

PACIFIC **Currents**

Aquarium of the Pacific

WINTER 2022



**The Last of the
Mountain Yellow-
Legged Frogs**

Breaking Barriers to Marine Science

BY FREDERICK NELSON



“SO, WHAT DO YOU WANT TO BE WHEN YOU GROW UP?”

This was surely the most asked, and most stress-inducing question for elementary school students. I remember back in those elementary school days, when career day primarily consisted of only a few occupations: mostly either a doctor, teacher, or a firefighter. This always created a conundrum for me. As a young child, I had always been interested in all kinds of animal fun facts and all of the television shows on Animal Planet. I watched it faithfully everyday afterschool. However, coming from a working class background, my family never had the time nor money to go venture out and be outdoorsy, so I did what any city kid would do – I stayed inside and watched television. Ultimately, I decided to go as a doctor, only because I did not know how to dress up as a person who loves to study animals and ecology.

Through my volunteer work with the Western Service Workers Association, I am reminded of how I felt as a child who wanted to study and become something that felt unattainable and inaccessible. Many of the families that we help also share similar stories. When I first moved to California in 2017, I was so excited about all of the rocky shores, kelp beds, rivers and estuaries that hold all of these amazing species. I finally feel that I’m in a place in my academic career where I can explore and learn firsthand about all of the species that call California home.

Whenever I talk about my research with children and adults, both young and seasoned, I remind them that it’s never too late (or early) to learn about the world around us. I even tried to encourage folks to visit their local aquarium or hatchery if they can. It was in those moments when I realized that the barriers that kept me away from aquarium science and education still persist for many families.

The amazing diversity of marine and aquatic life that exist locally and around the world will always be a source of inspiration for me. With the looming threat of rapid climate change, many of these species are not guaranteed to survive and persist in the near future. Aquariums present a unique opportunity to capture a glimpse of this amazing diversity and showcase to the public of how truly special our planet is.

A critical part of my graduate career is to make my research understandable to all audiences. I value the importance of science communication, being able to communicate science effectively and responsibly, especially in the age of misinformation. As a student that studies both ecology and physiology, I’ve been immensely interested in the bridge between the two fields. Discovering and addressing how aquatic organisms are thriving or surviving in certain environments are two areas that I want to explore in my doctoral and postdoctoral career paths. I plan to keep research, education, and mentorship at the forefront of my professional goals.



Frederick Nelson is a Ph.D. student in ecology at the University of California, Davis, where he researches temporal variation in plastic responses of western mosquitofish. He was an award recipient in the Aquarium’s African American Scholars program in 2021. He earned a graduate research fellowship from the National Science Foundation in 2017.

Nelson serves as chair of the Diversity Committee Outreach Subcommittee for the Graduate Group in Ecology at UC Davis and served as vice president of the American Fisheries Society’s Sacramento-Davis Subunit from 2018 to 2019.



Letter from the CEO

Dear Members,

YOU HAVE ALL HEARD OF “THE EXTINCTION CRISIS” and the loss of species. When a species disappears, we have lost thousands and even millions of years of creative evolution...that one mutation after another that has produced extraordinary organisms that no engineer or artificial intelligence algorithm could ever rival. That is why we invest staff time and money in projects like the mountain yellow-legged frog rescue operation described in this issue.

But there is another extinction process underway that gets less attention, but is just as severe and that has immediate consequences for our well-being. I am talking about the “extinction of nature experience.” We live crowded together in cities, and our teenagers average nine hours a day on their screens outside of school. Children average less than an hour a week in outside play compared to the twenty-plus hours my generation spent outdoors. Our kids can identify hundreds of corporate logos, video game characters, and the weapon associated with the sound of a gunshot—but they cannot identify common plants and animals or match a song to a bird. For sure, the readers of this letter are by sampling bias likely to not be so severely disconnected from nature—but you are in the minority.

Why does this matter? Nature experience enhances healing, improves cognitive performance, and reduces depression. The type of “nature” involved in these studies is not polar bears in the Arctic or lions in Africa. It can be the nature we see out the window, it could be an urban park with non-native species, and of course it could be an aquarium or zoo. A remarkable study published in the journal *Science* several years ago followed forty-six patients who had exactly the same gallbladder removal surgery and were matched for age, sex, smoking, and other characteristics. The rooms each patient occupied were identical in all aspects except the view out the room's window. Twenty-three patients looked out upon trees and a garden, and twenty-three looked out on a brick wall. The experience of looking out on nature through the window reduced the use of painkillers by over 50 percent and shortened the post-operative stay in the hospital by one day.

The extinction of nature experience is the *raison d'être* for aquariums and zoos. Families who do not have the means or time to go camping in the Mojave or hiking in the Sierras can in one afternoon or morning get an awesome encounter with nature by watching any of our 12,000 animals. Data show that even microdoses of such experience improve moods and ability to focus. At the Aquarium we are embarking on a strategic planning process for the next five years. Key to that process is fealty to the core mission of giving everyone the opportunity for a bit of the healing nature experience.

I look forward to sharing our future plans in the coming year.

Sincerely,

Peter Kareiva

In This Issue

2 **Fresh Voices: Breaking Barriers to Marine Science**

2021 African American Scholar award recipient Frederick Nelson shares the story of his pathway into marine science and his hopes to help make the field and California's marine ecosystems more accessible to all.

4 **Animal Updates**

Learn about two new arrivals at the Aquarium, a sandbar shark and a sea otter pup.

6 **The Last of the Mountain Yellow-Legged Frogs**

In the fall of 2020 the Bobcat Fire destroyed mountain areas where biologists had just released critically endangered frogs. Zoos and aquariums including the Aquarium of the Pacific took action to save them.

27 **Conservation Corner: Finding Homes for Endangered Frogs**

We rescued mountain yellow-legged frogs after devastating wildfires. Now we need to find a new suitable habitat for them. What can the public do to help?

3 **Letter from the CEO**

21 **Aquarium News**

10 **Events**

24 **Philanthropy**

16 **Add-On Experiences**

26 **Accolades**

18 **Kids Corner**

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).

Pacific Currents Staff: Editor/Writer: Claire Atkinson | Copy editor: Cecile Fisher | Designer: Andrew Reitsma | Contributing photographer: Robin Riggs | Proofreader: Alyssa Pacaut.

Aquarium Hours: Open daily from 9:00 a.m.-6:00 p.m. except December 25.

Membership Office Hours: 8:00 a.m.-5:30 p.m. daily

Phone Numbers (562 area code):

General Information.....	590-3100	Lost & Found.....	951-1733
Membership.....	437-3474	Private Event Info.....	951-1663
Development.....	951-1605	Gift Store.....	951-1732



COVER: ROBIN RIGGS

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.

HONDA
The Power of Dreams

**ASSOCIATION
OF ZOOS &
AQUARIUMS**

Aquarium Offers a Temporary Home for Rescued Sea Otter Pup

The orphaned pup is learning sea otter skills from our longterm otter residents, Betty, Millie, and Chloe.

AT THE END OF 2021 the Aquarium welcomed a male sea otter pup. The Aquarium will be his temporary home before he goes to another zoo or aquarium facility in approximately six months.

The pup was rescued off the coast of Pismo Beach, California, when he was just a few weeks old, and wild-life officials determined that it would not be possible to return him to the wild. On his arrival at the Aquarium, the small thirteen-pound pup spent some time behind the scenes where he could safely quarantine before joining the other sea otters in the exhibit.

Caring for this young pup gives the Aquarium's sea otter team a chance to hone their skills working with young otters and gives our adult female otters the chance to brush up on their maternal instincts before the sea otter surrogacy program begins.



PHOTOS BY ROBIN RIGGS

This is the first sea otter pup to be hosted at the Aquarium since Chloe's arrival in 2013.



New Sandbar Shark Moves Into Shark Lagoon

Look for the new arrival in the main exhibit with the other large sharks in Shark Lagoon.

THE AQUARIUM has welcomed a sandbar shark to its large shark habitat in Shark Lagoon. The juvenile female shark is nearly two years old and was born at another aquarium accredited by the Association of Zoos and Aquariums. The sandbar shark joins other highlighted animals of *Coral Reefs: Nature's Underwater Cities*, the newest experience at the Aquarium of the Pacific.

Sandbar sharks (*Carcharhinus plumbeus*) are native to the western Atlantic Ocean and the Indo-Pacific Ocean. Juveniles are typically found in coastal nurseries where they can hunt for food while avoiding predation. They can grow to 6.5 to 8 feet in length and weigh 100 to 200 pounds.

Classified by the International Union for Conservation of Nature as vulnerable, the sandbar shark faces challenges due to human impacts from overfishing to coastal development. Because of its large dorsal fin, sandbar shark fins are used for shark fin soup. Sandbar sharks are also caught for their meat, oil, and skin.

To help protect sandbar sharks and other shark species, the public should practice being informed consumers, choosing sustainable seafood and checking the ingredients of products such as vitamin supplements.



Thank You for Being a Friend

The Aquarium is saddened by the loss of Betty White. We thank her for her lifelong love and dedication to animals, support of the Aquarium, and her namesake Betty, who is caring for our young otter.

The Last of the Mountain Yellow-Legged Frogs



USFWS

In the fall of 2020 Southern California frog experts watched in shock as the Bobcat Fire tore through the local mountains, destroying the areas where biologists had just released critically endangered frogs. While the fire presented an enormous setback, zoos and aquariums including the Aquarium of the Pacific took action to save these frogs and care for them until a new habitat can be found.

PHOTOS BY ROBIN RIGGS



For generations the mountain yellow-legged frog (*Rana muscosa*) made its home high in Southern California's San Gabriel, San Jacinto, and San Bernardino Mountains, living in and around lakes and streams nestled in rocky bowls and canyons. But due to fire damage and other threats, this is no longer true for most of this species' historic range.

These frogs had already faced pressures, including predation by non-native fish, damage to their habitat from human activities, pollutants in the water, a fungal disease that can affect many amphibian species, and drought, extreme weather, and wildfires fueled by climate change. By 2002 there were only a few hundred adult mountain yellow-legged frogs in the wild where there used to be thousands.

In 2006 the U.S. Fish and Wildlife Service issued permits to a handful of zoos and aquariums to breed the species under human care. The institutions involved in this effort included San Diego Zoo Wildlife Alliance, Omaha's Henry Doorly Zoo and Aquarium, the University of California, Los Angeles, and the Los Angeles Zoo, which alone was able to produce over 4,000 tadpoles. By 2018 frogs born in human care were being released back into their wild habitats. However, in 2020 the devastating Bobcat Fire took out one of the few remaining habitats where these frogs could be found in the wild.

Bobcat Fire

In September and October 2020 the Bobcat Fire burned about 115,000 acres of the Angeles National Forest, coming within feet of Mt. Wilson Observatory and decimating the slopes and canyons surrounding streams where mountain yellow-legged frogs live. The arrival of the rainy winter season would mean the burn area would pose a threat to these waterways, as mudslides and erosion would fill them with runoff, making it impossible for the frogs to survive and reproduce.

The government agencies that monitor the mountain yellow-legged frog, including the U.S. Forest Service, U.S. Fish and Wildlife Service, U.S. Geological Survey, and California Department of Fish and Wildlife, went into rescue mode, sending their biologists into the mountains, in some cases to remote areas only accessible by helicopter. All the frogs and tadpoles that could be found were collected and transported in coolers and brought to safety.

With this new influx of frogs needing shelter, the Aquarium offered to build a holding facility to add to the available space for the rescued frogs at the other permitted facilities, which now included the Santa Ana Zoo.

The Aquarium's Frog Room

Behind Shark Lagoon, a long narrow building known as the barn is home to the Aquarium's Ambassador Animals, including Lola the sulfur-crested cockatoo, Ozzy the possum, several reptiles, and a pair of lorikeets. In the past year, one of the areas in the barn was renovated to serve as a mountain yellow-legged frog room, where the rescued tadpoles could safely grow into froglets while they wait for release.

Inside the room, the tadpoles are separated into two aquarium systems: one for the 125 tadpoles hatched in April 2020 and collected from the wild and the other for about 150 that were hatched in 2021 at one of the other facilities in the partnership.

The tadpole caretakers, Aviculturist Frankie Lill and Mammalogist Erin Lundy, talk with excitement about their tiny charges and all the ways they try to make them feel at home, including wearing special hoodies. Because the room is chilled to about 60 degrees Fahrenheit ("sometimes a nice 59," Lill says), Lill and Lundy need to wear something warm while inside. But rather than using nondescript plain jackets or sweaters, they opted for something that might inspire a feeling of family among the frogs. Hanging outside the door are two bright green jackets with bulbous froggy eyes on top of the hoods.



As the tadpoles go through metamorphosis and transform into froglets, they grow legs, their head begins to differentiate from the body, and the tail is absorbed.

Mountain Yellow-Legged Frog: Species Profile

The mountain yellow-legged frog gets its common name from the bright yellow to yellow-orange color found on its underside and legs. They are about 1.5 to 3.25 inches long on average and have spotty brown and yellow coloration on their backs, which helps them blend in with lichen and hide from predators.

These frogs spend a lot of time in the water and are rarely found more than three feet away from a pond, marsh, lake, or stream. They live at high elevations, from 4,500 to 12,000 feet, and hibernate during the winter, when the mountains usually have snow. They come out of hibernation in the spring for the breeding season. Unlike frogs that live in warmer climates, mountain yellow-legged frogs can take up to four years to reach adulthood, growing legs and absorbing their tails to transform from three-inch tadpoles into frogs.

They eat insects like beetles, ants, bees, wasps, flies, and dragonflies, which they catch with their large sticky tongues. While they don't have vocal sacs like some other frogs, the adults can make a flat clicking sound.

Aviculturist Frankie Lill prepares tadpole food, a slurry of algae, fish food, and vitamins painted onto tiles to dry.





Frog Dogs

After mountain yellow-legged frogs are released in the wild, scientists conduct surveys to monitor the frogs and make sure they are thriving in their new home. The San Diego Zoo Wildlife Alliance has a team of dogs trained to detect the frogs by smell. Read more about the frog dogs Luna, Bighetti, Niko, Darby, and Flynn at science.sandiegozoo.org/science-blog/frog-dogs

Each day Lill or Lundy visits the room in the morning to check on the tadpoles, ensuring the room and water temperatures are still at the correct level (about 50 degrees) and that the water flow in the aquariums looks good. They also change out the water, do some maintenance and cleaning, and feed the wiggling tadpoles.

In the wild the tadpoles forage for algae, scraping it off rocks and other surfaces in the pools and streams where they live. To replicate this, Lill and Lundy mix up a slurry of spirulina, fry food (a type of food for very young fish, which are called fry), and vitamins, let it dry on triangular white ceramic tiles, then place these tiles in the habitat for the tadpoles. This recipe was prescribed by the other facilities that had experience caring for the tadpoles. They monitor how much the tadpoles are eating, sometimes experimenting with algae wafers and fish foods that are commercially available. Other than that, they opt to leave the tadpoles alone. “They seem to do best if they’re not handled extensively,” Lundy says.

Assistant Curator Rob Mortensen helped one of the partner facilities build their frog holding area, then used that experience to design the frog room at the Aquarium. The two holding aquariums (the one for the wild tadpoles and the one for those raised at zoos or aquariums) are designed to operate separately, so that if one were to fail or have a significant change, the other system would be unaffected. They are equipped with multiple safety backups and can be calibrated to the frogs’ particular needs, making them more technically advanced than most of the other amphibian life support systems at the Aquarium. They were a big job for Mortensen to design. “Pardon the pun, but when I ‘croak,’ I want it to be the Rob Mortensen Memorial Room,” he jokes.

And because they are critically endangered, the team is fastidious about catering to the tadpoles’ sensitivities as they develop into froglets. As of mid-October some of the wild tadpoles had begun to metamorphose. First, tiny rear legs appear. Then the front legs begin to develop, and the frog’s head begins to take shape.

Throughout this process the tail shrinks and is absorbed into the frog’s body. “They’re going through a lot of changes that are stressful and taxing for them. It’s fun to watch, but you’ve also really got to make sure that they’re doing okay,” Lundy says.

Joining the Partnership

The Aquarium was able to join the recovery effort for this species in part because of our past experience caring for amphibians, Curator of Birds and Mammals Brett Long explains. The *Frogs: Dazzling and Disappearing* exhibit was built in the Tropical Pacific Gallery in 2017 and allowed husbandry staff members the opportunity to learn how to care for frogs, salamanders, newts, toads, and caecilians (legless amphibians that live underwater or underground—you can find some in the Frogs exhibit in the Tropical Pacific Gallery).

The partners were also looking for a facility that could hold several hundred tadpoles during their long period of metamorphosis. The biologists who track the frogs in the wild found that more frogs thrived in the wild when released as froglets rather than as tadpoles. Space for holding these frogs while they develop, given their specialized needs, was at a premium. And the Bobcat Fire fast tracked the need for more holding facilities. “Any space that we can add helps quite a bit,” Long says.

A project like this taps into the essential function that zoos and aquariums play in a world where animal species are at risk of extinction. Our expertise in caring for a variety of species means that our facilities can take in endangered animals and ensure their populations thrive while their habitats are rehabilitated. This gives the animals a chance to catch up to the massive changes going on in their environments, often due to human activity. “It’s a real impact, versus sharing the story of work someone else is doing—we’re doing this work,” Mortensen says.

Under the recovery plan for this species, returning populations to the wild and removing the frogs from the Endangered Species List will take many years, and Long says the Aquarium will stay involved for as long as needed. “I love that the Aquarium is focusing on these [conservation] projects,” Long says. “These are very appropriate, very relevant conservation initiatives that the Aquarium, even during a pandemic, found a way to continue moving them along. And without the support from the members, guests, and donors, this stuff wouldn’t happen.”



FROG FACT

When threatened, mountain yellow-legged frogs emit a garlic scent to deter predators.

ISTOCK.COM/KEN CANNING

Mountain yellow-legged frogs are not the only animals getting special care at the Aquarium. Here are a few of the other conservation programs that are part of our efforts to save endangered species.

White Abalone [A]

In a behind-the-scenes lab in the Southern California/Baja Gallery, aquarists care for juvenile white abalone that will eventually be released in the ocean off our coast through the National Oceanic and Atmospheric Administration's (NOAA) White Abalone Recovery Plan. As recently as this past fall, Aquarium divers visited Aquarium-grown white abalone at their wild release sites to check on the population and make sure they are still healthy and thriving.

Giant Sea Bass [B]

The Aquarium was the first public aquarium to hatch and raise a juvenile giant sea bass in 2016. After that success, a community of aquariums and other facilities began breeding these critically endangered fish and have since tagged and released several hundred juveniles off our coast. Scientists hope to track their movements to learn more about the lives and habitats of giant sea bass.

Sea Turtle Rehabilitation [C]

When a sea turtle is found injured or stranded in our area, the Aquarium's veterinary team nurses it back to health and prepares it to be released back into the ocean. They examine the sea turtle, tend to wounds, or perform surgeries. Then the veterinary staff keeps the animals under observation to ensure their complete recovery before scheduling them for release. NOAA scientists sometimes fit the turtles with temporary satellite tracking tags before their release. After treatment at the Aquarium in 2012, a green sea turtle was released and traveled 500 miles.

Sea Otter Surrogacy [D]

When orphaned or stranded sea otter pups arrive at the Monterey Bay Aquarium, some enter a surrogacy program in which they are placed with adult female otters who teach the pups basic otter life skills, like grooming and hunting for food. The Aquarium is building its behind-the-scenes surrogacy facility to join this effort. When this space is ready to accept pups, experts expect the Aquarium to be able to raise up to three or four pups each year, doubling the surrogacy program's existing capacity to release these pups back into the wild.

Penguin Breeding [E]

When the Aquarium opened the June Keyes Penguin Habitat in 2012, it enabled us to take in a group of five Magellanic penguins that had been stranded and rescued outside their typical range in South America. Some of those original five wild penguins paired off and reproduced, and since 2012 a total of thirteen chicks have hatched, with some going on to live at other zoos and aquariums. By sharing offspring with wild genes through the Species Survival Program, the Aquarium is helping to diversify the penguin population in human care.

For more information on these programs, visit aquariumofpacific.org and click on Saving Species.

Saving Species



[A]

ANDREW RETSMA



[B]

MICHAEL COUFFENSCW-CABRILLO



[C]

MADELINE BARGER



[D]

ROBIN RIGGS



[E]

ROBIN RIGGS



Member Kids Activity Night

■ Thursday & Friday, March 30-31

* Member Events

Please join us for these select events just for our members and donors.

Member Kids Activity Night

■ Thursday & Friday, March 30-31

6:30 P.M.-9:00 P.M.

Get ready for a fantastic evening at the Aquarium with this year's Kids Activity Night! Your little ones will love fun and educational activities about their favorite finned friends and a puppet show featuring Seymour the Shark and the rest of the Pacific Pals.

- \$5 for members, free for member kids under age 3 (tickets required)
- Call (562) 437-3474 to reserve

* Special Events

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

Night Dive

■ Friday, February 11

7:30 P.M.-11:00 P.M.

Night Dive is an adults-only event featuring food and drink, live performances, and other special programming. Discover the Aquarium at night and explore its galleries in a new way,

with DJs and local artists creating a unique ambiance. Live bands take the stage in front of the Honda Blue Cavern, turning the Great Hall into a music venue.

- \$19.95 for members, \$24.95 for non-members
- Open to ages 18+ only

Noche de Estrellas

■ Friday, March 4

6:30 P.M.-10:30 P.M.

Party with the sea stars at the Aquarium's Latin-themed night Noche de Estrellas. The Aquarium will remain open until 10:30 p.m., so you can dance to the sounds of cumbia, rock en Español, salsa, cha cha, and other Latin rhythms. Noche de Estrellas (Night of the Stars) will feature live bands, DJs, underwater dive shows, scavenger hunts with prizes, and ocean activities. Mexican cuisine, beers, and drinks will be available for purchase.

- Free for members, \$24.95 for non-members after 6:30 p.m.

Long Beach Chorale Concert: Sweet Spring!

■ Saturday, March 12

7:00 P.M.-9:00 P.M.

Join the Long Beach Chorale in the Honda Pacific Visions Theater for a concert that celebrates the coming spring season, its nature and beauty in song. Featuring selections with

genres ranging from classical to Broadway, this is a concert for audiences of all ages.

- Visit aquariumofpacific.org/events for details and tickets.

Autism Families Night

■ Sunday, March 13

6:00 P.M.-9:00 P.M.

Join us for a special evening at the Aquarium exclusively for families with adults or children with autism. The entire Aquarium, except Lorikeet Forest, will be open until 9:00 p.m. This will be an evening when guests can enjoy the tranquility of our exhibits and meet 12,000 animals from the world's largest ocean. The Aquarium closes to the public at 6:00 p.m.

- Free for members, \$7 for non-members

Scout Day

■ Saturday, April 30

9:00 A.M.-4:00 P.M.

The Aquarium welcomes Scouts and their family and friends at a reduced rate. Cub Scouts and Girl Scouts are invited to complete steps toward badges, utilizing self-led activity sheets that are specifically designed for Scouts. Scout leaders or parents are expected to facilitate the Scout's learning experience and guide them through the steps for badge requirements. For full details, visit aquariumofpacific.org/events/info/scouts



For information, visit aquariumofpacific.org or call (562) 590-3100, ext. 0. Events subject to change based on current health protocols. Advance reservations are required for all Aquarium visits and events. Please visit pacific.to/memberhub for more information or to make a reservation.



Festival of Human Abilities

■ Saturday & Sunday, January 29-30

* Festivals

Experience our community's diverse cultures and their connections to the ocean and environment.

Festival of Human Abilities

■ Saturday & Sunday, January 29-30
9:00 A.M.-5:00 P.M.

The Festival of Human Abilities is a celebration highlighting the creative talents and abilities of people with disabilities. This event features wheelchair dance performances, live music, signing choirs, art demonstrations, storytelling, interactive workshops, and other creative performances by people who have disabilities. Sign language interpreters will be present at all major shows and an audio tour and Braille visitor guide is available for those who are blind.

African American Festival

■ Saturday & Sunday, February 26-27
9:00 A.M.-5:00 P.M.

Join the Aquarium as it hosts its sixteenth annual African-American Festival, celebrating the rich diversity of African-American and African cultures. The weekend will feature live entertainment and arts and crafts. Festival performers include Mardi Gras second line dancers, hip hop and break dancers, jazz musicians, interactive drum circles, West African dancers, and storytellers. During the festival, the Aquarium will present the Heritage Award

in recognition of service to the community and efforts to preserve and share culture. The Aquarium will also announce the 2022 African American Scholar program recipients.

International Children's Festival

■ Saturday & Sunday, March 19-20
9:00 A.M.-5:00 P.M.

The Aquarium's annual International Children's Festival is a special event for kids. Celebrating the amazing talents of children of many cultures, this festival features West African, Mexican, Pacific Islander, Cambodian, Chinese, Korean, Japanese, Persian, Irish, Slovak, and Czech dance performances. Enjoy performances by an international children's choir and martial arts demonstrations. Kids of all ages can partake in a percussion circle, Japanese origami, Native American crafts, and Pacific Islander traditional children's games. The Aquarium will also honor a local youth with its annual Young Hero Award in recognition of his or her efforts to make our planet a better place.

Earth Day Festival

■ Saturday & Sunday, April 23-24
9:00 A.M.-5:00 P.M.

Learn what you can do to help our ocean planet at the Aquarium's seventeenth annual Earth Day Celebration. Join the Aquarium for a weekend of family fun celebrating Earth Day while learning simple, everyday tips to protect our environment. Enjoy an art display mural painting, and poetry, and participate in hands-on learning demonstrations for people of all ages.



Reservations for each event will be available at aquariumofpacific.org at least two weeks in advance.



Capacity is limited. Advance reservations are required. No walk ups. Keeping our guests and staff safe is our top priority. Masks are required for all ages 2 and over. For the most current information, go to aquariumofpacific.org/safety

* First Wednesdays

Each month the Aquarium's First Wednesdays events bring scientists, authors, and other experts into the Honda Pacific Visions Theater for free talk paired with a book signing or meet-and-greet and cocktail hour. Reserve your seat by visiting aquariumofpacific.org (click on Guest Speakers under the Events tab) or calling (562) 590-3100.

SPONSORS

COURTYARD
BY PALM BEACH
SUNSET BEACH-CONVENT PARK

Stephen and
Brenda Olson

Ralph and Hazel
Osborn and Lois J.
Rook Charitable Trust

Killer Whales of Southern California

■ Wednesday, February 2
7:00 P.M.-9:00 P.M.

Many people picture orcas (also known as killer whales) as exclusively located in the Pacific Northwest. However, groups of orcas visit Southern California each year, with a pod spotted off our local coast as recently as December 2021. Alisa Schulman-Janiger, research associate at the Natural History Museum of Los Angeles County, will present this First Wednesdays talk on these fascinating marine mammals. Schulman-Janiger is also lead research biologist with the California Killer Whale Project and director of the Gray Whale Census and Behavior Project by the American Cetacean Society's Los Angeles Chapter.



The Future of Offshore Oil Platforms

■ Wednesday, March 2
7:00 P.M.-9:00 P.M.

In 2019 the Aquarium hosted a forum on offshore oil platforms off the coast of California. The forum gathered stakeholders from government agencies, environmental organizations, industry, researchers, and the public to explore ideas for what to do with oil platforms once they are decommissioned. On February 2, 2022, the Aquarium will host a follow-up to this forum. That evening the First Wednesdays event will feature guest speakers who will discuss pathways to sustainable uses for oil platforms off the coast of California.

Retreat: Moving to Higher Ground in a Climate-Changed City

■ Wednesday, April 6
7:00 P.M.-9:00 P.M.

Liz Koslov is an assistant professor in the Department of Urban Planning and Institute of the Environment and Sustainability at the University of California, Los Angeles (UCLA), where she studies the social dimensions of climate change, questions of environmental and climate justice, and how cities are adapting to effects such as extreme weather and sea-level rise.

She will present a talk about her current book project, *Retreat: Moving to Higher Ground in a Climate-Changed City*, which offers an ethnographic account of "managed retreat" from the coast in New York City after Hurricane Sandy.



Proof of COVID-19 vaccination or a negative COVID test required to attend (two days prior for a PCR test or the day before with an antigen test). Masks are required for everyone, regardless of vaccination status.

Killer Whales of Southern California

■ Wednesday, February 2



Symposium Gathers African American Scholars to Share Stories

ON NOVEMBER 20, 2021, the Aquarium held its first annual African American Scholar Symposium for the inaugural cohort of scholarship award recipients. Speakers included professionals in the nonprofit, government, and private sectors and Aquarium staff members. The scholars shared their stories with local high school students from Long Beach and via live streaming video. The event provided an opportunity for the scholars to better connect to each other and the Aquarium.

The African American Scholars program, now in its second year, awards funds to support African American students who demonstrate a commitment to studies related to careers in the aquarium field, including ocean education, animal husbandry, water quality, building maintenance or facilities, microbiology, and business management.

In 2022 awards will be presented to the individuals selected for the program at the Aquarium's twentieth annual African American Festival in February.



The 2021 African American Scholars at the symposium included Katherine Hannibal, Frederick Nelson, Jahlen Pinelo, Elishebah Tate-Pulliam, Newton Hood, and Candice Mitchell.

This program is possible thanks to funding from individuals and corporate supporters, including Aquarium Board members, staff members, The Boeing Company, and Poms & Associates. The public is also invited to support the Aquarium's African American Scholar program. Thanks to an anonymous matching gift, all donations will be matched up to \$10,000. To make a donation, you can visit pacific.to/africanamericanscholarfund.

Aquarium Hosts Workshop and Joins Campaign to Relist the Gray Wolf as an Endangered Species

THE AQUARIUM HAS JOINED with the Humane Society of the United States and relistwolves.org in a campaign to add the gray wolf back to the federal Endangered Species List. The species was delisted in 2020, prompting some states to launch efforts to kill wolves to protect livestock.

In December 2021 scientists and students convened in person at the Aquarium and via Zoom to synthesize data on wolf-human conflict to examine the extent to which wolves threaten the livelihood of ranchers and the impact of the recent state mandates that give rewards for killing wolves. Based on findings from this workshop, the Aquarium plans to release several manuscripts for peer-reviewed publication and an open-source database.

To learn more about the campaign, visit relistwolves.org.





Blue blubber jellies (*Catostylus mosaicus*) pulse rapidly as they drift through the Lagoon Jellies exhibit in the Tropical Pacific Gallery. Found off the coast of Australia, this species can grow up to 16 inches wide and feeds on zooplankton.

*Aquarium
of the Pacific*



ADD-ON EXPERIENCES

Classes and Tours

Connect with the Aquarium through live in-person and virtual experiences that offer up-close views of our animals and exhibits.

In-Person Programs

Animal Encounters

Meet and interact with one of your favorite Aquarium animals during an Animal Encounter. Animal Encounters offer a chance to train a sea lion, feed a ray, hang out with a penguin, or interact with one of our birds like Lola the sulfur-crested cockatoo.

- Approximately 30 minutes
- \$135 per member and \$150 per nonmember; minimum 2, maximum 4 participants from same household
- (562) 590-3100, ext. 0
- Visit aquariumofpacific.org for dates and times



ROBIN RIGGS

Virtual Programs

Underwater Artists

Create art while exploring ocean animals and habitats during this educator-led virtual experience.

- \$10 per household
- First and third Saturdays of each month

Zoom Animal Appearance

Invite one of the Aquarium's animals to your next virtual birthday party or Zoom meeting. Meet our animals up close and learn about them from our animal care staff in this private program.

- \$750
- Flexible dates and times based on advance reservations

Online Academy

Tune in to the Aquarium's Online Academy for free interactive programming for kids of all ages. Visit pacific.to/onlineacademy for current scheduling. In addition to live programming, the Online Academy offers a large library of pre-recorded sessions on the Aquarium's YouTube channel.

- Grades PreK-12

Whale Watching Cruises

Gray Whale Watching Trips

■ Seasonal

Enjoy a voyage out in the open Pacific Ocean in search of one of the world's longest-migrating mammals. Learn new, exciting information about gray whales and other local marine life from an on-board Aquarium educator. Cruisers will also have the opportunity to spot dolphins, seals, sea lions, and other marine animals. Read about recent sightings on the Aquarium's whale watch Twitter feed (@OceanWatchLB).

- **Members:** \$27 per adult, \$22 per senior (ages 62+), \$19 per child (ages 3-11). **Non-members (includes Aquarium admission):** \$58.95 per adult, \$54.95 per senior, \$44.95 per child.
- 2 to 2.5 hours
- (562) 590-3100, ext. 0 or on our website

Virtual Resources

The Aquarium offers a library of free virtual resources to engage Aquarium members. Check out the following opportunities to connect with the Aquarium.

The Pacific Pals Show!

Tune into the Aquarium's social media channels for a closer look at the Aquarium, including animal feeds and behind the scenes tours with your favorite Pacific Pals.

- All ages

Webcams

Want to check in on your favorite Aquarium animals from your living room? Webcams, hosted by explore.org, placed in seven exhibits, allow your family to visit the Aquarium virtually. Now, you can take webcam exploration even further with the Aquarium's Webcam Resource Kits (available at pacific.to/webcamkits). These kits include lesson plans and videos that provide guided exploration of the Aquarium webcams.

- Grades K-8

Career Connections

Introduce your teenager to a variety of STEM (science, technology, engineering, and math) careers through the Aquarium's Career Connections series. By exploring the jobs of scientists working at the Aquarium, participants will learn more about current research and career opportunities. The series is available at pacific.to/careerconnections

- Grades 6-12

Conservation Series

Explore current conservation projects and meet the professionals who have dedicated their lives to conservation. Visit pacific.to/conservationseries for videos, discussion guides, and activities related to conservation and sustainability.

- Grades 6-12



Virtual Field Trips

The Aquarium is offering Virtual Field Trips for schools, homeschools, and care facilities for learners of multiple ages. These educator-led programs run live from our studio on site. Our educators will help you and your students explore various topics based on grade level, like recognizing shapes and colors, comparing sharks and fish, and even discussing conservation and human impacts on ecosystems. Prices range from \$100 to \$250, depending on the program.

School Field Trips

In-Person Field Trips Are Back!

Your students will love touching sharks, watching sea otters play, and exploring our oceans. For added learning, join an Aquarium educator for a program in one of our learning spaces. Call (562)590-3100 to book your next field trip.



ANDREW REITSMA

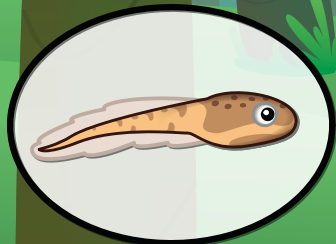


Help Axl guide his amphibian cousin through the pond to complete an unFROGettable metamorphosis!



Egg

Frogs lay eggs that take three to twenty-four days to hatch, depending on the type of frog. Frog eggs need clean, fresh water to hatch healthy babies.



Tadpole

After hatching, most frogs start life as a tadpole with gills to breathe and a tail to swim. Tadpoles eat algae and insect larvae that live in their watery homes. Some frog moms even feed their tadpoles unfertilized eggs.



Tadpole With Legs

All that food helps tadpoles grow bigger, and soon they start to grow back legs. After a little more time, their front legs start to grow, and they look like small frogs with long tails.



Froglet

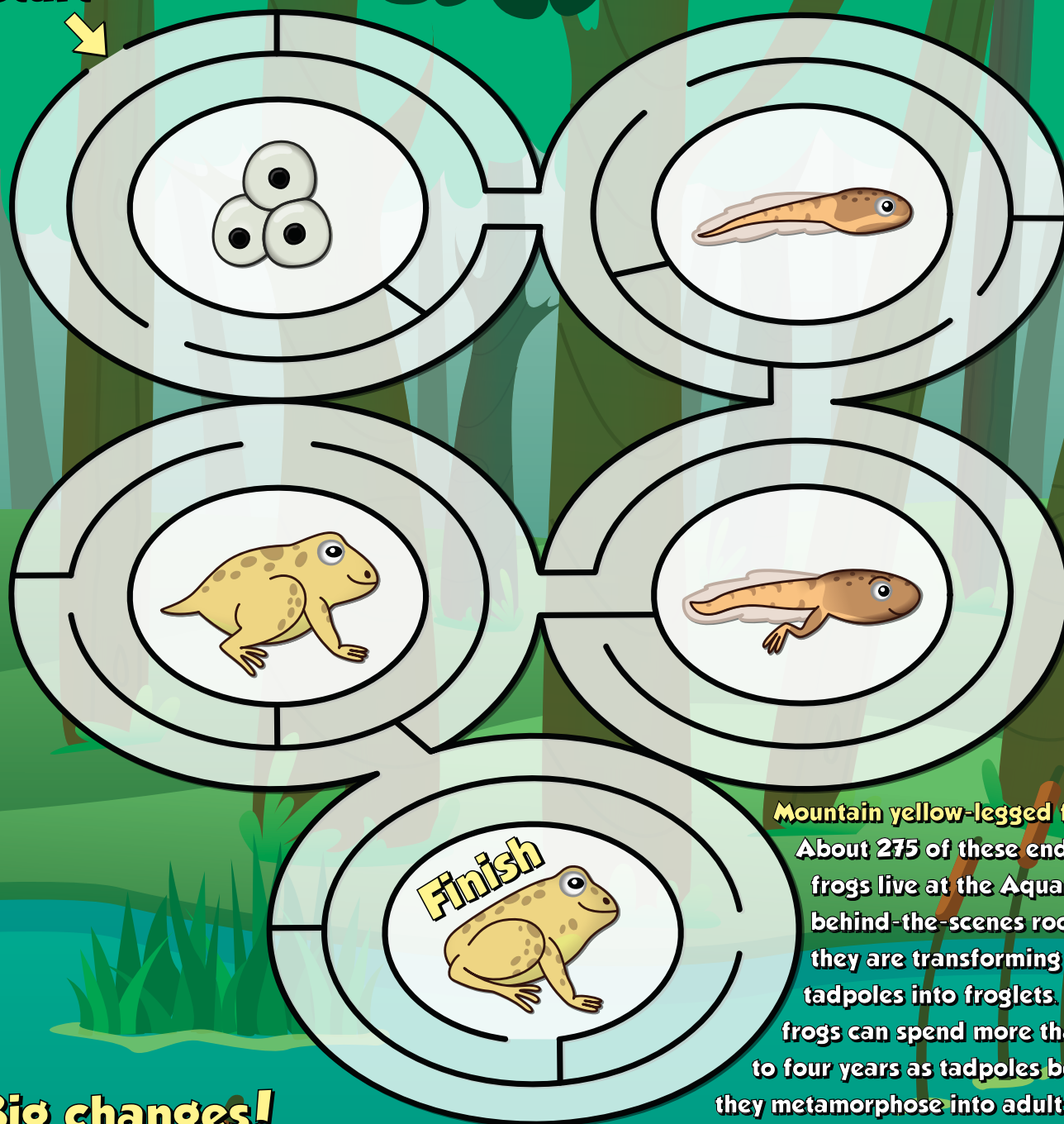
As the froglet grows larger, their tails get smaller. Soon, they are ready to live like a grown up frog.



Frog

The frog is now an adult and can leave the water to find food and a mate. Once they are ready to lay their own eggs, they will find clean, fresh water and start the cycle again!

Start



Mountain yellow-legged frog

About 275 of these endangered frogs live at the Aquarium in a behind-the-scenes room where they are transforming from tadpoles into froglets. These frogs can spend more than two to four years as tadpoles before they metamorphose into adult frogs!

Big changes!

Amphibians like frogs, toads, and salamanders are known for their amazing life cycles. All amphibians rely on clean, fresh water to have babies. When most of these babies hatch, they look very different from their parents and must go through metamorphosis (big changes in what they look like and how they live) before becoming an adult. However, axolotls are a great example of amphibians that do not change like most of their cousins. Most axolotls, like Axl, are salamanders that never change into their adult form. They live their whole lives in the water, breathing through the fluffy gills on the sides of their heads.

Animal Facts



ROBIN RIGGS

NORTHERN PACIFIC GALLERY

Southern Sea Otter

Enhydra lutris nereis

Sea otters, the smallest of all marine mammals, are in the same animal family that includes weasels, ferrets, and skunks. They have the densest fur of any animal, with about 1 million hairs per square inch. They are found along the North American west coast from just south of San Francisco to Santa Barbara County. Sea otters play the important role of ecosystem engineer for their ocean habitats. With their voracious appetites, eating about a third of their body weight in food each day, they keep other ocean animal populations in check, which protects habitats. Sea otters were hunted to near extinction in the early 1900s. They are now a protected species but still face serious risks, including oil spills, pollution, and climate change.

FROGS: DAZZLING AND DISAPPEARING | TROPICAL PACIFIC GALLERY

Blue Poison Dart Frog

Dendrobates tinctorius azureus

Blue poison dart frogs are native to rainforests and streams in the Republic of Suriname. They are 1 to 2 inches long and eat small insects that they capture with their sticky tongues. The toxins in this frog's skin are derived from some food items in its diet, and the bright blue coloration serves as a warning to predators not to eat it.



BRIAN GRAY



KEN KURTIS

TROPICAL PACIFIC GALLERY

Wedge-tail Triggerfish

Rhinecanthus rectangulus

The official state fish of Hawaii, the wedge-tail triggerfish is commonly seen in many other areas, from South Africa to southern Japan, Australia, and the South Pacific. In the Hawaiian language, this fish is called the humu humu nuku nuku apua'a, which translates to "fish with the pig-nosed face." They grow to about 12 inches long and feed on algae, snails, worms, and small crustaceans.

Aquarium Staff Members Helped Rescue Animals Affected by the Oil Spill

AFTER THE OIL SPILL IN ORANGE COUNTY in October 2021, four of the Aquarium's staff members who are trained by the Oiled Wildlife Care Network (OWCN) were called into duty to help search beaches and rescue oiled birds and animals. These trained responders include Aviculturist Frankie Lill, Mammalogists Erin Lundy and Samantha Emberton, and Curator of Birds and Mammals Brett Long. OWCN is the umbrella agency comprising forty-four member organizations, including the Aquarium, that responds to oil spills in California.

Over the course of eighteen days during the response, these four Aquarium staffers traveled to beaches from Long Beach to Oceanside to look for oiled wildlife. Shifts lasted ten to twelve hours and consisted of comprehensive beach surveys of up to twelve or thirteen miles a day on foot. Wearing yellow safety vests, they would use spotting scopes or binoculars to search for oiled wildlife, logging their survey track and each sighting in an app. To rescue an oiled animal, they would wear protective gear, including a hazmat suit, goggles, and gloves, carefully place the animal in a carrier, then transport it to the wildlife center in Orange County serving as the triage area.



Aviculturist Frankie Lill finds an oiled grebe on the beach and prepares it for transport to a local wildlife center to be cleaned and rehabilitated.

Through the app, each logged animal was automatically assigned a number and QR code to identify it as it made its way from being rescued, to its initial exam at the triage area, to the facility where the animals were fully cleaned and rehabilitated in preparation for their release back into a safe wild habitat.

In total, ninety trained responders from fifteen OWCN partner organizations participated in the response. During the response thirty-four birds were rescued and twenty-four had made a full recovery and been released as of November 2021. For more information, visit OWCN's website at owcn.org.

©2019 TOM BONNER



A Unique Setting for Your Event

The Aquarium of the Pacific's award-winning Pacific Visions wing provides a unique venue for private events, including outdoor picnics and indoor receptions or dinners. Other spaces available include the Great Hall, Shark Lagoon, and adjacent Shoreline Aquatic Park.



yourevent.aquariumofpacific.org 562-951-1663 AOPCatering@longbeach.cc.com

100 AQUARIUM WAY LONG BEACH, CA 90802

*Aquarium
of the Pacific*

Three New Board Directors, Including the First Scientist, Join the Aquarium

THE AQUARIUM'S BOARD OF DIRECTORS added three new members in 2021, Chanwantha "Sam" Limon, Stephanie Leshney, and Dr. Stephanie Wear.

Dr. Wear, the first scientist to join the board, is a member of the Ocean Sewage Alliance's steering committee and facilitated the Aquarium's partnership in the OSA's global campaign to raise awareness about the problem of ocean pollution from untreated wastewater. Dr. Wear is a marine ecologist, conservation strategy advisor, and global spokesperson at The Nature Conservancy. She is also a visiting scientist at the University of California, Los Angeles' Institute of the Environment and Sustainability and the Duke University Marine Lab. Her research focuses on reducing threats to ocean ecosystems like coral reefs, and her latest work with The Nature Conservancy examines the often-unrecognized role that sanitation plays in conservation on both human and ocean health around the globe.

Limon, the first Cambodian to serve on the board, is a human resources branch manager for the Los Angeles County Department of Public Social Services. In addition to serving as a board member of the United Khmer American Coalition, she is also currently the scholarship chair on the board of the Los Angeles County Cambodian Employees Association. She is a co-founder of Spirit of Khmer Angkor (SKA) under the Cambodian Association of America, where she has served as SKA's volunteer organizer and coordinates cultural programs and events for the past fifteen years. She is a longtime participant in the Aquarium's Southeast Asia Day festival, organizing music and dance performances and cultural costume and craftwork displays.

Leshney is the founder and president of Dabble & Dollop, which makes bath products for children with natural ingredients that are meant to be mixed, turning bath time into a creative science experiment. Prior to launching Dabble & Dollop, Leshney was president and CEO of Ross Organic and a two-time finalist for Ernst & Young's Entrepreneur of the Year Award. Leshney is a member of the Honorary Board of Trustees of the California Science Center and the Ronald McDonald House Long Beach.

Limon is the first Cambodian American on the Aquarium's Board of Directors. Long Beach hosts the largest population of Cambodians outside of Southeast Asia.



Dr. Stephanie Wear



Chanwantha "Sam" Limon



Stephanie Leshney

UCLA Students Help Aquarium Divert Food Waste

IN 2021 THE AQUARIUM started working with a University of California, Los Angeles' Institute of Environmental Science student practicum group to collect data on waste at the Aquarium. They conducted three waste audits to quantify the amount of waste, recyclables, and organic waste generated at the Aquarium. By the end of the summer these efforts led to a plan on how to handle the organic waste at the Aquarium.

We purchased an Ecovim food waste decomposition system that will compost the organic food waste from Aquarium restaurants, kitchen, staff cafeteria, and food prep room. The nutrient-rich compost byproduct will be used to fertilize the landscaped areas.

Food waste at the Aquarium will now be processed in this composter, and the byproduct will be used as fertilizer on site.



Aquarium CFO a Finalist in CFO of the Year Awards

ANTHONY BROWN, the Aquarium's vice president of finance and chief financial officer, was named one of two finalists for *Los Angeles Business Journal's* Nonprofit CFO of the Year Award.

Brown joined the Aquarium in 2010, having previously served as director of finance and operations at the House of Blues Foundation, and CFO at Intercommunity Child Guidance Center. In his tenure at the Aquarium he has overseen the \$53 million capital campaign supporting the construction of Pacific Visions and the Aquarium's recovery after closures due to the COVID-19 pandemic.



Join the Aquarium Live on TikTok on Tuesdays

EACH TUESDAY AT 3:00 P.M. Pacific time, the Aquarium's social media team goes live on TikTok for thirty to forty minutes to showcase one of the animals and talk to the staff members who care for them. These live broadcasts often include a look behind the scenes and give viewers the chance to ask questions.

Recent broadcasts have included feeding a sea otter, interacting with Groot the giant Pacific octopus, and visiting the Magellanic penguins. Tune in Tuesdays at 3:00 p.m.





Supporter Stories

Corporate Partners Celebrate Coastal Clean-Up Day

MORE THAN SEVENTY VOLUNTEERS from seven of the Aquarium's corporate partners, including Fluor, Union Bank, and Behr, helped the Aquarium pick up trash from the Long Beach Peninsula as part of the statewide California Coastal Clean-Up Day on September 18, 2021. A total of about 110 people, including Aquarium members and community volunteers, collectively removed more than 500 pounds of fishing debris, discarded bottles, and other waste from the local coastline.

Third Annual Long Beach Gives Spurs Donations

THANK YOU TO ALL those who participated in the third annual Long Beach Gives! This program is the annual citywide day of giving that raises funds for nonprofit organizations, including your Aquarium.

A total of \$8,872 was raised to support the Aquarium's animal care, education, and conservation programs. The Aquarium thanks the Schulzman-Neri Foundation for inspiring people to give with a matching donation. During Long Beach Gives, over \$2 million was raised to support 200-plus nonprofit organizations in the Long Beach area.

Sponsor Spotlight: T-Mobile

IN A NEW PARTNERSHIP that launched at the Aquarium in fall 2021, T-Mobile representatives greeted guests at various festivals and events, including Baja Splash, Scarium of the Pacific, and the Holiday Treats for the Animals festival. T-Mobile was also the sponsor of the Aquarium's Veterans Day event, providing free admission for veterans and active military personnel.

To support the Aquarium's efforts to create memorable learning experiences for students and families, T-Mobile hosted a booth on the Aquarium's front plaza in October. This allowed visitors to get face-to-face with a number of Aquarium animals, including penguins, a desert tortoise, and a skink.

In February T-Mobile will also participate in the Aquarium's Family Science Night, a special event for early childhood education teachers, students, and families.

"The Aquarium is grateful to T-Mobile for furthering our mission of inspiring students and people of all ages and backgrounds to learn more about the ocean and its inhabitants," said Ryan Ashton, vice president of development at the Aquarium. "We look forward to continuing to serve our community together."



Aquarium of the Pacific Honors the Passing of Board Director Bert Levy

AQUARIUM BOARD DIRECTOR BERT LEVY, who served on the Board for twelve years, passed away on September 24, 2021. The Aquarium honors Levy's memory and his dedication to nature and the Aquarium. "Bert had a profound impact on the Aquarium as a donor, a friend, a colleague, and an advisor," said Ryan Ashton, Aquarium vice president of development.

Levy grew up in Philadelphia during the time of the Great Depression and learned the importance of giving back. He joined the Aquarium's Nautilus Society when he purchased a charitable gift annuity in the Aquarium's name. "His planned gift is a testament to his support of the Aquarium's mission and his hope to make the planet a better place for all," Ashton said.

The Nautilus Society honors and recognizes benefactors who have expressed their commitment to our mission by including the Aquarium in their estate and financial plans through listing the Aquarium as a beneficiary in their will, living trust, retirement plan, life insurance policy, or charitable remainder trust or establishing an Aquarium charitable gift annuity. These gifts provide a legacy for the Aquarium and the community.

For more information, please contact Ryan Ashton at rashton@lbaop.org or visit aquariumofpacific.myplannedgift.org.

THE NAUTILUS SOCIETY:

ANONYMOUS	GHISLAINE AND WARREN ILIFF
THE BOBERG FAMILY TRUST	SARAH KALEEL
THE JEANNE M. BRODEUR ESTATE	SUZANNE KELLEY
H. DONALD AND MARGIE E. BROWN FAMILY TRUST	THE ESTATE OF DAVID H. KIESLING
ESTHER S. M. CHUI CHAO	R.J. KURTZ
THE COHEN FAMILY TRUST	BONITA LANDSBERG
IVOLOU R. CORSTON	TRISH AND DON LANGE
LAVERNE E. FISCHER	BERT LEVY
JANICE HARVEY FRANK	BARBARA LONG
RON GARRET	LOUIS C. MIRABILE ESTATE
JIM AND GAIL GRAY	KATHIE NIRSCHL
DIANNE B. GUGEL	SUMNER M. REDSTONE CHARITABLE FOUNDATION
DONALD AND CHRISTINE HAFEMAN	MICHAEL RADKE
NANCY HIGGINSON	THE SILVERI FAMILY
WILLIAM W. HOCKE	JEANNE B. SLEEPER
VALERIE AND BOB HOFFMAN	SHELLY STRATTON
CHRISTOPHER HOGAN	MARTHA JANE WORKMAN

Aquarium Board of Directors

Executive Officers

- **Dr. Peter Kareiva**, president and CEO
- **Mr. Anthony T. Brown**, VP of Finance/CFO
- **Ms. Cecile Fisher**, VP of Marketing/Corporate Secretary

Board of Directors

- **Mr. David Cameron**
- **Ms. Esther Chui Chao**
- **Ms. Kathleen Eckert**, chair
- **Mr. Ed Feo**
- **Mr. Bob Foster**
- **Mrs. Charlotte Ginsburg**
- **Ms. Jennifer Hagle**, board secretary
- **Mr. Russell T. Hill**
- **Mr. Josh Jones**
- **Dr. Peter Kareiva**
- **Mr. Samuel King**
- **Ms. Stephanie Leshney**
- **Ms. Chanwantha Sam Limon**
- **Mr. Henry Matson**
- **Mr. John Molina**
- **Dr. J. Mario Molina**
- **Mr. Stephen Olson**
- **Mr. Douglas Otto**, vice chair
- **Mr. Mark Paullin**
- **Mr. Karl Pettijohn**
- **Mr. Kurt Schulzman**
- **Mr. Michael Sondermann**
- **Mr. Donald "Tip" Tippet**
- **Mr. Thomas Turney**
- **Dr. Stephanie Wear**
- **Mr. Stephen Young**

(as of December 31, 2021)
aquariumofpacific.org

More Ways to Make a Difference!

Aquarium of the Pacific



Discounts and Giving at minted.com

You may have heard about AmazonSmile benefiting the Aquarium, but Minted.com also gives back with the purchase of cards, gifts, and more. **Aquarium members receive 20 percent off their order when using promo code FUNDRAISEAQUA, and 15 percent of each order will be donated back to the Aquarium.**



Matching Gifts

Many companies will match donations made by their employees to non-profits like your Aquarium of the Pacific. Gifts from employees' spouses, volunteers, and retirees may also qualify. In 2021 the Aquarium raised roughly \$50,000 thanks to these donations. **To search for your employer and learn more, visit pacific.to/matchinggifts.**



Shopping at Pacific Collections

Shopping at the Aquarium's Pacific Collections is a great way to support our mission. When you make a purchase, you can also round up or add an additional donation. Thanks to the generosity of our members and visitors in 2021, over \$50,000 was raised to support Aquarium animal care, conservation, and education programs.

Aquarium Accolades

These awards were presented to honorees during festivals held this past fall.



Lorene Sisquoc and Aquarium Vice President of Marketing Cecile Fisher.



Aquarium President and CEO Dr. Peter Kareiva and Martin Espino.



Sokhanarith Chan, Master Ho Chan, and Board Director Sam Limon.



Ethan Xing and Education Manager Staci Wong.

Lorene Sisquoc *Heritage Award*

The Aquarium presented Lorene Sisquoc with the Heritage Award at the Moompetam American Indian Festival in September. A descendant of the Mountain Cahuilla and a member of the Fort Sill Apache tribe, Sisquoc is dedicated to the preservation and continuance of American Indian culture and sharing it with younger generations.

Sisquoc is the culture traditions leader and museum curator at Sherman Indian High School, an accredited off-reservation boarding school for American Indian students in Riverside, California, where she has worked and taught since 1982. She is a co-founder of the Mother Earth Clan, a group that offers cultural programs and presentations on California Indian material culture.

As a cultural traditions presenter, Sisquoc shares her knowledge with schools, museums, and groups. She is also a cofounder of the Southern California Indian Basket Weavers Organization, which works to perpetuate the art form.

In 2015 Sisquoc was appointed as the first elder/scholar-in-residence at California State Polytechnic University in Pomona to share her knowledge about American Indian traditions on campus and serve as a resource on American Indian customs and traditions.

Martin Espino *Heritage Award*

The Aquarium presented the Heritage Award to Martin Espino during the Baja Splash Cultural Festival in October. Espino is a musician and teaching artist who for more than fifty years has been engaging community members of all ages, including those with disabilities, to explore music, languages, musical instruments, and cultures from ancient Mexico and beyond. To further cultural preservation, he has also worked with film directors in incorporating his ancestral instruments in movies. He has led interactive performances at the Baja Splash Festival since it started twenty years ago.

In 2020 for the Aquarium's first virtual Baja Splash Festival, Espino presented a free online workshop to engage children and adults at home during the pandemic by teaching them to create a musical instrument using recycled materials and other household items.

Master Ho Chan and Sokhanarith Chan *Heritage Award*

The Aquarium presented the Heritage Award to Master Ho Chan and Sokhanarith Chan at the Southeast Asia Day festival in October.

The Chans have participated in all seventeen years of this festival, presenting Cambodian music, dancing, cultural craftwork, and costume demonstrations and displays. Together, they are dedicated to preserving the cultural traditions of Cambodia, particularly Khmer classical pin peat music and instruments.

Master Ho Chan is a musician, artist, and craftsman. In Long Beach he has been a member of the Art of Apsara and Khmer Arts Academy. He is also a craftsman of shadow puppets and Cambodian angel houses, also known as spirit houses.

Sokhanarith "Narith" Chan has served as a dedicated volunteer behind the scenes, coordinating the dancers and musicians and making the classical Cambodian dance costumes for the groups Master Chan performed with.

The Chans are also volunteers at their Buddhist temple, where they painted a traditional Cambodian mural and help with many community service projects.

SINOUS *Heritage Award*

Founded in 2012, SINOUS Performing Arts Organization's mission is to promote and develop Chinese art and culture in the United States and foster communication and exchange between Chinese and American artists. Through its art education programs, performances and cultural events, and partnerships with academic, cultural, and community organizations, SINOUS serves a diverse audience and bridges intercultural understanding.

The organization's C Dream Program provides summer art education classes in locations across the country. It has trained hundreds of students in Chinese ethnic and folk dance, classical and contemporary dance, Peking Opera and Chinese music. SINOUS also provides annual C Dream Scholarships to encourage students' pursuit of performing arts.

SINOUS' Art Grant supports its members' endeavors in preserving and promoting Chinese art and culture.

During the COVID-19 pandemic, SINOUS launched efforts to help its members connect with each other virtually, stay positive, and combat the isolation of quarantine by posting video messages sending greetings to people around the world. They also ran a campaign to send positive and encouraging messages to kids in Wuhan, China, the pandemic's epicenter.

Finding Homes for Endangered Frogs

We rescued mountain yellow-legged frogs after devastating wildfires. Now we need to find a new suitable habitat for them. What can the public do to help?

OVER ROUGHLY THE PAST TWO DECADES, the partner agencies and organizations involved in the recovery plan for Southern California's endangered mountain yellow-legged frog have worked to breed the species in zoos and aquariums, rescue the frogs from the wild when conditions become unsafe, and release frogs back into the wild when safe habitats are available.

In past years, frogs have been rescued to receive treatment for the chytrid fungal disease that has led to the extinction or decline of about 200 amphibian species. And they were also rescued after the Bobcat Fire swept through local mountains, as detailed in the story on page 6. Since then, the recovery plan partners have diligently continued their efforts to help this species, and releases have happened as safe habitats have been found.

RELEASES

Despite the devastation of the 2020 wildfire season, scientists were later able to identify a remote location in the San Bernardino National Forest where they could safely release frogs. Over the course of the summer in 2021 more than 400 one-year-old frogs bred by the San Diego Zoo Wildlife Alliance were released there.

To prepare the site, the U.S. Forest Service conducted an extensive habitat improvement project. This type of restoration can include closing an area to the public, which allows the vegetation and bodies of water to go undisturbed over a period of months or years. Sites must also be free of predators, including fish that historically were introduced for fishing. There is also competition among various endangered species, who all need protected habitats but may not be compatible with each other.

These factors highlight the importance of national forests and other areas where human activities can be limited for conservation purposes.

HELPING THE SPECIES RECOVER

The mountain yellow-legged frog is an example of an endangered species that is found only in our Southern California mountain ranges and due to a combination of threats, it might have disappeared if not for its addition to the Endangered Species List and a recovery plan to save it.

This species and others like it can inspire us to treat our neighborhood with respect and help protect our local environment. Doing our part to help mountain yellow-legged frogs and other wildlife means thinking more about where our trash goes, what pollutants might be in our local rivers and streams, and what we can do to reduce our carbon footprint to slow climate change.



ROBIN HIGGS

What You Can Do

- ✓ Always stay on marked hiking trails and observe trail closures and other boundaries set by rangers in national forests and other protected areas.
- ✓ Follow the leave no trace principles when you engage in recreation activities outdoors: respect wildlife, dispose of all waste properly, and do not remove any plants, rocks, or other natural materials you find.
- ✓ Support ecosystem restoration projects in the mountains and in areas close to where you live.
- ✓ Do not release pets, including amphibians, fish, reptiles, or any other animals, into the wild. They may bring diseases with them or prey on native plants or animals that are struggling to survive.
- ✓ Avoid touching amphibians like frogs when you find them in the wild. Because they absorb water and oxygen through their skin, it is particularly sensitive to the oils other substances that might be on our hands, like sunscreen or soap residue.
- ✓ Avoid using pesticides that can harm or even kill wildlife when they enter our waterways as runoff. Mountain yellow-legged frog tadpoles can die after exposure to pesticides.
- ✓ Don't use amphibians as bait when fishing, as they can spread disease.

In its ongoing efforts to re-establish a healthy breeding population in the wild, the Oakland Zoo released 33 Sierra Nevada yellow-legged frogs in Sequoia Kings Canyon National Park last summer. This marked the Oakland Zoo's eighteenth release of a total of 626 yellow-legged frogs.

(Source: Oakland Zoo, oaklandzoo.org)

©2022 Aquarium of the Pacific All Rights Reserved
Free for members | \$3.95 for non-members

— ♥ ♥ ♥ —

Give a great gift

Adopt an animal at the
\$100 level or above and
your loved one will receive
an adorable plush animal,
Aquarium tote bag, and
special Valentine's Day card.

aquariumofpacific.org/adopt

