

STONY CORAL TISSUE LOSS DISEASE

ANNUAL NEWSLETTER

Sharing Coral Disease Knowledge and Experience
across U.S. Coral Jurisdictions | Winter 2023



THE LATEST ON SCTL D

- 1 Studying SCTL D: What We Know So Far
- 2 Innovative, High-Level Collaborations in the U.S. Caribbean
- 3 First Land-Based Sea Urchin & Corals Nursery in Ceiba, Puerto Rico
- 3 Prepared for the Worst: Advanced Emergency Planning for Coral Care
- 4 Amoxicillin Ratio Trials
- 4 Predicting SCTL D Transmission
- 5 Preparation in the Pacific

TAKING ACTION

- 6 NOAA's Plan to Respond to and Prevent SCTL D
- 7 Puerto Rico's Emergency Response Strategic Plan and Intervention Efforts
- 7 International Coral Reef Initiative Plan of Action

COLLABORATION AND CAPACITY BUILDING

- 8 Caribbean MPA Managers Get Ready for Coral Rescue
- 9 U.S. Coral Reef Task Force Meets for the First Time in Three Years in Kona, Hawai'i
- 9 U.S. Coral Reef Task Force Coral Disease Working Group Hosts the 2022 U.S. Caribbean SCTL D Virtual Workshop Series
- 10 2022 International Coral Reef Symposium: Convening an International Community for Coral Conservation
- 10 "Our Reefs are Life:" Puerto Rico's 2022 Coral Reef Week

MEET THE TEAM

- 11 Spotlight on the Virgin Island's New Coral Disease Response and Restoration Coordinator
- 11 Florida Sea Grant Welcomes New Coral Propagation Coordinator
- 12 Sophie Maginnes, NOAA Hollings Undergraduate Scholar



SCTL D was first reported in Florida in 2014

Studying SCTL D: What We Know So Far

Samantha Cook, Nova Southeastern University in support of the Florida Department of Environmental Protection and **Maurizio Martinelli**, Florida Sea Grant

Since the first observation of stony coral tissue loss disease (SCTL D) in 2014, a collaborative effort has been underway in affected jurisdictions to better understand the cause of the disease and to develop novel treatments. In Florida, state and federal managers have worked alongside researchers to develop priority questions to guide the research that is building our understanding of this disease as well as informing practical decision-making for management. Over the past year, Florida-supported research has been ongoing to study potential pathogens, innovative intervention techniques, restoration methods that support the outplanting of SCTL D-susceptible corals, and more.

PATHOGEN IDENTIFICATION

While the pathogen remains unknown, viruses of interest have been found within

the symbiotic algae that live in coral tissue. Researchers have been working diligently to identify these viruses and uncover their relationship to SCTL D using advanced microscopy and molecular techniques. In the coming year, researchers will be analyzing genetic data and refining diagnostic tools in an effort to identify a primary pathogen.

Antibiotics have proven to be a successful treatment, slowing or stopping active lesions when applied to SCTL D-affected corals. This suggests that bacteria may play some role in the disease, possibly as a secondary infection that attacks vulnerable corals. Research into associated bacteria has provided some support for this theory — while bacteria have not been observed in affected corals under a microscope, they have been identified within the tissue using genetic analysis.

Continued ...

In addition, a new approach to this line of inquiry is the use of 'model organisms.' Just as mice are used in human medical research, partners have been investigating the use of non-coral organisms for SCTL D research purposes. Initial findings from two studies have shown some success in using algal cultures and moth larvae as model organisms.

Directly applying an antibiotic paste to sick corals has been the most effective and widespread treatment method.

RESTORATION

As SCTL D settles into an endemic state, where it is consistently present but confined to the Caribbean and most of Florida's Coral Reef, partners are looking to restoration to help rebuild affected coral populations and support natural ecosystem recovery. Several large, collaborative research projects have been exploring best restoration practices and how well SCTL D-susceptible corals survive after being outplanted to the reef. Thus far, monitoring suggests that SCTL D impacts on outplanted corals are minimal and survivorship is high. However, one obstacle that has emerged is predation, for example from parrotfish, on newly outplanted corals. Researchers have found that acclimating corals in in-water nurseries can reduce predation. However, the site location of outplants seems to be a key determinant of predation pressure. Partners have also been exploring the use of physical barriers that biodegrade over time that could be used to prevent predation.

INTERVENTION

Directly applying an antibiotic paste to sick corals has been the most effective and widespread treatment method for addressing SCTL D. However, questions have arisen regarding the potential impact of these activities on the long-term health of corals and their surrounding ecosystems. Last year, a study was conducted to examine the effects of antibiotics on the healthy tissue remaining on a diseased coral colony. Using a new field technology, called 'Community In Situ Metabolism' (CISME), it was found that the treatment methods had no apparent detrimental effects on the remaining coral tissue.

Exploration into the use of probiotics as an alternative to antibiotic intervention has also continued. Probiotics are a mix of beneficial bacteria used to promote the resilience of corals in harsh conditions, and hopefully against disease. Researchers have streamlined the process of probiotic development, allowing them to quickly identify new bacterial strains and target them as potential treatments. Lab and field trials have indicated that probiotics will likely be species-specific and can slow the progression of the disease. In addition, researchers are currently undertaking an experiment in the field to compare the effectiveness of antibiotics and probiotics, as well as the potential use of a combination treatment.

Innovative, High Level Collaborations

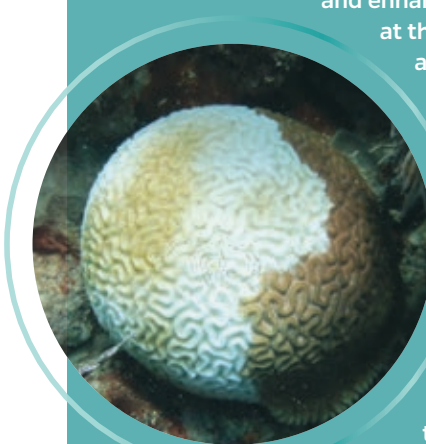
IN THE U.S. CARIBBEAN

Courtney Tierney, USVI Department of Planning and Natural Resources, **Dr. María Vega-Rodríguez**, Puerto Rico Department of Natural and Environmental Resources, and **Matthew Warham**, USVI Department of Planning and Natural Resources

In recognition of the devastating impacts of SCTL D to coral reefs of the U.S. Caribbean, the Governments of Puerto Rico and the U.S. Virgin Islands (USVI) signed a joint letter of support in August 2022. The letter commits to sustaining and enhancing disease response efforts at the jurisdictional, regional, and national levels. Signed in the USVI by Department of Planning and Natural Resources representatives Jean-Pierre Oriol, Nicole Angeli, and Marlon Hibbert and in Puerto Rico by Department of Natural and Environmental Resources representatives Anaïs Rodríguez Vega, Damaris Delgado, and Cristina Cabrera, the open letter catalyzes regional collaboration against SCTL D and other coral diseases.

The letter commits to sustaining and enhancing disease response efforts at the jurisdictional, regional, and national levels.

This achievement of cross-jurisdictional support resulted from a series of virtual workshops hosted by Florida Sea Grant, the Virgin Islands Department of Planning and Natural Resources, and the Puerto Rico Department of Natural and Environmental Resources. These workshops aimed to unite resource managers, researchers, coral restoration practitioners, and the general public to discuss important aspects of disease response such as outreach and education, research, rescue and restoration, and direct interventions. This level of leadership support will be critical in leveraging additional resources from local and federal partners, especially by directly supporting the NOAA Strategy for Stony Coral Tissue Loss Disease: An Implementation Plan for Response and Prevention, which if funded, will provide millions of dollars of support to disease response efforts in both Puerto Rico and the USVI.



A brain coral infected with SCTL D shows rapid tissue loss



NEW GROUND

First Land-Based Sea Urchin & Coral Nursery

IN CEIBA, PUERTO RICO

Dr. María Vega-Rodríguez, Puerto Rico Department of Natural and Environmental Resources

The "Centro de Investigación y Restauración de Organismos Marinos - (CIROM)," a land-based nursery for the long-spined sea urchin *Diadema antillarum*, has been established at Ceiba, Puerto Rico (in the northeast region of the island). The CIROM is one of two land-based sea urchin restoration nurseries housed in Puerto Rico but it is the first one established on the Northeastern region of the island. The establishment of this nursery in Puerto Rico is important given the recent die-offs of *D. antillarum* in the Caribbean and the ease in transporting and working with sea urchins along the northeastern coast. Currently, it holds 12 sea urchin tanks with an additional eight tanks to be constructed with Emergency Funds from the National Fish and Wildlife Foundation and the National Oceanic and Atmospheric Administration. Two species of sea urchins, *Diadema antillarum* and *Tripneustes ventricosus*, are currently being reared at the CIROM.

Aligning with the need to protect highly-susceptible coral species from SCTL D, the CIROM will be expanded to include 12 raceways for corals. This expansion should be completed by mid-2023. The overall goal is for this facility to assist with sea urchin and coral reef restoration efforts while creating a center for education, training, and outreach.

This work is developed in partnership with the Institute for Socio-Ecological Research Caribe, Inc. and the Puerto Rico Department of Natural and Environmental Resources.



DR. STACEY WILLIAMS, CO-FOUNDER OF ISER-CARIBE, INC.

PREPARED FOR THE WORST

Advanced Emergency Planning for Coral Care

Beth Firchau, Association of Zoos & Aquariums

At the peak of hurricane season this year, we witnessed the incredible force of Mother Nature as the extreme weather of Hurricane Ian hammered the Florida peninsula. Leading up to both before and after the storm, many were concerned about the fate of our rescued corals residing in land-based nurseries across the state of Florida. How does one prepare thousands of delicate, genetically valuable corals to ride out the massive storm surge, possible power outages, and inevitable infrastructure destruction associated with a hurricane? For our Association of Zoos and Aquariums (AZA) coral care facilities to be ready for anything, it is all about preparation and years of experience.



According to AZA standards, every accredited facility is required to have an emergency response plan and to practice the execution of the plan every year. These plans require an integrated emergency management and response system that combines zoo and aquarium personnel and appropriate local agencies in incident management planning and response. Live-action and tabletop emergency drills are conducted at least once each year for four types of emergencies, which include weather and environmental emergencies. For these emergencies, plans require that facilities have adequate food and water stores, medications, and generators to power heating or cooling systems and aquatic life support. These provide the basic life needs of the animals in their care no matter the configuration of the emergency event.

Appropriate emergency response planning also includes animal managers, like Florida rescue coral care teams, and advanced planning to address the need to potentially relocate sensitive animal collections at another AZA facility ahead of an emergency. This ensures that when the time comes, animal relocation is performed quickly and efficiently, oftentimes with little notice.

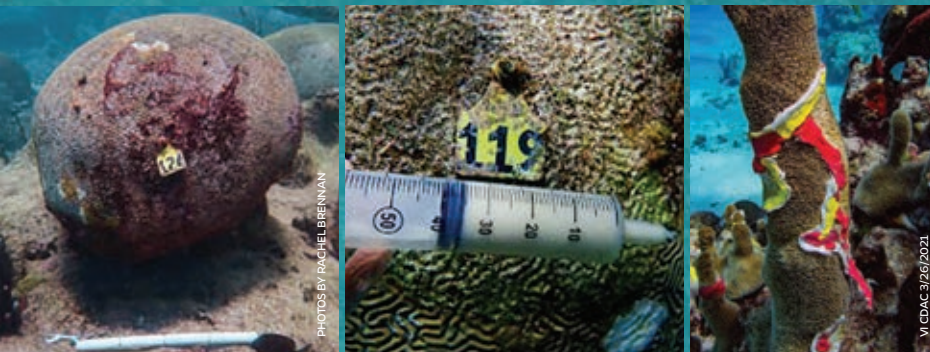
Whether a facility is located on the Florida peninsula, a mile high in the Rocky Mountains, or in the flood plains of the Mississippi River, when it comes to emergency response, AZA-accredited facilities hope for the best and are prepared for the worst.

Amoxicillin Ratio Trials

By Rachel Brennan, National Park Service, Virgin Islands National Park

Just as humans can be treated with antibiotics when they are sick, so can corals! When corals are infected with SCTLD they develop a distinct pattern of lesions in multiple locations on the colony that results in tissue loss. The current standard practice for treating SCTLD involves mixing an antibiotic (amoxicillin) with a special patented Base2B paste, at a strong ratio of 1:8 to be applied to corals and stop the spread of the disease lesions. Amoxicillin is not only costly, but it also increases the antibiotic load in the water which may cause unforeseen circumstances in the environment. In the summer of 2022, National Park Service staff at Virgin Islands National Park conducted a study to see if they could use a lower dose of amoxicillin to effectively treat corals sick with SCTLD while also decreasing the amount of antibiotics added to the water.

Results of the study indicated that lower ratios of amoxicillin were the most effective at preventing the spread of SCTLD on brain coral colonies.



SCTLD-infected corals are treated with antibiotic paste and tagged for monitoring of treatment effectiveness

Results of the study indicated that lower ratios of amoxicillin were the most effective at preventing the spread of SCTLD on brain coral colonies, demonstrating that a mid-strength antibiotic paste (1:12) may be just as, if not more, effective than the current standard treatment (1:8 ratio). By modifying treatment methods to account for these results, coral practitioners can potentially lower the cost of treatment materials while also releasing a lower amount of antibiotics into the environment.

Predicting SCTLD Transmission

Dr. Marilyn Brandt, University of the Virgin Islands and Sonora Meiling, University of the Virgin Islands

A TEAM of ecologists, ocean connectivity and disease modelers, microbiologists, and coral immunologists from the University of Virgin Islands (UVI), Louisiana State University (LSU), Rice University, University of Texas-Arlington, and the Woods Hole Oceanographic Institution are working to develop a model that predicts the transmission of SCTLD using susceptibility characteristics determined from the coral level up to the seascape.



In early April 2022, a team of 27 people representing six participating labs completed an incredible sampling effort across the U.S. Virgin Islands (USVI), which was groundbreaking in the number of coral species sampled. Corals were sampled across three islands and two disease zones (epidemic and endemic), requiring seven permits. Altogether, the sampling mission was 24 days long, included 199 dives and 628 nautical miles, and resulted in 233 corals sampled, 230 sediment samples, 341 water samples, and 113 fish follows.

24-DAY USVI SAMPLING MISSION

| | | |
|--|---|--|
|  199 Dives Completed |  628 Nautical Miles |  233 Coral Samples |
|  230 Sediment Samples |  341 Water Samples |  113 Fish Follows |



In 2022, a team of 27 people representing six participating labs completed an incredible sampling effort across the U.S. Virgin Islands, which was groundbreaking in the number of coral species sampled.

Researchers are now hard at work processing the samples with the goal of better understanding what determines coral susceptibility to disease and how this susceptibility varies across species. This information will be incorporated into the overall model to improve predictions about how the disease will spread in the future. In the meantime, team members at UVI are revisiting the sampled colonies to monitor their health and how fast SCTLD lesions are progressing. Researchers are confident this research will lead to major advancements in our understanding of SCTLD spread and impact.

The research team would like to recognize the efforts of the Virgin Islands Coral Disease Advisory Committee, Caribbean Oceanic Restoration and Education Foundation, USVI Department of Planning and Natural Resources, National Oceanic and Atmospheric Administration, National Park Service, Virgin Islands Reef Response, UVI Marine Science facilities and administrative staff, and the UVI SCTLD treatment team in supporting this research. They would also like to thank the National Science Foundation's Ecology and Evolution of Infectious Disease program for funding this critical project.



MOVING FORWARD

Preparation in the Pacific

Ashleigh Epps, Florida Sea Grant

Although SCTLD has not yet reached the Pacific Ocean, we have seen the devastating impacts of SCTLD on reefs across the Caribbean. Coral managers and practitioners are developing a framework for preparedness and response planning in the event that disease intervention is needed within the Pacific.

The Pacific Preparedness Workshop series was created and started virtually in November 2021 and has consisted of one in-person and three virtual workshops. Each workshop focused on a different topic, such as preparedness planning, surveillance strategies, intervention, and identifying needs and gaps within the regional and national priorities.

Representatives from the Pacific and Atlantic regions came together to share about the states of their coral reefs. Through this exercise, those from the Pacific were able to take lessons learned from the Atlantic on preparing and improving disease response. A second workshop focused on introducing Pacific managers and practitioners to surveillance strategies for SCTLD, specifically disease identification, identification of priority sites, data collection, and disinfection guidelines as it relates to SCTLD. The last of the virtual workshop series focused on coral rescue and intervention planning in the Pacific, including permit requirements, treatment equipment, and collecting corals now to ensure the preservation of species diversity.

The Pacific Preparedness team recently came together in person for a workshop hosted at the 45th U.S. Coral Reef Task Force meeting in Kona, Hawai'i. Moving forward, the team plans to increase accessible resources, enhance coordination among the Pacific jurisdictions, and continue collaborations with Atlantic/Caribbean partners regarding their experiences addressing SCTLD.



Scientific diver records information on disease progression in the USVI



PREVENTION PRIORITIES

NOAA's Plan to Respond to and Prevent SCTLD

Ashleigh Epps and Caroline McLaughlin, Florida Sea Grant

In October 2022, NOAA released the [NOAA Strategy for Stony Coral Tissue Loss Disease: An Implementation Plan for Response and Prevention](#), a roadmap to help guide the agency's actions to respond to the disease and prevent the further spread of SCTLD along American coral reefs.

The implementation plan:

- Builds on goals and agency priorities identified in the 2020 [NOAA Strategy for SCTLD Response and Prevention](#),
- Outlines a detailed, five-year course of action for SCTLD response and prevention,
- Matches agency capacity with SCTLD response needs and complement and enhance the efforts of NOAA's partners, and
- Highlights key actions necessary to understand and address.

the new threat to coral reefs over the long-term

The implementation plan identifies areas where sustained efforts are needed and new activities that may be carried out by either NOAA or other governmental and nongovernmental partners. Following the publication of the plan, NOAA and partners will work to secure funding for its implementation. An estimated \$125 million will be required over five years to fully execute the plan.

The plan includes 51 activities to critical to addressing the current outbreak of SCTLD in the Atlantic and Caribbean and preventing the spread of the disease to the Pacific. Among these activities, priorities were identified to be funded and implemented first.



PRIORITY EFFORTS

- ✓ Expand research and data collection
- ✓ Stop the spread of the disease
- ✓ Preserve coral cover and biodiversity
- ✓ Restore ecosystem health and resilience
- ✓ Increase capacity for response and prevention



PUERTO RICO'S Emergency Response Strategic Plan and Intervention Efforts

Amanda L. Prieto, Puerto Rico Department of Natural and Environmental Resources

PUERTO RICO'S SCTLD Emergency Response Strategic Plan was developed following Governor Pierluisi's State of Emergency Declaration for the disease and is currently being implemented. The Strategic Plan enhances support for SCTLD response efforts through the treatment of sick corals, increased volunteer participation, and development of community partnerships. Through this Strategic Plan, the Department of Natural and Environmental Resources (DNER) has reevaluated the SCTLD reef sites and published a new priority list based on the current need for SCTLD intervention. The DNER will be monitoring treatment success for colonies treated with antibiotics and will be researching population demographics as impacted by the coral disease. In addition, this plan is critical for the deployment of the DNER's Coral Reef Conservation and Management Citizen Science Program. Expectations are for citizens to be involved with collecting observational data on the reef that is relevant to understanding the impacts of the coral disease in the DNER's priority sites. The Governor's declaration was accompanied by an allocation of \$1 million to the DNER to implement priorities for coral disease response around the island.



PLAN OF ACTION

International Coral Reef Initiative

Madyson Miller, 2022 Knauss Marine Policy Fellow, NOAA Coral Reef Conservation Program

Founded by eight countries in 1994, the [International Coral Reef Initiative \(ICRI\)](#) now unites 96 members (including 45 countries) in a global partnership to support the preservation of the world's coral reefs and associated ecosystems. ICRI is currently chaired by the [United States of America](#), represented by the US Department of State and the National Oceanic and Atmospheric Administration (NOAA).

Under this new chair, the ICRI Secretariat recently launched their [2021-2024 Plan of Action: Turning the Tide for Coral Reefs](#). It consists of four themes that support the desired outcome and achievable actions that can be taken by the ICRI Secretariat and members:

- 1. Preparing For The Future: Promoting Resilient Coral Reefs**
To understand and promote the resilience of coral reefs and related ecosystems through policies and conservation practices that encourage resilience-based management and recovery of coral reefs worldwide.
- 2. Coral Reef Science And Oceanography: Advancing And Utilizing The Latest Science And Technology**
To utilize, promote, and convene new technologies and rigorous scientific data to report on the status of coral reefs worldwide, guiding science-based management and policies.

3. Local Threat Reduction: Integrating Response Planning Frameworks
To consolidate and integrate coral reef response plans into a common response framework that will simplify and facilitate response for local coral managers.

4. Diversity And Inclusion: Expanding The Coral Reef Community
To broaden the coral reef community to include underrepresented voices, including Indigenous, local, and youth communities.

ICRI also manages the [Global Coral Reef Monitoring Network \(GCRMN\)](#), an operational network that aims to provide the best available scientific information on the status and trends of coral reef ecosystems for their conservation and management. It is a global network of scientists, managers, and organizations that monitor the condition of coral reefs globally. Last year, the GCRMN released the sixth edition of the [Status of Coral Reefs of the World](#) report. It was the first report since 2008 based on the quantitative analysis of a global dataset compiled from raw monitoring data contributed by more than 300 members of the network. The global dataset spanned more than 40 years from 1978 to 2019 and consisted of almost 2 million observations from more than 12,000 sites in 73 reef-bearing countries around the world.



US Coral Reef Task Force at Village of Miloli'i, a Community-Based Subsistence Fishing Area

U.S. Coral Reef Task Force Reunites in Hawai'i

Madysen Miller, 2022 Knauss Marine Policy Fellow, NOAA Coral Reef Conservation Program

From August 27–September 3, 2022, members of the U.S. Coral Reef Task Force from across the nation gathered in Kona, Hawai'i for the first in-person meeting since 2019 to collaborate on strategies to better protect U.S. coral reefs. The U.S. Coral Reef Task Force (USCRTF) was established in 1998 by Presidential Executive Order 13089 with the mission to preserve and protect coral reef ecosystems. The USCRTF is made up of leaders from 14 federal agencies, seven U.S. coral jurisdictions (Florida, Puerto Rico, U.S. Virgin Islands, Guam, Commonwealth of the Mariana Islands, American Samoa, Hawai'i), and three freely associated states (Federated States of Micronesia, Palau, Marshall Islands). The USCRTF holds semiannual meetings to help

build partnerships and support for on-the-ground action to conserve coral reefs. Areas by 2030. Discussions at the public business meeting focused on the future of coral reefs, advances in research and development, updates on coral disease and bleaching, and the use of corals as natural infrastructure. The meeting also included a public comment period allowing local community members to express their concerns for the future of our oceans. Additionally, the Task Force approved the Coral Reef Restoration for Risk Reduction (CR4) guide, which supports communities seeking funding to reduce flood risks by restoring coral reefs for storm hazard mitigation and climate adaptation.

Throughout the week, the Hawai'i planning team organized several site visits to various coral destinations around Kona including Kaloko-Honokōhau National Historical Park, Miloli'i Community-Based Subsistence Fishing Area, the South Kohala Watershed, and Kealakekua Bay. Additionally, some participants even had the chance to conduct site visits on other islands, exploring the West Maui Watershed and the Ānuenuē Fisheries Research Center on O'ahu. These site visits played a crucial role in informing Task Force leadership about local management efforts happening around the Hawaiian Islands and provided the opportunity for Task Force members to interact with local stakeholders and community members.

The next meeting of the Task Force will take place in Washington, D.C. in April 2023.



Kealakekua Bay where USCRTF members were able to learn about coral restoration efforts happening in Hawai'i.

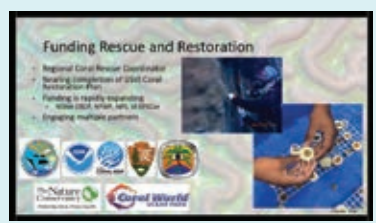
U.S. Caribbean SCTLD Virtual Workshop Series

Ashleigh Epps, Florida Sea Grant

The U.S. Coral Reef Task Force's Coral Disease Working Group hosted a series of virtual workshops focused on enhancing regional collaboration in the U.S. Caribbean on SCTLD response efforts. The series brought together stakeholders from Puerto Rico, the U.S. Virgin Islands (USVI), Florida, and the international Caribbean. Workshop topics included coral disease research and intervention, coral rescue and restoration, and communications and public engagement. As a result of the workshops, SCTLD response teams in Puerto Rico and the USVI identified top coral disease response



The 2022 workshop series brought together stakeholders from Puerto Rico, the U.S. Virgin Islands (USVI), Florida, and the international Caribbean.



Matthew Warham from the USVI presents USVI's disease response priorities at the U.S. Caribbean virtual workshop

needs for their individual jurisdictions and for the region as a whole. A number of opportunities for regional collaboration also emerged, including increased coordination on coral rescue with the need to hire a regional coral rescue coordinator, expand land-based coral rescue and restoration capacity, and initiate a regional coral rescue planning process. Participants also identified a need to increase coordination among researchers, explore the possibility of submitting joint research proposals, and the need to enhance collaboration on communications materials and public messaging. Finally, the workshops resulted in increased collaboration among leadership bodies and the development of a joint statement of commitment to enhance disease response at the local, regional, and national levels. The Coral Disease Working Group is hosting the next workshop in Puerto Rico in May 2023.



RESCUE RESPONSE Caribbean MPA Managers Get Ready for Coral Rescue

Dana Wusinich-Mendez, NOAA Coral Reef Conservation Program

Marine protected area (MPA) managers, coral reef resource managers, and coral restoration practitioners and scientists from 12 countries and territories across the wider Caribbean region came together in Key Largo, Florida in conjunction with the 2022 Reef Futures Symposium. At the conference, the MPAConnect learning network convened a peer-to-peer learning exchange to both prepare for and begin planning coral rescue efforts. NOAA's Coral Reef Conservation Program, Gulf and Caribbean Fisheries Institute (GCFI), the Atlantic and Gulf Rapid Reef Assessment (AGRRA), and Florida Sea Grant hosted the in-person workshop entitled "Planning for Coral Rescue as a Response to SCTLD in the Caribbean" on September 26, 2022. The workshop assisted coral reef managers and conservation practitioners in their efforts to plan for and implement the rescue of coral species that are being affected by SCTLD for the purpose of supporting the future restoration of these species on Caribbean coral reefs.

Expert speakers from Florida, Honduras, Mexico, Puerto Rico, the Turks and Caicos Islands, and the US Virgin Islands took a deep dive into coral rescue, sharing information about coral rescue planning, goals, strategies, technology, financing mechanisms, and partnership-building. Participants worked to select rescue

Expert speakers from Florida, Honduras, Mexico, Puerto Rico, the Turks and Caicos Islands, and the US Virgin Islands took a deep dive into coral rescue

approaches that could be implemented on their reefs and had the opportunity to speak to coral experts directly through an interactive Coral Rescue Cafe and map out their plans for coral rescue in their respective jurisdictions. The hosting organizations will be working both through MPAConnect as well as the Caribbean cooperation team of Florida's SCTLD response initiative to provide follow-up support to participating managers as they continue to develop and ultimately implement their own unique approaches to coral rescue in the face of SCTLD.



Florida coral rescue expert presents materials needed for rescue.



Students, professors, and alumni of the University of the Virgin Islands at the 15th International Coral Reef Symposium.

CONVENING FOR CORAL

2022 International Coral Reef Symposium

Madysen Miller, 2022 Knauss Marine Policy Fellow, NOAA Coral Reef Conservation Program

In July 2022, the International Coral Reef Society held the 15th International Coral Reef Symposium (ICRS) in-person meeting in Bremen, Germany. The ICRS is an international conference on coral reef science, conservation, and management, and brings together students, researchers, conservationists, experts, policy-makers, and managers to discuss present and future challenges of coral reefs. The conference featured a host of plenaries, panels, workshops, presentations, and local tours. Diverse presentation topics ranged from reef fish populations to coral genetics with a global audience representing over 80 countries. This year's gathering further promoted environmentalism by being the first-ever climate-neutral ICRS conference by avoiding local carbon emissions and offsetting any unavoidable carbon emissions.

The U.S. Atlantic and Caribbean coral jurisdictions were well represented at the symposium. Most of the research presented by these students and researchers focused on efforts to better understand SCTLD in the wider Atlantic/Caribbean region, including research on

causes, trends, genetics, and ecological impacts of the disease.

The Symposium fostered important conversations on science and policy, science communication, advancing technologies, diversity, and inclusion issues while incorporating local art into the conference topics. Mixing art and science is a crucial part of science communication and unlocking the core of science, which is creativity. Art can allow students and members of the public to better understand difficult scientific concepts. The local community of Bremen created a coral reef at the Übersee Museum out of household items such as yarn, hair ties, and even socks!

At the end of the 15th International Coral Reef Symposium, they announced that the 16th symposium will be held in Auckland, New Zealand in 2026. More information on ICRS and global coral reef research can be found on the [organization's website](#).



Community coral reef art project, Übersee Museum in Bremen, Germany.

OUR REEFS ARE LIFE

PUERTO RICO'S 2022 CORAL REEF WEEK

Dr. Maria Vega-Rodriguez, Puerto Rico Department of Natural and Environmental Resources



Painting ocean conservation messages on recycled wood at an event let by AmandOcéano - University of Puerto Rico, Mayaguez Campus.

Puerto Rico's 2022 Coral Reef Week, "Our Reefs are Life," hosted by the Department of Natural and Environmental Resources (DNER) Coral Program was a resounding success. In-person and virtual events hosted all over Puerto Rico focused on a variety of topics relating to our coral reefs. Events included painting recycled wood with conservation messages, public lectures, snorkeling and coral nursery tours, beach cleanups, photography competitions, and the first-ever "Eco Hackathon Puerto Rico," a series of educational workshops focusing on four sustainability challenges: water conservation, waste management, oceans/corals/reefs, and smart agriculture.

SPOTLIGHT



New Virgin Islands Coordinator monitors impacts of SCTLD

MEET THE TEAM



Meet the Virgin Island's New Coral Disease Response and Restoration Coordinator

Courtney Tierney, USVI Department of Planning and Natural Resources

COURTNEY TIERNEY (pictured) was hired by the US Virgin Islands Department of Planning and Natural Resources (USVI DPNR) for the position of Coral Disease Response and Restoration Coordinator. Beginning in July 2022, Tierney has been collaborating with partners and practitioners throughout the territory to ensure efficient and effective SCTLD response and coral restoration efforts in the USVI and with larger regional and national coral-focused groups. As the facilitator of the Virgin Islands Coral Disease Advisory Committee (VI-CDAC), Tierney has been supporting all five sub-teams of the committee to implement the recently composed 2023 Action Plan over the course of the year.

Raised in New Jersey, Tierney's first interaction with corals was during a high school internship at a small pet store where she was tasked with rebuilding a collapsed coral tank. Since then, before making her way to St. Thomas, Tierney conducted coral disease research in the National Marine Sanctuary of American Samoa, built capacity for and conducted coral restoration with a non-profit in Haiti, and provided the groundwork for creating a restoration coordinator position for an eco-tourism company in Florida. Tierney is eager to continue her work in natural resource management through the protection and enhancement of USVI coral reefs and their invaluable services.

Florida Sea Grant Welcomes New Coral Propagation Coordinator

Morgan Eason, Florida Sea Grant in support of Florida Fish & Wildlife Conservation Commission and **Maurizio Martinelli**, Florida Sea Grant

MORGAN EASON has been selected to serve as Florida's new Coral Propagation Coordinator, a position housed with Florida Sea Grant in support of the Florida Fish and Wildlife Conservation Commission (FWC). In her role, Morgan is working to create a plan for propagating SCTLD-susceptible corals collected as part of the State's coral rescue effort. This plan will be designed as a pipeline, where partner facilities will participate in at least one stage of the continuum from coral rescue to restoration: broodstock holding, spawning, assisted fertilization, settlement, growout, and outplanting. Coral propagation will be guided by a genetic management plan to ensure the long-term viability of coral populations that are outplanted onto coral reefs. Propagation planning will also include the expansion of land- and sea-based nursery infrastructure to accommodate for the new generations of Florida corals. The ultimate goal of this highly collaborative effort is to outplant resilient, genetically diverse corals back onto the reef to support the restoration and recovery of Florida's Coral Reef.

Continued...



MORGAN EASON *Continued...*

Morgan graduated from the University of North Florida in 2017 with a bachelor's degree in Environmental and Wildlife Conservation. During her undergraduate studies, she was active in the Shark Ecology Program, frequently conducting fieldwork tagging sharks around North Florida, and completing her own research project on the reproductive physiology of bonnethead sharks. In addition, she completed an internship at the Cape Eleuthera Institute in Eleuthera, The Bahamas, assisting the Institute's ongoing shark and ray population ecology studies, as well as deep-sea ecology research in the Exuma Sound, focused on plastic ingestion surveys of deep-sea isopods.

Morgan then attended graduate school at the Rosenstiel School of Marine, Atmospheric, and Earth Sciences at the University of Miami, receiving her master's degree in Marine Conservation. During this time, she completed an internship at the Phillip and Patricia Frost Museum of Science in support of her master's thesis project where she created spawning procedures for long-spined sea urchin (*Diadema antillarum*). During her studies, Morgan was hired by Frost, where she worked as an aquarist, focusing primarily on coral husbandry and quarantine treatments for sick and incoming exhibit animals. In her free time, Morgan enjoys diving, fishing, hunting, hiking, or anything else outdoors, and she brings along her dog Izzie whenever possible. Conservation is Morgan's passion, and she is excited to continue her work as the Coral Propagation Coordinator!



Sophie
working in the
nursery at the
Coral World
Ocean and
Reef Initiative
in USVI.

PURSUIT OF PASSION

Congratulations, NOAA Hollings Undergraduate Scholarship Recipient

Sophie Maginnes, NOAA Hollings Scholar

SOPHIE MAGINNES, a senior studying both environmental science and biology with a concentration in marine science and conservation at Duke University,

was a recipient of the NOAA Hollings Scholarship.

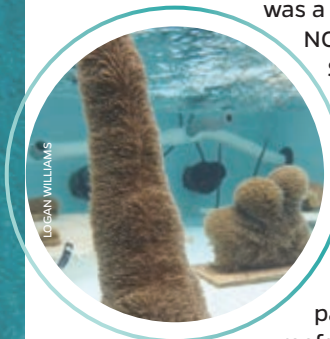
Sophie was first inspired to apply to the Hollings Scholarship when she discovered a passion for coral reefs; however, she

felt unable to pursue this interest at a landlocked school. Through the Hollings program, Sophie

jumped into the world of coral disease response by completing an internship with NOAA's Coral Reef Conservation Program in partnership with Florida Sea Grant to support the efforts of the U.S. Coral Reef Task Force Coral Disease Working Group and its sub-

committees. She worked predominantly with the Pacific Preparedness Team, which ensures that jurisdictions in the Pacific are well-equipped with the knowledge and resources necessary for response in the event that SCTLTD were to reach their reefs and intervention was needed. Sophie helped in the creation of key communication materials, as well as the planning and execution of multiple workshops. She also conducted a literature review of all current SCTLTD treatment methods and developed a database of governmental and private funding opportunities for coral disease response.

In addition to the work with the Task Force, Sophie assisted in field efforts at the Coral World Ocean and Reef Initiative in the U.S. Virgin Islands (USVI). She gained experience in coral husbandry and developed technical skills in disease identification, treatment, coral collection, and outplanting. Sophie is excited to move forward with her experience as a Hollings Scholar and continue pursuing a career in marine conservation.



Rescued endangered pillar coral cared for at Coral World on St. Thomas.

STONY CORAL TISSUE LOSS DISEASE SEMI-ANNUAL NEWSLETTER | WINTER 2023

Caroline Donovan, NOAA Coral Reef Conservation Program

Ashleigh Epps, Florida Sea Grant

Kristina Edwards, USVI Department of Planning and Natural Resources

Shelly Krueger, Florida Sea Grant

Maurizio Martinelli, Florida Sea Grant

Caroline McLaughlin, Florida Sea Grant

Madyson Miller, NOAA Coral Reef Conservation Program

Dr. Valerie Paul, Smithsonian Marine Station

Dr. Rachel Skubel, Florida Department of Environmental Protection

Courtney Tierney, USVI Department of Planning and Natural Resources

Dr. María Vega-Rodríguez, Puerto Rico Department of Planning and Natural Resources

Kennedy Wall, Florida Sea Grant

Matthew Warham, USVI Department of Planning and Natural Resources

Dana Wusinich-Mendez, NOAA Coral Reef Conservation Program

CONTACT: Caroline McLaughlin
National Coral Disease Coordinator, Florida Sea Grant,
cmclaughlin1@ufl.edu

