2019

ANNUAL REPORT

MOTE MARINE LABORATORY

Mote's 2019 Annual Report presents accomplishments and finances for the 2019 fiscal year, from Oct. 1, 2018 – Sept. 30, 2019.

MOTE'S MISSION

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

FROM THE CHAIRMAN

It is both thrilling and humbling to step into my role as Chairman as we close out this successful decade guided by Mote Marine Laboratory & Aquarium's 2020 Vision & Strategic Plan and pursue Mote's vision for the next decade, unanimously endorsed by our Board of Trustees and aptly titled "Beyond 2020."

Beyond 2020 we will significantly increase our ability to conduct world-class research in order to expand science-based conservation, sustainable use, and environmental health of marine and coastal biodiversity, habitats and resources.

Envision the change Mote can create when we double down on our funding for annual research operations, expanding from $14 million per year today to roughly $27 million by 2030.

Beyond 2020 we will attract and retain the best and brightest minds in science and technology through focused recruitment and nurturing programs that facilitate a diverse Mote workforce and ensure long-term prosperity of our research enterprise.

Imagine the solutions Mote will discover when we have expanded our total number of Ph.D.-level researchers by more than 25% in the next 10 years, to 45 by 2030.

Beyond 2020 we will translate and transfer science and technology development and research findings as a public service to increase ocean literacy and positively impact human society and the marine environment.

Think about the impact Mote will have when we increase the number of participants served by our structured education programs from 35,000 today to 60,000 by 2030.

Beyond 2020 we will expand research infrastructure and accessibility to support global leadership in addressing grand challenges facing oceans and coastal ecosystems.

Picture the future when Mote will cut the ribbon on a 110,000-square-foot, state-of-the-art Science Education Aquarium and evolve our City Island research campus into a world-class International Marine Science, Technology & Innovation Park by adding or renovating 60,000 square feet by 2030.

Today, however, we proudly look back on a year that closed out an exciting decade for Mote Marine Laboratory & Aquarium. We look back on challenges that expanded Mote's capacity and capability. We look back on successes that continue to define Mote's global impact. We pause for a moment to reflect upon the support of our Mote family and our communities. There are few things more invigorating than visionary partners and philanthropists strategically investing in our work and our science. It is indeed your vision to forever change the future of our oceans that brings us together and drives us forward toward *Oceans for All.*

Howard Seider
Chairman, Mote Marine Laboratory
Board of Trustees

As we embark upon our 65th year of innovative marine research at Mote Marine Laboratory, and our 40th year of science education at Mote Aquarium, it may be difficult for some to comprehend that Mote began in a one-room lab down the coast in Placida. Sixty-five years ago, Mote was founded upon the pillars of Passion, Partnership and Philanthropy—the passion of the first Mote scientist, Dr. Genie Clark, her partnership with local fisherman Beryl Chadwick, and the philanthropy of Anne and William Vanderbilt, who in 1955 built Genie's lab in Cape Haze. Then, a local boy from Tampa who loved fishing, and went on to become an incredibly successful businessman (William R. Mote), decided in 1965 that:

"For generations, we have been taking from the sea. Now, it's time to start giving back."

For 65 years, that's what we've done—and with each decade, we've accomplished more and aimed higher thanks to the diverse and passionate people who comprise our Mote family.

Indeed, our unique family of scientists, educators, staff and volunteers—and our culture of ingenuity and entrepreneurship—give us the power to address grand challenges facing our oceans through efforts as diverse as coral restoration, ocean technology, fisheries enhancement, algal bloom mitigation, immunology and microbiology. As the challenges facing our ocean grew this year, so did the efforts of our incredible family.

When I was a little boy in Key West, my Dad loved snorkeling on coral reefs for lobsters. Back then, the living coral cover on Florida and Caribbean reefs was about 60%. By the early 2000s, just 40 (or so) years later, coral coverage had dropped to an estimated 6%. Florida's Coral Reef is now experiencing a deadly coral disease and its living coral cover has slid to below 5%. Our coral reefs are sliding into functional extinction and can no longer recover on their own. In 2019, Mote scientists led the charge to restore them.

In early 2019, Mote launched its new Florida Keys Coral Disease Response & Restoration Initiative to accelerate science, infrastructure development and reef restoration to understand and address this disease and other major challenges to corals. Mote research has identified over 1,600 specific coral genotypes (genetic varieties) of endemic species, many of which have resiliency to known and predicted stressors such as increasing ocean temperature, ocean acidification and disease. Through our uniquely comprehensive efforts to breed, diversify, propagate, scientifically study and strategically outplant these native corals, Mote can now, as a single organization, do every step essential for resilient coral reef restoration. By the end of 2019, Mote and our partners had outplanted more than 71,000 corals in the Florida Keys. This is a story of hope, and a challenge we can meet with your continued support.

Mote scientists also serve on the frontline of another pivotal battle to against harmful algal blooms. The Red Tide Institute at Mote Marine Laboratory, fueled by the generous philanthropy of The Andrew and Judith Economos Charitable Foundation and the Charles and Margery Barancik Foundation, completed a successful first year in 2019. From that effort, we have identified at least six compounds that can potentially eliminate both cells and toxins of Florida red tide (*Karenia brevis*) and are testing these compounds more extensively.

A devastating Florida red tide bloom along the Gulf Coast ended in 2019. It also energized the State of

CONTINUED ON NEXT PAGE ▸

FROM THE PRESIDENT & CEO

Florida to commit $18 million toward the creation of the Florida Red Tide Mitigation and Technology Development Initiative, which establishes a six-year strategic vehicle for fueling scientific innovation and technology transfer to prevent, mitigate and control red tide impacts to our environment, economy and quality of life. This Initiative, led by Mote in partnership with the Florida Fish and Wildlife Conservation Commission (FWC), is enabling Mote to bring together the best and brightest scientists from Florida and around the world to develop a suite of environmentally responsible tools to address multiple different algal bloom scenarios.

As we fight to save coral reefs and address harmful algal blooms, we also face the sobering reality that our oceans' critical resources—fisheries, biodiversity and habitat—are imperiled. Because of these and many other grand challenges, in 2019 Mote pressed forward in the creation of our Beyond 2020 Vision & Strategic Plan, which reaffirms our long-standing commitment to innovative science, ocean literacy education and public service enabling conservation and sustainable use of our shared marine resources locally and globally.

Beyond 2020, we will establish one of the most unique and impactful ocean science and technology education facilities in the world—the new Mote Science Education Aquarium (Mote SEA) at Nathan Benderson Park—that will enhance ocean literacy for 700,000 visitors each year. Three state-of-the-art STEM teaching labs in Mote SEA will provide nearly 70,000 K-12 students and their teachers hands-on learning experiences absolutely free of charge as part of our service to our communities. I invite you to learn more about this critical effort in the "Looking Ahead" section of this report.

Mote SEA will accelerate our efforts to translate and transfer our marine science as a public service—an effort that was front and center this year. In 2019, Mote was selected by the National Science Foundation as the lead institution for establishing the Louis Stokes Alliance for Minority Participation (LSAMP): Marine Science Laboratory Alliance Center of Excellence (MarSci-LACE)—distinguishing Mote as the first non-academic institution to receive an LSAMP Center of Excellence award. The ultimate goal of MarSci-LACE is to implement a paradigm-changing approach for increasing the number of underrepresented minorities in STEM, especially in marine-related fields with high demands for a skilled workforce.

Beyond 2020, we will also evolve our City Island campus into an International Marine Science, Technology & Innovation Park by adding 60,000 square feet of research infrastructure. Imagine Mote researchers, visiting research partners, and science and technology entrepreneurs from around the world collaborating in this tidal pool of innovation. This will become the catalyst for a "Silicon Valley" of marine science and technology throughout Southwest Florida, where conservation and sustainable use of our oceans will be paired with economic impacts felt well beyond our state.

Just like I believe was the case in 1955, the success of tomorrow's Mote Marine Laboratory & Aquarium is likely beyond what some can fully comprehend today. However, the supporters who power our efforts are visionaries who can, indeed, perceive our path to a brighter future. I ask you to support Mote's work—help us achieve our Beyond 2020 Vision together. Remember: For generations, we have been taking from the sea. Now, it's time to start giving back. The ocean's future is in your hands.

Thank you!

Dr. Michael P. Crosby,
President & CEO

PHOTO BY: CONOR GOULDING / MOTE MARINE LABORATORY

MOTE BY THE NUMBERS

27,000 CORAL FRAGMENTS PLANTED ONTO DAMAGED FLORIDA REEFS FROM JANUARY–DECEMBER 2019

200+ VISITING SCIENTISTS FROM AROUND THE WORLD CONDUCTED RESEARCH AT MOTE'S FLORIDA KEYS LAB

IN THE SPOTLIGHT

Fighting to save coral reefs

Research program icons key: page 9

Coral reefs, our "rainforests of the sea," are fighting for their lives, and Mote scientists are fighting to save them. In the past year, Mote scientists progressed in their tireless effort to **address the unprecedented outbreak of stony coral tissue loss disease** that has spread like wildfire throughout Florida's Coral Reef and certain Caribbean reefs in recent years. Mote's team also charged forward with longstanding and growing efforts to **investigate and respond to climate change impacts—increasing temperature and ocean acidification—that are reshaping and challenging coral reefs worldwide.**

Florida's Coral Reef has lost all but 2% of its living coral in recent decades and is unable to recover and perpetuate itself without assistance. For that reason, **science-based coral reef restoration** has played an increasingly vital role at Mote—a world-leader in restoration science and application—and in team efforts by the broader scientific community.

In early 2019, Mote launched its new **Florida Keys Coral Disease Response & Restoration Initiative** to accelerate science, infrastructure development and reef restoration to understand and address the unprecedented outbreak of stony coral tissue loss disease and other major challenges.

This multi-partner Initiative involves **identifying resilient genetic varieties of coral, preserving native corals in secure gene banks, amplifying coral disease research and boosting science-based reef restoration.** Initiative supporters include philanthropic donors, the State of Florida, and Mote's grant of nearly $1.5 million from the National Coastal Resilience Fund (a partnership of the National Fish and Wildlife Foundation*, the National Oceanic and Atmospheric Administration (NOAA), Shell Oil Company and TransRe).

*The views and conclusions in this document are those of the authors and do not represent the opinions, views, policies or endorsement of the National Fish and Wildlife Foundation.

Research funded by the Environmental Protection Agency (EPA) and conducted by Mote, NOAA and the Florida Fish and Wildlife Conservation Commission (FWC) **investigated the unknown pathogen(s) causing tissue loss disease, finding a unique bacterial signature in sick corals.** It's not yet clear whether that bacterial signature represents the primary pathogen(s) or a secondary response to other, undetected pathogens.

In summer 2019, Mote scientists joined OceanX to assess the health of Florida's Coral Reef in real time, focusing on stony coral tissue loss disease. **This expedition, from Dry Tortugas to Key Biscayne, covered a wider area in a shorter time than any previous survey of Florida's Coral Reef in the context of tissue loss disease.**

Prevalence of stony coral tissue loss disease as of summer 2019.

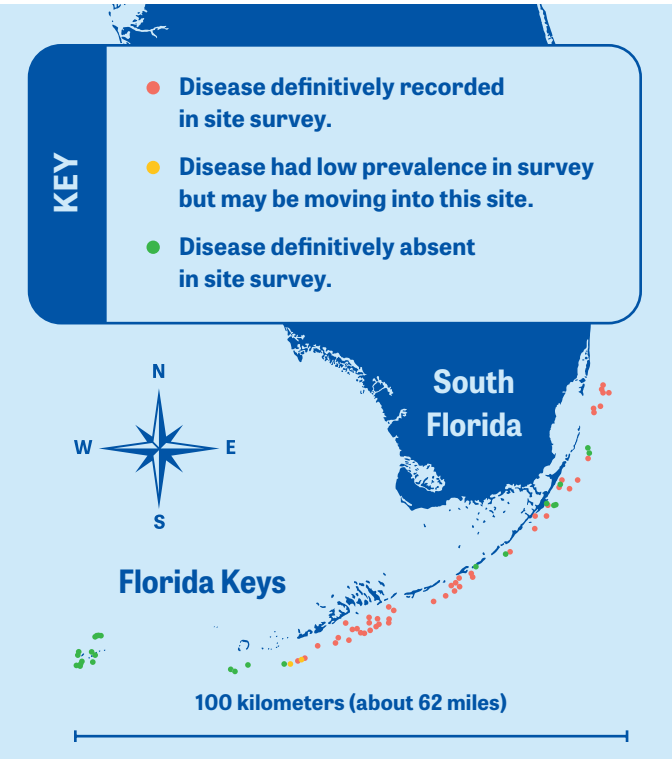
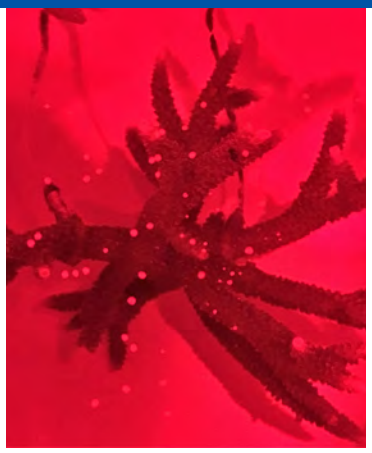


PHOTO BY: CHRISTOPHER SULLIVAN / SCRIPPS INSTITUTE OF OCEANOGRAPHY



Dr. Erinn Muller surveys Florida coral reefs for signs of disease.; Dr. Hanna Koch watches Mote's nursery raised corals spawn.

In July 2019, Mote's **Dr. Erinn Muller received the Presidential Early Career Award for Scientists and Engineers (PECASE)** from the U.S. government—honoring her leadership in coral research and restoration, including her work as a primary scientific responder to the major outbreak of stony coral tissue loss disease affecting Florida's Coral Reef.

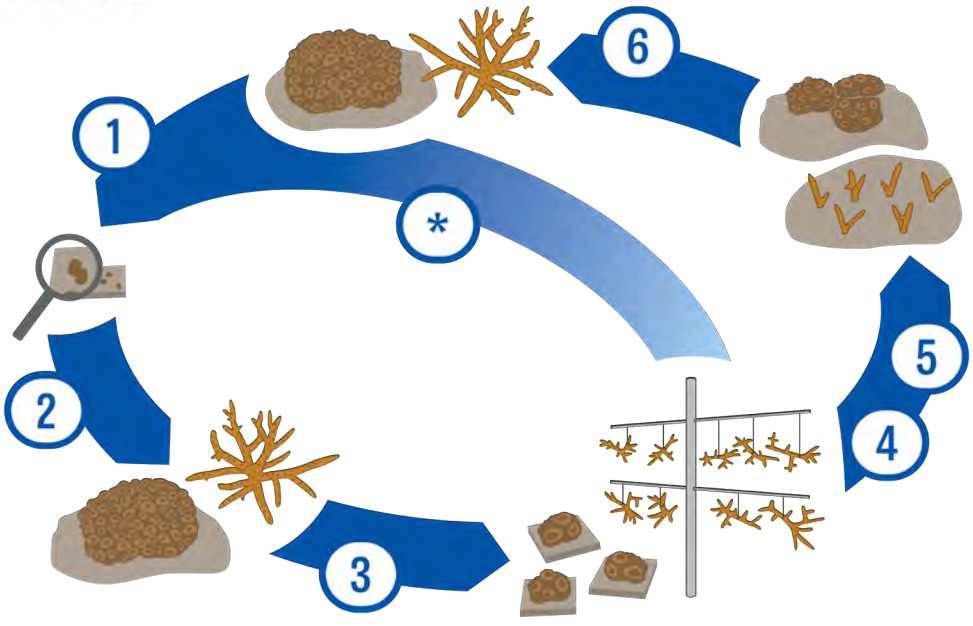
This summer, **Dr. Hanna Koch led coral sexual reproduction efforts using Mote's nursery raised corals** in a controlled setting. This successful effort, which produces genetically diverse coral offspring from well-documented parents, represents **a critical link in the chain of Mote's uniquely comprehensive strategy for science-based coral reef restoration.**

When fiscal year 2019 concluded on Sept. 30, Mote scientists were well on their way to a **major coral restoration milestone.** From January–December 2019, Mote's team **planted nearly 27,000 coral fragments onto damaged Florida reefs,** the Lab's highest annual count ever.

CLOSING THE CORAL REEF RESTORATION LOOP

1. Coral sexual reproduction.
2. Growing corals from microscopic larvae to adult colonies.
3. Producing more colonies through fragmenting corals asexually.
4. Testing coral genetic varieties for resilience to disease, climate change and related stressors.
5. Planting corals onto damaged reefs.
6. Monitoring restored corals to analyze survival and growth, and develop even better restoration methods.

* Conducting managed breeding with nursery-raised corals to produce new, genetically diverse offspring and start the cycle again.



Massive coral | Branching coral | Conducted in the Lab | Conducted in the wild

Alfred Goldstein Institute for Climate Change Studies located at Mote's Elizabeth Moore International Center for Coral Reef Research & Restoration (IC2R3) on Summerland Key.

This year was busy and productive at Mote's Elizabeth Moore International Center for Coral Reef Research & Restoration (IC2R3) on Summerland Key, Florida. IC2R3 hosted 115 groups including Mote scientists, visiting researchers, and education groups. Groups benefited from Mote's state-of-the-art facilities including the **Alfred Goldstein Institute for Climate Change Studies,** along with ready access to Florida's Coral Reef.

In particular, **Mote's Climate and Acidification Ocean Simulator (CAOS) at IC2R3 hosted 35 groups** studying various coral species, sponges, sea urchins, sea slugs, various algae species, lobsters and crabs. During its busiest month, August, the system saw 87% occupancy by eight groups! **Most groups plan to publish their research in peer-reviewed journals**.

This year, Mote scientists **investigated the best methods for growing and restoring threatened staghorn coral in oceans increasingly affected by climate change,** with a research grant funded by sales of the **Protect Our Reefs license plate** (motereefplate.com). The team raised some corals on pucks on the bottom, hung others from PVC "trees" in Mote's

Coral fragments grow on "trees" in Mote's underwater nursery.

nursery and examined their growth and calcification amid ocean acidification (OA) and increased temperature simulated in Mote's CAOS system. At press time the project was ongoing.

This year, **Mote's Dr. Emily Hall took on a new level of leadership in regional efforts to understand and address OA, as Director of the Science Working Group for the Southeastern Coastal Acidification Network (SOCAN).** SOCAN connects scientists, resource managers, industry experts and educators to facilitate research and discussion to address coastal and ocean acidification impacts in the U.S. Southeast.

Mote collaborated with NOAA and College of the Florida Keys to study **potential climate change impacts on the largest known crabs in the Caribbean—the coral-reef-dwelling Caribbean king crabs.** Study results found relatively moderate decreases in survival of young Caribbean king crabs amid increased temperature and OA, suggesting **this species might be resilient to climate change.**

A Caribbean king crab.

PHOTO BY: JOHN ANDERSON / ADOBE STOCK

To read a more extensive summary of Mote's work with coral and climate change, scan this QR code:

PHOTO BY: CONOR GOULDING / MOTE MARINE LABORATORY

RESEARCH DIVISION PROGRAMS

- Benthic Ecology
- Chemical & Physical Ecology
- Coral Health & Disease
- Coral Reef Monitoring & 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 Research
- Phytoplankton Ecology
- Sea Turtle Conservation & Research
- Sea Turtle Rehabilitation Hospital
- Sharks & Rays Conservation Research
- Stranding Investigations

CENTERS OF EXCELLENCE

Alfred Goldstein Institute for Climate Change Studies • Center for Shark Research

Louis Stokes Alliance for Minority Participation: Marine Science Laboratory Alliance Center of Excellence

Marine Policy Institute • Red Tide Institute

MOTE BY THE NUMBERS

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5 CENTERS OF EXCELLENCE

22 INTELLECTUAL PROPERTIES

53 PEER-REVIEWED JOURNAL ARTICLES AND BOOK CHAPTERS BY MOTE-AFFLIATED AUTHORS AND EDITORS

WORLD-CLASS RESEARCH AT MOTE

Battling red tide impacts head-on

From late 2017–early 2019, a massive **Florida red tide bloom killed nearly 600 sea turtles, more than 200 manatees and 204 dolphins, while severely diminishing communities' quality of life** along west Florida.

During and after the bloom, Mote Marine Laboratory and partners achieved **new frontiers in their long-term research to understand and address Florida red tides—elevated concentrations of *Karenia brevis* algae.** New research is building a **"toolbox" of potential compounds and technologies to prevent, mitigate and control bloom impacts** while doing no further harm to marine ecosystems than blooms are causing.

This year, Mote scientists completed a pilot study supported by the Boca Grande community that provided **proof of concept that ozone technology could be used to restore a red tide-impacted, dead-end canal.** That research built upon prior studies launched by Mote's Dr. Rich Pierce, other Mote partners and Solutions to Avoid Red Tide (START), testing if Mote's patented ozone treatment could restore red tide-contaminated seawater back to natural conditions.

On Oct. 1, 2018, Mote's red tide mitigation research team launched a state-funded effort **testing several potential mitigation products** through a tiered approach from laboratory-scale to larger controlled environments (mesocosms) to field applications.

In another project, State of Florida funds helped Woods Hole Oceanographic Institution work with Mote and other partners to test a **potentially wider-scale mitigation technology: kaolinite clay intended to "grab," sink, and destroy red tide algae and toxins.**

Mote scientists take samples of water filtered by Mote's ozonator in Boca Grande.

In 2018, the Andrew and Judith Economos Charitable Foundation provided the founding donation for the new **Red Tide Institute at Mote Marine Laboratory, a dedicated hub of Florida red tide mitigation science.** In January 2019, **Dr. Cynthia Heil joined as Institute Director** with support from the Charles & Margery Barancik Foundation.

Dr. Cynthia Heil, Director of the Red Tide Institute at Mote.

Lab studies by Mote's Red Tide Institute have identified **at least four nontoxic substances** that, when applied to the water's surface, **can reduce Florida red tide brevetoxins entering the air—one of them by 95%.**

Mote's lab studies identified **at least six compounds with potential to eliminate Florida red tide algae and its toxins (brevetoxins)** from water, qualifying them for further testing.

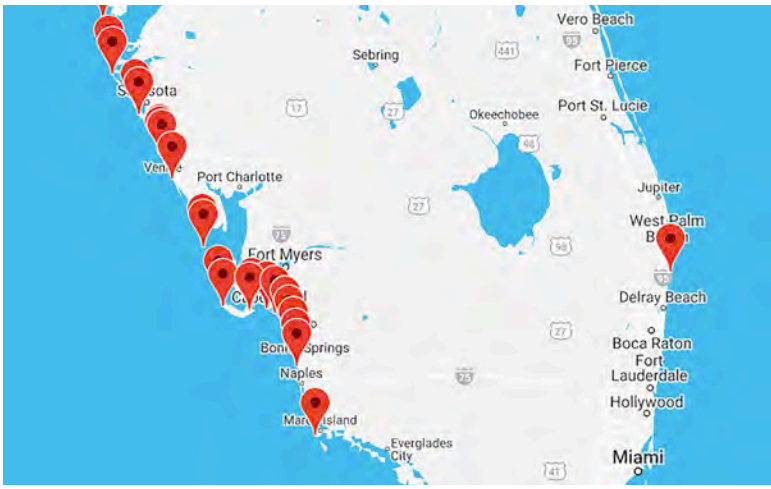
In addition, the State of Florida committed $18 million for a six-year, unprecedented **Florida Red Tide Mitigation and Technology Development Initiative** (redtidemtdi.org) led by Mote in partnership with the FWC. The Initiative brings together the best and brightest scientists to **develop and rigorously test Florida red tide mitigation strategies and related monitoring technologies.**

This year Mote and FWC **monitored Florida red tide and conditions that can influence** it by collecting **502 water samples** between Tampa Bay and San Carlos Bay. Mote completed **1,728 red tide cell counts** on water samples collected by the Florida Department of Health in Sarasota County and by Mote scientists on and along Sarasota Bay.

This year, Mote-FWC monitoring efforts **added carbonate chemistry sampling that will support a better understanding of Florida red tide dynamics amid climate change,** including ocean acidification, driven by excess carbon dioxide.

Mote staff and partners collect water samples to monitor red tide in southwest Florida.

Lake Worth Beach became **Florida's first Atlantic-Coast site to join Mote's Beach Conditions Reporting System** (visitbeaches.org)—an online resource developed on Florida's Gulf Coast that beachgoers can check for red tide impacts and many other conditions.



Mote's Beach Conditions Reporting System now extends to Florida's East coast.

From September 2019–August 2024, Mote is leading a multi-institution study funded by a competitive NOAA ECOHAB grant, **investigating why Florida red tide blooms vary in intensity from year to year and ultimately end.** Partners are examining the roles of multiple physical, biological and chemical factors in bloom dynamics including **termination, the least understood stage.**

Mote and Florida International University progressed in their second year of a three-year **research effort geared towards the ultimate goal of improving veterinary care for red tide-affected manatees.** The scientists are investigating whether certain antioxidants can reverse or minimize some effects of red tide toxins on manatee immune-system cells, and are **starting to demonstrate positive results in laboratory studies on manatee and human cell lines.**

To read a more extensive summary of Mote's work with red tide, scan this QR code:

Sustaining fisheries that sustain livelihoods

Fisheries are taking hard hits: **Florida red tide** mortalities, **climate change impacts** on some species, **overfishing** of approximately one-third of fisheries worldwide—and more. Losses of sportfish affect economies, while growing supply gaps in food fish—often the lowest-cost animal protein worldwide—disproportionately affect the poor. This year, **Mote helped surmount these challenges with science and technology that kindle optimism for the future of fisheries.**

In late 2018, **Mote partnered with Coastal Conservation Association of Florida (CCA) and FWC to help the sportfish common snook rebound from Florida red tide impacts,** inviting anglers and businesses to **"Adopt-a-Snook"** by donating to scientific fisheries enhancement. This program **enabled Mote to release 5,169 hatchery-raised snook** into upstream habitats that would contribute to areas hit hard by red tide.

Mote is leading responsible, fish-stock enhancement efforts on the other side of the world too. In December 2018, Mote led a training course and planning workshop in Aqaba, Jordan, for the USAID-MidEast Regional Cooperative project **"Stock Enhancement and Production of Grey Mullet Fry—a Sustainable Choice."** The workshop included biologists and students from **project partner countries: Israel, Morocco, Tunisia, Algeria, Egypt and Jordan.**

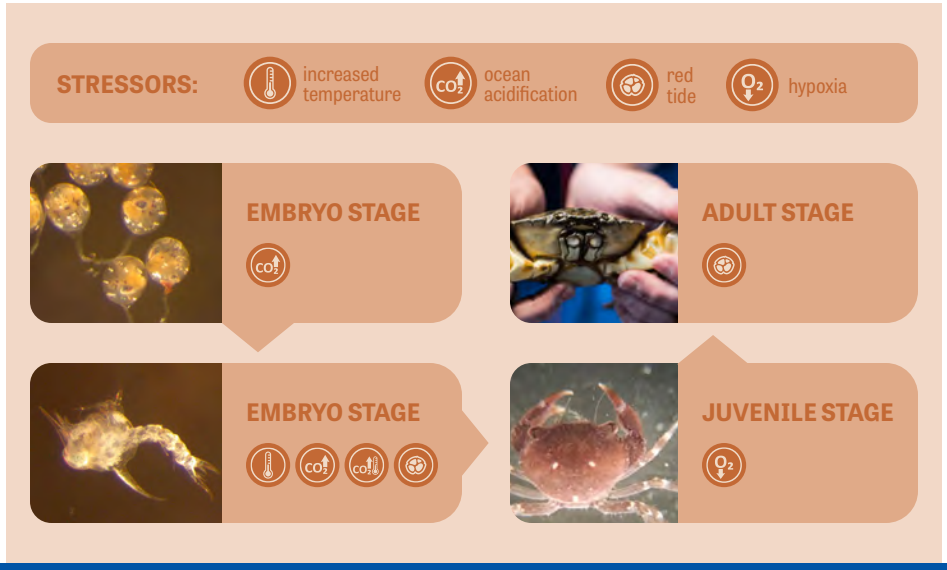
Mote scientists published a peer-reviewed, laboratory study demonstrating that **high and medium concentrations of Florida red tide caused 100% and 30% mortality in stone crab larvae, respectively**—illuminating one of several stressors affecting this declining fishery.

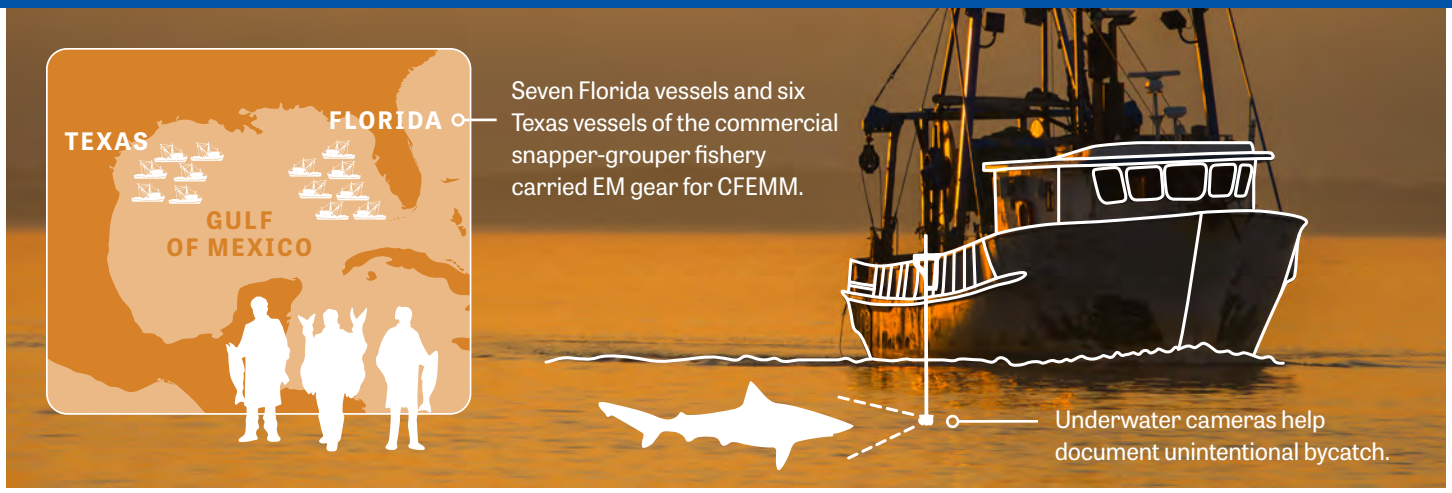
In 2019 Mote also launched a project **examining which coastal habitats might help stone crabs survive another stressor—intensifying ocean acidification** (OA: decreased water pH occurring with climate change)—with a new, competitive grant from Tampa Bay Environmental Restoration Fund.

Mote's research from the past three years has coalesced into an intriguing picture of multiple stone crab stressors, including climate change (OA and increased temperature), coastal acidification from organic runoff, low oxygen (hypoxia) and red tide.

Mote scientists release juvenile snook into Philippi Creek.

Stone crabs face stressors at each stage of the life cycle.





Mote scientists are improving electronic monitoring (EM) of fisheries in the Gulf by working with participating vessels and using innovative technology like underwater cameras.

This year, **the new Center for Fisheries Electronic Monitoring at Mote (CFEMM)** formalized Mote's efforts to improve monitoring of the **Gulf of Mexico's commercial, snapper-grouper fishery.** Improved monitoring is vital for sustainably managing seafood resources, and in turn, supporting fisher livelihoods. This year, **fishing-vessel participation in CFEMM nearly doubled, Mote documented caught and discarded fish with 99% accuracy** by reviewing EM video confidentially, and **CFEMM tested innovative underwater cameras for documenting unintentionally caught sharks (bycatch)**—a challenge for fisheries and shark conservation.

Mote's Dr. Kevan Main was appointed to the Technical Advisory Group of the Aquaculture Stewardship Council (ASC). ASC manages the world's leading certification and labeling program for responsible aquaculture (farming animals and plants in water).

Main leads research efforts to increase much-needed supplies of safe, sustainable, U.S.-farmed seafood. Today, approximately 91% of seafood consumed in the U.S. is imported.

In 2019 Mote scientists **published the first peer-reviewed study highlighting the benefit of adding two probiotic strains of *Bacillus* bacteria during the rearing of common snook in aquaculture.** Snook larvae that received the probiotic in their feed and aquatic environment had 2.5 times higher survival rates than those that did not.

In 2019, Mote research supported by Gulf Coast Community Foundation revealed that seafood farmers can raise fish successfully on a diet made with leftover, wild-caught mullet: **a discovery that can improve sustainable seafood farming and add value to a major Florida fishery.**

Mote advanced hatchery technology to produce the Gulf of Mexico's native almaco jack sustainably in land-based recirculating systems. Mote's independent research, funded by Sea Grant and Gulf States Marine Fisheries Commission, will ultimately produce juvenile almaco jack through land-based aquaculture for a private company's pilot test of offshore aquaculture in the species' native range.

A Mote scientist performs probiotic trials with snook larvae.

To read a more extensive summary of Mote's work with fisheries and aquaculture, scan this QR code:

Dedicating our lives to wildlife

Sharks, marine mammals and sea turtles are vital to ecosystems and cultures worldwide. **Their future is linked to our own, and their protection must be guided by the best-available science.** This year Mote reported **long-term milestones and improved methods** for science to support conservation.

This year, **Mote's shark scientists co-authored a study in the prestigious journal *Nature* revealing that major high-seas fishing activities overlap significantly with important shark hotspots worldwide.** The study spotlighted accelerating shark population declines and disappearance of their hotspots, along with opportunities for more sustainable management of fisheries and shark populations internationally.

In 2019 Mote helped establish the Pelagic Ecosystem Research Consortium (PERC) focused on highly migratory sharks, tunas and swordfish. PERC—led by the University of Maine and supported by NOAA Sea Grant—works to improve stock assessment, management and sustainability of these economically and ecologically important fishes in the Atlantic Ocean and Gulf of Mexico.

This year Mote scientists **investigated the impact of cold air on manatee thermal biology, working with Mote's resident manatees.** In the wild, cold stress is one of the major threats to Florida manatees, and so far, it has been mainly associated with cold water. **Knowledge of the impact of air temperature on manatee health will improve manatee rehabilitation and help with mitigating cold-related manatee mortality in winter.**

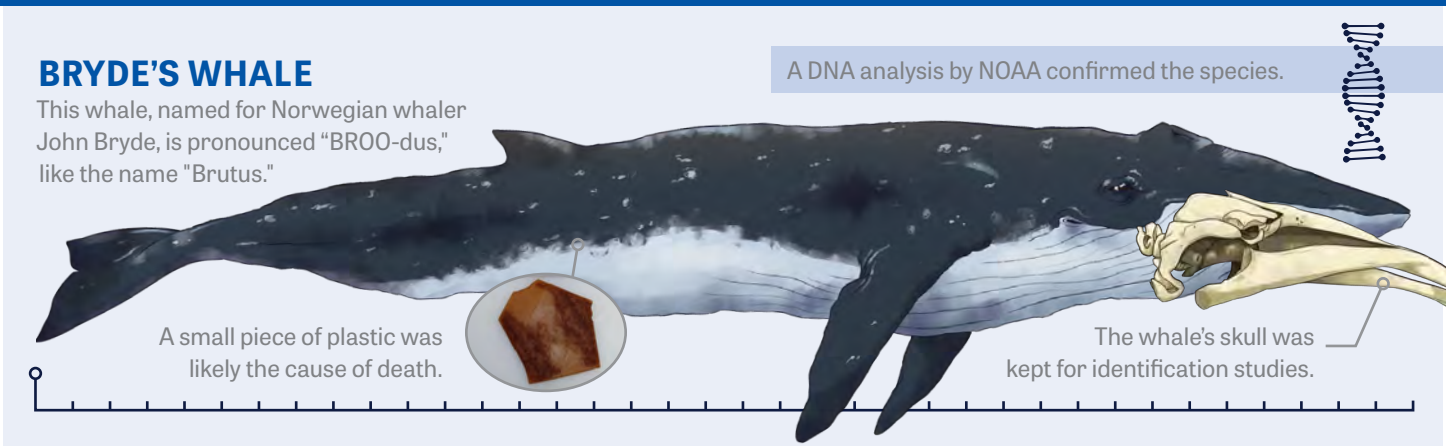
Mote research is also revealing that **manatees' nostril temperature, assessed by thermal imaging (infrared thermography), may serve as a non-invasive, contact-free method to measure manatees' body temperature.** A reliable, non-invasive method to measure body temperature in a manatee is currently lacking and direly needed in manatee diagnosis and health assessment.

Mote scientists are studying new ways to conduct non-invasive, contact-free temperature measurements on manatees.

In October 2018, Mote began manatee photo-ID and temperature monitoring within a **study investigating how manatees respond to temporary disruption of a warm-water source** during the modernization of FPL's Lauderdale Plant in Dania Beach, Florida. During the first monitoring season, over **400 individual manatees**

Manatees access the warm water new a power plant.

PHOTO BY: USGS



Mote's Stranding Investigations Program assists in the necropsy, or animal autopsy, of an extremely rare and enormous Gulf of Mexico Bryde's whale found deceased in Everglades National Park, near Flamingo, Florida.

were photo-identified at warm-water sites in Broward and Miami-Dade counties, including **individuals known to scientists as long as 39 years.**

Mote scientists also continued their **long-term, manatee-photo-ID efforts in southwest Florida to inform conservation,** with **255 surveys** this fiscal year, identifying **355 individual manatees** through ongoing photo analyses.

Mote scientists counted 178 manatees—a Sarasota County record high—on Sept. 10, 2019 via **aerial (airplane) surveys** in the county, and they conducted their **42nd year of winter, aerial surveys of power plants** in collaboration with Florida Power & Light Co. (FPL).

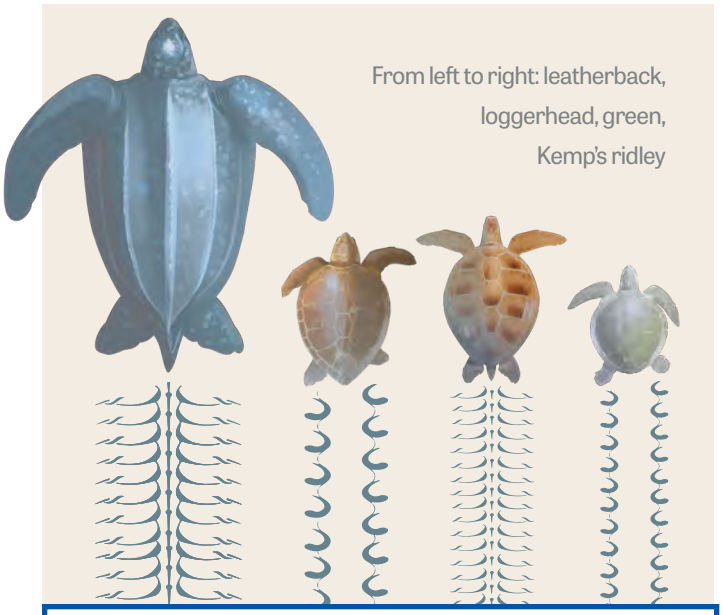
A 2019 Mote-FPL pilot study found that **unmanned aerial vehicles (UAVs, drones) with video cameras may enhance manatee surveys** for numbers, distribution and possibly identification of some individuals, without disturbing the manatees.

In late January 2019, Mote assisted in the **necropsy (animal autopsy) of a rare, critically endangered, enormous, Gulf of Mexico Bryde's whale** found deceased in Everglades National Park. A piece of **plastic in the whale's third stomach was deemed the probable cause of death.**

In 2019, Mote documented **a 38-year-record sea turtle nest count on Longboat Key through Venice, Florida**—5,112 nests, surpassing the previous record by 523. **A locally rare leatherback**—Earth's largest sea turtle species—laid four nests but her eggs were undeveloped, possibly because she couldn't find a mate. Mote scientists tagged her for identification and sampled her skin for genetics to compare with future nests if she returns.

Mote scientists tagged seven female green sea turtles—more than in any prior year—with satellite transmitters to track their migrations after they left the nesting beaches. **Track these turtles and others:** mote.org/seaturtletracking

The four species of sea turtles that nest in Sarasota, and their tracks.



To read a more extensive summary of Mote's work with marine wildlife, scan this QR code:

Charting new courses: Exploration and innovation

As an independent, marine research institution, Mote has the freedom to tackle emerging ocean issues while **diving deeper**—sometimes literally—into exploratory studies of ecosystems and organisms, returning with **novel insights for ocean and human health.**

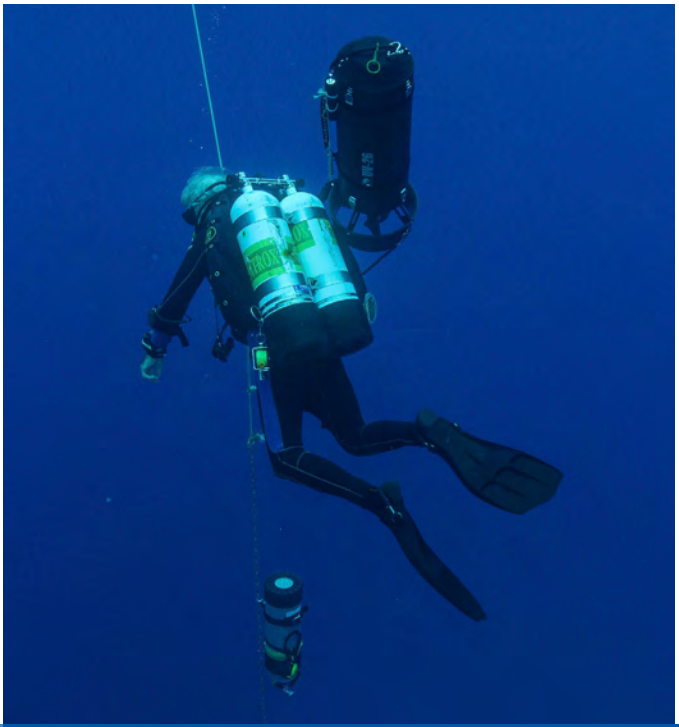
In August, **famous oceanographer Dr. Sylvia Earle and her organization Mission Blue named part of Florida's Gulf Coast its newest "Hope Spot,"** an ocean region worth preserving. **Mote's exploration of the region's "blue holes"**—underwater caves, springs and sinkholes—**informed the Hope Spot designation.**

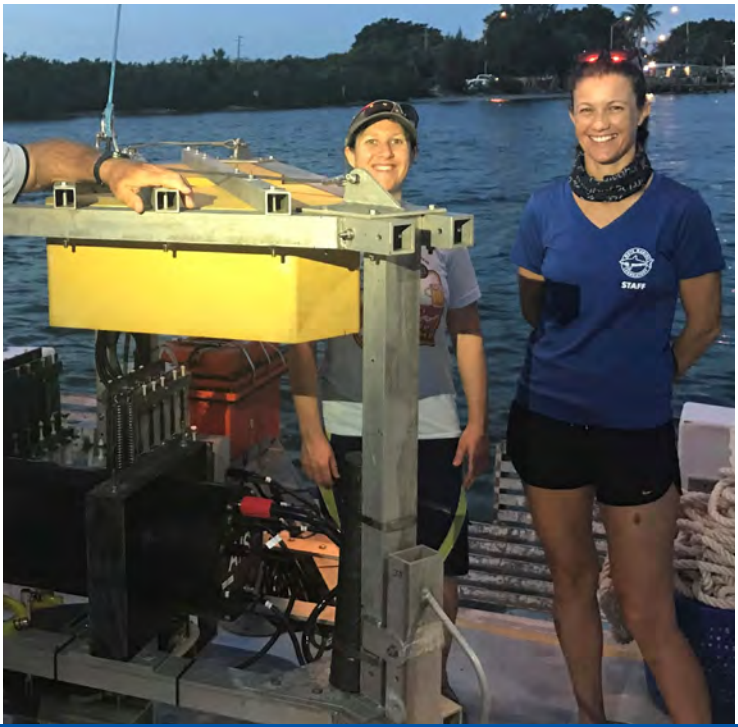
In May and September 2019, **Mote scientists undertook their most detailed blue hole investigation to date,** with Florida Atlantic University (FAU); Georgia Institute of Technology and USGS. The team **deployed a 600-pound "benthic lander" carrying scientific instruments more than 350 feet deep** into the site AJ Hole, documenting wildlife around the rim and the carbon, nutrients and microscopic organisms throughout the hole and its bottom sediments. At the bottom, divers found two **deceased smalltooth sawfish, an endangered species.**

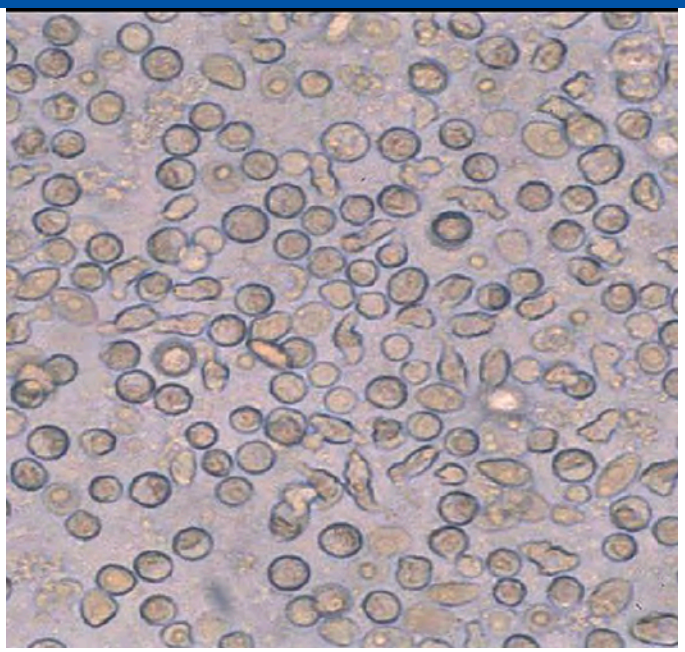
Also this year, Janicki Environmental, Inc., and Mote scientists reported results from a **major study of nutrient pollution and water quality in southwest Florida's tidal creeks,** conducted with EPA funding and partners at Sarasota Bay Estuary Program and many other agencies. **Mote contributors analyzed stable isotopes—chemical markers that broadly indicate what types of nutrient sources enter creeks.**

Additionally, Mote research revealed **that southern flounder exposed to oiled sediment for 35 days in the lab showed evidence of stress and DNA damage** in a peer-reviewed study providing **one of the latest indicators of potential impacts of the 2010 Deepwater Horizon oil spill.**

Jim Culter descends into a blue hole off the coast of Florida; Dr. Emily Hall and her team prepare to send down their benthic lander.







Epigonal cells.

Mote scientists took **innovative steps toward isolating cancer-fighting compounds derived from shark immune-system cells,** building upon their earlier findings that sharks' epigonal organs produce a natural mixture of compounds that inhibits several human-tumor cell lines in the lab.

The cancer-fighting compound(s) must be isolated from the mixture to assess their therapeutic potential. Traditional methods to isolate them proved challenging, so Mote partnered with Green Mountain Antibodies on an alternative approach: **developing antibodies (immune-system proteins) that might "recognize" the active compounds and help scientists isolate them.** The researchers are producing the antibodies using **methods never before applied to shark-derived compounds—a groundbreaking step.**

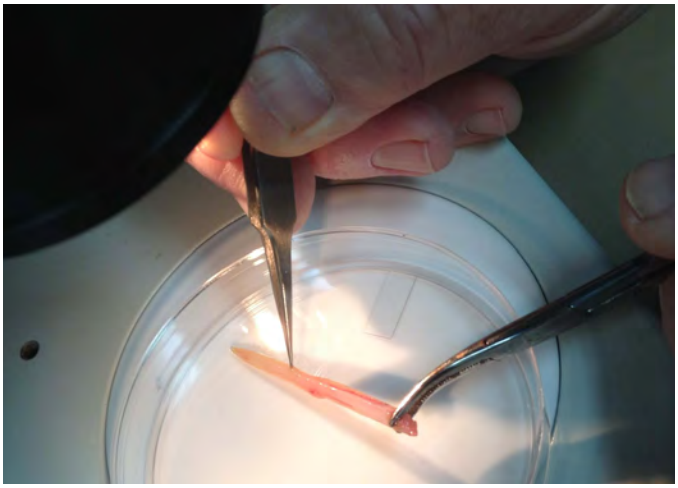
Raising hundreds of antibodies and screening them for interaction with the shark-derived compounds takes significant time and resources—but if successful it could **pave the way for producing enough of the cancer-fighting compound(s) in a purified form to progress towards animal studies** required for the process of improving human cancer therapies.

In another study this year, **Mote tested whether marine bacteria** from snook, pompano, cownose rays and fish-aquaculture environments **can produce new antibiotic substances that fight harmful bacteria that affect humans and resist current antibiotics.** Of 750 marine bacteria the researchers tested, 32 inhibited at least one of the antibiotic-resistant bacteria tested: MRSA (methicillin resistant *Staphylococcus aureus*), VRE (vancomycin-resistant *Enterococcus*), *Bacillus cereus* and/or *Serratia marcescens*.

The team began investigating what antibiotic compounds might produce these effects, and such investigations must continue. This research is crucial because **antibiotic resistance contributes to 700,000 deaths annually.**

Also this year,a new research collaboration is **investigating stingray venom to understand its chemical properties and biological effects, and ultimately, whether its power can be harnessed to improve medical therapies.** Partners include Mote, University of South Florida (USF) and Florida State University (FSU).

Dr. Carl Luer collects stingray venom to help investigate its properties and later its biomedical potential.



To read a more extensive summary of Mote's innovative research, scan this QR code:

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Powell J.A., **Scolardi, K.M.** and Keith-Diagne, L. (2019). *Sirenians.* In Cochran, J.K.; Bokuniewicz, H., Yager, P. (Eds.) *Encyclopedia of Ocean Sciences, 3rd Edition, vol. 2* (pp. 641-650). Elsevier.

To view a digital version of this publication list with clickable links, scan this QR code:

EDUCATION PROGRAMS

Adult learning programs

Afterschool programs

Aquarium experiences

Birthday parties

Boy & Girl Scout programs

Breakfast programs

Spring Break, Summer Break and Winter Break camps

College internships

Field trips

Fishing clinics

Florida Master Naturalist courses

Group programs

High school internships and volunteer program

Homeschool programs

Interpretive Bay walks & talks

Kayaking programs

Outreach programs

Overnight programs

Preschool programs

Research Experiences for Undergraduates

School classroom kits

School partnerships

Science Cafés

SEAtrek Virtual Learning programs

Special Lecture Series

Special needs programming

Teacher professional development

Travel programs

Volunteer opportunities

Youth Ocean Conservation Summit

Youth clubs & programs

PHOTO BY: ALEXIS CRABTREE / MOTE MARINE LABORATORY

MOTE BY THE NUMBERS

332,874 AQUARIUM VISITORS

53 EDUCATION PROGRAMS

218 UNDERGRADUATE INTERNS HOSTED

16 PATIENTS CARED FOR IN ANIMAL HOSPITALS

31,957 EDUCATION PROGRAM PARTICIPANTS SERVED

TRANSLATE AND TRANSFER SCIENCE FOR PUBLIC SERVICE

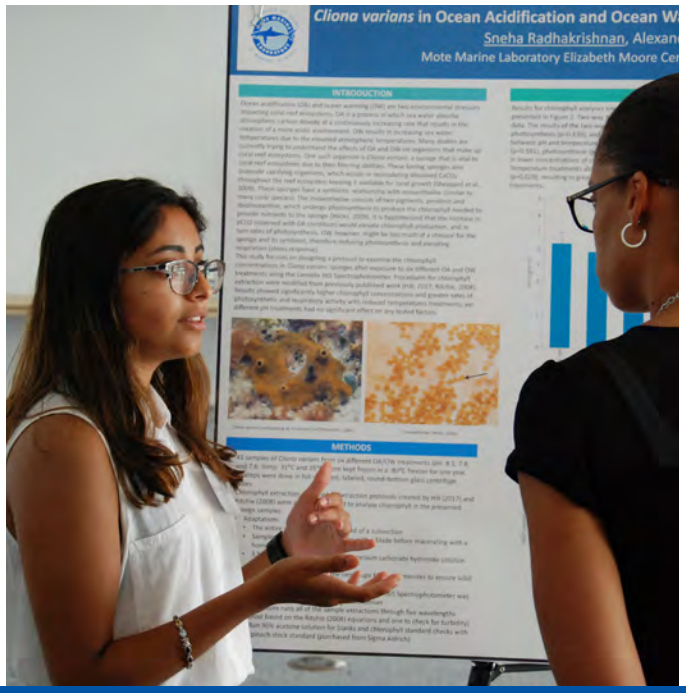
Marine science education for everyone, everywhere

In September 2019, Mote and partners **established the Louis Stokes Alliance for Minority Participation: Marine Science Laboratory Alliance Center of Excllence (MarSci-LACE),** thanks to a National Science Foundation (NSF) grant to Mote.

MarSci-LACE leverages the unique strengths of independent marine research institutions to **increase the success of underrepresented minority students in marine STEM (science, technology, engineering and math)**. Marine STEM is among the least ethnically diverse of all STEM fields.

This project was made possible with support from NSF LSAMP and INCLUDES grant number #1922351.

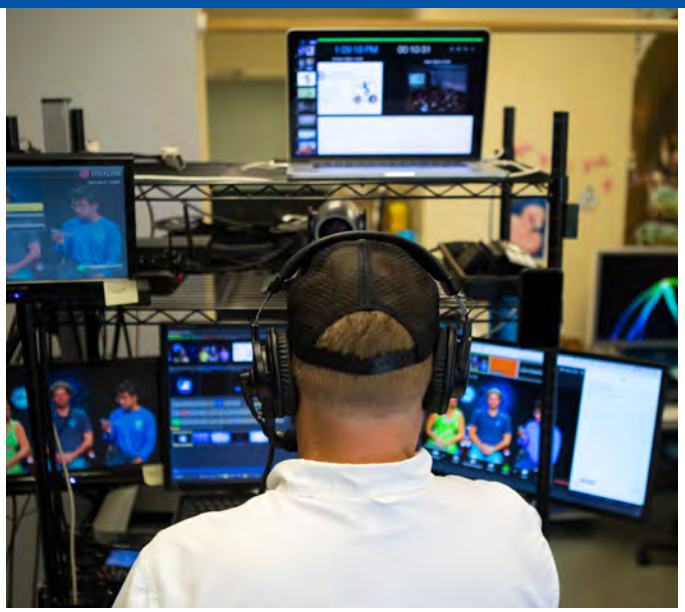
An undergraduate student presents her research to a mentor.



Mote's Community Engagement Program—dedicated to sharing marine science education with underrepresented groups of young learners in southwest Florida at no cost to them—recently achieved its five-year anniversary. As fiscal year 2019 came to a close, Mote's Community Engagement Program was close to achieving another major milestone: 10,000 participants per year.

In September 2019, Mote Virtual Learning Education Specialist **Ross Johnston was selected as one of 28 national and international Sustainability Fellows for The Rob and Melani Walton Sustainability in Science and Technology Museums Initiative.** Johnston's Fellowship will connect Mote's SEAtrek Virtual Learning Programs with multiple audiences, sharing marine research and sustainability through an open-format livestream broadcast aligned with United Nations Sustainable Development Goals, particularly Goal 14: Life Below Water.

Ross Johnston leads a virtual learning lesson at Mote.



Jason Robertshaw coordinates a SEAtrek virtual learning program at Mote.

Mote SEAtrek Virtual Learning Programs received their 10th Pinnacle Award from the Center for Integrated Learning and Collaboration (CILC) this year. The Pinnacle Award recognizes CILC content providers from around the world who have received outstanding ratings on program evaluations completed by educators and activity directors. Mote SEAtrek brings Mote's research, animals and exhibits to classroom learners using affordable, easy-to-use, virtual learning technology.

Mote's School Programs team has been working with various middle schools to provide hands-on, career-based learning experiences within aquaculture—farming animals and plants in water, thanks to **Mote's new Career Exploration in collaboration with EdExploreSRQ.** Mote Aquaculture Research Park scientists and Mote educators are helping students

A student examines samples at Mote Aquaculture Research Park.

experience what it's like to be a marine biologist: catching, weighing and measuring juvenile fish raised in Mote's sustainable systems, harvesting plants from the marine aquaponics greenhouse and examining samples under microscopes, which helps students **explore the many ways they can have a future in marine science and be eco-friendly.**

Seven outstanding teens from Boys & Girls Clubs of Sarasota County were selected to participate in the Ocean Guardians Program at Mote this summer. Those students—from Riverview High School, Sarasota High School, North Port High School, Sarasota Military Academy, Booker High School and Suncoast Polytechnical High School—worked hands-on with Mote professionals to gain real-world experience and practice valuable job skills such as communication, public speaking, collaboration and time management while learning about the world's oceans, exploring careers in marine science and ocean conservation and earning either a stipend or volunteer hours.

Ocean Guardian students selected from the Boys & Girls Clubs of Sarasota County.

PHOTO BY: BOYS & GIRLS CLUB OF SARASOTA COUNTY

Mote and partners published the guided, inquiry-based lesson "How Do Upwelling and El Niño Impact Coral Reef Growth?" for high school and undergraduate educators, to **help students investigate the impacts of varying climate and other ocean conditions on coral reefs.** Mote's Dr. Philip Gravinese authored the lesson with partners from U.S. Geological Survey, Australian Institute of Marine Science and Florida Institute of Technology.

To read a more extensive summary of Mote's work with marine science education, scan this QR code:

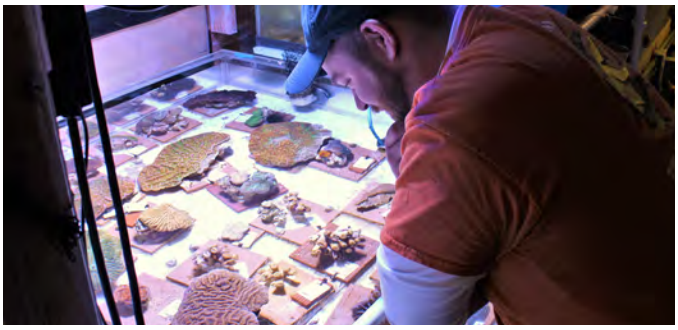
Mote Aquarium: Where ocean stewards find inspiration

Mote Marine Laboratory & Aquarium was voted Sarasota's Best Children's Attraction and Best Local Nonprofit Organization in the Sarasota Herald-Tribune's 2019 Readers' Choice Awards!

This year **Mote debuted its new Aquarium Conservation Lab,** formalizing and enhancing a longstanding component of Mote Aquarium: **breeding and raising water-dwelling animal species that can be displayed for public education, while lessening the need to collect from wild populations.** Mote—which is accredited by the Association of Zoos and Aquariums (AZA)—strives to feature healthy, genetically diverse and sustainably sourced animals to **help visitors develop their own passion for marine conservation.** Mote also shares animals raised in the Aquarium Conservation Lab with other AZA-accredited aquariums and zoos.

Mote Aquarium has been holding more than 70 coral colonies that were rescued by the Florida Coral

In Mote's new Aquarium Conservation Lab, visitors can learn about the life cycle of gobies and see mated pairs with their eggs.



Aquarium Biologist III Andrew Angelo monitors rescued corals at Mote Aquarium.

Rescue Team, led by FWC and NOAA Fisheries, **before they could contract stony coral tissue loss disease—the major disease outbreak** that has swept through Florida's Coral Reef and multiple Caribbean locations.

Mote and many other partners in the Florida Reef Tract Rescue Project, led by the Association of Zoos and Aquariums (AZA), aim to hold thousands of coral colonies among certified facilities, to preserve native genetic varieties of coral with the ultimate goal of helping to restore reefs in the future.

Mote Aquarium Biologist II Veronica Garcia took her crocodilian-care skills to Argentina this year, assisting with a conservation and research project that is helping the broad-snouted caiman recover from environmental threats. The Argentinian program Proyecto Yacaré, based in Santa Fe, works to study and enhance wild populations of broad-snouted and yacaré caimans.

Mote Aquarium opened a new virtual reality cinema experience, created by Immotion, featuring fully-immersive journeys with 360 degree views, sounds and movement. Mote is committed to applying technology to share exciting, immersive experiences with our visitors.

To read a more extensive summary about Mote Aquarium's recent accomplishments, scan this QR code:

Science meets service

Mote President & CEO Dr. Michael P. Crosby, accompanied by an array of scientists from the Lab's diverse research programs, provided **more than 65 briefings and presentations to elected officials or government agency staff** during fiscal year 2019—particularly on addressing Florida red tide and ensuring the future of threatened coral reefs.

Crosby and colleagues translated and transferred Mote's independent science for multiple members of U.S. Congress, Assistant Secretary of Commerce for Oceans and Atmosphere and Deputy NOAA Administrator Dr. Tim Gallaudet; Florida Governor Ron DeSantis; multiple Florida Legislators and leaders and staff of the Florida Department of Environmental Protection, Florida Department of Agriculture and Consumer Services and Florida Fish and Wildlife Conservation Commission.

Florida Governor Ron DeSantis shakes hands with Mote President & CEO Dr. Michael P. Crosby.

In June-October 2019, **Mote's BleachWatch program received 487 reports from 31 trained volunteers, documenting the presence or absence of heat-driven coral bleaching** (loss of the important algae in coral tissues). Most of this year's reports showed mild to moderate impacts including paling and partial bleaching, but Mote staff and volunteers continue to monitor rampant coral disease, including the outbreak of stony coral tissue loss disease.

Mote's C-OCEAN (Community-based Observations of Coastal Ecosystems & Assessment Network) allows the public to report various changes in the Florida Keys and surrounding waters, without special training. C-OCEAN received **497 reports from 43 different observers** this year, primarily of coral bleaching and disease.

In early 2019, Mote scientists helped **rescue two young bottlenose dolphins from entanglements in fishing line** through team efforts conducted under NOAA permits, including the Sarasota Dolphin Research Program (a Chicago Zoological Society program in collaboration with Mote), FWC, University of Florida, Clearwater Marine Aquarium, NOAA Fisheries and Charlotte County Sheriff's Office participating in one or both rescues. Fishing line and other marine debris is a serious threat to marine animals.

This summer, Mote raised awareness for the plight of coral reefs by joining the worldwide design competition "Glowing, Glowing, Gone" which included partners from Adobe, Pantone, United Nations Environment Programme and others. Check out Mote's unique entries, which involved plenty of help from creative students at Ringling College of Art & Design: mote.org/glowinggone

A new memorandum of understanding between Mote and Florida Gulf Coast University (FGCU) was signed on April 4, 2019, launching a **partnership focused on addressing the impacts of harmful algal blooms** through productive scientific research, innovative technology development, and undergraduate and graduate education.

To read a more extensive summary of Mote's public service work, scan this QR code:

PHOTO BY: CONOR GOULDING / MOTE MARINE LABORATORY

MOTE BY THE NUMBERS

229 MOTE STAFF	MORE THAN **30** PH.D.-LEVEL SCIENTISTS
27 BOARD TRUSTEES	**4** HONORARY TRUSTEES
51 ADVISORY COUNCIL MEMBERS	

OUR STAFF

Nurturing the best and the brightest

MOTE POSTDOCTORAL RESEARCH FELLOWSHIP

This two-year fellowship provides 100% salary support, research start-up, supplies, equipment and mentorship to postdoctoral scientists conducting outstanding work early in their careers.

2019 Fellows

Dr. Philip Gravinese
Dr. Aileen Maldonado
Dr. Robert Nowicki
Dr. Heather Page
Dr. Andrea Tarnecki

MOTE EMINENT SCHOLAR AWARDS

This award provides 50% salary support to Mote Senior Scientists who can use the funding to advance a current research initiative or develop a new one consistent with Mote's *2020 Vision & Strategic Plan*.

2019 Eminent Scholar

Dr. Cynthia Heil
Dr. Carl Luer
Dr. Dana Wetzel

MOTE SCHOLARLY AND SERVICE ACTIVITIES

This award provides 25% salary support for scientists to conduct scholarly and service activities that reinvigorate their research and allow them to give back to the community.

2019 Scholars

Dr. Nathan Brennan
Dr. Tracy Fanara
Dr. Emily Hall
Dr. Robert Hueter
Dr. James Locascio
Dr. Vince Lovko
Dr. Kevan Main
Dr. Erinn Muller

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PHOTO BY: CONOR GOULDING / MOTE MARINE LABORATORY

MOTE BY THE NUMBERS

1,782 VOLUNTEERS	**221,653** HOURS VOLUNTEERED

OUR VOLUNTEERS

A vital role at Mote

When volunteers join Mote Marine Laboratory & Aquarium, our mission is stronger and our lives gain more meaning. That's part of the reason many volunteers stay involved with our independent, nonprofit institution for 10, 20, or even 30 years or more, whether they are helping children learn to fish, deepening visitors' experiences in Mote Aquarium, helping to shepherd Mote's strategic goals or spreading the word about Mote and the oceans in our communities.

The entire Mote Family treasures our 1,782 volunteers and thanks them for their thousands of hours of service in the past fiscal year alone. Here are just a few volunteers reaching major milestones this year.

VOLUNTEER SPOTLIGHT

Lt. Gen. Howard Crowell (Retired), Mote's first Trustee Emeritus

This spring, retired Lieutenant General Howard Crowell was named the first Trustee Emeritus in Mote's history to honor his vital leadership, spanning about two decades, both through his employment and his exemplary volunteer service and support as a Mote Trustee. He continues to raise awareness of Mote's work and remains a cherished friend of the Lab.

30 years: Capt. Bobby Hilbrunner

Capt. Bobby Hilbrunner is an expert rod builder, lure maker, fly tier, fisher and guide who loves teaching his skills to others. As a Mote volunteer, he has been involved with the sturgeon commercial demonstration program that previously operated at Mote Aquaculture Research Park (and he enjoyed taste-testing the caviar!), guiding fishers during Mote's Snook Shindig tournament for fisheries research, electronic monitoring of fisheries and tarpon projects, among many other things. Hilbrunner received the President's Lifetime Achievement Award for volunteer service in 2011 and considers it among his biggest accomplishments. He credits the strength of his wife, Barbara, and says it's "good to be surrounded by very strong women."

30 years: Thekla Kahn

Thekla Kahn retired after serving as a medical secretary and assistant for many years, began volunteering in Mote Aquarium's Gift Shop in 1989 and recently was invited to join the Friday morning Aquarium docent team, which she calls "fabulous." She is pleased to be part of an organization that delves into research, both in medical science and in the ocean environment, and she enjoys meeting Aquarium visitors from around the world.

15 years: Jim Tolley

Jim Tolley is Team Leader in the fish and invertebrates side of Mote Aquarium on Saturday afternoons. He helped found the Mote Volunteer Emeritus program and serves in Mote's Speakers Bureau. When asked about his most treasured accomplishment at Mote, he talks about the 60 or so high school and college students who have learned to be Aquarium guides under his tutelage. He began volunteering at Mote after retiring from Chrysler Corporation where he was vice president for public and government relations. He has won the public relations profession's highest awards.

To read more detailed bios of these incredible volunteers, scan this QR code:

PHOTO BY: CONOR GOULDING / MOTE MARINE LABORATORY

MOTE BY THE NUMBERS

2,489 DONORS	**10,067** MEMBERS	**165** CORPORATE MEMBERS
105 LEGACY SOCIETY MEMBERS SUPPORTING MOTE THROUGH THEIR ESTATE PLANS		

OUR DONORS & SUPPORTERS

Our donors are **Change Makers** for a healthier ocean, planet and society. They are Protectors, Champions, Guardians, Visionaries and irreplaceable members of our President's Council.

These Change Makers help us **give stranded marine animals a second chance at life;** help **our brightest scientists to do their very best work**—from marine biomedical research to coral reef restoration; help us **reach students historically underrepresented in marine science**; and much more.

Donors also help us **realize a brighter future** through our **Legacy Society for planned giving** and by championing major initiatives including our ***Oceans for All* campaign to create the new Mote Science Education Aquarium (Mote SEA)**—whose exciting progress is featured in the "Looking Ahead" section of this report.

While Mote scientists work tirelessly to secure competitive grants and agreements, it's important to note that **Mote's Research Division derives a significant portion of its funding from philanthropic giving.** For your support, our gratitude runs as deep as the ocean.

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Legacy Society Members Sheila and Ken Rear speak with Mote Trustee Robert Essner at this year's Legacy Society Brunch; Dr. Ken Leber was the keynote speaker.

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Dr. Paul Waton and
Ms. Annette Randall

Mr. Gilbert Weiner

Mr. and Mrs. Robert Wendt

Mr. Robert Wiegand and
Mr. Thomas Cliff

Mr. and Mrs. William W. Wilferth

Mr. and Mrs. Douglas Williamson

Ms. Glenda Wright

Party on the Pass

More than 300 people attended the retro beach-themed 2019 Party on the Pass on March 15, in support of Mote's Sea Turtle Rehabilitation Hospital and Jane's Refuge: The Hospital for Dolphins and Whales at Mote Marine Laboratory. The evening was full of good food provided by local restaurants, good music and good will. A silent auction was held to raise funds for the animal hospitals.

PHOTOS BY: CONOR GOULDING/MOTE MARINE LABORATORY, AND CLIFF ROLES

Upper Left: George and Sandra Mazzarantani, Mote Advisory Council member Norman Vaughan-Birch and Mote volunteer Tommy Vaughan-Birch. Upper Right: Tim Clarke and Mote Trustee Susan Gilmore-Clark, Mote Trustee Jeanie Stevenson, Kelly Collins, Bayne Stevenson. Lower Left: Charlie Froonjian; Lisa Kinsella, Rehabilitation Volunteer Coordinator; Greg Byrd; Lynne Byrd, Rehabilitation and Medical Care Coordinator; Courtney Abbs, Animal Care Technician; Christopher Hessell. Lower Right: Co-chairs Stephen and Lynn Kukanza, Mote President & CEO Dr. Michael P. Crosby and wife Sharon.

To view the full gallery of photos from the 2019 Party on the Pass event, scan this QR code:

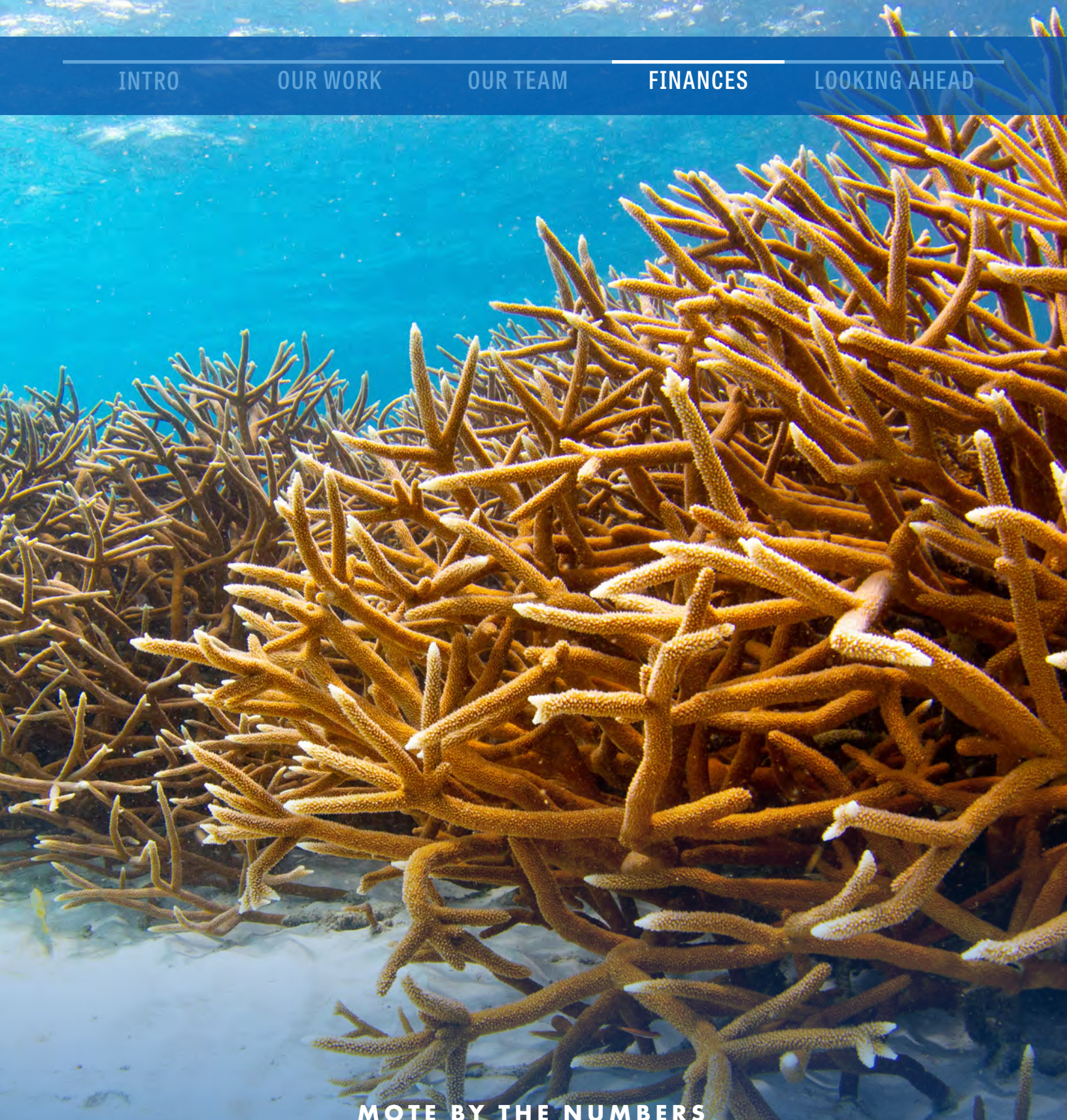
Run for the Turtles

More than 1,000 runners and walkers hit the beach to help sea turtles during Mote's 33rd Run for the Turtles on April 6 on Siesta Key Public Beach. The Run, a joint effort between Mote, the Manasota Track Club and Sarasota County Parks and Recreation, raises funds to help Mote scientists study and protect sea turtles.

PHOTOS BY: CONOR GOULDING/MOTE MARINE LABORATORY

Upper left: Mote mascots Shelley the Turtle and Gilly the Shark led runners in a warm-up before the event. Upper Right: Participants in the 5K run portion of the event take off from the starting line. Lower Left: Linda Bayne won top overall (female) winner of the Manasota Track Club sanctioned 5K race. Lower Right: Participants in the 5K event cross the finish line.

To view the full gallery of photos from the 2019 Run for the Turtles event, scan this QR code.



MOTE BY THE NUMBERS

$23,005,959 LABORATORY NET ASSETS

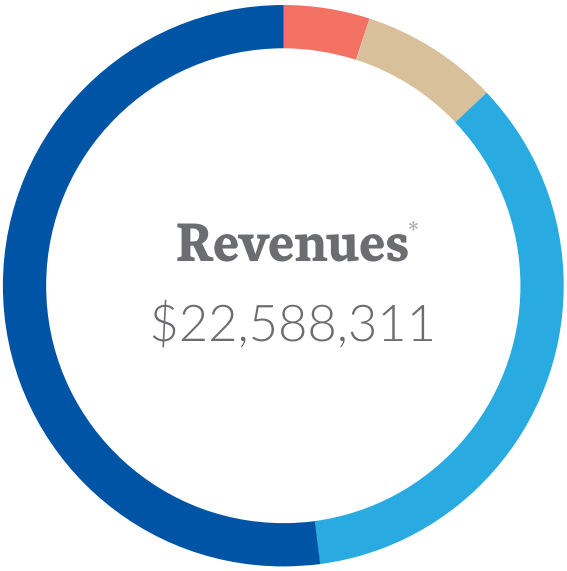
$16,867,814 FOUNDATION NET ASSETS (ENDOWMENT)

$914,128 PROTECT OUR REEFS REVENUE

PHOTO BY: CONOR GOULDING

FINANCES

OCT. 1, 2018 – SEPT. 30, 2019



* Does not include beneficial interest in Mote Marine Foundation

52% Research & Restricted Donations[1] $11,791,532

35% Education & Aquarium $7,947,637

8% Unrestricted Revenue $1,682,218

5% Facilities & Administration $1,166,924

[1] Research includes Protect Our Reefs program and Mote Aquaculture Research Park management

$12,836,820 Research[1] 57%

$6,749,475 Education & Aquarium 30%

$1,569,655 Facilities & Administration 7%

$994,670 Development 4%

$437,691 Fiscal Year Carry Forward 2%

MOTE SEA EXPLORERS

Thank you to these visionary donors who have committed $250K or more to Mote's *Oceans for All* Campaign.

Anonymous (5)

Barbara Brizdle

Daniel E. Offutt III Charitable Trust

Edwin T. Meredith Foundation

Robert and Anne Essner

Perlman Family Foundation

Edward D. and Anna Mitchell Family Foundation

Ryan & Maureen Martin

Elizabeth Moore

James and Christina Price

Wayne and Grace Rickert

Steinwachs Family Foundation

Hobart and Janice Swan

William G. and Marie Selby Foundation

MOTE LOCATIONS

City Island campus

Mote Aquaculture Research Park

Mote Boca Grande Outreach Office

Elizabeth Moore International Center for Coral Reef Research & Restoration

Florida Keys National Marine Sanctuary's Eco-Discovery Center "Living Reef" exhibit

Florida Keys History Discovery Center "Coral Reef Exploration" exhibit

MOTE BY THE NUMBERS

6 LOCATIONS IN FLORIDA	**20** OFF-SITE AQUARIUMS	**331,152** TOTAL SQUARE FEET

PHOTO BY: CONOR GOULDING / MOTE MARINE LABORATORY

LOOKING AHEAD

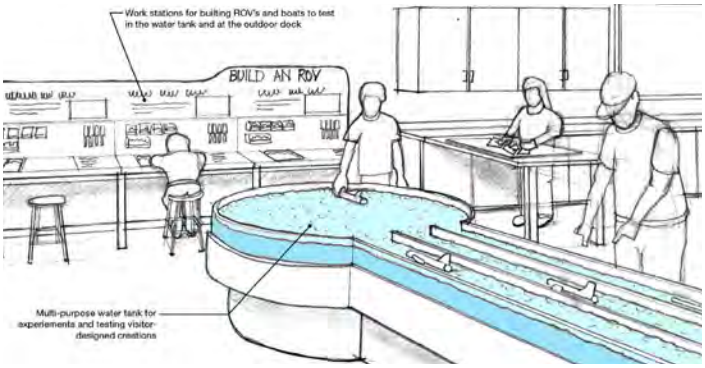
Mote Aquarium's rebirth will offer SEA of opportunities for students

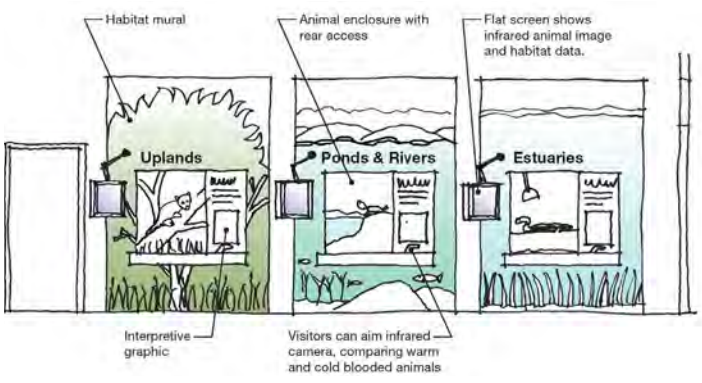
In 2018, we announced our plan to create Mote Science Education Aquarium (Mote SEA)—a rebirth of Mote Aquarium in Nathan Benderson Park that will enrich our community with a transformative hub of science education and economic impact. Back then, Mote SEA was a vision—albeit a thrilling one. Now, through intensive efforts and a growing wave of generous support, this vision is approaching the cusp of a reality we've all hoped for: A cultural jewel where science is the attraction and science education is for everyone—including learners underrepresented in scientific fields.

In 2019, our Mote Family of Staff and Trustees made exciting, tangible progress—selecting the Mote SEA construction-management team of Willis A. Smith Construction and The Whiting-Turner Contracting Company, refining the architectural design of Mote SEA and securing Sarasota County's formal agreement for 12 acres in Nathan Benderson Park, a nexus for multiple Florida counties. However, the true star of the past year has been our developing plan to serve students and teachers across our region and state.

Mote's leaders and stellar Education staff are arranging to offer 65,000 students from Sarasota and Manatee county schools access to free, annual, education opportunities via three STEM (science, technology, engineering and math) teaching labs at Mote SEA, focused on marine ecology, biomedical research and ocean technology. No-cost student programs at Mote SEA will have an estimated value of $3.5 million—that's exciting, but the greatest benefits go beyond any

Rendering of teaching labs and other features whose designs are being finalized for Mote SEA. All renderings are subject to change.





number. With hands-on STEM experiences led by Mote educators and scientists, state-of-the-art scientific equipment available to all students and teachers, enhanced school curricula, an Educator Resource Center, and free-of-charge visits to Mote SEA for the families of students in Sarasota Title-1 schools, the vast educational value of Mote SEA is essential to realize.

By May-to-June 2020, we hope to share more finalized designs for Mote SEA along with exciting news about the acceleration of our $130-million fundraising effort to create the facility, *Oceans for All: Improving Access to Marine Science & Technology*. This campaign, primarily focused on philanthropic, public and corporate support, advanced significantly when Sarasota County commissioners voted unanimously in January 2020 to commit $20 million for Mote SEA—complementing ongoing philanthropic giving, whose exciting momentum we will share this spring.

As we pursue our next major goal—to break ground by the end of 2020—we are increasing our communications with State of Florida leaders regarding the benefits Mote SEA will offer to the Sunshine State overall, while exploring the potential for exhibit-related partnerships with our regional corporate community and continuing to celebrate our supporters, including our exclusive group of high-level, Mote SEA Explorer donors.

Our community will realize benefits of Mote SEA long before construction begins; Mote Trustees are combing their own resources to offer six new, competitive Mote SEA Trustee College Scholarships open to marine science-interested students entering their first year as undergraduates—reminding us that the spirit of *Oceans for All* is already here, now.

Learn more: **moteoceansforall.org**

Rendering of teaching labs and other features whose designs are being finalized for Mote SEA. All renderings are subject to change.

Mote Marine Laboratory & Aquarium
1600 Ken Thompson Pkwy
Sarasota, FL 34236
(941) 388-4441

RESEARCH STATIONS

Mote Aquaculture Research Park
874 W.R. Mote Way
Sarasota, FL 34240
(941) 388-4541

Elizabeth Moore International Center for Coral Reef Research & Restoration
24244 Overseas Highway
Summerland Key, FL 33042
(305) 745-2729

PUBLIC OUTREACH

Boca Grande Office - Location
480 E. Railroad Ave., Unit 7
Railroad Plaza, Boca Grande, FL 33921
(941) 855-9251

Boca Grande Office - Mailing
P.O. Box 870
Boca Grande, FL 33921
(941) 855-9251

Florida Keys History Discovery Center
82100 Overseas Highway
Islamorada, FL 33036
(305) 922-2237

Florida Keys National Marine Sanctuary's Eco-Discovery Center
35 East Quay Road
Key West, FL 33040
(305) 296-2325