

www.waquarium.org

Kioloa

Summer 2010

looking at the sea



CRUSTY CHARACTERS
CLASS CALENDAR

FROM THE DIRECTOR

For those who have visited us recently, it is clear to see we are in the midst of some major renovations in Gallery 4, where construction of the new Northwestern Hawaiian Islands exhibit is now well underway. And this much-anticipated exhibit is the first in a string of exciting new changes.

Once the NWHI exhibit is complete next year, we will begin work on the opposite side of the gallery on a new Hawaiian Streams exhibit, which will come complete with a cascading waterfall. Our attention will then turn to the wall near the exit, which currently houses the Reef Machine and the museum display. This will become the new home of an exhibit showcasing fishes of the family Syngnathidae, better known as the seahorses, seadragons and pipefishes. We can only anticipate that this will be a very popular addition to the Aquarium.

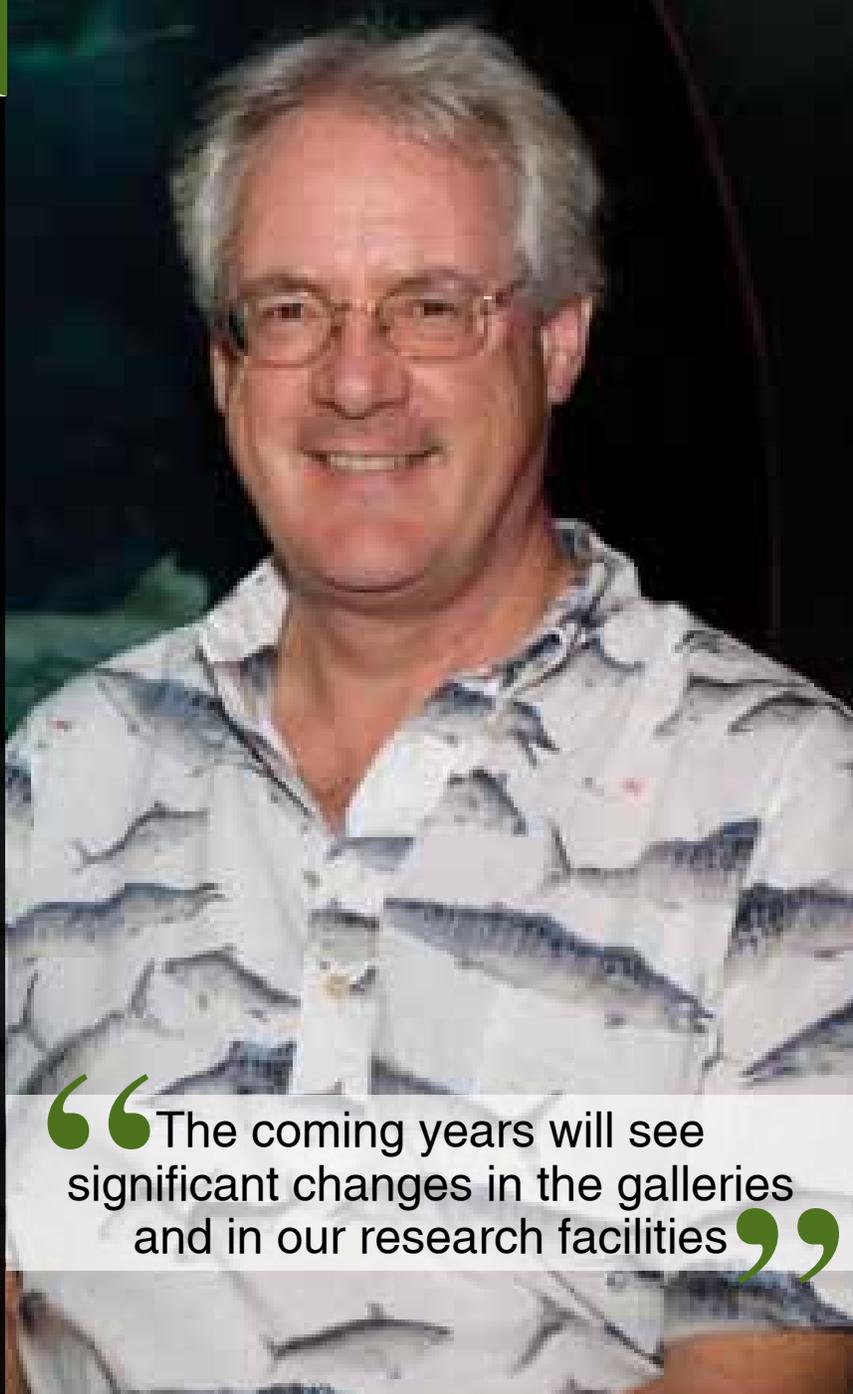
The exhibit will be supported by a new Syngnathidae research and breeding facility behind the scenes. And next to this structure will be space dedicated to research on nautilus biology and breeding. Construction for these two behind-the-scenes projects should get underway this summer.

The money for the seahorse exhibit and research area and the nautilus project have been approved by the Friends of the Waikiki Aquarium Board and are derived from FOWA memberships and donations that have been generously provided by FOWA members over the years. We thank you for your support.

The NWHI exhibit and the Hawaiian streams exhibit are both funded with money raised at Ke Kani O Ke Kai. The concert series is the Aquarium's sole fundraising event and, since its revival six years ago, the Aquarium's exhibits have benefited greatly. The Ocean Drifters jellyfish gallery was realized thanks to money from the concert series, along with generous support from the Goldfein and Spottwood families. To see where money from this year's concerts will be directed, turn to page 8.

We have enough major exhibit-related projects to keep us engaged for at least the next two years, all the while remaining true to our mission of education, research and conservation of Pacific marine life. The coming years will see significant changes in the galleries and in our research facilities; changes we think are positive and that we hope you will approve of. It is always our aim to please, both the animals housed at the Aquarium, and you, our visitors who come to see them.

Dr. Andrew Rossiter
Director



“The coming years will see significant changes in the galleries and in our research facilities”



Kilo'ia

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MARK YOUR CALENDAR



It's summer and we're rocking to the sounds of the ocean once again with our perennially popular summer concert series.

Mark your calendar for these five unforgettable performances and see our calendar on page 11 for more information. Money raised by the concert series will help fund the first phase of a photovoltaic system at the Aquarium.

- | | |
|---------|---------------------|
| June 17 | Hapa |
| July 1 | Makana |
| July 15 | Willie K (sold out) |
| July 29 | Amy Hanaiali'i |
| Aug. 12 | Ho'okena |

As we get the stage set for this year's concert series, we'd like to send our mahalo to a long-time friend of the Waikiki Aquarium, the Outrigger Enterprises Group. This kama'aina company has been a long-time sponsor of the summer concert series. We also benefit greatly from the personal commitment and time of many of Outrigger's senior executives, including our current board chair Dr. Chuck Kelley and board member Barbara Campbell. Over the years, Outrigger has sent thousands of its guests to enjoy our exhibits and learn more about marine life conservation and preservation.

"The Waikiki Aquarium is one of our state's most treasured attractions, with an important mission that Outrigger supports wholeheartedly," says Kelley. "I grew up in the waters off Waikiki — swimming, surfing, snorkeling — so I know how important it is for all of us to do what we can to help people understand and appreciate the importance of a healthy ocean and its marine life. That's what the Aquarium is all about, and it does a phenomenal job."

A Whole of a Tale

Join us at the Aquarium as we celebrate **Ocean Literacy Day** with an afternoon of activities, storytelling and mythological creatures from under the sea.

Keiki activities will include arts and crafts, storytelling and creative movement. Celebrity storytellers will read popular books about the ocean and its underwater creatures with books from Bess Press, Beach House Press, Mutual Publishing, Watermark and Bishop Museum Press.

Costumed characters including Ronald McDonald, O'opu and Sharky will entertain on the lawn, while mystical mermaids whirl through the event. Parents will also have the chance to win an Apple iPad from event sponsor Diamond Bakery.

The event runs from 10 a.m. to 1 p.m. and is free with daily admission.

Saturday, September 18

July 13 & August 10

COOL SUMMER NIGHTS

The doors to the Aquarium are open this summer for some special nights. Enjoy the nightlife in the galleries — you'll spot some fishes and crustaceans who normally hide away by day — and take in the special presentations.

On July 13, we celebrate **Shark Week** with Hawaiian craftsman 'Umi Kai. Beginning as a teenager, Kai taught himself how to make the implements of old-day Hawai'i — the weapons, poi pounders and boards, kapa beaters and fishhooks. Today, Kai is one of the most esteemed weapons makers in the Islands and his work is found in museums around the world.

On Aug. 10, we celebrate the **Wildlife of Waikiki** with Reef Watch Waikiki and showcase our new Hawaiian cultural garden, which explores the ancient Hawaiian links between the animals in the ocean and the plants on land.

See the calendar on page 11 for details.



CRUSTY

CHARACTERS



Crustaceans don't have the immediate flash and dash of some ocean creatures. They scuttle, they hide, they pugnaciously wave their armored claws. But linger awhile and you can't help but be enthralled. How can you resist the anemone crab, which bedecks itself with a protective garden of stinging shellmates? How can you help but respect the crustaceans' venerable history, which reaches back to the Cambrian Period?

In Hawai'i we know the ubiquitous 'a'ama crabs that scuttle on the black rocks, and the delicious spiny and slipper lobsters and the humble hermit crabs. But Hawai'i is also home to a much wider community of fascinating crustaceans — although most of them are rarely seen because they are such masters of disguise and because many of them only come out at night.

This summer we're diving into the fascinating crustacean kingdom. On Family Night, come and visit with some of these intriguing animals. And embark on some of your own crusty adventures — we've got some ideas here to get you started.

The anemone hermit crab takes its shellmates along when it moves house into a new shell. The anemone's stinging tentacles offer the crab a defensive curtain; while the anemone may benefit by catching scraps of food thrown up by the crab's messy eating habits. Photos: Alice Keesing.



1. Start here

Join us for Family Night on Aug. 27 and meet a whole cast of crusty characters. (See the calendar on page 12 for more information.) In the fall, sign up for one of our night reef walks, when you'll see all sorts of things that are hiding by day. Our exhibits, like Miniature Marine Life, are also home to numerous crustaceans, although you sometimes have to look very carefully. Stop by the Kāne'ōhe Bay exhibit during evening events and look for the marbled shrimps; they are green by day and red by night — do you know why?

2. Go on a ghost hunt

Grab some flashlights and head to a Windward beach at nighttime for a ghost crab hunt. The crabs are out foraging on the beach under the cover of darkness. See who can spot the biggest ghost crab — the males can reach at least 3 inches across the carapace.

3. Who are the pyramid builders?

During the day, see if you can pick which holes belong to the mature male ghost crabs. They hang out a calling sign by piling their excavated sand into a neat pyramid — females and juveniles just scatter their sand all over the place.

4. Hermit crab real estate

Real estate can be a scarce commodity in a tidepool, so if you find an intact shell with a round hole — the kind that tidepool hermit crabs prefer — put it in a tide pool and watch what happens. If the population dynamics are right, you might see the hermit crabs move house. The No. 1 crab will move into the new shell (once it's determined it to be to its liking), then the next largest crab will move into its vacated shell, and so on down the line. Yes, this does belong in the "too cool to be true" category, but it has been personally witnessed by our Education staff. It doesn't always happen — but it's fun trying.

5. Rice crispies on the reef

Head down to a rocky or muddy area at low tide (Kuli'ou'ou Beach Park and the Kewalo end of Ala Moana Beach Park are good spots). Walk down to the water's edge and listen. Hear rice crispies? That's the sound of hundreds of snapping shrimp clicking their claws. The noise these tiny shrimps make rivals the sounds of much larger animals like sperm and beluga whales. The acoustic pressure they generate is strong enough to kill small fish. The shrimps also use it for communication.

6. Walk like a crab

As Aristophanes once said, "You cannot teach a crab to walk straight." But can you learn how to scuttle sideways like a crab? Try it. Then organize some crab races amongst yourselves.

7. Conduct a crustacean census

Visit a supermarket that sells live crustaceans, like lobsters (try Don Quixote, Tamashiros or the Beretania Foodland) and conduct your own anatomy investigations. Spot the difference in a Maine lobster's claws: one is bigger — the lobster uses that for crushing — and the other is smaller — used for pinching. And check out their eyestalks. The lobster's eye features a remarkable geometry found nowhere else in nature; it has tiny facets that are perfectly square. This marvel of design probably allows the lobster to detect motion in dim light; it has also inspired human designers in the design of an astronomical telescope that can focus X-rays from heavenly bodies.

8. Hatch a sea monkey

Remember those? You can still buy them and kids still love having them as pets. Sea monkeys are actually brine shrimp, an aquatic crustacean that has evolved little since the Triassic. Brine shrimp eggs can survive in stasis for years without water or oxygen; once placed in salt water, they hatch within a few hours. Brine shrimp are not found in the ocean, rather in inland salt lakes. They are an invaluable food source in the aquarium and cultured shrimp trades.

9. Find a raft

If you see a piece of driftwood on the beach, stop and take a closer look. That floating piece of wood can become the nucleus of a little world with numerous inhabitants, including barnacles. Yes, barnacles are crustaceans, too, and they do have legs. But instead of crawling after food, they attach themselves to a hard surface (they have one of the strongest known natural adhesives) and wait for food to wash by. Then they reach out long feathery legs to strain out plankton and absorb oxygen.

10. Feed the sand turtles

When Portuguese man-o-wars start washing up on the beaches, try throwing them back (please, use a stick or spade) into the water line for the sand turtles. If the sand turtles, or mole crabs, are around, you'll see them burrowing under the sand in a beeline for the food. (For those feeling a bit squeamish about the man-o-war's fate; remember, if they've washed up, their fate is already sealed.)

11. Ode to a crustacean

Compose a poem to your favorite crusty. We like this one by Sandra Liatsos. (Send us your literary endeavors and you might get published in the *Kilo i'a*.)

Hermit Crab

*I watch him scurry on the sand
To find a house that's second-hand.
He crawls in someone else's shell
And stays because it fits him well.
Imagine if we did the same,
Just barged right in and staked a claim
To any empty house that fit,
Then settled down to live in it.*





figuring OUT

>> barnacles

1,220 Approximate number of known barnacle species. Barnacles are crustaceans and therefore related to crabs and lobsters.

500-510 million years

The traceable geological history of barnacles goes back to the Middle Cambrian Period.

6 Number of plates on a barnacle shell. The ring of plates is homologous to the carapace of other crustaceans. Inside the shell, the animal lays on its back, with its limbs pointing upward. Free-living barnacles attach their foreheads to the substrate using cement glands that are located in the first pair of antennae.

2 Number of plates that the barnacle can slide across like a door, helping it avoid predation from the likes of whelks, mussels and some sea stars.

6 Number of pairs of limbs on a barnacle. They are feathery and very long and used to filter food from the water.

1,000 Approximate number of larvae released in one barnacle clutch. Most barnacles are hermaphrodites, meaning they have both male and female reproductive organs. They can fertilize themselves, but when other barnacles are growing close by, as is typically the case, the male organ will fertilize the eggs of the female half of a neighboring barnacle.

0 Number of hearts a barnacle has. Instead, the animal has a sinus close to the esophagus that pumps its blood.

1 Number of eyes a barnacle has. It's likely this eye only senses light and dark. The animal's main sense is touch; the hairs on its limbs are particularly sensitive.

12 inches Height of the largest barnacle, *Austromegabalanus psittacus*, which is native to the coasts of Chile and southern Peru. This picoroco barnacle is used in Chilean cuisine.



Dragon spotting

Keep an eye out for dragons in the galleries in the near future. The Aquarium has a new herd of weedy seadragons waiting behind the scenes.

Weedy seadragons are the only member of the genus *Phyllopteryx*; they are related to leafy seadragons, seahorses and pipefishes. Weedy seadragons are only found in the shallow coastal waters of southern Australia, where they are protected. They spend their lives in kelp forests, seagrass meadows and seaweed beds.

Clam undergoes second joint surgery

Last year we shared with you some groundbreaking work performed by Live Exhibits staff on the broken hinge of the derasa clam in the Coral Farm. The clam's hinge had become worn and the animal's health was declining because it was unable to open and close properly. Aquarists Rick Klobuchar and Eric Curtis created an artificial joint for the clam, which successfully returned the animal to health.

Over time, however, the plastic in that joint had degraded, so Curtis fashioned a modified "beta" version with stainless steel. The clam continues to flourish.

In June, Klobuchar presented this groundbreaking work at the Regional Aquatic Workshop at the Henry Doorly Zoo in Omaha, Neb.

While there, he was also able to take in numerous presentations on corals and invertebrates. The trip was funded by the Pepsi/Carlson Grant.



BEHIND THE SCENES

LIVE EXHIBITS

Behind the scenes at the Waikiki Aquarium — it's a place where pumps constantly hum, where it's often damp underfoot, where you get the occasional pungent waft of fish food. It's also where you'll find our Live Exhibits staff, sometimes in wetsuits and masks and always busy. They're among the best in the business, adept at taking care of the fussiest feeders, the trickiest corals and the odd emergent situation.

SEA DRAGON E.R.

The warning signs went up fast late last year when the weedy seadragons started showing signs of distress. Seadragons typically have hearty appetites, so Student Aquarist Krista Read knew something was wrong when they weren't feeding well. They were also lethargic and floating near the tank's surface.

Aquarium Disease Specialist Eric Curtis knew he had to jump on the problem fast. The seadragons are among the Aquarium's rarest residents and he knew the situation was critical. When one of the seadragons began floating belly up, the Live Exhibits team pulled together for an emergency response.

Aquarist Alan Nelson placed bubble wrap on the water surface to keep the animals from drying out as they floated near the top of the tank. And Aquarist Mariko Katayama suggested trying an antibiotic that is relatively new in the treatment of syngnathids. It's a broad spectrum antibiotic for humans, but she had used it with great success while raising young seahorses at the Maui Ocean Center.

The team decided to avoid any further stress on the animals and treat them in the exhibit rather than moving them behind the scenes. Getting medicine into a seadragon is no easy task. At night, a 10-gallon treatment tank was suspended in the cylindrical exhibit and the seahorses were corralled in there to bathe in a solution of the dissolved antibiotic. Curtis also administered a second medication — one used to treat glaucoma in humans — to help with the animals' buoyancy problems.

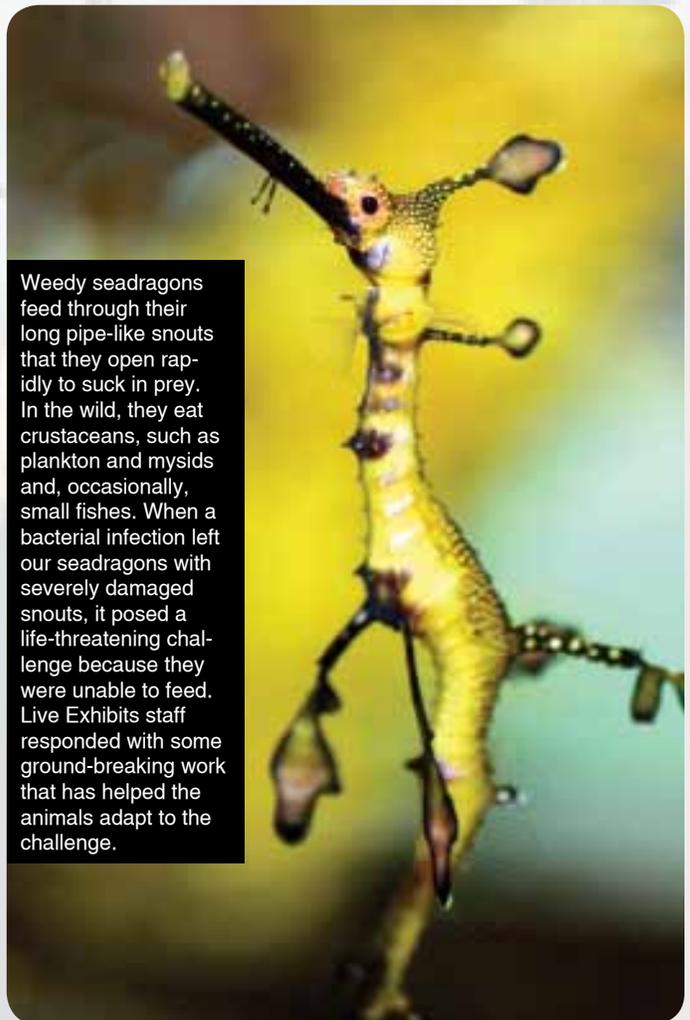
Several days into treatment, Katayama observed the mouths and extremities of the dragons eroding away — a probable sign of a bacterial infection. The team continued with the treatment and slowly the animals' behavior began to return to normal. But the LE team was still very concerned. The animals' mouths had been eroded by the infection — one of them so badly that it was impossible for it to feed. Without food, the seadragon was going to die, so Curtis decided to try tube feeding the animal — something that, to his knowledge, no other aquarium had been able to successfully do.

Again, members of the LE team put their heads together to come up with a seadragon-sized feeding tube. They took a small pipette and heated it and stretched it into a thin flexible tube, which was attached to a syringe containing an enriched gruel of mysid shrimps.

The procedure was a delicate job. Before opening hours, the team set up in the gallery next to the seadragon exhibit. The seadragon was placed in a container and anesthetic was added to the water flowing past its gills.

Curtis knew he had to be fast and accurate. Straightening the animal's neck and snout, he gently inserted the modified pipette into the animal's eroded jaw and fed it down to its stomach. Once there, he slowly injected the gruel, before retracting the feeding tube. The whole procedure took no more than 10 minutes.

To the team's excitement, the animal recovered well from the procedure and soon began to show small signs of improvement. LE staff continue to watch him



Weedy seadragons feed through their long pipe-like snouts that they open rapidly to suck in prey. In the wild, they eat crustaceans, such as plankton and mysids and, occasionally, small fishes. When a bacterial infection left our seadragons with severely damaged snouts, it posed a life-threatening challenge because they were unable to feed. Live Exhibits staff responded with some ground-breaking work that has helped the animals adapt to the challenge.

closely, however. The animal's mouth will not rebuild and feeding will always be a challenge.

LE staff are working on ways to help it and may end up taking it off exhibit so they can work more closely with it behind the scenes on alternative ways of feeding. Still, the fact that it came this far is a remarkable achievement.

When you enter the Aquarium's doors these days, you are literally taking a step in the right direction. That's because you are walking on new mats that are made from recycled plastic bottles. It's all part of our energized push toward conservation.

It is the Aquarium's mission to protect and conserve Pacific marine life. To us, this does not just mean exhibiting and researching the fishes and animals that live in the ocean, it also means protecting the ocean that is their home. Therefore, it is not a great leap for the Aquarium to promote environmentally responsible practices.

Our annual Earth Day event is a major move in this direction. Also, over the last few years we have replaced disposable plastic water bottles with reusable bottles at our concerts; we have installed a solar panel for hot water for staff showers; and our gift shop now carries an increasing range of environmentally conscious items.

This summer's Ke Kani O Ke Kai summer concert series will allow us to take another step in the right direction. The concert series provides some of the best balmy evening entertainment, but it is also the Aquarium's sole fundraising event. In year's past, money raised by the concerts has gone toward new exhibits.

We currently have a swath of new projects in the works, so, this year, we opted to channel funds into our green movement.

Money raised at the concerts will go toward the first phase of a photovoltaic panel array on our roof. Photovoltaic panels produce electricity from sunshine — a renewable energy source that is in abundance at our Waikiki location. Using photovoltaic-generated power will reduce our use of fossil fuel-derived electricity and, thus, decrease our carbon footprint. It will also lower our electricity costs — which are in the order of \$25,000 every month — thereby freeing up money for other Aquarium projects.

The shading provided by the panels will also save power because it will reduce the need for air conditioning in the upstairs offices — thermal insulation was an alien concept when our flat-roofed structure was built 55 years ago.

It is our hope that the array will also become a teaching tool to demonstrate to visitors how such systems can be both environmentally and financially beneficial.

The proceeds from the 2010 concert series will cover only the first phase of this project; over the years, we will continue to allocate money from various sources to expand the array. So, as you enjoy the good vibes at the concert series this year, you can also feel good about the cause that you are supporting. Thank you.

THE RIGHT STEP

Marine Educators' Night



Participants at last year's Marine Educators' Night are illuminated by a hands-on look at bioluminescence.

On Sept. 25, the Waikiki Aquarium hosts marine educators for an evening of mingling with colleagues and learning more about the modern explorers who are uncovering the mysteries of our planet's oceans.

The galleries will be open, refreshments will be served and resource materials will be available from multiple organizations. NOAA's Ocean Explorer program will also be highlighted. The Ocean Explorer program allows educators and their students to follow the deepsea explorations of NOAA's scientists through video, podcasts and other materials.

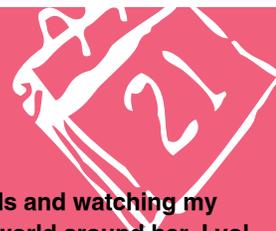
You don't have to be an educator to enjoy the Ocean Explorer site. At <http://oceanexplorer.noaa.gov/>, you can browse galleries of phenomenal undersea images; listen to the sounds of the sea, from a blue whale to a volcanic tremor; read about the history of ocean exploration; and learn about the technology and the people who make it happen.

For more information on Marine Educators' Night, see the calendar on page 12.



A Day in the Life

Name **Raina Fujitani**
Position **Events & Membership Manager**
Year started at the Aquarium **2008**
Education **Kalani High School (1987), UH-Mānoa, BA journalism and communication (1992)**



Etc. **My favorite time is spent with family and friends and watching my 2-year-old daughter, Eighla, grow and discover the world around her. I volunteer with 'Ōhi'a Productions, both on-stage and back-stage. Plus I enjoy yoga and dance (jazz and ballet) whenever possible, and love attending any type of musical or theatrical experience. I am also a Disney fan — I just visited Disneyland with family and was reminded of how much anything Disney-related makes me smile.**

7:15 a.m. Check email and phone messages. This is a major communication line with everyone from members to FOWA board members to facility renters to corporate sponsors.

8:30 a.m. This time of year we are deep into preparations for the Ke Kani O Ke Kai summer concert series. This morning I conduct training for volunteers — they are the core of our manpower for the event.

10 a.m. I update the concert information on our website and add sponsor logos and links to their websites.

10:15 a.m. I make a quick call to our marketing company, Becker Communications, to check on details for the restaurants that will be serving food at the concerts. We need to be sure of their arrival times and equipment requirements, plus I need their menus, their logos and other company information to include on the event programs.

10:30 a.m. Do a map of the concert layout and confer with Facilities Manager Gerald Crow. Placing equipment and other stations at the right places helps avoid people traffic jams during the concerts when we can have more than 600 people on the lawn.

11:15 a.m. I stop by our graphics department to review proofs of programs, posters, banners and event signage and work with Kelsey Ige to adjust the layouts and add and revise copy and images.

noon I grab a quick lunch at my desk, taking the time to read the daily newspapers online. (On Fridays I treat myself to lunch out!)

1 p.m. We have a green movement here at the Aquarium: I order compostable cups for wine service at the concerts, along with five water coolers and 30 five-gallon bottles of water so we don't have to sell plastic water bottles at the event. I also order Waikī Aquarium logo items

such as stainless steel water bottles, cushions and tote seats, which will be sold at the concerts. Then I revise and update the event timeline: This is given to everyone working at the event to ensure everything runs smoothly.

2 p.m. More phone messages and emails have come in through the day. I respond to an inquiry about our facility rental service and get back to a confirmed renter who has questions about the equipment that can be set up at the Aquarium for their event. I ask our events staff to work with the facilities department to meet the renter's request. I also reply to several messages about membership and upcoming programs at the Aquarium.

2:30 p.m. I drive to our storage facility to grab supplies, signs and seating zone markers and reusable water bottles for Ke Kani. While I'm there I put away supplies from SeaHunt.

3 p.m. I sit down with Community Outreach Director Marylou Foley to coordinate details for an upcoming Keiki Fair at Kāhala Mall. We will provide an activity for the kids, answer questions from the public and share information about the Aquarium and our membership program.

3:30 p.m. I interview a facility rental staff candidate and train three new facility rental staff members on policies and procedures.

4:15 p.m. It's time to leave so I can pick up my daughter. I take some files home with me so I can catch up on more paperwork.

“It makes my day when I see the excitement in the eyes of children who visit the Aquarium. It's also great to hear from the families who attend our special events or who rent our facility that they had a great time and to know that I had a hand in providing those experiences for them.”



EILEEN AWAI

Volunteer SPOTLIGHT

Position Gift shop assistant **Length of Service** 24 years
Occupation Retired after 30 years teaching in the public schools.
Background Eileen was born in Hilo and is a graduate of Hilo High School. She attended the University of Hawai'i at Mānoa's teachers' college where she earned her Bachelor's in education and a fifth-year teaching certificate. Eileen has two children, one of whom is Marj Awai, a former Aquarist at the Aquarium.
Interests Traveling to visit children in Phoenix and Atlanta. Baking and making jellies and mango chutney. Doing crossword puzzles and Sudoku. Enjoying luncheon dates with other retired teachers, high school classmates, friends and relatives. "I also love to sew and do both sashiko (Japanese quilting) and Hawaiian quilting — I make bedspreads, baby quilts, cushions and hangings."
I Volunteer "because I love the Aquarium! The animals and fish are just beautiful. It's a lively place and I've seen it grow: the Edge of the Reef was built, the seal pool was moved, the dolphins left. The staff has changed and people have moved on, but all were friendly and delightful and the present staff are very considerate and friendly."
The Most Rewarding Part of Volunteering "is meeting all kinds of people from all over the world who are shopping for their loved ones. It's good knowing that I am part of a team that helps the Aquarium."
Best Part of the Aquarium "All the colorful fish, the seals, the coral — we need them all."
Best Marine Encounter "At the Aquarium actually. It was waiting for the nautilus to hatch for the first time. I was able to go behind the scenes to see it happen."
Favorite Aquarium Resident The octopus!

on BOARD

There are 15 people currently serving on the Friends of the Waikiki Aquarium board. To acquaint you with these people who volunteer their time to help the Aquarium, *Kilo i'a* features one board member in each issue.



Name
Kimo Greenwell
Joined FOWA board
January 2010
Can also be found at
commercial real estate developer MW Group Ltd., where he is a leasing manager.
Education
Punahou (1994), University of Denver (1998), Chaminade University (MBA, 2004).
Favorite Aquarium resident
Ulua

What inspired you to become a FOWA board member?

The Aquarium has given so much to so many people. Whether it's memories of a special event held on the lawn, to seeing a monk seal for the first time, to learning more about the ocean that surrounds us. Being a part of FOWA is just one small thing I can do to give back to such a great resource.

What do you enjoy most about the Aquarium?

I enjoy the fact that the Aquarium allows anyone, regardless of age or residence, to observe and learn about our oceans' inhabitants. All of the exhibits provide visitors with an authentic up-close and personal experience with Hawai'i's sea life. I also really enjoy attending the various events that are held on the lawn; the views overlooking Waikiki and the ocean are spectacular.

What do you believe is the Aquarium's role in Hawai'i?

Primarily, I would say education. I know I learn something new every time I visit the Aquarium and I have always admired the wide variety of youth-related programs that the Aquarium provides. The Aquarium also does a great job of educating the public about the importance of ocean conservation.

On a personal note

In my free time I usually try to do something in the ocean, whether it is surfing, paddleboarding or fishing ... I always feel better if I can spend some time in or around the water!

CLASSES & ACTIVITIES

July-September 2010

Ke Kani O Ke Kai

July 1, Thu	Makana
July 15, Thu	Willie K (sold out)
July 29, Thu	Amy Hanaiali'i
Aug 12, Thu	Ho'okena

Join us for the unforgettable performances in this year's summer concert series. Enjoy the evening sunset, great music and fine food from Honolulu restaurants. Member tickets are \$18/adult, \$7/child 7-12 years, and children 6 and under are free. Please do not use the calendar registration form for this event; to purchase tickets, call Honolulu Box Office at 550-8457 or go to www.honoluluboxoffice.com. Event doors open at 5:30 p.m.; performances begin at 7 p.m.

Aquarium After Dark

July 9, Fri	7:00-9:00 p.m.
July 22, Thu	7:00-9:00 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).

Tidepool Exploration

July 11, Sun	7:30-9:30 a.m. Kewalo
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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. \$12/adult, \$8/child (\$15/\$10 for non-members).

Summer Nights at the Aquarium

July 13, Tues	6:00-8:30 p.m. Shark Week
Aug 10, Tues	6:00-8:30 p.m. Wildlife of Waikiki

Looking for something different to do on warm summer evenings? After the beach, stroll on over to the Aquarium with the family. The exhibits will be open, the lights will be on and the interpreters will be in the galleries all evening, so come at your leisure. In July, we celebrate Shark Week and have Hawaiian craftsman Umi Kai showcasing Hawaiian weapons. In August, we celebrate the Wildlife of Waikiki with Reef Watch Waikiki and showcase our new Hawaiian cultural garden. \$6/adult, \$3/child (\$7/4 for non-members).

Coral Spawning & Reef Romance

July 13, Tues	8:00-10:00 p.m.
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Each summer, rice corals in the Edge of the Reef exhibit (and all over Hawai'i) spawn two to four days after the new moon. Celebrate this rite of reef renewal with Aquarium biologists and U.H. Department of Oceanography Ph.D. candidate Jackie Padilla-Gamino, who has been studying coral spawning in Kane'ohu Bay. Learn about coral reproduction, then go on a tour of the exhibits with Aquarium biologists, when the courtship and nesting behaviors of fish will also be observed. Minimum age 14 years. \$12 (\$16 for non-members).

REGISTRATION INFORMATION

- Questions about the activities? Call the Waikiki Aquarium Education Department at 440-9007.
- Preregistration is required for all activities.
- FOWA members are allowed up to four total registrants at FOWA rate.
- 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 and MasterCard 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 and MasterCard are also accepted.

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

Waikiki Aquarium Education Department
2777 Kalakaua Avenue
Honolulu, HI 96815



Oceans Alive!

Animal Homes: Sand, seaweed, coral & water

July 21, Wed 9:00-10:30 a.m.

Protection: Spines, teeth, venom & scales

July 22, 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! Designed for keiki 2-5 years old. \$5/person (\$7 for non-members).

Family Night: Crabs, Lobsters and Shrimps

Aug 27, Fri 6:00-8:30 p.m.

Family Night this year is brought to you by the crustaceans. Meet a wide variety of crusty creatures, some common, some not. Visit the crustacean investigation station, filled with special museum artifacts, touch tanks and interesting animals. Crustacean scientists and experts will be on hand. Make your own crab claws. Play games. Listen to storytellers. Watch a crusty puppet show and join the scavenger hunt through the exhibits. In between the activities, enjoy the warm summer evening and bring a picnic to share on the lawn. It's fun for the whole family. All ages welcome; children 2 and under are free. \$10/person (\$12 for non-members).

Ocean Literacy Day

Sept 18, Sat 10:00 a.m.-1:00 p.m.

The Aquarium celebrates Ocean Literacy Day with activities, storytelling, costumed characters and fun for all the family. Parents even have the chance to win an Apple iPad from event sponsor Diamond Bakery. Free with daily admission. See page 3 for more information.

NOAA Ocean Exploration Curriculum Workshop, Coconut Island

Sept 25, Sat 9:00 a.m.-3:00 p.m.

Bring the excitement of modern day explorers to your classroom through NOAA's Ocean Explorers' website and curriculum, which focuses on explorations into extreme environments. The Learning Ocean Sciences through Ocean Exploration Grades 6-12 curricula includes sections on incredible deep-sea creatures, ocean exploration, geology, currents, human impacts and more. The workshop will be held on Coconut Island in conjunction with the Hawai'i Institute of Marine Biology. Stipends to cover time, teaching materials and travel costs from neighbor islands will be provided. Prior workshop participants are invited to attend a special session tailored to their needs.

Marine Educators' Night

Sept 25, 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 be there with tables of instructional materials. Refreshments will be provided. The evening is free for educators and a guest. The Coconut Island workshop and the evening at the Aquarium are both sponsored by NOAA's Ocean Explorer program.

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



sea squirts

The Gift of Homes for HERMIT CRABS

Have you ever seen a hermit crab in an uncomfortable-looking shell? This summer, remember that that shell you picked up may be the perfect present for a hermit crab whose quarters are a little too tight. When strolling on the beach, instead of gathering shells and taking them home, make a wish and give the gift of a home to a hermit crab.

MATCHING GAME Match the hermit crab on the right with its dream home on the left.



The **cone snail hermit crab** differs from most hermit crabs in that it lives in cone shells, not shells with round openings.



The **left-handed hermit crab** is named for its very large left claw. When threatened it pulls into its shell and seals the hole with its large left claw.



Like all hermit crabs, the **hidden hermit crab** hides its soft abdomen (back end) in a snail shell to protect itself from predators.



The **elegant hermit crab** (*Calcinus elegans*) is sometimes called the Halloween hermit crab due to its black and orange coloration.



The **jeweled anemone hermit crab** is named for its jewel-like eyes and for the protective anemones it carries on its shell.

NEW & RENEWING FOWA MEMBERS

The Membership Office recorded these new and renewing memberships between Feb. 1 and May 3, 2010.

Richard & Sharon Abe
Mr. Abe & Mrs. Floria Abe
Mr. & Mrs. Paul Acquavella
Spencer & Leslie Adams
Charles W. Adcock
Lawrence & Jennifer Agcaoli
Mr. & Mrs. Melvin Agena
Myladel & John Aguillon
Dudley & Sharon Akama
Geoff & Julie Akey
Jacqueline D. Ames
Dr. Valorie Ammann &
Dr. Joseph Ruszkowski
Mr. & Mrs. Robert Andres
Mr. & Mrs. Michael Arashiro
Derrick & Haidee Ariyoshi
Maria Armendariz & Kate B. Ruiz
Mr. Douglas & Dr. Ivy Asano
Steve & Ann Michele Aspera
Lisa Bail & Wai Lee
Mr. & Mrs. Beime
Ann Benjamin
Geri & Mitch Berger
Mr. & Mrs. Richard Bigelow
Mr. & Mrs. Gary Bilyk
Michael & Colleen Bird
Ms. Emily Bogdanoff &
Ms. Ayako Kim
Joseph P. Bolan, Jr. &
Cheryl Bolan
Kelly Boyle & T. Erin Cox
Douglas & Keiko Brand
Quentin & Michele Bray
Jared & Suzanne Bree
Benjamin & Alison Bright
Karen Brittain
Capt. Erik Burian &
Dr. Brenda Jensen
Shoko & David Burkett
Mrs. Nurbaiti Burkhart
David & Sylvia Bustamante
Michael Caps & Maria Rivero
Courtney Carpenter
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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.



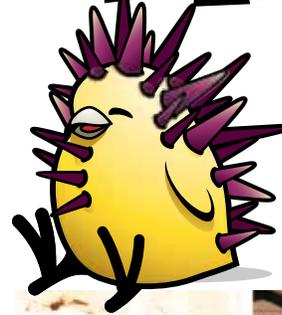
EARTH

Keiki lent their eager hands as we released Hawaiian seahorses and āholehole into the waters of the Marine Life Conservation District behind the Aquarium during our Earth Day 2010 celebrations.

DAY



SEA HUNT



It was a hoppin' good time at this year's Sea Hunt with egg hunting, crafts and entertainment for the whole family.





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

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THE WAIKIKĪ AQUARIUM'S MISSION:

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

Microscopic view of an amphipod, a tiny crustacean that has no carapace. Amphipod means "different footed" and these animals can be found in all aquatic habitats. Photo: Eric Curtis.

