

2022 U.S. Regional Caribbean Stony Coral Tissue Loss Disease  
Virtual Workshop Series  
March-July, 2022

**SUMMARY**

**Overview:** The 2022 U.S. Regional Caribbean stony coral tissue loss disease (SCTLD) Virtual Workshop Series convened disease response participants from the U.S. Virgin Islands (USVI) and Puerto Rico to promote information exchange, coordination of effort, and collaboration on projects, with a focus on enhancing disease response efforts in the U.S. Caribbean. Participants also included coral disease experts, coral managers, and coral practitioners from Florida and the international Caribbean, who shared guidance, expertise, and lessons learned.

**Planning Team Members:** Caroline McLaughlin (Florida Sea Grant), Dana Wusinich-Mendez (NOAA Coral Reef Conservation Program), Leslie Henderson (NOAA Office for Coastal Management), Matt Warham (USVI Department of Planning & Natural Resources), Aurora Justiniano-Santos (NOAA Coral Reef Conservation Program), Maria Vega-Rodriguez (Puerto Rico Department of Natural and Environmental Resources), Dinorah Chacin (NMFS), Amanda Prieto (Puerto Rico Department of Natural and Environmental Resources), Madyson Miller (NOAA), Ashleigh Epps (Florida Sea Grant), & Megan Considine (Florida Sea Grant)

**Objectives:**

- Inter-jurisdictional collaboration, information-sharing, and cross pollination on coral disease response efforts
- Jurisdiction-specific collaboration using breakout rooms
- Generation of summary report/action plans
- Increase engagement/action from partners

**Workshop Sessions (Recordings are hyperlinked where available):**

- [Public Engagement, Communications & Community Partnerships](#), March 16th, 2022
- [Research, Treatment and Intervention](#), March 18th, 2022
- [Coral Rescue and Restoration](#), April 27th, 2022
- Workshop Wrap-Up Session, May 4th, 2022
- Manager's Strategy Session, May 4th, 2022
- Joint Leadership Session, June 1st, 2022
- [Diverse & Sustained Funding](#), July 13th, 2022

**Public Engagement, Communications, & Community Partners Session**

March 16th, 2022

**Goal:** Develop a coordinated communications approach & shared messaging where possible. Identify opportunities to increase public awareness & support for efforts. Identify gaps in efforts. Discuss higher level messaging. Highlight successful partnerships, including benefits & challenges of those partnerships, and opportunities for increased participation among community partners. Identify ways to increase stakeholder involvement & additional organizations that could play a role in response.

**Participants:** Caroline McLaughlin, Kitty Edwards, Matt Warham, Amanda Prieto, Megan Considine, Aurora Justiniano-Santos, Brigitte Berry, Carlos Prada, Dinorah Chacin, Erin Bowman, Fabiola Torres, Joel Melendez, Leslie Henderson, Logan Williams, Lugo Ricardo, Madyson Miller, Moriah Sevier, Edwin Hernandez-Delgado, Ana Toline, Shelly Krueger, Caroline McLaughlin, Melissa Gonzalez, Paco Lopez, Sonora Meiling, Sarah Elise, Maria Vega-Rodriguez, Xaymara Serrano, Caroline Pott, Fabiola Rivera

[Session Recording](#)

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[Jamboard: Puerto Rico Breakout Room](#)

[Jamboard: USVI Breakout Room](#)

**Presentations:**

- **US Virgin Islands Communications Report Out**, *Kitty Edwards, USVI DPNR*
- **Puerto Rico Communications Report Out**, *Melissa González, PR DNER*
- **Florida Communications Report Out**, *Shelly Krueger, Florida SeaGrant*
- **National Team Report Out**, *Megan Considine, Coral Disease Associate, Florida SeaGrant*
- **Social Media and Networking Best Practices**, *Brigitte Berry, Social Media Expert*

**Main Takeaways:**

- USVI:
  - Regular updates to the VI-CDAC website
  - Expanding back into in-person events
  - Continued collaboration with partners
  - Continued social media presence from all teams
- Puerto Rico:
  - Continuation with monthly meetings
  - Expansion of citizen science efforts
  - Using Facebook, YouTube, and Instagram to help educate
  - Continuing partnership with SeaGrant to update the website and dashboards
  - June 2022 - Coral Reef Week
- National:
  - NOAA SCTL Implementation Plan
  - SCTL Prospectus - fact sheet about SCTL targeted for a non-technical audience
  - USCRF Coral Disease Working Group - Newsletter and Pacific Preparedness Workshops
- Social Media Management
  - Can track analytics on professional pages on most platforms
  - Important to make sure photos are high quality and aren't being repeated
  - Re-sharing posts can help cross share and promote sister organizations
  - Make sure social media posts are providing clear and simple asks

**Next Steps:**

- Next steps from jurisdictional perspectives
  - Share! Photos, social media, stories. Share between teams and jurisdictions
  - Prioritize communications! Make a point to set aside funding for photographers, graphic designers, etc. when writing for funding opportunities
  - Communicate with one another! Within our teams, within jurisdictions and between jurisdictions

- Regional-level actions to consider
  - Scheduling regular comms meetings within and between regions
  - Compile photos and resources
  - Create standardized messaging guidelines

## Research, Treatment and Intervention Session

March 18th, 2022

**Goal:** Information exchange, discussion, and promotion of a shared understanding of current research, treatment and intervention priorities to inform best management practices. Major lines of research that have already come out or type of information we are anticipating and how those might inform response efforts. Caribbean wide research projects, data or intervention strategies that can be coordinated at a regional level. Discuss intervention best practices and lessons learned; share successes and failures, different treatments being used, and future intervention plans.

**Participants:** Dinorah Chacin, Maria Vega-Rodriguez, Amanda Prieto, Caroline McLaughlin, Madyson Miller, Nick Rosenau, Joel Melendez, Jason Quetel, Ricardo Lugo, Matt Warham, Sonora Meiling, Megan Considine, Marilyn Brandt, Shamoy Bideau, Aura, Jessica Ward, Joyah Watkins, Anna Toline, Larry Dew, Jennifer Schull, Fabiola Torres, Alex Veglia, Carlos Prada, Aries Chaparro, Jason Quetel, Cheryl Woodley, Melissa Gonzales, Ivanna, Kayla Budd, Brian Walker, Shamoy Bideau, Sarah D Von Hoene, Logan Williams, Moriah Sevier, Victoria Barker, Allie Kozachuk, Samuel Gittens, Weil, James Evans, Joseph Townsend, Alison Moulding, Erin Hollander, Davis Storb, Erin Bowman, Sam Cook, Michael Nemeth, Leslie Henderson, Fabiola Rivera Irizarry, Amanda Badai, Dana Wusinich-Mendez, Macallan Durkin, Catalina Morales, Edwin Hernandez-Delgado, Kathryn Cobleigh, Daniel A Toledo-Rodriguez, Ricardo Colon Rivera, Miguel Figuerola, Iser Caribe, Helena Antoun, Adrienne Correa, Jocelyn Karazsia, Alana Nunn, Marlon Hibbert, Alexandra Gutting, Adrienne Correa, Iser Caribe

[Workshop Recording](#)

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[Jamboard: Puerto Rico Breakout Room](#)

[Jamboard: USVI Breakout Room](#)

### Presentations:

- **SCTLD Vectors**, *Dr. Nicholas Rosenau, US Environmental Protection Agency*
- **SCTLD Environmental Factors, Transmission, Host Resistance**, *Dr. Marilyn Brandt, University of the Virgin Islands (UVI)*
- **Coral Species Susceptibility to SCTLD**, *Arellys Chaparro, UVI*
- **The role of habitat/depth, symbionts, and host genotypes on the spread of SCTLD**, *Dr. Carlos Prada, University of Rhode Island*
- **Viral Pathogen Research**, *Alex Veglia, Rice University*
- **SCTLD Population Dynamics in Puerto Rico**, *Dr. Edwin Hernandez, University of Puerto Rico (UPR) & Sociedad Ambiente Marino*
- **Reef-Scale Impacts of localized SCTLD treatments**, *Sonora Meiling, UVI*
- **Puerto Rico's approach to SCTLD intervention**, *Dr. Maria Vega-Rodriguez, PR DNER*
- **The USVI's approach to SCTLD Intervention**, *Matthew Warham, USVI DPNR*

- **Monitoring and quantifying treatment success in Florida**, *Dr. Brian Walker, Nova Southeastern University*
- **Monitoring and quantifying treatment success in Puerto Rico** - *Miguel Figuerola, PR DNER*
- **Monitoring and quantifying treatment success in the USVI**, *Kayla Budd, National Parks Services & UVI*

#### Main Takeaways:

- Research Major Takeaways:
  - Ballast water may have been the spreading factor at a regional level for the spread of SCTLD in the Caribbean, once it landed in the jurisdictions local vectors could have influenced the spread of the disease locally
  - Not all stony coral species are impacted the same way. Susceptible to SCTLD might have to do with symbionts and depth and diversity may influence coral disease
  - Viruses as potential pathogens, research gap is identifying what exactly the disease is
  - SCTLD might be less active with thermal stress
- Treatment & Intervention Major Takeaways:
  - **(USVI)** How to measure disease progression and working to establish that methodology in the USVI
  - **(USVI)** Has been more established on recurring intervention efforts, maybe because the disease arrived there first
  - **(PR)** Puerto Rico's Strategic Plan for SCTLD
  - **(PR)** Problems frequency, how long to treat corals, what is success defined as
  - Both jurisdictions are performing intervention efforts with a lot of volunteer coordination
  - Florida, PR, and USVI brought forward the topic of monitoring and success - deciding what to treat and how to treat it

#### Next Steps:

- Next steps from jurisdictional actions:
  - **(USVI)** for intervention - increase on number of strike teams, so trying to get a better handle on the cost effectiveness of these efforts
  - **(USVI)** restoring USVI reefs and doing pilot studies on the success of susceptibility treatments and research
  - **(PR)** better understanding on how to define treatment success at a local level and to think about this on a jurisdictional level
  - **(PR)** Got funded for a *Dendrogyra* project - maybe room for collaboration
- Regional-level actions:
  - Make cross jurisdictional communication meetings weekly or monthly
  - Frequent meetings with critical participants to discuss current research, share ideas, and support one another
  - Meet with key participants from the workshops to address questions asked in breakout sessions
  - In-person research and intervention training
  - Create a focus group to determine treatment success
  - Water quality is an important research gap that needs to be focused on
  - Opportunity to think about research at a regional level, combining similar research proposals to avoid overlap

## Coral Rescue and Restoration Session

April 27th, 2022

**Goal:** Discuss current coral rescue and SCTLD-relevant restoration activities, goals, and opportunities for regional collaboration.

**Participants:** Leslie Henderson, Michael Nemeth, Caroline McLaughlin, Madyson Miller, Maurizio Martinelli, Logan Williams, Stacey Williams, Kathryn Cobleigh, Edwin Hernandez, Melissa Alvarez, Matthew Warham, Jennifer Stein, Helena Antoun, Amanda Prieto, Erin Bowman, Dana Wusinich-Mendez, Joe Townsend, Jason Quetel, Macallan Durkin, Sonora Meiling, Ricardo Lugo, Joel Melendez, Samuel Gittens Jr, Kayla Budd, Christina Mallica, Jen Schull, Paco Lopez, Harper, Daniel Toledo, Alicia Vollmer, Fabiola Torres, Moriah Seiver, Alison Moulding, Allan Anderson, Tanya Ramseyer, Catalina Morales, Sarah Elise, Anna Toline, Larry Dew, Marilyn Brandt, Aurora Justiniano-Santos, Maria Vega-Rodriguez, Xaymara Serrano, Patricia Kramer, Sara Von Hoene, Carlos Prada, Marlon Hibbert, Judith Lang, Cheryl Woodley, Melissa Gonzalez

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### Presentations:

- **USVI Coral Rescue: Current Capacity & Next Steps**, *Logan Williams, Coral World Ocean Reef Initiative*
- **Rescuing Corals in Puerto Rico: Challenges of a Land-Based Nursery**, *Dr. Stacey Williams, Institute for Socioecological Research*
- **Shallow Coral Reef Ecological Rehabilitation in Lieu of SCTLD Impacts in Puerto Rico: Strategies and Challenges**, *Dr. Edwin Hernandez, UPR*
- **USVI's Strategies for Restoration in Diseased Areas**, *Kathryn Cobleigh, UVI*
- **Restoration in Disease Zones – takeaways from Florida**, *Maurizio Martinelli, Florida Sea Grant*

### Main Takeaways:

- Rescue Session:
  - USVI & PR don't have huge capacity currently to keep and maintain corals long term in holding facilities
    - Funded need to get more tanks and manpower
    - Both focused on rescue and release; Florida has resources for long-term care
  - PR & USVI poll about coordination between territories - most were for this collaboration
- Restoration Session:
  - **(USVI)** Research to guide feasibility of restoration
  - **(USVI)** 2022 plan for larval propagation - increase number of corals that can be produced
  - **(USVI)** Microfragmenting with SCTLD resistant survivors
  - **(USVI)** Monitoring work to identify where survivors are - potentially resilient genotypes
  - **(PR)** Importance of demographic approach to quantitatively guide restoration
  - **(PR)** Potential of genotype and site derived resistance to SCTLD

### Next Steps:

- Next steps from jurisdictional perspectives

- Rescue Session:
  - Find a way to share data, standardized methods, etc.
  - Working together to apply for funding between jurisdictions
  - USVI wants a coral rescue plan
- Restoration Session:
  - Priorities outlined in writing with some logos on it so that partners can reference
  - Cost-benefit of different restoration approaches
- Regional-level actions to consider
  - Rescue Session:
    - Communication between jurisdictions should be coordinate for a more regional approach
    - Identify a Regional Rescue Coordinator - Maryiln might have funding to support this kind of workforce fellow - Avoiding DPNR and DNER as hosts
    - Coral Rescue Plan development - easier to get funding if coordinating regionally
  - Restoration Session:
    - Build into existing coral restoration framework- Coral restoration consortium
    - Develop regional sub-groups maybe between PR and USVI
    - Coral Restoration Coordination position or maybe position that includes both rescue and restoration
    - Regional Caribbean message that restoration should move forward

## Workshop Wrap-Up Session

May 4th, 2022

**Goal:** Review key takeaways, action items and next steps from the virtual workshop

**Participants:** Caroline McLaughlin, Leslie Henderson, Matthew Warham, Dana Wusinich-Mendez, Kitty Edwards, Maria Vega-Rodriquez, Amanda Prieto, Dinorah Chacin, Michael Nemeth, Madyson Miller, Aurora Justiniano-Santos, Sonora Meiling, Erin Bowman, Logan Williams, Marilyn Brandt, Maria Sarriera, Caroline Pott, Marlon Hibbert

### Meeting Notes & Agenda

#### Main Takeaways:

- Session recapped major takeaways and next steps from the sessions on communications, research & intervention, and rescue & restoration

## Managers' Session

May 4th, 2022

**Goal:** Identify strategies for engaging and gaining support from leadership; examine options for structuring response effort coordination, especially in terms of creating a collaborative space to engage with leadership; and identify concrete next steps to improve leadership engagement.

**Participants:** Caroline McLaughlin, Dana Wusinich-Mendez, Madyson Miller, Erin Bowman, Leslie Henderson, Matthew Warham, Kitty Edwards, Maria Vega-Rodriquez, Dinorah Chacin, Michael Nemeth,

Aurora Justiniano-Santos, Amanda Prieto, Maurizio Martinelli, Caroline Pott, Helena Antoun, Damaris, Anna Toline

#### Main Takeaways:

- Public Engagement, Communications & Community Partners Session Priority
  - Identify strategies to effectively share info across the jurisdictions
  
- Research & Intervention Session Priorities
  - Coordinated research on treatment effectiveness and success at a regional level
  - Joint proposal for NMFS Section 6 funding
  - Research on coral predation as SCTL vector
  - Water quality characterization at a regional level and relationship to SCTL
  
- Rescue & Restoration Session Priorities
  - Regional rescue coordinator position
  - Regional coral rescue plan development
  - Shared restoration plans

#### Next Steps:

- Preparing for leadership session

## Joint Leadership Session

June 1st, 2022

**Goals:** Promote dialogue between leadership of jurisdictional coral disease response efforts, helping to define leadership roles, identify challenges, and share opportunities for improvement and success. Discuss opportunities for a joint letter of support.

**Participants:** Caroline McLaughlin, Sophie Maginnes, Leslie Henderson, Madyson Miller, Matthew Warnham, Maria Vega-Rodriguez, Maurizio Martinelli, Dinorah Chacin, Aurora Justinia-Santos, Marilyn Brandt, Nigel Fields, Gil McRae, Amanda Prieto, Caroline Gorga, Dana Wusinich-Mendez, Jennifer Koss, JP Oriol, Damaris Delgado, Marlon Hibberts, Cristina Cabrera, Yolanda Diaz , A. Alvino

#### Main Takeaways:

- **Florida Executive Coordination**
  - Executive Coordination Team (ECT) - The purpose of ECT is to cooperatively provide guidance on high-level response objectives and resource needs, and to engage with Agency leadership.
  - Steering Committee - purpose is to cooperatively provide guidance on the day-to-day operations of Florida's SCTL response.
  - Coral champions - the ones who have and continue to advocate for coral needs in the State legislature, and have been crucial for getting the type of support we have received from the State. Worth taking time to identify these individuals
- **Virgin Islands- Coral Disease Advisory Committee Executive Team**
  - USVI developed the VI-Coral Disease Advisory Committee or VI-CDAC- developed a strategic plan to help with response efforts and guide the committee
  - Executive Team- collaboration among agencies

- **Puerto Rico Coral Disease Leadership**
  - DNERR recruits champions in leadership and in coral reef conservation
  - Governor declared state of emergency executive order for SCTL D
    - Strategic Plan has a two-phased approach: 1) treating and intervention, 2) more focused on describing coral restoration efforts that need to happen in PR

#### Options for Future Collaboration

- Joint leadership meetings (local and national level)- potential for bi-annual meetings
- Coordination via USCRF Coral Disease Working Group- hold side meetings at Task Force meetings, consider Executive Lunch for important topics
- Joint research proposal and collaboration on research needs
- Coral rescue and restoration: regional coral rescue coordinator, regional coral rescue planning process, expand land-based nurseries and restore SCTL D-susceptible species
- Clear, consistent, strategic messaging
- Joint letter of support for coral disease response at local, regional, and national levels

### Sustainable Funding Session

July 13, 2022

**Goal:** Identify strategies to increase, sustain, and diversify funding to support coral disease response efforts

**Participants:** Caroline McLaughlin, Ashleigh Epps, Dana Wusinich-Mendez, Alizee Zimmermann, Amanda Prieto, Aurora Justiniano-Santos, Dinorah Chacin, Emma Doyle, Erin Bowman, Francis Lean, Joel Melendez, Joe Townsend, Judy Lang, Logan Williams, Madyson Miller, Maria Vega-Rodriguez, Marilyn Brandt, Matt Warham, Maurizio Martinelli, Melissa Gonzalez, Melissa Alvarez, Moriah Sevier, Ricardo Lugo, Sam Cook, Samuel Gittens Jr, Sarah Von Hoene, Sophie Maginnes, Stacey Williams, Tori Barker, Damaris Delgado, Paco Lopez, Annette Tolentino, Leslie Henderson, Kitty Edwards, Simon Walsch

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#### Presentations:

- **Puerto Rico Funding Strategies**, *Dr. Maria Vega-Rodriguez, Puerto Rico Department of Natural and Environmental Resources*
- **U.S. Virgin Islands Funding Strategies**, *Matthew Warham, USVI Department of Planning & Natural Resources*
- **Funding Florida's SCTL D Response**, *Maurizio Martinelli, Florida Sea Grant*
- **Turks & Caicos Funding Strategies**, *Alizee Zimmermann, Turks and Caicos Reef Fund*
- **Honduras Funding Strategies**, *Francis Leán, Roatan Marine Park*
- **Tools & Mechanisms for Sustainable Financing of Marine Conservation**, *Emma Doyle, MPACConnect*

#### Main Takeaways:

- **Puerto Rico Funding Strategies**
  - Puerto Rico Coral Reef conservation and Management program (Law 147, 1999)



- Funding sources: NOAA CRCP, USFWS, NOAA species recovery, private parties ((e.g. Medalla Brewing Company), TNC
- **U.S. Virgin Islands Funding Strategies**
  - Funding research: NSF rapid grant (~\$200,000), NSD EEID (~\$2.5 million), DOI Coral Reef Natural Resources Initiative (\$200,000), NSF VI EPSCoR, NPS funded research
  - Funding interventions: DOI, NPS, NOAA, donated goods/services
  - Funding rescue and restoration: Nearing completion of USVI coral restoration plan, funding is rapidly expanding
  - Next steps: proactive approach, new partner engagement, building local capacity, thinking regionally
- **Funding Florida's SCLTD Response**
  - 2015- present \$29 million funding dedicated to Florida for SCLTD response (USGS- 3%; NOAA- 4%; EPA- 6%; Other- 6%; DEP- 59%; FWC- 22%)
    - Most of this is funding is for research
    - Most funding has come from state legislature
  - Categories the funding went towards:
    - Intervention -25%; Coral rescue- 25%; Research- 19%; Propagation- 14%; Restoration - 7%; Data management 3%; Outreach and communication- <1%; Caribbean cooperation - <1%
  - Engagement with national programs & private sector (e.g. Association of Zoos and Aquariums)
  - Key takeaways
    - Cultivate “coral champions” who can advocate where you cannot
    - Encourage leadership to “peer pressure” others
    - Communicate to as many groups as possible
- **Turks & Caicos Funding Strategies**
  - Partnerships with dive shops, liveaboards and “meaningful tourism”, brand collaborations, grants
- **Honduras Funding Strategies**
  - Community awareness, grants, alliances (dive shops, businesses), public awareness and communication
- **Tools & Mechanisms for Sustainable Financing of Marine Conservation**
  - Sustainable financing tools: Eco2Fin, SWOT, [BIOFIN Catalog](#), Panorama Solutions Database, Screening Criteria, Budget Template, Business model Canvas, Modeling return on investment, Value proposition canvas, Message box
- Lessons learned on financing mechanisms (8 lessons so far)
  - Not just a matter of replicating mechanisms
  - Mechanisms tailored to individual sites/response efforts
  - Strengthen existing financing mechanisms
  - Creative, resilient, solutions tailored to to individual sites
  - Cost effectiveness
  - Depth of implementation planning needed- screening, prioritization, business planning to build a roadmap
  - Communications central
  - Role of partnerships and transparency

#### Potential New Funding Sources:

- USVI

- Designation of VI or national park as a “Hope Spot”
  - Government funding opportunities
  - Private sectors: want to reach out more to local places such as breweries, dive shops etc.
- Puerto Rico
  - Boat license fees
  - Increased partnerships with private sector
  - Partnerships with NGOs and grants