ANNUAL REPORT

2020

MOTE MARINE LABORATORY

Mote's 2020 Annual Report presents accomplishments and finances for the 2020 fiscal year, from Oct. 1, 2019 – Sept. 30, 2020.

To read the expanded version of this report, scan this QR code or visit mote.org/2020AR

MOTE'S MISSION

The advancement of marine and environmental sciences leading to new discoveries, revitalization, sustainability and greater public understanding of our oceans through innovative research, education and outreach.

FROM THE CHAIRMAN

What a year! The beginning of 2020 feels like a lifetime ago, but for Mote Trustees, it was thrilling to commence the first year of Mote's brand-new Board-endorsed *Beyond 2020 Vision & Strategic Plan*. What followed were challenges that sought to disrupt these best-laid plans and goals, and our new strategic priority to add infrastructure. However, with skilled leadership and steadfast support of our Mote family—Trustees, staff, donors, members, volunteers and partners—we actually ended the year much stronger.

To address pandemic challenges, much like many others, Mote embraced technology to conduct business, but we also adopted technology to bring the oceans to our communities. We used enhanced online education programming, live virtual experiences, and online conferencing to connect individuals and group audiences with our science. During the temporary closure of Mote Aquarium for public safety, we transformed our campuses with upgrades to our already-stringent health and safety standards in order to meet and exceed unprecedented CDC demands, while simultaneously positioning and strengthening Mote for future crisis response. Aquarium admissions protocols were revised in preparation for re-opening, and portions of the interior ticketing area were relocated outdoors to support social distancing. This then allowed for the construction of new entry and exit galleries that highlight Mote's history, vision for the future, and our present research locations around the globe. Regardless of the cause, this renovation is more functional, and provides striking new additions to the Aquarium. While the nearly three-month closure caused major losses in revenues, no Mote staff were furloughed or laid off during that time—validation of the caring family culture at Mote.

We not only persevered during the past year's challenges; we achieved significant advances. Notably, Mote was honored to establish a partnership with the famed Bud N Mary's Marina in Islamorada to bring the first science-based coral nursery for restoration to this community in the Upper Florida Keys. The new nursery is designed to complement our land-based nursery at Mote's Elizabeth Moore International Center for Coral Reef Research & Restoration on Summerland Key in the Lower Florida Keys. Philanthropy was the cornerstone (once again) for this significant expansion—an important milestone in Mote's science-based efforts to restore our rapidly declining reef.

In July, I had the genuine honor of presiding over a press conference to reveal exciting updates on Mote Aquarium's relocation and rebirth as Mote's new Science Education Aquarium (Mote SEA) at Nathan Benderson Park in Sarasota County. We shared remastered site and building renderings, announced commitments of approximately $75 million towards our *Oceans for All* campaign to create Mote SEA, and promised to break ground for the site work in the fall. I was really proud to host that groundbreaking in November and to put my shovel in the dirt alongside federal, state and local government officials, Mote Trustees, our visionary donor champions, and many community and corporate partners! Once complete, Mote SEA will proudly welcome nearly 700,000 visitors a year, serving as a major tourism and economic driver for the region. It will surely inspire the next generation of marine scientists and ocean enthusiasts with its three state-of-the-art STEM teaching labs for 70,000 K-12 students from Sarasota and Manatee county schools—at no cost to the districts or the children. What fun!

During no other year in our history have we synchronized our various efforts and evolved, refined or expanded so much of our infrastructure in such a short time. We broadened our reach for research operations, adapted and improved education and outreach programming, transformed the Aquarium and facilities at Mote Aquaculture Research Park, acknowledged unbelievable amounts of support and philanthropy, and celebrated great progress with Mote SEA, now well on its way to construction. We proudly ended 2020 with a stronger foundation than ever before. Thanks to the collective efforts of an incredible Mote family, we will count 2020 as a momentous step forward for Mote in its deliberate pursuit of our *Beyond 2020 Vision*.

Persisting through the troubles of the year, my fellow trustees and I have come to truly understand that Mote's collective passion for the ocean is boundless, is driven by unwavering scientists, Aquarium biologists and educators, and that our supporters are surely unparalleled. We are a unique, expanded family of people who appreciate the rare, inclusive culture we share, each lending his own contribution towards Mote's success. As evidenced in these pages, it works beautifully, and I could not be a prouder Chairman!

Dr. Howard Seider
Chairman, Mote Marine Laboratory
Board of Trustees

FROM THE PRESIDENT & CEO

The highest priority for us all during the last year, as we faced a global pandemic together, was for our community to support each other and protect public health. Our entire Mote family of nearly 240 staff, 1,400 volunteers and 9,000 members sincerely thanks the frontline responders to this pandemic for their vital, tireless efforts.

While much of the world came to a halt last year, the strong support of so many did not allow COVID-19 to stop Mote's progress in advancing important ocean conservation initiatives. Mote has some of the best and brightest minds in marine research, ocean conservation and STEM education, and we continue to push the frontiers of science each and every day.

For example: In 2020, Mote's Fisheries Ecology & Enhancement Research Program completed tagging of juvenile snook and maintenance of the antenna array to detect them among four creeks in Sarasota and Charlotte counties, and then we released nearly 10,000 of these healthy, juvenile, hatchery-reared snook—the largest experimental stock enhancement effort at Mote since 1999.

The world's fascination again turned to Mote with our scientific exploration of "Green Banana"—one of the blue holes (underwater caves, springs and sinkholes) stretching deep into the Gulf of Mexico. Green Banana opens 155 feet below the Gulf surface and stretches downward roughly 425 feet. The Gulf has many blue holes, which might play a notable, previously undocumented role in the Gulf's carbon budget and other dynamics. A deep dive in September by Mote scientists to explore and document Green Banana's unique biology, chemistry and structure was a popular feature of many national and international news outlets.

We achieved incredible new progress through the Florida Red Tide Mitigation & Technology Development Initiative, which is led by Mote in partnership with the Florida Fish and Wildlife Conservation Commission. Charged with uniting the best and brightest scientists from around the world and catalyzing game-changing efforts to reduce Florida red tide impacts, the Initiative supported 15 partner institutions and more than 20 projects.

Mote scientists became the first to document that fragments of typically slow-growing, reef-building corals restored with Mote-pioneered technology reached sexual maturity and spawned in their natural settings in just five years instead of decades. These restored coral colonies had also survived a coral bleaching event, a Category 4 hurricane, and the deadly stony coral tissue loss disease, which has killed millions of corals. The corals' resilience underscores the critical importance of Mote's science-based strategy for resilient reef recovery, which includes amassing one of of the world's largest single collections of living coral genetic diversity—over 1,600 coral genotypes from 17 species of Florida coral, with more to come. Mote innovation, largely fueled by philanthropy, has demonstrated that we now have the science, not just the hope, for quickly restoring coral populations to a sexually mature, potentially self-sustaining state, and fundamentally changing the paradigm for coral restoration.

To further Mote's leadership in the development and implementation of innovative research, science education, and public outreach partnerships to address the grand challenges facing our oceans, we launched a strategic expansion of advanced technology research and education infrastructure in 2020. At our Mote Aquaculture Research Park (MAP) in Sarasota County, we took the decisive and proactive steps to construct an International Coral Gene Bank. This infrastructure will serve as a "Noah's Ark" for coral, housing one of the widest arrays of coral genetic diversity on the planet. In addition, we are now close to cutting the ribbon on a newly constructed Florida Red Tide Mitigation & Technology Development Culture Laboratory & Exposure Facility, also housed at MAP.

We also broke ground on Mote's new Science Education Aquarium (Mote SEA) at Nathan Benderson Park. Mote SEA will house more than 100,000 square feet and a million gallons of marine habitat, and its three state-of-the-art STEM education teaching labs will be provided, free of charge, to 70,000 K-12 students in STEM classes from around our region each year. We are excited for the many ways that Mote SEA will transform our region, broaden Mote's ability to enhance the level of ocean literacy throughout society, and employ science for restoration, conservation and sustainable use of marine and coastal ecosystems.

This year, the world was indeed carried into uncharted and stormy waters by a pandemic that challenged us all, in ways few could have expected. Fortunately, the innovative culture and strategic visioning of Mote Marine Laboratory & Aquarium positions us to do some of our best work in uncharted waters—a strength that has defined us throughout our 66-year history. I am honored and humbled to be part of this incredible enterprise, and I am extremely grateful for the dedication, fortitude and passionate support of our diverse Mote family. If that does not already include you, I invite you to join us in our undertaking—O*ceans for All!*

Dr. Michael P. Crosby,
President & CEO

COVID-19 STOPPED NEARLY EVERYTHING...

...BUT THANKS TO YOUR HELP, OUR MISSION REMAINS UNSTOPPABLE.

When the coronavirus pandemic struck the world in early 2020, it stopped nearly everything: Travel. The school year. Our favorite sports. Even our economy.

What it couldn't stop was the mission of Mote Marine Laboratory & Aquarium—where scientists are fighting for the ocean's future and our own.

Mote's caring team could not stop:

- Rescuing and rehabilitating marine animals that would have perished without our help.
- Growing hundreds of thousands of live corals to restore Florida's Coral Reef and investigating a coral disease outbreak threatening this fragile "rainforest of the sea."
- Leading conservation efforts for thousands of sea turtle nests on Florida's shores.
- Producing a wellspring of new data to sustain fisheries and protect vulnerable sharks and rays.
- Providing daily care for nearly 400 animal species in Mote Aquarium.
- Educating people of all ages in our community and around the world—even if we had to do it re-Mote-ly.
- Opening doors into marine science for underrepresented, minority students.

Above: Allison Baird uses a hand-washing and sanitizing station at Mote. Mote Aquarium safely reopened to the public in June 2020, after nearly three months of closure due to the COVID-19 pandemic—a time when Mote significantly upgraded its already stringent health-safety measures.

The list goes on. In each of these efforts, and many more, the Mote family adapted, pressed forward and succeeded this year, thanks to an incredible team of Mote staff, Trustees, volunteers, interns, donors and members.

This annual report, which spans Oct. 1, 2019, through Sept. 30, 2020, describes how the Mote family coped with COVID-19—scientists worked from home during lockdown and social-distanced in the field; Mote Aquarium closed its doors and transformed for a healthy reopening; educators and communicators took their virtual programming to new levels; and animal caregivers took new precautions and continued their life-saving efforts.

But more importantly, this report demonstrates that—with passion, partnership and philanthropy powering our efforts—the pandemic didn't define our year; Mote's mission did.

Above: Mote's mission continued despite the pandemic. Top to bottom: Mote's animal hospital team, Dana Henderson of Mote's Education Department, and Amanda Hodo of Mote Aquarium

KEEP READING TO LEARN WHAT MOTE ACHIEVED THIS YEAR DESPITE COVID-19.

TO READ THE EXPANDED VERSION OF THIS STORY, SCAN THIS QR CODE OR GO ONLINE TO: MOTE.ORG/2020AR

TURNING THE (RED) TIDE WITH A GAME-CHANGING INITIATIVE

As Gulf of Mexico communities recovered from the Florida red tide bloom of 2017-19—and its devastating impacts on our environment, economy and quality of life—Mote Marine Laboratory ramped up a new, unprecedented effort to fight the impacts of Florida red tide with science.

The Florida Red Tide Mitigation & Technology Development Initiative—led by Mote in partnership with the Florida Fish and Wildlife Conservation Commission (FWC)—began uniting the best and brightest scientists focused on reducing Florida red tide impacts when the Initiative was signed into law by Governor Ron DeSantis (379.2273 Florida Statutes) in June 2019. The Florida Legislature made a significant commitment of $18 million over six years for the Initiative to implement the development of red tide mitigation technologies that are both effective and ecologically sound, along with novel systems that support emergency response and implementation of bloom-control strategies to protect public and environmental health.

To date, the Initiative has supported more than 20 projects by Mote and numerous partners from 15 institutions, advancing promising mitigation technologies along a three-tiered testing and deployment approach Mote developed.

Before the Initiative was in full swing, Mote's existing research programs—including its Red Tide Institute supported by the Andrew and Judith Economos Charitable Foundation and Charles & Margery Barancik Foundation—had already begun screening more than 100 compounds in the scientific literature.

Above: Governor DeSantis signs the Initiative into law in 2019.

Above: Mote scientists pioneer new technology to study red tide.

This year, Initiative funding allowed Mote and partners to test promising compounds more extensively, including seaweeds that naturally produce algae-killing compounds, new formulations of clay that can remove *K. brevis* and its toxins from the water, and quaternary ammonium compounds (QUATS) that reduced *K. brevis* cells and toxins in preliminary experiments. The Initiative also allowed testing of new mitigation technologies such as ultraviolet light and nanobubbles designed to physically affect red tide. Initiative projects are also exploring unique and exciting options, such as utilizing spent grain from beer breweries and removing and composting fish killed by red tide to take this natural nutrient source away from *K. brevis* and potentially repurpose it in fertilizer.

Also thanks to Initiative support, Mote and partners are developing better technologies to detect *K. brevis* and its toxins. For instance, Mote is taking early steps toward developing a biosensor that will detect red tide toxins rapidly in commercially important shellfish and seawater, to give shellfish farmers and industry regulators timelier updates on when shellfish harvest areas should or shouldn't close to protect consumers. Successful technologies will improve further. Mote's Programmable Hyperspectral Seawater Scanner (PHYSS) not only detects red tide but also is being upgraded to provide more data on environmental conditions and other species of algae that may influence red tide.

KEEP UP WITH OUR BEST AND BRIGHTEST

Visit **redtidemtdi.org** for Initiative progress summaries, updates and meeting minutes from the Initiative's Technology Advisory Council. The Council is chaired by Mote President & CEO Dr. Michael P. Crosby and comprises members appointed by FWC, the Florida Department of Environmental Protection and the president of the Florida Senate and the speaker of the Florida House of Representatives.

As this annual report went to press, Initiative partners were working closely with Mote scientists and leveraging Mote's laboratory facilities, and Mote had nearly finished creating a new, cutting-edge red tide mitigation and technology development testing facility at the 200-acre Mote Aquaculture Research Park in Sarasota County.

TURN TO OUR "LOOKING AHEAD" SECTION ON PAGE 22 TO LEARN MORE ABOUT MOTE'S NEW, RED TIDE RESEARCH FACILITY.

IMPACTS: 2020 HIGHLIGHTS

TO READ THE STORIES BEHIND THESE STATS, SCAN THE QR CODES OR GO ONLINE TO: MOTE.ORG/2020AR

INNOV ATIVE RESE ARCH

29 DAYS

One of the longest ocean-sensing **MISSIONS COMPLETED BY MOTE'S ROBOTIC GLIDERS**, achieved by "Dora" in 2020.

9.7 MILES

How far airborne Florida red tide toxins can travel inland from shore — a new Mote finding.

13TH NUTRIENT SOURCE for Florida red tide was identified in Mote study but was not the main fuel source for the 2017-19 bloom. BLUE-GREEN ALGAE (*MICROCYSTIS AERUGINOSA*)

FIRST

STUDY INVESTIGATING HOW LONG LIGHTNING WHELKS RETAIN FLORIDA RED TIDE BREVETOXINS.

Mote scientists also documented that sunray venus clams, a newly farmed shellfish species, can temporarily pose risk of neurotoxic shellfish poisoning after being exposed to brevetoxins.

+14,000 WATER SAMPLES

collected and/or analyzed in the five-year Mote-FWC Cooperative Red Tide Research Program that culminated in 2020. Samples allowed the team to **MONITOR RED TIDE AND ENVIRONMENTAL CONDITIONS, INFORM THE PUBLIC AND SUPPORT BLOOM RESPONSE.**

2020–2025

The span of the next Mote-FWC Cooperative Red Tide Research Program launched this year. The program includes priorities such as **ENHANCED ESTUARY SAMPLING** and a **BETTER BEACH CONDITIONS REPORTING SYSTEM.**

RED TIDE + CLIMATE CHANGE

Mote scientists are examining how *Karenia brevis*, the Florida red tide organism, is affected by warmer waters and increased carbon dioxide. The next five years of Mote-FWC cooperative research calls for **MORE CARBONATE CHEMISTRY SAMPLING AT SEA FOR RED TIDE AND CLIMATE STUDIES.**

8 UNIVERSITIES

AND SIX MOTE PROGRAMS studied and addressed climate change impacts on coral reefs using **MOTE'S STATE-OF-THE-ART CLIMATE AND ACIDIFICATION OCEAN SIMULATOR (CAOS)** in the Florida Keys this year. **THE CAOS SYSTEM WAS FILLED TO CAPACITY** in August and September 2020.

FIRST

SCIENTIFIC REVIEW OF ACIDIFICATION IN THE U.S. SOUTHEAST published by Mote scientists and partners for the Southeast Ocean and Coastal Acidification Network (SOCAN). Mote scientists are leaders within SOCAN.

40 BEACHES

monitored by Mote-trained volunteers as of late 2020 through Mote's Beach Conditions Reporting System (BCRS), **A VITAL SOURCE OF PUBLIC INFORMATION ON RED TIDE IMPACTS.**

+5 MILLION

PAGE VIEWS by more than 1 million unique users of Mote's BCRS website (**VISITBEACHES.ORG**) since 2015 — milestone achieved in 2020.

2 real-time Florida red tide detectors **DEPLOYED CONTINUOUSLY FOR MONTHS** in southwest Florida waters.

PROGRAMMABLE HYPERSPECTRAL SEAWATER SCANNER (PHYSS)

15 PARTNERS

Institutions and businesses that have joined Mote and FWC in the **FLORIDA RED TIDE MITIGATION & TECHNOLOGY DEVELOPMENT INITIATIVE.**

+20 PROJECTS

supported by the **RED TIDE INITIATIVE.**

MOTE IS...

FIGHTING RED TIDE IMPACTS WITH SCIENCE

SCAN FOR FULL STORY

20 POSTERS PRESENTED

(or co-presented) at the 10th U.S. Harmful Algal Bloom Symposium.

BLUE-GREEN ALGAE PHOTO BY: KRISTIAN PETERS

MOTE IS...

KEEPING PACE WITH CLIMATE CHANGE

SCAN FOR FULL STORY

BLUE HOLE PHOTOS BY: KRISTIN PATERAKIS

MOTE IS...

TURNING DATA TO VALUE FOR FISHERIES

SCAN FOR FULL STORY

$1 MILLION

in competitive grants secured this year to improve fisheries data with electronic monitoring.

FIRST

USE OF AN UNDERWATER CAMERA in fisheries electronic monitoring.

200

SONAR SURVEYS combined with **AUDIO RECORDINGS** for a better picture of goliath grouper abundance and behavior.

100,000

FISHERIES ELECTRONIC MONITORING RECORDS from cameras and sensors on commercial snapper-grouper vessels in the Gulf.

2,500

Number of black grouper **SOUND SAMPLES** Mote scientists are working to collect to **TEACH ARTIFICIAL INTELLIGENCE (AI)** to process underwater sounds more efficiently.

"GROUPER GUARD"

Mote scientists are helping study grouper as national security sentinels.

FLORIDA ATLANTIC UNIVERSITY STUDY WITH MOTE PARTNERS

FIRST

OF ITS KIND STUDY investigating nutrition strategies to help almaco jack, a seafood fish in aquaculture, produce high-quality eggs & larvae.

SCAN FOR FULL STORY

MOTE IS...

SHAPING THE FUTURE OF SEAFOOD

SEAFOOD FROM CELLS

Mote scientists are developing **CULTURED CELL LINES FROM THREE SEAFOOD SPECIES** (whiteleg shrimp, almaco jack and red drum) to enable the creation of new, sustainable seafood for the future, made by growing cells.

2 PRODUCTS, 1 NUTRIENT SOURCE

Mote launched an expansion to more than **TRIPLE THE FOOTPRINT OF ITS MARINE AQUAPONICS SYSTEM**, which produces both fish and plant products from one nutrient source: fish food. The new **RON AND MARLA WOLF AQUAPONICS CENTER** will allow Mote to demonstrate the economic feasibility of sustainable, marine aquaponics at a scale relevant to commercial farms.

+3 ANTIBODIES

pinpointed by Mote scientists to help them **RECOGNIZE AND LATER ISOLATE CANCER-FIGHTING COMPOUNDS** in a natural mixture produced by sharks' epigonal organs. Once isolated, these compounds can be **ASSESSED FOR THEIR THERAPEUTIC POTENTIAL.**

SCAN FOR FULL STORY

MOTE IS...

INNOVATING FOR OUR HEALTH & THE OCEANS

72 MARINE BACTERIA

found to produce new antibiotic substances that can **INHIBIT ONE OR MORE ANTIBIOTIC-RESTISTANT, DISEASE-CAUSING BACTERIA SPECIES** in Mote's study.

9 MANATEES

That Mote collected or received blood samples from as part of a **STUDY SEEKING BETTER TREATMENTS FOR RED TIDE-POISONED MANATEES.**

SCAN FOR FULL STORY

MOTE IS...

TACKLING DEEP QUESTIONS BY JOINING FORCES

+365 FEET

Depth dived by Mote scientists to **EXPLORE UNIQUE BLUE HOLE ENVIRONMENTS** and study their nutrients, carbon cycles, animals, microscopic algae and overall impacts on the Gulf of Mexico.

23 INTELLECTUAL PROPERTY ITEMS

TO READ THE EXPANDED VERSION OF THIS STORY, SCAN THIS QR CODE OR GO ONLINE TO: MOTE.ORG/2020AR

CORAL RESTORATION: BREAKTHROUGHS & BABIES

In August 2020, years of Mote Marine Laboratory's coral research and restoration coalesced into one special moment: Mote-restored mountainous star corals on the reef released what looked like a burst of pearls. Those "pearls" were something far more valuable: bundles of eggs and sperm ready to combine in the water and turn restored corals into reef-sustaining parents.

This was the first time, anywhere, that massive (mounding) corals were observed spawning after being restored to the reef. Spawning is part of sexual reproduction needed to produce the next generation of coral offspring. It was one of many spectacular successes this year in Mote's scientific restoration efforts focused on saving Florida's Coral Reef from functional extinction.

Florida's Coral Reef—an ecological and economic treasure estimated to be worth $8.5 billion—has lost all but 2% of its living coral cover amid growing pressures such as climate change, pollution, and diseases, particularly the devastating stony coral tissue loss disease (SCTLD).

MOTE'S SPAWNING SUCCESS

At least 10 colonies of Mote-restored mountainous star coral (*Orbicella faveolata*) released their gametes (sperm and eggs) on the reef in August 2020. Mote originally planted these corals in 2015 at Cook Island in the Florida Keys. Since then, the corals have shown great resilience—surviving a global coral bleaching event in 2015, Hurricane Irma in 2017, and the 2019 outbreak at this site of SCTLD, which kills over 90% of infected corals.

Above: A Mote scientist checks a coral for signs of spawning.

Above: Mote-planted corals spawn on the reef.

Colonies of branching staghorn coral (*Acropora cervicornis*), outplanted by Mote in 2016, 2017 and 2018 at Eastern Dry Rocks off Key West, also reached sexual maturity on the reef this year. Survey results indicate that they also produced and released their gametes. Their success demonstrates that staghorn corals can reach this critical milestone within as little as two years, an observation cited only once before. These corals survived Hurricane Irma and other stressors, and now they're thriving.

RESTORATION WORTHY OF CELEBRATION

This year Mote scientists restored their 100,000th coral to Florida's Coral Reef, a critical milestone in our restoration efforts since 2008, which have spanned approximately 100 acres. Most important: Mote is using science to ensure that our restored corals have the best possible chances to survive and reproduce on the reef.

At Mote's Elizabeth Moore International Center for Coral Reef Research & Restoration on Summerland Key, Florida, Mote scientists work to identify, selectively breed, grow and restore genetically diverse, native coral genotypes (genetic varieties) with resilience to environmental stress including warming temperatures, ocean acidification and disease. Altogether, Mote scientists are leading or partnering in more than 30 scientific efforts to support resilient, efficient, lasting coral restoration.

BANKING ON A BRIGHT FUTURE

Mote currently maintains a collection of over 1,600 verified coral genotypes from 17 species, with plans to add about 3,600 more genotypes from three species over the next two years.

When this annual report went to press, Mote had just completed construction of its new International Coral Gene Bank—a "Noah's Ark" to protect living corals and their genetic diversity for future restoration and research. This state-of-the-art, secure, Category 5 hurricane-resistant facility is located inland at Mote Aquaculture Research Park in eastern Sarasota County, Florida, and is designed to store dozens of genotypes from at least 30 coral species in triplicate. Mote's gene bank vision began with a focus on corals endemic to Florida and U.S. jurisdictions of the Caribbean, and it is expanding to include others from around the globe.

TURN TO OUR "LOOKING AHEAD" SECTION ON PAGE 22 TO LEARN MORE ABOUT MOTE'S INTERNATIONAL CORAL GENE BANK.

IMPACTS: 2020 HIGHLIGHTS

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888-345-2335 The new **PHONE NUMBER FOR MOTE'S 24-HOUR, MARINE ANIMAL RESCUE AND RECOVERY HOTLINE** covering Sarasota and Manatee counties in Florida.

546 CALLS ANSWERED BY MOTE'S HOTLINE, including an influx of calls about boat-struck wildlife in Sarasota-Manatee waters early in the year, coinciding with business closures due to COVID-19 and before the typical "summer boating season," June through September.

79 SEA TURTLES, 16 DOLPHINS, 7 MANATEES RESCUED OR RECOVERED BY MOTE THIS YEAR.

3,716 SEA TURTLE NESTS laid in summer 2020 on Mote-monitored beaches from Longboat Key through Venice, Florida (3,636 loggerhead nests, 80 green nests—the **SECOND HIGHEST LOCAL COUNT FOR GREEN SEA TURTLES IN 39 YEARS**).

19 SEA TURTLES TREATED THIS YEAR IN MOTE'S SEA TURTLE REHAB HOSPITAL.

1,400 HATCHLINGS Number of baby sea turtles **TREATED AND RELEASED BY MOTE'S HATCHLING HOSPITAL** during the 2020 nesting season.

348 NESTING SEA TURTLES ID-TAGGED by Mote scientists on Casey Key, Florida in summer 2020.

NEARLY 1,500 SEA TURTLE HATCHLINGS FROM 112 NESTS WERE GENETICALLY SAMPLED by Mote scientists to investigate **HOW MANY DIFFERENT DAD AND MOM TURTLES BREED IN SOUTHWEST FLORIDA**.

39 YEARS OF SEA TURTLE DATA produced by Mote are being mined for trends and insights relevant to conservation.

60 YEARS OLD ESTIMATED AGE OF TURTLE "SALTY," recognized by Mote since 1988. She and two other loggerheads were tracked to the same feeding grounds they visited a decade ago in an FWC and Mote study. She's one of 172 turtles Mote has satellite tagged.

FIRST STUDY EXAMINING HOW A "GEOTUBE" AFFECTS SEA TURTLE NESTING along the Gulf of Mexico. A geotube is a beach armoring structure.
STUDY LED BY MOTE AND FAU SCIENTISTS.

NUMBER OF YEARS THAT MOTE SCIENTISTS HAVE OBSERVED FOUR OF THE 342 INDIVIDUAL MANATEES encountered in their photo-ID surveys this year. **37**

185 MANATEES COUNTED in Sarasota County **BY MOTE'S AERIAL SURVEY** on June 24, 2020. This is the **SECOND YEAR IN A ROW WITH A LOCAL RECORD COUNT**.

A MOTHER MANATEE & CALF SAVED THROUGH A TEAM* RESCUE EFFORT ON MOTHER'S DAY WEEKEND. Pregnant rescued manatee gave birth during rehabilitation. **RESCUERS AND CAREGIVERS RELEASED MOM AND CALF TOGETHER** near Mote's Sarasota campus. RESCUERS: FWC, MOTE, SARASOTA POLICE DEPT. CAREGIVERS: SEAWORLD ORLANDO.

50 YEARS of dolphin science by the Sarasota Dolphin Research Program celebrated this year. The program has **IDENTIFIED AND STUDIED SARASOTA BAY DOLPHINS UP TO AGE 67 FROM UP TO FIVE CONCURRENT GENERATIONS**.
THE SDRP IS A CHICAGO ZOOLOGICAL SOCIETY PROGRAM IN COLLABORATION WITH MOTE

MOTE IS...
SAVING SPECIES: FROM RESCUES TO RESEARCH

SCAN FOR FULL STORY

SCIENCE TO POWER CONSERVATION & SUSTAINABLE USE

1,600 GENOTYPES, 17 SPECIES OF NATIVE CORAL MAINTAINED BY MOTE for research and restoration as of 2020. In two years, Mote aims to **ADD ABOUT 3,600 MORE GENOTYPES** from three species.

"NOAH'S ARK" FOR CORALS Nickname for **MOTE'S NEW, INTERNATIONAL CORAL GENE BANK** designed to preserve coral species and genetic diversity for future research, propagation and restoration.

LARGEST peer-reviewed, multi-year, epidemiological **STUDY ON STONY CORAL TISSUE-LOSS DISEASE** on Florida's Coral Reef led by Mote.

MOTE IS...
BRINGING CORALS BACK FROM THE BRINK

SCAN FOR FULL STORY

FIRST DISCOVERY OF SIMILAR "BACTERIAL SIGNATURES" in corals with stony coral tissue loss disease and nearby water/sediments in a study co-authored by Mote.

50X FASTER Growth in slow-growing coral species achieved by Mote using **"MICROFRAGMENTATION AND FUSION"** method in our coral nursery.

+30 SCIENTIFIC EFFORTS SUPPORTING RESILIENT CORAL RESTORATION are advancing through Mote leadership or partnership.

FIRST SPAWNING OF RESTORED, MASSIVE CORALS ON FLORIDA OR CARIBBEAN REEFS thanks to Mote's restoration efforts. Spawning is a key step in sexual reproduction.

+100,000 CORALS RESTORED TO FLORIDA'S CORAL REEF by Mote as of 2020.

86% SURVIVAL AFTER ONE YEAR in Mote-restored corals as of 2020.

SCAN FOR FULL STORY

1,000X SMALLER THAN A HUMAN HAIR'S WIDTH: The size of nanoplastics that Mote scientists plan to study in a **NEW INITIATIVE EXAMINING HOW THE SMALLEST PLASTIC POLLUTION (NANO- AND MICROPLASTICS) MIGHT AFFECT MARINE ANIMALS** and how to address this challenge.

MOTE IS...
TACKLING A HUGE PROBLEM: TINY PLASTICS

~70-90% OF U.S. WATERWAYS CONTAIN PLASTIC PARTICLES, much from wastewater treatment. That's why Mote's nano- and microplastics research initiative will also **STUDY HOW NANOPLASTICS ARE GENERATED AND HOW BEST TO REMOVE THEM**.

~70 GREAT WHITE SHARKS TAGGED AS OF 2020 thanks to five years of expeditions by Mote, OCEARCH and partners.

HOT MAMAS, COOL DADDIES Higher-temperature sea turtle nests produce more females. Mote and FAU are taking nests' temperatures to check for changes as our climate warms.

299 SHARKS OF 11 SPECIES DOCUMENTED THIS YEAR—Mote continues shark studies that founder Dr. Eugenie Clark began in the 1950s.

FIRST STUDY OF SPOTTED EAGLE RAY DIVING BEHAVIOR co-authored by Mote to inform conservation.

FIRST ULTRASOUNDS OF WHITE SHARK HEARTBEATS in the Northwest Atlantic—likely the first anywhere.
TEAM EFFORT INCLUDING MOTE, OCEARCH

ZERO REEF SHARKS DOCUMENTED AT 20% OF SITES IN GLOBAL SURVEY—study co-authored by Mote scientists in prestigious journal *Nature* geared toward reef-shark recovery.

SCAN FOR FULL STORY

MOTE IS...
ACHIEVING FIN-TASTIC FIRSTS WITH SHARKS, RAYS, FISHERIES

17 FT., 2 IN. Length of "Nukumi," **THE LARGEST GREAT WHITE SHARK TAGGED BY TEAM INCLUDING MOTE,** OCEARCH, in the North Atlantic. Estimated weight: +3,500 pounds.

10,000 SNOOK RELEASED BY MOTE this year for fisheries enhancement science, including one group of **7,975—THE LARGEST NUMBER MOTE HAS EVER PRODUCED FOR A SINGLE RELEASE EXPERIMENT** in more than 20 years.

POSSIBLE NEW SPECIES of manta ray, plus a better picture of devil rays to support conservation, in study co-authored by Mote.

+80 RESEARCHERS FROM +13 COUNTRIES CONVENE AT MOTE FOR SYMPOSIUM on fish ecology and enhancement.

200 MILES The distance some acoustic-tagged, spotted **EAGLE RAYS TRAVELED TO AVOID RED TIDE** in their Sarasota Bay and Charlotte Harbor habitats.

FIRST STUDY TO IDENTIFY LIONFISH PREY BY DNA ALONG WESTERN FLORIDA co-authored by Mote scientists to inform response to this invasive species.

FIRST MAJOR STUDY OF WHERE SPOTTED EAGLE RAYS MIGRATE ALONG FLORIDA'S COASTS.
STUDY BY MOTE AND FAU

165 MARINE ANIMALS TAGGED & MONITORED since 2016 by **SARASOTA COAST ACOUSTIC NETWORK** (SCAN).
MAINTAINED BY MOTE MARINE LABORATORY, SARASOTA DOLPHIN RESEARCH PROGRAM, NEW COLLEGE OF FLORIDA, FLORIDA ATLANTIC UNIVERSITY (FAU) AND LOGGERHEAD INSTRUMENTS

SCAN FOR FULL STORY

MOTE IS...
TACKLING BIG QUESTIONS BY JOINING FORCES

EXXPEDITION Name of the all-female organization that **SAMPLED OCEAN GYRES AROUND THE WORLD FOR MOTE TO ANALYZE PLASTICS AND THE ENVIRONMENTAL CONTAMINANTS THEY CAN CARRY.** Gyres are ocean circulation areas that support and distribute delicate marine life.

53 ACRES Total size of Sarasota's bayfront park, The Bay, where **COMMUNITY LEADERS ARE RELYING ON MOTE TO MONITOR THE OUTCOMES OF ENVIRONMENTAL IMPROVEMENTS.**

TO READ THE EXPANDED VERSION OF THIS STORY, SCAN THIS QR CODE OR GO ONLINE TO: MOTE.ORG/2020AR

THE FUTURE OF MARINE SCIENCE IS DIVERSE, INCLUSIVE

Fifteen bright interns moved closer to fulfilling science careers, and over 40 mentors and allies sharpened their skills, thanks to an innovative program led by Mote Marine Laboratory that works to open doors into marine science for underrepresented minority students.

The Louis Stokes Alliance for Minority Participation (LSAMP): Marine Science Laboratory Alliance Center of Excellence (MarSci-LACE) succeeded in its first year—engaging a stellar group of students and mentors while collecting and analyzing data to help reduce barriers between underrepresented minority communities and marine science disciplines that need their insights.

MarSci-LACE was founded in 2019 through a three-year National Science Foundation (NSF) grant to Mote, the only non-academic institution to receive one of seven LSAMP Center of Excellence awards in the U.S. It is co-funded by the NSF Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (NSF INCLUDES) initiative. Partners include The College of the Florida Keys (CFK), State College of Florida, Manatee-Sarasota (SCF), Smithsonian Marine Science Station, and Perry Institute for Marine Science (PIMS).

THESE STUDENTS BELONG IN SCIENCE

Many scientific fields—particularly marine disciplines requiring bachelor's degrees—have low diversity along racial, ethnic, gender and cultural lines, so they're missing vital perspectives. Many minority scientists struggle to feel at home in the culture of science, which offer few role models of similar backgrounds.

Above: MarSci-LACE intern Giandria Green was hired by Mote.

To address these challenges, the MarSci-LACE team assembled a curriculum and mentor-education program designed to help the incoming interns excel in experiential science based on Mote's model of Research Experiences for Undergraduates. The first MarSci-LACE internship curriculum was informed by peer-reviewed literature, the experiences of Mote staff, and interviews with 47 underrepresented minority scientists. Literature and discussions emphasized that a strong science identity—seeing yourself as a "science person"—is critical for retaining students in STEM fields.

A subset of MarSci-LACE interns were surveyed on this very topic. Surveys showed that these undergraduates identified as "science people" much more strongly after their MarSci-LACE internships, and 100% of them reported positive, comfortable and transformative experiences, with an increased sense of belonging and confidence in doing science.

MarSci-LACE staff are now investigating what went well or needs improvement and how other institutions can replicate this year's success. For starters, the interns participated in an Intern Alliance to discuss challenges and build a community of allies, they joined professional development sessions, and above all, they did amazing science!

NOTE: *This section includes some updates from early 2021 (after Mote's current annual report period), to highlight the incredible outcomes of MarSci-LACE efforts undertaken in 2019–2020.*

For example, MarSci-LACE Intern Giandria Green studied phytoplankton, microscopic marine algae that include Florida red tide algae. She had never participated in an internship before and felt that her first months at Mote were difficult, but with the support of her mentor and other lab members, she became comfortable here. By the end of her summer 2020 internship, she asked to extend it, and Mote staff were grateful to support her stay in MarSci-LACE through fall 2020. Then her interest in marine science blossomed. She switched her major from Computer Science to Biotechnology with a special interest in the cell culture process she learned at Mote. As a result of her internship, Green was hired by Mote's Phytoplankton Ecology Program!

MENTORING THE MENTORS

Mentor training has also been a powerful facet of MarSci-LACE. More than 40 Mote staff members and one PIMS staff member have attended mentor development workshops so far, and many Mote staff remain active in the program's Mentor Alliance. Trainings helped mentors select, set expectations for and engage with their students while honoring diverse communication styles and avoiding bias. The mentors taught students research skills along with career skills essential for success in science and academia. Other staff trained to be allies, recognizing their own privelege and supporting others who have less. According to surveys, about two-thirds of participants gained significantly more confidence in their mentor or ally skills.

WE WANT TO REPLICATE THIS.

In year two of three, Mote and its MarSci-LACE partners at Smithsonian Marine Station at Fort Pierce and the PIMS will address a crucial question: Can the first year of success be reproduced elsewhere? In the meantime, Mote staff are evaluating their multiple data streams, expanding on successful programming and planning out innovative strategies to share best practices with other independent marine research institutions and LSAMP institutions around the U.S.

IMPACTS: 2020 HIGHLIGHTS

TO READ THE STORIES BEHIND THESE STATS, SCAN THE QR CODES OR GO ONLINE TO: MOTE.ORG/2020AR

TRANS LATE & TRANSFER SCIENCE FOR PUBLIC SERVICE

NEARLY 40 BRIEFINGS

FOR LOCAL TO NATIONAL GOVERNMENT DECISION MAKERS and **17 PUBLIC FORUMS** on marine science-related topics this year.

SUPER BOWL LIV

Mote staff presented their **TRAVELING CORAL EXHIBIT, "SANCTUARY REEF,"** at Super Bowl LIV in Miami. They were included in a segment on The Weather Channel that weekend.

MISSION UNSTOPPABLE

CBS program highlighting women in STEM for children and teen viewers. Mote scientists were featured in this program on CBS stations across the country.

MOTE IS...

GIVING THE OCEANS A VOICE

SCAN FOR FULL STORY

NEARLY 3 MONTHS

HOW LONG MOTE AQUARIUM CLOSED TO PROTECT PUBLIC HEALTH DUE TO COVID-19. The closure, and reduced visitor capacity later, led to almost 50% fewer visitors than in typical years, along with 20% fewer memberships and 16% fewer education program participants than last year. With the resulting revenue losses, philanthropic donors and continuing members are more critical than ever to supporting research at Mote, an independent nonprofit.

3 MONTHS

Mote thanked members who continued to support our mission during the Aquarium closure by **EXTENDING THEIR MEMBERSHIPS** three months.

850 MILLION VIEWS

Estimated reach of **242 NEWS STORIES ON MOTE'S PIONEERING EXPEDITIONS TO STUDY MYSTERIOUS BLUE HOLES** in the Gulf of Mexico.

SPOTLESS & SAFE REOPENING

With the Aquarium closed, Mote staff immediately transformed its campus and operations to heighten their already stringent health-safety measures. That included: a full redesign of Mote's lobby; new outdoor ticketing windows; streamlined online ticket sales; new social distancing measures; enhanced sanitation and air flow/filtration; limited visitor capacity with timed tickets; and new mask requirements.

SCAN FOR FULL STORY

MOTE IS...

CONNECTING RE-MOTE-LY DURING COVID-19

1,061

MOTE MASKS WERE SOLD THROUGH MOTE'S GIFT SHOP—at times selling out— in 2020 as our friends near and far sought to protect each other from COVID-19 and show their love of Mote and the oceans.

+300 TEACHERS

and families in the K-12 community **SERVED BY MOTE'S GOOGLE CLASSROOM RESOURCES** during a time of school closures and transitions.

584%

INCREASE IN SOCIAL MEDIA ENGAGEMENT ON MOTE'S PAGES THIS YEAR OVER LAST YEAR— a sign that communities treasured Mote's online education and outreach even more during pandemic lockdowns.

+1,000 RUNNERS

JOINED MOTE'S FIRST ALL-VIRTUAL RUN FOR THE TURTLES, to support Mote's Sea Turtle Conservation & Research Program.

80 MILLION YEARS AGO

How far "back in time" visitors traveled when they entered Mote Aquarium's limited-time exhibit "Savage Ancient Seas."

EXHIBIT SPONSORED LOCALLY BY SARASOTA COUNTY TOURIST DEVELOPMENT TAX

400 MARINE SPECIES

LIVE AT MOTE AQUARIUM, alongside educational and interactive exhibits that provide a window into the world-class science of Mote Marine Laboratory. Mote is accredited by the Association of Zoos & Aquariums (AZA) for top notch animal care, conservation, safety and more.

+$75 MILLION

COMMITTED AND GROUNDBREAKING COMPLETED FOR MOTE SEA (MOTE SCIENCE EDUCATION AQUARIUM), the rebirth of Mote Aquarium planned to open in 2023 at Nathan Benderson Park, a nexus for Sarasota and Manatee counties and southwest Florida. The campaign to create Mote SEA, Oceans for All, aims to raise $130 million.

MOTE IS...

CHAMPIONING EDUCATION, DIVERSITY IN SCIENCE

26,974

EDUCATION PROGRAM PARTICIPANTS SERVED

SCAN FOR FULL STORY

PINNACLE HALL OF FAME AWARD

BESTOWED ON MOTE SEA TREK DIGITAL LEARNING PROGRAM by the Center for Interactive Learning and Collaboration. The award celebrates content providers that have been recognized for for quality programming for more than 10 years

57 INFORMAL EDUCATION PROGRAMS*

INCLUDING ALL-NEW VIRTUAL PROGRAMS, are offered by Mote's Education Department —four more than last year.

NEARLY 200 UNDERGRADUATE INTERNS

WERE HOSTED BY MOTE this year, including 10 in the National Science Foundation-supported Research Experiences for Undergraduates program.

31%

OF THE U.S. POPULATION IS UNDERREPRESENTED MINORITIES, BUT THEY ONLY RECEIVE 20% OF STEM DEGREES AND 12% OF MARINE STEM DEGREES.

15 INTERNS

FROM UNDERREPRESENTED MINORITY BACKGROUNDS AND +40 MENTORS AND ALLIES SUCCEEDED IN YEAR ONE of a Mote-led program that opens doors into marine science for underrepresented minorities—LSAMP MarSci-LACE (Louis Stokes Alliance for Minority Participation, Marine Science Laboratory Alliance Center of Excellence).

100%

OF SURVEYED MARSCI-LACE INTERNS REPORTED AN INCREASED SENSE OF BELONGING AND CONFIDENCE IN DOING SCIENCE after completing their internship at Mote.

1 MARSCI-LACE INTERN

WAS HIRED BY MOTE to help with red tide-related projects.

2/3RDS

OF MARSCI-LACE MENTORS AND ALLIES SAID THEY GAINED CONFIDENCE IN SUPPORTING UNDERREPRESENTED MINORITY STUDENTS OR PEERS.

17 OFF-SITE AQUARIUMS

maintained by Mote: **8 SARASOTA, 3 ISLAMORADA, 6 KEY WEST**

OTTER-LY CURIOUS

MOTE OTTERS "HUCK," "PIPPI" AND "JANE" ARE PART OF A STUDY ON CURIOSITY and the related trait of "behavioral flexibility" (the ability to respond to situations in various ways). Project partners at Mote and New College of Florida are studying these traits in otters to compare with other animals, including humans—a way to learn more about the animals and ourselves.

SCAN FOR FULL STORY

175,706 MOTE AQUARIUM VISITORS

MOTE IS...

NOT JUST ANY AQUARIUM

+200 PEPPERMINT SHRIMP

WERE PRODUCED BY BREEDING IN MOTE'S AQUARIUM CONSERVATION LAB. 112 WERE SENT TO SIX OTHER AZA INSTITUTIONS TO LIVE WITH RESCUED CORALS; the shrimp control pest anemones and protect the corals. Mote and other AZA partners are holding corals rescued from Florida's Coral Reef, to preserve their native genetic diversity and support reef restoration in the wake of a major disease outbreak.

250 NEON GOBIES, 150 FLORIDA STONE CRABS, 6 SHORT-CLAWED SPIDER CRABS also produced by Mote's Aquarium Conservation Lab, which breeds and raises water-dwelling animals for conservation and education.

WINNER

BEST TOURIST ATTRACTION
2020 Readers' Choice Award presented by Sarasota Herald-Tribune to Mote.

WINNER

BEST PLACE TO TAKE THE KIDS 2020 Readers' Choice Award presented by Sarasota Magazine to Mote.

SILVER

BEST ATTRACTION
2020 Best of SRQ Local award presented to Mote.

* SEE PAGE 26 FOR A LIST OF MOTE'S EDUCATION PROGRAMS

SUPPORTING OUR BEST AND BRIGHTEST

Mote is dedicated to attracting and nurturing the best and the brightest minds marine science and technology fields—a key priority in our *Beyond 2020 Vision & Strategic Plan*. Philanthropic support allows Mote to provide the following awards and fellowships to deserving members of its research staff. Below each award is a list of this year's recipients.

MOTE POSTDOCTORAL RESEARCH FELLOWSHIPS

These three-year fellowships provide 100% salary support, research start-up, supplies, equipment and mentorship to postdoctoral scientists conducting outstanding work early in their careers.

NEW IN 2020:

DR. HANNA KOCH received her doctorate in 2016 from the Max Planck Institute for Evolutionary Biology in Germany. She is located full-time at Mote's Elizabeth Moore International Center for Coral Reef Research & Restoration (IC2R3) on Summerland Key, where she is working to build a new research program focused on coral sexual propagation as a significant component in Mote's larger coral restoration initiative. Her primary mentor is Mote Senior Scientist Dr. Erinn Muller.

DR. JAKE LASALA received his doctorate in 2018 from Florida Atlantic University and is located full-time at Mote's City Island, Sarasota, campus. He is working to build a new sea turtle research program focused on how sea turtles utilize habitats and adapt to local and global environmental shifts. His co-mentors are Mote Senior Scientist Dr. Kevan Main and Mote Senior Scientist Emeritus Dr. Ernie Estevez.

DR. AILEEN MALDONADO received her doctorate in 2015 from University of California, Riverside, and is located full-time at Mote's City Island, Sarasota, campus. She is working to build a new ecotoxicology research program focused on impacts of climate change and pollution on marine and estuarine organisms, and her primary mentor is Mote Senior Scientist Dr. Rich Pierce.

PREVIOUS FELLOWSHIP RECIPIENTS WHO CONTINUED FOR ALL OR PART OF 2020:

DR. PHIL GRAVINESE
Fisheries Ecology & Enhancement Program

DR. ROB NOWICKI
Sharks & Rays Conservation Research Program

MOTE SCHOLARLY AND SERVICE AWARDS

These two-year awards provide 25% salary support for conducting scholarly and service activities that further the mission of Mote and are consistent with Mote's *Beyond 2020 Vision*.

NEW AWARDEES IN 2020:

DR. JIM LOCASCIO Manager of the Fisheries Habitat Ecology & Acoustics Program

DR. VINCE LOVKO Manager of the Phytoplankton Ecology Program

DR. KEVAN MAIN Manager of the Marine & Freshwater Aquaculture Research Program and Associate Vice President for Research in the Directorate of Fisheries & Aquaculture

DR. NICOLE RHODY Staff Scientist in the Marine & Freshwater Aquaculture Research Program

DR. TRACY SHERWOOD Staff Scientist in the Environmental Laboratory for Forensics

DR. ANDREA TARNECKI Staff Scientist in the Marine Immunology Program

DR. DANA WETZEL Manager of the Environmental Laboratory for Forensics

PREVIOUS AWARDEES WHO CONTINUED FOR ALL OR PART OF 2020:

DR. NATE BRENNAN Staff Scientist in the Fisheries Ecology & Enhancement Program

DR. TRACY FANARA Manager of the Environmental Health Research Program

DR. EMILY HALL Manager of the Ocean Acidification Research Program and the Chemical & Physical Ecology Program

DR. BOB HUETER Director of Mote's Center for Shark Research and Manager of the Sharks & Rays Conservation Research Program

MOTE EMINENT SCHOLAR AWARDS

These three-year awards provide 50% salary coverage to Mote senior scientists who have great potential to significantly advance a current research initiative or develop a new research initiative consistent with Mote's *Beyond 2020 Vision*, and which will help ensure the long-term prosperity of Mote's overall research enterprise.

NEW AWARDEE IN 2020:

DR. ERINN MULLER, Manager of the Coral Health & Disease Research Program and the Coral Reef Restoration Program

PREVIOUS AWARDEE CONTINUING IN 2020:

DR. CYNTHIA HEIL, Director of the Red Tide Institute at Mote Marine Laboratory

CELEBRATING MOTE LEADERSHIP IN SCIENCE, EDUCATION, COMMUNICATIONS

Mote staff achieve more each year than 100 annual reports could describe. Here are just a few examples of the ways Mote staff were leaders in their local, state, national or international communities this year.

Mote's Assistant Vice President for Education, **ALY BUSSE**, leads multiple Mote efforts to help people from diverse backgrounds, including underrepresented minority students, excel in marine science. This year Sarasota Magazine honored Busse's leadership by presenting her with the Unity Award. Busse was also named Chair of the National Association of Marine Laboratories' new Education Committee—where she will help Mote spearhead improved strategies for educational excellence at marine science nonprofits across the nation.

Mote's MarSci-LACE Project Coordinator, **JASMIN GRAHAM**, works to support underrepresented minorities in marine science in multiple ways. In addition to her leadership roles within MarSci-LACE (a center of excellence at Mote—see pages 14-15), she serves as President & CEO of a separate nonprofit organization, Minorities in Shark Science, and she partnered with Mote colleagues and others to bring **#BlackinMarine ScienceWeek** to Mote's audiences with an empowerment panel event featuring Black marine scientists.

Mote Senior Scientist **DR. EMILY HALL** undertook a new leadership role this year, as Principal Investigator for the Mote-FWC Cooperative Red Tide Research Program. She continued to serve as Director of the Science Working Group for the Southeastern Coastal Acidification Network (SOCAN), which is focused on facilitating research and discussion to address coastal and ocean acidification impacts in the U.S. Southeast.

ROSS JOHNSTON, a Marine Science Virtual Learning Education Specialist at Mote, was a finalist for the Young Professional of the Year Award from the Sarasota Young Professionals Group, a program of the Greater Sarasota Chamber of Commerce.

Mote Public Relations Manager **STEPHANNIE KETTLE** won a Florida Public Relations Association (FPRA) award for developing a media and communications training for Mote staff, and she was appointed to the Board of the Central West Coast Chapter of FPRA.

DR. ERINN MULLER, a Mote Senior Scientist who joined the Lab originally as a Mote Postdoctoral Research Fellow, participated in two U.S. Congressional briefings this year at the Capitol in Washington, D.C. There, she informed federal elected officials about coral reef conservation and restoration. She shared knowledge derived from Mote's key roles in massive efforts to survey and restore Florida's Coral Reefs with the goal of addressing the devastating outbreak of stony coral tissue loss disease.

Mote Staff Scientist **CAROLE NEIDIG** was invited to be a member of the International Council for the Exploration of the Seas (ICES) Technology Integration for Fishery-Dependent Data Working Group (WGTIFD). She gave a presentation on efforts to further fisheries electronic monitoring in the Gulf of Mexico, an effort she is leading through the Center for Fisheries Electronic Monitoring at Mote (CFEMM). She was also invited to represent the Gulf and South Atlantic regions' electronic monitoring programs to members of Congress at the Capitol in Washington, D.C.

Mote Staff Scientist **DR. NICOLE RHODY** continued a vital, international leadership role she began in 2016: Chair of the Student Activities Committee for the World Aquaculture Society, which has members in about 100 countries.

DR. RYAN SCHLOESSER, a former Mote Postdoctoral Research Fellow turned staff scientist, advanced to the role of Fisheries Ecology & Enhancement Program Manager this year, with the mentorship of Mote Senior Scientist and past Program Manager Dr. Ken Leber, who was preparing to retire in the coming fiscal year after decades of successful fisheries science at Mote.

MOTE IS GROWING—AND NOT JUST OUR AQUARIUM

It's been the talk of the town for some time in southwest Florida: Mote Marine Laboratory & Aquarium is expanding. However, many have only seen part of the picture—plans for our exciting Aquarium rebirth—and have yet to discover the vast upwelling of science driving Mote's growth as a global powerhouse of marine research and innovation.

Mote's *Beyond 2020 Vision & Strategic Plan* emphasizes expanding our research infrastructure and helping more collaborators from around the world access it. What does that mean and why does it matter? Let's start with the new Aquarium and then dive into the science beneath.

THE SEA CHANGE HAS BEGUN

This summer, Mote President & CEO Dr. Michael P. Crosby announced that approximately $75 million has been raised for the rebirth of Mote Aquarium as Mote Science Education Aquarium (Mote SEA)—more than half the $130-million goal in Mote's *Oceans for All* campaign to create this iconic, 110,000-square-foot facility. Mote SEA, planned for Nathan Benderson Park, is projected to inspire 700,000 visitors from the Sarasota-Manatee region and around the world each year with incredible displays of marine life, interactive technology and windows into Mote's amazing science. Mote SEA will enhance Florida tourism and economies, create jobs and inspire the next generation of marine scientists with its three state-of-the-art STEM teaching labs offering no-cost programming for Sarasota and Manatee county school districts.

On Nov. 13, 2020, Crosby joined Mote Trustees, donors, and federal, state and local leaders in the groundbreaking ceremony for Mote SEA—the most exciting step yet toward its projected opening in 2023.

Above: Renderings of the envisioned Mote Science Education Aquarium at Nathan Benderson Park.

Above: Renderings of the envisioned evolution of Mote's City Island, Sarasota, campus. Courtesy of Hall Darling Design Studio.

BENEATH THE SEA

The rebirth of Mote Aquarium in a new home will meet a critical need: clearing space for more science—the type of large-scale, multi-partner science and innovation needed to address the grand challenges facing our oceans and communities. That's why Mote is planning to add or renovate 60,000 square feet at its primary research campus on City Island, Sarasota, to create an International Marine Science, Technology & Innovation Park—beginning when the current Aquarium space is freed. This transformation will give Mote scientists, engineers, visiting researchers, and science and technology entrepreneurs from around the globe the expanded, state-of-the-art facilities they need to restore and conserve our oceans, build a "blue economy," and enable both to thrive and benefit our communities for generations.

SCIENCE AND CONSERVATION CANNOT WAIT

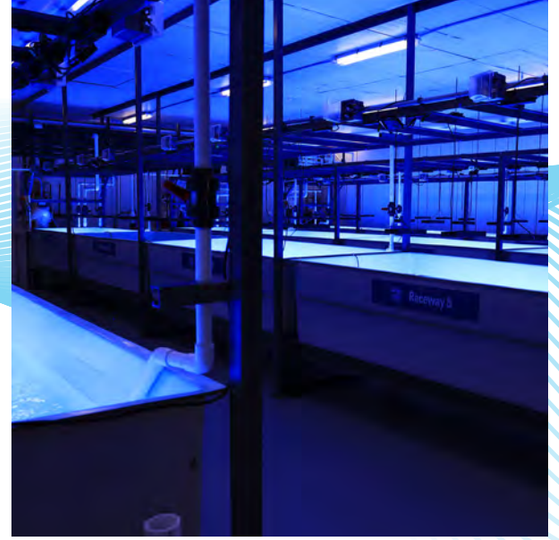
While the two major goals above are prioritized in Mote's *Beyond 2020 Vision*, other exciting expansions are already here, helping to answer the ocean's call now.

AT MOTE AQUACULTURE RESEARCH PARK, INLAND SARASOTA COUNTY

FLORIDA RED TIDE MITIGATION & TECHNOLOGY DEVELOPMENT FACILITY

To fight the impacts of Florida red tide (blooms of *Karenia brevis* algae) effectively while causing no further environmental harm than red tide itself, scientists must test red tide mitigation compounds and technologies in the environment. Long before that, they must test them in the lab and then in large

Above: The culture lab at Mote's new red tide facility at MAP.



Above: Raceways at Mote's new red tide facility at MAP.

"mesocosm" or "raceway" tanks designed to provide a preview of the possible environmental impacts. This year, Mote created a cutting-edge facility to do just that, as part of the Florida Red Tide Mitigation & Technology Development Initiative led by Mote in partnership with the Florida Fish and Wildlife Conservation Commission (FWC). The facility, occupying 28,800 square feet of Mote's existing campus space, can hold almost 150,000 gallons of treated and recirculated seawater. Its six labs include a culture room for growing algae, a chemistry lab, and large systems of long tanks called raceways and 5- or 10-foot mesocosms where scientists can create mini versions of Sarasota Bay, the Gulf of Mexico or other relevant environments by maintaining shellfish, seaweed, sponges, sediments and other ecosystem components that could be sensitive to mitigation efforts. Use of the facility and its unprecedented quantities of *Karenia brevis* culture are free for scientists from around the world whose projects are part of the Initiative.

MOTE'S INTERNATIONAL CORAL GENE BANK

Coral reefs are experiencing unprecedented die-offs worldwide, and it's critical to restore them with resilient and genetically diverse corals that have the best chances to survive and reproduce. However, scientists can only do that if our native corals don't disappear first.

To protect the living treasure of coral genetic diversity, Mote has created a unique, large-scale, land-based, living coral gene bank where dozens of coral genotypes (genetic varieties) of at least 30 species can be stored in triplicate. Mote's International Coral Gene Bank, created during 2020-2021, is housed in Category 5 hurricane-resistant infrastructure and contains four separate life-support systems, so if one system fails, corals supported by other systems will be preserved. In early 2021, Mote scientists began introducing corals into some of the Gene Bank's four systems, which have room for up to 500 mature parent corals or 15,000 small coral fragments. The facility provides precision control of temperature, chemistry, water level, lighting and more, to keep the corals happy and healthy. Mote's Gene Bank will also help produce new coral offspring through its dedicated laboratory for controlled, year-round, coral sexual reproduction—a key step to infuse fresh genetic diversity into the science-based coral reef restoration Mote is spearheading.

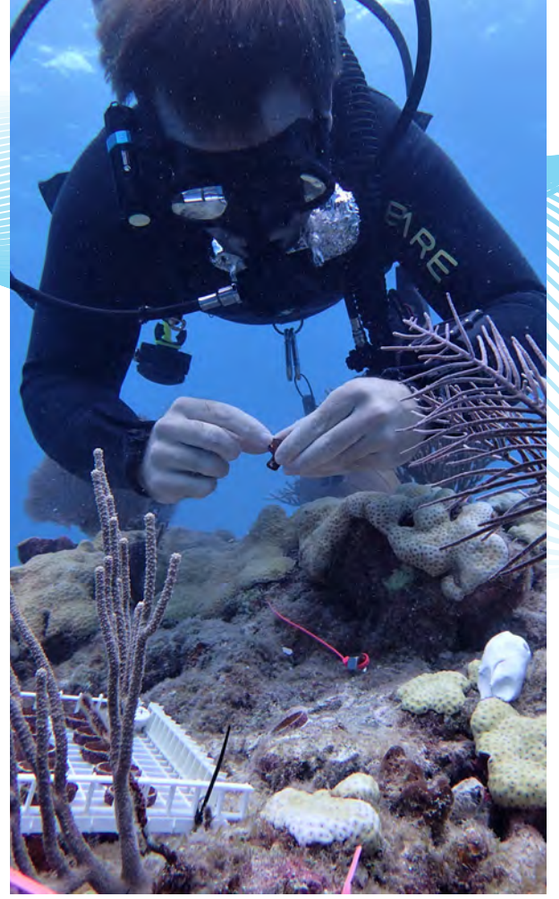
With over 1,600 genotypes, Mote has one of the largest single collections of living coral genetic diversity in existence. Our gene bank vision began with a focus on corals endemic to Florida and U.S. jurisdictions of the Caribbean, and it is now expanding to include coral genetic diversity from reefs around world.

Above: Coral fragments in Mote's International Coral Gene Bank.

IN THE FLORIDA KEYS

POWERING CORAL RESTORATION IN ISLAMORADA

This year, Mote was honored to establish a partnership with the famed Bud n' Mary's Marina to bring the first science-based coral nursery for restoration to Islamorada in the Upper Florida Keys. The facility will fill a critical gap in reef restoration coverage—allowing Mote to target restoration sites at Cheeca Rocks, one of seven reef areas prioritized for concentrated, collective restoration in Mission Iconic Reefs, a partnership overseen by the National Oceanic and Atmospheric Administration that includes Mote and complements Mote's own major restoration strategy. Islamorada Conservation and Restoration Education (I.Care) will work with citizen divers to help outplant and monitor Mote-supplied coral fragments onto Islamorada's reefs.



Above: Mote scientists use a process called microfragmentation-fusion to restore slow-growing corals to mature sizes faster.

WHO WE ARE: 2020 HIGHLIGHTS

261 MOTE STAFF INCLUDING:

36 DOCTORAL-LEVEL STAFF

102 RESEARCH STAFF

59 AQUARIUM STAFF

20 EDUCATION STAFF

24 RESEARCH PROGRAMS

- Benthic Ecology
- Chemical & Physical Ecology
- Coral Health & Disease Research
- Coral Reef Monitoring and Assessment
- Coral Reef Restoration
- Dolphin Research
- Ecotoxicology
- Environmental Health Research
- Environmental Laboratory for Forensics
- Fisheries Ecology & Enhancement
- Fisheries Habitat Ecology & Acoustics
- Harmful Algal Bloom Mitigation & Ecology
- Jane's Refuge: The Hospital for Dolphins & Whales at Mote Marine Laboratory
- Manatee Research
- Marine & Freshwater Aquaculture Research
- Marine Biomedical Research
- Marine Immunology
- Ocean Acidification Research
- Ocean Technology
- Phytoplankton Ecology
- Sea Turtle Conservation & Research
- Sea Turtle Rehabilitation Hospital
- Sharks & Rays Conservation Research
- Stranding Investigations

+$10,746,000
DONATED TO MOTE
this year via **3,359 DONATIONS** from **3,044 GENEROUS DONORS.**

$241,706
RAISED IN JUST 24 HOURS
for Mote's mission by the successful, community-wide, online Giving Challenge—just one of many ways that philanthropy made a critical impact in this challenging time. **THE GIVING CHALLENGE** is hosted by the Community Foundation of Sarasota County, with giving strengthened by The Patterson Foundation.

9,479
MOTE MEMBERS
SUPPORTING MOTE'S MISSION

166
CORPORATE MEMBERS
SUPPORTING MOTE'S MISSION

57 EDUCATION PROGRAMS

Adult learning programs • Behind-the-scenes Aquarium experiences • College internships • Fishing clinics • Florida Master Naturalist Program • High school internships & volunteer programs • Homeschool programs • Kayaking programs • Onsite and virtual programs and events for families • Preschool programs • Research Experiences for Undergraduates • School field trips, outreaches, and classroom kits • School partnerships • Science Cafés • Scout programs • SEA Trek Virtual Learning programs • Special Lecture Series • Special needs programs • Spring Break, Summer Break and Winter Break camps • Teacher Professional Development • Travel programs • Volunteer opportunities • Youth Ocean Conservation Summit • Youth clubs & programs

7 CENTERS OF EXCELLENCE

Alfred Goldstein Institute for Climate Change Studies • Center for Shark Research • Florida Red Tide Mitigation & Technology Development Initiative • Mote Marine Laboratory's International Coral Gene Bank • Louis Stokes Alliance for Minority Participation: Marine Science Laboratory Alliance Center of Excellence • Marine Policy Institute • Red Tide Institute

331,152 SQUARE FEET
Total buildings and structures

66
PEER-REVIEWED PUBLICATIONS, BOOKS AND CHAPTERS

WE ARE MO TE

7 ANNUAL GOALS MET OR SURPASSED
BEYOND 2020 VISION & STRATEGIC PLAN

TO DOWNLOAD MOTE'S FULL STRATEGIC PLAN, SCAN THIS QR CODE OR GO ONLINE TO: MOTE.ORG/BEYOND2020

Mote's *Beyond 2020 Vision & Strategic Plan,* endorsed by our Board of Trustees, charts a course for the success of Mote's mission. Below are the annual strategic goals met or exceeded by our hardworking Mote family this year.

INCREASE THE LEVEL OF FUNDING FROM ALL SOURCES FOR ANNUAL RESEARCH OPERATIONS TO APPROXIMATELY $27 MILLION IN 2030.
FY ACTUAL: $17,611,396 — 2030 GOAL
FISCAL YEAR GOAL: $15,300,000

INCREASE MOTE MARINE FOUNDATION ASSETS TO $50 MILLION BY 2030
FY ACTUAL: $17,576,540 — 2030 GOAL
FISCAL YEAR GOAL: $15,600,000

INCREASE THE TOTAL NUMBER OF INSTITUTIONAL RESEARCH AND/OR COMMERCIAL PARTNERSHIP AGREEMENTS TO 30 BY 2030.
FY ACTUAL: 26 — 2030 GOAL
FISCAL YEAR GOAL: 21

RECRUIT AND ANNUALLY MAINTAIN FOUR CONTINUOUSLY ROTATING THREE-YEAR POSTDOCTORAL RESEARCH FELLOWSHIP POSITIONS WITH FULL SALARY/FRINGE/START-UP COSTS BY 2025.
FY ACTUAL: 4 — 2025 GOAL
FISCAL YEAR GOAL: 3

INCREASE THE NUMBER OF RESEARCH STAFF SCIENTISTS AND SENIOR SCIENTISTS TO RECEIVE 25% SALARY SUPPORT FOR THE PURPOSE OF CONDUCTING SCHOLARLY AND SERVICE ACTIVITIES TO 25 BY 2030.
FY ACTUAL: 11 — 2030 GOAL
FISCAL YEAR GOAL: 11

EXPAND THE TOTAL NUMBER OF MOTE PH.D.-LEVEL RESEARCHERS TO 45 IN 2030.
FY ACTUAL: 36 — 2030 GOAL
FISCAL YEAR GOAL: 36

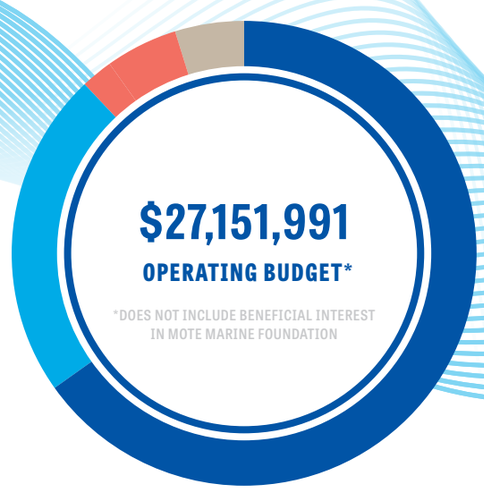
INCREASE THE ANNUAL TOTAL OF MOTE-ORGANIZED PUBLIC FORUMS TO 20 BY 2030.
FY ACTUAL: 17 — 2030 GOAL
FISCAL YEAR GOAL: 11

RESEARCH 65%
$17,611,396

EDUCATION & AQUARIUM 23%
$6,388,322

FACILITIES & ADMINISTRATION 7%
$1,865,086

RESERVES 5%
$1,287,187



WE WOULDN'T BE WHO WE ARE WITHOUT YOU

MOTE VOLUNTEERS

When Mote Aquarium reopened after closing temporarily due to COVID-19, Mote staff took the first shifts on the Aquarium floor to make sure things were running smoothly and safely before volunteer docents returned.

There, staff gained a renewed and heightened level of appreciation for how incredible our volunteers are—interpreting complex exhibits, providing endless smiles and kind words to help guests feel at home, ensuring that kids use two fingers at our touch pools, remembering a dizzying array of science facts, and more. We didn't think we could love our volunteers any more deeply, but after walking in their shoes, we did!

The entire team of Mote staff is thrilled that many of our volunteers have returned safely to their posts—not just on the Aquarium floor but in every aspect of Mote Marine Laboratory & Aquarium. Our hearts go out to all those in high risk populations, whose volunteer roles remain on hold. In addition, we thank those who persisted with us through a truly crazy 2020—from Sea Turtle Patrol volunteers who kept walking the beach to faithful friends who kept in touch Re-Mote-ly.

Our 1,354 volunteers gave an exceptional 61,026 hours of their time to Mote this year—a testament to their resilience and generosity.

That generosity shone brightly during the early days of COVID-19 lockdown, when Mote staff asked if any volunteers in quarantine or high-risk groups needed staff help with grocery deliveries and errands. Instead of asking for help, several volunteers asked how they could sign up to help their fellow volunteers.

TURN TO PAGE 31 TO SEE A LIST OF VOLUNTEERS WHO WERE RECOGNIZED IN 2020 FOR THEIR 2019 SERVICE.

Volunteers have been essential to Mote's 66 years of paradigm-shifting marine science and education, and our 40 years of sharing Mote's mission with all ages through Mote Aquarium. Volunteers will be essential at our planned Mote Science Education Aquarium (Mote SEA) and in our expanding research at our evolving scientific campuses.

The hard work, flexibility, generosity and friendship of Mote volunteers have truly been our rock, this year and every year.

MOTE MEMBERS & DONORS

In a year challenging enough to capsize many organizations, you—our incredible donors and members—have ensured that Mote Marine Laboratory & Aquarium's 66-year mission of marine science, conservation and education remains buoyant.

With Mote Aquarium closed for nearly three months in 2020, we faced immense revenue losses affecting our nonprofit as a whole. Fortunately, thousands of supporters had our backs—3,044 donors gave more than $10.7 million to Mote's mission, while 9,479 members and 166 corporate members provided their own crucial support.

The challenges of the coronavirus pandemic are far from over, and generous people like you will be essential to our success in the months ahead. Just know that Mote's mission is here for the long haul, and our efforts are expanding, because the challenges facing our oceans demand it—and because you, our Mote Change Makers, continue to make it possible.

The world changed so monumentally during our 2019-2020 fiscal year that we can hardly believe it was a single year. In January 2020, many Mote supporters joined us for an incredible Farm to Fillet event at Mote Aquaculture Research Park—one of the last big gatherings before "social distancing" became our mantra. However, it wasn't the last time the Mote family would rally for a great cause this year:

- More than 1,000 people joined our first all-virtual Run for the Turtles, supporting sea turtle conservation and science at Mote, no matter where they were.
- Your giving helped us raise $241,706 for Mote in just 24 hours through the 2020 Giving Challenge, presented by the Community Foundation of Sarasota County with giving strengthened by The Patterson Foundation and generous matching support to Mote from Scott and Tami Charlton and Toma and Rebecca Milbank.
- Our members were the first to return to Mote Aquarium in June, after the temporary closure. Your smiling faces (behind your cool masks) were the most wonderful sights imaginable.
- We loved sharing our world with you virtually, from an award-winning Re-Mote Trivia Night to special behind-the-scenes video tours for our top supporters.
- Donors have pledged more than $75 million for the creation of Mote Science Education Aquarium (Mote SEA). Just after the fiscal year ended, we also celebrated our first corporate sponsors for Mote SEA: Benderson Development, Gold Coast Eagle Distributing, Ajax Paving, Caldwell Trust Company, CBIZ Insurance Services, Tervis, and Florida Power & Light.

With the help of our incredible supporters, this year and every year, Mote's mission remains unstoppable.

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15 YEARS

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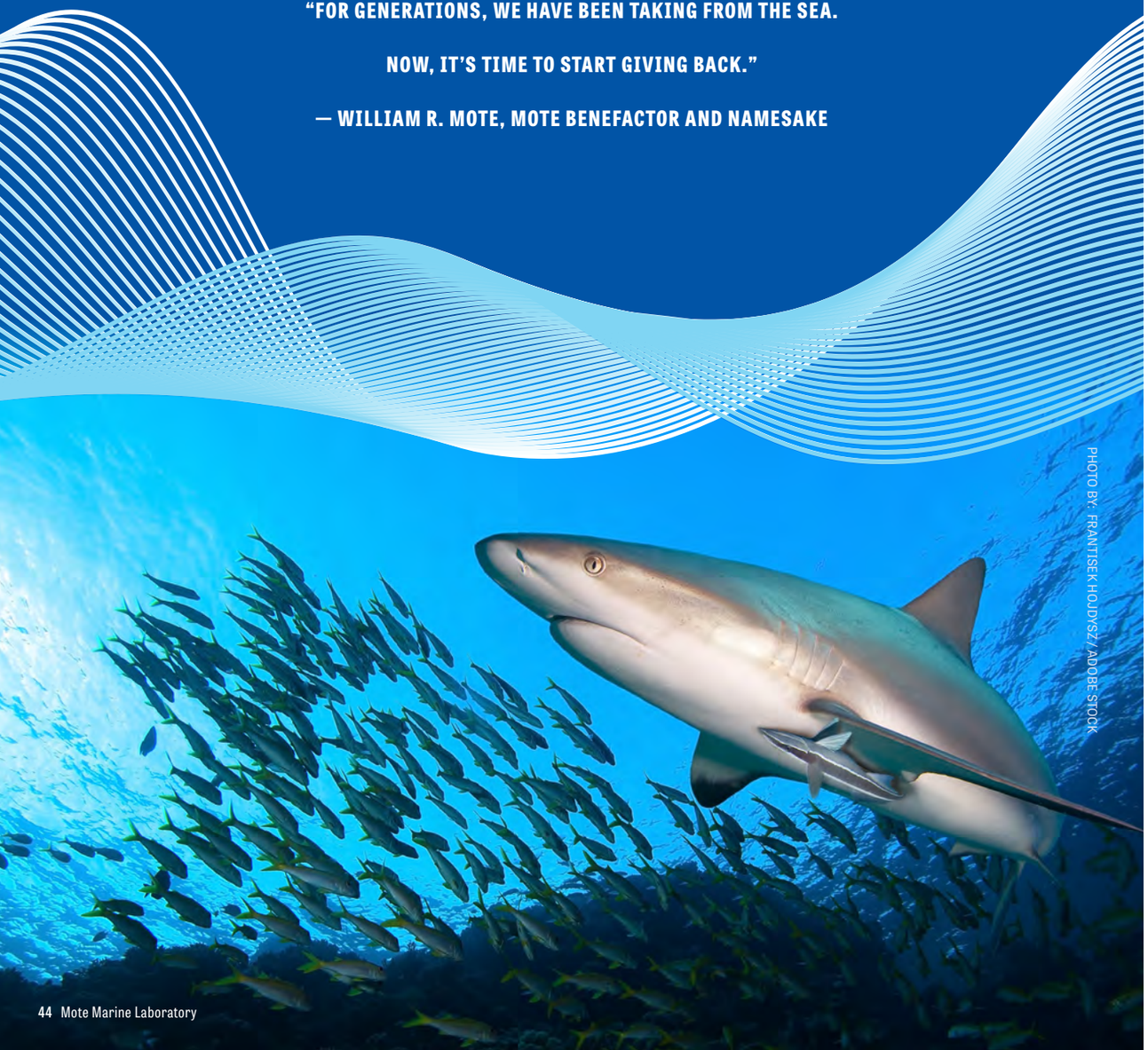
SOME PUBLICATIONS IN THIS LIST ARE REPEATED FROM OUR LAST ANNUAL REPORT DUE TO A CHANGE IN OUR PUBLISHING SCHEDULE FROM CALENDAR YEAR TO FISCAL YEAR.

“FOR GENERATIONS, WE HAVE BEEN TAKING FROM THE SEA.

NOW, IT’S TIME TO START GIVING BACK.”

— WILLIAM R. MOTE, MOTE BENEFACTOR AND NAMESAKE



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