



New England
Aquarium

blue

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Turtle Rescue Season

***New Tagging Technology
for Leatherbacks***

Cool Jobs

Members' Magazine

Volume 53, Number 4, Fall 2020



IN THIS ISSUE

Mission Forward Fund
Help Your Aquarium Thrive 1

Cool Jobs
Bill Murphy 2

Science in Action
Untangling Mystery 4

Animal Care
Rescue Season 6

Member Notes 8

@neaq.org

Our website is full of conservation information, animal facts, and details that will help you plan your next trip to the Aquarium.

On the cover: Sea turtle care at the Animal Care facility in Quincy, MA. Photo: Vanessa Kahn

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Dear Friends,

As we approach the end of 2020, I've been reflecting on what has been a year unlike any other, and thinking how grateful I am for friends and supporters like you. Your membership means so much to us, especially given the financial challenges we face as a result of our 18-week closure and our current ability to operate at only 15% of building capacity. We've had to make difficult and painful cost reductions, but we've also learned our work can go on, just in different ways.



Photo: Webb Chappell

From the President and CEO

Despite this year's trials, your ongoing support has helped us to continue to provide an Aquarium experience—both on-site and virtually—that educates and inspires others to protect our blue planet. You also have helped us carry on our sea turtle rescue efforts to rehabilitate and release endangered and threatened sea turtles, and advance our research to solve challenges facing ocean animals and habitats.

In this issue, you'll read about how we've continued our work during the pandemic. You'll meet our resident cephalopod expert Bill Murphy and his new charge, Tatoosh, a giant Pacific octopus. You'll find out how Connie Merigo, head of our Rescue and Rehabilitation Department, and Dr. Charlie Innis, director of animal health, are approaching sea turtle stranding season amid the COVID-19 restrictions. And, you'll learn about Anderson Cabot Center for Ocean Life Research Scientist Dr. Kara Dodge's work disentangling leatherbacks, and how she is exploring new ways to learn how these endangered turtles fare after being freed. Finally, you'll hear about ways in which you can deepen your support for the Aquarium, such as through planned giving, or by including the Aquarium in your estate plans.

Again, thank you for your continued support and for helping us make it to the other side of this pandemic. I know that together we can make the greatest impact to protect our blue planet.

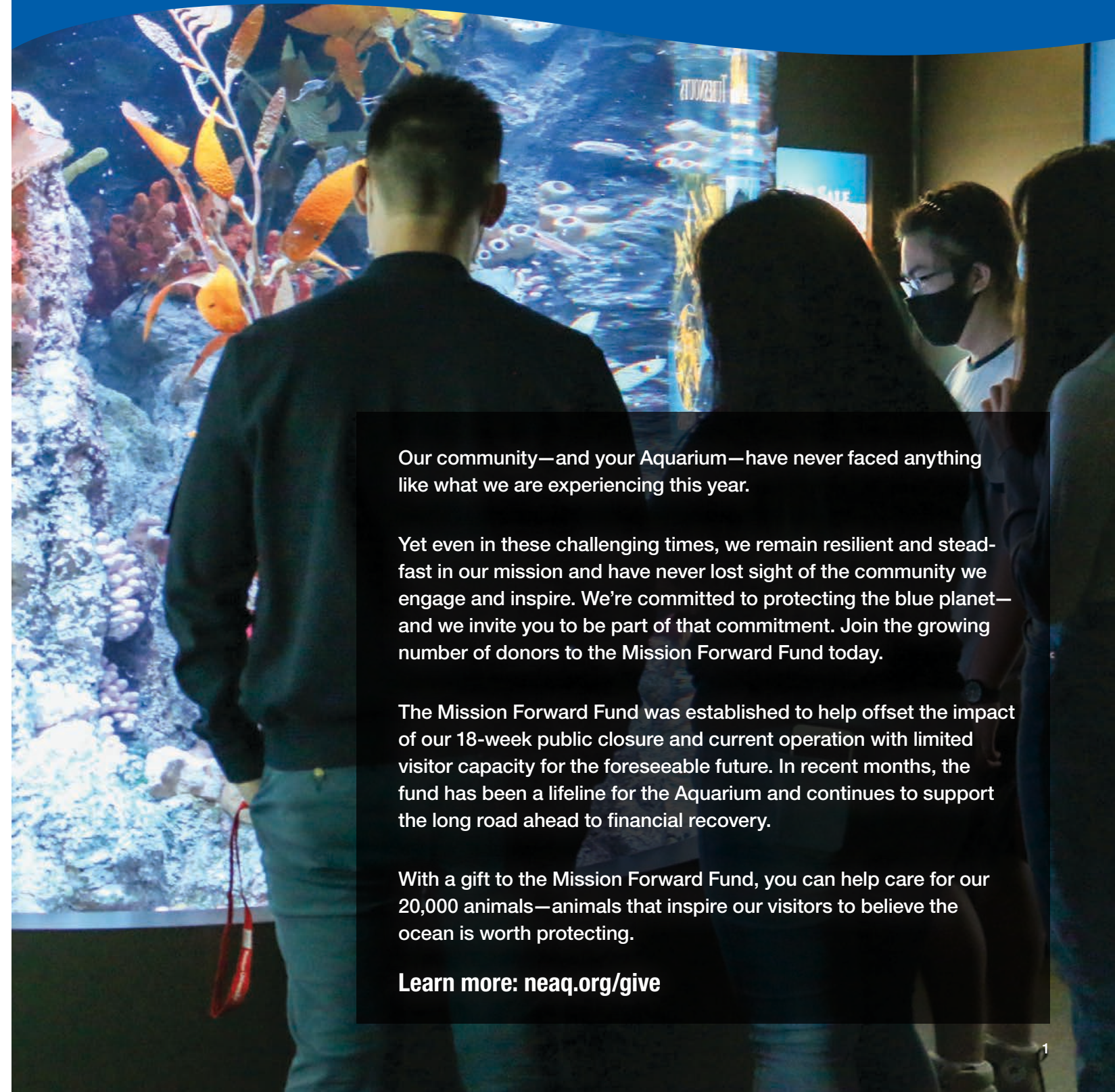
Best,

Vikki N. Spruill
President and CEO, New England Aquarium

MISSION FORWARD FUND

Help Your Aquarium Thrive

Our community is counting on us—and we're counting on our community—to keep pushing forward.



Our community—and your Aquarium—have never faced anything like what we are experiencing this year.

Yet even in these challenging times, we remain resilient and steadfast in our mission and have never lost sight of the community we engage and inspire. We're committed to protecting the blue planet—and we invite you to be part of that commitment. Join the growing number of donors to the Mission Forward Fund today.

The Mission Forward Fund was established to help offset the impact of our 18-week public closure and current operation with limited visitor capacity for the foreseeable future. In recent months, the fund has been a lifeline for the Aquarium and continues to support the long road ahead to financial recovery.

With a gift to the Mission Forward Fund, you can help care for our 20,000 animals—animals that inspire our visitors to believe the ocean is worth protecting.

Learn more: neaq.org/give

Bill Murphy

SENIOR AQUARIST, NORTHERN WATERS GALLERY

Though his love for marine animals dates back to his childhood experiences in Rhode Island, Bill Murphy’s storied career as an aquarist began in an unlikely place. Not long after he finished his marine biology degree, he was working at a restaurant when a team walked in the door to work on the restaurant’s fish tank.

“I thought, I could do that!” he says. “Since I was a kid, I’ve loved the ocean, and I’ve always wanted to be around it and be in it.”

Soon enough, he was volunteering at the New England Aquarium once a week, and in April of 2005, he was hired on fulltime as an aquarist. Fifteen years later, he is the Aquarium’s de facto “cold water guy.” As the Senior Aquarist for the Northern Waters Gallery, he takes care of the stunning animals who hail from the frigid waters off the U.S.’s northeastern and northwestern coasts, from anemones and sea cucumbers to otherworldly chimaeras and wolf eels.

For Bill, a typical day begins with cleaning the windows of the exhibits on the third-floor gallery and checking on all the animals he cares for to make sure they’re healthy and thriving. If any of the animals require medical attention, he works with the Aquarium’s veterinary staff to make sure they receive it. After he cleans the insides of the exhibits and prepares the animals’ food, it’s time to feed them a delicious—but not too heavy—meal.

“Cold water animals generally have a lower metabolism,” he explains, “so they don’t need to eat as much every day as tropical fish do.”



Photos: Vanessa Kahn

Among the animals in Bill’s care are the beloved, beguiling giant Pacific octopuses who have called the Aquarium home over the years. These amazing creatures can change color to blend into their environment and shrink their bodies down from as large as sixteen feet to the width of their beaks. In addition to feeding Tatoosh, the new giant Pacific octopus in the Olympic Coast Sanctuary exhibit, Bill does a lot of enrichment activities with him, using toys such as dog KONGs (sometimes stuffed with hidden food!) and a special plexiglass puzzle box designed by longtime Aquarium volunteer and well-known “octopus whisperer” Wilson Menashi.

“Octopuses have a good mental capacity, so you want to keep them guessing and keep their brains stimulated to support their mental health and well-being,” Bill says. “Giving them different toys on different days and interacting with them keeps their minds active and healthy.”

Bill’s octopus expertise has put him in the public eye more than once. He appears in Sy Montgomery’s best-selling book *The Soul of an Octopus*, about her experiences with octopuses at the Aquarium and in the wild. He has also helped film several episodes of the family-friendly diving TV show Jonathan Bird’s *Blue World*, appearing as “Cameraman Bill” on dives in locations as far-ranging as Abu Dhabi and Oman.



Bill is an avid scuba diver who explores the wrecks off New England’s coast in his free time. Before the necessity of social distancing, he co-led the Aquarium’s dive trips to Eastport, Maine, every summer and fall with Pete Gawne, the Aquarium’s assistant curator of interactive exhibits. During these semiannual trips, NEAq staff don thermally insulated dry suits to descend into the freezing depths along the ocean floor.

“That trip is always a really rewarding time, and it’s great bonding with the staff,” Bill says. “Diving in those waters is a real challenge, but we have a good time with it, and people really seem to enjoy it. We have a really experienced team, so when new people join, they’re always completely safe.”

Murphy is pretty experienced himself: he has been going on the dive trips since he first came to the Aquarium fifteen years ago. What keeps his job interesting after all this time?

“It’s the animals,” he says. “It’s so cool to work with these amazing animals. They make this job incredibly worthwhile.”

—John Shakespear

Meet Tatoosh

Tatoosh, the newest giant Pacific octopus at the Aquarium, comes from the waters off British Columbia. He is named for an island off the coast of Washington that’s home to many marine animals. At around two years old, he weighs about eight pounds, but most giant Pacific octopuses grow to be about 110 pounds!

Before Tatoosh joined the Olympic Coast Sanctuary exhibit on September 8, he spent about a month behind-the-scenes getting to know Bill and the other aquarists and interns who will care for him and spending time with our veterinary staff.

“When new octopuses come to us, we pass them through a quarantine period to ensure they’re healthy and free of parasites before they go on exhibit,” Bill says. Since octopuses can remember humans, this period also lets them get comfortable with the people who’ll be feeding them.

“Moving to a new place can be a lot to take in, but once they get comfortable with us, it’s like, ‘Oh yeah, this guy’s good. He brings me food.’”

Now that Tatoosh has passed his health exams with flying colors, you can come visit him on Level 3! Even if he’s hiding, you can spot him by the white suckers on his arms.



Bill Murphy on a 2010 dive trip in the Bahamas.



A leatherback sea turtle is freed from entanglement and tagged during the summer of 2019. At right: Drs. Kara Dodge and Charlie Innis tag a turtle before release.

Photos: Center for Coastal Studies and Kara Dodge. NMFS Permit #21301.

UNTANGLING MYSTERY

Aquarium scientists use new tagging technology to follow leatherback sea turtles freed from ensnarement.

When Dr. Kara Dodge gets a call about a turtle entanglement, she snaps into go-mode. “You’re single-mindedly focused on getting your gear, getting in the car, and getting there,” says Dodge, a researcher in the Fisheries Science and Emerging Technologies (FSET) group at the New England Aquarium’s Anderson Cabot Center for Ocean Life. “So there’s a bit of a rush,” she adds, “lots of adrenaline.”

Dodge is part of a first-responder network for leatherback sea turtles that get snagged by fishing lines. She races to the scene, working with collaborators at the Center for Coastal Studies to free the turtle before it drowns or starves. Usually, the team succeeds. But what happens after they free a turtle? That remains a

mystery, says Dodge. “We don’t know if these turtles then get re-entangled or if they die from their injuries.”

Dodge’s team is solving that mystery through collaboration and technology. Partnering with the Center for Coastal Studies, they’re exploring new ways to tag and track the endangered leatherbacks, revealing how the animals fare after disentanglement. “It’s really rewarding work,” says Dodge, who hopes the effort can boost leatherbacks’ prospects in the face of entanglement, one of the direst threats the turtles face in the northeast U.S.

Leatherbacks spark a sense of awe in Dodge. “They’re just such a superlative species,” she says. The world’s largest

sea turtles, leatherbacks can grow longer than seven feet and top out over 1,000 pounds. They’re also prolific migrators, crossing oceans and diving up to 4,000 feet below the surface. Dodge says, “Every time I work with one, I get a little chill.”

Dodge has turned her awe into action for her new project, funded by the Massachusetts Environmental Trust, which aims to uncover leatherbacks’ survival prospects after disentanglement. The first step is to learn about their behavior.

Dr. Jeff Kneebone is no stranger to tracking marine animals. More than 100 sharks and tunas roam the ocean with tags attached or implanted by

Kneebone, another FSET researcher. He uses different types of tags to suit various research needs. Acoustic tags ping listening stations—“like an E-ZPass system”—to reveal when an animal passes by. Survivorship tags record thorough accounts of an animal’s activity, then they detach from the animal and float to the surface where they transmit the data via satellite. With a ten-year battery life, acoustic tags tell a long story, whereas the shorter-lived survivorship tags tell a detailed one.

Dodge and the Aquarium’s director of animal health, Dr. Charles Innis, realized these two tag types could provide a trove of information about how leatherbacks fare after entanglement—both whether they survive in the shortterm and where they travel in the longterm. The only problem: neither tag type had ever been deployed on leatherbacks before. That’s where collaboration was key.

Last summer, Kneebone worked with Dodge and Innis to overcome a range of challenges in adapting the new

technology to leatherbacks. For example, they had to ensure the turtles wouldn’t shed the tags prematurely. During leatherbacks’ breeding season, “they’re banging into each other with their shells,” says Innis, “and if they bop the tag off early then we lose it.” Dodge’s team worked with Kneebone to perfect their tag attachment technique, rehearsing on the shell of a dead leatherback. “We did a bunch of practice sessions with different tagging methods to see what would work best,” says Dodge, “and Jeff [Kneebone] was definitely giving us great advice during that whole process.”

Innis adds that the collaboration was a “two-way street.” Kneebone provided turtle tagging tips, while Innis, a veterinarian, advised Kneebone on surgical equipment for his work with fishes. “There’s a lot of back-and-forth of bouncing ideas around,” says Innis. “It’s gone really well.”

So far, Dodge says the tags have done their job. Three of the four turtles they freed in 2019 survived the aftermath of

their entanglement, according to data from the survivorship tags. The fourth died in a subsequent entanglement. Dodge will track the survivors with acoustic tags to learn the long-term impacts of entanglement. She hopes to find them “doing normal turtle things” like migrating toward seasonal feeding and breeding grounds.

Luckily for leatherbacks, 2020 has seen few entanglements. But Dodge stands ready to spring into action if called. She says the tagging data they generate in the coming years will help them better care for entangled leatherbacks. “I don’t see these threats going away anytime soon,” says Dodge, “but we can improve the outcomes for some of these animals.”

—Daniel Ackerman

Rescue Season

Amid Global Pandemic, Sea Turtle Rescue and Rehabilitation Program Gets Underway

Here at the New England Aquarium, fall is synonymous with sea turtle stranding season: when migratory sea turtles, who feed all summer in the warm waters of the Gulf of Maine, Cape Cod Bay, and Nantucket Sound, become stunned by rapidly cooling water temperatures. Once chilled, these cold-blooded reptiles become too weak to swim or forage, causing them to wash ashore with urgent medical conditions, ranging from pneumonia and hypothermia to broken bones and blood disorders.

In response, our Sea Turtle Rescue Program coordinates the care, rehabilitation, and release of hundreds of sick and injured sea turtles, typically from late October through December. The program is no stranger to uncertain conditions, but this year brings an added layer of complexity: the coronavirus pandemic.

“This year what presents a new challenge—but not one that’s insurmountable—is the pandemic conditions,” says Connie Merigo, manager of the Aquarium’s Rescue Department. “We’re working hard on first just figuring out how we are going to manage the [turtle] caseload while keeping all personnel safe,” says Merigo. “Our priority has to be human safety first.”

For the past few months, Merigo and Dr. Charles Innis, director of Animal Health, have been meeting regularly with their colleagues at Mass Audubon’s Wellfleet Bay Wildlife Sanctuary and the National Oceanic and Atmospheric Administration’s (NOAA) Fisheries Service to confirm protocols for the 2020 season. The three organizations have worked together for decades to manage sea turtle stranding events. Their first order



Photo: Vanessa Kahn

of business remains ongoing: to confirm the available network of sea turtle rehab centers in the U.S. This network takes stabilized turtles from our Quincy-based sea turtle hospital to make room for new arrivals; it’s not uncommon to receive up to sixty turtles on a given day. They are also working to identify southern states willing to accept turtles ready for release. To date, North Carolina and South Carolina are the only states to opt out due to COVID-19 restrictions.

“We’ve had to have a lot of conversations with the network to see who might be willing to accept animals from us and to develop contingency plans if we cannot use our usual partners,” says Innis. “A lot of the nonprofit institutions around the country that do this work suffered major

revenue losses all summer long, or all year long for that matter, and may not have the finances available.”

Merigo and Innis are preparing for flexible treatment plans that account for COVID-19 restrictions. Their calculus assumes utilizing confiscation protocols—based on decades of research—that will administer care and treatment to stabilize turtles before moving them along to secondary sea turtle rehab centers (as the Quincy facility reaches capacity due to large numbers of stranded turtles). Organizations like the National Marine Life Center in Bourne, MA, are taking an additional number of turtles this year. Efforts are also underway, with NOAA’s help, to line up weekly air travel with volunteer pilots from Turtles Fly Too to

transport turtles to partner rehab centers and release sites throughout the U.S.

According to Innis, turtles that do remain at the Quincy sea turtle hospital will be grouped by like needs and administered to through the leanest delivery model possible. “One of the things we’re trying to work through,” says Innis, “is to develop a new way of doing things so that individuals in one room, with a whole bunch of turtles, can do everything those turtles need that day.”

Volunteers will also continue to play a major role in the care and rehabilitation of these animals. “One of the key things that have made these responses successful are the volunteers,” Merigo says. “That’s the one thing that gives me a lot of strength, hope, and energy going into this season—even under pandemic conditions—is that we have them.”

And as in past years, they will rely on the Incident Command System, a management tool designed for large-scale disaster events. Merigo credits it with helping the team manage escalating numbers of turtles, as was the case in 2014, when they received over 600 turtles in 14 days!

With stranding season underway, the Aquarium’s sea turtle team remains committed to delivering on its decades-long record of success in managing mass casualty sea turtle stranding events. “We’ve certainly come together to manage massive numbers of animals before,” Merigo says, “and I’m confident we’ll find ways to do it this year.”

—Maria Palomino



Photo: Vanessa Kahn



Photo: Lauren Owens Lambert



GIVE THE GIFT OF THE AQUARIUM

During this season of giving, give a thoughtful gift that will endure—for both your loved ones and the New England Aquarium.

A Gift that Gives Back

When you give a gift in honor or memory of someone you love, you're also supporting our work to protect the blue planet. Your 100% tax-deductible gift will support top-quality animal care and our mission at a time when it has never been more crucial. Make a memorial gift conveniently online by visiting neaq.org/giftofgiving.

Virtual Animal Encounters

Enjoy extraordinary animal experiences from afar! While streaming live from the Aquarium, our aquarists and trainers will take your gift recipient to virtually visit penguins, harbor seals, seal lions, or even the four-story Giant Ocean Tank. Visit neaq.org/encounters to share an adventure to be remembered!

Membership

A gift membership offers an entire year of discovery and exploration. Share your love for the Aquarium with someone special for the holidays or any occasion. Visit neaq.org/giftofdiscovery to give the gift of membership today!

Find even more gift ideas at www.neaq.org/gifts.

The Legacy Society: Protecting Our Blue Planet Through Planned Giving

The Legacy Society recognizes individuals who wish to deepen their commitment to the Aquarium's critical ocean conservation work through their estate plans.

As a member of our Board, a Legacy Society supporter, and a trusts and estates attorney, **Ann Hochberg** is a unique advocate for the Aquarium. Growing up, Ann's passion for marine conservation led to a master's degree in oceanography and time spent as a government regulator working with the New England fishing industry before becoming an attorney. "I want my family and the generations to come to always be able to explore and celebrate our oceans and the marine life they support," says Hochberg. "The important work of conserving and protecting these precious resources will continue beyond my lifetime and planned giving is a great way to support that goal."



The Aquarium has always been a special place for **Leah Chiavacci Shuldiner**. These days, Leah and her husband enjoy sharing the Aquarium with their children. A longtime Aquarium member, Legacy Society supporter, and director of a legacy-giving initiative in central Massachusetts, Leah has designated the Aquarium as a philanthropic priority in her estate plans. "The New England Aquarium has a special place in my family's life, and my legacy gift ensures that we are able to share those experiences with families in the future," says Shuldiner.

Paul Spivack's relationship with the Aquarium circles back to his late wife, **Maureen "Moe" Angelini**, who was a beloved volunteer on our Animal Care team. A pediatric nurse practitioner with an adventurous spirit, Maureen's lifelong passion for ocean conservation and scuba diving led her to become a volunteer diver in our Giant Ocean Tank. Paul and Maureen joined the Legacy Society to support the Aquarium's work relating to climate change and marine habitat preservation. "Maureen was so dedicated to marine life and she was able to express her passion through volunteering at the Aquarium," says Spivack. "It's important to me that she continues to provide a lasting impact for as long as possible."



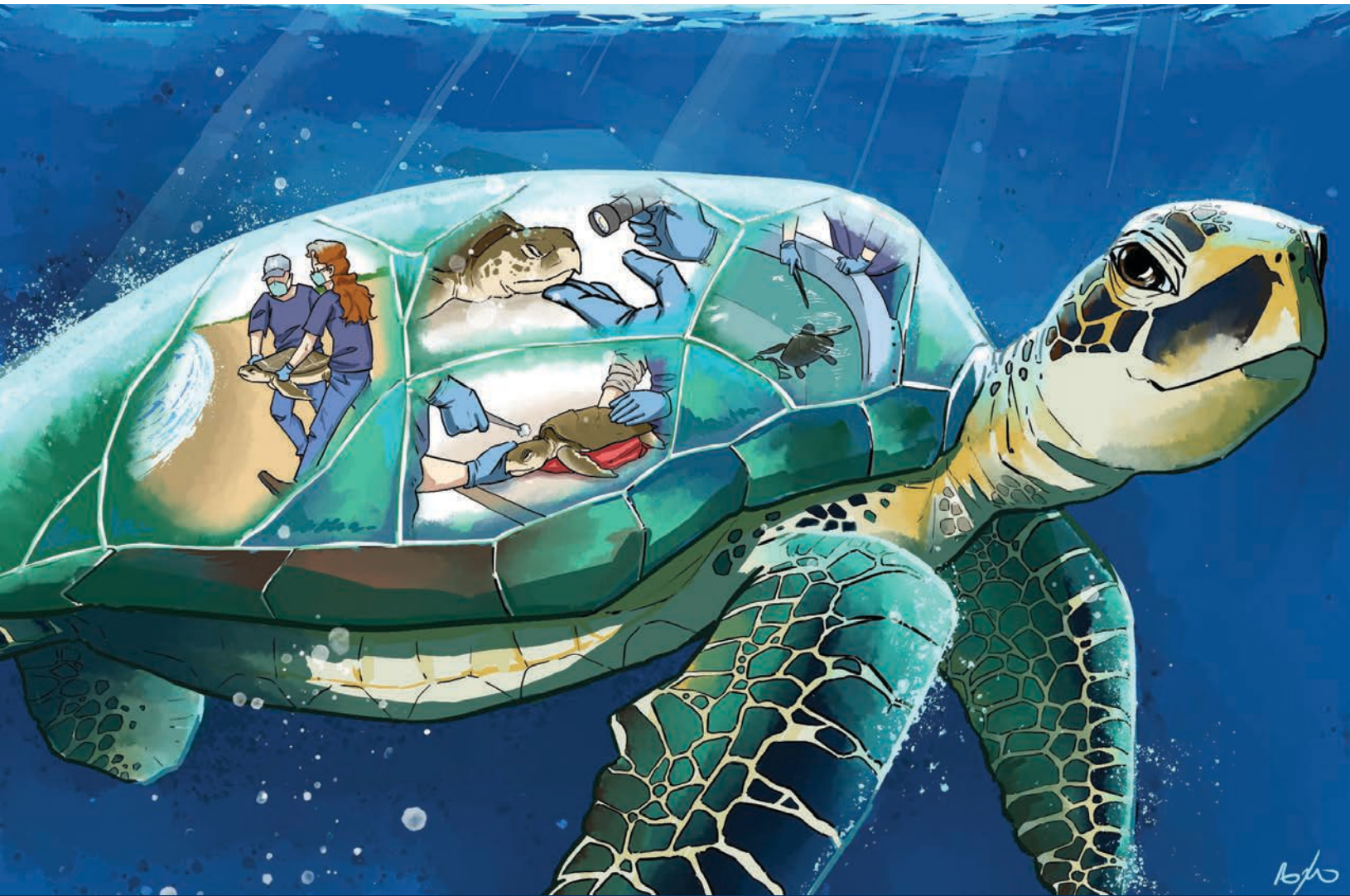
Aquarium President and CEO **Vikki Spruill's** career in ocean conservation has given her a profound understanding of the myriad issues affecting our oceans. Vikki became a Legacy Society member to ensure future conservation and advocacy efforts on behalf of our blue planet. "It was an easy decision and one that aligned with the reasons I chose to work at this beloved, iconic institution," she says. "I want my work to matter today and tomorrow."

If you are interested in becoming a member of our Legacy Society or would like to learn more, please contact Margaret Phan, Giving Officer, at 617-226-2145 or mphan@neaq.org.



**New England
Aquarium**

Central Wharf
Boston, MA 02110-3399



SAVE THE DATE

GIVINGTUESDAY

DECEMBER 1, 2020

Whether you visit us on Central Wharf or virtually, you have a firsthand glimpse into our work to protect endangered and threatened sea turtles. With stranding season upon us, it's a crucial time to power our efforts caring for these inspiring animals and their diverse habitats.

From Myrtle to Munchkin, and every turtle in between, your gift this #GivingTuesday will support the care, rescue, and research we do at the Aquarium.

Illustration: Andy Xu

Learn more: neaq.org/GT2020