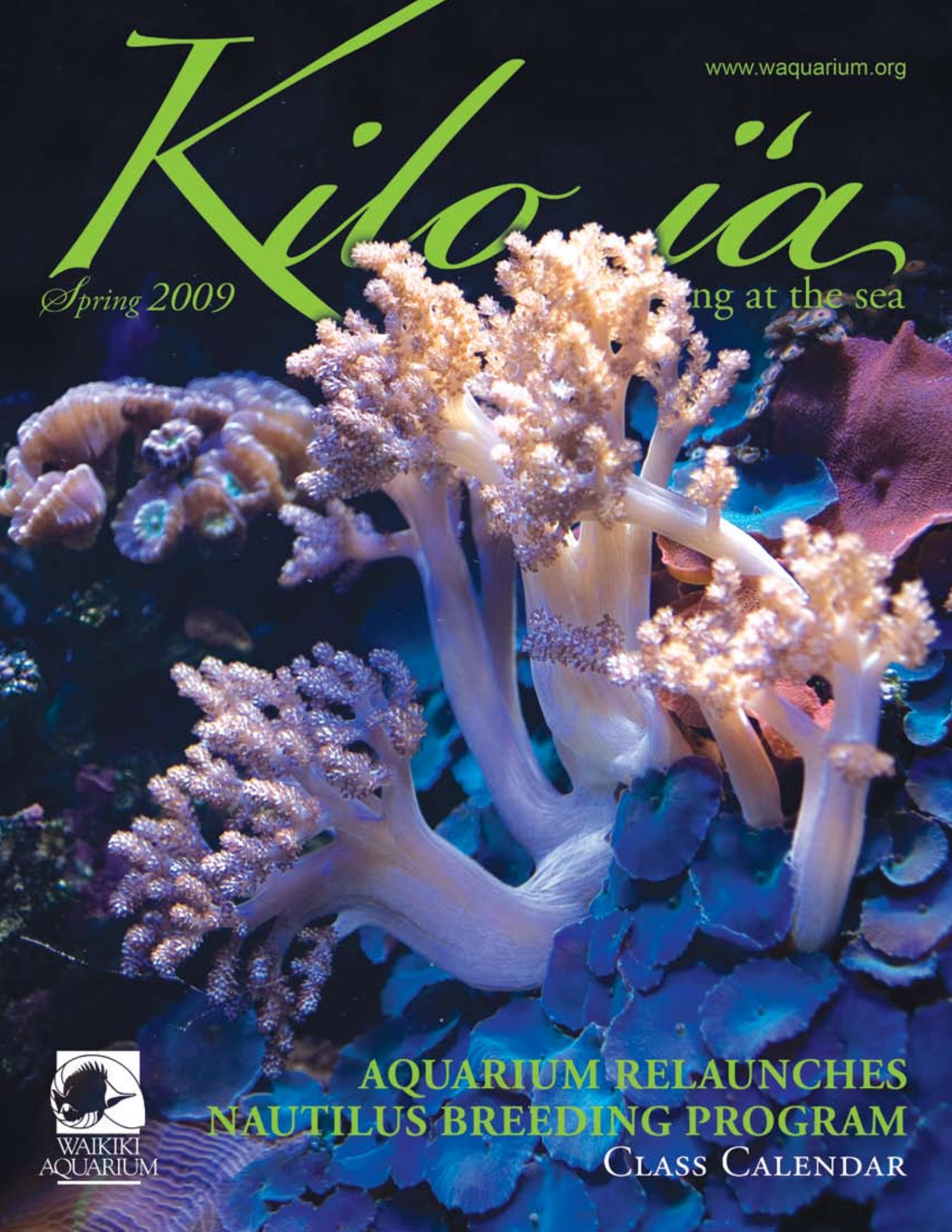
www.waquarium.org

Kilo ïä

Spring 2009

ng at the sea



WAIKIKI AQUARIUM

AQUARIUM RELAUNCHES NAUTILUS BREEDING PROGRAM

Class Calendar

FROM THE DIRECTOR

The Waikīkī Aquarium is often described as "the best little aquarium in the world." Yes, we are small. But, we emphasize quality over quantity, and there is an ocean-full of discovery in these walls. Even those of us who work here every day are constantly learning and exploring new things. In our efforts to share that adventure, we are reaching out with new and updated technologies.

One of the first projects is our revamped website. If you haven't been there lately, I'd like to invite you to visit. The new design by Carlos Chang and our in-house team of contributors has truly brought the site into the 21st century. It's bright and colorful and a great reflection of the exhibits you see when you visit.

On the site, you can get information on upcoming events and classes, how to volunteer, and what's new at the Aquarium. You can learn more about our fascinating animals with our marine life profiles and explore the links to other great marine resources.

There is more afoot for the website, too. In the future, you'll be able to shop the Natural Selection Gift Shop online as well as renew memberships and register for events. We're also hoping to invest in a high-definition underwater camera so we can provide high-quality streaming images of the stunning Barrier Reef exhibit.

When you visit the Aquarium itself, you'll soon be greeted by a flat screen information board in the foyer. Updated weekly, the screen will offer visitors information on the galleries and tip you off to interesting things that you can look out for during your visit. If there's a new animal or something especially interesting going on in one of the exhibits, we'll let you know. You can also test your ocean IQ with some fun, Aquarium-centric Q&As. For example, do you know how much 100,000 gallons of water weighs? The answer: 833,000 pounds — that's how much free, filtered seawater our members carried home for their own aquariums last year.

We're also working on new commentaries for our audio wand guides. The commentaries are packed with information about the animals in the exhibits and they're a great way to enhance your tour of the galleries.

We hope that these efforts — as well as others that are in the pipeline — will lead to a richer, deeper experience for you as you explore our incredible marine world.

Enjoy!

Dr. Andrew Rossiter
Director

Kilo iä

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Cover photo: Soft corals in the Lagoon Communities exhibit.

NEW Stories by the Sea

Join us in the shade of the palm trees for some rollicking great sea stories. Every Wednesday afternoon, we'll be on the great lawn with tales to tell of fishy creatures and life beneath the waves.

One of our featured storytellers is Alan Shepard (pictured right), who brings his original stories alive with exciting narration, puppets and props.

Learn how the seahorse became the seadragon or hear the fanciful tale of how the humuhumunukunukuāpua'a became the state fish.

Alan is a graduate student at UH-Mānoa, where he's been working on his MFA in Asian performance. He's also been working with our Education staff since last summer in several of our school support, community enrichment and interpretive programs.

The stories are geared for children ages 4 to 8, but anyone interested in a good yarn is welcome to attend. The storytelling program will be held on Wednesdays at 3 p.m. during April and May. For more information, call 440-9007.

GET WET! SUMMER CLASSES

Dive into summer with the Aquarium's special summer classes.

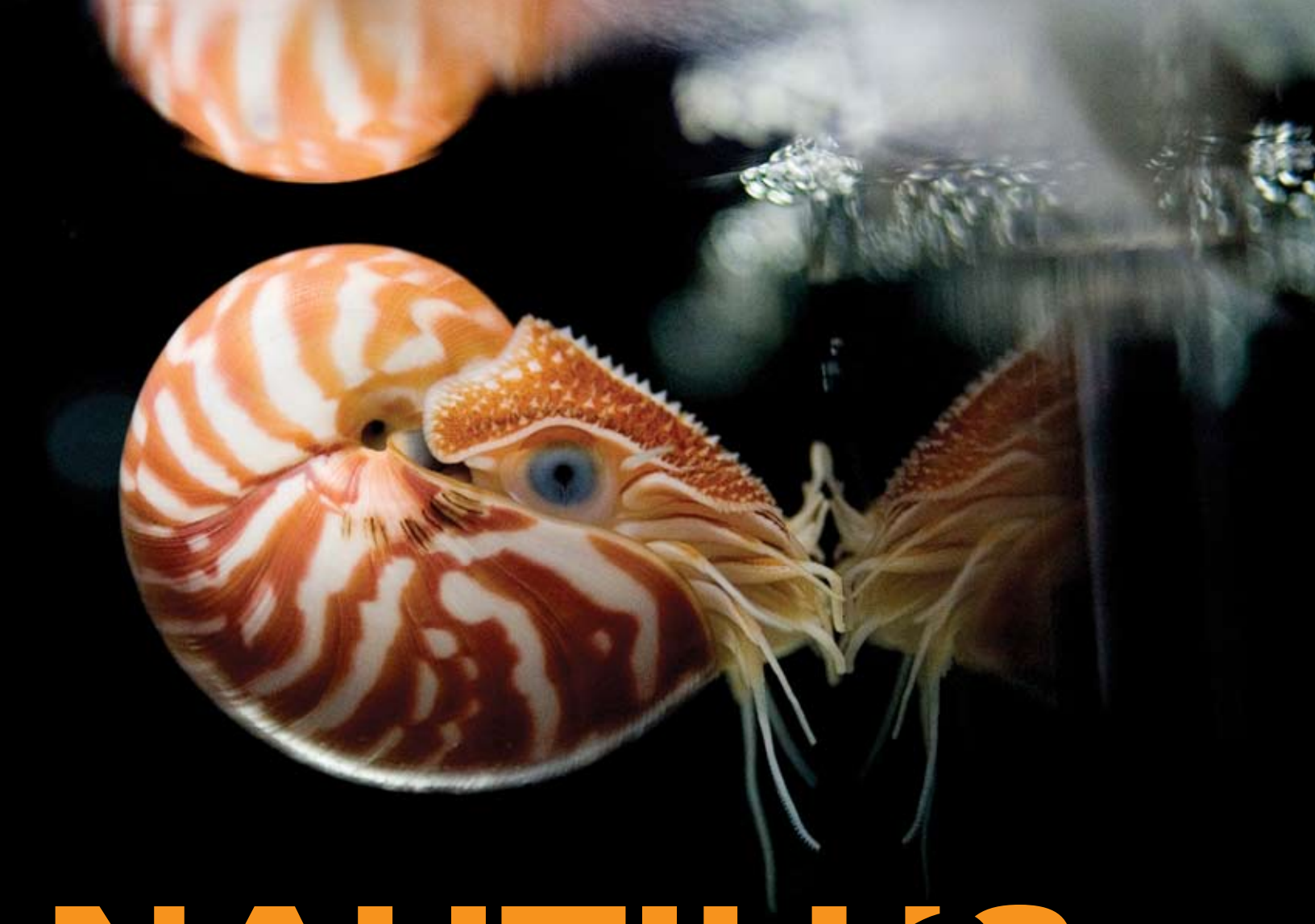
Oceans Alive! is a brand new class where keiki can learn, touch and explore how marine animals get around, protect themselves and make their homes. Tweens can join the week-long **Summer by the Sea**, snorkeling and exploring around the Waikīkī coastline. And teens can take the plunge with the **Marine Biology Camp**, learning and filming in the waters around the Aquarium.

For more information on these classes and other summer events at the Aquarium, see the calendar on page 11.

Ke Kani O Ke Kai

June 18 **The Brothers Cazimero**
July 2 **Hoku Zuttermeister**
July 16 **Kaumakaiwa Kanakaole**
July 30 **Maunalua**
Aug 13 **Willie K**

The Brothers Cazimero kick off our summer concert series this year. Join us for a Thursday evening of great music at the best outdoor venue anywhere. See page 12 for more information.



NAUTILUS Nursery

"This is such an incredible animal and their numbers in the wild appear to be dropping because of overcollecting for their shells."

Living FOSSILS

The chambered nautilus has always had a special place at the Waikīkī Aquarium. More than 30 years ago, we became the first in the country to display these fantastic-looking animals. Then, in 1990, we made history when we became the second in the world and the first in the United States to successfully hatch their young.

The Aquarium's breeding program came to an end in the late 90s, due to a lack of breeding adults and hatchery space. But, now, Aquarium staff are again ramping up efforts to breed and rear these ancient animals — something that has been a tough egg to crack in the aquarium world. To date, no one anywhere has succeeded raising the animals beyond 17 months — a record established by the Aquarium. This year, director Dr. Andrew Rossiter decided it was time to pick up the challenge again.

"This is such an incredible animal," Rossiter says. "Their numbers in the wild appear to be dropping because of overcollecting for their shells. It is important that we understand as much about them as we can, and, given the Aquarium's success with nautilus, we can make further advances in researching this animal."

Somewhat serendipitously, the two males and one female that we have on exhibit decided the time was right, too. While the animals are constantly mating and the female is constantly laying eggs, those eggs are typically not fertilized or viable. But, just over a year ago, the animals were moved into temporary quarters while their exhibit was overhauled, and the female laid several clutches of eggs. Five of those eggs eventually hatched out in our research tanks late last year. As we go to press, three of those baby nautilus were doing well in our nautilus nursery behind the scenes. The oldest — christened No. 1 — made four months in late March. In nautilus breeding terms, that's a huge achievement.

The nautilus program is in the hands of Aquarium Biologist Mariko Katayama. She gained her first experience working with the chambered nautilus while at Chicago's Shedd Aquarium and now she's taking on this new challenge.

"The adults are actually low maintenance as long as you give them the environment they need," she says. "It's the juveniles that are the tricky ones."

In the wild, adult chambered nautilus lead a life with drastic changes in both temperature and light levels. During the day, they can be found on the deep reef slopes at depths of 600 to 1,200 feet. At night they migrate to shallower waters — around 300 feet — perhaps in search of food.

It's believed that baby nautilus hatch in shallower waters, so Katayama keeps her charges in tanks that are slightly warmer than the adults', and she does not yet simulate the changes in depth as she does for the adults. Great care is taken to keep the nursery tanks sterile in order to avoid disease or infection.

Every day, Katayama hand-feeds the babies with tweezers, serving up a selection of sliced shrimp, mysis and the occasional whitebait fish.

"It's like tiny sashimi," Katayama says. "And they really prefer the shrimp."

While she's caring for the young nautilus, Katayama also is keeping a close eye on about 30 eggs. As the female lays her eggs on the rocks in the exhibit tank, Katayama gently moves them to a warmer incubation tank behind the scenes. After that, there is not much more to do but wait. Aquarium staff hope that inside those leathery, parchment-like capsules, there are more nautilus embryos slowly forming. But the gestation period can last anywhere from 12 to 15 months — raising nautilus is definitely an exercise in patience.

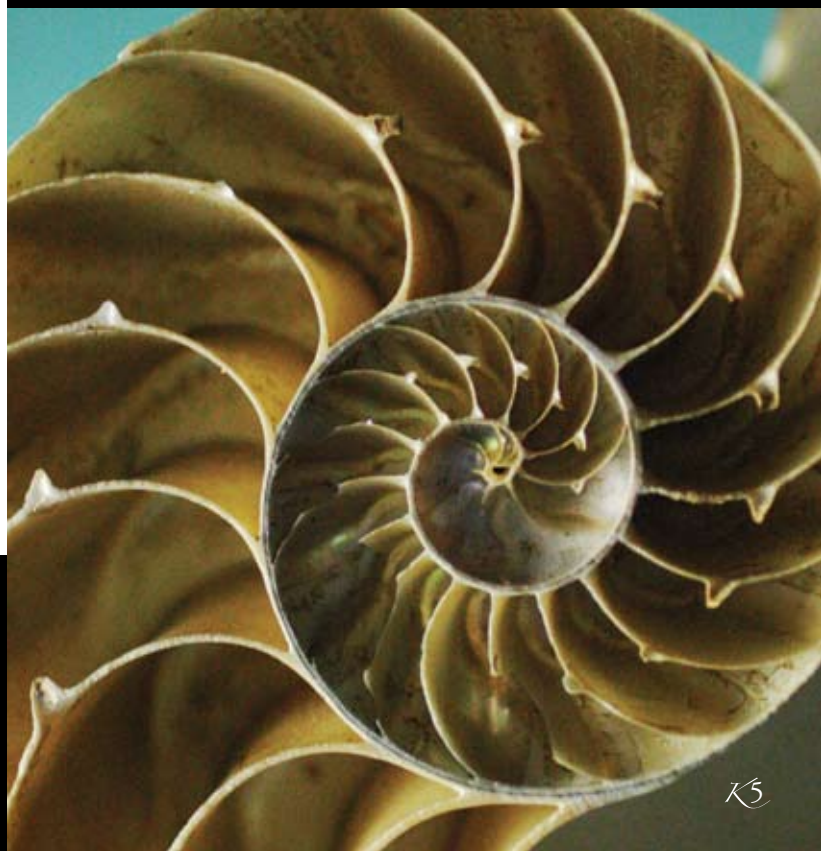
In the ancient seas of the Paleozoic — around 500 million years ago — there was an explosion of life. Clam-like brachiopods burrowed in the sediment, trilobites moved along the ocean floor and crinoids waved their feathery fronds. And, during this time, the dominant marine predators were the nautiloids. According to fossil records, some had shells that reached up to 29 feet when uncoiled.

The Paleozoic ended with one of the biggest mass extinction events in world history; nearly 96 percent of all marine animals went extinct. The only place you'll see trilobites now is embedded in rock. But the nautilus endured. Although they are now found only in the Western Pacific, the animals that you see at the Aquarium today are little changed from their ancestors of 500 million years ago.

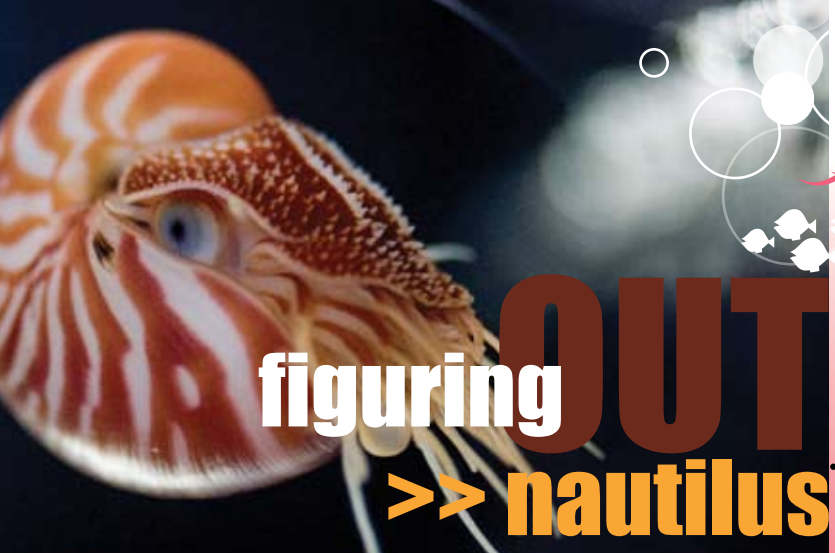
At the American Museum of Natural History in New York, Dr. Neil Landman is piecing together the evolutionary tree of the nautilus. And the Aquarium is happy to be assisting with his work. In March, Aquarium staff shipped Landman tissue samples of the animals that we have preserved over the last 30 years.

Landman is using molecular characters from two mitochondrial gene regions to develop the nautilus' evolutionary history. So far, Landman says, the study indicates a radiation of nautilus in the Indo-Pacific, with new species arising at different island groups.

Landman and his team are sampling nautilus populations throughout their range, but have been hampered by a lack of specimens. The addition of the Aquarium samples will greatly add to the study database, particularly as they are from a variety of known localities, including Palau.



Left: One of our juvenile nautiluses — here aged about three months — in a research tank behind the scenes.
Right: The nautilus shell is a thing of beauty that has inspired both artists and mathematicians — it is one of nature's best examples of a logarithmic spiral. In this cross section, you can see the older, sealed chambers. These contain gas that helps keep the animal neutrally buoyant.
Photos by Alice Keesing.



figuring OUT >> nautilus

500 million years The age of the cephalopod family Nautilidae, of which nautiluses represent the only living members of the subclass Nautiloidea. Often called a living fossil, the nautilus has changed little from its early form when it was one of the world's greatest marine predators.

16+ Estimated life span of a nautilus.

5-10 years The age at which *N. pompilius* reaches sexual maturity.

1.5 inches Length of a nautiluses egg. The male uses his tentacles to hold onto the female's shell while using a specially modified arm to transfer a sperm packet into the female's mantle cavity. The female lays eggs, one at a time. Each emerges covered with several layers of membranes that form a leathery protective covering. She uses her tentacles to attach each egg to a hard surface.

12 months Approximate length of gestation of a nautilus egg.

1 inch Width of a nautilus shell at birth. In its life, the animal will reach 8 or 10 inches.

4 The number of chambers in the shell of a newly hatched nautilus.

30 The number of chambers in the shell of a mature animal. Like their distant relatives, the terrestrial snails, the nautilus produces its shell from its mantle tissue. However, the animal only occupies the outermost living chamber. As it grows, its body moves forward in the enlarged shell, producing a wall to seal off older chambers.

0 Number of solid lenses in a nautilus eye. Unlike many other cephalopods, the nautilus does not have good vision. They have a simple pinhole lens, like a box camera, through which water and light can pass. It's believed nautilus rely on their sense of smell for foraging or mate selection.

90 The number of tentacles a nautilus has. It uses them to catch its food, such as shrimps and other crustaceans. They can be retracted into sleeve-like sheaths when not in use.

300-1,500 feet The depth range covered by nautilus, taking them through dramatic changes in temperature and pressure that is seen in few other marine animals.

2 Number of layers in a nautilus shell. The inner layer is iridescent white and is a pearlescent blue-gray on the innermost portion. This material is used for jewelry and is known as osmena pearl.

Seaduction 2009

On Valentine's Day, love was in the air — and in the water — at the Aquarium's Seaduction dinner. The evening began with sunset views, champagne and chocolate-dipped strawberries. Guests were then escorted to the galleries, transformed for the night into a fine dining room.

Thirty-three couples enjoyed the candlelit dinner, with imaginative and delicious offerings from Ginniberries caterers, such as a Kona coffee and Szechwan peppercorn-crusted tenderloin with Maui onion jam, coupled with a prosciutto-wrapped mahi with basil tomato beurre blanc. The dessert — a chocolate latté cup filled with tiramisu — came with another sweet surprise: a distinctive blue Tiffany box with a Tiffany palm tree note card set.

Tableside conversation was stirred by cards that were presented with each course, detailing the courting or mating behavior of the animals in the exhibits alongside.

Such was the success of the evening that table bookings have already been made for the 2010 event.

SEASONS of the SEA

May 2, 6-7:30 p.m.

Join us again this year as we celebrate one of the most moving events on the calendar, the ancient Hawaiian observance of the changing seasons. On this one day, the sun sets directly into the crown of Pu'u o Kapolei. This marks the shift from ho'olilo, the wet season, to kauwela, the hot season.

The sunset observance includes traditional chants, hula and mo'olelo (storytelling) by Sam 'Ohukani'ohia' Gon III and Na Wa'a Lalani Kahuna O Pu'u Kohola, the hula hālau trained by the late, great kumu John Keola Lake.

The event takes place on the lawn just 'ewa of the Aquarium grounds and is free and open to the public.

BEHIND THE SCENES

LIVE EXHIBITS

Behind the scenes at the Waikīkī 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.

EXPLORING THE DEEP OCEAN

Aquarium Biologist Kelley Niide could hardly believe her eyes. There, in the collecting tray, were some of the strangest and most bizarre animals she had ever laid eyes on. Long, dark bodies, glowing eyes and gaped mouths filled with dagger-like teeth — they were dragonfish, animals that live in the deep reaches of the ocean, luring prey with the bioluminescent barbels that dangle from their black chins.

It was 9 at night and Niide was on board the *RV Kilo Moana*, riding the gentle swells four miles off the Wai'anae Coast. She'd had a special invitation to join the research cruise with University of Hawai'i oceanography professor Dr. Jeff Drazen and his graduate students. She jumped at the chance.

On the Thursday of Valentine's Day weekend, with a seasickness patch stuck firmly behind her ear, Niide and her two-dozen cruise mates left Snug Harbor for three days at sea. During that time, they deployed many of the standard oceanographic tools for exploring the pelagic environment, from dragnets to traps.

Drazen also had on board his respirometer, a unique piece of equipment that he designed and built to measure the metabolism of animals. As fishermen exhaust the resources in shallow waters, they are moving to deeper waters and no one knows how vulnerable those animals may be to overfishing. Drazen hopes to provide some guide by measuring the pace of life in the deep sea.

But this cruise was also an exercise in discovery. Every day, the nets and traps revealed more bizarre wonders from the depths. Some of the animals were collected from as deep as 3,000 feet, so Niide knew they were getting a rare look at animals that most will only ever see on their television screens.

There were the dragonfish with their glowing eyes and sharp fangs, a squid with one big eye and one small eye, eels, jellies, copepods, small zooplankton. One day a trap came up from 3,000 feet, revealing a brilliant flash of red — it was a crab with spindly, spiky legs. That red color, perfect camouflage in the dark ocean, is almost neon in the light of day. Drazen is thrilled. For the last three years, he and a graduate student have been getting tantalizing glimpses of the king crab-like crustacean from cameras that they lowered into the water, but this was the first time they'd actually seen one face to face — and it's likely a new species.

Every day, the ocean reveals strange new sights, such as this brilliant red crab, which is likely a new species. Photos by Lee Shannon.

Drawing on her Aquarium expertise, Niide set up three tanks on board to hold the live animals, giving her and the students a unique and valuable opportunity to observe the animals in their watery environment. It's Drazen's hope that such partnerships could lead to methods for keeping animals alive for research or for display, so more people can witness the biological treasures just off Hawai'i's shores.

On the third day, Niide slid a tiny red shrimp into one of the tanks. It had come up in a plankton net from around 500 feet. As the shrimp landed in the tank, she noticed it let off a puff of bioluminescent fluid. She quickly called everyone around and they watched in amazement as the shrimp put on its light show. The shrimp, *Oplophorus gracilorostris*, may use the glowing fluid as a defensive mechanism. Its bright puff of light could be enough to blind or confuse an attacker, allowing the shrimp to make its getaway.

After two days at sea, Niide had taken off her seasickness patch. The ocean was surprisingly calm and — even though this was the longest she'd ever been at sea — she felt good on the boat. The *Kilo Moana* is a state-of-the-art research vessel, with comfortable quarters to boot. Niide was sharing a bunkroom with a teacher from Dole Middle School, who was learning about the deep ocean environment to share with her students. As for the galley? Food at sea always tastes good, but it doesn't hurt when you have a chef on board turning out ono dishes like ravioli and coconut shrimp and rib eye steak.

Conversation in the mess was always good, too, fueled by the finds of the day. One night Drazen gave a lecture on bioluminescence, recruiting a tray-full of animals harvested during the day. As they turned off the lights, the animals sent out their blue sparks and glows, a small but mesmerizing echo of the life in the vast dark of the ocean below.

Dragonfish belong to the family Stomiidae, all of which have large mouths full of large teeth.

RESEARCH NEWS

>> LOBSTER AQUACULTURE

The lobster shack at the Waikīkī Aquarium is now open. No, there is no drawn butter or garlic — but very soon there will be hundreds of thousands of lobster larvae and the seeds of a Hawaiian lobster aquaculture industry.

In the tiny lab set up on the research deck behind the scenes, principal investigator Dr. Spencer Malecha hopes to close the lifecycle of the Hawaiian spiny and slipper lobsters — an elusive feat that has never been achieved before.

The lobster lifecycle begins when the female releases her fertilized eggs into the water. The eggs hatch, releasing the free-swimming phyllosoma larvae into the water. In the next stage, the animal — which now looks like a tiny lobster — settles onto the ocean floor, where it begins its growth into a mature animal.

The tricky part for researchers like Malecha is the larval stage. Unlike other lobster species, the Hawaiian lobster spends an inordinately long time in this stage — as much as 265 days. That poses a challenge for aquaculturists, who need to figure out how to keep the larvae alive in tanks for more than eight months. During this time, the larvae undergo 23 molts — and with every second molt, the animal changes its shape and anatomy.

Malecha, a professor of animal sciences at the University of Hawai'i's College of Tropical Agriculture and Human Resources, has joined forces with Aquarium staff to crack the challenge.

"They're the best culturists in the state," he says. "Just look at all the animals they keep alive here, in pristine condition — it's a jewel."

To rear the lobster larvae, Malecha is using the same curved tanks that the Aquarium uses to raise sea jellies. The curved shape allows the animals to gently circulate without bumping into the tank sides.

Aquarium Director Dr. Andrew Rossiter has joined Malecha as the co-principal investigator on the project. Other partners are local fish farmer Randy Cates and UH aquaculture extension agent Clyde Tamaru. Funding was provided by the state Department of Agriculture.

If the test system works, Malecha hopes to scale up to larger tanks. Ultimately, juvenile lobsters would be transferred to ocean cages for maturation.

The project is a challenging one, but Malecha says there is one part that the lobsters make easy — each female lays around 300,000 eggs.

"With eight females, that's around two million eggs," he says. "Even if the survival rate is low, say around 5 percent, that's still a lot of babies. You could build an industry on that."

Volunteer SPOTLIGHT

PATTI GALLAGHER-JONES
Bringing the ocean to the classroom

A former visual information specialist with U.S. Fish & Wildlife, Patti Gallagher-Jones enjoys volunteering with the Aquarium's Education Department. "There are just so many cool things to share with the kids," she says. "I love learning about all this."

A monk seal basks lazily on the wall of the Education classroom. A school of bright pennant fish flits through the blue water. And a turtle grazes the rocks. This new undersea world in our classroom comes from the imagination — and countless hours — of volunteer Patti Gallagher-Jones.

Thanks to Alexander & Baldwin, the Aquarium recently installed a wave-crested blue wall in the classroom. After the wall was finished, Community Program Coordinator Mary Roney tried numerous ways to add the interactive elements that she needs to teach her classes. She tried sticking old rubber models and stuffed fish to the wall, but none of them worked. That's when Patti stepped in.

After a bit of experimenting, Patti created a way of taking original photographs and transferring them onto fabric. She then creates a backing with old T-shirts from Savers and stuffs the animals to give them a 3-D look. A bit of Velcro on the back, and voila! The result is a beautiful — and surprisingly realistic — undersea world.

Thanks to Patti and Malama Hawai'i, which funded the project, education staff can now create any marine environment they want, from a stream flowing into the ocean, to rocky shores to shallow reefs.

"This is not just a reef — it's a Hawaiian reef," Roney says. "If we had to buy pre-made models, we just couldn't get these kinds of animals."

Patti already has crafted around 160 animals, and she's still brimming over with ideas. She's even taken to answering her home phone with the greeting, "Hello, fish factory."

Patti Gallagher-Jones is one of 200 active volunteers at the Aquarium. They provide more than 15,000 hours every year and are the backbone of our educational outreach. Interested in volunteering? For more information, contact Volunteer Coordinator Vangie White at 440-9020.

A Day in the Life

Name **Mary Roney**
Position **Community Program Coordinator**
Year started at the Aquarium **2005**
Education **Hilo High School (1985); University of Hawai'i (BA natural science, biology minor, degree in secondary science education)**
Etc. **Of course I enjoy snorkeling and swimming and occasionally SCUBA diving. I also like hiking and head to the mountains as often as I can. I am married and have a 12-year old daughter, who also enjoys snorkeling.**

"It makes my day when I see an a-ha! It's wonderful to see the excitement and amazement on the faces of visitors who may never have seen a nautilus or squid before."

9:30 a.m. I start a little later on Mondays because I'm here until late teaching the Marine Munchies program. I arrive at the Aquarium by walking along the oceanfront wall. Some days I see Hawaiian monk seals, or spinner dolphins, or eagle rays … and that's before I even get through the gate. Once inside I often stop by the tanks with nests; there's usually a damselfish guarding a nest somewhere in the Aquarium. It's fascinating to watch if any of the animals are being fed, and I look for new residents. Every week there is something new on exhibit, or a change somewhere in the Aquarium. When I get to my desk, the first order of business is checking email and phone messages, returning calls and taking registrations for classes.

10 a.m. I attend a meeting of the heads of all the Aquarium departments. Even though I am not a department head, I fill in when needed. We plan upcoming events and exhibits, making sure that all our efforts are meshed toward a common goal.

11 a.m. I do the critter change at the Edge of the Reef exhibit. The hermit crabs and urchins in the interpreter pool only work two hours a day every other day or so. Every two hours someone from Education does the changing of the guard. While I'm there, I catch up with the volunteers at the exhibit, answering any questions they may have or pointing out new animals in the exhibit.

noon Our fabulous volunteer Patti Gallagher-Jones comes in on Mondays. We're putting the finishing touches on the interactive Hawaiian coral reef that is now in the classroom. Today, we fill sandbags that hold up the artificial rock structure that is the base of the reef. We have a little fun placing the seaweed and the animals that eat seaweed for our first day of Small Fry. For each class, we change the plants and animals on the reef to match the theme.

2 p.m. Back at my desk, I schedule a trial run of the new storytelling program and answer questions from a local newspaper reporter about our classes and activities. Every day there's something different, whether it's fixing props or updating marine life profiles or contacting an instructor to teach a class.

3:30 p.m. I start getting ready for the Marine Munchies class. I add a new slide of a lizard fish to the PowerPoint presentation. The university student employee who is helping me today helps pick seaweed from a holding tank and makes sure it's free of small fireworms — later we'll feed the seaweed to the animals in the Edge of the Reef. We also find rocks covered in brown sea anemones and bring them along with our anemone hermit crab to the classroom — during class, participants will feed them some frozen mysis shrimp. Then we prepare some frozen shrimp and fish and the Aquarium's own special fish gel that we will feed to other animals such as the octopus, fish, wana and white-spotted hermit crab.

4:30 p.m. Today's Marine Munchies students arrive. We start in the classroom with a brief introduction and then, when the front doors close at 5, we head into the galleries for the exclusive, after-hours feeding. When the program finishes at 6, I clean up, turn off the lights and lock the doors. It's time to go home, cook dinner and play cribbage.

FRESH Faces

Name **Mariko Katayama**
Position **Aquarium Biologist**
Education **Schurr High School, Montebello, Calif. (1993), California State University, Long Beach (BS biology, chemistry minor)**
Favorite Aquarium resident **Juvenile nautilus**
Etc. **Mariko is a city girl, who also likes to get outdoors, hiking, diving and snorkeling. Her two small dogs, a pomeranian and a chihuahua, also love their trips to the beach.**

When Mariko Katayama was working on her degree at Cal State Long Beach, she signed up for an internship with the Pacific Whale Foundation. It was a two-week session on Lāna'i, working every day in the field with spinner dolphins.

"I absolutely loved it, and that's when I knew I wanted to get into this field," she says.

She began volunteering as an aquarist at the Aquarium of the Pacific, Long Beach, and also at the Marine Mammal Care Center in San Pedro, Calif., where she worked on rehab efforts with seals, sea lions and elephant seals.

Eventually, Mariko landed two aquarist positions, one at Los Angeles' Cabrillo Marine Aquarium and another at the Aquarium of the Pacific, Long Beach, where she found a new passion for sharks and rays.

When she moved to the Shedd Aquarium in Chicago in 2003, Mariko gained experience with a number of different tropical species from the Indo-Pacific. She also became part of the shark team, where she soaked up the experience working alongside the veterinary staff during shark physicals.

The search for warmer temperatures led Mariko to the Maui Ocean Center in 2005. As the head aquarist, she worked with a wide range of animals, such as the green sea turtles, sharks, rays and a variety of endemic fish. She particularly enjoyed building the center's seahorse breeding program and her weekly dives with the 9-foot tiger shark.

Mariko joined the Aquarium in November last year.

"Maui is fantastic, but I wanted to live on O'ahu," she says. "And I just have a lot of respect for this Aquarium. Being attached to the university, there are also some great research opportunities."

Mariko is already leading the Aquarium's efforts to rebuild the nautilus breeding program — you can read more about that on page 4.

on BOARD

Name
Marcus Boland

Joined FOWA board
November 2008

Can also be found at
Northwestern Mutual Wealth Management Company, where he is a wealth management advisor.

Background
Boland is a kama'aina who earned his degree in wildlife biology from Colorado State University. He worked at the Oceanic Institute until 1993 when he began his present career as a financial advisor. At OI, he worked in the stock enhancement program, where they were the first to do a tag and recapture program with moi.

Favorite Aquarium resident Hawaiian cleaner wrasse

What inspired you to become a FOWA board member?
I have three daughters — aged 9, 5 and 2 — and the Aquarium is a favorite weekend destination. They like to go through the galleries, then visit with the hermit crabs at the Edge of the Reef, see the seals and then have snacks and a run-around on that big lawn. Joining the board was an opportunity for me to do something for the community that also ties in with my family interests. And, of course, I've always been interested in aquariums and marine life.

What do you enjoy most about the Aquarium?
It's educational and it's relaxing. And, of course, the exhibits are fantastic.

What do you believe is the Aquarium's role in Hawai'i?
This is a place where residents and visitors alike can see and learn about the marine life that lives around these Islands — even those things that you might not see when you're snorkeling and diving. For those of us who live here, we sometimes get so caught up in our lives that we forget to appreciate what we've got. The Aquarium is an important reminder of this and also a reminder of how unique and fragile our marine environment is and how important it is to maintain it.

On a personal note Growing up, my small kid break was Portlock, and I still surf there as well as on the North Shore and the South Shore. I like to catch the south swells at Rice Bowls in front of the Natatorium. I also did my first Roughwater Swim last year. And my family is always doing things around the ocean, just going to the beach, or surfing, snorkeling or swimming.

There are 12 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.

Classes & Activities

April-July 2009

Small Fry

Apr 1-29, Wed

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. $50/adult & child ($80 for non-members).

Sea Hunt

April 4, Sat 8:30-11:30 p.m.

Join us for our Easter Sea Hunt and Family Day with egg hunts, the fish pond, the Easter Bunny, crafts and entertainment. Doors open for FOWA members at 8:30 a.m. Sponsored by Kraft Hawaii. For more information, call 440-9015.

Earth Day

April 11, Sat 9:00-4:30 p.m.

It's fun, it's informative, it's for a great cause. Join us as we celebrate Earth Day. There will be information booths by private and public agencies, activities and the annual release of moi into the waters of the Marine Life Conservation District. Free.

Sea Stars

Apr 14-28, Tue 3:30-4:45 p.m.

Is your preschool age child ready to graduate from Small Fry? Bring your 3- to 5-year-old keiki to spend three afternoons singing and dancing, playing and creating. Learn about camouflage, locomotion, predators and prey in this three-session class. $36/adult & child ($48 for non-members).

Tidepool Exploration

April 25, Sat 8:00-10:30 a.m. Makapu'u

May 9, Sat 8:00-10:30 a.m. Kewalo

June 7, Sun 8:00-10:30 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 Waikīkī 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).

Seasons and the Sea

May 2, Sat 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.

Aquarium After Dark

June 16, Tue 7:30-9:30 p.m.

July 14, Tue 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 tangs at night? Minimum age 5 years; youngsters must be accompanied by an adult. $9/adult, $7/child ($11/8 for non-members).

Registration Information

- Questions about course, enrollment or disability accommodations? 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.
- Overpayments ($5 or less) cannot be refunded.
- 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.

Full payment must accompany completed registration forms. Please, no cash. Make checks payable to **University of Hawai'i**.

Mail registration. Fill out the registration form over the page; send check or credit card information for the total amount to:

Waikīkī Aquarium Education Department
2777 Kalākaua Avenue
Honolulu, HI 96815




Summer by the Sea

June 8-12 — 8:00 a.m.-3:00 p.m., every day; 7:00-9:00 p.m., Fri

June 22-26 — 8:00 a.m.-3:00 p.m., every day; 7:00-9:00 p.m., Fri

Spend a week of summer learning what lives in the ocean surrounding our islands. What's the best way to learn? By doing. Snorkel, swim and explore the coast from Waikīkī to Diamond Head. When we are not outside adventuring we will use the Aquarium as our classroom with sneak peeks behind the scenes. On the final night, families are invited for a student-led tour of the Aquarium. For marine biologists ages 8-12 years. All students should be confident swimmers. $200/child ($250 for non-members).

Ke Kani O Ke Kai

June 18 The Brothers Cazimero
July 2 Hoku Zuttermeister
July 16 Kaumakiawa Kanakaole
July 30 Maunalua
Aug 13 Willie K

Join us for our summer concert series on Thursday evenings on the great lawn with great music and great company. Doors open at 5:30 p.m. and the music begins at 7 p.m. For reservations, call 440-9015 or visit www.waquarium.org. Tickets for members are $18 for adults and $7 for children aged 7 to 12; children under 6 are free. You can also purchase an adult special series ticket for all five concerts for $75.

Marine Biology Camp

July 6-10 — 8:30 a.m.-3:00 p.m., every day; 6:30-8:30 p.m., Fri

The Aquarium's exhibits and nearby waters provide a living laboratory for this teen biology week. Prepare to get wet and use underwater cameras, micro-video and other equipment as we explore the marine world. Participants must be confident swimmers and know how to snorkel. Friday evening will be spent sharing the week's discoveries with family and friends and attending a presentation by renowned underwater videographer Stan Waterman. For teens ages 13 to 16 years. $200/teen ($250 for non-members).

Oceans Alive! NEW!

Movement: Fins, jets, arms & legs

June 3, Wed 3:00-4:30 p.m.
June 4, Thu 9:00-10:30 a.m.

Protection: Spines, teeth, venom & scales

June 17, Wed 3:00-4:30 p.m.
June 18, Thu 9:00-10:30 a.m.

Animal Homes: Sand, seaweed, coral & water

July 1, Wed 3:00-4:30 p.m.
July 2, 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 our Oceans Alive! open house. Move through stations and enjoy a variety of hands-on activities in the Aquarium's newest class offering. Every week, we explore a different part of the marine world — learn about the fish with molars, or the sea stars that walk on their arms, or the fish that tucks itself into a bed of rocks every night. Designed for keiki 2-5 years old. $5/person ($7 for non-members).

Activity Registration Form

Name(s)

Adults _____ Phone (home) _____

Children/Ages _____ Phone (work)_____

Address _____

City/State/Zip _____

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 # _____ ☐ Visa ☐ Mastercard

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

I am a FOWA Member ☐ Yes ☐ No Please send me information on becoming a FOWA Member ☐ Yes No

NAUTILUS

See how many words you can make from the letters in the word "nautilus." Then, if you're up for a real challenge, try to answer the nine questions below using the same letters.

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..... **(a)** Another name for ahi (4 letters)

..... **(b)** An ingredient in seawater (4 letters)

..... **(c)** Another name for caudal fin (4 letters)

..... **(d)** The kind of party that you might throw for a baby's first birthday (4 letters)

..... **(e)** Another type of mollusc with a shell, but this one lives on land (5 letters)

..... **(f)** What you get on your shirt if an octopus inks on you (5 letters)

..... **(g)** The unexpected parts on a monk seal's front flippers (5 letters)

..... **(h)** The feel of a sea hare's skin, or the material a prom dress might be made from (5 letters)

..... **(i)** A special quality of many of the Aquarium's exhibits, but not the nautilus exhibit because they are deepwater animals (6 letters)

ANSWERS: (a) tuna (b) salt (c) tail (d)luau (e) snail (f) stain (g) nails (h) satin (i)sunlit

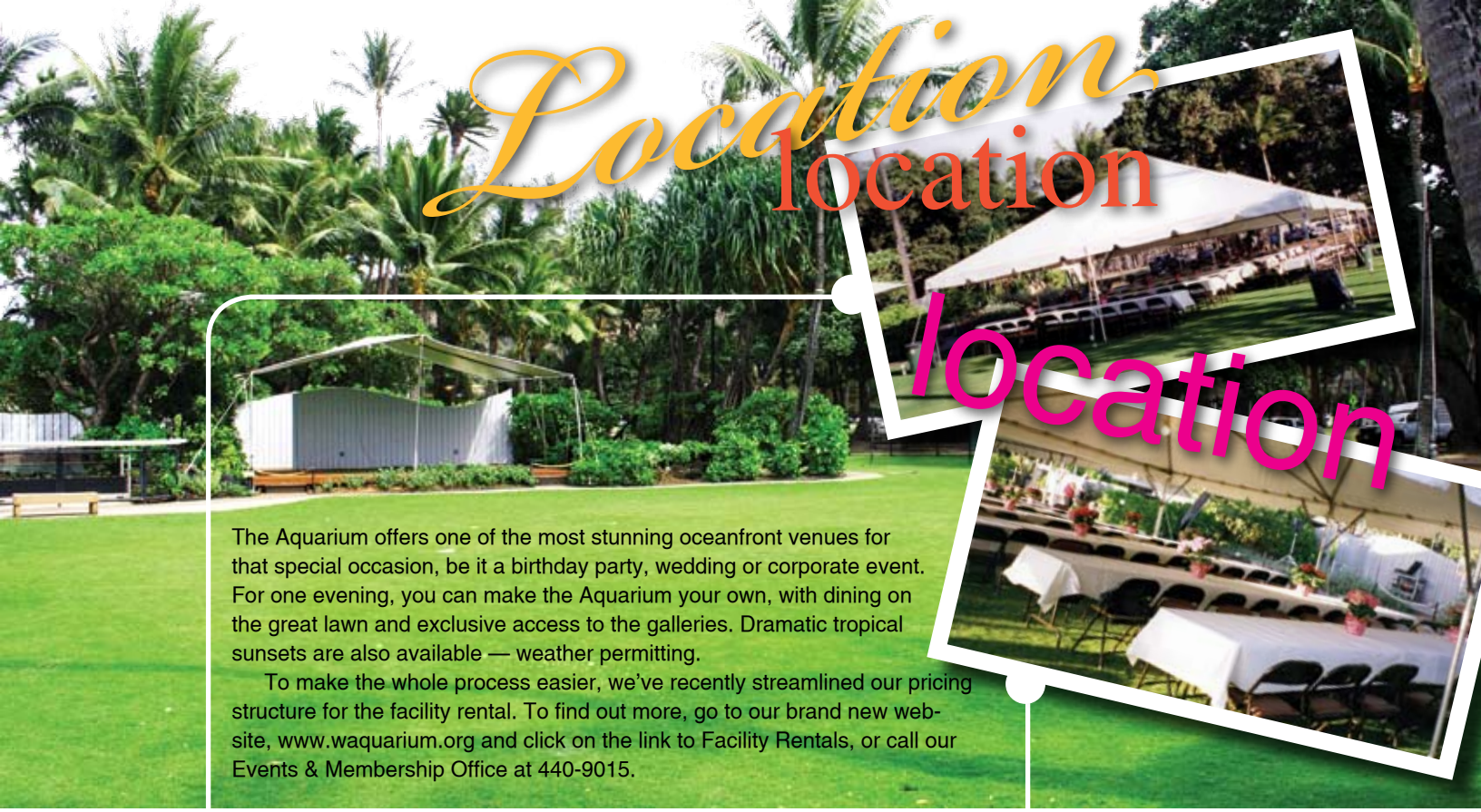
New & Renewing FOWA Members

The Membership Office recorded these new and renewing memberships between Nov. 16, 2008, and Jan. 31, 2009.

Mr. & Mrs. Paul Acquavella
Charles W. Adcock
Tony & Jennifer Altomare
Ms. Geraldine Aluli &
Ms. Monica McConell
Roger & Amy Aoki
Glenn Arai
Erma Arenson
Mr. & Mrs. Charles K. Au
Mr. & Mrs. Mark Au
Philip & Carol Au
Mr. & Mrs. Kent Badham
Dr. & Mrs. Duke Bainum
Mrs. Carrie Barcia
Brad & Anita Barshaw
Chris & Gracie Barstad
Albert & Keiko Batara
Mr. & Mrs. Joseph A. Behlert
Steven & Lolita Belaus
Mr. & Mrs. Jason Benn &
Liana Benn
Mr. & Mrs. Bigalke
Mr. J.R. Blankenfeld
Kenneth & Chrissy Bochat
Marcus & Emma Boland
Emil & Alice Bruner
Mr. & Mrs. Tom Bush
Mr. & Mrs. Raymund O. Callorina
Robert & Stephanie Camerrer
Ms. Sidney Lei Carrillo &
Ms. Linda Mendonca
Ms. Marian W. Carson-Heydon
Mr. & Mrs. Jean-Pierre Cercillieux
Mr. Sing Tak Chan &
Mrs. Feng Ping Mao
Dr. Yvonne Chan &
Mr. Benjamin Godsey
Elaine M.L. Chang
Victor Ching & Michiko Imura
Mr. and Mrs. Kerwin Chong
Stewart & Elisa Chong
Mrs. Paula Choy &
Ms. Xiang Fu Xiao
Alexander & Susan Christensen
David S. Chu & Laura Tosi
Jo & Kimo Chun
Mr. & Mrs. Nathan Chung
Jason & Laurie Clark
Mike Claus
Ming Constable
Dr. & Mrs. Ian McLean Cooke
Maile Cooke & Ka'ala Shea
Bill & Carol Coops
Frank & Katrina Cordova
Mr. & Mrs. Kevin Cronin
Janie Culp
Don & Sarita Cupp
Kent & Carolyn Davenport
Mr. & Mrs. Davis
Marla Day
Jacob & Heather DeFries
Barry & Joan Denney
Mr. Michael DePrenda &
Ms. Li-Chen Chao
Ms. Tiffany Devine &
Mr. Kyle Griffith
Rodel and Connie Diaz
Lance & Sun Young Doiguchi
Wayne & Lina Doo
Mr. & Mrs. Dennis Drake
Jo & Lu Eldredge
Ms. Jan Elliot
Andrew & Barbara Endo
Moni, Shanel & Mia Enos
Jacob L. Epping
Mr. & Mrs. Dean A. Eyre, Jr.
M. Eleanor Fahrenwald
Jean Fantle-Lepczyk &
Christopher Lepczyk
Mr. & Mrs. Josh Feldman
Dave, Melissa, Caspian &
Daxton Fernholz
Adrianne & Sandy Ford
Barbara Hanson Forsyth
Lori & Paul Frontera
Kongo Fujii
Glenn Fukushima & Jeroldine Chun
Layne & Grace Funai
Reginald Gentry Jr.
Drs. Gibson and Tran
Malisa Glaser
Daniel M. Gomez
Danny & Jamie Goya
Stanley Grace &
Stacy Helepololei-Grace
Tim Gray
Steven Gross & Erin Wilson
Dr. Christopher K.H. Guay &
Ms. Lori Teranishi
Joshua Habermann
Mr. & Mrs. Todd Hackney
Will & Ellen Hamblet
Ormond W. Hammond &
Lesley Agard
Royce Hanada
Jason Hanley & Lynne Egensteiner
Mr. & Mrs. James P. Hanny
Paul Hanohano
Mr. & Mrs. Robin Hashimoto
Gary & Kimberly Hashiro
Kendall & Diane Hawkins
Corwin & Jennifer Hee
Michael Heihre
Mr. & Mrs. Matthew Higa
Matt Higa
Mrs. Lisa Higaki &
Mr. David Kawahigashi
Wendy Higashihara
Justin & Tammy Hill
Lynne Hironaka-Fujimoto & Kim Lau
Brian & Jennifer Ho
Mr. & Mrs. Garret Hoe
Steven & Jazmin Hong
Raymond Hoptowit
Mark Hostetter & Claudio Castillo
Dr. Cynthia Hunter
Mr. & Mrs. Wilfred T. Ikemoto
Reid & Kara Imai
Mr. & Mrs. James H. Ireland
Mr. & Mrs. Wade Ishii
Robert & Michele Ito
Mr. Steven Iwasaki
Mr. & Mrs. John L. Jacobs
Steven & Jane Jenks
Mr. and Mrs. Jensen
Heather & Damon Johnson
Drs. Prakash & Sumana
Arnold & Evan Kameda
Dr. Gary K. & Mrs. Liza Kanemura
Chase & Nancy Kawakami
Drs. Chuck & Jenny Kelley
Ms. Kuuleialoha &
Ms. Karli Kennedy
Mark K. Kikuchi &
Karen M. Ninomiya
Kalaau & Etsuyo Kila
Rex & Suzanne Kim
Mr. & Mrs. Sung Jin Kim
Tony Kim
Mr. & Mrs. Sean Kimura
Patrick & Kris Kobayashi
Erica Konno
Carolyn Kuahulu
David & Andrea Kubo
Hanako L. Kuniyoshi
George Kuramoto & Mary Wilson
Faye W. Kurren
Thomas & Bianca Kusatsu
Kevin & Lori Kuwahara
Michael & Deborah Lambert
Zheng Lan & Min Zhu
David & Vicki Lane
Dr. & Mrs. Brian K.W. Lau
Clement & Candace Lau
David & Kim Lau
Anthony & Jill Lee
Bruce & Heayoun Lee
Mr. & Mrs. Clarence Lee
Mrs Joanne Lee
Mr. & Mrs. Garrett Leong
Adam & Carra Lewis
Kevin Lino
Mrs. April Lloyd
Dr. Lorren Loo & Dr. Paul Martin
Ryan Loo
Mr. & Mrs. Loui
Ms. Sarah Lukes
Gerardo Lukuy
Russell Lum & Tao Jiang
Harry Lynch & Angelina Ahedo
Mr. & Mrs Neal MacPherson
Barbara H. Makua
Mr. & Mrs. Karl Maluo
Kevin & Martha Marshall
Mr. David W. Martin
Masayo Nakagawa
Mr. Marushige
Mr. & Mrs. Stanley Matalon
Myrna M. Mattix
William & Virginia Matulenas
Dr. Candace Furubayashi &
Mr. Michael McCartney
John W. McDermott
Dennis & Kathy McElrath
Mr. & Mrs. Brian Melzack
Ms. Patricia Meyer
Gary S. Miyamoto
Melvin & Sandra Miyamoto
Ellie Montalbo
Marnie & Alyson Montemagno
Marco & Jennifer Montoya
Ms. Melanie Mori
Dr. & Mrs. Keith Morikawa
Clarence & Doreen Morinaga
Dr. & Mrs. John Mueh
Neilsen & Kristene Murakami
Richard & Kris Muramoto
Mr. & Mrs. Hideo Murashige
George & Bonnie Murphy
Dr. & Mrs. Patrick Murray
Charles Nagamine
Dave & Stacie Nakahara
Major & Mrs. Francis T. Nakamoto
USAF (Ret.)
Stuart & Michele Nakamoto
Dr. Royden Nakamura
Mr. & Mrs. Jason Nakamura
Ivan & Connie Nakasone
Yubun & Yukari Narashiba
Maxwell & Erica Neves
Ms. Shannon Nii
Ms. Erin Nishimura & Mr. Reyn Horner
Dr. & Mrs. Lawrence Nitta
Mr. & Mrs. Warren Noguchi
Jessica Nojiri & Michael Hobbs
Kohei & Kayoko Ohta
Kevin & Jan Okazaki
William & Sue Okimoto
Daniel & Agnes Okinishi
Myles & Leslie Okoji
Roger Osentoski
Chika Otsubo
Staci & Sterling Packer
Ev Painter
Mr. Andrew Pang
James & Aileen Park
Mrs. Fumie Pendleton
Mr. and Mrs. Greg Perry
Mr. & Mrs. Daniel Peters
Mrs Tamara Petrovic &
Mr. Eric Mondi
Shaun & Cara Petty
Robert & Patrice Pickering
Joel Pieper
Christine Quemuel &
Roderick Labrador
Dr. Joe W. Ramos &
Dr. Michelle L. Matter
Dr. & Mrs. Reese
Louise Ripple
Clarence & Eileen Chang Roco
Mr. & Mrs. Scott C. Rolles
George & Beth Romano
D. Haigh Roop
Neil & Lisa Rose
Anton & Angelique Rowe
Ronald & Amy Ruhaak
Steven & Maria Rushing
Patti & Bell
Alex & Lisa Salkever
Mr. & Mrs. Ken Salva Cruz
Kevin & Amy Sanada
Robert & Christine Sanders
Ian Sandison & Kate Leonard
Mr. & Mrs. Daniel P. Sanford
Gary Sasamura
Joseph & Grace Saturnia
Anthony & Shani Schlemmer
Dennis & Melissa Schoenwether
Jane E. Schoonmaker &
GordonTribble
Walter Schroeder &
Dana Watanabe
Mr. & Mrs. Scott Settle
Larry J. Shapiro &
Carol Ann Uetake-Shapiro
Paige Shimamoto & Rick Agan
Tim & Kelly Shivery
Mr. & Mrs. Brandon Simpson
Dr. Miriam Stark &
Dr. James Bayman
Stacy Sterrett & Kristin Masunaga
Mrs. Paraluman Stice-Durkin
Phillip & Leanne Stiehl
Chris & Andrea Stoebenau
Mr. Yang Suh
June & John Sullivan
Andrew Sullivan-Haskins
Andrew & Heidi M. Taam
Mr. & Mrs. George Takahashi
Trevor & Marla Takamori
Mr. & Mrs. Roy Takara
Mrs. Tara Takatsuka
Michael & Robbyn Takeuchi
Mr. & Mrs. Willibrord K. Tallett
Darren Tamekazu
Donald & Patti Taylor
Mr. & Mrs. Bryan Tepper
Taiji & Naoko Terasaki
Peter E. and Barbara L. Thacker
Hai & Vivienne Thai
Zac Thielen
Mr. & Mrs. Brett Thomas
Sherri Tisza & Joe Mottl
Amber Tomasello
Ms. Joni Tomihama
Mr. & Mrs. Mark S. Tomomitsu
Murray E. Towill
Kathleen Vickers
Mitchell & Milika'a Vierra
Toni & Rudolph Villamil
Shane & Catherine Visitacion
Mr. Keith A. Vodzak
Ms Wally G. Wake
Gary & Pat Wassel
JoJo Watumull
The Webers
T.C. Wesselkamper
Dallas Wheeler & Edith Komatsu
Mrs. Kim Wheeler
Dr. Geoffrey White
Gary & Michelle Wiegand
Robert & Jeanne Wilkinson
Dr. Ivor Williams &
Mrs. Mariska Weijerman
Ed & Donna Winter
Mr. & Mrs. Alvin Y.C. Wong
Mr. & Mrs. Erwyn C. Wong
Taryn & Tasha Wong
Mr. & Mrs. Glenn Yamaguchi
Cary & Donnalyn Yamamoto
Daryl & Sandra Yasunari
Jayson Yim
Mr. Calvin Yokoo &
Mrs. Sylvia Koo
Mr. & Mrs. Roy Yonamine
Mr. & Mrs. Andrew Young
Keith & Sayuri Young

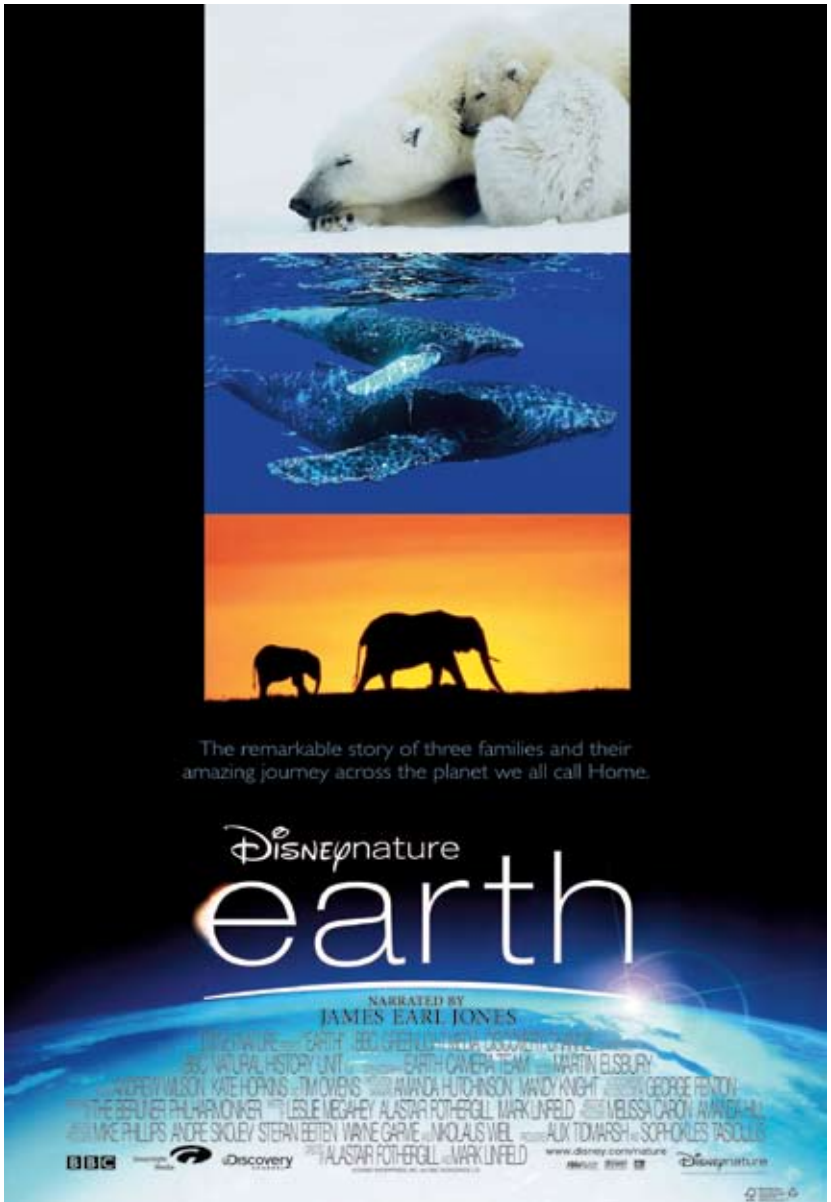
If your name is not listed or is listed incorrectly, please accept our apologies for the error and our most sincere thanks for your support.

Location location location



The Aquarium offers one of the most stunning oceanfront venues for that special occasion, be it a birthday party, wedding or corporate event. For one evening, you can make the Aquarium your own, with dining on the great lawn and exclusive access to the galleries. Dramatic tropical sunsets are also available — weather permitting.

To make the whole process easier, we've recently streamlined our pricing structure for the facility rental. To find out more, go to our brand new web-site, www.waquarium.org and click on the link to Facility Rentals, or call our Events & Membership Office at 440-9015.



go Disney

Through a special partnership with Disneynature's *earth*, the Aquarium is offering a limited number of theatre tickets to the movie, which opens in theatres on Earth Day. The tickets will be given out as prizes during Sea Hunt on April 4 and during our Earth Day event on April 11.

earth is the first film in the Disneynature series. Narrated by James Earl Jones, it tells the remarkable story of three animal families and their amazing journey across the planet we all call home. Directors Alastair Fothergill and Mark Linfield are the acclaimed creative team behind the Emmy-winning *Planet Earth* — they combine forces again to bring this epic adventure to the big screen.

Members' Sweet Perk

There are lots of benefits that come your way with your Aquarium membership. Now, for a limited time, your membership can earn you tasty treats at the oceanside Hau Tree Lanai Restaurant at The New Otani Kaimana Beach Hotel. With each entrée ordered, you receive either one complimentary dessert or one complimentary non-alcoholic drink. The offer is valid from April 1 until June 30, 2009. Remember to take your FOWA membership card with you.

Hau Tree Lanai

The Waikīkī Aquarium's Mission:

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

Threadfin moi
Photo: Alice Keesing.

WAIKIKI AQUARIUM

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

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