



Day 1:

Southeast Florida Coral Reef Initiative (SEFCRI) Team Meeting

Wednesday, February 16th, 2022

12:00 pm – 4:40 pm

Virtual Meeting: Zoom

Meeting Objectives:

1. Incorporate new members into the Team, encourage Team member engagement and participation, and review proposed SEFCRI Charter edits.
2. Provide updates on the recently re-named Kristin Jacobs Coral Reef Ecosystem Conservation Area (Coral ECA).
3. Updates from regional partners and team members.
4. Updates on current projects and LAS from SEFCRI Team members and DEP CRCP staff.

Attendees:

DEP Staff: Jamie Monty, Allie Shatters, Mollie Sinnott, Joanna Walczak, Jennifer Coley, Maurizio Martinelli, Katie Lizza, Taylor Tucker, Tyler Mominey, Patrick Connelly, Rachel Skubel, Jessica Price, Aliza Karim, Jake Weinberger, Tori Barker, Kristi Kerrigan

SEFCRI Team Members: Archie Ammons, Jennifer Baez, Baret Barry, Patrick Bennett, Steve Blackburn, William Boudreau, Lisa Carroll, Dan Clark, Derek Cox, Troy Craig, Michael Dixon, Kristen Donofrio, Kirk Dotson, Jane Fawcett, Joana Figueiredo, Kathy Fitzpatrick, Leneita Fix, DD Halpern, Alastair Harbone, Michael Jenkins, Jocelyn Karazsia, Mark Ladd, Anne Laird, Josephina Massa, Erin McDevitt, Jena McNeal, Wilson Mendoza, Jessica Miles, Amanda Montgomery, Nick Morrell, Lauren Nadler, Erik Neugaard, Shana Phelan, Stephanie Pravata-Clark, April Price, Elizabeth Pudlak, Patrick Quinn, Melissa Sathe, Stephanie Schopmeyer, Angela Smith, Sara Thanner, Shelby Thomas, Brian Walker, Ana Zangroniz

SEFCRI Team Alternates: John Abbott, Katelyn Armstrong, Erick Ault, David Barton Vance, Claire Burgett, Francesca Fourney, Nick Gadbois, Lisa Gregg, Kirk Kilfoyle, Rebecca Ross, David Moss

Public Observers: Dave Whitall, Emily Dark, Greer Babbe, Illeana Suarez, Janet Llewellyn, Nia Wellendorf, Wade Lehmann, Xaymara Serrano, Esther Peters, Lindsey Visser, Karen Bohnsack,

Tim Gysan, Haley Davis, Scott Sheckman, Ashley Carreiro, Becky Allenbach, Erik Stabenau, Ken Banks, Kai Lorenzen, Marie Burns, Susana Hervas, Maurizio Martinelli

12:00 – 12:30 Registration, Sign-In, and Activate Audio

Zoom platform is open and participants are asked to type their name and affiliation into the chat box.

Mollie Sinnott [chat] - Now until 12:30, please test out your Zoom capabilities and make sure technology works. The main meeting will begin at 12:30.

Allie Shatters [chat] - <https://www.surveygizmo.com/s3/5614401/Public-Comment-Submissions>

12:30 – 12:40 Welcome, Housekeeping, and Meeting Overview

Mollie S. welcomes everyone to Day 1 of the SEFCRI Team Meeting. She provides an overview of the Zoom platform, reviews the meeting ground rules, and runs through the Day 1 agenda.

12:40 – 12:50 Brief History of SEFCRI – Jamie Monty

Jamie Monty provides an overview of the history of SEFCRI. Southeast Florida Ecosystem Conservation Area renamed to Kristin Jacobs Coral Reef Ecosystem Conservation Area (Coral ECA) in 2021. FOFR was instrumental in helping rename this area. Signage throughout Martin, Palm Beach, Broward, and Miami-Dade is being refreshed to represent the new naming.

12:50 – 1:05 SEFCRI Team Member Introductions and 2022 Coral Champion Recognition – Mollie Sinnott

Mollie Sinnott goes through a review of SEFCRI Team Member introductions, SEFCRI organization and announcement of the 2022 Coral Champion. The SEFCRI Team organizational structure is discussed, including mention of the Technical Advisory Committee (TAC) and the Process Planning Team. SEFCRI is made up of 64 partners from 9 stakeholder groups: Non-Governmental Organizations, Academic Entities, Private Business, Fishing, Diving, Agencies (County, State, Federal) and Other Groups. The roles and responsibilities of the SEFCRI Charter are discussed. SEFCRI Members have different roles, they can be officers or project team members.

The 9 SEFCRI Vice Chairs are introduced:

NGO: Angela Smith

Academic: Joana Figueiredo

Other Stakeholder: DD Halpern

Local Agency: Jena McNeal

Diving: Shana Phelan

Federal Agency: Jocelyn Karazsia

Private Business: Joey Massa

Fishing: Patrick Bennet

State Agency: Derek Cox

New Team Members are introduced:

Academic: Archie Ammons, Jessica Miles,
and Lauren Nadler

Diving: Alan Birdwell

Fishing: Mike Dixon

NGO: Leneita Fix, Marilu Flores, and
Shelby Thomas

Other Stakeholder: Kirk Dotson and
Stephanie Leroux

Private Business: Troy Craig, Anne Laird,
Amanda Montgomery, Melissa Sathe and
Nicole Sharp

Mollie S. goes through each of the 9 stakeholder groups and has the Vice Chair introduce themselves and their team. Green borders of photos indicate new members and blue borders indicate returning members.

Mollie S. highlights the Technical Advisory Committee as a valuable part of SEFCRI. The TAC is an advisory body that assists the SEFCRI Team in developing and interpreting research and technical information to identify and implement priority actions needed to reduce key threats and guide management of coral reef resources in Southeast Florida. The TAC is composed of individuals with technical expertise for SEFCRI needs – academia, county, state, federal, NGO. The SEFCRI TAC areas of expertise provide guidance to the SEFCRI team.

Mollie S. announces the 2022 SEFCRI Coral Champion. Every year we work with a wide range of stakeholders and partners, with the shared goal is improving coral reef conservation and management. We wanted to spotlight someone who goes above and beyond. As a reminder, our last Coral Champion was Brian Walker. This year the Vice Chairs decided to elect a new coral champion for 2022. The coral champion award recognizes someone who has made a significant contribution or effort towards the conservation and preservation of the Coral ECA.

For 2022, the Coral Champion is.... Lisa Gregg!! Lisa is a Program and Policy Coordinator with FWC in the Division of Marine Fisheries Management. Members wanted to highlight her measurable impact on ensuring coral conservation to incorporate into coastal construction projects.

Lisa Gregg says that it is an honor to receive recognition, she is surrounded by so many coral champions that provide support and inspiration to what she does, she has been on SEFCRI since 2003 and thanks everyone for their well wishes and support.

Other attendees congratulate Lisa Gregg for the 2022 Coral Champion announcement.

1:05 – 1:15 Overview of DEP’s Coral Reef Conservation Program – Mollie Sinnott

Mollie S. gives an overview of the DEP’s Coral Reef Conservation Program. The hierarchy of DEP is run through as well as the placement of the Office of Resilience & Coastal Protection (RCP) within DEP. RCP manages more than 4.9 million acres of submerged lands and coastal uplands. The RCP Vision: a healthy coastal and aquatic environment, achieved through credible science, partnerships, stakeholder input and place-based management that encourages sustainable recreation, education, and economic opportunity. The RCP mission: conserving and restoring Florida’s coastal and aquatic resources for the benefit of people and the environment.

Mollie S. runs through the overview of Coral Reef Conservation Program (CRCP) and the Kristen Jacobs Coral Reef Ecosystem Conservation Area (Coral ECA). The Southeast Region managed areas are Biscayne Bay Aquatic Preserve, CRCP, Florida Keys Aquatic Preserves and state co-management Florida Keys National Marine Sanctuary and National Wildlife Refuge. The Coral ECA contains 288,000 acres managed by 9 CRCP staff, 3 shared admin staff. The Coral ECA was officially established by FL state legislature on July 1, 2018. It includes the sovereign submerged lands and state waters offshore of Martin, Palm Beach, Broward, and Miami-Dade Counties from the northern boundary of the Biscayne National Park to the St. Lucie Inlet. Previous ECA terms include the Southeast Florida Region and SEFCRI Region. Then in 2020, Friends of Our Florida Reefs wrote and submitted a resolution to rename the Coral ECA to the Kristen Jacobs Coral Reef Ecosystem Conservation Area. The name change is in recognition of Kristen Jacobs, a Broward County Commissioner and Florida Legislature that championed environmental and climate change issues. Renamed Kristin Jacobs July 1, 2021.

Mollie S. runs through the CRCP Mission and Vision. CRCP Mission: The CRCP’s vision is that the ecosystem function and services and management of Florida’s Coral Reef and the Coral ECA and associated reef resources are improving, and local, regional and global coral reef conservation goals are being met effectively to ensure sustainable marine resources and a high quality of life for the State of Florida, its citizens and visitors, today and in the future. CRCP Mission: Protect the Coral ECA by:

1. (CRCP Programs) Promoting, coordinating, and conducting active place-based management, including research, monitoring, mapping; education and outreach; injury prevention and response; and,
2. (SEFCRI) Facilitating partnerships and stakeholder engagement in the development of management strategies and options that balance use and protection; and
3. (US Coral Reef Task Force & US All Islands Committee) Enhancing consistency and effectiveness of reef management actions across FCR and US coral reef jurisdictions.

CRCP has a new strategic plan for 2020-2025 and is currently drafting the Coral ECA Management Plan. Mollie S. introduced CRCP Staff: Alycia Shatters, Mollie Sinnott, Katie Lizza, Taylor Tucker, Tyler Mominey, Patrick Connelly, Rachel Skubel and Jessica Price.

Friends of Our Florida Reefs (FOFR) is a 501(c)3 nonprofit, established in 2015 that is dedicated to conserving and protecting FCR and now the KJ Coral ECA through their efforts in supporting CRCP missions and enhancing efforts through filling budget gaps and supporting outreach/educational programs.

1:15 – 1:35 Overview of DEP’s Coral Protection and Restoration Program – Joanna Walczak

Joanna Walczak introduces herself as a longtime member of DEP, she started as the MICCI Coordinator and now leads the DEP Coral Protection and Restoration Program (CPR). This program is still very coral focused, but it is a new program within DEP to expand coral program capacity and integrate topics that will complement the CRCP program and SEFCRI programs as well as regional programs. We realized that we weren’t getting to some of the bigger, higher-level issues because of all the local issues we were dealing with. CPR program works at the national level and is connected to the US Coral Reef Task Force – making sure that Florida's needs are voiced strongly in the national framework. The three main goals of the CPR program are:

1. Guide national coral reef policy and unite Florida’s agencies to ensure effective state-wide coral reef-related authorities, policies, and procedures.
 - a. Provide leadership for stony coral tissue loss disease (SCTLD) response, restoration of Florida’s Coral Reef and regional water quality priorities – focus on Biscayne Bay.
2. How do we work at a large reef scale?
3. Effectively administer state funding for Florida’s Coral Reef priorities.

At the national level, Joanna W. talks about the updated Framework for Action for 2021-2025 that will guide where priorities need to be regarding the most pressing coral reef issues in the nation. Part of this is creating new working groups which include two that Florida strongly voiced: disease response and restoration working groups. Within this is ballast water research (may be spreading the SCTL), coral reef insurance (new innovative ways to finance coral restoration, will be long expensive restoration for the future) and FEMA infrastructure definition (defining coral reefs as natural infrastructure will make us eligible for funding when there are storm events).

Joanna W. discusses that another big priority is related to water quality where we asked the EPA to do a deep dive search on water quality stressors for coral reefs. First time EPA has investigated the details of water quality standards to this level for this specific ecosystem. The guidance that they provide typically is focused on the more normal habitats like freshwater and wetlands, not that many locations that have coral reefs, so they were asked to please provide better guidance on how we are looking at the jurisdictions and more structure on water quality standards for coral reefs.

Joanna W. talks about restoring resilience in Florida and the short-term goal of enhancing management and response capacity as well as the long-term goal of reducing local stressors and restoring environmental conditions. The focus is on the path forward for the Resilience Action Plan for FCR. It started as a climate change related document, but over time realized we needed to focus on other stressors as well. It has three main goals: enable resilience-based management of FCR, support public policy that created the enabling conditions for reef recovery, enable stakeholders to support the future of the reef and those depend on it. You can find the Resilience Action Plan for FCR at FRRP. Org.

Joanna W. discusses the management goals for the path forward, long-term. These include:

1. Support passage of the **Restoring Resilient Reefs Act** (S 46 / HR 160).

There is only one coral reef related law in all the U.S. which provides the funding to NOAA and to each of the jurisdictions. Originally, it was the Coral Reef Conservation Act and they had been working on the Restoring Resilient Reefs Act. Pieces of it have passed already and the Act provides new tools to manage with and an increase in funding.

2. Support **Everglades restoration** and unify with Florida's Coral Reef efforts.
3. Finalize reef restoration strategy and secure seed funding to jumpstart Florida's '**coral restoration economy**'.

Recognize that this merits a whole new industry to identify new locations to build and infrastructure and capacity to build the new opportunities.

4. Support increased funding through EPA's **South Geographic Initiative**.
5. Continue **stakeholder engagement** and update management plans.

Joanna W. describes the specific water quality (WQ) goals moving forward. These include unify network reef WQ programs, inform regional and local management, research reef-related WQ indicators, implement and track success of management actions to reduce Land-Based Sources of Pollution.

Joanna W. talked about FY 21-22 funding. There is 7 million recurring funding for Resilient Coastlines and Waste Funding. The current funds are being used to mitigate impacts of coral disease: research, intervention, propagation infrastructure and restoration trials as well as continue regional offshore water quality monitoring for northern reefs. The new \$20M Biscayne Bay Water Quality Improvement Grant will have funds to support local governments and nonstate entities to work on septic to sewer conversions, stormwater infrastructure upgrades and water quality monitoring and modeling.

Joanna W. reminds the members of meeting that we are one connected system, to please use FCR branding, language, and visit out FloridasCoralReef.org website.

1:35 – 1:50 Examining Ambient Turbidity and TSS Data in South Florida – Dr. David Whittall

Dave Whittall introduces himself as a senior scientist and coastal ecologist at NOAA. The talk will cover turbidity and total solids data particularly in relation to criteria development for the Coral ECA.

During the talk, Dave W. introduces the dataset, explains how turbidity and TSS are related to each other, how they are related to coral reef biology, criteria development and how the data works toward these kinds of efforts.

Dave W. gives a water quality sampling overview. In 2016, a monthly joint monitoring program between DEP and NOAA was set at multiple locations (115 sites) including three site types: reef (random, surface and bottom), inlet (targeted, surface and bottom), and outfall (targeted; surface only) throughout the Coral ECA. The talk is mostly going to be focused on reef site locations. The data collected between September and August 2020 were used for this statistical analysis. DEP is continuing to collect water quality data. TSS and turbidity are both related because they

have to do with sediment on coral reefs, but they tell you different things and are not the same metric. Turbidity is an optical characteristic and is a measurement of the amount of light in the water. TSS is a measurement of solids in the water column and breakdown of percentages are determined via mass. Turbidity is measured by nephelometer and TSS is measured via standard method (filtration and mass determination). Nutrient data is also available but was not discussed.

Dave W. explains that while you would think turbidity and TSS are tightly related, there is a disconnect. The scatter plot shows there is no good relationship between TSS and turbidity. We should not assume correlation and should measure both separately. Between the inlet contributing areas (moving north to south), there are differences between the ICA's with turbidity and TSS, but there are very different trends between the two types of measurements. The reef water quality testing sites were co-located with coral reef monitoring sites from one year of NCRMP sampling. Looking at the spearman correlation between TSS/turbidity measurements with benthic habitats, TSS has a negative relationship with turf algae and positive relationship with encrusting gorgonians. Turbidity is best correlated with rugosity. More biological data is needed for stronger conclusions. The larger the spearman correlation, the larger the number [negative number equals inverse correlation and positive number equals positive correlation].

Dave W. explains that there are not currently water quality criteria for the state of Florida that are specifically protective of coral reefs. DEP is revisiting the existing turbidity standard (29 NTU above background – this is quite high) using a quantitative approach as to what the standard should look like. Dave W. suggests looking at TSS as well, not just turbidity due to the possibility of different biological responses to both TSS and turbidity. Dave W. also compared the data to a TSS threshold 3.2 mg/L proposed by NOAA NMFS 2020, which resulted in exceedances about 1/3 of the time. Possibly not the right number as not hyper specific plus sedimentation issue, but an important starting point. By having this region wide dataset, it allows us to look at these questions in a quantitative manner. More lab studies would be useful, but need to be weary using only one species to use as a basis for decision making for the entire reef system.

Dave W. thanks everyone for a real team effort to produce this research and says that this is representative of the power when local, state, and federal institutions work together. Dave W.'s new publication "Examining Ambient Turbidity and Total Suspended Solids Data in South Florida Towards Development of Coral Specific Water Quality Criteria. Whitall and Bricker. 2021 (NOAA Tech Memo), <https://repository.library.noaa.gov/view/noaa/32102>, doi: 10.25923/v35e-cv79 can be found online or you can email him for a copy at dave.whitall@noaa.gov.

Nick Morrell - How far away do you think we are from getting Florida to revise the 2009 NTU limit?

Mollie S. - I don't know where we are on that, we have a couple of projects working on that.
Dave W., do you have any comments to add?

Dave W. - I am probably not the right person to ask or answer that question. I am sure there are folks in the meeting who are more directly involved with that process. Not currently working directly with DEP on the potential revision of that criteria. I know they are working on it, and I don't know what their timeline is on it. Perhaps there is someone here today that has information that would be willing to give you an answer Nick M.

Mollie S. - Nick M., I don't want to give you the wrong information and maybe this is a topic for another time.

Jamie M. - The agency is working on it, but I do not know of any specific timelines. I will talk to the people who are working on it after the meeting and get that information back to you Nick M.

Nia Wellendorf [chat] - DEP has proposed a revision but it needs to be approved by our Environmental Regulation Commission and the Legislature. We are waiting for a full ERC to be appointed to move forward.

Nick M. [chat] - Do you know what the proposed revised level is?

Nick Gadbois [chat] - Did the offshore WQM project stop or is it ongoing?

Allie Shatters [chat] - The water quality project Dave mentioned is still ongoing.

Nia W. [chat] - The proposed narrative turbidity standard that would apply to Class II and Class III marine waters is: "Turbidity shall not be increased above background conditions within areas of the state where coral reef or hardbottom communities are currently found or have been demonstrated to have occurred since November 28, 1975. To evaluate this criterion, background conditions shall consider the natural variability of turbidity levels, not to exceed 29 NTU." This proposed criterion would apply in addition to the generally applicable numeric turbidity criterion of < 29 NTU above natural background conditions. Our proposed definitions of coral reefs and hardbottom communities are located below. There was an update to the hardbottom community definition since our last workshop that is not on our website. (8) "Coral reef", shall mean a limestone structure composed wholly or partially of the living or dead skeletal remains of marine invertebrates in the Class Anthozoa and the Orders Scleractinia (stony corals), Stolonifera (organ-pipe corals), Antipatharia (black corals), and Hydrozoa (hydrocoral). (16) "Hardbottom community" shall mean consolidated hard structure with a living veneer of organisms characterized by the presence of corals, octocorals, and associated reef organisms, excluding

worm reefs created by the *Phragmatopoma* species and manmade substrate not intended for environmental enhancement or restoration. You can find complete information at this website: <https://floridadep.gov/dear/water-quality-standards/content/triennial-review-water-quality-standards>.

1:50 – 2:00 Break

Participants take virtual break for 10 minutes.

2:00 – 2:25 FWC Updates and Recent Rule Changes – Derek Cox

Derek Cox introduces himself as a part of the Division of Marine Fisheries Management for FWC and discusses commission meeting updates from FWC. Derek C. states that he will be going over things specifically brought up at commission meetings and rulemaking with an emphasis on issues that the SEFCRI team might be interested in and marine fisheries. Derek C. states that he is going to go through the reasoning behind rule changes, the rule changes themselves and current ongoing things with FWC.

Derek C. starts with flounder, rule changes passed at the end of 2020 to implement further conservation measures in response to stock assessment results and multi-state declining. This extended all FWC flounder regulations into federal waters (for species who do not have a federal regulation plan, FWC can implement state regulations into federal waters), increased the minimum size limit from 12 inches to 14 inches total length (recreational and commercial), reduced the recreational daily bag limit from 10 to 5 fish per person, established an Oct. 15 – Nov. 30 recreational closed season as flounder move offshore to spawn and modified commercial targeted and bycatch limits.

Derek C. then moves into talking about blueline tilefish, which was not found in recent assessments to be over fished but federal management has a specific overall quota. FWC was requested from the South Atlantic Council to implement regulations for recreational harvest of blueline tilefish that are consistent with adjacent federal waters and help prevent going over the federal quota. Regulations created a recreational bag limit of 3 fish within the 3-fish aggregate bag limit for grouper and tilefish in Atlantic state waters and set the Atlantic state waters recreational season to be May 1 – Aug. 31.

Derek C. discusses reef fish best practices that were implemented to be consistent with federal regulations. To improve survival rates when fishing for reef fish on hook-and-line with natural baits on board a vessel in Atlantic state waters, fishermen are required to use non-stainless-steel,

non-offset circle hooks north of 28° N. latitude and non-stainless-steel hooks south of 28° N. latitude.

Derek C. talks about the Western Dry Rocks closure which includes spawning fish species that often seed the reef fish populations in the Coral ECA. In an effort to help preserve the multi-species spawning aggregations near Western Dry Rocks, FWC prohibited all fishing in the one square mile area from April – July. FWC will be conducting periodic research and monitoring check-ins with updates on the results of that closure.

Derek C. moves into the Spot and Atlantic Croaker regulations. FWC follows a multistate management plan in which evaluations (independent and dependent data) triggered regulatory actions for all member states. This is not a highly targeted species for the Coral ECA compared to North Carolina, as they are usually used as baitfish in Florida. But regulations were put in place to follow with the multistate effort. New regulations established daily recreational bag limits of 50 fish per person for each species and established daily commercial vessel limits (Spot: 2,200 lbs., Atlantic croaker: 1,200 lbs.).

Derek C. goes through new regulations for Diamondback Terrapins to improve conservation and reduce bycatch. Users are prohibited to the collection of diamondback terrapins from the wild and possession of them without a permit. FWC regulations also require that there is a rigid funnel opening no larger than 2 x 6 inches at the narrowest point or 2 x 6-inch Bycatch Reduction Device (BRD) in all recreational blue crab traps by March 1, 2023. You can create one if it meets sizing specifications or buy a BRD. This will allow crabs to enter, but not diamond terrapins.

Derek C. talks about other discussion topics that came up in FWC commission meetings: spiny lobster, snook, redfish, sharks, manatees, imperiled beach nesting birds, derelict vessels, federal council items and coral reef disease response and restoration. When FWC does rule making, it follows stock assessments. For redfish, there were stakeholder concerns on a regional scale and the first redfish summit was held for users to voice their concerns. New directions and options will be discussed at future meetings. Shark depredation and data collected to show depredation was a concern for fisherman. FWC did a white paper on the shark fishery topic. There was a manatee mortality incident this past year, but FWC reviewed what happened and hopefully looking to mitigate that issue this year for winter. There are some new opportunities for management and permitting with beach nesting birds. There is more funding available to remove derelict vessels down in the keys and for other areas around the state. Federal council items include key species like dolphinfish. FWC is also keeping the public informed on coral disease response and restoration. Use this link: www.myfwc.com/about/commission/commission-meetings/ to look at meeting summaries from covered topics.

Derek C. states that the next FWC commission meeting will be held March 2-3 in Tampa. This meeting will cover:

1. Goliath Grouper (final rule)
 - a. Limited, highly regulated harvest – would have seasons, gear restrictions, post-harvest requirements, etc.
 - b. KJ Coral ECA region excluded.
2. Dolphinfish (final rule)
 - a. Reduce recreational bag and vessel limit.
3. Shrimp (final rule)
 - a. Modernize commercial processing procedures.
4. Redfish
 - a. New management approach – habitat more explicitly apart of this approach.
5. Landscape Conservation Strategic Initiative.
 - a. Started this initiative a couple of years ago, pooling, and prioritizing efforts to manage connections from inland to our reefs and make sure that FWC is doing it in the best possible way.

Derek C. wraps up his presentation by mentioning that there is a call for grants for the artificial reef program that are due on March 18 (<https://myfwc.com/media/25430/arcallforapps.pdf>) and to download the Fish Rules App to stay current with regulations for the fishing community. The phone number to report a wildlife violation is 888-404-FWCC (3922). If you have comments for FWC – comments page on the FWC website where you can submit thoughts or email Derek Cox for marine fisheries related concerns – derek.cox@myfwc.com.

Erin McDevitt [chat] - Manatee UME response and funding info found here:
<https://myfwc.com/research/manatee/rescue-mortality-response/ume/>

2:25 – 2:45 Port Everglades Expansion Project Update – Jocelyn Karazsia

Jocelyn Karazsia introduces herself with NOAA Fisheries Service in the Habitat Division and has been serving as the SEFCRI federal government vice-chair for the last few years. Today, the focus will be on giving updates for the Port Everglades deepening project and the opportunity to provide public comments on the project.

Jocelyn K. starts to give an overview on the project. Port Everglades is the major commercial shipping point offshore Fort Lauderdale. The ongoing project is looking to deepen and expand the port. This would take 5-6 years of dredging which is a lot longer than normal projects and for scale, Port of Miami phase 3 completion took 17 months to complete. The length of time for the Port Everglades project has to do with environmental considerations which limit the type of

dredging activities like overflow or reduce the amount of dredging that can occur during coral spawning.

Jocelyn K. goes over the notice of availability for a revised draft supplemental environmental impact statement which describes the 5 to 6 years of dredging and 280-400 underwater blasting events to break apart rock that is too hard to be removed by conventional dredging practices (1 event/day). It was published on February 4, 2022, in the Federal Register and the 45-day comment period closes March 21, 2022, you can provide comments to:

porteverglades@usace.army.mil. On March 8, 2022, there will be a virtual public meeting. The document and appendices are available at: <https://www.saj.usace.army.mil/About/Divisions-Offices/Planning/Environmental-Branch/Environmental-Documents/> under the “Broward County” tab.

Jocelyn K. goes into the main updates in the new environmental impact statement. One of the main updates is the impact assessment itself. Army Corps used a spillage analysis to predict the sediment deposition onto coral reefs. Spill is the material that is dredged but not transported to the disposal site, and can be deposited either inside or outside the dredged areas or resuspended in the water column. Based on the Army Corps analysis on the 5.5 million cubic yards (cy) of material to be dredged, 75,000-150,000 cy would be spilled overall, and 25,000-58,000 cy would be spilled onto coral reef and offshore seagrass.

Jocelyn K. describes the type of analysis the Army Corps used. There were four scenarios that the Army Corps came up with based on the types of dredging equipment that would be used and the manner that it will be operated. The worst-case scenario was used for the impact assessment. Based on the category of impact, different mitigation plans are put into place for varying amounts of acres and there are plans to provide upfront mitigation for a portion of the coral reef habitat.

Jocelyn K. talks about how the Army Corps is planning to put into place impact minimization measures which include limiting or prohibiting overflow. It would be completely prohibited outside the entrance to the channel. The Army Corps has also agreed to no dredging in the outer entrance channel or inner channel July-September for peak coral spawning months. As we move closer, this will be adjusted based on lunar calendars to provide complete protection to the corals.

Jocelyn K. goes through the Adaptive Management Plan which includes plans for near real-time monitoring of water quality conditions (TSS, turbidity, PAR), artificial intelligence (AI) based environmental information synthesizer for eco-forecasting, instruments in-water one year before dredging begins, and diver observations of coral stress and measurements of sediment accumulation over hardbottom.

Jocelyn K. points out that the new impact assessment document does not include new information from i.e., Reef Sediments Can Act as a Stony Coral Tissue Loss Disease Vector (Studivan et al. 2022). Appendix F goes through coral relocation (impact minimization) of ESA and SCTL D-susceptible species and that a mitigation plan could return SCTL D-susceptible species to reefs. There is no monitoring for prevalence of SCTL D or detecting new disease outbreaks. This is a high priority issue to resolve in NOAA-led Essential Fish Habitat and Endangered Species Act Section 7 consultations.

Jocelyn K. discusses that there are several options for coral reef mitigation. These include artificial reefs (boulders only), artificial reefs with biological enhancement, stony coral relocation (56,000 approx.), octocoral and sponge relocation (77,000 approx.), coral propagation and out planting (restoring 115 acres of coral reef, planting corals that increase connectivity/reproduction) focused on assisted reproduction, active cleaning (herbivore introduction was removed in 2022), and a new mitigation option of tire removal/rubble stabilization from Osborne Reef.

Jocelyn K. advises to please be aware of the current public comment opportunity. Provide comments to: porteverglades@usace.army.mil. The current project schedule is in August 2022 Final EIS published in federal register, November 2022 Final EIS and Record of Decision, May 2023 reconfiguration of USCG station and August 2024 dredging begins.

Anne Laird [chat] - Please send link to EIS.

Kristen Donofrio [chat] - Link to the Port Everglades

EIS: <https://www.saj.usace.army.mil/About/Divisions-Offices/Planning/Environmental-Bran ch/Environmental-Documents/> . Click "+Broward" and scroll to the project.

2:45 – 3:05 Lake Okeechobee System Operating Manual (LOSOM) Project Update – E. Timothy Gysan

Timothy Gysan introduces himself as a project manager with the U.S. Army Corps of Engineers for Lake Okeechobee and Kissimmee River. The talk today is focused on the Lake Okeechobee System Operating Manual or LOSOM. Timothy G. starts out with providing background on the project. The study goal is to incorporate flexibility in Lake Okeechobee operations while balancing congressionally authorized project purposes. Started LOSOM 3 years ago in 2019.

There are four study objectives:

1. To manage risk to public health and safety, life, and property.

- a. Dam safety risks, algal bloom risk effects in the lake and nearby estuaries.
2. Continue to meet authorized purposes for navigation, recreation, and flood control.
 - a. Do not want to change the performance in these areas.
3. Improve water supply performance.
4. Enhance ecology in Lake Okeechobee, northern estuaries and across the South Florida ecosystem.

Timothy G. talks about changing the philosophy of how Lake Okeechobee is managed to protect the dike; managed to provide benefits to the system with the water available instead of only managing for risks. Timothy G. goes through the basis of the lake schedule for the water control plan and environmental impact statement. The goal is to translate the logic that is incorporated into the modeling effort into words that the people who operate the machinery and manage the lake can follow for operational guidance. Important to note the characteristics of the schedule that highlights the benefits more than managing risk.

Timothy G. points out a couple of highlights. Zone D of the lake is very wide, which is focused on providing beneficial use of the water in the lake. On the right side of the schedule, this is the water that will be traveling to the east to the St. Lucie estuary and to Lake Worth Lagoon. There is no flow going out to the east coast in zone D because they heard from stakeholders that the eastern flow was not desirable for the ecosystem. To the west coast, stakeholders provided insight on the volume of flows and wanted a specific flow schedule of freshwater that would be the best fit for the ecology. Zone D extends to the Lake Okeechobee water shortage management line which is a concern for water supply for users and environment. With the new schedule, water can be moved to the south throughout the operational band which is a big deal for the everglades system and along the coast.

Timothy G. points out that the currently manage system under LORS is specifically targeted at managing risks while the new system under LOSOM highlights benefits. As LOSOM management is started, stakeholder communication and participation in what benefits they would like from the lake/where the water is most beneficial will be continued.

Timothy G. gives an overview on the performance comparison through a radar graphic which shows that the updated LOSOM from LORS will increase multi-objective performance in many places, improve water supply performance, algal bloom performance and southern flow. There is a decrease in performance for Lake Okeechobee itself, improvements in other areas lead to reduced performance in some places because there is only so much storage in the system. The new LOSOM system provides more benefits to the coastal system than under LORS.

Timothy G. goes through the recover salinity in Florida Bay performance measure. The salinity performance measure for Florida Bay consists of three metrics by which the observed

(assessment) data or predicted model (CERP alternative evaluations) output are compared against the target: regime metric, mean offset metric and high salinity metric. Timothy G. starts with the performance measure for salinity in Whipray Bay under LOSOM, LORS and no action. Infrastructure was looked at for 2022 and for 2025 when the C34 reservoir comes online. LOSOM will start in 2023. Once the EEA reservoir is constructed, more water will make it down to Florida Bay.

Timothy G. goes through a quick overview of the process. The modeling is finished, and the operational guidance should be done in draft format at end of February. The draft for the environmental impact statement and water control plan should be available for review end of April, final in October this year with record of the decision, LOSOM implemented in 2023. Information on the LOSOM process is on the website and an upcoming project delivery team on March 7. There are lots of ways to get involved on the plan itself and continued coordination with stakeholders for operation in the future.

Tim Gysan [chat] - Glad to be here. If anyone does have any question you can e-mail me directly at earl.t.gysan@usace.army.mil

3:05 – 3:15 Team Member Updates: Open Virtual Discussion

Erik Neugaard - This is on behalf of the South Florida Association of Environmental Professionals Community Coral Nursery Program to engage the public in hands on activities with coral restoration. It is a collaboration with the new Reef Discovery Center. Hopefully Kirk is on to explain a bit more about it. There is dedicated funding support to put in two raceway tanks in. Been collaborating with others who have technical expertise to offer technical support. There is already about 20 volunteers who are interested in helping with onshore and offshore nursery projects.

Permits have been acquired to remove tires from portions of the 2nd and 3rd reef, the corals on the tires would be brought into the coral nursery. The onshore component already has funding for a 240-gallon raceway tank with an option for another tank if the first tank is successful for 6 months. Construction of the frame has started. For offshore, permits have acquired for some swinging coral nursery trees and have an agreement with Lauderdale-By-The-Sea to use the former bio rock reef infrastructure by the pier for the coral nursery. Just wanted to introduce the concept for the coral nursery and it is moving forward quickly now. Really want to use this to engage with stakeholders in southeast Florida to highlight reef impacts. Kirk, can you give a brief overview of the Reef Discovery Center and the connection with FOFR?

Kirk Dotson – I founded and am the president of the new Reef Discovery Center. I purchased commercial property along Ocean Blvd/A1A, the inside was gutted, and the new coral raceway

tank is being implemented as we speak. Very happy with this new collaboration and making progress shortly. There are three main goals with the center: coral restoration, marine research, and public education. Hopefully will be open to the public soon to engage local community members with Florida's Coral Reef.

Stephanie Schopmeyer [chat] - Is there a website for the public nurseries or Reef Discovery Center?

Mollie S. - www.ReefCenter.org

Kirk Dotson - <https://www.sfaep.org/sfaep-community-coral-nursery>

3:15 – 3:25 Break

Participants take virtual break for 10 minutes.

3:25 – 3:40 Public Comment

No public comments.

3:40 – 4:00 FDOU 55: Coral ECA Management Plan Updates – Katie Lizza

Katie Lizza introduces herself as the Fishing, Diving and Other Uses Coordinator at DEP. This talk is to provide an update on the FDOU 55 which is an LAS project focused on the development of a Coral ECA Management Plan. As Mollie S. and Jamie M. talked about before, there is a boundary established in state waters offshore designating the new 'Kristin Jacobs Coral Reef Ecosystem Conservation Area'. Right now, DEP is in the process of developing a management plan for the Coral ECA for review and approval. The goal is to mirror the aquatic preserve management plans which are issue-based. Therefore, DEP is taking all the information that is coming out of the SEFCRI LAS projects and using it to target the issues facing the ecosystem off our coast. This includes water quality, loss of ecosystem services, recreational use impacts, loss of resilience, lack of public access and gaps in governance/management.

Katie L. discusses the current project with University of Miami to develop a draft of the plan which was completed in June 2021 and CRCP staff is currently reviewing the draft. CRCP is finished reviewing Chapter 1 and 2 which have now been sent to FWC for further internal review. We have been coordinating with FWC throughout this process. Currently, staff is reviewing Chapters 3, 4 and 5, which should have complete edits by end of March.

Katie L. discusses the timeline for the project.

- July 2021 - Sept 2022: Internal reviews (FWC/CRCP) and leadership updates as well incorporating results from FDOU 51 and 52.
- October 2022 - March 2023: SEFCRI team and TAC review. The comments will be incorporated.
- January 2023 - September 2023: Forming advisory committee and advisory committee review.
- April 2023 - June 2023: Hire public meeting facilitators and public review.
- June 2024: Review public comments and finalize management plan.

Troy Craig – Thanks for giving such a great presentation. Is this management plan basically developed by FDEP CRCP or has it been developed in coordination by local stakeholders?

Katie L - It incorporates research from LAS which SEFCRI, TAC, and stakeholders have had a part in.

Troy C. - Will there be a public review process where the public can comment and review?

Katie L. - Yes, that is part of the process. We will be hosting a public meeting where the public can provide input and it will be incorporated into the plan.

4:00 – 4:35 FDOU 52: Fisheries and Conservation in the KJ Coral ECA: A Stakeholder Process – Susana Hervas Avila

Susana Hervas Avila introduces herself as part of the University of Florida Team with Kai Lorenzen and Joy Hazell that is working on FDOU 52. This is a collaborative project with FWC, NOAA Coral Program and Florida Sea Grant. This project is a stakeholder engagement process that aims to engage the fishing community in the Coral ECA region. This comes from earlier projects and was put together to fill in data gaps/needs from the fisheries community for the upcoming management plan being created.

Susana H.A. explains that in 2019, a situation analysis was conducted to interview 45 stakeholders who benefit from coral reefs. It came out from this process that there was a notion that the fishing stakeholders felt unheard. This created a need to form a committee of fishing stakeholders to get their input so that gaps could be filled, and ultimately provide recommendations to the pertinent agencies.

Susana H.A. says the purpose of FDOU 52 is to harness the capacity of the fishing community (fishing stakeholders and industry) to advance conservation of the Kristin Jacobs Coral Reef Ecosystem Conservation Area (Coral ECA). The objectives of FDOU 52 are:

1. Strengthen engagement of fishing stakeholders in SEFCRI coral reef ecosystem conservation initiatives.
2. Review broad recommendations from the Our Florida Reefs process, progress with implementation and opportunities for fisheries stakeholders to promote uptake.
3. Develop a set of fishing-related management recommendations to enhance coral reef ecosystem conservation and fishing quality.
4. Communicate with wider fishing and other stakeholders about project process and outcomes.
 - a. Gain input from the wider fishing community, not only the committee.
5. Consult with the SEFCRI Team, Technical Advisory Committee, and others to obtain feedback from diverse stakeholder perspectives.

Susana H.A. gives an idea of how the stakeholder engagement process works. Surveys and public meeting events are sent to stakeholders and aim to reach to the broader fishing community. From the broader fishing community in the Coral ECA, these stakeholders have formed a committee. The committee will bring fisheries management recommendations to SEFCRI which will then inform DEP, FWC or any other pertinent agencies. Management agencies will then decide what to take forward into their work plans and rule-making processes. The University of Florida team provides support for this process to occur, facilitates committee meetings, communicates with local stakeholders, and support the science by sending out public surveys.

Susana H.A. goes through a timeline from 2019 to looking forward to June 2022. There has been a situational analysis, webinars (Water Quality x2, Our Florida Reefs, Coral Ecosystems, Fisheries Status 2020, Fisheries Informational Gaps, Reef Ecology) to provide scientific background, and public meetings and committee meetings have occurred during this timeline. These meetings are an adaptable process and members of the public are welcome to attend. The meetings are always hosted by the University of Florida team and there is a plan for what to discuss but it is adaptable depending on how the issues develop with the committee. The types of committee meetings that have been held discussed: water quality, fisheries management, artificial reefs, spatial management, and habitat restoration. These topics have been the main points of discussion for the committee.

Susana H.A. describes how public input is brought into this process through surveys and public meetings. There was a public meeting in 2021 to inform the public about the project and obtain input (58 participants). The 2021 meeting showcased how members were willing to bring in people from their networks to give input on topics. There will be a second public meeting in 2022 to inform public about draft recommendations and obtain input. Before the second public meeting, a survey [currently being finalized] will be sent out by the University of Florida team to gain representative input on potential fisheries recommendations that have been discussed with

the committee. The input from the survey will inform the committee and more refinement to the recommendations will occur before the second public meeting.

Susana H.A. explains that it was insightful to listen to the fisherman's perspective because they are out on the water consistently and have been thinking about these issues for many years so they can really come up with interesting/innovative ideas to topics. Susana H.A. then goes into detail about what has been achieved so far in this process:

1. Think tank
 - a. Discussed perceptions of reef ecosystem status, management issues and options.
2. Knowledge
 - a. Gained knowledge on reef ecosystem and fisheries from scientific webinars with field experts.
 - i. Tried to bring in new, current knowledge to share with the committee.
 - b. Reviewed broad Our Florida Reefs recommendations.
3. Recommendations
 - a. Identifying potential fisheries recommendations.
 - b. Identifying potential water quality and habitat restoration recommendations.

The less tangible achievements that have occurred during this process include:

4. Trust Building
 - a. Sharing perceptions even when there are differing opinion.
 - b. Voicing concerns in a safe and respectful place.
 - c. Being met with transparency and commitment.
5. Forming Community
 - a. Creating opportunities for connection.
 - b. Continued to show up for 1.5 years.
6. Engagement and Commitment
 - a. Willingness to be ambassadors and bring in their networks for public input.
 - b. Invested with creative ideas.
 - c. Commitment from collaborating agencies.

Susana H.A. goes over the next steps in this process: finalizing the survey to send out to the broader community, review of survey results, use the results to help prioritize recommendations with the committee, have a second public meeting to gain input, and finalize committee fisheries management recommendations to send to the pertinent agencies. The project page is located at <https://bit.ly/CoralECA> and to contact Susana H.A. please use shervas@ufl.edu.

Kathy Fitzpatrick - I will try to contain myself, but I didn't listen to the same meetings that I just heard described. The creative responses are giving up on corals and building artificial reefs. The fisherman cannot even admit that fishing has gotten worse. I can't describe the feeling I have at

the end of every one of these meetings. Yes, there has been education provided, and I am generalizing, but it has been dismissed, any of the coral education has been dismissed in large part by the fisherman. I just do not recognize the meetings that I listen to, after listening to this presentation. I'll leave it there.

Susana H. Avila - Hey Kathy F., I am sorry you feel that way. I can understand what you are talking about and seeing how there are parts of the conversations that don't really align with solutions that you do see or things you see as possible paths forward. When I say creative ideas, I know there are people there that have been looking, and I'm maybe not talking specifically about the fisheries part of it, like I know that in terms of water quality they're brainstorming in ways where they try to bring out of the box thoughts into what they can recommend and in terms of how they see it, that's really how you know their perception is personally not something we can do anything about. Like sometimes there will be webinars and they'll see information. People will take information and some people will not take any information. And this is a world studied phenomenon in psychology.

Kathy F. - Would you agree that, as we are speaking to this group here, that the majority of the fisherman have agreed that the reefs are dying, let's give up on them and we better start building artificial reefs to take their place?

Susana H.A. - Mm, honestly, I don't think that's what I hear them say. Sometimes, some of them are pessimistic and they'll say what can we do, there's like 2% of the reef left and they have come up with ideas like artificial reefs, but at the same time I wouldn't say that it's all the committee or all the members who have these ideas. Some of them are actually quite optimistic in the sense of like all the things that have been happening you know and the projects that are going on and the programs that are actually happening and how they are helping the reef. So, I see what you are saying, I sometimes, some people can fall into that pessimism but at the same time I do not think it is like a generalized idea of the committee. I see Kai Lorenzen has his hand raised and he is part of the team, so I think I am going to let him speak too.

Kai Lorenzen - Yeah, I don't have anything super enlightening maybe to that, but I just wanted to point out that the discussions are not finished, you know they are quite different perceptions and perspectives particularly around the issues and impacts of fisheries themselves and the issue of artificial reefs has come up, but I do not get the sense that the group in general is giving up on coral, there are some who are thinking about artificial reefs specifically to support fisheries into the future. That's not new, most of the counties have ongoing artificial reef programs and mostly the discussions are not finished. One of the things that we are doing as we are going through recommendations; we are squaring away the easier parts and we still have some of the more difficult things to work on. I would also point out that we are going to have the survey of the wider fishing community and so that will basically be a representative sample of fishing license holders and so in terms of both perspectives that people have and perceptions of reasons for the

state of the ecosystem and I expect that to be fairly diverse and that will come back to the committee so more information will come and more discussion will come. There are things that we have not resolved and not even seriously tackled, but we will get there in the remainder of that process. Thanks.

Kathy F. - I would encourage members of this group to listen to the previous meetings and do their best to tune into and be involved in future meetings because I certainly don't want to be responsible for summarizing for the group, I can only give you what I hear.

April Price - Yes, I do want to add something. Number one I think that the group has, I agree that there has been some push in some ways but I think overall the major consensus for this group has been the concern for water quality and what can we do because I think everyone sees that as a concern. I have heard artificial reefing as one of the major recommendation for the rebuilding of corals, but I think that overall from what I heard from this group as a member was in major consensus in every group they just kept coming back to water quality. So, I think there has been a lot of consensus when it comes to spawning and aggregation in the fishing community and how we can protect those and the importance of protecting those so I was in on almost all of the meetings and Kathy I know you were listening in on a lot of them, but I never heard you comment during them so it that would have been nice if you would have addressed some of your comments during the meetings and I hope you do in the future and I hope more people do tune in to these meetings and listen to what is being said and ask the questions to the committee members so that you know we are working to come to consensus and everyone wants better reefs and I think that is why everyone has been committed to this process for years now, not just months. Thanks, that is all I have to say.

Susana H.A. - Thanks April, Kathy I don't know if you want to answer to that or we let Jamie in.

Kathy F. - I'll just say that this is why we really need to get back to in person in these meetings.

Jamie M. - It is definitely difficult to have these conversations online and we certainly have been struggling with that with multiple groups, not just with the fisheries committee, but also here with the SEFCRI. But, we have to protect ourselves and do the best that we can with the technology we have, but to Kathy's point she is not wrong, she did hear that in at least one of the meetings, but from my recollection, and we can check the meeting minutes and ensure this is accurate but from my recollection it was one the fisheries members who tends to be a little louder and more boisterous so maybe it comes across as many voices but like we did with Our Florida Reefs, we have the fisheries committee here to listen to the committee's members perspectives whether we agree with them or disagree with them or no matter where they fall along the scale of conservation and it is an accurate reflection, but it does not represent the consensus of the entire group you know that comment of replacing all reefs with artificial reefs. I think it was either Susana H.A. or Kai L. both mentioned that artificial reefs have been discussed

as a potential management option that this group would like to put forward, but more the detailed discussion has been using the reefs for fisheries and little bit of talk about artificial reefs for restoration, but it's one of the many topics that they've brought up. Just a reminder to everybody that like the Our Florida Reefs community working groups, we have allowed this fisheries committee to provide comments and recommendations on any management action that they see as necessary to help improve coral reef health and function and so even though they are the fisheries committee and we are trying to sort of encourage more fisheries minded related management actions and that is what we heard from you all was a lack of recommendations and this was a SEFCRI project that was designed to fill that gap, we aren't limiting recommendations that they provide to be only fishing related. So, while artificial reefs have a fisheries component, they may also have a restoration component. To wrap up my thoughts, Kai L. and Susana H.A. both kind of provided some details on the fact that this project isn't finalized, they are in the process of having some more difficult conversations coming up and coming to some level of agreement about the recommendations that have been brought up in the previous meetings such as the one you had Kathy. In the last series of meetings and in the next couple series of meetings probably, they've been going through a laundry list of recommendations just like we did during the Our Florida Reefs process and quelling those down into a subset that the group agrees upon and that they can flush out a bit more until the group agrees upon. The process with the fisheries committee themselves is not finished and I'm sorry if I am repeating myself but both Kai L. and Susana H.A. mentioned we will also have a survey going out to the fisheries stakeholders and to the SEFCRI team and TAC. We do encourage you all to provide your feedback on those draft recommendations and attend meetings when you can. We will continue to send out meeting notices so that everybody is aware when they are occurring and you can login and we will also if we haven't already been continue to keep providing updated meeting minutes on our website so that folks can be aware of what has happened in past meetings. I'll stop there.

Kathy F. - One thing I'll say just about attending the meetings is that it's difficult because you have to register through Eventbrite and then at some point they send you a link and if you can't find the link then it is impossible to get on there unless I'm missing something and other people have had the same problem. So if there is any way to make it a little easier and also to make an easy way, at least for the members of this group, to have recorded sessions so that if they want to go back and look at them that they can.

Brian Walker - Hello, yes, I presented awhile back, I try to attend the meetings, but I have not attended them all. I understand Kathy's frustration, she's is not alone. At the onset of this, I'm skeptical that not much more will come out these meetings other than artificial reef and water quality recommendations, which to me I would pose to challenge the group to think about how to change actual fisheries management to make a difference as well and not just point the finger to other sources that may be the issue. One thing that occurs to me about this process is there is no scientific checks and balances and so I wonder if the group could benefit, much like SEFCRI benefits from the TAC, the group could benefit from some scientific vetting of their thought

processes and their recommendations as they're developed as well. I would urge you guys to give that some thought. I think in terms of the fisheries aspect, the real value of having this group come together with their knowledge, that stuff really hasn't been tackled yet. I hear some in the group are vocal one way and a lot or maybe more in the group are vocal in another way and reconciling those disagreements within the group is going to be the challenge to getting some really smart recommendations out of this process. That's all I have to say.

Susana H.A. – Thanks Brian for your input and I am taking note of that. We are, it is challenging, and you have a right, and it is the end of the project now and it is the moment to bring all those thoughts back into aligning them and get something specific from it so that is the challenge and we are hoping to after having been together all this time to come to some kind of an agreement among all the members to bring recommendations out of this. Would anybody like to ask or make any other comments on this?

Melissa Sathe [chat] - Thank you to the committee for your hard work and thank you Kathy from your honest perspective. I share the same frustration being involved in this discussion for nearly 20 years. I hope the final outcomes are targeted and brave recommendations that address the fisheries issues with minimal emphasis on artificial reefs.

Sara Thanner [chat] - Thank you Kathy and I agree Melissa!

Jane F. [chat] - Agreeing with Melissa.

Scott Sheckman [chat] - Thank you for this important discussion. Humans being humans, if there's an artificial (man-made) option to address a difficult natural world reality, it's human nature to lean towards the man-made, which can also be considered quite the spectacle and finance & production value. I think it's imperative we keep echoing that living coral reefs were here first and only living reefs can continue growing as the sea slowly dissolves the man-made structures. Thanks.

Wrap Up & Adjourn Day 1

Day 2:

Southeast Florida Coral Reef Initiative (SEFCRI) Team Meeting

Thursday, February 17th, 2022

12:00 pm – 5:00 pm

Virtual Meeting: Zoom

Attendees:

DEP Staff: Jamie Monty, Alycia Shatters, Mollie Sinnott, Joanna Walczak, Jennifer Coley, Maurizio Martinelli, Katie Lizza, Taylor Tucker, Tyler Mominey, Patrick Conelly, Rachel Skubel, Jake Weinberger, Tori Barker, Kristi Kerrigan

SEFCRI Team Members: Archie Ammons, Jennifer Baez, Baret Barry, Patrick Bennett, William Boudreau, Lisa Carroll, Derek Cox, Troy Craig, Michael Dixon, Kristen Donofrio, Kirk Dotson, Laura Eldredge, Jane Fawcett, Joana Figueiredo, Kathy Fitzpatrick, Leneita Fix, DD Halpern, Alastair Harbone, Michael Jenkins, Jocelyn Karazsia, Mark Ladd, Anne Laird, Josephina Massa, Erin McDevitt, Jena McNeal, Wilson Mendoza, Jessica Miles, Amanda Montgomery, Nick Morrell, Lauren Nadler, Erik Neugaard, Butch Olsen, Shana Phelan, Stephanie Pravata-Clark, April Price, Elizabeth Pudlak, Melissa Sathe, Stephanie Shopmeyer, Sara Thanner, Shelby Thomas, Brian Walker, Ana Zangroniz

SEFCRI Team Alternates: Katelyn Armstrong, Erick Ault, Francesca Fourney, David Moss

Public Observers: Dave Whitall, Emily Dark, Greer Babbe, Illeana Suarez, Janet Llewellyn, Nia Wellendorf, Xaymara Serrano, Esther Peters, Lindsey Visser, Haley Davis, Ashley Carreiro, Erik Stabenau, Ken Banks, Chris Bergh, Caitin Lustic, Regan Sharkey, Joshua Voss, Hunter Noren, Katheryn Toth, Joseph Chaison, Haley McQueen, Allie Klein, Barbra Crouch, Chelsea Cameron, Manoj Shivlani, Sydney Bell, Caroline Sandmeier, Gabby Pantoni, Maurizio Martinelli, Gareth Williams, Allie Kozachuk, Zachary Gradd, Amanda Zummo, Sasha Wheeler

12:00 – 12:30 Registration, Sign-In, and Activate Audio

Zoom platform is open and participants are asked to type their name and affiliation into the chat box.

Mollie Sinnott [chat] - Hi everyone! Thanks for joining. We will be checking audio, video, and Zoom functionality now until the meeting begins at 12:30.

Allie Shatters [chat] - Public Comment Submit your public comment notifications here:

<https://www.surveygizmo.com/s3/5614401/Public-Comment-Submissions>

12:30 – 12:40 Welcome, Housekeeping, and Meeting Overview

Mollie S. welcomes everyone to Day 2 of the SEFCRI Team Meeting. She provides an overview of the Zoom platform, reviews the meeting ground rules, and runs through the Day 2 agenda.

12:40 – 1:20 SEFCRI Charter Revisions & Voting (Quorum) – Kristi Kerrigan

Kristi Kerrigan describes the purpose and background of the SEFCRI charter. Quorum established with 31 members.

Kristi K. explains the process of voting by primary members or their alternates and proposes the first edit to the SEFCRI Charter recommended by the Vice Chairs.

- Page 5 Section A: General SEFCRI Team Membership
 - Original: Understanding reasonable exceptions (e.g., travel constraints, illness in the family, maternity leave, etc.), each SEFCRI Team Seat (Member or Alternate) must meet the following minimum participation requirements:
 - Serve as an informational point of contact on the LAS to their organization/agency/stakeholder group.
 - b) Attend (via phone or in-person) majority of SEFCRI Team and Project Team meetings on regular basis and dedicate time required by Team.
 - **EDIT:** The primary member must attend (via phone, virtually, or in-person) all SEFCRI Team meetings on an annual basis and commit to the time required by the Team. If the primary member is not able to attend, the designated alternate member must attend in their place (refer to “Alternate Designations” section in the Charter). If neither can attend, the primary member must notify the SEFCRI Chair or other DEP CRCP Staff prior to the meeting.

Jessica Miles – Will all SEFCRI meetings be held virtually from now on?

Kristi K. - For the foreseeable future, they will be held virtually. The options are being weighed as we receive more attendance virtually but there are some things that are better handled through in person meetings.

Melissa Sathe [chat] - Is there a consequence for not attending?

Kristi K. – There is no consequence for not attending. The purpose of this revision is to be clear that communication must be had if a member (or alternate) cannot be at a meeting.

Mollie Sinnott – There is a potential consequence under the member removal section of the charter. It is listed as potential grounds for removal. This is stated as “Does not meet the minimum participation requirements as stated in Section 4A.1”

Stephanie Pravata-Clark [chat] - I've been to almost every meeting where many do not attend, but as a must?

Kristi K. – To clarify on the word must, this is why the second and third sentence are in this revision. If the primary is not able to attend, the alternate must attend, and if the alternate cannot attend there must be communication with the SEFCRI chair or other DEP CRCP staff. I can see how the word “must” may be a bit harsh. If anyone has a suggestion, please feel free to comment on this.

Michael Dixon [chat] - Fairly wordy revision...but will there be a simple 1. Attending, 2. Not attending, but alternate will, or 3. Hereby notifying you we won't attend added to the meeting notifications??

Laura Eldredge [chat] - "should"

Joshua Voss [chat] - "is expected to"

Archie Ammons [chat] - expected is a good word to use

Joana Cordeiro Figueiredo [chat] - you can use "should"

Stephanie Pravata-Clark [chat] - Yes, another word beside must

Kristi K. – It seems there is some back and forth on the language, so I propose that we vote on the original revision suggested by the SEFCRI Vice Chairs.

28 members vote YES to approve the revision

Kristi K. introduces the next proposed edit

- c) Serve on (minimum of) one Project Team, either as a Project Team Co-Lead or Project Team Member.
 - **Suggested new bullet:** Attend (via phone, virtually, or in-person) a majority of SEFCRI Project Team meetings on a regular basis and dedicate the time required by the Team.

Laura Eldredge [chat] - should it state the Project Teams you are signed up for?

Joshua Voss [chat] - a majority of meetings for your SEFCRI Project Team.

Kristi K. added “that each member signs up”. It now reads

- **EDIT:** Attend (via phone, virtually, or in-person) a majority of SEFCRI Project Team meetings that each member signs up for on a regular basis and dedicate the time required by the Team.

36 voted yes to approve edit

Kristi K. introduces the next proposed edit

- d) Respond to majority of SEFCRI Team and Project Team correspondences.
 - **EDIT:** Respond to ~~majority of~~ SEFCRI Team, Vice-Chair, and Project Team correspondences.

Michael Dixon [chat] - Just add “...when necessary/requested”.

Joshua Voss [chat] - "when requested" on the end.

Brian Walker [chat] - I like it as is.

DD Halpern [chat] - I like “when requested” or when action is required.”

Jane Fawcett [chat] - Agree with DD.

Lauren Nadler [chat] - It would be helpful if something was added to email subject when responses are requested.

Stephanie Pravata-Clark [chat] - I do like the idea that we should know in the subject that a response is needed.

Jane Fawcett [chat] - Agree with Stephanie.

Kristi K. – That is a good suggestion about adding an something in the subject line when a response is needed. We will be sure to keep that in mind and communicate that moving forward.

Kristi K. added “as requested” to Vice Chair recommended revision. It now reads:

- d) **EDIT:** Respond to SEFCRI Team, Vice-Chair, and Project Team correspondences as requested.

31 voted yes to approve edit

Kristi K. introduces the next proposed edit.

- e) Be a resource to identify possible funding mechanisms and other opportunities for LAS implementation.
 - **EDIT:** Fulfill the role of SEFCRI Team Members as outlined in Section III: Objectives of the SEFCRI Team

31 voted yes to approve edit

Kristi K. outlines the background of minimum Participation

- Understanding reasonable exceptions (e.g. travel constraints, illness in the family, maternity leave, etc.), and not including minimum participation requirements [previous slide], SEFCRI Team members also may be called upon at least once within their term limit to help with one of the following requirements:
 - Staff (minimum of) one SEFCRI educational booth event
 - Provide (minimum of) five interactions with stakeholder group via electronic communication (email blast, online posts, social media, etc.)
 - Give SEFCRI-related presentations to stakeholder groups
- **EDIT:** Understanding reasonable exceptions (e.g. travel constraints, illness in the family, maternity leave, etc.), and not including minimum participation requirements [previous slide], SEFCRI Team members also may be called upon at least once within their term limit to help further the SEFCRI mission through active participation in SEFCRI activities.
 - ~~Staff (minimum of) one SEFCRI educational booth event~~
 - ~~Provide (minimum of) five interactions with stakeholder group via electronic communication (email blast, online posts, social media, etc.)~~
 - ~~Give SEFCRI-related presentations to stakeholder groups~~

Several members express concern of the inclusivity of this bullet point and make suggestions to change “maternity leave” to “family leave”.

Kristi K. changes the language from maternity to family leave.

Several members express that the list suggested to be removed serve as a good example as to what service is expected of SEFCRI members and their alternates.

Erin McDevitt – what if we add the phrase “including but not limited to” and kept the bullet points.

Others are in agreeance.

Kristi K. adds “including but not limited to” to the end of the paragraph.

Mollie Sinnott – Kristi, the Primary can also direct the Alternate to assist in these events as well, correct?

Kristi K. – That is correct.

Mollie S. – We should add that into the edit.

- **EDIT:** Understanding reasonable exceptions (e.g. travel constraints, illness in the family, family leave, etc.), and not including minimum participation requirements [previous slide], SEFCRI Team members (Primary or Alternate) also may be called upon at least once within their term limit to help with one of the following including but not limited to:
 - Staff (minimum of) one SEFCRI educational booth event
 - Provide (minimum of) five interactions with stakeholder group via electronic communication (email blast, online posts, social media, etc.)
 - Give SEFCRI-related presentations to stakeholder groups

30 voted yes to approve edit

1:20 – 2:10 SESSION I: The Nature Conservancy Resilience and Restoration Updates

1. Florida Reef Resilience Program’s (FRRP) Resilience Action Plan (RAP) – Chris Bergh

Chris Bergh introduces himself as the south Florida program manager with The Nature Conservancy Florida. He has been with The Nature Conservancy for about 25 years and within those has worked with SEFCRI at length. He expresses his gratitude to the SEFCRI group as a whole and the mission they stand for. Chris B. introduces the Florida Resilience Action Plan and the Florida Reef Resilience Program which cover the entirety of Florida’s Reef Tract and is spearheaded by The Nature Conservancy but has many academic, federal, and state agencies involved. Check out the website (www.frrp.org). Chris B. outlines Florida reef values and the main threats to reef.

- Florida Reef Values
 - Biological Diversity
 - Aesthetic and Cultural
 - Fisheries and Tourism

- Coastal Protection
- Threats to Coral Reefs
 - Climate change/coral bleaching/ocean acidification
 - Water quality/coral disease
 - Acute local impacts

Chris B. brings up that the question of what should be done about these threats to the reef are outlined in the Resilience Action Plan for Florida's Coral Reef (2021-2026). State agencies have outlined 3 goals: enable resilience-based management of Florida's Coral Reef, support public policy that creates the enabling conditions for reef recovery, enable stakeholders to support the future of the reef and those who depend on it. Each goal was set with several objectives on how to reach those goals which include the following:

- Goal 1: Enable resilience-based management of Florida's Coral Reef
 - Objective 1: Abate Threats
 - Reduce water quality impacts
 - Action example - modernize wastewater infrastructure
 - Reduce direct impacts to reef habitat and species
 - Action example - reduce impacts from marine debris on reefs
 - Reduce climate change and ocean acidification impacts
 - Action example - reduce greenhouse gas emissions
 - Objective 2: Enhance reef ecosystem condition with disease interventions and restoration
 - Coral disease intervention
 - Action example - gene banking
 - Coral propagation and restoration
 - Action example - comprehensive restoration planning and coordinated implementation
 - Objective 3: Conduct research to support threat abatement and restoration
 - Action example - identify SCTLD pathogen/cause
 - Action example - coral larval connectivity modeling
 - Action example - maintain and improve long-term, question-driven monitoring programs that identify climate impacts, key species population changes, and environmental conditions
- Goal 2: Support public policy that creates the enabling conditions for reef recovery
 - Objective 1: Incorporate the economic values of FCR into decision making
 - Action example - incorporate spatially explicit economic data into regulatory decisions
 - Action example - FEMA should classify coral reefs as "natural infrastructure"

- Objective 2: Educate Florida’s leaders on coral reef – related issues and policy priorities
 - Action example – strengthen penalties for reef-related violations
 - Action example – reauthorize the Coral Reef Conservation Act of 2000 or similar authority
- Objective 3: Enhance sustainable funding for coral reef management
 - Action example - coral disease coordination and response
 - Action example - water quality infrastructure funding
- Goal 3: Enable stakeholders to support the future of the reef and those who depend on it
 - Objective 1: Support individual reef users in becoming champions for coral reefs
 - Action example - establish or maintain reef education communications campaigns
 - Action example - promote participation in reef management, restoration, and citizen science programs
 - Objective 2: Promote business and institutions efforts to protect, restore, and sustainable use reefs
 - Action example - engage business leaders
 - Action example - promote participation in industry accreditation programs (e.g., Blue Star)

Chris B. reiterates that this Resilience Action Plan is not taking the place of any existing management plans this document is meant to add information for disease response. This document is also meant to be work hand in hand with other documents. It is not a regulatory document but rather a collection of reef managers’ ideas on how to protect and restore Florida’s Coral Reef while subsequently supporting use of the reef. Chris B. encourages everyone to think of ways to support the reef and engage with reef managers. Any questions or comments can be directed to Chris B. via email - cbergh@tnc.org.

Brian Walker [chat] - Awesome. When can we start citing this in proposals?

Chris Bergh - You can start citing it now.

2. Restoration Planning Strategy for Florida’s Coral Reef – Caitlin Lustic

Caitlin Lustic introduces herself as the South Florida Marine Conservation Manager for The Nature Conservancy based in the Florida Keys. Within the Resilience Action Plan there are two objectives that deal directly with restoration – enhance reef ecosystem condition with disease interventions and restoration, conduct research to support threat abatement and

restoration. Caitlin L. gives a short background of coral reef restoration and how it has arrived at the point it is today. Restoration is now occurring at localized reef sites and science has advanced over this time frame. The suite of species has also increased substantially over the past few years. Restoration efforts now also include the rescue of corals before SCTL disease margin for future restoration activities. This adds complexity by having different species added as well as larval propagation with nursery techniques. There is now increased coordination and planning at the state level so there is now a need for a state-wide restoration strategy

So why is there a need for a state-wide restoration strategy? To achieve goals across Florida's coral reef tract, leverage/prioritize resources, effectively communicate goals and needs, avoid effort duplication, think about restoration in the larger context of other management activities, and to inform future detailed planning efforts. Partners recruited included federal and state management agencies, restoration practitioners, and others (NOAA Restoration Center & Southeast Fisheries Science Center and USGS) for science advisory engagement.

The group has set a hierarchy of efforts broken down into tiers.

- Tier 1: Statewide strategy
- Tier 2: A restoration plan for the Kristin Jacobs Coral Reef Ecosystem Conservation Area (ECA)
- Tier 3: Mission: Iconic Reefs

Over 60 different statewide goals were originally brought up and eventually settled on 3 goals as well as a vision statement.

- Vision: Restore Florida's Coral Reef to thriving, resilient, diverse condition that sustains ecosystems and their valuable services for current and future generations
- Goals:
 1. Enhance coral population and coral community resilience
 2. Enhance habitat quality in support of coral recruitment
 3. Increase coral survivorship

Currently working on focal area identification which has not been finalized. However, the main site selection criteria have been narrowed down. This is meant to better coordinate restoration efforts. Caitlin L. mentions that a map is being created based on set of site selection criteria.

These criteria are being applied where relevant at the reef tract scale and could be overlooked at a local scale - for example coral larval connectivity. The team is giving all reefs or reef areas a value based on the criteria such that none are eliminated from consideration.

Through our recent connectivity workshop, coral larval connectivity was considered in terms of spawning, genetic lineage, and diversity. Essentially this workshop helped set what is known and what is not known about coral larval connectivity.

Restoration ‘principles’ were also a topic of conversation throughout the group and the purpose of these are to set general guidance for any type of reef restoration across the board. These include but are not limited to integrate restoration with other management approaches, use adaptive management, do no harm, innovate cautiously, engage communities. Cailin C. brings up the group is compiling restoration best practices which intend concrete recommendations to help restoration sites contribute to the ecosystem in terms of genetic diversity. These best practices are intermediary in scope.

The proposed timeline is as follows:

- End of March – meet with practitioners
- End of April – draft Tier 1 strategy
- End of May - final Tier 1 strategy
- June – start Tier 2 planning for ECA

2:10 – 2:30 Coral Disease Outbreak Update – Maurizio Martinelli

Maurizio Martinelli introduces himself as the Florida Coral Disease Response Coordinator for Florida Sea Grant. He works with many partners on the front of Stony Coral Tissue Loss Disease (SCTLD) response.

As far as 2020, SCTLD had not reached Dry Tortugas National Park however it was along the rest of the Florida Reef Tract. Unfortunately, as of May 2021, SCTLD has made the jump to Dry Tortugas National Park. This disease is endemic to the Florida system which is why you will see the maps in red where SCTLD is confirmed.

Since last June of 2020. The Cayman Islands, St Lucia, Honduras, Martinique, Dominica has all now had reports of SCTLD. The entire team is trying to prevent jump to further islands and Florida Sea Grant is now in talks with the Pacific coast to make sure they are prepared in case this disease makes its way there.

On the research front, there is some evidence that bacteria and viruses may both have roles. One reason that suggests a possible bacterial agent involved is the success of antibiotic treatment on SCTLD lesions. There is also some evidence that some viral agents may be at play according to a recent study. There is also a possibility that multiple infections may be occurring, meaning both viral and bacterial agents could be at play.

Algal symbionts may also be key to understanding this disease. It appears that corals with the *Breviolum* algal strain in their zooxanthellae may deteriorate quicker and are more susceptible to SCTLD.

As far as transmission goes at the local level, ocean currents and other ways water moves effect how SCTLD spreads through the system. On a more expansive level, currents and oceanic water movements are not at play. We are unsure what it could be (could be ballast, bilge, dive gear etc.) but it moved in such a way that we cannot track it down to one cause.

Sediment can be an SCTLD vector in some way, in some places. Nutrients, LBSP, and temperature may all play a role. One study introduced sterile sediment to SCTLD then introduced the sediment to an unaffected coral and was shown that SCTLD became present in the coral. This suggests sediment can be involved in the transmission of SCTLD.

The restoration team is working to determine what, where and when to restore. FWC has taken 6,000 coral plugs and distributed them throughout Florida to establish multi-year monitoring which will eventually feed into reef-wide decision making. There is now a new coordinated project in its early stages to explore methods for pre-conditioning outplants, predation mitigation, and maximizing nursery and outplant survival. This project aims to try and answer several questions regarding handling of in-situ and ex-situ corals and their survival once out planted.

In response to the observation of SCTLD in Dry Tortugas National Park, a Dry Tortugas Intervention Cruise was conducted in 2021, funded by NFWF and NOAA CRCP and undertaken by Dr. Karen Neely and Dr. Joshua Voss. The team treated 6,038 corals across 27 species. This smashing success of a trip included 300 hours underwater (265 dives), covering an area of 780,000 square meters. There is now a second intervention cruise in the works due to the great success of the first.

2:30 – 2:40 Break

Participants take virtual break for 10 minutes.

2:40 – 3:00 Environmental and Human Drivers of SCTLD within the Coral ECA – Dr. Brian Walker

Brian Walker introduces himself as a research scientist at Nova Southeastern University. He is joined by a colleague of his from the U.K., Gareth Williams. They have joined together with Dave Whitall of NOAA and Greta Aeby to tackle, over the last year, environmental and human drivers of Stony Coral Tissue Loss Disease.

Brian W. begins by stating Florida water issues adversely affect coral reefs. These include pollution, nutrient enrichment, reduced water quality, increased turbidity, and high sedimentation.

The Water Quality Assessment of the South Florida Reef Tract has been collecting monthly sampling at reef, inlet, and outfall collection sites in the Coral ECA since 2016. While there is a lot of data out there, interpreting and understanding the data is what is now needed, which is what Brian W.'s team is focused on. Our project goals are to use advanced statistical modeling approaches to identify possible environmental correlations to coral diseases and elucidate spatiotemporal patterns. This project includes three components: spatiotemporal analyses of SCTLD on *Orbicella* colonies, spatiotemporal analyses of disease on Florida's Coral Reef, and spatiotemporal analyses of SCTLD resistance. However, today we will only be talking about the first component.

Within the Kristen Jacobs Coral ECA, 2015 reef mapping found the presence of massive, over 2 meters, coral colonies scattered along the coast. These *Orbicella* colonies are the largest, oldest and most resilient colonies in the Coral ECA. When SCTLD became rampant, these became the highest priority. These corals were visited monthly, and a database was created to show the presence of new lesions on the coral colonies. All lesions were treated and photographed each visit and if the lesions weren't getting better, treatment was reapplied. Oddly enough there seems to be a cyclical pattern in new lesions and number of diseased corals. In a lot of cases, the summer months seem to be the months with the most lesions treated (2022 was the only anomaly) which poses the question of why. Some possible answers could be the heavy rainfall South Florida receives at that time, the temperature, or the water quality however there is no definitive answer yet.

Gareth W. states that on the spatial front their team investigated statistical relationships in the locations of the total number of lesions on 51 large corals to other spatial data. Predictors were quantified across 7 spatial scales and 4 temporal scales. These spatial predictors include:

- Distance to outfalls
- Septic tanks
- Several coral host-specific attributes (e.g. size, shape, % live tissue)
- Water depth at each coral

Temporal model predictors include:

- Seawater temperature
- Water quality
- DBHYDRO flow data (water flow from inlet contributing areas)

The point of this model is not to build theories, rather these are data driven models. Spatial model results equaled out to 3 predictors explaining 52.7% of the overall variation in number of new lesions which include septic tanks within 21km, percent live coral, and water depth. Higher SCTLD incidences were found in areas with greater than 7,000 septic tanks within 21km, on colonies with less than 60% live tissue, and in shallower depths.

Temporal model results equaled out to one predictor explaining 49.7% of the variation in number of new lesions which was higher flow rates from Inlet Contributing Areas (ICA) over the previous 7 days (especially >5000 cubic feet/second).

The team is currently updating these models to an increased period to 34 months of data, expanding the number of spatial scales, updating all previous predictors to match new temporal extent including several new predictor variables (local land use in the ECA area adjacent to the corals, human population density, and rainfall patterns), analyzing temporal scale mismatch between flow and water quality data (Flow data are continuous while WQ data are monthly).

- Rainfall patterns across ICAs and their relationships to inlet flow are complex
 - Loose positive relationship between rainfall and flow.
- Flow patterns across ICAs
 - Inlet flow patterns are more similar between some ICAs than others
- Testing for links between inlet flow and reef water quality
 - Developed an R script to dilute weeks of manual work to days of computer runtime.
- Inlet flow drives changes in near-reef water quality
 - Effect of inlet flow on near-reef nitrate concentrations after accounting for effects of individual ICAs and year of sampling.

Rainfall patterns and inlet flow relationship is complex. Although there are loose positive relationships between rainfall and flow, there is lots of noise in the data. Some ICAs have more pronounced patterns than others. Really the question posed is how does inlet flow correlate to data in the reef. Gareth W. mentions that he has created an R script to streamline analyte pre-processing and he is happy to share it although it still requires some work to facilitate wider use.

To summarize:

- A higher number of septic tanks in proximity to the large corals relates to a higher number of coral disease lesions.
- High flow rates summarized by inlets relates to a higher number of new lesions through time.
- Government Cut and Haulover highly correlate with both rainfall and flow data. Port Everglades and Hillsboro also highly correlate.
- Rainfall and flow data are not highly correlated.
- Water quality data do not perform well in the model due to the temporal scale.
- A positive correlation between many reef water quality parameters and flow exists in many inlets and time periods.
- More investigation is needed.

Brian W. outlines one of the next steps as mapping the relationships to identify problem spots looking for links between nutrients and coral disease. Intraspecific differences in diseased resistance can confound statistical modeling which means there are colonies out there that are naturally resistant to the disease for some reason. This casual relationships for this resistance are being investigating. Brian W. thanks all the partners involved in this project for support.

Manoj Shivilani [chat] - Given the recent emergence of SCTLD compared to the long-term ICA outflows and septic systems has something changed in the outflows and systems that is causing or exacerbating the disease? I.e., is there a spatiotemporal relationship?

Brian W. - The disease is persistent through time which is one of the annoying things. The colonies are getting lesions at various periods of times and if the lesions go untreated the colony eventually dies but if we can go out and treat it then we can stop that lesion. However, there is still potential for reinfection for treated lesions. We do not really know why SCTLD is behaving this way in our region. It is atypical to have such a persistent disease. Usually, a disease will run its course through the region, however with SCTLD we are still seeing reinfections years later. We are still investigating why this is happening.

Anne Laird [chat] - Brian - did you collect the flow data at Haulover?

Brian W. - The flow data was collected through the South Florida Water Management District's stations. We did not collect them ourselves.

Gareth W. [chat] - Hi Anne. We summarized flow rates for each ICA based a sub-set of monitoring stations within each ICA (to account for some stations recording the same flow). So, we've managed to summarize our best estimate of flow coming out of each ICA inlet over time. Hope that helps. Gareth. <https://www.sfwmd.gov/science-data/dbhydro>

Jena McNeal [chat] - I'm curious if the winter spikes are related to beach nourishment as that is the prime-time beaches are nourished and inlets are dredged as it is outside of sea turtle nesting season. I understand that might be picked up in water quality data, but there may be other factors related.

Brian W. - It is possible. We do not have a good dataset to use to test that, but we are thinking about that and if anyone does have a dataset to test that please send us that.

Laura Eldredge [chat] - Do you have any plans to study colonies in estuaries, like Biscayne Bay, that are proven to be resistant even though they are in much higher proximities to septic?

Brian W. - Have been in touch with Andrew Baker and Rachel Silverstein to see how we can coordinate with those groups and review their data to see how corals are affected inside and outside the bay. If you have any suggestions, we are interested.

3:00 – 3:35 SESSION II: Current CRCP & SEFCRI Project Updates

Mollie S. runs through the flow of projects over time, development of LAS strategy projects from 2003 to 2017. Mollie S. Gives SEFCRI LAS Project Status Updates. There were 140 LAS projects originally in 2004, 68 OFR Recommended Management Actions by 2016, 34 LAS projects 2017. An important note about the OFR Recommended Management Actions – some of the final RMAs included proposed ideas and projects that are not within DEP or CRCP's preview, so they were forwarded along to the correct agency or entity to implement. This helps explain why the percentage completed number is lower. We've completed many of these projects, and they're now helping CRCP develop a management plan for the Coral ECA. To view the project status of any past, ongoing or new SEFCRI LAS Project please visit <https://southeastfloridareefs.net/las-project-status/>.

Mollie S. then passes to different CRCP staff to present about their respective focus areas and LAS project updates. Please keep in mind that CRCP staff work on SEFCRI-recommended projects in addition to DEP CRCP priority projects. But these updates will focus on current SEFCRI LAS projects.

Awareness & Appreciation (AA) – Rachel Skubel

Rachel S. discusses the goal of AA which is to increase AA of Florida's Coral Reefs (FCR) to Southeast Florida residents and visitors. There are four main projects going on right now: SEFCRI and FCR websites, outreach materials and events, coral reef education trunks and the volunteer speaker bureau. The coral reef education trunks include new lesson plans and more accessibility and are now offered to higher grade levels. New trunks were added as well as bonus resources. Teachers can also do the activities on their own time without a trunk because the educational materials were made available online. So far, they are already available to >1,000 students. For community outreach events and materials, we are in virtual reality video production, and there is more online and visual content for Spanish speakers and more presence at events. There is also a redesign of the FCR and SEFCRI websites and newsletter that is underway. We are also launching a volunteer speakers bureau, which allows key stakeholders to engage with their networks and build and diversify the community of engaged citizens – it was more focused on OFR, but now will be broadened to be about key topics (restoration, coral disease, preventing damage, and introducing FCR).

SEAFAN, Bleach Watch, Reef Cleanups – Tyler Mominey

Tyler M. discusses the long-term reef resilience goal of the project titled: Reduce Local Stressors & Restore Environmental Conditions to Improve Reef Resilience. Stemming from the Southeast Florida Action Network (SEAFAN) are three separate programs that focus on specific incident types: the Marine Debris Reporting and Removal Program helps target cleanup efforts, the Reef Injury Prevention and Response Program improves response to vessel groundings and coral damage and supports enforcement of the Coral Reef Protection Act, and the BleachWatch Program is similar to SEAFAN but requires training to provide early detection of coral bleaching or disease events. If you would like to be an instructor for BleachWatch, please contact Tyler. SEAFAN is a community-based reporting and response program for marine incidents affecting Southeast Florida's coral reef ecosystem. To report a marine incident, go to SEAFAN.net/report and it will take you directly to the reporting form. The community can report anything occurring in the coastal ocean that might be a sign of trouble for coral reefs – such as vessel groundings, anchor damage to coral, fish kills and disease, marine debris and biological incidents such as invasive species and algal blooms.

Land-Based Sources of Pollution (LBSP) – Alycia Shatters

Allie S. shares updates on two recently completed LBSP LAS Projects. The goal of LBSP Project 20 is to develop specific projects (engineering/management action) for designated hot spots. The goal of LBSP Project 23 is to initiate the implementation of engineering/management actions to reduce pollution from the highest priority sources as well as to implement priority engineering/management action. Allie S. mentions the active ongoing LBSP LAS Project 4, which is the continuance of the Technical Advisory Committee (TAC) to SEFCRI. The TAC reviews/assess data and advises the SEFCRI Team. The TAC meetings have gone virtual, and the next meeting is set to happen in the spring although no specific date has been set.

Maritime Industry & Coastal Construction Impacts (MICCI) – Patrick Connelly

Patrick C. discusses the active LAS project MICCI 28 which is to identify means to improving the methods of measuring turbidity and suspended sediments during coastal construction activities. The TAC and DEP's Division of Environmental Assessment and Restoration (DEAR) have recently narrowed down the list of project options to 3:

- Establish regional background turbidity levels is the selected project
- Compare construction turbidity to background (extension of CRCP 9)
- Species/life stage – turbidity dose-response threshold studies

As a group it has been decided that the best course of action is to move forward with establishing regional background turbidity levels. Patrick C. is working with several people on the initial steps which include a desktop literature and data collection effort with the goal of describing the available data on turbidity and suspended sediment

concentrations in Florida's Coral Reef. We are looking for additional team members and feedback on data sources for this.

Fishing, Diving, and Other Uses (FDOU) – Katie Lizza

Katie L. discusses active ongoing FDOU LAS Projects. For project FDOU 26A Part 5: decision support tool (Marine Planner) she has been working with FWC and Brian Walker to update the tool including new layers and functionality. FDOU 29/30/32 Marine Debris Reporting and Removal Program collected over 109 lbs. of trash from the reef this past August during our Annual Reef Cleanups. FDOU 51: Assessment of Gaps Trends, Protocols of existing WQ/Fish/Benthic Data is happening in 2 phases. The first is a review of existing data and the second is building a framework for the meta-analysis. A contractor has been hired and they are currently in the data compilation and characterization phase. An online questionnaire has been created and sent out to data managers to begin the compilation of existing data within the Coral ECA. They are currently trying to determine which data is relevant to the decision making processes within the Coral ECA. FDOU 52: Data Needs for Fisheries Management was covered by Susanna during Day 1 of this meeting, however Katie L. does mention that there is a comparison phase which is separating out what recommended management actions have been deemed important and which of these are relevant to the Coral ECA. In the most recent meeting (February) several topics were discussed including water quality, anchoring on the reef, and artificial reefs to name a few. The next step is to begin parsing through the topics brought up to decide what priorities need to be set within the management of the Coral ECA. The next meetings are March 8th and 10th. The draft of project FDOU 55: Coordination of a Reef Management Plan has been completed by the University of Miami in June 2021 and internal edits are being completed. Next, the SEFCRI team and TAC will be asked to review the management plan and an advisory committee will be created to assist in this revision process. After that, the public will be able to review and comment on the plan. The final draft is estimated to be complete in June 2024.

3:35 – 3:50 Project Teams Update – Mollie Sinnott

Mollie S. provides an update on the Florida Coral Reef Protection Act (CRPA). In 2020 the civil penalty fine was increased based on an incremental damage scale, and the maximum civil penalty cap was raised to \$375,000 from \$250,000.

Mollie S. discusses the current active projects and mentions the current project teams are Awareness and Appreciation, Land-Based Sources of Pollution, Maritime Industry and Coastal Construction Impacts, Fishing, Diving, and Other Uses, and Reef Resilience as a reminder. Current focus area projects area as follows:

Awareness & Appreciation:

- 20/23: Outreach & Community Events
- 35: Traveling Trunks
- 36: Volunteer Speaker's Bureau (VSB)

Land-Based Sources of Pollution:

- 4: Technical Advisory Committee (TAC)
- 20 & 23: Best Management Practices (BMPs) to reduce pollution hotspots
(Recently completed)

Maritime Industry and Coastal Construction Impacts:

- 28/28B: Identifying & Testing Methods of Measuring Turbidity and Suspended Sediments

Fishing, Diving, and Other Uses:

- 29/30/32: Marine Debris Reporting and Removal Program (Reef Cleanups)
- 52: Data Needs for Fisheries Management *(nearing completion – no additional members needed)*
- 55: Development of a Management Plan for the Coral ECA
- 51: Assessment of Gaps, Trends, Protocols of existing WQ/Fish/Benthic Data

Reef Resilience

- CRCP 2: Citizen Science Programs **not an original LAS**

Mollie S. mentions there will be more chances to sign up for more project teams in the future and the level of involvement varies. All of these projects mentioned are available to sign up for.

Mollie S. highlights need for a lot of involvement for FDOU 55. There will be a survey sent around to sign up for these project teams.

Mollie S. discusses the Volunteer Speakers Bureau as a potential outreach opportunity. Topics include Florida's Coral Reef/Coral ECA, Water Quality/BMP manual, Citizen Science – SEAFAN/BleachWatch. If you are interested in any of these topics or have any new possible topics, please reach out.

Shelby Thomas [chat]- Can we create new project group? If so whom should we contact to develop a team?

Mollie S. – Yes reach out to me or the coordinator who could possibly be involved in this project if you have their contact.

Kristi K. – Check the LAS project tracker to see if there is anything that is relevant or to check the “not started” column.

3:50 – 4:00 Break

Participants take virtual break for 10 minutes.

4:00 – 4:15 Public Comment

No public comments were made.

4:15 – 4:35 SEFCRI Input on Upcoming CRCP Projects – Mollie Sinnott

Mollie S. mentions the survey sent out before the meeting that discussed several recommended management actions by Our Florida Reefs as well as LAS projects in the not started category. There were 27 survey participants, and the top 5 projects will be discussed. This helps in SEFCRI priorities that may become CRCP projects and these can be written and proposed into the upcoming NOAA grant.

Top 5 projects:

RR 1/2/3 (14 votes): Conduct a lit review on eco-toxicity to assess the impacts of potentially toxic compounds known to affect corals and reef systems throughout Florida's Coral Reef. Then design an experiment to determine which of those compounds are reaching the reefs and at what concentrations to characterize the toxicity and threshold limits to coral reef environments.

Stephanie Schopmeyer – There is an almost completed white paper that deals with ecotoxicology that was Acropora focused, but also research for corals in general. This could be a big step towards this project and I'm sure they would be willing to share this. Happy to coordinate the conversation towards getting that literature review towards this.

Mollie S. – Thanks! That would help a lot.

Kathy FitzPatrick – It sounds like this is a step towards helping develop regulations for water quality standards.

Mollie S. - Based scope of work developed, I will check for the end goal that they are hoping for.

Kathy F. - DEAR folks have standards based on drinking water, leads to frustration in doing work that they will accept because there is no certification.

Mollie S. - I will check into this and see how that might relate.

Brian Walker – I have an employee who is a student here under Dr. Reneger who has been running toxicity experiments with sunscreen and oil toxicity. There has been some work that's

done, not sure what reaches the literature review part but there may be reasons to build off those projects or build off other ones. At NSU, Samantha Buckley is working on sunscreen compound toxicity on Acropora under Abby Renegar.

Ana Zangroniz – I had similar thinking of looking at sunscreen ingredients from management perspective but also policy/legislation ordinances that limit the use of ingredients or use of those products at local beaches. This type of study would give some teeth to that especially from an education and outreach point of view. It would be great to have a local study going through this.

Mollie S. - That makes sense. This might be reviewed under the literature review under the guise of toxicity.

Joshua Voss- With the increased industrial activity we might expect to see changes in the number of toxic compounds in the nearshore watershed.

LBSP N-116 (*12 votes*): Coordinate and implement regional “living shoreline” objectives to increase the use and protection of natural infrastructure to protect against storm surge.

Katelyn Armstrong - Palm Beach County is conducting a shoreline characterization study to identify locations suitable for living shorelines. TNC and partners were working on this before COVID, so I am not sure if this is continuing.

Mollie S. - Maybe we investigate which counties and other organizations have already started doing this.

Nick Gadbois - My company, Environmental Science Associates, did different types of living shorelines for residents as well to look at material in layman's terms. This is going on regional wide and something they are trying to push for as mitigation for construction projects. I voted for this, and I think it is much needed in this region.

Mollie S. - It sounds like maybe it is less of CRCP staff's own project and rather more coordination with groups who are already working on this type of thing.

Erin McDevitt - Regarding N-116, is TNC or the Shoreline Resilience Working Group (that I think stopped meeting) still working on living shoreline policies/outreach? I know that group was all over the living shoreline topic in 2019. FWC has a living shorelines website that summarizes statewide projects and is a resource for everyone. Also, we have developed a contractor's course for living shorelines, I can provide information. We worked with Broward County to have a desktop assessment done to look at location, public land and identify locations that we could, unfortunately some of only locations available are private which is a hurdle for

state and government. We don't put state money on private land but maybe getting other groups involved can help with this. I know the Army Corps of Engineers is doing a large resiliency project which provide nature-based solutions.

Troy Craig – This could be a way to offset mitigation issues coastally. Reestablish habitat in these private areas and maybe offering a credit for those property owners for putting something like this in instead of putting a seawall.

Derek Cox - Is this the only purpose or is it broader and that's a general one stuck in there, or does it include other ones?

Mollie S. - I will have to revisit the SOW and as a reminder we are not locked into the original SOW.

Joshua Voss [chat] - DARPA is in the process of funding two "Reefense awards to look at sustainable hybrid artificial/natural reefs, one base in South FL and one in HI with FL partners

Ana Zangroniz [chat] - Florida sea grant is a major partner for the LSL contractor's course. I can provide more info.

Laura E. [chat] - N116- is this solely beach related objectives meaning just within and along the ECA? "Regional" should be better defined to be within the ECA region or the South Florida region, including other waterways. Many others are commenting on LS applications and guides that have been developed to implement not within the ECA.

Brian Walker [chat] - As per Josh's concerns: <https://theicct.org/publication/global-scrubber-washwater-discharges-under-imos-2020-fuel-sulfur-limit/>

Jennifer Baez [chat] - Palm Beach County ERM conducted a shoreline characterization study in 2020. We are working with UCF to collect wind and wave data to couple with the shoreline characterization data and model priority areas for future shoreline restoration. Wind/wave data will be collected late 2022-2023 and outcomes from the study should be available late 2023 or early 2024.

Jake Weinberger [chat] - Museum Volunteers for the Environment (MUVE) at Frost Science Museum has been restoring Miami's 'living shorelines' by planting sea oats on Key Biscayne's sand dunes since 2017 - <https://www.frostscience.org/museum-volunteers-for-the-environment/>

N-35 Enforcement (11 votes): Develop and implement a cross-training program for local marine units and beach patrol officers, to improve recognition of conservation regulations, increase law

enforcement presence on the water and provide additional enforcement for peak periods to build relationships between agencies and decrease marine-related violations.

Ana Z. - Florida Sea Grant puts on two fisheries regulation management workshops a year for both Gulf and Atlantic coasts. The main objectives are to better arm law enforcement in handling fisheries regulations at the federal and state level. Might be opportunity to partner on something like this and work from smaller breakout group for conservation regulations that are not fishing related. Just wanted to mention that there was something similar and opportunity to expand.

Laura E. - We currently have first responders natural resource training within DEP. Local nonprofit, manatee, and DEP present on seagrass impacts. CRCP staff to present for coral damage response. Marine patrols are trained during that time and ocean beach staff as well. These have been in process for almost 20 years now and used to do them once or twice a year however it is dependent on FWC capacity because manatee response has been too high.

Derek C. - There has been increased law enforcement presence, Potential budget for upcoming legislative session proposed for an additional 57 FWC law enforcement agents throughout the state, hopefully some more coming here.

Mollie S. - I know DEP has law enforcement personnel however I do not know how many off the top of my head.

Laura E. [chat] - 2 DEP officers in the ECA SFL region.

S-8 FDOU (10 votes): Establish coral reef gardens for recovery, restoration, and recruitment of corals and fish, created under strong guidance from scientists and monitored by the community through an educational campaign.

Brian W. - There seems to be some overlap potentially as other have been thinking about spawning hubs, but they are certainly not led by a community group. They are beginning to establish what a coral garden might look like and how it may benefit. Spawning hubs could be a model to use as a model for the community led idea.

Derek C. - Is this different than what is being worked on currently?

Laura E. [chat] - Rescue a Reef is working on something similar to this.

Mollie S. - It might be worth following up with partners on how it may tie into existing restoration plans

N-123 Education & Outreach (9 votes): Develop and implement a sustainable finance plan to support coral reef conservation efforts in the SEFCRI region.

Manoj Shivilani [chat] - With respect to N-123, there is a missing piece to developing a sustainable finance plan, and that is an update to the 2001-03 coral reef valuation studies that determined how much reefs are worth in the region. This makes it more feasible to push for a plan that may have user related payments.

Joshua V. [chat] - KJECA license plate?

Katelyn A. – This relates to something that Joanna and regional planning councils are working on, I can't think of the grant name right now, to build the blue economy in South Florida and more schooling those that are interested in rearing corals and offshore out planting work, etc. Sort of the backbone to all the restoration that is going on.

Kristi K. [chat] - EDA Grant.

4:35 – 4:50 Activity: Engagement in Stakeholder Groups

Mollie S. initiates five breakout groups in Adobe Connect. Breakout group discussions were not recorded, but live notes were captured by SEFCRI Vice Chairs and CRCP staff.

Agencies (Local, State, Federal)

Team Member Introductions

Projects Teams that Members are Interested In

All Team Members are interested in providing input for the FDOU 55 Coral ECA management plan process.

Non-Governmental Organization (NGO)

Team Member Introductions

David Moss with The Nature Conservancy

Background in fisheries management and is the project manager for Florida, lifetime Florida resident, has been fishing here all his life and has been on the Stafford council.

Shelby Thomas with Ocean Rescue Alliance

Work includes using artificial structures for biological restoration, using microhabitats to support restoration, integrating coastal protection structures, promoting art, seawall enhancements, natural reef restoration, out planting *Orbicella* spp. and other species with FWC, looking forward to engaging with all of you.

Lenetia Fix with The Reef Institute

The Reef Institute is in Palm Beach County and works on reef restoration, holds the second largest amount of coral and works towards the rescue project. Their coral brooders have spawned, they have juveniles that have spawned from mote, are working on using them for restoration efforts and the offspring will be used for out planting. They run a large education program that builds awareness for stewardship and are excited for their coral garden projects which include 18 species of corals in a man-made lagoon on Peanut Island.

Jane Fawcett

NGO for research when there was a gap for technical research, involved in bio rock project worked with Lauderdale by the sea, installed and monitored it, archeology with the state of Florida.

Projects Teams that Members are Interested In

Coral Gardening.

Preferred Method of Communication

Email.

Private Business

Team Member Introductions

April Price - President of Marine Industry for State, Joey Massa, Melissa Sathé – President of FOFR, Anne Laird, Francesca Fourney, Nick Gadbois, Mike Jenkins – coastal engineer at Applied Tech Management.

Primary Concerns of the Stakeholder Group

Anne L. - Frustrated at the civil penalties.

Melissa S. - Noted that RIPR team has been successful from the commercial side.

Melissa S. - Turbidity is the hot button issue.

April P. - Anticipates seeing FWC to accompany the FDEP campaign.

Nick G. - LBSP - Regional stormwater mapping should be done in the Tri County Area.

Projects Teams that Members are Interested In

Melissa S. - MICCI 28.

Nick G. - LBSP related.

April P. - Working with FDOU but wants to join anything public outreach.

Anne L. - Marine debris programs and outreach.

April P. - Been running trash collection programs.

Mike J. - Interested in anything that involves marine construction.

Interest with Helping at Outreach Events

Anne Laird is interested in helping with outreach events.

Preferred Method of Communication

Emails

Fishing, Diving and Other Stakeholders

Team Member Introductions

DD Halpern – Other, Pat Bennett – Fishing, Erik Neugaard – Other, Mike Dixon – Fishing.

Primary Concerns of the Stakeholder Group

DD H. – Thinks Erik’s expertise is being underutilized in this group. Port representatives are considered as part of the other groups.

Mike D. and Kristi K.– More constructive way on how to move forward, lost on where we are now and where we are going. Disease became forefront of the focus of SEFCRI. LAS projects that started around the time of the disease were put on pause, but there wasn’t necessarily funding for those at the time. Reestablish project teams and reengage team members.

Mike D. - Confusing to him why the work done back in 2016 -2017 is being forgotten. Expressed frustration. Thinks work was put to waste.

Kristi K. - Work wasn’t put to waste, SEFCRI is here to identify important projects to implement. Cannot implement all the projects at once. Some of those projects from 2017 are being implemented.

Kristi K. – How can things be improved?

DD H. - Science and agencies and funding don’t move quickly. We are making progress though. Benchmarks are being met by agencies.

Kristi K. – Way more projects being funded now than in the recent past. Big one is the management plan and restoration plan. Great way for SEFCRI team to contribute.

Academic Entities

Team Member Introductions

Primary Concerns of the Stakeholder Group

Worried if all the stakeholders are up to date with the most recent science.

Want more members of the research community – not necessarily faculty.

Ana Z. - Mentioned bringing science to user groups. This should include educators including people involved in teaching science, as well as gathering research from talks, participating in research, and bringing that back to SEFCRI.

Projects Teams that Members are Interested In

Potential conflicts of interest on certain projects.

Preferred Method of Communication

The group wanted more ways to connect regularly, in order to feel a sense of momentum on projects, strengthen connections, and really benefit from an

exchange of ideas with one another and the SEFCRI team. They also were wondering about having email lists for each group to facilitate communication.

With the Group

Question: Are they supposed to be checking in? Outlook mailing list for the mailing list?

Joanna W. - Request to have an email list for each stakeholder group?

With the Public

Social media!

Links.

Joanna W. - Talks for diving groups.

Ana Z. - IFAS social media and media person to contact news outlets.

Other Reflections of the Group

Need for movement on sedimentation.

Brian W. – Would like to have more momentum on SEFCRI teams to continue impact (more meetings?)

Ana Z. – Revisiting impact of SEFCRI body, given that so many LAS projects have been completed.

Brian W. – SEFCRI has made a huge impact on local stakeholders and the ability of the folks who work in the agency offices to be heard and make differences that wouldn't happen otherwise. Find ways to be more connected!!!

Joanna W. – Good to keep different groups informed, to have voices from different groups. Exchange of information with different groups.

4:50 – 4:55 Marina Topics - None

4:55 – 5:00 Wrap-up and Adjourn

Mollie S. closes the meeting. Reviews action items and asks Team members to fill out meeting evaluation following this call. Jamie M. thanks everyone for participating and for their patience through the technical difficulties.