ~100-130 m (328-426 ft) leave an historical signature

of past shorelines that continue to attract marine life. Descent is brief and invigorating, from a spritely ~24°C (75°F) at ~80 m (262 ft) into the bracing waters of 13°C (55°F) at 140 m (460 ft) and beyond. The deeper we go the more new species we find, and at these temperatures it is rapid-speed discovery!



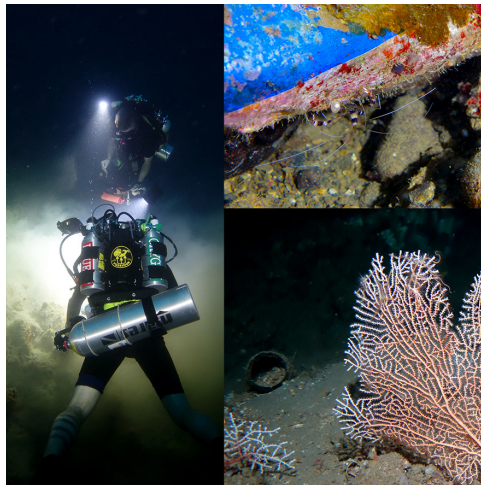
Brian D. Greene, catching a new species of Odontanthias amidst colonies of Paracis cf. orientalis and whips of Junceella, at Ant Atoll, 135 m (443 ft)

With every passing moment we encounter captivating curiosities, and revisit those that keep us intrigued; why is *Cephalopholis igarashiensis* invariably accompanied by an entourage of *Plesionika flavicauda*, and why are *Annella* spp. so cosmopolitan? I wonder who is responsible for all those eggs carpeting the branches, and what phylum does that belong to...? And so we go on ad infinitum. The raw material for the next grant proposal (aka. academic begging) if you will!



Typical Twilight Zone environment, 135 m (443 ft)

Gorgonian corals typically carpet the ledges and walls with increasing depth. This barrier of tiny mouths crowd around each elaborate branch, and stretch out into the water column to capture microscopic nutrients and prey. However, with remarkably weak stinging cells (cridae) and a reduced gut, what are these elegant corals actually eating; are they actively capturing prey, or just absorbing nutrients, gardening bacteria, or some other combination? The truth is, no one is entirely sure, which makes keeping such deep reef specialists a challenge. Uncommon in aquaria, azooxanthellate gorgonians seldom survive, unlike zooxanthellate species such as *Rumppella*, which you can see in the Aquarium's 'Coral Farm' and 'South Pacific Marine Communities' exhibits. Here, in collaboration with the Waikiki Aquarium, we are developing techniques that closely match the twilight reef environment. Through continuous measurements of key environmental parameters we work to create a natural exhibit, and to increase our understanding of adaptations that have evolved over time.



Anthropogenic impacts, Philippines, 90-146 m (295-480 ft), Richard L. Pyle & Brian D. Greene.

Soon we are obliged to leave, and continue to sample throughout our ascent into the shallows. Patterns of biodiversity suggest that deep and shallow reef species have very different biogeographic distributions; as species diversity on shallow reefs decreases eastward across the tropics, it remains high and unique at deeper depths. Some species are area specific (i.e., Hawaiian endemic gorgonian *Acabaria bicolor*); some are depth specific (i.e., the deep-sea precious coral *Corallium* spp.); some are depth and area specific (i.e., Hawaiian endemic and twilight specialist the Masked Angelfish *Genicanthus personatus*), whereas others are generalists such as *Annella* spp., with the exception of Hawai'i! In fact the Hawaiian Islands possess a unique biodiversity, due to their remoteness, often displaced by invasive taxa. Sadly, our signature is increasingly present in these poorly understood environments that we battle to conserve against our own influence.

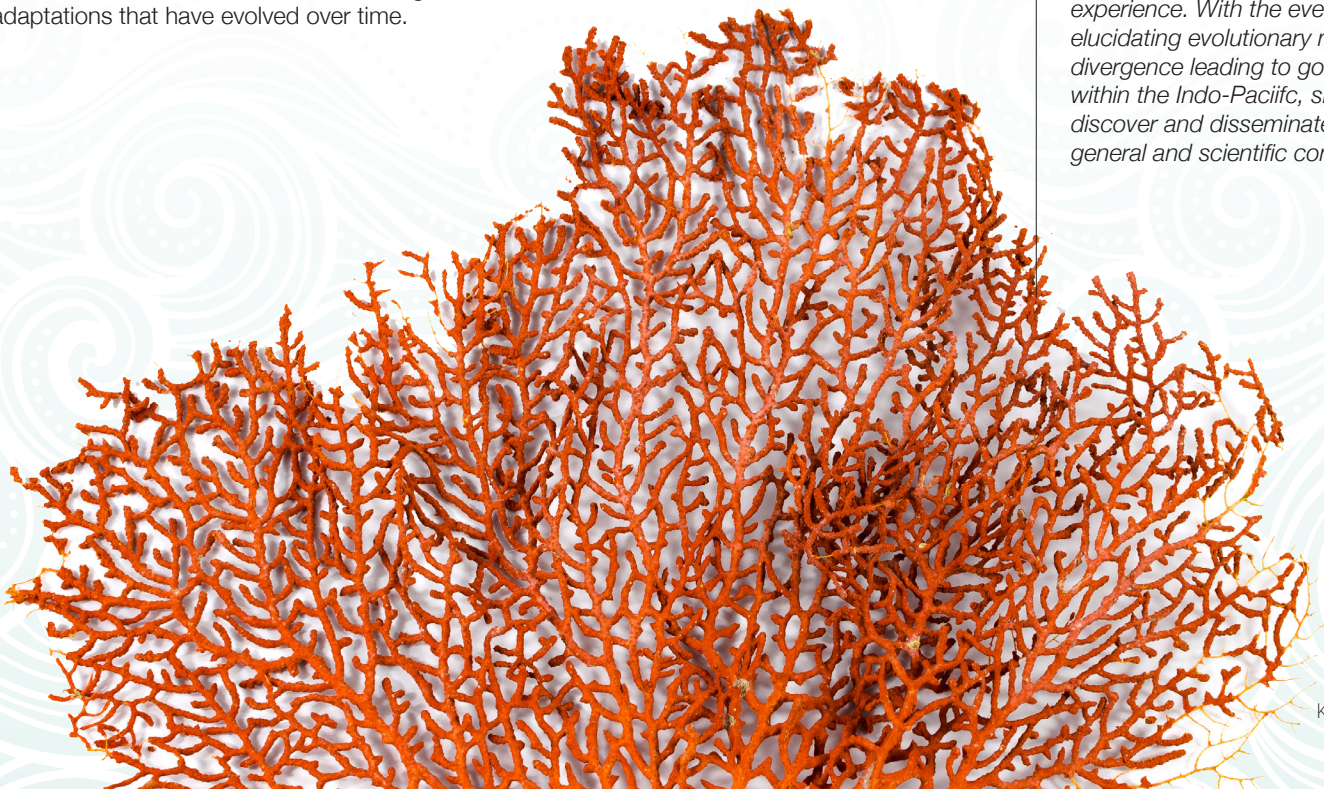


About the Author

Dr. Sonia J. Rowley is a postdoctoral research associate at the Department of Geology and Geophysics, University of Hawai'i, Chief Science Officer for the non-profit Association for Marine Exploration and invertebrate zoologist at the Bernice Pauahi Bishop Museum, Honolulu. Rowley specializes in the evolution and diversity of gorgonian (sea fan) octocorals, particularly across bathymetry throughout the Indo-Pacific.

With over 30 years of diving and expedition experience around the globe, Rowley is also part of the Poseidon/ Cis-Lunar Development Laboratories test dive team, primarily focused on the exploration and discovery of 'Twilight' reefs (Mesophotic Coral Ecosystems, 30-150 m depth) throughout the Indo-Pacific.

Determined to better understand the role of gorgonians as model taxa on twilight reefs, Rowley continually addresses novel research questions by uniquely integrating analytical techniques and experience. With the ever present goal of elucidating evolutionary mechanisms of divergence leading to gorgonian diversity within the Indo-Pacific, she works to discover and disseminate her findings to general and scientific communities alike.



CLOWNING AROUND

By Guerin Earhart, Education Specialist

Rhythmically bobbing and fluttering in mid-water or bathing in the tentacles of a sea anemone, clownfishes are mesmerizing to the human eye. Their peculiarities and colorful appearance make them one of the most popular and commonly known fish, even prior to the Disney-Pixar® film, *Finding Nemo*. Clownfishes live on coral reefs in the warm waters throughout the Pacific and Indian Oceans. These carnivorous omnivores feed primarily on zooplankton and small invertebrates and the anemone may get food scraps dropped as the fish eat.

Scientists also refer to clownfishes as anemonefish due to their subfamily's symbiosis, or close relationship with anemones. All other fish avoid anemones due to their stinging tentacles, while the clownfish develop an immunity with a special layer of mucus that prevents the anemones from stinging them. Clownfishes rarely move more than a foot from the protection of their host anemone, as the stinging tentacles keep predators at bay.

Typical harems living in the host anemone consist of a breeding pair and several juveniles (non-breeders). Clownfishes always mature as males but have the unique ability to change their sex to female, who is always the larger fish of the pair. Percula Clown, the smallest of the clownfishes, are typically up to 2.5" (6 cm) in length, while the larger Maroon Clown can reach up to 6.3" (16 cm) in length.

There are 28 known clownfish species that fall into six broad groups or complexes: the Percula Complex (2 species), the Tomato Complex (5), the Skunk Complex (6), the Clarkii Complex (11), the Saddleback Complex (3) and the Maroons (1). Two of the most common clownfish, True Percula Clownfish and Ocellaris (False Percula) Clownfish, can be seen at the Aquarium.

Clownfishes are relatively hardy and are popular with the marine hobbyists. When preparing a habitat for a clownfish, an anemone is not necessary, as clownfishes will readily adapt and find a substitute host in a rock structure. FOWA members are eligible for free saltwater for home or office aquariums. Saltwater is available by appointment Monday through Friday from 10 a.m. to 4 p.m. and Saturday, Sunday and holidays from 10 a.m. to 3 p.m. For more information or to make an appointment, call (808) 923-9741, ext. 0, at least one day prior to appointment. Fill-ups are limited to one 15-minute slot per day and members should bring their own containers.

*Find us in Gallery 1 South
Pacific Marine Communities of
the Aquarium!*



CLASSES & ACTIVITIES

AFTERNOONS AT THE AQUARIUM

Wednesdays at 3:00 p.m.

Every Wednesday, the Aquarium hosts an interactive learning activity near the aquaculture deck. Join us for a critter encounter or a marine science craft designed for families. Free with admission to the Aquarium.

BEHIND THE SCENES

Every Thursday at 3:00 p.m.

Learn what makes the Aquarium run, from fish food to quarantine, and many stops in between. Climb-up and peer into the backs of the exhibits. Visit the Coral Farm and the Jelly Hale, where sea jellies are raised. Minimum age 7 years; youngsters must be accompanied by an adult. Accessibility is limited. \$16/adult, \$10/child (Members receive a 40 percent discount).

TEEN VOLUNTEER PROGRAM

Applications for teen volunteers are due by June 1st. Interested applicants must be available for at least one shift on Tuesday or Wednesday mornings or Wednesday afternoons for the entire month of July. All students must be in or entering high school in Fall 2016. To apply go to: <http://www.waikikiaquarium.org/support/volunteer/volunteer-opportunities/>

SUMMER BY THE SEA

June 6-10

Monday-Thursday 8:30 a.m.-3:30 p.m.

Friday 8:30 a.m.-5:00 p.m.

June 20-24

Monday-Thursday 8:30 a.m.-3:30 p.m.

Friday 8:30 a.m.-5:00 p.m.

Spend a week of summer learning what lives in Hawaiian waters and along the shoreline. What's the best way to learn? By doing! Explore the Southshore from Waikiki to Diamond Head. After a morning of outside adventures, the Aquarium turns into a classroom. Learn about the animals in our exhibits and watch them being fed on special behind-the-scenes tours. For marine biologists ages 8-12 years. All students should be confident swimmers. \$275/child member (\$325 for non-members).

CLASSES FOR GROUPS

Waikiki Aquarium offers a variety of classes for community and family groups from 8 people to 45 people. Book a Private Aquarium Tour or a Critter Encounter for your clan. Or, an Aquarium After Dark or Fish School for your club or scout group. Call 808-440-9007 for more information or email reservations@waquarium.org.

KEIKI TIME

Wednesdays at 9:15 a.m.

April 6 (Fish)

April 13 (Turtles)

April 20 (Sharks)

April 27 (Seals)

Sharks, turtles, and seals are just some of the animals that will be highlighted in these classes for kids. Keiki will learn about sea creatures through crafts, singing, storytelling, dance and play. Designed for kids 1 to 4 years-old. \$10/person, \$6/member.

CRITTER ENCOUNTERS

Mondays: April 11, 18, 25 and May 2 at 10:00 a.m.

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 Waikiki Aquarium. Perfect for families with children 4 and up. \$5/person plus Aquarium admission.

Register online at www.waikikiaquarium.org/interact/activities-classes/

Join us for one of our many youth activities!



LIVE FEEDS ON DECK

By Gwen Lentes, Curator of Live Exhibits

In the late 1980s, the Waikīkī Aquarium hosted a Research Corporation of the University of Hawai'i (RCUH) project that launched a live feeds research deck to rear the Pacific dolphinfish *Coryphaena hippurus*, also known locally as mahi-mahi. The aquaculture project was led by Syd Kraul and Alan Nelson, with the use of Aquarium facilities. When the project ended in 1992, the research deck fell into disrepair, as it was only used to feed one or two small exhibits and to sustain the Aquarium's jellyfish cultures with freshly hatched *Artemia* sp. or "sea monkeys."

The new live feeds research deck was completed late last year and serves two key purposes: expanding our "live feeds" capacities, primarily with the Aquarium's syngnathids in mind, and becoming more self sufficient.

The Waikīkī Aquarium began rearing syngnathid species (seahorses, pipefishes and sea dragons) in 1988 with the local Hawaiian seahorse *Hippocampus kuda kuda*, followed by the seahorse *Hippocampus erectus* in 1996. In 1999, the Aquarium also became the first

kuda, *Hippocampus erectus*, *Hippocampus abdominalis* and *Hippocampus zosterae*, along with a few species of pipefish.

Immediate goals for the future of the live exhibits department include expanding our syngnathid breeding capabilities, and to do so we must again simultaneously expand our live feeds research deck. One type of zooplankton that would be wise to add to our repertoire are tiny crustaceans called mysid shrimp; these animals are a favorite food source of weedy and leafy seadragons.

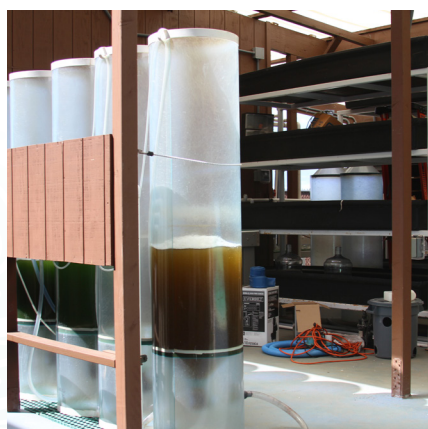
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facility to rear the Pacific species *Hippocampus fisheri*. Building on this expertise, the Aquarium expanded its indoor galleries with the addition of nine new syngnathid exhibits.

One of the most crucial and expensive aspects to rearing any marine species, including syngnathid species, is the availability of appropriately sized, nutritious live plankton for newly born or hatched animals to eat. Marine species have notoriously tiny larvae or larval stages and they can be fickle eaters, only consuming the smallest plankton having the correct swimming movement which elicits their feeding response. At the Waikīkī Aquarium, we currently culture five species of phytoplankton and three species of zooplankton, not including our jellyfish cultures. With the current plankton output, we are able to raise many of our current seahorse and pipefish populations. Species bred on-site currently include *Hippocampus*

The Waikīkī Aquarium currently spends a generous portion of its nutrition budget on purchasing imported live mysid shrimp. Growing them on site would not only be economical, but would also be beneficial from a conservation standpoint by cutting back on shipping requirements and adding to self-sufficiency. The mysis produced on site will also be disease-free. The live feeds research deck's mysid shrimp expansion is just the beginning, however, as we plan to continuously expand and diversify our cultures and improve our efficiency. We hope to one day collect and breed all locally caught phytoplankton, zooplankton, and macro-algae, so that we may yet again reach new goals for culturing our local, rare, and endemic fish populations.

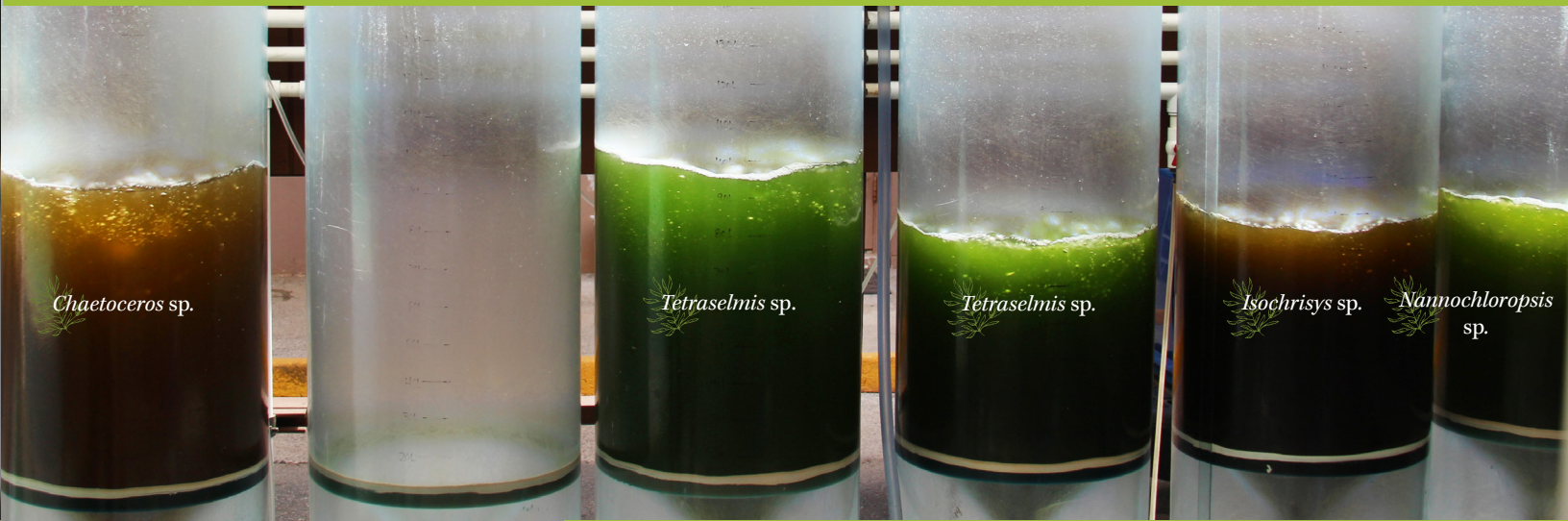
As oceanic ecosystems and their fisheries stocks continue to be at risk from anthropogenic changes such as pollution,



Here we have the live feeds deck, where our aquaculture life cycle starts. We strive to mimic natural food webs from micro algae to larger zooplankton.

Fast forward to 2014 when the complete demolition of the live feeds research deck and its subsequent rebuilding began. We literally built everything from the ground up: a new foundation, plumbing, electrical, and expanded culture systems were designed and implemented all within a small area spanning a mere 30 by 50 feet, including a space reserved for 12 mysid production tanks.

Varieties of Plankton in our Live Feeds Tanks



climate change, poor ecosystem management, and overfishing, it will be ever important to be part of the solution. Our new live feeds research deck is just one way we're supporting eco-friendly aquaculture for the betterment of our oceans.

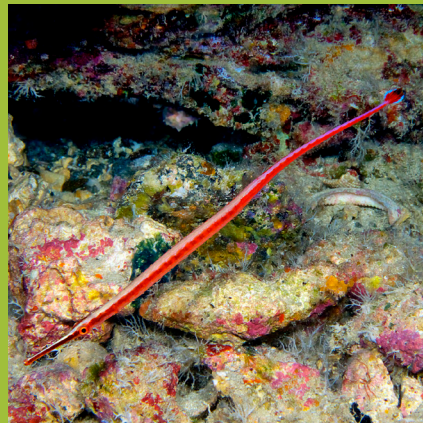
EXHIBITS THAT BENEFIT FROM OUR LIVE FEEDS:



About the Author

Gwendolen Lenten is the Curator of the Live Exhibits Department and is responsible for all aspects of running Live Exhibits, including staff management, maintaining the living animals collection, planning and maintaining project and routine medical, safety and maintenance schedules, and advance marine conservation research at the Aquarium.

Born and raised in Cleveland, Ohio, Lenten attended Hawai'i Pacific University, where she received her bachelor's degree in Marine Biology. Following her undergraduate studies, she enrolled in the University of Hawai'i at Mānoa Natural Resources and Environmental Management Master's program, from which she will graduate in 2016.



Amazing Adaptations Exhibits (Seahorses, Pipefishes, etc.)



NEW & RENEWING MEMBERS

from October 1, 2015 to December 31, 2015

John Aalto
Stephen & Courtney Abear
Amy Silverman Realty
Jon & Olga Archambeau
Roy & Patricia Arita
Douglas & Ivy Asano
Erin Austin and Ashley Fairbanks
Raleigh & Judy Awaya
Sean & Amy Barbaras
Helen J. Baroni & Rodman Low
Michael & Evelyn Barut
Eesha & Alison Bhattacharyya
Deborah Blair
Bernard & Karen Boglioli
Robert & Nicole Bonning
Jennifer Boomsma
Wm. Frank Brandt & Maryanne Sullivan
Lyukon Iino Brito
Douglas & Arlene Brown
Mr. & Mrs. Randal Bruckner
Andrew & Cheri Burness
Daisha Bush
Ruben & Suzanne Byrd
Robert Calvert & Mary Rydell
Sandra Camacho
Kamalu Pono & Noelle Campbell
Mr. J. Cannon and Ms. G. Tan
Geeno and Caryn Carlone
Jean-Pierre & Lynn Cercillieux
Gordon & Krislynn Chan
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Left to Right: Dadia Ellis, Visitor Services Supervisor; Don and Judi Young, donors; Chihiro Shibata, Visitor Services Staff with our newly donated wheelchairs.

MONK SEAL SUPPORT



Left to Right: Amber Cushman, Leann Castle, Lisa Dilworth (our Seal Team) wearing all new hats and jackets courtesy of Susan Dilworth.

FRIENDS OF WAIKĪKĪ AQUARIUM BOARD MESSAGE



The Friends of Waikīkī Aquarium (FOWA) is the membership organization of the Waikīkī Aquarium and our purpose is to support the Aquarium's mission to inspire and promote understanding, appreciation and conservation of Pacific marine life. Our volunteer Board of Directors is made up of generous individuals who are committed to supporting the Waikīkī Aquarium in numerous ways, including through fundraising efforts like our upcoming Ke Kani O Ke Kai summer concert series.

We kick off this year's five-concert series on June 9 with another stellar lineup of award-winning local entertainers and restaurant partners. Throughout the summer, guests will join us on the lawn for an evening under the stars as they enjoy live local music from some of Hawai'i's finest artists, such as Makana, Maunaloa, Kawika Kahiapo and others.

While Ke Kani O Ke Kai is a fundraiser for the Aquarium, it is also an opportunity to support Hawai'i's talented musicians who continue to perpetuate the culture of Hawaiian music. From traditional to slack key to alternative, each concert brings a different perspective to what Hawaiian music sounds like today. This concert series would not be possible without our members and sponsors alike and we truly appreciate your continued support. Mahalo!



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