

www.waquarium.org

Keikoia

Spring 2010

Learning at the sea



**EARTH DAY, OCEANS DAY,
NAUTILUS AND MORE
CLASS CALENDAR**

FROM THE DIRECTOR

As the statewide furloughs affect families throughout the state, the Aquarium also is struggling to keep its head above water. Our staff includes members of several different bargaining units, and so the salary reductions and furlough days imposed upon them is not consistent throughout our organization. This has resulted in major challenges in scheduling as we also try to cover personnel shortfalls.

The Aquarium is not like an office, where you can switch off the power, lock up the building and send everyone home for a few days. This is a 24/7 operation, and it is simply not possible to leave the creatures under our care unattended or unfed even if we are furloughed. The result for the last several months has been that we are striving to maintain the same workload with less work hours. Not surprisingly, this is testing our abilities and teamwork to the limit. Times are tough, but I am sure we will emerge a much stronger institution as a result.

Irrespective of our own situation, we are also doing our bit to help those children and families impacted by teacher furloughs. On specified furlough Fridays we offer a discounted admission aimed at a parent/caregiver and accompanying children. Yes, times are tough, but a family day at the Aquarium can help wash away the worries, at least temporarily. Not to mention that enjoying our marine life and learning about our oceans are an important education on their own.

Preparations for Earth Day events and our summer concert series are well under way, and it is a typically stellar lineup of local musical talent that will entertain us this year. Make sure you join us at some of our upcoming events or for the concert series, which has a great package deal for FOWA members.

See you there!

Dr. Andrew Rossiter
Director



“Times are tough, but I am sure we will emerge a much stronger institution as a result.”



Kilo'ia

Issue Number 173 Spring 2010

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SUMMER CAMP



Young marine biologists! Come and dive into summer at our special week-long day camp where you explore, learn, get wet and have fun. One ocean-packed day takes you exploring around the coast from Diamond Head to Waikiki — you never know what nature will turn up, but in past camps we've discovered fascinating larvae in the tidepools, turtles and even a monk seal.

Back at the Aquarium, you get exclusive access behind the scenes and will be joined by Aquarium biologists, who can give you an inside look into the work they do and the animals they care for. We even do a plankton tow and bring our finds back to the classroom to see what the microscopes reveal — you won't believe the cool stuff you'll see.

If you're aged 8 to 12 and this sounds like you, turn to the calendar on page 12 for more information.

Seasons & the Sea

Join us as we celebrate an ancient Hawaiian ritual marking the change in the seasons. See the calendar on page 11 for more information.

Save the date
Sunday May 2

Earth Day at the Aquarium Saturday April 10

The Waikiki Aquarium celebrates Earth Day with the third annual Mauka to Makai Environmental Expo on Saturday, April 10. It's free to the public all day as city, state and federal agencies come to the Aquarium to focus on the Islands' unique water resources from mauka to makai.

Also, watch the Aquarium website (www.waquarium.org) for details on member discounts to DisneyNature's new movie, *Oceans*, which opens on Earth Day, April 22.

World Oceans Day

Here at the Aquarium, every day is really ocean day. But on **June 8**, it's officially World Oceans Day and there are plenty of good reasons to celebrate. Just think about this:

The world's ocean:

- Generates most of the oxygen we breathe
- Helps feed us
- Regulates our climate
- Cleans the water we drink
- Offers a pharmacopoeia of potential medicines
- Provides limitless inspiration!

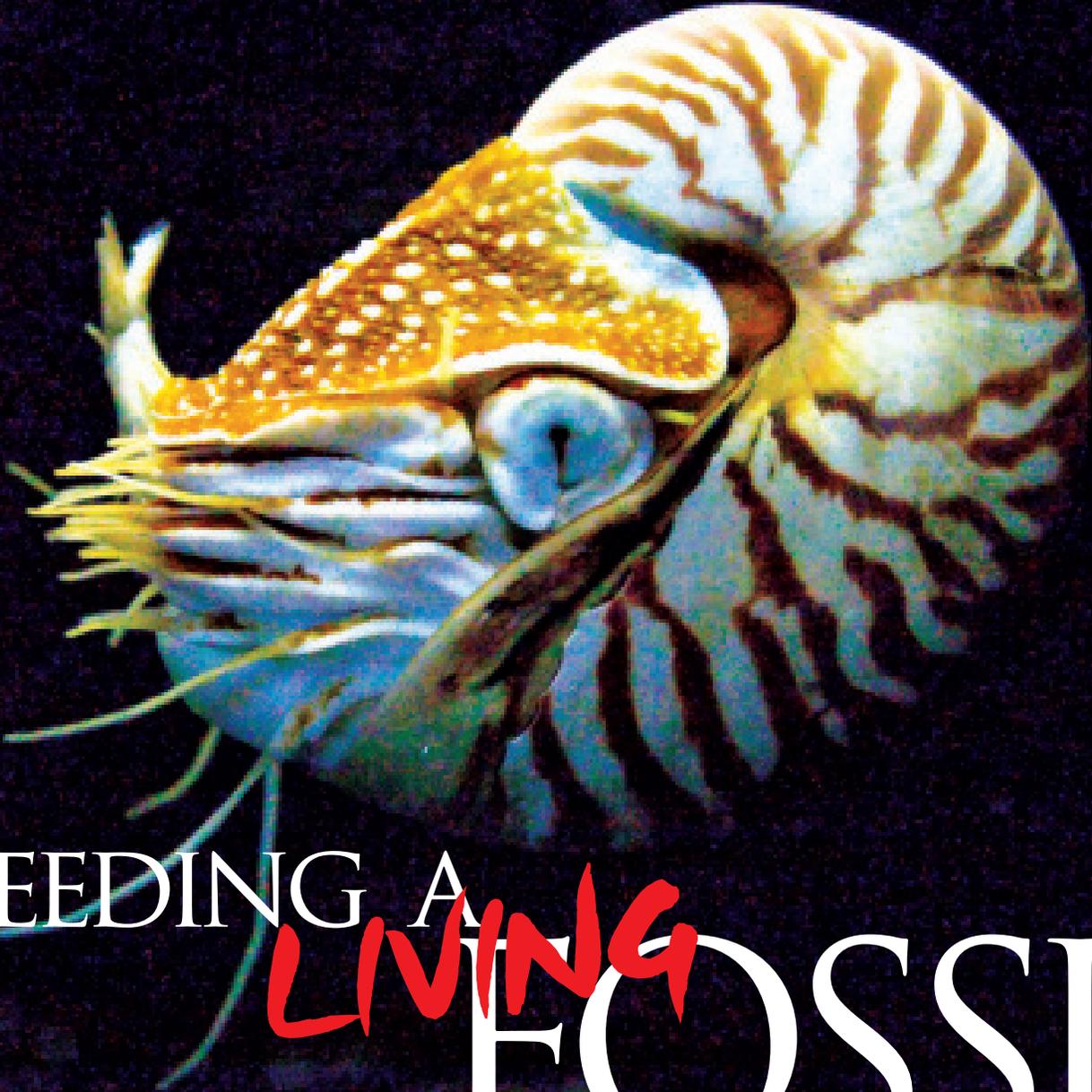
Aquarium staff will be doing their part on World Oceans Day with a beach cleanup in the area, and we encourage you to get out and join a cleanup in your area, too — every little bit helps.

Come down to the Aquarium and help us celebrate this important day. NOAA's Pacific Services Center will be here from 10 a.m. to 1 p.m. with educational displays on climate change. Afterward, stop by the Kona Brew Pub at Koko Marina — they'll be giving a percentage of proceeds that day to the Friends of the Waikiki Aquarium.

We'll also be open in the evening with our new Summer Nights at the Aquarium. See the calendar on page 11 for more information.

You can find out more about World Oceans Day at <http://theoceanproject.org/wod/>. At this site you can also pick up conservation tips, read up on issues facing our oceans and sign up for marine-related tweets and blogs.





BREEDING A **LIVING** FOSSIL

We set the world record — now we want to break it

The Waikīkī Aquarium made history back in the early 90s when it set a world record by raising a chambered shell nautilus to just over one year old. It's a record we're now gearing up to crack again. Earlier this year, we received a special delivery of six young chambered nautilus, the first arrivals in a new breeding program.

Nautilus are enigmatic animals. For millions of years they have lived in the twilight of the sea, coming up to shallower waters at night to feed and possibly lay their eggs. Their beautiful shells have inspired poets and artists — and also collectors. Researchers are concerned that collecting for their patterned shells is tipping nautilus populations to dangerous levels.

"There's only so much you can do before you start to exhaust the population," says Aquarium Biologist Mariko Katayama, who heads up our nautilus program. "It would be wonderful if we could succeed in the breeding program and raise these animals to sexual maturity so they can breed again. Conservation is one of the Aquarium's main goals, and if we can do this, we can share the knowledge with other Aquariums."

But raising these animals is a challenge that has evaded research groups around the world. The animals certainly mate in captivity and the females often lay eggs, but during those rare cases when a juvenile hatches out, they can easily succumb to disease.

"Treating chambered nautilus with medication in general can be challenging," Katayama says. "Their body systems are completely different from fishes. We have to ask ourselves what type of antibiotic they are not sensitive to. What is the best dosage? How long should we treat them? Is it better to use an injection or treatment bath?"

Katayama is working closely with Aquarium disease specialist, Eric Curtis, to find the best treatment regimen for the animals.

When she arrived at the Aquarium in 2008, Katayama took charge of a clutch of nautilus eggs laid by our resident *Nautilus belauensis*. Of the five animals that hatched, the one identified as No. 1 kept passing monthly milestones. Sadly, No. 1 died in November, one week shy of its first birthday. Katayama was devastated and disappointed, but nearly reaching one year

Aquarium biologist Mariko Katayama preps shrimp and whitebait for the nautilus. She hand- or tong-feeds them three times a week. Each nautilus gets two or three pieces. As with all animals, there are those individuals who show up right away for feeding and others who take a little more time over their meal. Photos: Alice Keesing.



was certainly an achievement and one that she's keen to build on.

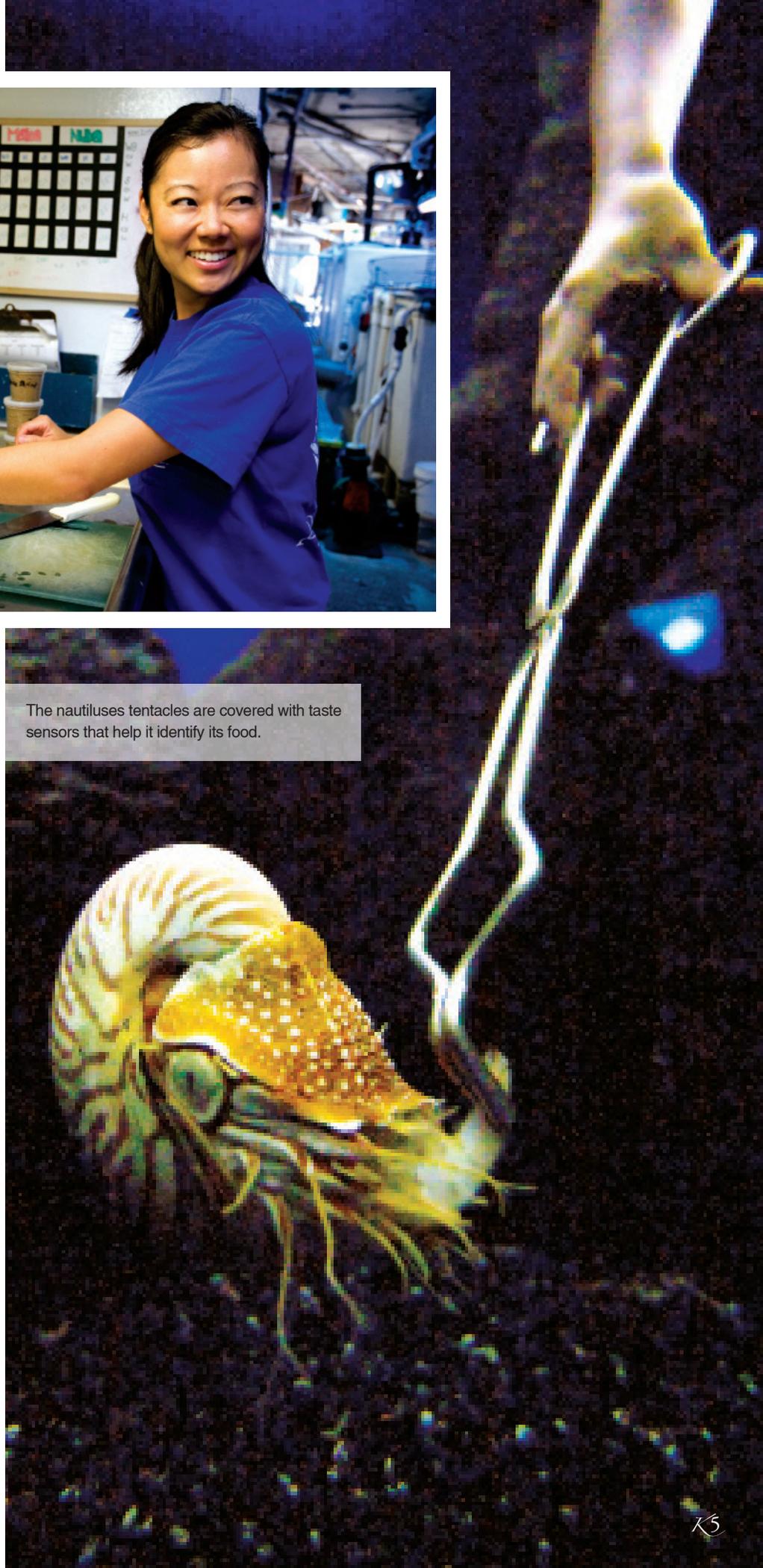
Now, the Friends of the Waikīkī Aquarium board has allocated money to reinvigorate the nautilus breeding program. The Aquarium will use the money to put up a dedicated nautilus research facility behind the scenes.

Here, Katayama will have space for breeding adults, a hatchery and nurseries. With these added resources, she will be better able to maintain sterile conditions as well as manage the animals' diet, and manipulate water temperature and lighting to mimic the animals' movement up and down the water column in the wild.

When the research facility is ready later this year, the Aquarium plans to bring in more sexually mature adults. But the six newly arrived nautilus signal the beginning of this effort. They are *Nautilus pompilius* from the Philippines. Four of them are now on display while the other two remain behind the scenes.

Researchers don't know for sure when nautilus reach sexual maturity but Katayama says these animals are still sub adults and so far haven't displayed any mating behavior. But she knows what to watch for. She keeps a close eye on them throughout the day, alert for high activity levels. When nautilus mate, the male and female face each other and entangle tentacles. Sometimes they do this when they're feeding and trying to steal food from each other, but if it's not feeding time, then Katayama will know that it's a good sign that things are about to start happening.

The nautilus's tentacles are covered with taste sensors that help it identify its food.





figuring OUT >> nautilus

1,500 feet The deepest reaches of the ocean at which nautilus have been observed. They are found in deeper water during the day.

300 feet Nautilus ascend to this depth at night to feed and lay their eggs.

64-68 degrees F The temperature variation the Aquarium maintains in its nautilus exhibit to mimic the changes the animal experiences during its daily ascent and descent. We mimic lighter and warmer nighttime conditions during the day so our visitors are better able to view the animals. At night, we mimic the animals' daytime environment in deeper, darker and colder waters.

1976 In this year, the Aquarium became the first in the nation to exhibit the chambered nautilus.

90 Number of tentacles on a chambered nautilus. The feeding tentacles are coated with taste sensors that help the animal locate and identify food. Each tentacle has a central groove, which it uses to create suction that helps it to stick to the rock while resting.

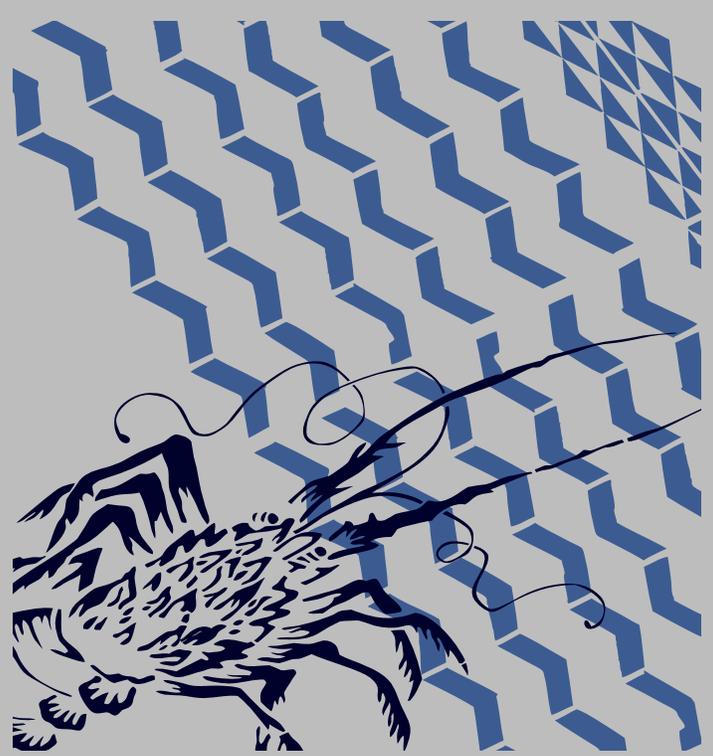
16+ years Estimated life span of a nautilus.

5-10 years The estimated age at which a nautilus reaches sexual maturity.

12-15 The number of months a nautilus egg takes to hatch. Breeding the nautilus is not an activity for the impatient.



Kilo 'i'a



Sig Zane designs come to the Aquarium

Noted textile designer Sig Zane is joining forces with the Waikiki Aquarium and creating a limited line that will be sold in the Natural Selection Gift Shop. Zane is known for his aloha shirts and wahine wear that pull deep on Hawaiian culture. His original designs are hand-cut stencils that are hand-printed here in the Islands. Often, Zane prints a color combination one time only, so these are real collectibles.

Zane's collaboration with the Aquarium will naturally focus on Hawai'i's aquatic life. The first unique edition features the lobster and a traditional 'ohe kapala (the Hawaiian art of printing designs on kapa.) It will be in store or online at sigzane.com in May.

TOUCHING DOWN AT THE AQUARIUM

Former U.H. star receiver and current Miami Dolphins player Davone Bess hosted a camp for children with cancer at the Waikiki Aquarium in February. Bess met the children when he was still at U.H. and has stayed in touch. He is pictured here with Aquarium Director Dr. Andrew Rossiter. Rossiter is a keen rugby player — as the Welsh tend to be — and he jokingly passed on to Bess some tips on what lines to run.



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.

DIVE, DIVE, DIVE!

Rick Klobuchar watched the ocean slopping against the tiny portholes of the Pisces IV submersible. This, he thought, would be the time to get seasick if you were going to. But then the all-clear was given and pilot Terry Kirby started the sub on a gentle descent down into the 'Au'au Channel. Eight hours in an 85-degree tin can, Klobuchar thought. No bathroom. No room to move. Awesome!

It was 8 a.m. on Nov. 21 and Klobuchar, the Aquarium's coral specialist, was getting his first deep ocean dive in a research sub. He was accompanying Hawai'i Pacific University researcher Dr. Samuel Kahng on a five-day cruise aboard the research vessel Kaimikai-o-Kanaloa. For years, Kahng has been monitoring the spread of the invasive rice coral *Carijoa riisei* and its impact on deepwater corals, including *Leptoseris*, the deepest photosynthetic coral known anywhere in the world.

Klobuchar began working with Kahng three years ago, joining him on a cruise in 2006 and bringing back live fragments of *Leptoseris*. His aim: To become the first to keep this remarkable coral alive. He's been successful, too. Back at the Aquarium, some of those original fragments are still growing in a dark research tank behind the scenes.

But now Klobuchar is on his second cruise with Kahng, and this time he gets to explore the coral's world himself. Research subs are not known for their spaciousness; Klobuchar and Kahng lay belly-down on the research berths, the 6-inch viewing portholes just inches from their faces. Their knees are bent up and their feet nearly hit the sub's low ceiling. There's little room for Klobuchar to move or sit up, even if he wants to.

It's a surreal descent as the sunlit surface waters give way to the deepest blue. It only takes a few minutes before the sub comes to rest on a silt-covered



Rick Klobuchar before his first dive aboard the Pisces IV. He accompanied HPU's Dr. Samuel Kahng (pictured below left) on the dive, during which they collected more *Leptoseris* specimens to continue the Aquarium's groundbreaking work with this deepwater coral.

bottom. The spotlights reveal dozens of small shrimps, gobies and flatfish.

Today's mission is to retrieve some data loggers that were deployed back in 2006. After that much time on the ocean floor, the loggers are well camouflaged ... this is like looking for a needle in a haystack, Klobuchar thought. A large brown stingray wasn't helping matters much either as it cruised alongside, stirring up clouds of silt and reducing visibility to mere inches.

They ran their transects, every now and again striking gold as they recognized a data logger buried in silt or covered in algae. Klobuchar pulled out his lunch: a bagel sandwich with turkey and pepperjack, a package of Twix and a supply of Caramacs. He tried to stay away from his half-bottle of grape Gatorade.

Even when the sub reached its deepest point, around 550 feet, Klobuchar was amazed by how much light there was. Still, he thought, it's hard to imagine anything surviving down here off photosynthesis alone.

They passed a large harem of longfin anthias hovering just over the reef, looking like deer stuck in the headlights. There were rock pinnacles that rose out of nowhere; huge trees of black coral, some of them encrusted with *C. riisei*; and there, lying on the silty bottom were the 4-foot long jaw bones of a whale.

And then there was the *Leptoseris*; first in isolated patches and then a whole bed of it, plates spread out to capture as much light as it can. Klobuchar has seen photos and video of the coral, but seeing it for himself was something else. Down here in the sub, where he could feel the pushing and pulling of the current, see the life all around, he was witnessing firsthand the conditions that these corals live in every day.

The Pisces IV began its ascent around 4:30 p.m.; the ship's crane hauled it from the ocean and Kirby cracked the hatch. Fresh air and space! This, Klobuchar thought, definitely tops the list of "other duties assigned" on my job description!



Look what the wind blew in



Porpita porpita, commonly known as the blue button, is a relative of the Portuguese man-o-war and, like its kin, is actually a floating colony of hydroids. Its central disk is surrounded by specialized zooids that do the jobs of reproduction, feeding and digestion. Tiny knobs along the tentacles contain stinging cells.



This is a delicate *Pelagia* jelly. Some species of *Pelagia* migrate up and down in the water column, following the daily movement of the tiny zooplankton on which they feed. Some are also known for their beautiful bioluminescence.



This pretty purple shell belongs to *Janthina*, a snail that blows itself a raft of mucus bubbles that allows it to float on the ocean surface. *Janthina* feeds on Portuguese man-o-war and related cnidarians. Its empty shells can often be found washed up on Hawai'i beaches — just be careful, sometimes its prey's stinging cells are still attached to the shell.

They are the wind drifters: the jellies, nudibranchs and hydroids, a bizarrely beautiful bunch that live their lives on or just under the surface of the ocean. Many are armed with stinging cells that protect them from their hunters and help them catch their own prey. While some have their own limited methods of locomotion, they are often at the whim of the currents and the winds.

We rarely see them close to leeward shores, but when Hawai'i's winds switch to the Kona direction, members of the wind drift community are blown — unfortunately to their doom — onto our leeward shores.

There was such an event early this year and the Waikiki shoreline received a number of unusual visitors. Waikiki beachgoers gathered them up and brought them into the Aquarium, wondering at the unusual animals they had found. Aquarium staff also collected a number of the arrivals and they later made a hugely popular appearance at Wednesday's Afterschool at the Aquarium with Education's Dan Ravenswaay.



The nudibranch *Glaucus atlanticus* is a spectacular blue and silver sea slug that floats upside down at the surface of the ocean. *Glaucus* preys on the Portuguese man-o-war — not only is it immune to the animals' venom, but it stores its prey's stinging cells for its own use.



RESEARCH NEWS

>> BOX JELLIES: A QUESTION OF IDENTITY

We all know box jellies. They wash onto the leeward shoreline eight to 12 days after the full moon; little gelatinous packages with fearsome stings. The Aquarium's Gerald Crow has been working with box jellies for 20 years, since they reached invasive numbers in the late 1980s. He and others in the scientific community know the box jellies specifically as *Carybdea alata*, *C. rastoni* and *C. sivickisi*. But now, Crow says, it turns out we may not even be calling the jellies by their right names. Taxonomy sometimes moves in convoluted ways, and Hawai'i's box jellies have an incredibly tangled history. Now Crow wants to untangle it and find out, once and for all, what box jellies are swimming in Hawai'i's waters.

The story starts back in 1877 when the French commissioner to Hawai'i, Theodore Ballieu, made some of the first collections of Island birds, lizards, fishes and invertebrates and sent them back to the Muséum National D'Histoire Naturelle in Paris. Amongst his specimens was the first ever box jelly collected in Hawai'i waters.

As the years went on, more collections were made and they were identified first one way and then another as scientists agreed and disagreed on whether Hawai'i's box jellies were unique to the Islands or belonged to other oceanwide species. In the early 1900s, Alfred Mayer sent specimens to the Smithsonian, where they went into jars of formaldehyde and became the standard for the Hawai'i species. The trouble is that we now know that some or all of those identifications were wrong, Crow says.

As if things weren't complicated enough already, the advent of genetic analysis has thrown another curve ball. The ability to read an organism's DNA is a powerful tool for determining species and evolutionary relationships, but sometimes this new system isn't lining up with the old one. What sometimes happens, Crow says, is a specimen is genetically analyzed and ascribed to a species that doesn't match the morphology of the originally described animal. (Yes, even Crow himself agrees this gets pretty confusing.)

To unwind this taxonomy tangle, Crow is collaborating with colleagues from Hawai'i and around the globe. He's been deep into the archives at UH's Sinclair Library and hopes to eventually track down Ballieu's original specimen in Paris. He'll also be going back to the original collection sites to collect new specimens so he can match their morphology with the correct genetic profile.

Does it really matter if a box jelly is given the correct name when it washes up on the beach? Well, yes, Crow says. As researchers work to understand the box jellies — how they live, what role they play in the ocean's ecology, why their numbers here have increased, and how to treat their painful and sometimes fatal stings — it really helps to know exactly what you're dealing with.

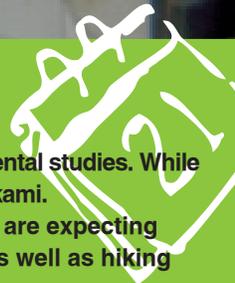
Giving something the right name may seem like the simplest of tasks. But even with all our modern technology, Crow says, even the simplest things can be difficult.

A Day in the Life



“The most interesting part of my job is going collecting, whether it is walking along the shore on a strong Kona wind day picking up unusual animals, night lighting for box jellies, snorkeling and scuba diving for invertebrates and fish, or blue water diving for ctenophores.”

Name **Kelley Niide**
Position **Aquarium Biologist**
Year started at the Aquarium **2003**
Education **Punahou, 1996; UH-Mānoa, B.A. liberal studies/environmental studies. While at UH I worked at the Aquarium as a student aquarist under Kirk Murakami.**
Etc. **My husband, David, and I have one daughter, Samantha, and we are expecting another any day now. I enjoy surfing at breaks around the Aquarium, as well as hiking and spending time with family.**



7 a.m. The first thing I do when I arrive at work is check on my exhibits and holding tanks to make sure everything is running normally and the animals are healthy. The main exhibits I work on are Reef Predators, Ancient Reefs/NWHI, Ornamental Aquaculture and The Goldfein Spottswood Jelly Gallery.

7:30 a.m. There is a lot to do in the morning, especially for the jellies. They get fed three times a day, so I like to prepare their food and give them their first feed as early as I can. This means hatching or separating brine shrimp every day.

8:30 a.m. The next priority is to make sure everything looks clean; this is important for our visitors, but the jellies love clean tanks as well. I start by wiping down the Lagoon Jellies and the Ornamental Aquaculture exhibits — they get a lot of light so they need to be wiped down every day. Other tanks need wiping two or three times a week. And the tanks with gravel need to be gravel washed at least once a week. Along with weekly maintenance, the jelly tanks also need to be bleached every three months. It may sound odd to clean with bleach, but it's perfectly safe when it's used properly — plus it breaks down very quickly, leaving mostly salt and water behind, so it's not so harmful for the environment.

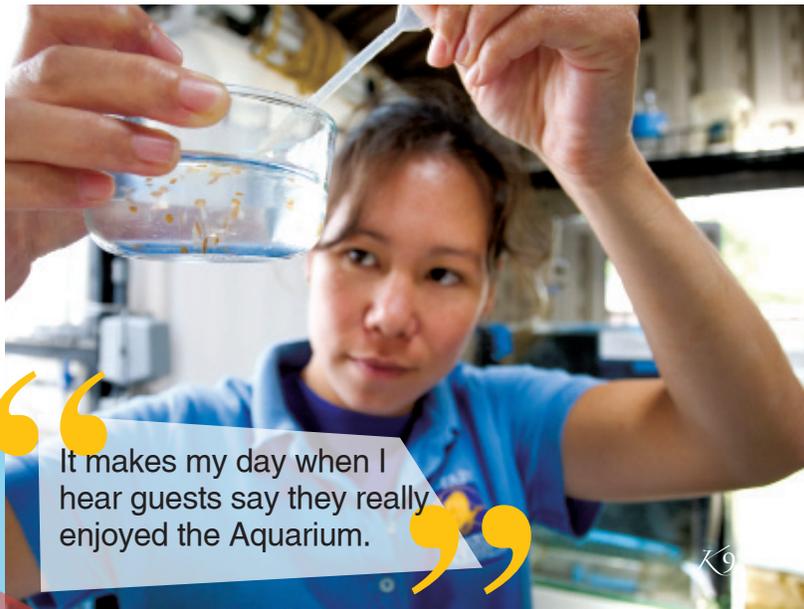
noon I brought lunch from home today. I eat in the Live Exhibits office with everyone else.

1 p.m. Around this time of day, you can usually find me in the Jelly Hale. It's a plastic shed, like the ones you find at Home Depot, and this is where I keep all of the jelly cultures. Jelly life spans are not that long, mostly about one year or less, so we culture some of the species ourselves to keep our displays full year-round. This is better than constantly buying or collecting jellies from the wild. Today I do normal water changes and siphoning.

The sea jellies keep me busy and they are a seven-day-a-week job, so I can't take full credit for them. I have a great student aquarist, Cassidy Lum, who takes care of the animals and exhibits when I am not here, and seven other staff who support my exhibits as well.

3 p.m. The bulk of my day consists of cleaning tanks, observing and feeding animals but I need to spend some time in the office. We have Live Exhibits meetings every week as well as different exhibit committee meetings. I try to check my email and update my feeding and maintenance logs regularly. These logs keep track of everything that is being done and help with future planning.

4 p.m. My day ends around 4 p.m. Before I leave I check on all of my exhibits to make sure everything is running normally.



“It makes my day when I hear guests say they really enjoyed the Aquarium.”



Volunteer SPOTLIGHT

JANE JONES
13 Years of Service



Can wana venom kill you? How do you stop it from hurting? Can the spines poke into your skin? The second grade students from Wilson Elementary pepper Aquarium docent Jane Jones with questions. It's a Tuesday morning and she's giving a talk on marine habitats and how animals adapt to fit them. It's something she's been doing at the Aquarium for 13 years.

For someone who spends so much time talking to an audience, Jane says she's actually very shy. She grew up on a potato farm on Long Island and it wasn't until she toured Korea as a Donut Dolly — serving coffee, donuts and entertainment to the troops — that she realized she was really quite good with an audience.

It was in Korea that she met her husband, who was in the Army. They were assigned to Hawai'i in 1969 and "he couldn't get me to leave," Jane says.

Like many others, Jane soon fell in love with Hawai'i's marine environment. In 1980, she discovered a fascination with corals when she began volunteering at Sea Life Park. It was here that she started to put her presentation skills to good use, giving many a presentation on corals, whales

and whaling. Nowadays at home she has a huge library on all those subjects. If she's going to talk about something, she'd better know as much as she can about it, she says.

Jane also became an avid diver, taking annual trips into the South Pacific and diving most weekends at home. A favorite spot was Hanauma Bay; she laughingly remembers two times that she and her dive buddy surfaced to find the entire bay cleared of people because of bomb scares.

She kept up the diving until two years ago when she was 80 and a fused ankle and hip and knee replacements began to make it too difficult to carry the gear. But she still snorkels. And she's still sharing her knowledge with Hawai'i's students every Tuesday at the Aquarium.

CATCH THE VOLUNTEER WAVE

Our volunteers are the lifeblood of the Aquarium, giving more than 16,000 hours of service every year. For information on volunteer opportunities in all departments, contact Volunteer Coordinator Vangie White at 440-9020.

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
Michael "Mike" D. Niethammer

Joined FOWA board
January 2010

Can also be found at
the King Auto Group (a.k.a. King Windward Nissan, King Auto Center, King Infiniti of Honolulu) where he is the chief financial officer and board member.

Background

Niethammer was born and raised in Palo Alto, Calif., and graduated from The University of the Pacific in Stockton, Calif., with a BA in communications. For more than 10 years he worked in real estate as vice president of Cornish & Carey Commercial Real Estate before he and his kama'aina wife, Sherry, made the move to Hawai'i.

Favorite Aquarium residents Monk seals and jellies

What inspired you to become a FOWA board member?

My wife, Sherry, and our three young children live close by in St. Louis Heights and spend a great deal of time in the area. Our weekend routine typically includes walking Diamond Head, followed by a swim, then off to the Aquarium or zoo. I recognize how fortunate we are to have such a special place in our neighborhood and wanted to get involved to help ensure that the Aquarium has the proper resources for the future.

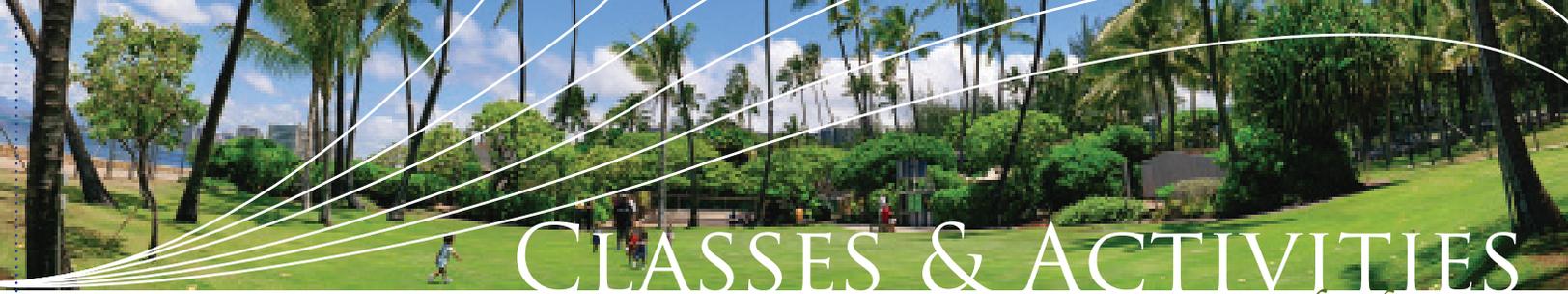
What do you enjoy most about the Aquarium?

I think everyone would agree that the location and setting is spectacular. I really enjoy taking family and friends from the mainland; they are always very impressed.

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

I think that there are several roles for the Aquarium. Firstly, it's a one-of-a-kind venue to display Hawai'i's unique sea-life to our visitors. It also serves to educate people about the conservation of our marine life and the ocean.

On a personal note I enjoy walking (up St. Louis Heights), reading history books, playing golf and, most of all, spending time with my family. As a family, we find ourselves frequently traveling to Kaua'i, Maui and the Big Island, as we have many friends and relatives throughout the state.



CLASSES & ACTIVITIES

April-July 2010

Earth Day

April 10, Sat

Join us for an activity-packed day celebrating the Earth. We'll be joined by the Department of Health, City and County Environmental Services and other non-profit environmental organizations as we focus on preserving the land and the sea. Free.

Aquarium After Dark

April 16, Fri 7:30-9:30 p.m.

May 14, Fri 7:30-9:30 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).

Seasons and the Sea

May 2, Sun 6:00-8:00 p.m.

As the sun sets into the crown of Pu'u o Kapolei, the beginning of the season of warmth, or kauwela, begins. Through chant, hula and mo'olelo, Hālau Mele will interpret the meaning of this important event. The gathering will be in the park on the 'ewa side of the Aquarium. Bring a chair or a beach mat. Open to all ages. Free.

Summer Nights at the Aquarium

June 8, Tues 6:00-8:30 p.m.

July 13, Tues 6:00-8:30 p.m.

Aug 10, Tues 6:00-8:30 p.m.

Looking for something different to do on the warm summer evenings? After the beach, stroll on over to the Aquarium where the exhibits will be open, the lights will be on and the interpreters will be in the galleries all evening. These Summer Nights will be held on the second Tuesday of each month and each evening will explore a different educational theme beginning with a celebration of World Oceans Day on June 8. \$6/adult, \$3/child (\$7/4 for non-members).

Oceans Alive!

Movement: Fins, jets, arms & legs

June 9, Wed 9:00-10:30 a.m.

Animal Homes: Sand, seaweed, coral & water

June 10, 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).



REGISTRATION INFORMATION

- Questions about the activities? Call the Waikīkī 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:

Waikīkī Aquarium Education Department
2777 Kalākaua Avenue
Honolulu, HI 96815



Summer by the Sea

June 14-18 8:00 a.m.-3:00 p.m., every day
7:00-9:00 p.m., Friday
June 21-25 8:00 a.m.-3:00 p.m., every day
7:00-9:00 p.m., Friday

Spend a week of summer learning what lives in Hawaiian waters. What's the best way to learn? By doing! Snorkel, swim and explore the coast from Waikiki to Diamond Head. After a morning of outside adventures, the Aquarium turns into our classroom. Learn about the animals in our exhibits and watch them being fed on special behind-the-scenes tours. On the final Friday evening, families are invited for a student-led tour of the Aquarium. For marine biologists ages 8-12 years. All students should be confident swimmers and enjoy snorkeling. \$250/child (\$300 for non-members).

Ke Kani O Ke Kai Summer Concert Series

June 17, July 1, 15, 29, Aug 12 Thu

Rock on down to the Aquarium for our ever-popular summer concert series. Watch your mail and the next *Kilo i'a* for the announcement of this year's acts. Doors open at 5:30 p.m. and the music begins at 7 p.m. Tickets for members are \$18 for adults and \$7 for children aged 7 to 12; children under 6 are free. A special series ticket for adults for all five concerts is \$75. Tickets go on sale in May; watch your mail for purchasing information. (Please do not use the calendar registration form for this event.)

Small Fry

June 29-July 27, Tues

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. \$65/adult & child (\$90 for non-members).

Tidepool Exploration

July 11, Sun 7:30-10:00 a.m. Kewalo

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 tidepool 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).

Coral Spawning and Reef Romance

July 13, Tue 8:00-10:00 p.m.

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 staff. Learn a little coral biology and join a tour of the exhibits with Aquarium biologists. Courtship and nesting behaviors of many of the fish will also be observed on this special night. Minimum age 14 years. \$12 (\$16 for non-members).

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





EARTH DAY IS TURNING 40!

Earth Day was started to raise awareness about human impacts on the Earth. Celebrate Earth Day by taking action: unscramble the words below for ideas on how you can join in and celebrate Earth Day.

creedu

sereu

ercelcy

aecnupl

abfiutey

tnlpa

uolrnvete

rosvence

eecatdu

ussitna

etoctrp

NEW & RENEWING FOWA MEMBERS

The Membership Office recorded these new and renewing memberships between Nov. 9, 2009, and Jan. 31, 2010.

Christine Affleck
Dr. Leila Agullana
Chad Agullana & Carmen Kau
Rebecca & Kaleo Ahina
Robyn Ahn & Alma Ro
Kari Albers & Rachel Bohorquez
Mr. & Mrs. Vincent Alejo
Allison Family
Anthony & Jenna Altomare
Ms. Geraldine Aluli &
Ms. Monica McConell
Joshua & Lori Amano
Rachel Amian & Albert Terry
Andy Ancheta
Mr. & Mrs. Benjamin Ancheta, Jr.
Mark & Caroline Anderson
Bud Antonelis
Mr. & Mrs. Brandon Apuna
Mr. & Mrs. Charles K. Au
Gary & Candace Au
Charlene & Vincent Au
Mrs. Eileen I. Awai
Scarlet & Byron Ayme
Julie Ayres
Melvin Badua
David & Sophea Bailey
Mrs. Jennifer Bainum
Mr. Val Baliad
Brad & Anita Barshaw
Kurt & Peyton Barthel
Albert & Keiko Batará
Christopher, Christine &
Janet Bearden
Brenda L. Becker
Drs. Maenette & Robert Benham
Aimee Bennett & Brigitte Will
Mr. Dana C. Bergeman
Terance & Jan Bigalke
Marcus & Emma Boland
Sharon Borthwick
Todd Braun
David Brier & Vicky Lebbin
Tamara & Joel Buchwald
Mr. & Mrs. Tom Bush
Ann & Michael Calabro
Mr. & Mrs. Raymund O. Callorina
Mrs. Marian W. Carson-Heydon
Mr. & Mrs. Cavaloz
Mr. & Mrs. Jean-Pierre Cercillieux
Elaine M.L. Chang
Atsushi Chida
Richard Chong & Gen Eleccion
Bella & Xander Chow
Alexander & Susan Christensen
Dr. Michael Christopher &
Ms. Keiko Bonk
Mr. & Mrs. Albert Chung
Michael & Tracy Chung
Paula & Brent Clarkin
Mr. & Mrs. Edward K. Conklin
Heather & Nicholas Cook
Bill & Carol Coops
Frank & Katrina Cordova
Coulson Ohana
Mr. & Ms. Cox-Farr
Michelle Craig & Andrew Giordano
Mr. & Mrs. John Credo
Heidi Creighton & Sean Redican
Janie Culp
Lavinia Currier & Galen McCleary
Mark & Elizabeth D'Angelo
Kent & Carolyn Davenport
Roger Davis & Margo Edwards
Rosslyn Dawson &
Barbara Littenberg
Barry Denney & Joan Ryan

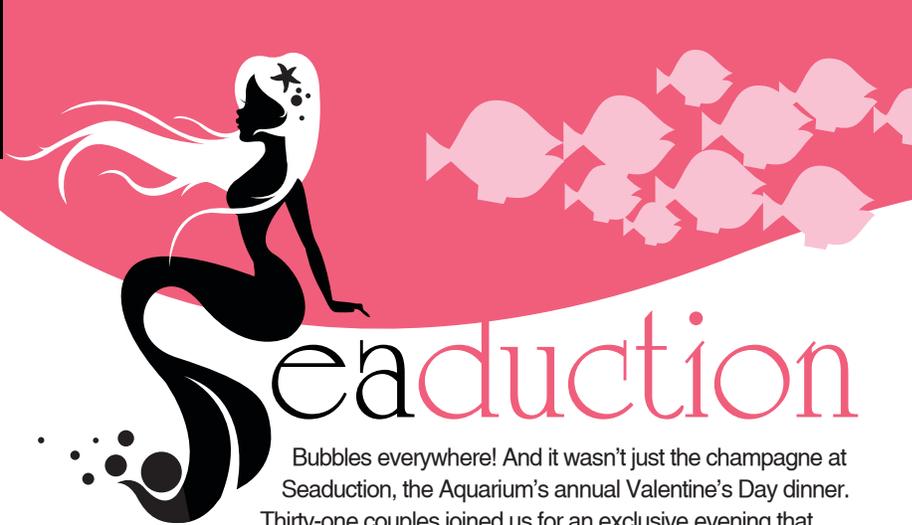
Mr. Freedom & Mrs. Roya Dennis
Maximo & Mildred Diego
James Dixon & Maelynn Soong
Mr. & Mrs. Donnelly
Mr. Keith Douglas
Mr. & Mrs. Tushar & Ana Dubey
Katie & Pete Dye
Ms. Carolyn Eaton &
Mr. Clifford Kanda
Shannon Egan
Martin Eichelberger
Jo & Lu Eldredge
Ms. Jan Elliot
Andrew & Barbara Endo
Cheryl S. Ernst &
Andrew E. Yamaguchi
Lili Reiko Evensen & Lara Evensen
Mr. & Mrs. Dean A. Eyre, Jr.
M. Eleanor Fahrenwald
Mr. Alvin Fernandez
Cindy Foncannon
Aaron Fong
Mimi Forsyth
Sam Fox
Mr. & Mrs. Robert Fredregill
Mary Jo Freshley
Dr. & Mrs. Roger Fujioka
Mr. Dayne Fujiwara
Ms. Rona Fukumoto
Wesley & Dana Funai
Jeff Garna
Christy & A. Michael Gascon
Mr. & Mrs. Keola Gerell
Thu Golden
Hans W. Goldhagen
Daniel M. Gomez
Dr. Robert Goodro
Tim Gray
Mrs. Lori Gross
Tim & Devon Guard
Dr. Christopher K.H. Guay &
Ms. Lori Teranishi
Kathy & Don Hallock
Ormond W. Hammond &
Lesley Agard
Burdene & Susan Hanes
Mr. & Mrs. Robin Hashimoto
Gary & Kimberly Hashiro
Kendall & Diane Hawkins
Kerry Higa & Dale Matsuura
Wendy Higashihara
Hazel Hirayama, Joy Matsukawa &
Dayle Hirayama
Mrs. Annette Hollingshead
Martin Holzgang
Randy Honebrink
Raymond Hoptowit
Kirk Hottendorf & Blue Kaanehe
Scott Ibara & Tannya Kanei-Ibara
Benjamin & Stephanie Ignacio
Lori Ann Iha & Cieverlyn Ibara
Wendy Ikeda
Walter & Karen Ikehara
Rob & Gina Imai
Mr. & Mrs. John Imperial
Mark & Tara Inay
Alan Ing
Donna Inouye
Mr. & Mrs. Lester H. Inouye
Jennifer Isobe
Mrs. Frances S. & Mr. H. Richard Ito
Mr. Allen Ito
Mr. & Mrs. Bruce Jones
Ms. Cathy Juhn
Lori Kajimura
Cheryl Kaluhiwa
Donald Kanagawa
Dr. Gary K. & Mrs. Liza Kanemura
Mr. Stacey Kaneshiro & Dr. Mary Ott
Wilfred & Brenda Kanno
Ms. Edna Hussey

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Mr. Philbert Kauffman
Chase & Nancy Kawakami
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Suzanna & Benjamin Kinsey
Kevin & Sheri Kodama
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Sumiye Konoshima
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Faye W. Kurren
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Primo & Amy Lagundino
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Zheng Lan & Min Zhu
Lissa S. Lang
Joby Lapinad
Clement & Candace Lau
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Ms. Kuuleialoha Kennedy
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Minoru Malama & Yuko Arai
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Mr. J. Scott & Mrs. Brit Matsumoto
Corey & Caryn Matsuoka
Ronald & PennyLou Mau
Darlene & Jim McCampbell
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Mrs. Karin McCauley
Elizabeth N. McCutcheon
Mr. & Mrs. John F. McDermott III
John W. McDermott
Mike McFarlane
John & Nicole McPherson
Ms. Jennifer Merkle
Mr. & Mrs. Stephen Metter
Alex & Jennifer Michel
Alina & Todd Middleton
Mr. Bill Mist
Melvin & Sandra Miyamoto
Gary S. Miyamoto
Mr. & Mrs. Darryl Miyashiro
Mr. & Mrs. Michael Morales
Clarence & Doreen Morinaga
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Craig Nagano & Eriko Nagano
Tracy Nagata & Toby Tonaki
Bruce & Katherine Nakamura

Jeanette & Pat Nakata
Yubun & Yukari Narashiba
James Nash
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Robert & Giovanna Neuman
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Joan Y. Nozaki
Yumiko Oike
Lori Okami
Colin Okutsu & Yvonne Okutsu
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Kelly & Nilda Oshiro
Mark Osman
Dr. & Mrs. Gary K. Ostrander
Thomas & Diane Otake
Ms. Chika & Mrs. Harumi Otsubo
Kelli Otsuka & Jandi Quitariano
Mindy & Darryl Oumi
Ryan & Jennifer Ozawa
Ev Painter
Mr. & Mrs. Pakkala
Lorilyn Park
Drs. Rohinton & Niloufar Patel
David Pence & Athline Clark
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Rosemarie Perry & Malia Costa
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Mr. & Mrs. Cory Sakata
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Linda & Karen Sawai
Mr. John J. Scanlon
Dr. Michael J. Schermer
Jane E. Schoonmaker &
Gordon Tribble
Walter Schroeder &
Dana Watanabe
Andrew Schwartz &
Pam Esperanza Schwartz
Dr. Nancy Sculerati
Robyn Seamon
Mr. Max Seda
Brad Shafer
Larry J. Shapiro & Carol Ann
Uetake-Shapiro
Lenore & Ernest Shima
Michelle Shin & Daniel Rubinoff
Mr. & Mrs. David Shinbara
Mr. Scott Shiraishi
Todd & Melanie Shishido
Dick & Sharon Shlegeris
Ms. Melissa Shuman
Dr. Paul Singer &
Ms. Sungalina Lee
Phanoumath & Amy Sirivattha
Richard & Natalia Skinner
Mr. & Mrs. James R. Skouge

Dr. & Mrs. Daniel C. Smith
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Rustan Souza
Erick Steffey & Tiffany Arakaki
Veronica & Tom Stevenson
Paraluman Stice-Durkin &
Robert Durkin
Judith A. Stitley USA RET
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Cathrina Sullivan-Haskins
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Davin Yamada
Mr. Scott & Mrs. Lori Yamada
Yamaguchis
Daniel & Esther Yau

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.



Seaduction

Bubbles everywhere! And it wasn't just the champagne at Seaduction, the Aquarium's annual Valentine's Day dinner.

Thirty-one couples joined us for an exclusive evening that started with a champagne reception, followed by dinner with the bubbles and the fish in our candlelit galleries.

The Catering Connection served up a three-course meal including a lychee sorbet intermezzo served with a splash of Kai lychee vodka, sautéed opakapaka with sauce Provençal and osso bucco-style braised short ribs. The sweet ending was a decadent chocolate ganache pyramid dusted with edible gold flakes and topped with festive, sparkler candles. Beer selections were from Kona Brewing Company and wines were recommended by HASR Wine Co.

A big mahalo to The Catering Connection, Kona Brewing Company, LuCoral Museum Shop and Red Pineapple for their support of this event.



Mahalo to the University of Hawai'i Women's Campus Club for providing three new wheelchairs to the Waikiki Aquarium. Aquarium Director Dr. Andrew Rossiter officially thanked club members Lynn Miller, June Naughton and Brigitte Campbell (pictured from left to right) for their generous support.



University of Hawai'i at Mānoa
Waikiki Aquarium
2777 Kalākaua 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.

It looks like an anemone but it's actually a *Pseudocorynactis* sp. corallimorph. Corallimorphs are similar to anemones, however they lack the anemones' ability to move. Most types are found in the South Pacific but this one was found in a shallow tide pool on the east side of O'ahu; you can see it in Miniature Marine Life in Gallery 3. Photo by Alice Keesing.

