

PACIFIC CURRENTS

MEMBER MAGAZINE OF THE AQUARIUM OF THE PACIFIC

OCEAN EXPLORATION



AQUATIC ACADEMY: ARE WE FACING AN ENVIRONMENTAL CLIFF?



THE AQUARIUM OF THE PACIFIC hosted three sessions of its Aquatic Academy in February 2013. Experts in the fields of climate science, oceanography, conservation, policy, and ecology shared their knowledge and experience with attendees. This faculty made assessments of whether or not we are facing an environmental cliff and made recommendations for averting such a cliff.

After presentations by speakers and discussion, Aquatic Academy participants compiled the plan below. It sets forth a strong consensus view of the most effective and important actions to decarbonize society and reduce the impacts of climate change.

ACTION PLAN TO AVOID THE ENVIRONMENTAL CLIFF

1. LAUNCH A BROAD PUBLIC EDUCATION CAMPAIGN TARGETING PEOPLE OF ALL AGES.

This campaign should be formulated for use by schools, the media, informal education institutions, and other venues. The content of the campaign should be tailored to various audiences and regions, making it relevant and personal. It should also communicate the urgency of addressing climate change. A critical element in an effective global educational campaign is to provide greater educational and economic opportunities for women. This is the most effective way to stabilize population growth.

2. SHIFT THE PRESENT U.S. ENERGY MIX TOWARD ZERO-CARBON-EMISSIONS ENERGY SOURCES.

Starting immediately, alternative and renewable energy sources should be incorporated into the mix nationwide. Different locations will have different energy-source options, but they include hydrothermal, solar, wind, natural gas, and nuclear energy. Construction of conventional coal-fired power plants should cease. Specific financial incentives should be used to encourage the shift.

3. CONSERVE RESOURCES.

Individuals, communities, institutions, commercial enterprises, governments, and the nation as a whole should conserve energy, materials, and the energy needed to produce them and to process resulting wastes by reducing consumption, enhancing reuse and recycling, and developing new technologies for processing.

4. OVERHAUL THE NATION'S TRANSPORTATION SYSTEM.

Increase public transportation and make private transportation more energy efficient. Improve gas mileage by decreasing the weight of vehicles, increasing gas engine efficiency, and increasing the use of hybrid and electric vehicles. Promote walking, bicycling, and telecommuting.

5. DEVELOP AND IMPLEMENT NEW STANDARDS FOR COMMERCIAL AND RESIDENTIAL BUILDINGS.

New and existing buildings should be subject to ambitious requirements for energy efficiency. Provide tax incentives for owners of older buildings to retrofit their buildings to make them more energy efficient. Promote innovative and sustainable design for new construction.

6. DEVELOP AN ECOLOGICALLY RESPONSIBLE FOOD SYSTEM THAT PROMOTES HEALTH.

Shift to locally grown foods and sustainable agriculture and aquaculture practices. Promote healthy diets that reduce consumption of red meat.

7. REDESIGN CITIES WITH AN EMPHASIS ON SUSTAINABILITY AND ENERGY EFFICIENCY.

Implement sustainable urban planning that incorporates high-density commercial and residential districts, public transit, bike paths, urban gardening, green spaces, and low-water-use landscaping. Make it possible for people to live close to where they work.

8. PROMOTE NATIONAL AND INTERNATIONAL COOPERATION TO ADDRESS CLIMATE CHANGE.

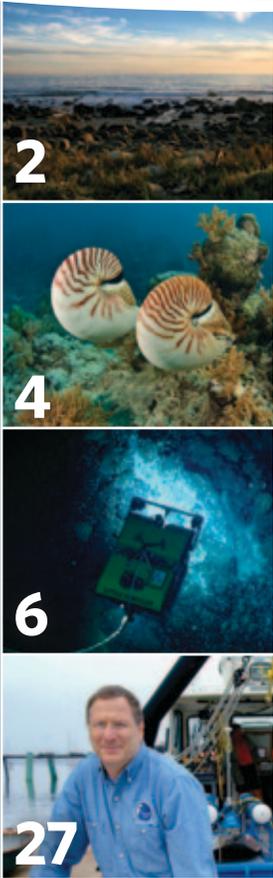
The United States should become a positive role model for reducing carbon emissions. It should cooperate with other nations to set targets and achieve reductions in carbon emissions worldwide.

9. INCREASE FUNDING FOR RESEARCH AND DEVELOPMENT, AND ENCOURAGE EXPLORATION AND EVALUATION OF BOLD INITIATIVES.

Promote development of sustainable renewable energy sources to make them more efficient and more economical. Increase funding for research on carbon capture and storage technologies. Foster a community of innovative ideas for curbing and adapting to climate change, but insist on caution in how new ideas are implemented.

10. GET PERSONALLY ACTIVE BY BECOMING AN ADVOCATE FOR AVOIDING THE ENVIRONMENTAL CLIFF.

Support elected and appointed officials and organizations in their efforts to mitigate and adapt to climate change. Use print and social media as platforms to spread the word about environmental issues. Build social networks dedicated to integrating and adapting to climate change. Become a well-informed advocate for sustainable change.



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PACIFIC CURRENTS is published for members of the Aquarium of the Pacific. Please send your comments to our editorial staff at PacificCurrents@LBAOP.org.

OUR MISSION | To instill a sense of wonder, respect, and stewardship for the Pacific Ocean, its inhabitants, and ecosystems.

OUR VISION | To create an aquarium dedicated to conserving and building natural capital (nature and nature's services) by building social capital (the interactions between and among peoples).

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AQUARIUM HOURS | Open daily from 9:00 a.m.-6:00 p.m. except Dec. 25 and during the Grand Prix of Long Beach

MEMBERSHIP OFFICE HOURS
8:00 a.m.-5:30 p.m. daily



The Aquarium of the Pacific is a non-profit 501(c)3 institution. To provide exciting and innovative exhibits and educational programs, we rely heavily on the generous donations of individuals, foundations, and corporations.



Aquarium Founding Sponsor

LETTER FROM THE CEO

DEAR MEMBERS,

ANNIVERSARIES ARE ALWAYS A GOOD TIME to look back to see where you have been and to look forward to see where you are headed. Our



Aquarium opened in June 1998. This June we will celebrate our fifteenth anniversary. The Aquarium of the Pacific has had a rapid evolution into one of the world's leading aquariums and one of the most distinctive. The sense of excitement and commitment of the founding board, president, and staff continues to be strong.

Our fifteenth anniversary theme is ocean exploration. It will be the focus of our changing exhibit, of new films in the Ocean Theater and in the Great Hall, of our lecture series, and of much of our educational programming. Ralph Waldo Emerson once said: "Don't go where the path may lead; go instead where there is no path and leave a trail." This statement captures the essence of the Aquarium's guiding philosophy. Throughout the Aquarium's brief history, every department of this institution has gone where there is no path and has left a trail, one that many other institutions have followed. Much of our success has been through collaborations, not only with other aquariums, but also with government agencies, research scholars, artists of all kinds, and with our community.

Over the past decade our attendance has increased by more than 20 percent, the diversity of our audience has been enriched, and we have added a number of new facilities, programs, and exhibits—both temporary and permanent. We did all of this while significantly reducing our environmental footprint.

This spring we will open our two new gift stores. The expanded main retail store with its dramatic kelp windows marks the first stage in the major expansion of the Aquarium. The generosity of the City, our Board, and a number of foundations and corporations has provided a good base for the campaign needed to raise the necessary funds. The expanded facility will combine the best of aquariums and live animal exhibits with the best of immersive media to tell powerful stories about these animals, about the relationship of humans with Earth, and about the trails we can blaze to ensure this relationship is sustainable.

The Aquarium has had a glorious past. The future is even more exciting, and I thank each of you for your past support and look forward to working with you as we go forward.

Thank you for your ongoing support.

Sincerely,

Jerry R. Schubel



GIDGET THE SEA OTTER MOVES TO MONTEREY

I N JANUARY GIDGET THE SOUTHERN SEA OTTER was transported to Monterey, California. Gidget will be trained as a potential surrogate mother for orphaned sea otter pups at Monterey Bay

Aquarium's Sea Otter Research and Conservation program (SORAC). In the meantime, she will be on exhibit in Monterey with that aquarium's other resident female sea otters, and she will serve as a companion to SORAC's rescued otters. She was identified as the most appropriate candidate for this role from all of the female southern sea otters in aquariums in the United States. She lived at the Aquarium of the Pacific for just over four years.

Gidget was rescued by wildlife officials when she was estimated to be between ten and twelve weeks old. She was found separated from her mother on a beach near Cayucos, California. When she arrived at the Aquarium in October 2008, Gidget required around-the-clock care. She weighed only six pounds. Because she was so small, she was bottle- and hand-fed. She ate every three to four hours and had to be hand-groomed after each feeding.

Gidget gained notoriety on the Aquarium's website as "The Furball," a name bestowed upon her by husbandry volunteer and blogger Hugh Ryono, who helped raise the otter when she first arrived. Gidget was originally named Maggie when she came to the Aquarium. Later, another otter named Maggie joined the Aquarium's collection. Because this otter was older and more accustomed to her name, Gidget was renamed.

The Aquarium is slated to receive another young female otter to take Gidget's place.

CHARLIE THE SEA OTTER RETURNS

I N APRIL CHARLIE THE SOUTHERN SEA OTTER returned to the Aquarium after a two-year stay at the Long Marine Lab in Santa Cruz, California, where he participated in a study of sea otter hearing.

During his absence, another male sea otter, Odin, lived at the Aquarium. Odin was the original subject for the Long Marine Lab study, but was determined to be a less-desirable candidate because he appeared to have some hearing loss.

Principal Investigator Dr. Colleen Reichmuth and Laboratory Research Coordinator Asila Ghaul conducted the study, which was the first of its kind in investigating sea otter hearing. Its goal was to establish a baseline for capability across their hearing range. Gathering this data is important, the researchers say, because it can inform decisions made by government agencies regarding the impact of human activity on marine environments. Human activity that produces noise that may impact sea otters includes coastal construction, oil and gas production, military and harbor operations, dredging, and transportation, both commercial and recreational.

Charlie was selected as a good candidate for this study, in part, because of the behavioral training he had received at the Aquarium. "The animals have to be really very well-trained and cooperative partners in the research," Reichmuth explained. "Just what we're learning from Charlie is going to make a really significant contribution to what we know about the entire species. Charlie is going to be an important representative for the entire [sea otter] population."

Reichmuth and Ghaul tested Charlie's hearing both above and below water. To participate, Charlie learned to enter a specialized acoustic testing environment, listen for sound signals, and respond to the researchers, notifying them whether or not he had heard the sound by touching his nose to a target or remaining still.

Reichmuth and Ghaul will present a lecture at the Aquarium on June 25 to share details of the study's findings and stories of Charlie's experiences during the research (see page 12 for more information).

As a standard procedure, Charlie will be quarantined for one month before being reintroduced to the public exhibit and the Aquarium's other sea otters. Husbandry staff members estimate that Charlie will be back on public exhibit before the end of May.



DOUG FERRINE/SEAPICS.COM



HAGFISH

Eptatretus stoutii

THE HAGFISH IS AN UNUSUAL ANIMAL that may conjure up images of aliens. Hagfish are found at depths of up to 3,600 feet and grow up to 32 inches long. They have eel-like bodies, simple light-sensing eyespots, and no jaw. They have a partial cartilaginous skull, but no vertebrae, so they are not truly vertebrates. They live on the soft bottoms of the continental slope, with the broadbilled hagfish species occurring in the Western Pacific Ocean near Australia and New Zealand.



NOAA/CBIRMS

Hagfish feed on injured animals or dead carcasses at the seafloor, sometimes consuming them from the inside out. They also hunt for worms and small fish, but their slow metabolism allows them to go for months at a time without eating.

Hagfish can produce large quantities of slime as a defense mechanism when they are attacked by predators. The volume of slime has been recorded reaching five gallons from a single hagfish.

Look for the Aquarium's hagfish in the new *Wonders of the Deep* exhibit opening on May 24. A display featuring animals that feed on carcasses of whales at the seafloor will include hagfish, crabs, and other deep-sea animals.

CHAMBERED NAUTILUS

Nautilus pompilius

THE CHAMBERED NAUTILUS, a cephalopod, is a relative of squid, octopuses, and cuttlefish. It inhabits ocean waters close to the seafloor in the tropical Pacific during the day and migrates to shallower water at night in search of food, including shrimp, crabs, and fishes. This vertical migration can cover up to 1,200 feet.



The eyes of a nautilus are poorly developed compared to the complex ones of most other cephalopods. The simple, pinhole eyes lack lenses and probably form blurry images at best.

The nautilus' shell is divided into compartments. As the animal grows, it adds compartments, which it uses to regulate its buoyancy and travel up and down the water column. It sucks in and expels water to control forward, backward, and sideways movement. The nautilus can completely withdraw its body into its shell, closing the opening with a leathery hood. Adult nautilus reach up to 10 inches in diameter and can live for more than sixteen years.

Nautilus are present in the fossil record 500 million years ago, predating the existence of dinosaurs on Earth. The Aquarium will have several chambered nautilus on exhibit in *Wonders of the Deep*. Look for them in the cylindrical tank in an exhibit describing vertical migration.

OCEAN EX

Dive into the mysteries of our vast, unexplored ocean.

THE WORLD'S VAST OCEAN IS EARTH'S FINAL FRONTIER FOR EXPLORATION. While significant ocean discoveries have been made over the last two centuries, experts estimate that as much as 95 percent of the volume of the World Ocean and 99 percent of its seafloor remain unexplored.

The potential for uncovering new life forms, resources, and scientific knowledge is great. Government agencies like the National Oceanic and Atmospheric Administration (NOAA), nonprofit institutions like the National Geographic Society, and scientists, researchers, and filmmakers working independently have brought exploration into the national consciousness. The hope is to inspire future generations to learn more about the ocean.



SELECTED IMPORTANT EVENTS IN THE HISTORY OF OCEAN EXPLORATION

1807: The United States government formally began ocean exploration when President Thomas Jefferson authorized the Survey of the Coast, NOAA's earliest predecessor.

1849: Coast Survey soundings in support of Gulf Stream investigations resulted in the discovery of the continental shelf break and the continental slope.

1868: Charles Wyville Thomson discovered sea life at 14,400 feet below the surface of the ocean, overturning previously held theories that the sea was lifeless below 1,800 feet.

1872-1876: *Challenger Expedition* circumnavigated the globe in the first great oceanographic expedition. Research was conducted on salinity, density, and temperature of sea water as well as ocean currents, sediment, and metrology. Hundreds of new species were discovered and underwater mountain chains documented. Modern oceanography was based on this research.

1914: Reginald Fessenden sailed on the U.S. Coast Guard Cutter *Miami*. He used a Fessenden oscillator to reflect a signal off an iceberg and simultaneously reflect an acoustic signal off the sea bottom. This test marked the beginning of the acoustic exploration of the sea.

1917-1919: World War I accelerated oceanic acoustic research as both the U.S. Navy and the Army Coast Artillery developed research programs to devise means to detect enemy submarines.

1934: William Beebe was lowered to 3,028 feet in a tethered bathysphere, pioneering manned exploration of the ocean with his partner, Otis Barton.

P L O R A T I O N

FINAL FRONTIER

The World Ocean covers nearly three-quarters of the Earth's surface and contains more than 97 percent of the planet's water. It averages about two-and-a-half miles deep with a maximum depth of nearly seven miles at the Mariana Trench. Located in the Pacific Ocean east of the Mariana Islands near Japan, the Mariana Trench is the deepest part of the ocean and the deepest place on Earth. Only three explorers have made this seven-mile journey, while in comparison more than a dozen people have walked on the moon, 240,000 miles away. The ocean is home to Earth's highest and longest mountain range, the largest and flattest plains, canyons larger than the Grand Canyon, more than half of Earth's volcanoes, and a series of deep trenches.

Humans rely on the ocean for many resources. In addition to providing more than half of the oxygen we breathe, helping to regulate the Earth's temperature, and absorbing carbon, the ocean is a major repository of Earth's biodiversity and provides a bountiful supply of seafood. The ocean also contains vast stores of biologically active compounds that can be synthesized into drugs to benefit humans. It also offers significant amounts of

oil and gas, an unlimited supply of renewable energy in the form of waves and currents, and space for offshore wind farms, among other possibilities.

More than 98 percent of the World Ocean by volume is in total darkness and within a few degrees of freezing all of the time. Life in the ocean depends ultimately on a thin, sunlit surface layer where plants can photosynthesize. The exception is the ecosystem found first in 1977 at a hydrothermal vent on the East Pacific Rise and subsequently found in a number of other tectonically active areas of the seafloor. Chemical reactions in the hot fluids that flow from the Earth's mantle up through these vents are the source of energy supporting diverse organisms. Until this discovery by ocean explorers, scientists believed that photosynthesis was the only source of energy for all life on the planet.

Ocean explorers use the latest science and technology to explore, observe, and document the biological, chemical, physical, geological, and archeological aspects of the ocean. New technologies and sensors in use today allow humans to explore the ocean and gather measurements and other data that tell us more about Earth and the ocean. Among



these tools are research ships, satellites, smart buoys, gliders, and floats that move with the currents. Data can even be collected by tracking devices and cameras attached to marine animals like whales and sea turtles.

The data collected by these platforms and sensors provide the raw materials for learning about ocean properties, processes, and phenomena, as well as that of marine life. We can then translate the data into information, then knowledge, and finally into action to help protect natural resources.

1954: The French research submersible FNRS-3 descends to 13,257 feet off the coast of West Africa, piloted by Georges Houot and Pierre Willm, inaugurating use of manned, untethered, research submersibles.

1955: The Coast and Geodetic Survey Ship *Pioneer* tows the first marine magnetometer and discovers magnetic striping on the seafloor off the West Coast of the United States. This survey provided a key element to the Theory of Plate Tectonics.

1960: Don Walsh and Jacques Piccard in the bathyscaphe *Trieste* dived to what was believed to be the deepest point in the Mariana Trench, recording a depth of 35,800 feet. Exploring the same area in 1998, an unmanned Japanese research vessel measured a depth of 35,886 feet.

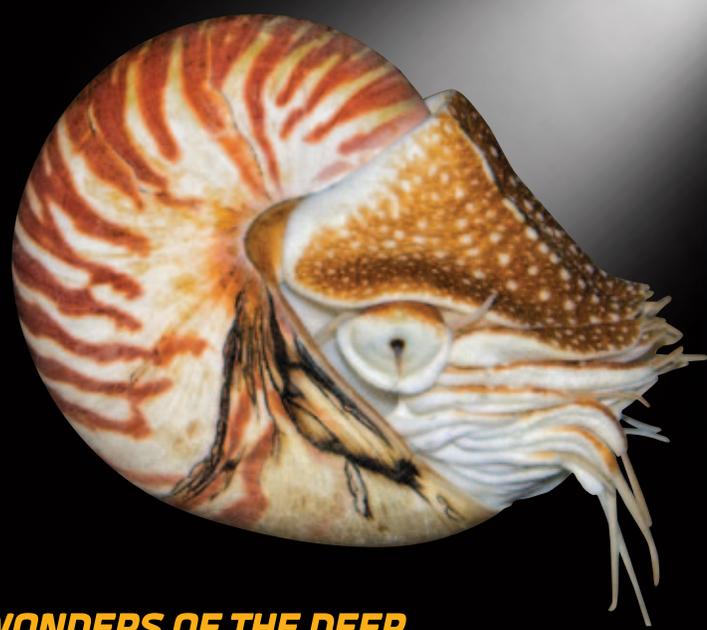
1964: The Deep Submergence Vehicle *Alvin* was constructed by the Woods Hole Oceanographic Institute. *Alvin* was the first U.S.-based deep-diving submersible and has now made over 4,400 descents that have led to numerous ocean floor discoveries.

1970: Sylvia Earle led the first team of women aquanauts during the Tektite Project and set a record for solo diving to a depth of 3,000 feet.

1977: Hydrothermal vents were discovered, along with an ecosystem that survives without the energy of the sun, by a team led by Robert Ballard.



OCEAN EXPLORATION



WONDERS OF THE DEEP

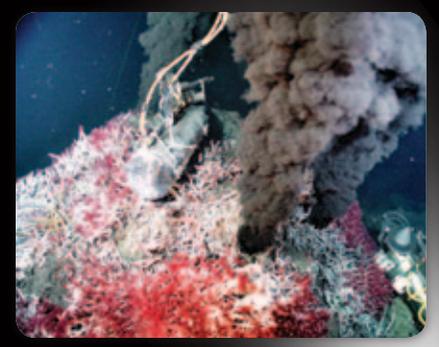
As part of the Aquarium's programming on Ocean Exploration, the *Wonders of the Deep* exhibit will open to the public in the Aquarium's changing exhibit space on May 24. Upon entering the gallery, visitors will experience the darkness of the deep ocean, punctuated by the brilliant and unusual beauty of the marine life found beyond the reach of sunlight. Images of submersibles and sea creatures projected on the walls, along with sounds, lighting, and interactive computer displays, will immerse visitors in the undersea world.

Wonders of the Deep is one of the first exhibits at an aquarium in the United States to recreate these deep-sea habitats. Animals from this environment survive in extremes of temperature and pressure. For this reason, most of them cannot be displayed in aquariums. *Wonders of the Deep* will include both live

animals and models and images to stand in for those animals that cannot be displayed.

The exhibit will include a recreation of a hydrothermal vent, where life forms thrive in the intense heat and dynamic environment of this undersea ecosystem. Video imagery projected behind the display will show footage of a real hydrothermal vent, allowing visitors to see what these tectonically active habitats look like in the deep ocean. Visitors will also see a life-sized model of a whale fall—the island of life that survives for decades on the decaying carcass of a dead whale once it sinks to the seafloor. Hagfish, deep-sea crabs, urchins, brittle stars, and other scavengers will be exhibited with a model of 9-foot-long pygmy sperm whale.

In an exhibit displaying chambered nautilus, visitors will learn how these animals and other residents of the deep sea make daily vertical migrations from the depths of the ocean to the surface in order to feed and reproduce. Visitors will also learn about bioluminescence, a phenomenon manifested in about 95 percent of deep-sea animals, at an exhibit featuring flashlight fish. Gelatinous animals like sea jellies also populate the deep sea. The *Wonders of the Deep* gallery will include a jelly touch lab, where visitors will be able to touch moon jellies and learn more about gelatinous animals.



OCEAN EXPLORATION TIMELINE

1982: A major El Niño event led to the installation of a Pacific equatorial oceanographic buoy array by NOAA's Pacific Marine Environmental Laboratory. Observations from this array have since predicted the onset of El Niño and

La Niña events, a major step in understanding the coupling of the ocean and atmosphere system.

1985: A team led by Robert Ballard discovered the Titanic, the most famous shipwreck in modern history.

1995: Declassification of GEOSAT radar altimetry data from a U.S. Navy Earth observation satellite led to worldwide mapping of the seafloor.

2010: The first ever Census of Marine Life culminated, cataloging the diversity, abundance, and distribution of marine species in an online database.

Source: oceanexplorer.noaa.gov and education.nationalgeographic.com

AQUARIUM-WIDE OCEAN EXPLORATION PROGRAMS

When the Aquarium's Ocean Exploration programming kicks off, the Aquarium's Ocean Science Center, Great Hall, and Ocean Theater will feature films that showcase deep sea animals, recently discovered animals, and the history of ocean exploration.

In the Great Hall, a two-story column erected near the Aquarium entrance will display the layers of the ocean from the surface to the deepest depths, demonstrating the amount of sunlight as well as changes in temperature and pressure at various depths.

At the Ocean Exploration Hub, guests will have the chance to see live video feeds from the deep ocean, as the Aquarium becomes an official satellite Ocean Command Center of the Inner Space Center. NOAA's exploration vessel *Okeanos Explorer* and the Sea Research Foundation's exploration vessel *Nautilus* will deliver live video transmissions as they explore deep waters around the world to a flatscreen array in the Aquarium's Tropical Pacific gallery. Aquarium visitors will be able to interact with ocean scientists and explorers live periodically throughout the day. A mural depicting the United States' exclusive economic zone, the largest in the world, will be installed on the wall opposite the Tropical Reef Habitat. A nearby video monitor will display three-dimensional images of the seafloor.

Visitors will also learn about scientific discoveries being made by the Aquarium's own staff members. Information about research conducted by Curator Sandy Trautwein will be posted in the Tropical Gallery near the coral exhibits. Trautwein received a Ph.D. from the University of California, Los Angeles, for her research on crabs. She has even discovered and named new crab species.

Finally, Aquarium visitors will be able to embark on a mission of discovery using a new app for both iPhone and Android smartphones. The app uses augmented reality to bring exhibits to life as visitors tour the Aquarium.

GLOSSARY

BATHYMETRY: the study of underwater depth of lake or ocean floors

CONTINENTAL SHELF: a zone adjacent to a continent and extending from the low water line to usually a marked drop-off.

FATHOM: a unit of depth measurement; one fathom is equivalent to six feet

REMOTELY OPERATED VEHICLE (ROV): these highly maneuverable robots help explorers access the deep ocean from vessels at the surface—most are equipped with a camera and lights

SEAMOUNT: an elevation rising 500 fathoms or 1,000 meters or more from the seafloor with a small summit

SOUNDING: a measurement of the depth of a given point in a body of water

TRENCH: a long, narrow, deep depression of the sea floor, with relatively steep sides



OCEAN EXPLORER LECTURE SERIES

Several of the most noteworthy ocean explorers will be giving presentations at the Aquarium beginning this summer as part of the Ocean Exploration programming. Visit aquariumofpacific.org/events for more details.

SYLVIA EARLE.....	June 18
DON WALSH.....	July 9
DAWN WRIGHT.....	July 16
JESUS RIVAS.....	July 25
LARRY MAYER.....	August 8
BRUCE ROBISON.....	August 13
EDITH WIDDER.....	August 27
MICHAEL LATZ.....	September 11
SHIRLEY POMONI.....	September 24
JOHN DELANEY.....	October 3
ROBERT BALLARD.....	October 16
LARRY MADIN.....	November 12
JESSE AUSUBEL.....	December 5



Summer Sponsor: Charter

THE OCEANAUTS: LIVING THE DREAM OF THE SEA

Mixed-media portraits of contemporary ocean explorers, including Jacques Cousteau, Sylvia Earle, and Robert Ballard, will hang in the Great Hall. This exhibit by artist Zofia Kostyrko is called *The Oceanauts: Living the Dream of the Sea*.

EXPLORERS DAY

On Sunday, July 21, the Aquarium will host a special day where guests will have the opportunity to meet and hear from modern day explorers, including Don Walsh and Sylvia Earle, see demonstrations of ROV under water technology, watch live feeds from three deep sea exploration vessels, visit booths by NOAA, NASA, and other agencies and organizations engaged in ocean exploration, as well as children's activities. On Saturday, July 20, the Aquarium will host a national forum of explorers and scientists to discuss the future of ocean exploration that will be broadcast live on the web.



The Aquarium of the Pacific offers programs and events for all ages and interests. With exclusive events for our members, cultural festivals, a guest speaker series, and educational classes for families and children, there is something for everyone.

GREAT AQUARIUM ACTIVITIES!

MEMBER EVENTS

Please join us for one of these select events just for our members and their guests.

MEMBER DISCOVERY NIGHT

WED., MAY 15 & TUES., JULY 9 | 6:30 p.m.-9:30 p.m.

This members-only event will include crafts for kids, and adults will enjoy *The Wonderful World of Penguins*, a free film in the Ocean Theater. The evening will also feature special visits from animals like Lola the Sulfur-Crested Cockatoo. Drinks will be available for purchase from the cash bar.

COST | Free for members. Member guests receive 20% off regular admission. Reservations are required as space is limited.

RSVP | (562) 437-FISH (3474) by May 12.

15TH ANNIVERSARY MEMBER PARTIES

THU., JUNE 27 (Charter Member Night*) | FRI., JUNE 28 & TUES., JULY 2 (All Members Welcome) | 7:00 p.m.-10:00 p.m.

We look forward to celebrating our fifteenth anniversary and hope you join us on this special occasion. These events will feature live music and the new Ocean Exploration programming. *Charter Member Night is by special invitation only.

COST | Free for members. This event is for members only; guest tickets will not be available.

RSVP | (562) 437-FISH (3474) by June 23.

MEMBER URBAN OCEAN DINNER CRUISE

FRIDAY, JULY 19 | 7:00 p.m.-9:00 p.m.

Join us for a members-only dinner cruise on a double-decker boat, and experience the wonders of the Southern California urban ocean while enjoying a gorgeous sunset and gourmet dinner. The cruise is guided by commentary from an informed Aquarium educator and an experienced boat captain.

COST | \$57.50 per member. Reservations are required as space is limited. Due to boat capacity, we are unable to provide tickets for member guests at this event.

RSVP | (562) 437-FISH (3474) by July 16.

MEMBER EVENTS

MEMBER HARBOR CRUISE

FRI., JULY 26 | 11:00 a.m.-12:00 p.m. & 12:30 -1:30 p.m.

Aquarium members are invited to tour the Long Beach and Los Angeles Harbors on board a forty-five-minute narrated cruise around one of the most active ports in the world. See the downtown shoreline, ocean vistas, ships from around the world, and even sea lions.

COST | \$10/adult member (12+); \$5/member child (3-11). Reservations are required as space is limited. Due to boat capacity, we are unable to provide tickets for member guests at this event.

RSVP | (562) 437-FISH (3474) by July 23.

MEMBER SUMMER CELEBRATION

SUNDAY, AUGUST 18 | 3:00 p.m.-6:00 p.m.

Join us for a Member Summer Celebration as the Aquarium's front lawn transforms into a summer tropical party complete with entertainment, hula hoop and limbo contests, games, and activities for members of all ages. Delicious tropical fare will be available for purchase. The Aquarium will be open until 9:00 p.m. for Summer Late Nights. Visit the Aquarium website for more information coming soon.

COST | \$5/adult member (12+); FREE/member child (3-11). Reservations are required as space is limited. Due to capacity, we are unable to provide tickets for member guests at this event.

RSVP | (562) 437-FISH (3474) by August 15.

ADULT MEMBER LATE NIGHT

TUESDAY, AUGUST 20 | 6:30 p.m.-9:30 p.m.

Adult members are invited to take advantage of the beauty and serenity of the Aquarium after hours. Tour galleries with a cocktail from the cash bar, listen to live music performed at Honda Blue Cavern, or shop in the Pacific Collections gift store.

COST | Free for adult members (ages 21+ only). Member guests receive 20% off regular admission. Reservations are required as space is limited.

RSVP | (562) 437-FISH (3474) by August 17.

MEMBER EVENTS

SENIOR MEMBER AFTERNOON

TUESDAY, SEPTEMBER 17 | 2:00 p.m.-3:00 p.m.

Senior members will get the inside scoop on how aquarists spend their days caring for fish and invertebrates at the Aquarium. Learn about daily feeding and care for our animals, how new sea life is acquired, the quarantine process, and more.

COST | Free for senior members. Member guests receive 20% off regular admission. Reservations are required as space is limited.

RSVP | (562) 437-FISH (3474) by September 14.

SPECIAL EVENTS

The Aquarium of the Pacific hosts a variety of fundraisers, lunches, and other events throughout the year. Check our website for more details and additional events.

SHARK LAGOON NIGHTS

FRIDAYS, MAY 10-31 & SEPT. 6-OCT. 25 | 6:00 p.m.-9:00 p.m.

Shark Lagoon is open for everyone for free after 6:00 p.m. Guests can touch and learn about sharks and enjoy live music on select nights.

COST | Free for everyone
INFO | (562) 590-3100, ext. 0

MOTHER'S DAY BRUNCH

SUNDAY, MAY 12 | 10:30 a.m.-1:00 p.m.

Join the Aquarium for its annual brunch celebrating moms. After brunch, explore the wonders of the Pacific Ocean.

COST | Members: \$38/adult (12+), \$28/child; non-members: \$48/adult, \$38/child (includes admission). Tickets on sale May 1.
INFO | (562) 590-3100, ext. 0

DISCOUNTED LATE NIGHTS

SUNDAYS, JUNE 9-SEPT. 1 | 5:00 p.m.-8:30 p.m.

Enjoy special extended hours on Sundays this summer. The entire Aquarium will be open, except Lorikeet Forest, until 8:30 p.m. The Aquarium's short films will be shown in the Ocean Theater throughout the evening.

COST | Free for members; \$14.95 for guests
INFO | (562) 590-3100, ext. 0

SPECIAL EVENTS
15TH ANNIVERSARY OCEAN CONSERVATION AWARDS GALA
SATURDAY, JUNE 15 | 6:30 p.m.-11:00 p.m.

The Aquarium will honor ocean explorers Sylvia Earle, Walter Munk, and Captain Don Walsh. This black-tie 15th Anniversary celebration will feature a cocktail reception, gourmet dinner, live music, dancing, a look into the Aquarium's future, and a recording of a new symphonic work commissioned for the Aquarium.

COST | \$500 per seat

INFO | (562) 951-1606, aquariumofpacific.org/oca

FATHER'S DAY BBQ
SUNDAY, JUNE 16 | 11:30 a.m.-1:30 p.m.

Celebrate Father's Day at the Aquarium's annual picnic. After lunch, delight in the underwater sea life of the Aquarium.

COST | Members: \$32/adult (12+), \$22/child (3-11); non-members: \$42/adult, \$32/child (price includes admission). Tickets on sale May 1.

INFO | (562) 590-3100, ext. 0

JULY 4TH LATE NIGHT & BBQ
THURSDAY, JULY 4 | 5:00 p.m.-10:00 p.m.

On Independence Day, dig into the Aquarium's BBQ at 6:00 p.m., enjoy special extended hours, and view the City of Long Beach fireworks display. General admission after 5:00 p.m. is \$14.95 for non-members.

COST | BBQ: Members: \$32/adult (12+), \$22/child (3-11); non-members: \$42/adult, \$32/child (includes admission). Tickets on sale May 1.

INFO | (562) 590-3100, ext. 0

SENIORS DAY
FRIDAY, SEPTEMBER 6 | 9:00 a.m.-2:00 p.m.

The Aquarium will open its doors for free to people ages fifty and above. Special exhibits will include displays by the Aquarium's volunteer services, education, and animal husbandry departments.

COST | FREE to visitors ages 50 and over with a valid photo ID.

INFO | (562) 590-3100, ext. 0

AQUARIUM 5K RUN/WALK
SUNDAY, SEPTEMBER 8 | 7:30 a.m.-9:00 a.m.

The second annual 5K Run/Walk is presented by Molina Healthcare. The scenic course goes through the surrounding shoreline area. Aquarium admission is included in the registration fee. Registrants receive a bib, timing tag, goody bag, Aquarium ticket, and T-shirt (for pre-registering only). Finishers will receive a medal.

COST | Members before July 1: \$35/adult (17+), \$27/youth; members after July 1: \$40/adult, \$32/youth. Non-members before July 1: \$47/adult, \$39/youth; non-members after July 1: \$52/adult, \$44/youth.

INFO | aquariumofpacific.org/a5Krace

SPECIAL EVENTS
KIDS FUN RUN
SATURDAY, OCTOBER 12 | 9:00 a.m.-2:00 p.m.

Children running this one-mile course will receive a commemorative marine animal medal, a finisher certificate, and free Aquarium admission (applicable to child runners only; must be accompanied by a paying adult inside the Aquarium).

COST | Free for children 12 and under.

INFO | runlongbeach.com, (562) 427-4606

SEA FARE
SAT., OCT. 19 | 7:00 p.m.-11:00 p.m.

The Aquarium's tenth annual Sea Fare will raise needed funds for our education, conservation, and animal care programs. Join us for an evening of delectable tastes from more than twenty-five local restaurants and food and beverage providers. The evening also features an open bar, live and silent auctions, a live painting demonstration by artist Wyland, cooking demonstrations, music, and dancing. Tickets will be available in July.

COST | \$125/person

RSVP/INFO | (562) 437-FISH (3474), aquariumofpacific.org/seafare

FESTIVALS

To honor the rich diversity of Southern California, the Aquarium of the Pacific hosts cultural and family festivals throughout the year. Check our website for more details and additional family festivals.

URBAN OCEAN FESTIVAL
SATURDAY & SUNDAY, MAY 4-5 | 9:00 a.m.-5:00 p.m.

Explore and celebrate Southern California's coast during the Aquarium's annual Urban Ocean Festival. The event will include art exhibitions, a fashion show and contest for designs using recycled materials, mural painting, poetry readings, and educational activities.

COST | Free for members; member's guests receive 20% off regular admission

INFO | (562) 590-3100, ext. 0

PACIFIC ISLANDER FESTIVAL
SATURDAY & SUNDAY, JUNE 1-2 | 9:00 a.m.-5:00 p.m.

Discover the diverse cultures of the Pacific Islands through traditional craft demonstrations, ethnic cuisine, and music and dance performances. The tenth annual Pacific Islander Festival will celebrate Hawaiian, Fijian, Marshallese, Chamoru, Tahitian, Samoan, Tokelau, Tongan, and Maori cultures.

COST | Free for members; member's guests receive 20% off regular admission

INFO | (562) 437-FISH (3474)

FESTIVALS
EXPLORERS DAY
SUNDAY, JULY 21 | 9:00 a.m.-5:00 p.m.

Become an explorer for the day as you meet some of the world's most famous ocean explorers in person and witness live deep-sea missions. Interactive children's programs will also be offered throughout the day.

COST | Free for members; member's guests receive 20% off regular admission

INFO | (562) 590-3100, ext. 0

MOOMPETAM NATIVE AMERICAN FESTIVAL
SAT. & SUN., SEP. 21-22 | 9:00 a.m.-5:00 p.m.

The Aquarium will host its ninth annual Moompetam Festival, featuring the traditional cultural crafts, storytelling, music, and dance of California's indigenous maritime cultures.

COST | Free for members; member's guests receive 20% off regular admission

INFO | (562) 590-3100, ext. 0

BAJA SPLASH CULTURAL FESTIVAL
SAT. & SUN., SEP. 28-29 | 9:00 a.m.-5:00 p.m.

Celebrate Hispanic Heritage Month and Mexican Independence Day with live entertainment, crafts, ethnic cuisine, interactive mural painting, and more.

COST | Free for members; member's guests receive 20% off regular admission

INFO | (562) 590-3100, ext. 0

SOUTHEAST ASIA DAY
SATURDAY, OCTOBER 5 | 9:00 a.m.-5:00 p.m.

The Aquarium will celebrate its ninth annual Southeast Asia Day, highlighting the cultures of Cambodia, Thailand, Vietnam, Myanmar, Laos, and Indonesia. Enjoy live music and dance performances and cultural craft demonstrations.

COST | Free for members; member's guests receive 20% off regular admission

INFO | (562) 590-3100, ext. 0

PHOTOGRAPHERS NIGHT
SUNDAY, OCTOBER 6 | 5:30 p.m.-10:00 p.m.

Take the photos you have always wanted at the fifth annual Photographers Night. Professional and amateur photographers are invited to capture the Aquarium's wildlife during exclusive "photographers only" hours. Meet vendors, test new equipment, attend workshops, and meet other wildlife photo enthusiasts. RSVP early to guarantee your spot at this popular event.

COST | \$19.95/member, \$25.95/non-member. No other discounts or special offers will be accepted for this evening.

INFO | (562) 590-3100, ext. 0

GUEST SPEAKERS

The Aquarium hosts guest lectures on a variety of topics from experts across the country.

CHRIS LOWE | *The Recovery of Apex Marine Predator Populations*

TUESDAY, MAY 14 | 7:00 p.m.

Rapid coastal development, water and air pollution, overfishing, bycatch, and habitat loss have all contributed to declines in shark populations. Chris Lowe of California State University, Long Beach's Shark Lab will discuss federal and state agencies and regulations and how they have helped sharks recover.

GERRIE SCHIPSKE | *Early Long Beach*

TUESDAY, MAY 28 | 7:00 p.m.

Long Beach City Council member and author Gerrie Schipske will discuss her book *Early Long Beach* and the natural assets, people, and events that shaped the first fifty years of history in her native city. She will cover its history as a resort area, a landing strip for early aviators, a fishing industry site, a port for shipbuilding and trade, and a location for the U.S. Navy to anchor its battle fleet in 1919; as well as the discovery of oil in 1921; and its role in the Southern California war effort after 1938.

ERIC ZAHN | *Restoration Efforts at the Los Cerritos Wetlands*

THURSDAY, JUNE 6 | 7:00 p.m.

Eric Zahn will discuss the Los Cerritos Wetlands Conceptual Restoration Plan. Find out how it uses GIS analysis to plan restoration efforts that will mitigate the impacts of such threats as sea level rise. He will also address the project goal of reintroducing tidal wetlands. Zahn co-founded ecological consulting group Tidal Influence, LLC in 2008.

RICHARD ELLIS | *Gladiator of the Sea*

THURSDAY, JUNE 13 | 7:00 p.m.

Richard Ellis will discuss the broadbill swordfish, whose scientific name *Xiphias gladius* means "gladiator." It gets its common name from its smooth, flattened sword that is much longer and wider than that of any other billfish. Among the world's premier game fishes, swordfish are eagerly sought as trophies and as seafood. A drastic reduction in swordfish populations as a result of long-line fishing practices engendered a swordfish boycott by American restaurants. Ellis will be signing copies of his latest book, *Swordfish: A Biography of the Ocean Gladiator*.



GUEST SPEAKERS

DR. SYLVIA EARLE | *Ocean Exploration**

TUESDAY, JUNE 18 | 7:00 p.m.

Sylvia Earle is an oceanographer, explorer, author, and lecturer with experience as a field research scientist. In her lecture she will share stories of exploration and discovery. Former chief scientist of the National Oceanic and Atmospheric Administration, Earle is founder of the Mission Blue Foundation, chair of the Advisory Council for the Harte Research Institute for Gulf of Mexico Studies, and an explorer-in-residence at the National Geographic Society. She has led more than sixty expeditions and logged more than 6,000 hours underwater. Earle will be honored with the Ocean Conservation Award at the Aquarium's 15th Anniversary Gala on June 15.

DR. COLLEEN REICHMUTH & ASILA GHOUL | *Exploring the Sensory Biology of Sea Otters Through Cooperative Research*

TUESDAY, JUNE 25 | 7:00 p.m.

The Aquarium's southern sea otter Charlie recently returned from Santa Cruz, California, where he participated in a year-long study of how sea otters perceive sound. Principal Investigator and Associate Research Scientist Colleen Reichmuth heads the Cognition and Sensory Systems Laboratory, based at the University of California, Santa Cruz's Long Marine Lab. Reichmuth and Laboratory Research Coordinator Asila Ghoull will discuss the sensory systems of sea otters and how these amphibious animals are adapted for an aquatic lifestyle.

CAPTAIN DON WALSH | *Looking Backwards at the Future: Exploring the Deepest Oceans**

TUESDAY, JULY 9 | 7:00 p.m.

In 1960 Captain Don Walsh and Jacques Piccard dove the bathyscaph *Trieste* to the deepest place in the world, the Challenger Deep, at 35,840 feet in the Mariana Trench. However, it was not until fifty-two years later that this dive was repeated when filmmaker James Cameron dove his one-person *Deepsea Challenger* at the same location. Walsh was a member of Cameron's deep dive expedition in 2012 and has been involved with the design, construction, and operation of submersibles for more than a half century. Bathyscaphs, or "deep boats," were pioneered in the mid-1930s by Swiss professor Auguste Piccard. Walsh will be honored with the Ocean Conservation Award at the Aquarium's 15th Anniversary Gala on June 15. Hear Walsh talk about his many experiences in exploring the deep ocean.



GUEST SPEAKERS

DAWN WRIGHT | *Creatures of the Deep and Treasure Maps of the Ocean Floor**

TUESDAY, JULY 16 | 7:00 p.m.

New sophisticated technologies developed in the last ten to twenty years hold tremendous potential for mapping and interpreting the ocean in unprecedented detail. This talk will focus on recent technical advances in mapping the deepest parts of our planet. The development of deep ocean mapping technologies is important not only for scientific discovery, but also to meet additional demands in government and conservation. Dawn Wright was appointed chief scientist of the Environmental Systems Research Institute in 2011. She maintains an affiliated faculty appointment as professor of geography and oceanography in the College of Earth, Ocean, and Atmospheric Sciences at Oregon State University. She has participated in more than twenty oceanographic research expeditions, including three dives in the *Alvin* submersible.



JESUS REYES | *Endocrine Disruptors in the Urban Ocean*

THURSDAY, JULY 25 | 7:00 p.m.

The urban ocean off Southern California is used extensively and intensively by humans. The Southern California Bight receives more than 1.1 billion gallons of treated municipal wastewater every day. Wastewater can carry chemicals that are endocrine disruptors for fish and other marine life. Jesus Reyes, president of the Pacific Coast Environmental Conservancy, will discuss research on endocrine disruptors in the urban ocean.



August 13: Bruce Robison



Live Lecture Webcasts

Tune in to a live lecture webcast by visiting aquariumofpacific.org/aquariumlive or capture this QR code with your smartphone.

GUEST SPEAKERS

LARRY MAYER | *Ocean Mapping: Exposing the Secrets of the Deep**

THURSDAY, AUGUST 8 | 7:00 p.m.



Over the past fifty years there have been remarkable advances in using sonar to map the seafloor and the water column. These advances combine sophisticated sonar technology with visualization tools. They are providing new perspectives of the seafloor, including the discovery of 10,000-foot mountains in the Arctic, D-Day wrecks, and fisheries, and insight into the aftermath of events like the *Deepwater Horizon* spill. Larry Mayer is a professor and the director of the Center for Coastal and Ocean Mapping at the University of New Hampshire. He serves as co-chair of NOAA's Ocean Exploration Advisory Working Group, a member of the National Science Foundation's Ocean Observatories Initiative Program Advisory Committee, and the State Department's Extended Continental Shelf Task Force.

BRUCE ROBISON | *Exploring the Deep Pacific: Dragonfish, Spookfish, and Other Unbelievable Animals**

TUESDAY, AUGUST 13 | 7:00 p.m.

Bruce Robison will discuss recent discoveries made using both manned and robotic submersibles to explore the deep sea. The results include many animals new to science, novel behavior patterns, the widespread use of bioluminescence, remarkable adaptations for living in the deep, and the effects of climate change on deep-sea animals. Robison studies the biology and ecology of the animals that inhabit the ocean's deep water column. He pioneered the use of undersea vehicles for these studies, and he led the first team of scientists trained as research submersible pilots. Robison is a fellow of the American Association for the Advancement of Science and a fellow of the California Academy of Sciences. In 2012 he was appointed a Research Associate at the Smithsonian Institution.

RON CARROLL | *Constructed Wetlands in Southern California*

WEDNESDAY, AUGUST 21 | 7:00 p.m.

Wetlands serve as important habitats for migratory birds, fish nurseries, and local wildlife. They also help filter pollution and prevent flooding, but most of the nation's wetlands have been lost to development. Constructed wetlands are artificial wetland environments that can provide this critical habitat, while providing biofiltration, for example, to treat wastewater. Ron Carroll is a professor in the Odum School of Ecology and is a faculty member in the conservation ecology program.

GUEST SPEAKERS

EDITH WIDDER | *The Kraken Revealed: The Story Behind Finding the Giant Squid**

TUESDAY, AUGUST 27 | 7:00 p.m.

Edith Widder is a deep-sea explorer, oceanographer, marine biologist, and co-founder of the Ocean Research and Conservation Association. She was the first to capture video recordings of bioluminescent animals and the first to film the giant squid in its natural habitat. She has spoken at TED and has been featured in BBC, PBS, Discovery Channel, and National Geographic television productions. Most recently her use of bioluminescence to lure in the giant squid was featured in the Discovery Channel documentary *Monster Squid: The Giant is Real*.

MICHAEL LATZ | *Living Light in the Ocean Darkness**

WEDNESDAY, SEPTEMBER 11 | 7:00 p.m.

Learn about bioluminescent animals in the deep ocean with marine biologist Michael Latz, who has been studying bioluminescence for more than twenty-five years. Latz is the principal investigator at the Latz Laboratory at the Scripps Institution of Oceanography, where he is also a senior lecturer. His research interests include using interdisciplinary approaches involving biology, chemistry, and physics to investigate how marine organisms interact with their ocean environment; ecology of bioluminescence in the ocean; and the role of bioluminescent and fluorescent molecules.

DR. SHIRLEY POMPONI | *Drugs from the Sea**

TUESDAY, SEPTEMBER 24 | 7:00 p.m.

Sponges use chemicals to defend against predators, communicate with other sponges, reproduce, and even prevent infections. These same chemicals are being studied for their potential use in treating human disorders and diseases. Sponge researcher and ocean explorer Shirley Pomponi has made more than 300 dives in the Johnson-Sea-Link submersibles owned and operated by the Harbor Branch Oceanographic Institution at Florida Atlantic University, where she is a senior research professor.

DR. SAMUEL WASSER | *Conservation Canines: Tracking a Subtle Scent, a Dog May Help Save the Whales*

WEDNESDAY, OCTOBER 9 | 7:00 p.m.

Samuel Wasser, director of the Center for Conservation Biology at the University of Washington, has developed non-invasive wildlife monitoring methods, including genetic, endocrine, and detection dog techniques. His team employs Conservation Canines to

GUEST SPEAKERS

track endangered species, including orcas in the Pacific Northwest. Hear him talk about this unique program and current research.

JOHN DELANEY | *Understanding the Planetary Life Support System: Next-Generation Science in the Ocean Basins**

THURSDAY, OCTOBER 3 | 7:00 p.m.

New technologies are helping oceanographers access and understand the ocean and ocean processes, which drive our planet's "life-support system." Robotics, biotechnology, cloud computing, digital imaging, nanotechnology, seismo-acoustic tomography, and universal access to the internet are all having an impact. These tools and technologies, among others, will create a pervasive human telepresence throughout the global ocean, making it possible to meet the onset of immense environmental and societal challenges in the coming decades, according to John Delaney. Delaney is a professor of oceanography at the University of Washington, principal investigator and director of the Regional Scale Nodes Program, and the Jerome M. Paros Endowed Chair in Sensor Networks.

DR. ROBERT BALLARD | *Using Advanced Technology to Explore the Ocean with Kids in the Pilot's Seat**

WED., OCTOBER 16 | 7:00 p.m.



Robert Ballard is a former U.S. Navy officer and a professor of oceanography at the University of Rhode Island. He is most known for the discoveries of the wrecks of the *RMS Titanic* in 1985, the battleship *Bismarck* in 1989, and the aircraft carrier *USS Yorktown* in 1998. He will discuss his fifty-three years of involvement in the development and use of undersea vehicles to explore the bottom of the ocean and how he is using new and advanced technologies to bring his explorations in real time to the youth of the world. His explorations have included the discovery of hydrothermal vents and their exotic life forms. He is president of the Institute for Exploration in Mystic, Connecticut, president of the Ocean Exploration Trust, and an explorer-in-residence of the National Geographic Society.

COST | Free for members, teachers, seniors 62+, and students with valid I.D. and advanced reservations. \$5/non-members.

INFO | (562) 437-FISH (3474)

WEB | All lectures are streamed live on the Aquarium's website.

Guest speaker sponsor:



*Ocean exploration themed-lecture



AQUARIUM TOURS

These programs are opportunities to see the Aquarium and its animals in a different light.

BEHIND-THE-SCENES TOURS

DAILY | times vary

Guests will go above our largest exhibit to feed the fishes, get a glimpse of areas behind Shark Lagoon, and see our Molina Animal Care Center.

COST | \$15/member | \$19/non-member does not include Aquarium admission. Combo price: \$39.95/adult, \$36.95/senior, \$28.95/child

AGES | 7+ years

LENGTH | one hour

GROUP SIZE | maximum 10 participants

RSVP | (562) 951-1630, online, or sign up on day of visit

ANIMAL ENCOUNTERS

THURSDAYS-SUNDAYS | see times below

Join us for a very special experience to learn about feeding and caring for some of our marine animals. Roll up your sleeves, prepare some food, and get ready to be up close and personal for a feeding with a seal, sea lion, sea otter, shark, or penguin. There are lots of surprises along the way, so be prepared to get your hands wet! Please note that penguin encounters are on hiatus March through May for the breeding season.

THURS. & FRI. | Penguins 8:00-10:00 a.m.

SAT. & SUN. | Seals & Sea Lions 9:30-11:30 a.m. | Sharks 12:30-2:30 p.m. | Sea Otters 2:45-4:45 p.m.

COST | \$90/member | \$100/non-member includes Aquarium admission

AGES | 10+ years: Seals & Sea Lions, Sea Otters, Penguins | 13+ years: Sharks

Some height restrictions apply. Participants under 16 years must be accompanied by an adult.

RSVP | (562) 951-1630

AQUARIUM TOURS

HARBOR TOUR

DAILY | times vary

Tour the Long Beach/Los Angeles Harbors with Harbor Breeze Cruises for a 45-minute narrated cruise around one of the most active ports in the world. See the downtown shoreline, ocean vistas, ships from around the world, and even sea lions. Tours are offered throughout the day on a daily basis. Tickets may be purchased in advance or at the ticket window upon arrival. Meet 15 minutes prior to departure at Dock #2. This program is led and staffed by Harbor Breeze Cruises.

COST | Members: \$12/adult, \$10/senior (62+), \$6/child (3-11) | Non-members: \$36.95/adult, \$31.95/senior, \$19.95/child includes Aquarium admission

RSVP | (562) 951-1630

DIVE IMMERSION

BASED ON AVAILABILITY | 3:00 p.m.-5:30 p.m.

Certified divers can dive in our warm 350,000-gallon Tropical Reef Habitat with over 1,000 animals. Tour the dive program, dive in our exhibit, and receive a certificate of completion, souvenir towel, use of an underwater camera, and a memory card of your photos. All equipment is provided.

COST | \$279/member | \$299/non-member

AGES | 15+ years | ages 15-17 require participating adult chaperone

RSVP | (562) 590-3100

AQUARIUM SLEEPOVERS

Pack your sleeping bag and toothbrush for a night of adventure at the Aquarium of the Pacific. These programs include a pizza dinner, snack, craft, cereal breakfast, and T-shirt.

BIRTHDAY PARTY SLEEPOVER

BASED ON AVAILABILITY | 5:00 p.m.-7:00 a.m.

Join us for an all-night celebration with a special birthday party sleepover featuring animal touch time, a feeding opportunity, presentations, a behind-the-scenes tour, and crafts. Please bring your own birthday cake.

COST | \$70/member | \$80/non-member

AGES | 5+ years | one adult required per 10 children

THEMES | Sharks, Marine Mammals, or Turtles

GROUP SIZE | 20-50 participants

RSVP | (562) 951-1630

ADULT SLEEPOVER

BASED ON AVAILABILITY | 6:00 p.m.-9:00 a.m.

Enjoy the tranquility and serenity of the Aquarium at night. Unwind with yoga and meditation before meeting an animal, hearing an informal lecture by a marine educator, taking guided tours, seeing special presentations, and sleeping next to one of our large exhibits. Included are a gourmet pizza dinner with wine, beer, or soda, and a continental breakfast.

COST | \$70/member | \$80/non-member

AGES | 18+ years

GROUP SIZE | 20-60 participants

RSVP | (562) 951-1630



ANDREW BETSVA

AQUARIUM SLEEPOVERS

YOUTH GROUP SLEEPOVERS

MONDAY OR WEDNESDAY EVENINGS, BASED ON AVAILABILITY | 5:00 p.m.-7:00 a.m.

Anchors aweigh as we become sailors in search of the missing treasures of the sea. Investigate the fascinating aquatic food web and follow a treasure map in search of ocean knowledge!

COST | \$50/member | \$60/non-member

AGES | 5+ years, plus adult chaperone

GROUP SIZE | 20-60 participants

RSVP | (562) 951-1630

FAMILY SLEEPOVER

BASED ON AVAILABILITY | 5:00 p.m.-7:00 a.m.

Bring your whole family and spend an evening exploring the Aquarium after dark. Discover the unique relationships and habitats of our ocean critters through hands-on activities and gallery observations.

COST | \$50/member | \$60/non-member

AGES | 5+ years, plus adult chaperone

RSVP | (562) 951-1630



STACY CAIN

SPECIAL PROGRAMS

BIRTHDAY PARTIES

AVAILABLE BY RESERVATION ONLY

Let us make your child's next birthday celebration special. The Aquarium will supply all the ingredients for an unforgettable party, including a themed one-hour classroom program featuring animal touch time, biofact discovery, and a take-home souvenir craft project. The party concludes with an additional half hour in the classroom for the birthday celebration. Please bring your own birthday cake. Aquarium admission is included. All you need to do is call us at least two weeks prior to reserve a date (subject to availability), and then invite your guests. We also offer birthday sleepovers.

COST | \$33/member | \$39/non-member | 15 person minimum, includes Aquarium admission

AGES | All ages, one adult required per 10 children

THEMES | *Sharks, Marine Mammals, or Turtles*

GROUP SIZE | 15-45 participants

INFO | (562) 951-1630

AQUARIUM ON WHEELS

AVAILABLE BY RESERVATION ONLY

The Aquarium on Wheels is dedicated to developing children's appreciation for the wonders of the ocean environment. Along with an educational presentation, hands-on activities, and environmental message, our outreach educational program provides children the chance to touch sharks, sea stars, anemones, urchins, and other marine inhabitants. This mobile tidepool exhibit is not just for schools—it is also great for display at festivals, fairs, and even birthday parties. Aquarium on Wheels will deliver a memorable experience for all!

INFO | (562) 951-1630

OUTDOOR ADVENTURES

Go beyond the Aquarium to participate in offsite experiences in the great outdoors.

BLUE WHALE WATCH

DAILY, SUMMER SEASON, STARTING MAY 1

Search out the elusive and magnificent blue whale with the Aquarium of the Pacific and Harbor Breeze Cruises. Blue whales seek the nutrient-rich waters right off our coast each summer. Along the way you may even spot a variety of other animals, including dolphins, seals, sea lions, and sea birds.

COST | Members: \$45/adult (12+), \$35/senior (ages 62+), \$25/child (ages 3-11); non-members (includes Aquarium admission): \$63.95/adult, \$55.95/senior, \$39.95/child

WHEN | Summer season

LENGTH | 3-3.5 hours

AGES | Children under 16 must be accompanied by an adult

RSVP | (562) 951-1630

THE URBAN OCEAN: WORLD PORT AND SEALIFE CRUISE

JUN. 15, JUL. 13, AUG. 10 & SEPT. 7 | 4:00 p.m.-6:30 p.m.

Explore one of the most distinctive sections of our coastline and experience the wonders of the Southern California urban ocean. In this place of high intensity, massive ships from around the world slip past whales, dolphins, and sea lions in the nation's two biggest ports. Learn from an onboard Aquarium educator how human activity and marine life intersect in this busy portion of the urban ocean.

COST | Members: \$26.95/adult (12+), \$8/child (ages 3-11); non-members: \$29.95/adult, \$10/child (cruise only); combo (includes Aquarium admission): \$39.95/adult, \$15/child

RSVP | (562) 951-1630

DAY CAMPS

FISH FRY CAMP

JUNE 18-20, JULY 1-3, OR JULY 16-18 | 8:30 a.m.-10:30 a.m.

Did you know that newly hatched fish are called fry? Bring your three- or four-year-old little fry to the Aquarium for a special parent-child day camp! During this three-day camp you and your child will “wet” your appetites for marine life with hands-on exploration, crafts, games, and Aquarium tours. Dive into a watery world that you and your child will not soon forget!

AGES | 3 to 4 with an adult partner (no more than two children per adult. Please no younger or older siblings outside of age range.)

COST | ADULT-CHILD PAIR: \$85/member; \$110/non-member (includes Aquarium admission) ADDITIONAL PERSON: \$20/member; \$30/non-member

RSVP | (562) 951-1630

INTRODUCTION TO SCIENTIFIC DIVING

JUNE 24-28 OR JULY 22-26 | Mon.-Thurs.: 6:00 a.m.-3:00 p.m.; Fri.: 8:00 a.m.-5:00 p.m.

During this five-day dive program, participants will earn an underwater naturalist certification, learn data collection techniques at local dive sites, and explore different underwater habitats. Participants will also dive in the Aquarium’s largest exhibit with over 2,000 tropical animals. A minimum of an Open Water certification from a nationally recognized SCUBA certifying agency and a picture ID are required and must be brought with you on all days. Cost covers transportation and dive gear.

AGES | 15+. Ages 15-17 require a supervising adult to also sign up for the program.

COST | \$750/person

RSVP | (562) 951-1630. Pre-registration and pre-payment required. A full refund will be issued only if cancellation occurs more than 14 days before the program start date.

SEA SQUIRT CAMP

DAY CAMP 1: JUNE 25-27 OR AUGUST 13-15
DAY CAMP 2: JULY 1-3 OR AUGUST 20-22
8:30 a.m.-11:30 a.m.

This three-day camp offers an exciting introduction to marine biology for five- and six-year-olds. Campers will discover an underwater wonderland filled with wiggly fish, furry mammals, and boneless beauties. This camp encourages social interaction and exploration independently from parents. Through hands-on activities, stories, crafts, and tours, your child will prove that little learners can learn big things!

AGES | 5 to 6 (children only)

COST | \$90/member; \$115/non-member

RSVP | (562) 951-1630

DAY CAMPS

OCEAN ADVENTURE DAY CAMP

DAY CAMP 1: JULY 8-12 or AUGUST 19-23

DAY CAMP 2: JULY 15-19

DAY CAMP 3: JULY 29-AUGUST 2

DAY CAMP 4: AUGUST 12-16

HALF-DAY: 8:00 a.m.-12:00 p.m. or 1:00 p.m.-5:00 p.m.

FULL-DAY: 8:00 a.m.-5:00 p.m.

Explore the Pacific Ocean and its inhabitants during our week-long summer day camp adventures. Campers will get the chance to go behind the scenes, meet our animal husbandry staff, and help us take care of some of the animals that make their home here at the Aquarium. Each Day Camp week is a different program.

AGES | Grades 2- 4 (Children only. Must be at least seven years old to participate.)

COST | Half day: \$140/member; \$160/non-member Full day: \$260/member; \$290/non-member

RSVP | (562) 951-1630

JUNIOR BIOLOGIST DAY CAMP

CAMP 1: JUNE 17-21 OR JULY 22-26

CAMP 2: JUNE 24-28 OR JULY 29- AUGUST 2

HALF-DAY: 8:00 a.m.-12:00 p.m. or

1:00 p.m.-5:00 p.m.

FULL-DAY: 8:00 a.m.-5:00 p.m.

Children ages ten to twelve dive deeper into the field of marine biology. Based on our popular Junior Biologist classes, this camp will feature elements of our traditional day camp program, including crafts and games, as well as special behind-the-scenes privileges, animal interaction, and much more.

AGES | Grades 5-7 (children only)

COST | Half day: \$140/member; \$160/non-member Full day: \$260/member; \$290/non-member

RSVP | (562) 951-1630

MARINE SCIENTIST SLEEPOVER CAMP

MON.-TUE., AUG. 5-6 | 8:00 a.m.-5:00 p.m.

WED.-THU., AUG. 7-8 | 8:00 a.m.-7:30 a.m. next day

This camp boasts something none of our other camps offer: the chance to sleep under the sea stars! Campers will dive into science and conduct marine biology experiments, go on behind-the-scenes tours, have unique animal interactions, and journal about their discoveries. The camp ends with a sleepover, which includes a pizza party dinner, a movie and popcorn, and special keepsake T-shirt.

AGES | grades 7-9 (children only)

COST | \$240/member; \$270/non-member

RSVP | (562) 951-1630

YOUTH PROGRAMS

JUNIOR BIOLOGIST PROGRAM

SATURDAYS | 9:30 a.m.-11:30 a.m.
topics vary, see below

Participants will independently investigate marine life during this exploratory program. This class offers hands-on animal touch time, Aquarium animal observation, and activities relating to each topic. Select the topic that is most interesting, or take all the classes to learn about the variety of animals found at the Aquarium.

TOPIC Birds & Reptiles.....	May 11
Southern California/Baja.....	June 8
Northern Pacific.....	July 13
Tropical Pacific.....	August 10
Sharks.....	September 14
Marine Mammals.....	October 12

COST | \$19/member | \$24/non-member does not include Aquarium admission

AGES | 7-12

RSVP | (562) 951-1630

JOB SHADOW

SATURDAYS | 9:00 a.m.-noon
topics vary, see below

This program is for students who are interested in animal husbandry or marine biology careers. Students will learn what it takes to run a world-class aquarium and get a hands-on opportunity to participate in everyday activities that help maintain the Aquarium. Students will go behind the scenes, shadowing education and husbandry staff.

TOPIC Bird Biologist.....	May 1 or September 4, 3:30 p.m.-6:30 p.m.
Veterinarian.....	May 4 or September 7, 9:00 a.m.-12:00 p.m.
Marine Biologist.....	May 29 or October 2, 3:30 p.m.-6:30 p.m.
Mammalogist.....	June 1 or October 5, 9:00 a.m.-12:00 p.m.
July 3, 3:30-6:30 p.m. or	
July 6, 9:00 a.m.-12:00 p.m.	
August 3, 9:00 a.m.-12:00 p.m.	

COST | \$29/member | \$35/non-member does not include Aquarium admission

AGES | Grades 7-12

RSVP | (562) 951-1630

“We’re charter members of the Aquarium and are happy to see how it has grown over the years. We feel fortunate to have a world-class educational and research facility right in our own backyard, and we are proud to support it.”

— DONNA CHIINN, MEMBER SINCE 1997





SATURDAY FAMILY FUN PROGRAMS

Children, along with a parent or adult chaperone, will investigate the ocean world in a structured classroom program that includes interactive and hands-on activities. These programs foster the students' discovery as well as interaction with adults and peers.

SEA JELLIES AND OTHER INCREDIBLE INVERTEBRATES

SAT., MAY 25 OR SEP. 28 | 10:00 a.m.-11:30 a.m.

They may be spineless, but they are the backbone of nature. Join us as we learn all about jellies and their invertebrate relatives that inhabit the ocean.

TOTALLY TURTLES

SAT., JUNE 22 OR OCT. 26 | 10:00 a.m.-11:30 a.m.

You may enjoy a sweet treat of Jelly Bellies, but a sea turtle prefers having a belly full of jellies! Discover fun facts and turtle trivia as we explore these reptiles.

SHARK SLEUTHS

SATURDAY, JULY 27 | 10:00 a.m.-11:30 a.m.

Discover how sharks' amazing adaptations make them excellent predators. Get an up-close view of these creatures and others as we learn all about sharks!

MAGNIFICENT MARINE MAMMALS

SATURDAY, AUGUST 24 | 10:00 a.m.-11:30 a.m.

Who is warm-blooded, hairy, breathes air, and lives in the ocean? Marine mammals! Join us as we learn the special ways sea otters, seals, sea lions, whales, and other marine mammals survive in the sea.

COST | ADULT-CHILD PAIR: \$28/member
\$40/non-member
EXTRA PERSON: \$15/member
\$17/non-member
(includes Aquarium admission)

AGES | 4-6 years, plus adult chaperone
RSVP | (562) 951-1630

AQUA TOTS

Toddlers team up with their parent or chaperone for a first look into ocean life. Each of the Aqua Tots programs focuses and expands on a particular concept while encouraging adult and child interaction.

SLIPPERY TO PRICKLY

SATURDAY, MAY 18 | 10:00-11:30 a.m.

Whether it's a slippery sea cucumber, soft and velvety bat ray, prickly sea urchin, or simply the smooth shell of a hermit crab, discover the many lovable and touchable creatures that live in the ocean. Learn what can be explored safely as we use our sense of touch on a journey through the Pacific Ocean.

SHORELINE SHAPES

SATURDAY, JUNE 15 | 10:00-11:30 a.m.

Did you know a sea jelly is shaped a lot like a bell or that some fishes are as flat as pancakes? In the Aquarium, there are eels so skinny they look like shoestrings! Explore the exciting shapes of ocean life through a craft, songs, and hands-on activities.

SOUNDS OF THE SEA

SATURDAY, JULY 13 | 10:00-11:30 a.m.

Shake, rattle, and roll as we listen to the sounds of the ocean. Experience the wonderful world of sea sounds, from the songs of a big blue whale to the barking of a sea lion.

SUPER SENSES OF THE SEA

SATURDAY, AUGUST 17 | 10:00 a.m.-11:30 a.m.

Smell the salty air and feel the cool breeze as we use our senses to explore how ocean animals use their sight, taste, touch, and hearing in their watery home. Immerse yourself in the wonder and discovery of this interactive program.

COLORS OF THE OCEAN

SATURDAY, SEPTEMBER 21 | 10:00 a.m.-11:30 a.m.

Below the surface of the blue ocean are animals with amazing colors. Some are bright and flashy while others blend into the ocean bottom. Discover some of these colorful animals, and search for those that may be hiding.

AQUA TOTS

MOVIN' & GROOVIN' BENEATH THE SEA

SATURDAY, OCTOBER 19 | 10:00 a.m.-11:30 a.m.

Roll like an otter and slide like a snail as we discover animals through movement. Explore the world of sea creatures by taking a closer look at the way they move. Join us as we move and groove like the animals beneath the sea!

COST | ADULT-CHILD PAIR: \$28/member
\$38/non-member | EXTRA PERSON: \$15/
member, \$17/non-member (includes
Aquarium admission)

AGES | 2-3 years, plus adult chaperone
RSVP | (562) 951-1630



AQUATIC ACADEMY

FALL 2013 COURSE

TUESDAYS, OCT. 8, 15, 22 & 29 | 7:00 p.m.-9:30 p.m.

The Aquarium's Aquatic Academy courses comprise a series of four evening classes fostering dialogue on complex and pressing issues related to the ocean and environment. Learn about current science and policy directly from experts.

COST | \$50/non-member, \$40/member, \$10 extra for
CEU credit

INFO | Adina Metz, ametz@lbaop.org

RSVP | aquariumofpacific.org | 562-590-3100, ext. 0

GOVERNOR BROWN HONORS AQUARIUM WITH ENVIRONMENTAL AWARD



THE AQUARIUM of the Pacific is the first among museums, zoos, and aquariums to be awarded with the State of California's most prestigious environmental honor.

Governor Edmund G. "Jerry" Brown recognized the Aquarium of the Pacific for its role in California's environment and economy by awarding the institution the Governor's Environmental and Economic Leadership Award (GEELA). This award program was established in 1993 and is California's most prestigious environmental award, according to the California Environmental Protection Agency. The award recognizes those responsible for conserving California's resources, protecting and enhancing the environment, and building private-public partnerships.

Under its master plan developed in 2002, the Aquarium has added new facilities and exhibits that demonstrate environmental concepts from climate change to watershed education to empower millions of visitors while minimizing the environmental impact of these new features. Also, annual attendance increased 26 percent while the Aquarium's carbon footprint has decreased by 20 percent, and water use has decreased by 30 percent. "The Aquarium's project was deemed exceptional for its innovative concept and value to California's environment and economy," said Matthew Rodriguez, California Environmental Protection Agency secretary.

“Our master plan demonstrates that greening can be sustainable from a business as well as an environmental perspective”

— DOUGLAS OTTO, AQUARIUM OF THE PACIFIC BOARD DIRECTOR AND ARCHITECT OF THE CAMPUS MASTER PLAN



California Department of Food and Agriculture Secretary Karen Ross, Aquarium Vice President of Government Relations and Special Projects Barbara Long, Aquarium of the Pacific Board Director Douglas Otto, and Aquarium Project Manager Fahria Qader.

Also, in 2008 the Aquarium opened its Leadership in Energy and Environmental Design (LEED) Platinum-certified watershed education classroom and exhibit, which was the first carbon-neutral building of any aquarium in the nation. Exhibit messaging encourages visitors to conserve California's precious water resources. The Ocean Science Center is designed to LEED Gold standards and features climate change and other environmental programming. The Aquarium's retail expansion opens this spring and is targeted to meet the stringent 3 Green Globes rating. Sustainable design and operation are integral components of all future building projects.

AQUARIUM STAFF RAISES \$41,000 FOR KINGFISHER AVIARY



THIS PAST FALL Aquarium staff members contributed \$41,000 to a campaign to build a new Guam Kingfisher aviary. A kingfisher species from the Pacific Islands of Guam, Palau, and Pohnpei, Guam Kingfishers are extinct in the wild. There are fewer than 130 of these birds left in the world. The remaining birds are part of a Species Survival Plan administered by the Association of Zoos and Aquariums (AZA). The Aquarium is collaborating with AZA to acquire and raise Guam Kingfishers, aiding in their recovery.

"We've identified this project as a key way for the Aquarium to make a tangible and direct contribution to help a critically endangered species," said Rob Mortensen, assistant curator of mammals and birds. "We've worked on this project behind the scenes for years, and we're so thrilled to see it move forward."

The Aquarium has conducted several staff campaigns over the years to support specific Aquarium projects, such as the Northern Pacific Touch Lab and the 40-foot quarantine tank at the Molina Animal Care Center. The staff campaign brings employees and volunteers together to show the entire staff's commitment to the Aquarium's work.

WISH LIST SHOPPING SUPPORTS ANIMAL CARE

THE AQUARIUM has launched a new program allowing the public to directly support the care

of its animal collection. The new Animal Care Wish List features opportunities to donate and help the Aquarium's animals by purchasing specific items needed, such as food, toys, training tools, and medical supplies. Each month a different animal or exhibit will be selected with new wish list items to purchase.

In March wish list donors purchased items such as toys, nest boxes, treats, climbing branches, heaters, and other items for the Aquarium's lorikeets. In May, Wish List donors can purchase items for penguins.

Donors to the Wish List will receive exclusive animal updates, personal stories from the animal care staff, photos, and more. Visit aquariumofpacific.org/wishlist to learn more and sign up to receive e-mails with the coming month's featured animal and items.





The Trashin' Fashion Show and Contest with live music provided by Ronny and the Classics will be held on Sunday, May 5, during the Urban Ocean Festival at the Aquarium.

CELEBRATE THE URBAN OCEAN AT THE AQUARIUM

This summer will feature a series of urban ocean events at the Aquarium, including cruises, contests, lectures, and the Urban Ocean Festival.

THE AQUARIUM will kick off the summer with its fourth annual Urban Ocean Festival on May 4 and 5.

Celebrating the unique Southern California coast and ocean, the Urban Ocean Festival features an art contest and exhibition, poetry contest, the Trashin' Fashion Show and Contest, live music, and exhibit enhancements that help visitors learn more about how humans and marine life interact with the urban ocean. The Southern California Bight, the section of the coastline that extends from Santa Barbara to the Mexican border, is home to more than 20 million people, as well as a rich abundance of marine life, ecologically important natural places used by both humans and marine life, and migration thoroughfares for whales, seabirds, and other animals.

The Urban Ocean Poetry Contest will feature poems with an ocean theme and honor poets in three age brackets: high schoolers (ninth to twelfth graders), young adults (ages eighteen to twenty-five), and adults (age twenty-six and up). A special Urban Ocean Poetry Cruise, featuring readings of the winning poems, will be held on Saturday, May 4, at 4:00 p.m.

The Urban Ocean Art Contest will award prizes for ocean-themed artwork in three categories: painting/drawing, digital/photography, and sculpture/3D/mixed media. Past years' art contests have attracted diverse local artists whose artwork presented unusual images of the ocean and humans' relationship to it.

The Trashin' Fashion Show and Contest continues to grow in

popularity year after year, bringing young designers to show off their skills. The contest features clothing designs made out of recycled materials. Designs are showcased on the runway with live music during the festival on Sunday, May 5.

The Aquarium will be offering the Urban Ocean: World Port and Sealife Cruise throughout the summer, allowing the public to get up close to the urban ocean environment and see portions of the local ports, breakwater area, and harbors that are not easily seen. Cruises will be held June 15, July 13, August 10, and September 7, from 4:00 p.m. to 6:30 p.m. Visit the Aquarium website for more details.

The Urban Ocean Dinner Cruise, exclusively for Aquarium members, will be held on Friday, July 19, at 7:00 p.m. The cruise will be guided by commentary from an Aquarium educator and an experienced boat captain, and passengers will enjoy a gourmet dinner and a tour of the Long Beach urban ocean at sunset. Reservations for this cruise are required by July 16. Call (562) 437-FISH (3474) to RSVP.

Aquarium visitors can learn more about current science relating to our local urban ocean at the Aquarium's ongoing lecture series. Speakers addressing urban ocean issues in coming months include Jesus Reyes, who will discuss endocrine disruptors in the ocean; Ron Carroll, who will discuss artificial wetlands and their use in treating wastewater; and Eric Zahn, who will discuss restoration efforts at the Los Cerritos Wetlands.

Deep-Sea Craft: Anglerfish Hat

WHAT YOU NEED:

- ❑ 1 or 2 sheets of black construction paper
- ❑ 1 fuzzy pipe cleaner
- ❑ 1 medium or large puff ball
- ❑ Chalk
- ❑ Stapler
- ❑ Ruler
- ❑ Pen or pencil

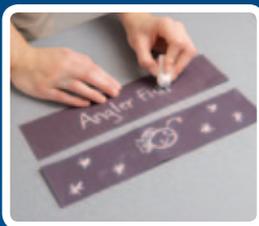


METHOD:

You may need an adult to help you with some of these steps.



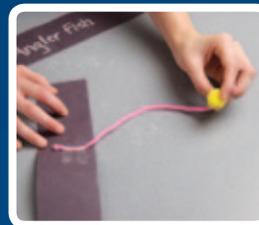
1. Holding the construction paper horizontally, cut it into strips 3 inches wide.



2. Decorate one side of the strips with chalk.

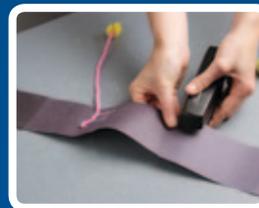
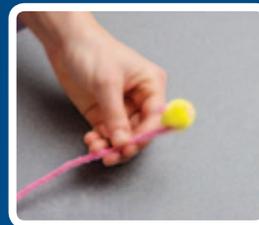


3. Pick one strip (this will be the front of your hat), and tape one end of the fuzzy pipe cleaner onto the side that has no chalk on it. It should look like the letter "T."



4. To attach the puff ball:

- a. On the other end of the pipe cleaner, which is not taped down, bend it to make a hook about 2 inches long.
- b. Place the puff ball in the "U" of the hook.
- c. Bend the hook end of the pipe cleaner toward the base of your hat.



5. Staple a strip to each end of the strip with the pipe cleaner (make sure the chalk sides are on the same side).



6. Bring the ends of the construction strips together around your head and have someone staple the two ends together so it fits snugly around your head.

Now you can read these fun anglerfish facts and pretend to be one with your new anglerfish hat!

FUN ANGLERFISH FACTS:



LARRY MADIN/WHOI

The deep-sea anglerfish is found throughout the World Ocean at depths of 700 to more than 3,000 feet. Ranging in color from dark gray to dark brown, these carnivores have huge heads with an enormous crescent-shaped mouth filled with long, fang-

like teeth angled inward to help grab their prey. They grow to lengths of 4.5 inches to over 3 feet, and weigh up to 100 pounds. Anglerfish typically have at least one modified spine on the top of their bodies. The spine is movable in all directions. The end of the spine can turn into a bright blue-green light to lure other predators close enough for the anglerfish to eat them whole. The blue-green light is produced through a chemical process known as bioluminescence, similar to a firefly.

Fishing for KNOWLEDGE!



1. Experts estimate that as much as __ percent of the volume of the World Ocean and __ percent of its seafloor remain unexplored.
2. The deepest place on Earth is in the _____ Trench, located in the Pacific Ocean near Japan.
3. A _____ is a measurement of the depth of a given point in a body of water, like the ocean.

Last Issue's Questions and Answers:

1. Seals and sea lions are members of the **pinniped** family. The name comes from the Latin word for fin-footed.
2. Mature male sea lions have a prominent bump on their heads called a **sagittal** crest.
3. When pinnipeds temporarily leave the water to avoid predators or rest, this behavior is referred to as **hauling** out.

FLASHLIGHT FISH

Anomalops kataptron



DAVID B. FLEETHAM/SEAPICS.COM

WONDERS OF THE DEEP GALLERY

GIANT ISOPOD

Bathynomus giganteus



WONDERS OF THE DEEP GALLERY

GARDEN EEL

Heteroconger langissimus



GULF OF CALIFORNIA

FLASHLIGHT FISH

Anomalops katoptron



PHYSICAL CHARACTERISTICS

These fish can grow up to 13 inches long. They are dark brown to grey-black in color, with a spiny dorsal fin.

DIET

Flashlight fish eat microscopic animals called zooplankton.

HABITAT

These tropical fish live near coral reefs along steep drop-offs near caves. They hide during the day and come out at night to feed.

FUN FACT

Flashlight fish have bioluminescent bacteria that live under their skin near their eyes. The bacteria provide light for the fish and receive oxygen and food from the fish to survive.

GIANT ISOPOD

Bathynomus giganteus



PHYSICAL CHARACTERISTICS

Reaching up to 14 inches in length, giant isopods have a tough shell that looks like a lobster's tail with overlapping segments.

DIET

These animals scavenge for food, often feeding on dead animals or small fish and invertebrates.

HABITAT

Giant isopods are abundant in the deep, dark, cold waters of the ocean.

FUN FACT

Isopods look very similar to pill bugs, their terrestrial relatives, which are also isopods.

GARDEN EEL

Heteroconger longissimus



PHYSICAL CHARACTERISTICS

These small, skinny eels can grow up to 19 inches long and have large eyes and a long lower jaw.

DIET

Garden eels feed mainly on zooplankton (microscopic animals) or small bits of food that fall to the seafloor.

HABITAT

These fish burrow into the sand in colonies near tropical reefs. Each eel has its own burrow.

FUN FACT

Garden eels poke their heads out to eat and monitor their surroundings. They will quickly retreat into their burrows if frightened.

Member Specials



ROBIN REGGS

Adopt one of our Otter-ly adorable animals!

For as little as \$25, your adoption will include a certificate of adoption, fact sheet, and a beautiful color photo of your animal. Additional levels include unique benefits such as plush animals, complimentary Aquarium admission tickets, Behind-the-Scenes Tours, and Animal Encounters. Adopt an Animal sponsorships are fully tax deductible, make the perfect gift, and include free shipping!

Visit aquariumofpacific.org/adopt, call 562-437-FISH (3474), or stop by the information desk on your next visit!

*All materials are electronic and e-mailed at time of purchase.

NEW

ADOPT AT OUR SPECIAL ONLINE PAPERLESS LEVEL*

Choose a specific otter or penguin to support.

aquariumofpacific.org/adoptpaperless



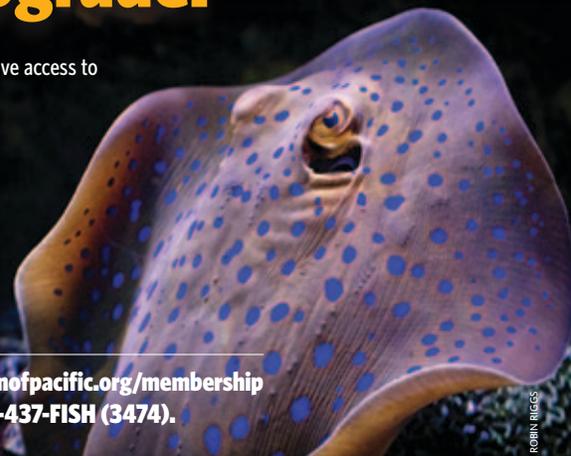
Have you considered an upgrade?

Upgrade your membership today, and you will have access to increased member benefits, such as:

- **Transferable membership card** (Family Plus membership level and above)
- **VIP events**
- **Exclusive opportunities**

Our more than 11,000 animal residents will appreciate your added support!

For more information, visit www.aquariumofpacific.org/membership or call the member support center at 562-437-FISH (3474).



ROBIN REGGS

 AQUARIUM OF THE PACIFIC

SAVE 20% this spring on all merchandise!

Present your membership card along with this coupon to receive an additional 10% discount in conjunction with your member discount, for a total of 20% off merchandise in our gift store.

This coupon is valid through 10/31/13 inside Aquarium gift stores. Valid as a one-time offer. Cannot be combined with any other offer. No cash value. Restrictions may apply. N-103113-A

MEMBERS-ONLY SPECIAL

2012 EDUCATION DONORS

We wish to extend a special thanks to the following corporations, foundations, and individuals for their support of education initiatives at the Aquarium of the Pacific in 2012.

\$150,000+

The Roddenberry Foundation
Windsong Trust

\$100,000+

The Ralph M. Parsons Foundation

\$50,000+

BP America Inc.
The Miller Foundation
Target
The Rose M Wirtz Family Trust

\$25,000+

BCM Foundation
The Boeing Company
Employees Community Fund of Boeing California
The Thomas & Dorothy Leavey Foundation
Medtronic Foundation
Kenneth T. and Eileen L. Norris Foundation
OXY Long Beach, Inc.
Wells Fargo

\$10,000+

The Capital Group Companies
The Green Foundation
SAVOR...Long Beach
Ned Solot and Corrin Yep
Ueberroth Family Foundation
Union Pacific Railroad

\$5,000+

3M Foundation
Begin Today For Tomorrow Charitable Foundation
BNSF Railway Foundation
Carnival Cruise Lines
City of Long Beach Stormwater/Environmental Division
Deacon Charitable Foundation
Disney VolunteARS Community Fund
Ella Fitzgerald Charitable Foundation
Bess J. Hodges Foundation
Kinder Morgan Foundation
The Ralphs/Food 4 Less Foundation

\$2,000+

ABS Foundation, Inc.
The Rudolph J. & Daphne A. Munzer Foundation
Sidney Stern Memorial Trust
Union Bank



The Newells are leaders and supporters of numerous local educational enrichment and charitable programs in Long Beach.

LONGTIME MEMBERS Frank and Margie Newell recently pledged to support the Aquarium's expansion plans. The Newells joined the Aquarium before it opened in 1998 and have become more actively involved recently as Trustees of the Pacific. The Newells' gift will be combined with a donation from the LGA Foundation, founded by Margie Newell's mother LeBurta Atherton, for a total of \$300,000 in support over the next four years.

The Newells are leaders and supporters of numerous local educational enrichment and charitable programs in the community, including the Rancho Los Cerritos Foundation, Long Beach Rotary Scholarship Foundation, Long Beach Library Foundation, Long Beach Community Hospital Foundation, and the Long Beach Ronald McDonald House. Educational initiatives at the Aquarium supported by the Newells and the LGA Foundation include founding support for the Aquarium's Long Beach targeted educational materials and transportation, as well as support in recent years for "Out of the Box" science kits, elementary school field trip guides, and the Cesar Chavez Elementary school partnership, all of which have enhanced the Aquarium's educational programming.

“We are proud to support this vital community asset that is focused on the Pacific Ocean and provides substantial economic, educational, scientific and environmental benefits to the City of Long Beach and Southern California.”

— MARGIE NEWELL

FUNDRAISING HIGHLIGHTS

The Aquarium of the Pacific relies on individuals, corporations, foundations, and government partners to support its mission and vision with contributions to the operating budget and to a diverse range of projects.

■ Teachers Benefit from the Boeing Company

The Boeing Company renewed its sponsorship of the Boeing Teacher Institute (BTI), a program that was initiated by Boeing and the Aquarium in 1998. The grant of \$35,000 will fund the five-day immersion program, which provides thirty-five local educators with an intensive introduction to the Aquarium, Southern California's diverse ecosystems, and the most current research conducted by local scientists. BTI is a content-based program in which participants learn how to effectively implement current science into their lesson plans.

■ John W. Carson Foundation, Inc. Renews its Commitment to Education

In January 2013 the Aquarium received a \$25,000 grant from the John W. Carson Foundation, Inc. This gift will go toward the Aquarium's signature education programs and help expand the Ocean Science Education Program. Serving as a legacy to comedian and animal advocate Johnny Carson, the John W. Carson Foundation, Inc. has supported the Aquarium since 2004.

■ Molina Healthcare, Inc. Sponsors the 15th Annual Ocean Conservation Awards

Molina Healthcare, Inc. has supported the Aquarium through major exhibit and event sponsorships. Most recently the organization made a \$25,000 gift to sponsor the Aquarium's 15th Annual Ocean Conservation Awards Gala in June 2013. Founded in 1980 by Dr. David Molina, Molina Healthcare carries on his legacy of affordable healthcare through his children, who now manage the organization and serve the community. Additionally, members of the Molina family provide expertise as Aquarium board directors, trustees, and members.

■ Aquarium Partners with the National Marine Sanctuary Foundation to Sponsor Ocean Exploration Literacy

In fall 2012 the Aquarium was awarded \$25,000 from the National Marine Sanctuary Foundation to fund the Ocean Exploration Education Alliance Program (OEEAP). This grant will promote ocean science literacy through professional development opportunities using NOAA-generated education lessons and materials. Additionally, this grant will help create a network of teachers who will bring the excitement of ocean exploration into their classrooms through cross-curricular, standards-aligned, and inquiry-based lessons.

■ Rose Hills Foundation Sets Major Commitment

The Aquarium received a pledge of \$500,000 from the Rose Hills Foundation in early March. This gift will go toward increasing the Aquarium's physical capacity and providing the resources necessary to create new galleries and exhibits. Through this pledge, the Rose Hills Foundation continues its long-standing partnership with the Aquarium.

■ Betty White Ludden Continues Her Support

Actress and comedian Betty White Ludden renewed her support of the Aquarium with a \$25,000 gift designated for core education and conservation initiatives. Ludden has been a long-standing Aquarium donor. During a recent visit, she met her namesake, Betty the sea otter. An animal enthusiast, Ludden has supported several of the Aquarium's conservation and education goals.



In December 2012 S.D. Deacon Charitable employees toured the Aquarium and presented a check designated to the Ocean Science Education Program. Pictured: Ivette Ortega, project assistant; Lorena Tominez, project assistant; Marisa Larson, project assistant; Holly Piper, Aquarium grants coordinator; Travis Rief, estimating assistant; Michael Mosqueda, estimator; and Brian Newman, project engineer.

AQUARIUM ACCOLADES

HERITAGE AWARDS



Zina Bethune | Festival of Human Abilities

This year the Aquarium presented the Glenn McIntyre Heritage Award posthumously to Zina Bethune. Founder and artistic director of Theatre Bethune, she died in a tragic car accident in February 2012. She had an extensive and inspirational professional dance career, while being "differently abled," in her words, with dysplastic hips, scoliosis, and lymphedema. Bethune appeared in films, on television, and on Broadway. She was a pioneering force for the Americans with Disabilities Act and the arts and disability movement inclusion guidelines for the Kennedy Center in Washington, D.C. In 1980 she founded Bethune Theatredance, which is now Theatre Bethune. Through this multimedia dance company, she developed Infinite Dreams, the first participatory dance program for youth with disabilities created by a professional dance troupe. Bethune led her dance company on international tours and even received an invitation to perform at the White House.

Pictured: Ivy Bethune, Zina Bethune's mother; Paula Woodley, Theatre Bethune board member; Kathie Nirschl, vice president of human resources, Aquarium of the Pacific; and Sean Feeley, Zina Bethune's husband.



Rev. James M. Lawson Jr. | African-American Festival

A pioneer in the civil rights movement in the United States and proponent of nonviolent action, Rev. James M. Lawson Jr. was the Heritage Award honoree at the Aquarium of the Pacific's 2013 African-American Festival. Lawson learned about principles of nonviolence through the Fellowship of Reconciliation and during three years spent in India. When they met at the Oberlin School of Theology, Dr. Martin Luther King Jr. urged Lawson to come to the South and take an active role in the national civil rights movement. Lawson moved to Nashville and began teaching workshops in nonviolent direct action. Dr. King called Lawson "the greatest teacher of nonviolence in America." Throughout the 1960s Lawson was active in the civil rights movement in Memphis and in Nashville, where he was a Freedom Rider. He has continued to work on behalf of social justice causes, from labor issues to immigrant rights and international peace.

Pictured: Rev. James M. Lawson Jr., Heritage Award honoree, and Anthony Brown, CFO, Aquarium of the Pacific.



Superintendent's Award for Excellence in Museum Education | Office of the State Superintendent of Public Instruction

The Aquarium of the Pacific won a 2013 Superintendent's Award for Excellence in Museum Education for its interactive videoconferencing program. The Superintendent's Awards for Excellence in Museum Education competition is a joint project between the California Association of Museums (CAM) and the Office of the State Superintendent of Public Instruction. CAM received twenty

entries representing a diverse range of institutions and the contributions museums make to California's K-12 educational system. After a formal evaluation and scoring by three reviewers, California Superintendent of Public Instruction Tom Torlakson chose six award recipients, including the Aquarium of the Pacific. The award was presented in February at the 2013 CAM conference.

Pictured: David Bader, director of education, Aquarium of the Pacific, and Ed Prohaska, board president, California Association of Museums.

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PACIFIC COLLECTIONS GIFT SHOP TO FEATURE LOCAL ARTISTS

Newly expanded store will showcase art prints, sculpture, jewelry, and more by Long Beach artists.

THE AQUARIUM'S NEWLY EXPANDED AND REMODELED PACIFIC COLLECTIONS GIFT STORE will feature new merchandise and artwork by local artists. While the store has always stocked Earth-friendly, educational and souvenir items reflecting the Aquarium's mission, it will now also feature fine jewelry and decorative items, as well as art selected through a new partnership with the Arts Council for Long Beach.

Aquarium and Arts Council staff members will select high-quality artwork with an ocean, aquatic, or conservation theme. New merchandise will include jewelry, art prints, paintings, sculpture, ceramics, and greeting cards.

The Pacific Collections construction project expanded the store's square footage and improved its look and feel, while increasing the store's energy efficiency and use of materials manufactured in the United States. The store features new flooring, lighting supplemented by skylights, a central sales counter, and a large-scale glass photo mural of a kelp forest captured by underwater photographer Jim Hellemn. An exhibit of Hellemn's photography will be on display in the Aquarium's Great Hall through May 22.

Pacific Collections will officially reopen on May 24 in conjunction with the public debut of the Aquarium's Ocean Exploration programming and *Wonders of the Deep* exhibit.

“Our daughter's grandparents have given her a membership since she was very young. Imogen's grandfather is a marine biologist, and the Aquarium has been a huge asset in staying connected to his world. Now Imogen goes up to all the divers in the Aquarium exhibits and yells, 'Hi Pops!'”

— THE FOYE FAMILY, MEMBERS SINCE 2011 (IMOGEN FOYE PICTURED WITH HER FRIEND, MAGGIE CARTER)



OCEAN EXPLORERS

BECAUSE SO MUCH OF THE OCEAN REMAINS TO BE EXPLORED, it is possible that new cures for diseases, new life forms, and discoveries that further our understanding of life on our planet await explorers below the surface. Ocean conservation efforts will help preserve these undiscovered resources and knowledge before they are lost to pollution, coastal development, damaging fishing practices, or the impacts of climate change.

“The oceans can be an interminable palace, more empty than full... But it can also be a palace of inestimable beauty. It depends on the researchers and their techniques and ingenuity. For me biodiversity is a type of magical realism within science. We can follow it on solitary roads. Better, in programs such as the Census of Marine Life, all our stories and brief essays can constitute an extraordinary book, an atlas of the past, of the present, of the future, a book from marine worms to blue whales. Because so much of the ocean remains unexplored, we still do not know what will be on the next page.”



— **JESSE AUSUBEL** | Director and senior research associate, Program for the Human Environment, Rockefeller University

Ausubel was one of the researchers who conducted the Census of Marine Life, a ten-year scientific initiative to determine the diversity, distribution, and abundance of life in the ocean.

“The beauty, mystery, bounty, and vastness of the ocean inspire our hearts and minds. The ocean provides half the oxygen we breathe, other key resources, protection, avenues of trade, and recreation. Indeed, the welfare of humankind depends on the health of Earth’s ocean, and on our ocean stewardship. Yet, we know so little about the ocean that much exploration remains. We need the skills of the next generation of explorers, scientists, technicians, engineers, and mathematicians as we develop new sensors and systems to dive deeper and to new places. The ocean will continue to inspire, and teachers in classrooms and in life will continue to nurture the sense of wonder that makes explorers of us all, just as my teachers did for me.”



— **JOSEPH T. (TIM) ARCANO, JR., PH.D.** | Director, NOAA Office of Ocean Exploration and Research

Arcano served as an ex-officio member of the National Science Foundation’s Replacement Human Occupied Vehicle Oversight Committee, overseeing the development of the replacement for the submersible Alvin. While serving as the Corbin A. McNeill Endowed Chair in Naval Engineering at the United States Naval Academy, Arcano developed a course on engineering of submersible systems.

“Humans are compelled to explore [at least some of us]—we are drawn to shed light on the unknown. The universe is full of mysteries but we need to go no further than the 3/4 of our planet that lies beneath the depths of the oceans to face some of the greatest challenges of the

unknown. While we can write off this need to explore as a quirk of human nature, the drive is fundamental to human survival and can lead to vast benefits to society. These benefits can be the discovery of resources and medicines, extension of sovereign rights, insights into history, and fundamental expansion of knowledge of how the Earth works that can help us resolve humankind’s most serious problems and threats.”



— **LARRY MAYER** | Director, Center for Coastal and Ocean Mapping, and co-director, Joint Hydrographic Center, University of New Hampshire

Mayer has spent more than seventy months at sea during the last forty years. He has served as chief or co-chief scientist of numerous expeditions, including seven that mapped unexplored regions of the Arctic seafloor in support of a potential U.S. submission for an extended continental shelf under the Law of the Sea Treaty.

“The twenty-first century could be the greatest age of exploration, thanks to rapidly developing technologies that are speeding the pace of discovery. One of the forefronts of exploration will be the ocean—Earth’s largest remaining physical frontier, with only 5 percent having been explored so far. National Geographic has been funding exploration for 125 years and is committed to inspiring people to care about the planet. It has supported underwater exploration for many decades, including publishing the first underwater photographs in 1926 and awarding numerous grants to underwater pioneers such as Jacques Cousteau, Robert Ballard, and Sylvia Earle. Currently National Geographic is involved in two ocean initiatives. Marine ecologist and National Geographic Explorer-in-Residence Enric Sala heads National Geographic’s Pristine Seas project to find, survey, and help conserve the last wild places in the ocean. It is essential that we let the world know these pristine places exist, that they are threatened and that they deserve to be protected. The second initiative is DEEPSEA CHALLENGE, a joint scientific project by National Geographic, filmmaker and National Geographic Explorer-in-Residence James Cameron, and Rolex to conduct deep-ocean research and exploration.”



— **TERRY GARCIA** | Executive vice president for Mission Programs, National Geographic

Among his responsibilities at National Geographic, Garcia oversees the Society’s Explorers-in-Residence and Emerging Explorers programs.

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AQUARIUM OF THE PACIFIC
**OCEAN CONSERVATION
AWARDS GALA**

**“Where is the future?
It’s in the ocean.”**

— MICHAEL B. JONES,
ENTREPRENEUR AND PRESIDENT,
THE MARITIME ALLIANCE

Come celebrate with us!

SATURDAY, JUNE 15, 2013
6:30 p.m.

You are invited to attend our black-tie gala, where we will present the Aquarium’s Ocean Conservation Award to three of the most remarkable ocean explorers of our time.

**Sylvia Earle Ph.D., Walter Munk Ph.D.,
and Captain Don Walsh USN (Ret). Ph.D.**

\$500 per seat
Cocktail Reception
Gourmet Dinner
Dancing under the Stars

*Support our education, conservation, and animal care programs by
enjoying an elegant evening of exploration, inspiration, and education.*

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