

waquarium.org

Kilo ʻiā

Summer 2011

looking at the sea



WAIKIKI
AQUARIUM

UNIVERSITY OF HAWAII

JUMP INTO THE
TIDEPPOOL

CLASS CALENDAR

FROM THE DIRECTOR

Yes, that is me saying cheese with the fishes. Those of you who have visited recently might recognize the underwater scene from the new photo concession in our foyer. As you enter the Aquarium these days you will likely see families and couples doing some creative posing in front of a green screen — their photo is superimposed on the underwater background of their choice and is printed and ready for collection by the time they leave.

The Aquarium was the first venue in Honolulu to host this service and it has proven to be a popular one — so popular, in fact, that the concessionaires have since expanded operations to the Honolulu Zoo and elsewhere. For us, this is just one way of adding to our visitors' experience and maintaining our operations during these harsh economic times.

A less visible addition to the foyer, until one visits at night, is the underwater wave lighting that dapples the ceiling. Turned on for nighttime events and facility rentals, the effect is quite mesmerizing. It has been a big hit with clients, with many comments on how it adds to the Aquarium's unique ambience.

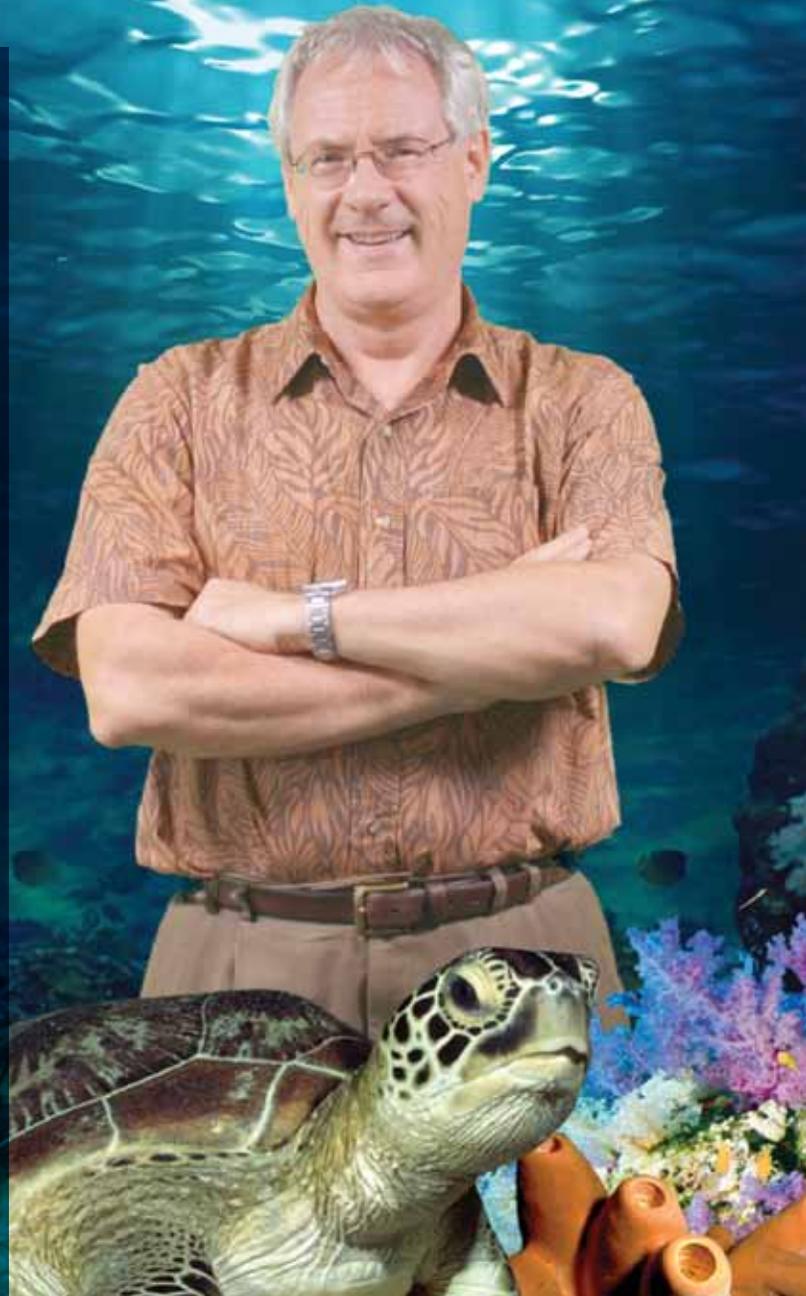
We also are installing new lighting on the trees surrounding the lawn area. These energy-efficient lights will be brighter and will provide greater illumination and some subtle lighting effects, again adding to the experience of our nighttime events.

In the galleries, the long-awaited opening of the Northwestern Hawaiian Islands exhibit happens on Aug. 18. Plus we are in the final planning stages for a new section dedicated to the seahorses, seadragons and pipefishes. And in October, we will welcome a major new addition to the Aquarium family — more on that in the next issue.

Despite the continuing economic challenges, we are pleased that we have been able to continue our long-term program of improvements, upgrades and entrepreneurial innovations. Our aim is to improve our visitors' experience and we hope these latest changes meet with your approval. Our FOWA members' opinions are important to us — we welcome your feedback and, as always, thank you for your support.



Dr. Andrew Rossiter
Director



Kilo i'a

Issue Number 178 Summer 2011

EDITOR Alice Keesing

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PRINTING Electric Pencil

Kilo i'a is published quarterly by the University of Hawai'i and the Friends of Waikiki Aquarium and is dedicated to increasing the community's knowledge of the Waikiki Aquarium and Hawai'i's marine life.

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Cover: Rock-boring sea urchins

This page: Elegant hermit crab

Both photos: Alice Keesing



SAVE THE DATES

MEET THE MOLLUSCS

AT FAMILY NIGHT

August 26

We eat them. We adorn ourselves with their shells. We have historically used them as money. We write with their ink. We feed their calcareous skeletons to our budgies. The Aztecs even revered them as a symbol of rebirth.

The molluscs are hardly the lowly animals we might take them to be. Indeed, they make up the largest and most diverse phylum of animals next to arthropods. From the tiniest sea snails to the 33-foot long colossal squid, this remarkable group includes animals that can grow

their own homes, communicate with color and propel themselves via jets. And don't forget one of the stars of the group, the octopus, which is as smart as a dog.

Join us and learn more at Family Night on Aug. 26. Picnic on the lawn, join in the crafts and games, take in a puppet show, talk to the experts and meet the mighty molluscs themselves (and, no, sorry, the colossal squid won't be here).



September 17

Fish Tales:

Chronicles, Critters and Crafts

Join us for keiki arts and crafts, storytelling and more, as books about the ocean come to life with mermaids and costumed characters.

Sponsored in part by Diamond Bakery and Crayola.

Photo: Michael Lum

Ke Kani O Ke Kai

The soothing and sultry sounds of Hawaiian music return to the Waikiki Aquarium lawn once again as we celebrate the *Ke Kani O Ke Kai* summer concert series. Mark these Thursdays on your calendar and come and enjoy these popular artists under the stars on the lawn.

July 14 Amy Hanaiali'i

June 28 Nā Palapalai with Mailani

Aug. 11 The Brothers Cazimero

See the calendar on page 11 for more information.





HAWAII'S REEF FLATS: UNCOVERED

“EEWWW, IT’S ALL SQUIDGY!”

The girls run their fingers gently along the length of the sea cucumber, happily amazed and grossed out at the same time. They are on a reef walk with Aquarium staff, discovering some of the creatures that live along the fringes of our island.

Top: Sea cucumbers can be a fascinating entré into the life of the tide pool. The recyclers of the reef, they vacuum the sandy seafloor or pull detritus from the water. The mucus beads that come out the other end — euphemistically called the “pearls of Aphrodite” — contain cleaned sand. *Bottom:* A solar-powered sea slug. This rather elegant slug hosts photosynthesizing algae, which provide its food.



for schools and community groups several years ago after a staff member drove past a popular area and saw that a huge swath of reef flat had been badly damaged by fieldtrippers who had left a large number of overturned rocks. Each rock is its own habitat — up above is the algae that provides food and shelter, down below are the sponges and dark spaces for eggs and animals such as brittle-stars that prefer to hide away. On Aquarium reef walks, staff members show participants how to tilt up a rock to look underneath and then replace it the way it was. *(Turn the page for more tips on being a good reef visitor.)*

“It is devastating for the whole reef flat if you go in and overturn rocks everywhere,” says Roney. “That’s like destroying the nursery and wiping out the grocery store. As we share these fascinating places with people, we also like to show them how to touch lightly, how to leave the animals in the water and how to leave things the way we find them so that we are not destroying what we come to see.”



Hawai‘i’s coastal areas may not have the overt explosions of life seen in tide pools in temperate parts of the world, but there are still marvels and mysteries to be found.

Tell the girls that that squidgy sea cucumber is something like a vacuum cleaner — a reef recycler that sucks sand in one end, cleans it, and extrudes it out the other end — and they look at it with newfound respect. Tell them that one species of sea cucumber can defend itself by shooting out long sticky filaments like silly string, which can entangle or distract predators, and they are downright fascinated.

“We don’t have the nutrient-rich environments of tide pools in other areas,” says the Education Department’s Mary Roney, who leads many of the Aquarium’s reef walk classes. “The animals here are smaller and more cryptic, or camouflaged. But you can find some really fascinating things. You just have to look.”

And if you know what you are looking for, you can find a whole world full of animals with marvelous lives and adaptations. Ghost shrimps lurk in their tunnels, their long reddish pincers ready to nab a tasty algae treat as it floats by. Brightly colored hermit crabs go about their lives, doing their real estate trade in shells. Exotic Spanish dancers perform their graceful flamencos through the water. Bouquets of rose-like slug eggs nestle under rocks. And schools of juvenile fish such as the *mamo* and *kūpīpī* find safety from predators in the sheltered pools of water.

Hawai‘i’s geology and oceanography mean we don’t have many tide pools in the traditional sense of the word. A true tide pool is an area that is covered and uncovered by the rise and fall of the tide. That doesn’t happen often in Hawai‘i, but we do have areas of reef flats in places like Makapu‘u, Sandy Beach and Kewalo Basin that have their own unique ecosystems. These areas are nurseries and shelter for numerous species of plants and animals.

The Waikiki Aquarium began providing education and information

RESOURCES

- » Sign up for an Aquarium reef walk and join in the fun. See the calendar on page 11.
- » Teachers can get materials and training at the Aquarium so they can lead their own explorations.
- » Download a Reef Walk Resource Pack with tips on planning your outing, what to look for and how to be a good reef visitor. Go to www.waquarium.org and look under the Education & Classes tab.
- » To help manage the limited number of reef flats on O‘ahu, the Aquarium coordinates a voluntary reef walk calendar for schools and community groups. By marking down the date of your planned fieldtrip, you can help avoid multiple groups turning up at the same site on one day. Aquarium staff can also help pick the best tide times for your visit. Call Mary Roney at 440-9007.



REEF WALK ETIQUETTE

» LOOK MORE THAN YOU TOUCH

If you really want to learn about marine creatures, watch them in their own world first. Once you place them in a bucket you are observing only how they behave when they are stressed.

» ONE GENTLE FINGERTIP

Some organisms have defensive or feeding structures that can make them hazardous if handled. Be informed before you touch and, when you do touch, do it with one gentle fingertip to avoid harming the animal.

» RETURN ROCKS

If you explore under a rock, be sure to return it to its original footprint exactly the way you found it. If not, all the life on the top and all of the life exposed on the bottom will die.

» KEEP IT IN THE WATER

Bring yourself down to the animal's world rather than bringing it up to yours. Sea creatures get their oxygen from the water, they can't breathe in the air as we can. With hermit crabs, show children how to hold their palm up under the water and let the hermit crabs investigate their palm.

» ONE ANIMAL PER BUCKET

If you do collect for short periods, place only one animal in your bucket at a time. This minimizes stress on the animal and gives you time to focus on that one specimen.

» BACK WHERE IT BELONGS

Observe the organism briefly, then return it to its original habitat. Some marine animals live only in specific zones or microhabitats; others have a home territory that they defend and require to survive.

» SEaweEDS: PINCH DON'T PULL

Seaweed anchors to the substrate with root-like holdfasts — if you pull away the holdfasts, the entire plant is gone. If you pinch off branches, the seaweed can still regrow.



SUMMER INTERNS

The Aquarium is happy to welcome Isaac Takushi and Sloan Damon, who are spending the summer with us.

Isaac is a Dartmouth Partners in Community Service intern and a prospective biological science major and earth science minor. Working with Partners in Development and PACT, Isaac is coordinating ocean conservation programs and site visits to the Aquarium.

Raised in Minnesota, Isaac has extended family on O'ahu and considers this his second home. He first fell in love with the ocean here and hopes to inspire Hawai'i's youth to be responsible stewards of the Earth. His favorite marine arthropod is the harlequin shrimp.

Sloan is a junior at Deerfield Academy in Massachusetts. This summer he is working with the seajellies with Aquarist Darryl Tangonan.

From a kama'aina family, Sloan speaks Russian and has played tennis on five continents — only Australia and Antarctica to go, he says. He also enjoys astronomy, climbing, diving and the outdoors, plus he can play a mean game of chess. He once created a chess club for at-risk children; as the teacher, he would sometimes play as many as three games at once.

WORLD OCEANS DAY

Mahalo to the team from Duke's Waikiki who cleaned up baby Makapu'u beach on World Oceans Day, June 8. They donated to the Aquarium the proceeds they earned by filling one of Matson's *Ka Ipu 'Aina* containers. Aquarium staff also joined in and removed marine debris from neighboring Kaimana Beach.



MAUKA TO MAKAI CLEAN WATER EXPO



More than 3,000 people joined us to celebrate our Mauka to Makai Clean Water Expo in recognition of Earth Day on April 9. Organized by the city and county's Iwalani Sato and the health department's Lawana Collier, the event featured interactive educational displays, free native Hawaiian plants and activities from 30 agencies and organizations.

Photo at left (from l. to r.) Lawana Collier, Dr. Andrew Rossiter, Iwalani Sato, Gerald Crow and Alec Wong.



BEHIND THE SCENES: LIVE EXHIBITS

VISITORS FROM THE DEEP

Aquarist Norton Chan's arm is getting cold. Really cold. Using a long pair of tweezers he's offering a small piece of food to a spindly legged crab crouched on the bottom of a deep tank. The water is a decidedly chilly 59 degrees — nearly 20 degrees colder than most of the Aquarium's exhibits. It's that cold because the crab and its tankmates come from the far reaches of the ocean where it's cold and dark.

And, yes, these are otherworldly animals, tweaked by the extremes of their environment until they look decidedly freakish — but very, very cool.

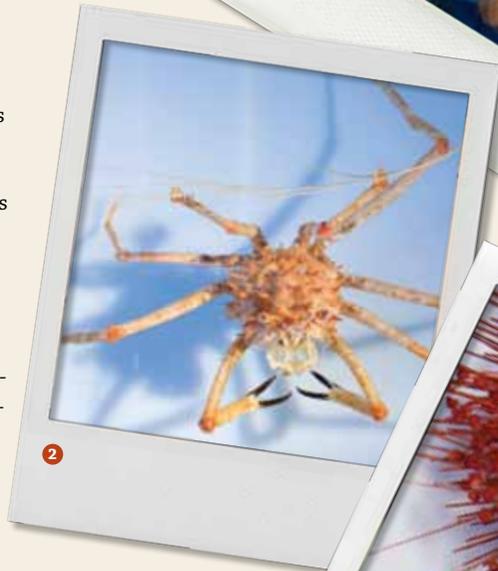
The animals all came to the Aquarium by way of the lab of U.H. Professor Dr. Jeff Drazen. An explorer of the deep ocean, Drazen is studying the pace of life and positing the effects of anthropogenic impacts such as fishing and carbon acidification on deep sea communities. His work is funded by the Hawai'i Undersea Research Laboratory and the National Science Foundation. So far his findings do not bode well. Life moves very slowly in the cold and dark, which means human-induced changes could be devastating. These animals do not grow and reproduce fast enough to keep up with changing conditions. In addition, the slow metabolisms of the individual animals cannot adjust to fluctuations as is the case with their distant shallow water relatives.

As part of his research, Drazen collects deep sea animals on his research cruises and conducts non-invasive respiration experiments in his lab. Collecting these animals is an art in itself. The animals at the Aquarium all came from around 250 meters (about 800 feet). At this depth, the pressure is so great a human would be crushed. But, because of the unique workings of their enzymes and cell membranes, the echinoderms and crustaceans that live down to about 1,500 meters are able to ascend to our world and survive in the different pressure — as long as their water stays at the same temperature. The collection boxes that Drazen uses are all made of thick, insulating plastic that keeps the water inside at a steady temperature as it is raised to the surface.

Even after years of working in this extreme environment, Drazen is amazed by what he finds. Just two miles off Hawai'i's coast there are fanged fish, glowing shrimp, spiky king crabs and, off the coast of Diamond Head, thousands upon thousands of sea urchins of an indescribable red carpeting the white sand.

Most people never get to see these animals, and even Drazen typically sees them only in glimpses from submersible cameras. So to have some of them alive at the Aquarium is a unique experience. As Chan works with the animals, his observations of their behaviors, feeding habits and growth rates will continue to add to our body of knowledge.

Because their metabolisms are so slow, Chan feeds them just three times a week. The *Paramola* crab takes the squid that's on offer



[1] An unknown species of *Diadema* urchin.

[2] The *Paramola alcocki* crab is often seen brandishing sponges or branches of coral, like this one. Drazen posits this is a defensive gesture — perhaps the smell or taste of the accessory is unpleasant to predators.

[3] Late last year Drazen saw thousands upon thousands of these red sea urchins covering the seafloor between 200 and 300 meters off Diamond Head. They seemed to be feeding on pieces of seaweed that drifted down the slope. Its name is *Micropyga*, "but that's about all I can tell you about it," Drazen says. "As with most of these animals, the rest is still a mystery." When they collected this specimen, Drazen discovered the small red shrimp sheltering in its spines.

today. Chan then checks the live rock that the urchins graze on. He flips one rock over to expose more algae for them. Then he gets his arm out of that cold water and lowers the tank lid, returning its inhabitants back to their twilight zone.

VOLUNTEER SPOTLIGHT

Naomi & Jordan Rakugawa

POSITION Edge of the Reef interpreters, docents, special events LENGTH OF SERVICE 2 years



Naomi

Background I was born and raised in Honolulu. I have been happily married to my husband, Ryan, for 25 years and we have three wonderful boys, Joshua, Jordan and James. **Career** I received a B.B.A. in personnel management from U.H. Mānoa and formerly worked as a training and development director. These days my career is as a

full-time mom. **I volunteer at the Waikiki Aquarium**

because Jordan developed an interest in marine biology and was interested in volunteering. He was invited to join training classes and I volunteered with him. I cherish the time we spend together learning. I also enjoy the people and the environment at the Aquarium, which is why I decided to become a docent, too. **The most rewarding part of volunteering is** being able to give back to our community by sharing my excitement about marine life with our guests. Meeting people from all over the world is truly a humbling experience and there's a special connection with someone who shares an interest in things I care about.

Interests When my boys get excited about a subject, that's when I have to become knowledgeable about it, too, and I end up developing an interest myself. Jordan's interest is a blessing; now I am passionate about sharing marine science with other families. We recently completed a marine science module with our homeschool co-op. I also enjoy reading, gardening and spending time with family and friends.

Best marine encounter Snorkeling off Molokini and around the islands has given me an appreciation of our ocean's marine life. Floating in the ocean is peaceful ... like being connected to my surroundings.

Favorite Aquarium resident The Commerson's frogfish is my fave. I tell the kids it can eat prey the same size as itself — in two gulps. Then I ask them, "Can you eat a pizza or hotdog the same size as yourself in two gulps?" After sharing this little fact with them, the frogfish becomes their favorite animal, too.



Jordan

Background I am a home-educated high school student. I started volunteering at the Waikiki Aquarium when I was 14 years old after (volunteer coordinator) Vangie White encouraged my mom and I to go through the Edge of the Reef classes. **Career** Full-time student. I also work part-time for the United States Tennis Association with my

older brother Josh. We teach beginning and intermediate tennis to everyone from 6-year-olds to adults. **I volunteer at the Waikiki Aquarium because** I want to study marine life and learn about our unique ocean environment and how to help others understand important conservation issues. **The most rewarding**



part of volunteering is gaining knowledge on ocean issues and getting involved in our community. **What I enjoy most at the Aquarium is** seeing the people — adults and kids — smile and have fun when they hold a little hermit crab in their hands and watch it crawl around. Watching their reactions makes me feel like I can make someone's day at the Aquarium a memorable one. **Most memorable moment** Getting talked into being Kimo the dolphin at the Aquarium for six weeks. My brother James was Olina the octopus. The kids really enjoyed interacting with the characters and, aside from the occasional tug on my fins and poke in my stomach, I enjoyed the experience, too. **Interests** Playing piano, tennis, computer video/editing, biology and marine biology, salt water aquariums, government, church ministries, spending time with family and friends. **Favorite Aquarium resident** I love watching the octopus. When it opens up the bottle to get its meal, that's really amazing.

A DAY IN THE LIFE

7:00 AM

I begin my morning rounds. I walk around the behind-the-scenes area to make sure all my systems are running normally and the animals are doing fine. Then I walk to the public side and check that the animals are looking healthy and the exhibits are clean. I also touch base with my student, Chelsea. She helps me do maintenance on my exhibits, which include the mangrove, nautilus, mini marine, seadragon and marine protected area tanks.

7:15 I prepare for a 15-gallon water change on the front entrance exhibit. I grab two barrels, one for siphoning out dirty water and one full of clean saltwater. I also grab cleaning tools and a siphoning hose. I pick and scrub algae on the rockwork — this can be a very tedious job but it's vital for the health of the exhibit. I clean the tank windows and walls and siphon out the loose algae and detritus. While I'm doing this, Chelsea cleans the protein skimmer, fills the calcium hydroxide drip bucket and rinses out the filter bag.

9:15 Chelsea and I start the feeding rounds — this is an ongoing affair and every animal has its own feeding regime. The nautilus are fed just three times a week while the seadragons and seahorses need food twice a day. We also grow some of our own food; I feed a pitcher of enriched *artemia* (brine shrimp) to our live mysis. The mysis are later fed out to the seadragons.

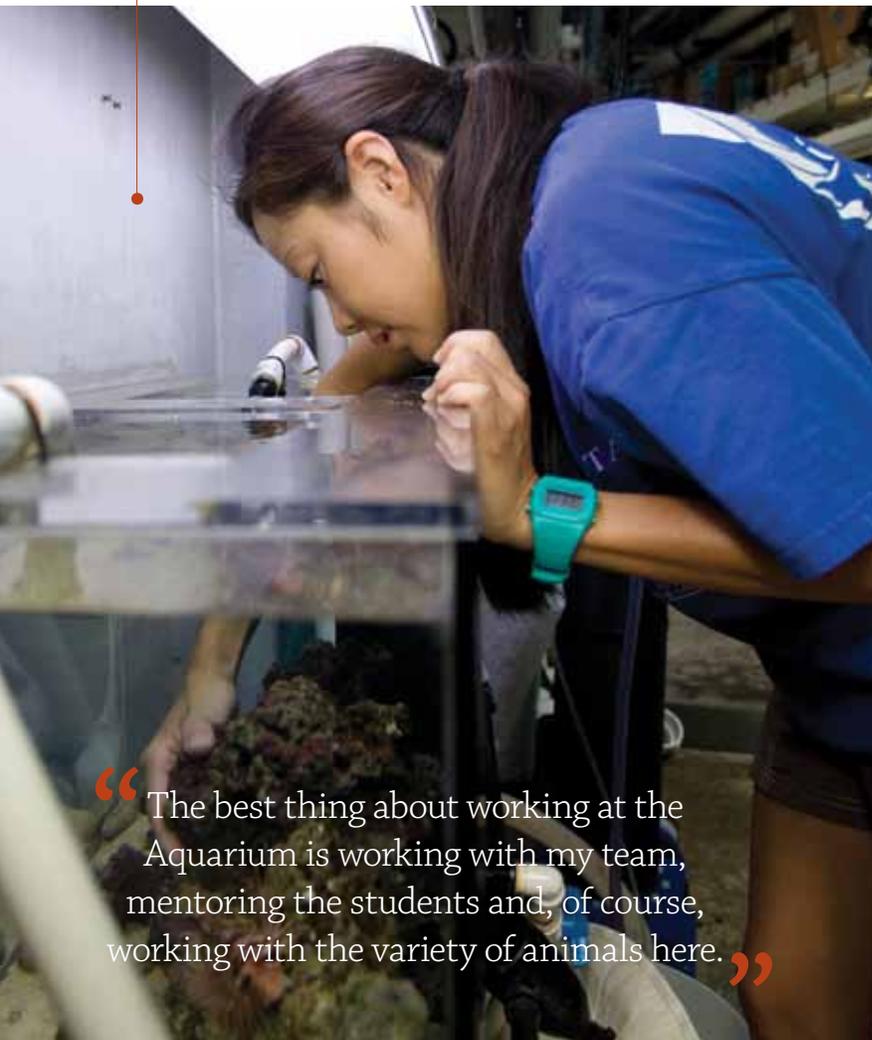
10:20 More cleaning and maintenance work: I clean the marine protected area and mini marine exhibits and then siphon the juvenile and adult seadragon holding tanks.

12:00 PM I have lunch in the Live Exhibits office.

1:00 Time to check email. I also do some work on our syngnathid project. We are in the planning stages for new exhibits on seadragons, seahorses and pipefishes as well as a research and breeding facility behind the scenes. Along with the design work, there's a lot of permit paperwork and ordering of equipment and supplies.

2:00 I feed the seahorses in the mini marine exhibit as well as the seahorses and lionfish that are behind the scenes. The juvenile and adult seadragons also get their second feed of the day.

3:15 I do the rounds of my exhibits again, checking that everything is working well before I leave for the day.



“The best thing about working at the Aquarium is working with my team, mentoring the students and, of course, working with the variety of animals here.”



Name Mariko Katayama
Job title Aquarium Biologist I
Year started at the Aquarium 2008
Education Schurr High School, Montebello, Ca., and California State University, Long Beach.
Etc. I enjoy spending time with my close friends at the beach, movies, barbecuing or cooking, or catching up over dinner. I also enjoy spending quality time with my two dogs (a pomeranian and chihuahua) playing ball, going on walks or playing at the beach. I also love to snorkel, scuba dive, hike and dance (jazz). My newest hobby is surfing. I'm still a beginner, but I like to pretend I know what I'm doing.

FRESH FACES



Wendy Lee +
Aquarium Biologist ++

Education Wilson High School, Hacienda Heights, Ca., BA aquatic biology, University of California, Santa Barbara (2005). AS aquarium science and aquaculture, Saddleback College, Mission Viejo, Ca. (2007).

Career I worked formerly at Birch Aquarium at Scripps Institution of Oceanography, Aquarium of the Pacific, Santa Barbara Sea Center, and Marine Science Institute, U.C. Santa Barbara.

My Roots I was born and raised in Southern California; my parents were born and raised here, in Hawai'i.

I fell in love with fish the first time that I landed a ping pong ball in a fish bowl at a fair and got to take the prisoner home. I was in preschool. I begged my parents for a bubble gum fish tank in first grade (this was huge in the 80s), and made my way up to a Little Mermaid fish tank by

fourth grade. I don't think that there has been a time in my life since then when I wasn't taking care of fish in one way or another. I always wanted a saltwater tank as a kid, but my mom used the "You can't keep your room clean, how do you expect to keep a saltwater tank clean" bit on me. So, once I got to college, I started working at the local aquarium and met some people who practically gave me a tank to start up a reef tank. Once I started working at the fish and coral store, I was better able to feed my addiction.

My niche So far, I've specialized in syngnathids, general fish disease management and plankton cultures. I love cephalopods of all sorts. My favorite, the Hawaiian bobtail squid (*Euprymna scolopes*), is found in Kāne'ohe Bay, so I am looking forward to working with them some time in the future. I also love southern sea otters ... but there aren't a lot of them here.

Interests I love my bunny, Pancake! He got a special lei when he arrived in the Islands. Last Halloween, he dressed up as a lobster. I also love to follow fish around while snorkeling or diving (I don't think that they love it as much) and baking yummy cute things.

Favorite Aquarium resident I think that the politically correct answer here is that I love all the animals just the same.

I wanted to join the Waikiki Aquarium team because historically, it has contributed so much significant research to the aquarium world. I'm happy to now be a part of the team and hope to add to the legacy of achievements.

In my new position, I look forward to working with syngnathids, ridding all fish of disease and discovering new species! Well, realistically, probably just the first two.

Photos: Kelsey Ige



SEA HUNT



More than 1,500 people hopped on over to the Aquarium on April 16 to celebrate Easter with a SeaHunt. Nearly 450 hunters searched the lawn for marine life puzzle pieces and earned magnetic wooden puzzles to take home.

Ronald McDonald was at the front door, greeting guests with McDonalds apple dippers. The Easter Bunny was busy in his burrow with a steady stream of visitors. And Diamond Bakery's Kimo the Dolphin and Olina the Octopus were here, ready to shake fins and arms with guests.

Keiki created their own clownfish puppets at the Aquarium's craft booth and drew their favorite ocean animal (and whatever else struck their creative fancy) on the Aquarium sidewalk using Crayola's newest sidewalk chalk. There was also an interactive floor from 212Com Media Solutions, which captivated the kids — big and little alike.

CLASSES & ACTIVITIES

July - September 2011

Afternoons at the Aquarium

Every Wed 3:00 p.m.

This summer the Waikiki Aquarium teams up with Reef Watch Waikiki for afternoon enrichment. Join us for 10- to 20-minute activities such as stories by the sea, ocean-themed crafts or hands-on games that test your Ocean IQ. Free with admission to the Aquarium.

Summer Nights at the Aquarium

July 5, Tues 6:00-8:30 p.m.

Aug 2, Tues 6:00-8:30 p.m.

Looking for something different to do on warm summer evenings? After the beach, stroll on over to the Aquarium with the family. Exhibits will be open, lights will be on and interpreters will be in the galleries all evening, so come at your leisure. \$6/adult, \$3/child (\$7/4 for non-members).

Oceans Alive!

Animal Homes: Sand, seaweed, coral & water

July 6, Wed 9:00-10:30 a.m.

Protection: Spines, teeth, venom & scales

July 7, Thu 9:00-10:30 a.m.

Sing, dance, move and groove. Draw, color, create and play. Observe, watch, look and touch. Learn more about the sea during Oceans Alive! Move through stations and enjoy a variety of hands-on activities while exploring the diversity of the marine world. Designed for keiki 2-5 years old. \$5/person (\$7 for non-members).

Tide Pool Exploration

July 13, Wed 7:30-9:30 a.m. Kewalo

July 15, Fri 8:00-10:00 a.m. Makapu'u

Spend a morning discovering sea slugs, collector crabs, brittle stars, spaghetti worms, ghost shrimps and a variety of other animals that the tide reveals. Explore shoreline, reef flat and tide pool habitats with Waikiki Aquarium naturalists. Participants must provide their own transportation to the field site. Minimum age 5 years; youngsters must be accompanied by an adult. \$8/adult, \$6/child (\$10/\$8 for non-members).

Ke Kani O Ke Kai

July 14, Thu

Amy Hanaiali'i

July 28, Thu

Nā Palapalai with Mailani

Aug 11, Thu

The Brothers Cazimero

Join us for our Thursday evening summer concert series under the stars. Aquarium doors open at 5:30 p.m. and concerts begin at 7 p.m. The galleries will be open throughout the evening. Low sand chairs and beach mats are preferred, please. Guests are seated according to the height of their chair at the discretion of Aquarium event staff. Net proceeds from the concerts will go toward phase II of a photovoltaic system. Tickets are \$25/adult, \$10/child 7-12 years (children 6 and under are free). Non-member tickets are \$45/adult, \$15/child 7-12 years. To purchase, go to www.honoluluoffice.com.

Activity Registration Form

NAME(S)

Adults _____ Phone (home) _____

Children/Ages _____ Phone (work) _____

Address _____

City/State/Zip _____ Email _____

PLEASE REGISTER ME FOR:

Activity	Session	Date(s)	Number of Adults/Children	Price
_____	/	_____	_____	_____
_____	/	_____	_____	_____
_____	/	_____	_____	_____
_____	/	_____	_____	_____

Total amount of payment enclosed (check payable to University of Hawai'i) _____

IF PAYING BY CREDIT CARD

Credit card # _____ JCB Visa Mastercard

Expiration date _____ Last three digits of security code on back of card _____

I am a FOWA Member Yes No



Aquarium After Dark

July 15, Fri 7:00-9:00 p.m.
 July 21, Thu 7:00-9:00 p.m.
 Aug 16, Tue 6:30-8:30 p.m.

Discover if fish sleep, sea snails snooze or weedy seadragons doze on an after-dark flashlight tour of the Aquarium. Find the sleeping spot for the red-toothed triggerfish or the rockmover wrasse. What color are yellow tang at night? Minimum age 5 years; youngsters must be accompanied by an adult. \$10/adult, \$7/child (\$14/10 for non-members).

Family Night: Meet the Molluscs

Aug 26, Fri 6:00-8:30 p.m.

Family Night is here again and this year it is brought to you by the molluscs: the snails, octopuses and squids. Visit the investigation station filled with special museum artifacts and the touch tanks with their interesting animals. Octopus experts will be on hand to answer questions. You can play games. Watch an octopus puppet show. And join the scavenger hunt through the exhibits. In between activities, enjoy the warm summer evening and picnic on the lawn. It's fun for the whole family. \$10/person (\$12 for non-members). All ages welcome; children 2 and under are free.

Small Fry

Sept 1-29, Thu
 A Session 8:30-10:00 a.m.
 B Session 10:30 a.m.-noon

For the youngest learners! An adult and their 1- to 3-year-old team up to discover the amazing undersea world of the Aquarium. Five weekly sessions include crafts, song, play and exploration of the exhibits. For adult-child teams. \$60/adult & child (\$80 for non-members).

Ocean Literacy Day: Fish tales, chronicles, critters and crafts

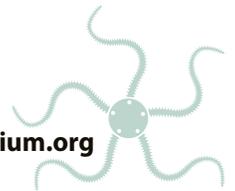
Sept 17, Sat
 Join us for keiki arts and crafts, storytelling and more as books about the ocean come to life with mermaids and costumed characters. Sponsored in part by Diamond Bakery and Crayola.

NOAA Ocean Exploration Curriculum Workshop at Coconut Island

Sept 24, Sat 9:00 a.m.-3:00 p.m.
 Bring the excitement of modern day explorers to your classroom through NOAA Ocean Explorers' website and curriculum focusing on explorations into extreme environments. Middle and high school teachers will be provided stipends to cover time and travel from neighbor islands.

Marine Educators' Night at the Waikiki Aquarium

Sept 24, Sat 6:00-8:30 p.m.
 Explore the Aquarium while discovering new education resources and old friends. NOAA's Ocean Explorer website, research and curricula will be highlighted, as well as the many resources available to educators to support marine curricula. Representatives from state and federal organizations will have tables set up with instructional materials. Refreshments will be provided. The evening is free for educators and a guest. Both programs sponsored by NOAA's Ocean Explorer program and the National Marine Sanctuary Foundation.



Look for class updates on: www.waqaquarium.org
PRE-REGISTRATION REQUIRED

Registration Information

- » Pre-registration is required for all activities.
- » FOWA members are allowed up to four total registrants at FOWA rate.
- » Questions about the activities? Call the Waikiki Aquarium Education Department at 440-9007.
- » A handling fee of \$5 will be assessed for withdrawals.
- » No refunds can be made for no-shows or for withdrawals made seven days or less before an activity.

To register by phone:

Call 440-9011. Visa, Mastercard and JCB are accepted.

To register by mail:

Full payment must accompany completed registration forms. Please, no cash. Make checks payable to **University of Hawai'i**. Visa, Mastercard and JCB are also accepted.

Mail the completed registration form with a check or credit card information to:

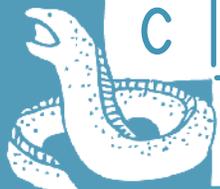
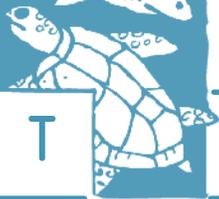
Waikiki Aquarium Education Department
2777 Kalākaua Avenue
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SEASQUIRTS



FIND THE WORDS!

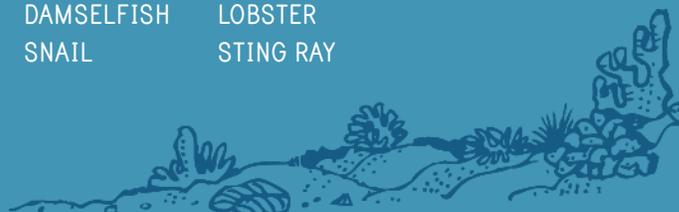
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THE REEF PROVIDES LIVING SPACE FOR MARINE LIFE OF ALL KINDS

- | | | | | | |
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| BRITTLE STAR | BUTTERFLYFISH | CORAL | CRAB | DAMSELFISH | LOBSTER |
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| SURGEONFISH | TRIGGERFISH | URCHIN | WORM | | |

Artwork by A. Tsukamoto



NEW & RENEWING FOWA MEMBERS

The Membership Office recorded these new and renewing memberships between Feb. 6 and May 9, 2011.

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If your name is not listed or is listed incorrectly, please accept our apologies for the error and our most sincere thanks for your support.



Beyond the Reef Benefit Dinner

It was an enchanting evening on the lawn on June 10 when we celebrated *Beyond the Reef*, an inaugural benefit event for Friends of Waikiki Aquarium.

Guests enjoyed delicious fare from Chef Ed Kenney of TOWN Restaurant and got a sneak peek at our newest exhibit highlighting the Northwestern Hawaiian Islands. Dr. Randy Kosaki from the National Oceanic and Atmospheric Administration and Dr. Rob Toonen from the Hawai'i Institute of Marine Biology both shared their insights about the Northwestern Hawaiian Islands and what makes these remote islands and atolls so unique and diverse.

A special mahalo to the many FOWA board members who helped make the event such a success, including Jim Tam, Nancy Taylor, Mike Niethammer, Barbara Campbell and Dr. Chuck Kelley.

Mahalo also to the rest of our FOWA board and to our sponsors for supporting what promises to be an exciting annual event.

To view more photos, please find us on Facebook.

Photos: [1] John Morgan and Dr. Chuck Kelley [2] Nancy Taylor [3] *Left to right*, Damian Roncevich, Rita Mills, Elizabeth Korczykowski, Bata Plavsic, Nha Reznikov, Roman Reznikov [4] *Left to right, top row*: Dr. Andy Rossiter, Tim Guard, Dr. Randy Kosaki, Dr. Rob Toonen, Duane Fujitani *Left to right, bottom row*: Yoshiko Rossiter, Corinne Kosaki, Raina Fujitani [5] Kathryn Taylor & Richard Klobuchar

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Kilo i'a Issue Number 178
SUMMER 2011

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The Waikiki Aquarium's Mission:

To inspire and promote understanding, appreciation and conservation of Pacific marine life.



Photo: Alice Keesing