Southeast Florida Coral Reef Initiative (SEFCRI) Team Meeting

Virtual Meeting: Adobe Connect

Day 1: Tuesday September 1, 2020

Attendees:

DEP Staff and Presenters: Kristi Kerrigan, Jamie Monty, Evan Hovey, Alycia Shatters, Mollie Sinnott, Joanna Walczak, Shelby Wedelich, Michelle Graulty, Jennifer Coley, Marian Hanisko (NOAA Facilitator), Maurizio Martinelli, Kai Lorenzen

SEFCRI Team Members: Alastair Harborne, Joana Figueiredo, Brian Walker, Dave Gilliam, Wilson Mendoza, Shana Phelan, Lisa Carroll, Steve Blackburn, Jocelyn Karazsia, Omar Beceiro, Xaymara Serrano, Lauri MacLaughlin, Sara Thanner, Patrick Quinn, Kathy Fitzpatrick, Baret Barry, Jenny Baez, Cristin Krasco, Caroline McLaughlin, Nick Morrell, Angela Smith, Ed Tichenor, DD Halpern, Erik Neugaard, Christie Hurley, Joey Massa, Michael Dixon, Mike Jenkins, Carl Liederman, Cheryl Miller, April Price, Laura Eldredge, Zach Boudreau, Amanda Kahn, Erin McDevitt, Derek Cox, Donald Vacin

SEFCRI Team Alternates: Kirk Kilfoyle, Kirk Dotson, Melissa Sathe, Kurtis Gregg, Erick Ault

Public Observers: Victoria Barker, Carolin Ciarlariello, Gary Jennings, Janet Zimmerman, Katie Lizza, Kellie Ralston, Susana Hervas, Dana Wusinich-Mendez, John Sprague, Pepper Uchino, Alyssa Freeman, Wade Lehmann, Chris Bergh, Marina Garmendia Zepeda, Trip Aukeman, Nathan Smith

12:00 – 12:30 Early Registrants

12:30 – 1:00 Welcome / Housekeeping / Overview / Introductions - Kristi Kerrigan & Jamie Monty

Kristi Kerrigan, moderator, opens the meeting, greets the SEFCRI Team, provides an overview of the Adobe Connect platform, and explains the virtual meeting ground rules.

The goal of this meeting is to reinvigorate the team. As you know, many of our staff has had to re-focus on coral disease response, which took us away from progressing on many of the new LAS Projects that were established in 2017. We're hoping to bring that momentum back! Over the course of the next two days we're going to be presenting lots of great projects and opportunities to get more involved. We have two new LAS Projects that we'll be prioritizing today and at the end of the day tomorrow we're going to start brainstorming other ways SEFCRI Members can stay engaged and active throughout the year beyond just coming to meetings once a year.

Kristi runs through the agenda for the next 2 days. Explains roles as primary vs. alternate. If the primary team member is present, the alternate is there to observe (but not participate). Those alternates would then be considered public observers. If the primary is not present, the alternate assumes the roles of the primary and may participate. There will be no voting today or tomorrow. This is just for the purpose of the discussion in the breakout groups.

During the Q&A times, non-member attendees and public observers can type comments/questions into the chat box to be read aloud only if time permits after all SEFCRI members get the chance first. If there we run out of time, those comments/questions will be included in the minutes and we could always put you in touch with the presenters after the meeting is over. Non-member attendees, public observers, and members are invited and encouraged to speak during public comment at the end of each afternoon.

Jamie Monty provides an overview of SEFCRI and runs through introductions. Current open seats for SEFCRI: Local Agencies (Broward and Miami-Dade), Federal Agency, and Private Business. Current open seats for Technical Advisory Committee (TAC): Natural Resource Management Coastal Engineering and Habitat Conservation and Ecosystem Services.

Friends of Our Florida Reefs (FOFR) is our support organization that is a 501(c)3. They just celebrated their 5-year anniversary. They help support CRCP missions. They are developing their own project ideas in coordination with CRCP.

Went over the impacts that resulted from COVID-19.

Allie Shatters gave an overview of the last two TAC meetings. Many of the topics that were discussed at the last two meetings will be covered today and tomorrow. She briefly covers those topics that will not. If you are interested in more information, reach out to Allie and she can send you a copy of the presentations and meeting summaries if you are interested. Topics included: (a) reef fisheries modelling using RVC data; (b) National Academy of Sciences (NAS) intervention strategies to increase reef resilience report overview with presentations of local example projects; (c) creation of spawning hubs in SE FL; (d) DEP's Division of Environmental Assessment and Restoration's (DEAR) overview of watershed assessment processes and data collection/storage; (e) Blue-Green Algae Task Force update; (f) ballast water as a potential vector for Stony Coral Tissue Loss Disease (SCTLD); (g) apoptosis as a possible mechanism for SCTLD lesion progression; (h) hydrodynamic modeling to explain SCTLD transmission; (i) reef monitoring program updates from SECREMP, NCRMP, and FRRP DRM; (j) Florida Keys' Water Quality Protection Program update. Outside the meetings, TAC wrote a joint document that was submitted to DEP during public comment period of the triennial review with considerations and recommendations on the revised turbidity standard. Shelby will be giving you an update on the revised turbidity standard process during this meeting.

1:00 – 1:15 State-wide Initiatives & Updates: Protecting Florida Together – Joanna Walczak

Governor DeSantis made it very clear that the environment and more specifically water quality is a priority. He directed through executive order that all the state agencies are focusing on accountability, transparency, and collaboration across everything that touches on water quality issues. This is the website that has been put together, www.ProtectingFloridaTogether.gov, to be used as a tool for anybody to use as a central platform for the state's water quality data. The governor believes that protecting our water resources is one of the most pressing issues we face here in Florida so this year he has committed over $625 million in this fiscal year for water quality and ecosystem restoration projects. To highlight some of the types of information you can get off this website right now include the Blue-Green Algae Task Force and the Red Tide Task Force.

The website also highlights grant opportunities for water quality and ecosystem restoration projects. I want to highlight the creation of a brand-new Coral Reef Protection and Restoration $10 million grant opportunity. We have around a $16 million Coral Reef related budget for the state. We just closed the pre-proposals on Friday, so I don't have any announcements for you on what projects we will be selecting.

We will be picking them over the next month or so and then those projects will be implemented over the course of the next three years.

I also wanted to highlight some of the new state legislation that was passed this year. The Clean Waterways Act is a bill that's in coordination of the Department of Health (DOH), to develop a report to be submitted to the Legislature on the impacts of a transferring regulatory authority over septic tanks from DOH to DEP. It requires for a basin management action plan for any septic tanks near an Outstanding Florida Spring. It requires DEP to establish a real-time water quality monitoring program for these types of issues in priority areas. The next one is related to sea level impact and projection studies. This is any taxpayer dollars going towards the construction projects in areas that are highly vulnerable to sea level rise will now be required to undergo a sea level impact projection study to see if it can be built. The Nature Coast Aquatic Preserve was created. We haven't had an aquatic preserve established in over three decades. It is over 800 square miles (400,000 acres) of lush seagrass that is filling a big gap between the existing big bend sea grasses and Pinellas County Aquatic Preserves over on the west coast. It is really important critical habitat for fish and scallop industry and the industries got behind it to get it passed this year. Finally, the Environmental Enforcement bill was passed which increases the penalties for violating Florida's environmental laws. This includes increasing required or maximum environmental penalties in various laws. This legislation also changes the duration that certain penalties can run so that until a violation is resolved, each day during that violation could constitute a separate offense.

There are currently two bills in federal legislation that have to do with coral reefs. The first one is a copy of the reauthorization of the US Coral Reef Conservation Act of 2000 being submitted by a group of Florida folks. It was never reauthorized, and we have been working to get it reauthorized since it was created. The other is Restoring Resilient Reefs Act that is championed by Senator Rubio and Representative Soto. These are two great opportunities to try to get some solid movement forward on protecting the US coral reef ecosystems.

I am going to wrap up with some of the things we are working on with the support of all the things I talked about before. We know that water quality monitoring is a major component of what our agency and governor would like us to focus on. You will hear presentations later about how we are continuing to do that and how we are using that data in our agency's triennial review so we can look at setting better water quality standards for coral reef organisms. We know the Government Cut area is a priority watershed that we really want to focus on. We are starting to move forward in the timeline to close out the ocean outfalls. We are working closely with our SE District team who are overseeing that on behalf of the department and continue to monitor all of the conversations and actions that are happening behind the scenes to make sure they meet their 2025 deadline. And we are having a really big focus on how we can improve wastewater and stormwater issues associated with coastal areas through best management practices and through direct action and conversions in the septic arena.

Nick Morrell: You talked about new Florida legislation concerning sea level impact projection studies. Does that affect all coastal construction?
Joanna W: It impacts only things that are paid for or supported by taxpayer funds (government funded projects). It doesn't apply to homeowners. It is aimed at large scale construction.

Amanda Kahn [chat box]**:** What is the likelihood of those grant opportunities being an annual occurrence?
Joanna W: It is my understanding that it is intended to be recurring funding. The Resilience funding we have had since 2017 has been relatively steady and has been increasing. This is the largest pot we have had, but we know part of that is intended to be recurring. The Coral Protection and Restoration Grant

(CPR Grant) is intended to be recurring but everything in the state budget world is caveated by the fact that we don't know what this year will bring in terms of the potential deficit with the COVID response. Although the intent is there for recurring funds, we won't know for sure until the next budget is officially passed and signed by the governor.

1:15 – 1:30 Florida's Coral Reef Communications Campaign and Messaging – Michelle Graulty

Today I will be updating you on the Florida's Coral Reef (FCR) Awareness Campaign. The governor kicked off this campaign at Frost Science at the end of January in coordination with the Superbowl. In the Fall of 2019, we started talking with partners about the need to rebrand the Florida Reef Tract to get people in the SEFCRI region and throughout Florida more excited about our reef. We decided to kick off this messaging campaign which included a new name for the reef.

We hired a contractor to do a survey that focused on both Florida respondents and national respondents. One of our key takeaways was that partner messaging is really important. Relying on our partners to get messaging across is going to be crucial as we continue to move forward.

Another component we were excited to see come back in the survey was at the majority of people believe that school-aged children should learn about the benefits of FCR. That is where our teacher trunks come in. We have had extra funds to upgrade our Teacher Trunk Program due to COVID. Coral reefs were ranked the third most important environmental issue for Floridians in our survey following rising sea levels as the most important and then algae bloom/red tide events.

Our goal statement is to Engage the general population — first in Florida, then beyond — to help conserve FCR. We also want to stress the urgency of the issue of our reefs declining at an alarming rate.

The website: www.floridascoralreef.org was created to centralize the different resources.

We are continuing to explore ways we can partner with different organizations to continue this campaign. We're having conversations with Surfrider and ocean friendly restaurants here in Florida as well as The Boy Scouts of America Florida Sea Base based in the Florida Keys.

April Price [chat box]**:** How does one become a partner?
Michelle G: The FCR campaign is all about messaging and raising awareness. We recently got in touch with Florida Sea Base down in the Keys and they said they were interested in becoming a partner. So, I hopped on the phone with them to learn more about their education and outreach programs there and what they have going on. We are planning to tweak their different brochures and packets to include the FCR logo and include some different branding messages as well. The scouts also do snorkel and scuba diving field trips so we will be preparing talking points for the crew members on board to share with those scouts and we will also be working with them doing SCTLD ID training. Lastly, they said they have coral holding tanks at one of their locations in the keys so we will be adding signage there as well that talk more about the corals there and FCR.

Kathy Fitz [chat box]**:** Will you try to reconnect with the tourism folks in the counties?
Michelle G: Yes, we definitely plan to do that.

John Sprague [chat box]**:** Are you tying in marinas that have vessels that will take them out to reefs in your information?
Michelle G [chat box]**:** We would love to do that! I think that is our biggest need: in-person interactions with folks who are out on the water. I'm interested in tying the campaign to the DEP Clean Marinas program and am open to any ideas you have!

John Sprague [chat box]: We need to talk at some point

1:30 – 2:00 Coral Disease Update – Maurizio Martinelli

In 2019 the progression of the disease was just past Key West. Currently the disease has made it through the Marquesas, but it has not yet made it to the Dry Tortugas National Park (DRTO) or the reefs around there. There is no indication that the disease is slowing down or stopping. We are preparing ourselves for if the disease makes it to the DRTO.

In terms of the Caribbean, the areas in red are where we have confirmed sightings of SCTLD. The green markers are where there are signs of no disease, but of course that changes through time. The yellow markers are where we have gotten reports in but we're still waiting to fully verify them. As you can see from this map, it is pretty well distributed throughout the region. As the yellow markers indicate we continue to get reports from new locations, as well as reports of spread within areas that we know the disease is already impacting.

We have added two more teams: Propagation and Steering Committee. The Propagation Team has a lot of overlap with the Coral Rescue Team. They're thinking about how we can build our network of partners to help us grow this next generation of corals to eventually do restoration. The two big areas the Propagation Team is focusing on is 1) developing a network of facilities that can do everything from propagation to the rearing to the eventual grow out of corals that we can eventually use for those restoration efforts and 2) building our knowledge base about these corals. The Steering Committee (SC) is a second level of leadership body. They help with the day to day leadership of the response as far as technical decision making, supporting the Executive Coordination Team (ECT), and coordinating with other groups. This team is made up of people from our four lead agencies (DEP, FWC, NOAA, and NPS) who have in-depth working knowledge of it.

Back in December we had a meeting between our two leadership bodies (ECT and SC) as well as some colleagues from the National Wildlife Health Center to talk about high level goals for our response from the perspective of our lead agencies about what do we want to be getting out of this response and what do we want to be working towards. We saw a shift from this emergency disease response mindset to thinking more holistically by thinking about ecosystem health as a way to deal with disease response. That is a shift we see in a lot of different wildlife disease responses since it is so difficult to do a lot of this work. One of the things that we worked on during this meeting was to draft a Strategic Action Plan for the entirety of the response. All the different response teams are going to have sections where they can outline what they want to be doing over the next few years and then we can use that to draft an even longer-term strategy. We also used this opportunity to set goals for the response.

The Technical Workshop is an annual workshop where we gather all of the different people who are involved in the disease response and we essentially talk about where we are and where we would like to go. This year it was entirely online. The five main areas that we tackled during this work workshop were 1) Updates - to hear updates from all of the response teams, 2) Research - narrow down priority research questions that we would like to focus on and answer over the next year or so, 3) Intervention -discussed scaling up intervention efforts and looking at the unintended impacts from using antibiotics, 4) Communication and Outreach – our different partners presented a strengths, weaknesses, opportunities and threats analysis in order for all of our partners to talk about where they might best contribute to disease communication and where they might struggle a little bit, and 5) Caribbean Cooperation – we heard about how the disease if affecting the reefs in the different regions and how they implementing their own responses.

The 4 priority research questions that came out of the workshop:

- Is SCTLD a biotic, abiotic, or combination disease?
- What is the role of Symbiodiniaceae in SCTLD?
- What factors (genotypic, colony-specific, or environmental) drive resistance and/or resilience to SCTLD?
- What conditions (environmental, ecological, anthropogenic, and/or in the coral populations) have allowed the outbreak to persist and spread?

Another priority question we are still working towards is evaluating the unintended impacts of antibiotic treatments.

Some of the response milestones we have hit include:

- Treated ~3,000 priority colonies (~90% success rate of treatments at the lesion level with antibiotic treatments)
- 1,900 colonies currently in holding - colonies housed in 19 facilities across 11 states
- ~85 research projects specific to SCTLD completed
- Partners published more than 20 papers in peer reviewed journals
- Funded over $10 million worth of SCTLD projects

Have seen some disruptions due to COVID. Research projects were the most impacted. Field work was mostly unaffected. A lot of our partners still can't get into their labs, so their projects have been delayed a few months.

2:10 – 3:05 SESSION I: Management of the Coral ECA

1. **Data Needs for Fisheries Management (FDOU 52) – Kai Lorenzen**
   I'm going to start with the background. Fishing was included in the OFR process. Participation of fishing stakeholders in OFR proved difficult to sustain. OFR did develop a set of fisheries-related recommended management actions (RMAs). Some fisheries-related RMAs were opposed by fishing interests at the state and federal level and were not taken up by management agencies so that left a bit of a gap.

   To start this new project with the fishing community, we started with a situation analysis to see what went wrong in that engagement at OFR to design something would help us to fill that gap going forward. The aims of the situation analysis were to:

   1. Identify and characterize stakeholders in relation to fisheries management in the SEFCRI/ECA area
   2. Characterize stakeholders' experiences and attitudes related to engagement in fisheries and conservation management efforts
   3. Develop a stakeholder engagement plan and process to be used in the subsequent project to inform fisheries management approaches in the SEFCRI/ECA area

   The method we used here was a set of semi structured interviews guided by an overall situation analysis framework.

   Among the results of that analysis was that fishing stakeholders perceived there were 2 distinct networks at play. One described as the angler network and the other as the diver/environmental network. The angler network includes people who fish (recreationally and commercially). Those networks are not in any way uniform, but they engage in information exchange, form advocacy alliances, and facilitate access to influential actors. Fishing stakeholders perceived OFR to be

driven by the “diver/environment” network and felt marginalized and disempowered in the process from the start. Lack of understanding this issue and considering the dynamics of the process basically prevented the process from adequately addressing fisheries-related issues. Also, logistical aspects of meetings could be modified to promote greater participation from fisheries stakeholders. Based on these findings and in consultation with DEP and the SEFCRI Team, recommendations were developed for an approach and process to re-engage fisheries stakeholders moving forward.

There is a report on that situation assessment. You can look at it to get all of the details.

I want to move on to the new process we have started. It is called Fisheries and Conservation in the SE Florida Reef Tract New Stakeholder Process. As we were going through that situation analysis it was clear that Fishing stakeholders have continued to express interest in promoting conservation of coral reef ecosystems and associated fisheries resources in the ECA. The current project aims to re-engage the fishing community in SEFCRI to harness its capacity to promote coral reef ecosystem conservation and fisheries resources management in the ECA. The process will be driven more by the fishing community.

The overall purpose is to harness the capacity of the fishing community (fishing stakeholders and associated industries) to advance conservation of the ECA. Capacity includes knowledge/experience, outreach/advocacy, and standing and commitment to achieving conservation outcomes.

We are looking as part of this project to, firstly, strengthen engagement of fishing stakeholders in SEFCRI. Secondly, review broad recommendations from the OFR process (not just fisheries related but also water quality), progress with implementation and opportunities for fisheries stakeholders to promote uptake of those recommendations. Thirdly, to develop a set of fishing-related management recommendations to enhance coral reef ecosystem conservation and fishing quality. Communicate with wider fishing and other stakeholders about project process and outcomes. And to regularly consult with the SEFCRI Team, TAC and others to obtain feedback from diverse stakeholder perspectives.

(Shows a graphical overview of how the process works.) We form a committee of stakeholders from the fisheries sector including recreational, commercial, charter, marine industries, etc. That committee will be at the heart of this process and will develop recommendations that will go to the SEFCRI chair. SEFCRI will then use these recommendations and will farm them out through the relative agencies. The role of the UF team is too support this whole process. We help facilitate, with communication, and provide science inputs as they would be required.

Here is an overview of our team:

- Kai Lorenzen - Fisheries Prof. PI - Overall lead
- Susana Hervas - Project Scientist & Coordinator Co-PI – Communications, Coordination, Research
- Joy Hazell - IFAS Extension, Lead Facilitator, Co-PI – Facilitation
- Chelsey Crandall - Project Scientist, Co-PI - Research

We originally designed this process around quite substantial quarterly meetings. We will conduct this project over two years. The original plan was to have quarterly in person meetings. We have four meetings in year one and three meetings in year two. We will be modifying this due to

COVID. We will be sticking to the overall flow of things, but the specifics may change a little in the light of the current COVID situation.

Year 1: The first meeting was to establish committee membership and the mode of operation. The first meeting we already held, and the second meeting will be later this week. That meeting will focus on perceptions of reef ecosystem status and management/conservation issues. We then have a plan for some public meetings to inform the wider fishing public about the project and the committee and to obtain input on the perceptions of reef conservation issues from the wider fishing public, not just the committee. The third meeting will focus on review of scientific information on reef ecosystem status and management recommendations that came out of OFR. That meeting format will likely be a webinar presentation of scientific information and a virtual meeting following that. The fourth meeting will be identifying potential recommended management actions for fisheries.

Year 2: The fifth meeting will be a synthesis of scientific information on effectiveness and consequences of potential fisheries management recommendations and the committee Will work with us to develop the stakeholder survey. That survey will be used to obtain representative feedback on potential management actions from the different stakeholder groups. In the sixth meeting the committee will take the results from that survey, review them, and prioritize the recommended management actions. Then there will be a public meeting to inform the wider fishing public about the project outputs and draft recommendations, and to obtain input. The last meeting will be to finalize the recommendations.

What will happen to the recommendations? The committee is expected to make recommendations to the SEFCRI Chair. It is not a decision-making activity in that sense, it will make recommendations and the SEFCRI Chair will provide those recommendations to appropriate management agencies. Those agencies will decide what to take forward into their work plans and rule-making processes.

We had the first meeting on the 4th of June. We worked on introductions and community building and the standing of project objectives. We did some initial visioning of the future of the reef tract. We had some discussions of committee formation, who was missing, who was in. the committee is not fully set yet. There are a number of people who have agreed to serve on it and there will be some new potential members this week.

The second meeting is this week on Thursday. We will be focusing on perceptions of reef ecosystem status and management/conservation issues. We will also be discussing with the committee plans for the rest of year one in light of the COVID situation. Most likely this will involve more frequent, shorter online meetings then we had originally envisioned, and they will be supplemented with science webinars and some other activities.

Kathy Fitz [chat box]**:** So, let me get this straight, after thousands of volunteer hours from a diverse stakeholder group to develop the recommendations for OFR, a single stakeholder group is now going to make their own recommendations? Will they have equal status?
Kai L: I will leave part of that question for Jamie to answer. What we're looking to do is to address the fact that the fishing stakeholders were not being well represented or did not feel well

represented in those fishing related recommendations that came out of OFR. We are looking to deck fill that gap that wasn't fully addressed at the time.
Jamie M: So, to Kathy's point and a little bit of history here, when we came out of the Our Florida Reefs Community Planning Process, there were a number of fishing stakeholders who did not feel engaged in the process. As SEFCRI is designed to hear from all stakeholders, the SEFCRI Team actually created a Fishing/Diving/Other Uses (FDOU) project to follow up specifically with the fishing stakeholders and try to get recommended management actions from them. You all as a team back in 2017 did vote on this particular project that Kai is now working on as a high priority. So, we applied for funding for it and that is why we are carrying it out right now. Kathy, we are aware, and we are trying to be sensitive to your concern and it has been expressed by other SEFCRI team members. And it is something that the project team for this particular project that Kai is working on, we really tried to grapple with this because we are aware that there are dozens of stakeholders from all other groups that dedicated a large amount of time to come up with the recommended management actions that came out of Our Florida Reefs. To answer your question, I will get into it a little bit more in the next presentation, but the recommended management actions that come from the fishery committee that Kai is forming will be held on equal status with the recommended management actions that came out of OFR. We are hopeful that some of the outcomes from the project that Kai is facilitating for us will result in some recommended management actions that do address the potential negative side effects of fishing on the reef. Those are some of the things that are currently missing from the OFR recommended management actions. We are hopeful at the end of this we will have two sets of recommendations that will essentially be merged together. And as Kai had mentioned, they will come to me as the chair of the SEFCRI team and I will bring them out to you all, the team members themselves, since it is an FDOU project you will be made aware and be given updates on this project as it rolls out over the next two years.

Michael Dixon [chat box]**:** Is the expressed purpose of FDOU Project 52 still to create the regional survey...and subsequently present results to FWC?
Kai L: Yes, as I explained there is a survey little down the line that is planned as part of the process. The overall project is more than just a survey. It has that active engagement of the fishing community through the committee. It is aiming to do something that is more based around building some consensus and building some support for the recommendations rather than just a survey. It will involve a survey, so that will be covered.

Kathy F [chat box]**:** Is this considered a public process?
Kai Lorenzen: Yes, absolutely. It is under sunshine and it is very much open to the public to attend those meetings. The discussions will be very much focused on the committee. The meetings are noticed as public meetings.

Kathy F [chat box]**:** Where are the meetings publicized?
Kai L: Jamie might want to chip in here. We are also putting together a website that will have the information of our meetings and so on.
Sara Thanner [chat box]: Please send these meeting notices out to whole SEFCRI and former OFR group.
Kathy F [chat box]**:** Is there a mailing list for notification for these meetings?
Jamie M: To date we have been publicizing them according to the legislation that we are upheld to. Just like the SEFCRI Team meeting, we publicize it in the Florida Administrative Register.

But certainly, Sarah's point, to send meetings out to SEFCRI Team and TAC and OFR group, we can certainly do that going forward. My apologies. That was my intent but being down the FDOU coordinator who oversees this project, it slipped through my fingers. But I will make sure to send that stuff out, so you have the information for this week's meeting, and we will continue that going forward and for the next two years of this project.

Sara Thanner: In the OFR meetings we heard from a variety of perspectives? Is the same being done for this fishing group?
Kai L: Yes, the process as we said is focused on the fisheries stakeholder group and obviously there are diverse perspectives within that group. We will also be reporting this back to the SEFCRI Team in between every meeting in the process, but obviously we are reporting back to the SEFCRI meetings, like here, only that so far, we don't have much to report because we have only had one meeting. But that is how we will connect with the broader non-fishing group involved in SEFCRI. One thing that we don't want to do is to redo OFR. It is somewhat more focused on the stakeholder group that didn't quite gel with the OFR process at the time.

Michael D [chat box]**:** The last functional discussions on FDOU 52 were 30 months ago by my recollection...I just want to understand that the stated purpose hasn't "evolved." FDOU Project 52: This project will result in a regional survey to identify what criteria stakeholders want marine fisheries to be managed for within the Southeast Florida region. Project will determine what current condition is needed for the management criteria identified by stakeholders and confirm with the FWC that the data list would be sufficient to conduct the analyses. After collecting necessary data, present FWC with stakeholder-desired fisheries management criteria, current fisheries condition information, and request FWC develop regional fisheries management regulations specific to the southeast Florida region.
Jamie M: Neither Kai nor myself were here 30 months ago, so bear with us. We are doing our best to pick things up and continue moving things forward. Mike, I am reading the project description for FDOU 52 that you have in the chat and essentially it seems like it is still consistent. What is happening is that in addition to the regional survey there is a fisheries committee and those are the folks, who that as Kai mentioned, who will be interacting together and talking about potential recommended management actions and those potential actions will be going forward to a broader stakeholder group in that survey. So that is still happening, we just better defined the group who's drafting the survey. As with all outputs of all SEFCRI projects, we take those outputs to you all, the SEFCRI team, who is composed of many agencies, including FWC. So, when we get closer to the tail end of having these recommended management actions, we can certainly have more detailed discussions with FWC as far as what potential avenue they would like to have the data reported out to them. There are FWC staff on the project team, along with the DEP staff, and the other stakeholder representatives on the team making sure the project is carried out in a fashion that is consistent with the project description that I have here.
Kai L: The FWC is part of the FDOU team that we have working with us and are very much involved in every stage of this. What this is coming up with are recommendations that come out of the fishing community. They are not management decisions; they are recommendations that the committee makes to the SEFCRI chair. Then those get combined with the recommendations that have come out of OFR. The SEFCRI team will then pass those on to the management agencies. It is really just getting a set of recommendations that are supported by the fisheries sector. They will be taken from there but those will not stand alone necessarily as the only recommendations that pertain to fisheries in the SEFCRI group.

Sara T [chat box]: Fishing stakeholder desired management might not be what is actually required for conservation. If possible and if Jim Bohnsack is willing to come out of retirement, please involve him.
Kathy F [chat box]: They are recommendations made in the vacuum of a single stakeholder group, being compared to a consensus driven effort.

2. **Development of a Management Plan (FDOU 55) – Jamie Monty**
We are going to head down the path of the management plan for the ECA. This is one of those projects, like the FDOU 52 we were just talking about, that also fall under the FDOU coordinator. In the future you can expect to see updates from them when we have them on board. We want to lay the ground and get some initial feedback on our management plans for the ECA.

In 2018 the FL legislature designated the Southeast Florida Coral Reef Ecosystem Conservation Area. It is a state-designated marine managed area and it encompasses the exact same area as the SEFCRI region. The northern border is from Martin County down to the border of Biscayne National Park in Miami-Dade County. The western boundary is the mean high-water line along the beach and the eastern boundary is three nautical miles offshore in state waters. The next step for this ECA is to draft a management plan that will provide guidance on how to manage this area.

Back in 2013, we initiated the process with our community meeting, letting everyone know what OFR is, what we're going to be doing over the next couple of years, how we can get involved, and try to seek out people who would be interested in serving as a community working group member. Those community working groups met between 2014 – 2016. It was a large amount of effort that Kathy was referring to in her comment in the chat box. We reviewed the best available science that we had to date, 10 years since SEFCRI had been initiated in 2004, we reviewed all that science, research, monitoring , and education and outreach that we have been doing since then that provide recommended management actions to any agency or organization. Again, the way things work in SEFCRI is the products of our projects come to me, as the SEFCRI chair, and they also come to you all, because we give you updates at these meetings, and we take them to the appropriate agencies or organizations that can implement those particular actions. At the tail end of the working group in 2016, we shared those recommendations and took them back out to get general public input, not just those specific stakeholders who had been involved and folks that they were representing and reached out to who are in OFR. We got feedback on that and where we are right now is that we have basically stepped forward this reef management strategy. The way that we envisioned creating this reef management strategy is by devising the management plan for the ECA.

As most of you are aware, the organizational structure, we have SEFCRI who has been working on local action strategy (LAS) projects, each of which achieves a particular objective and goal that were set by you all, the team, back in 2004 for those of you who have been with us that whole time. The original focus areas that the SEFCRI Team devised back in 2004 include:

- Land-Based Sources of Pollution (LBSP)
- Fishing, Diving and Other Uses (FDOU)
- Maritime Industries & Coastal Construction Impacts (MICCI)
- Awareness & Appreciation (AA)

Since then, back in 2017, added Reef Resilience (RR) as another focus area that we work in. Of course, we have goals, objectives, and projects to address all of these focus areas.

The follow up that we have OFR team working groups include 68 recommended management actions (RMA). They in most cases align with the focus areas that we have for SEFCRI. There are a couple that the working groups chose in addition. Those are enforcement and place-based management.

As Kai just spoke about, we have some current studies that are going on that are going to create some additional recommended management actions similar to those that came from OFR community working groups but in this case looking specifically at fisheries. We are asking them to target fisheries, but of course, they may come up with water quality, or education and outreach, or other recommendations in which case we will do a side by side comparison to OFR recommendations to make sure there aren't any that are repetitive and take any of the feedback to the fisheries committee so that they can make any tweaks that they decide are necessary.

I am giving you all this background info about how we have our stuff organized so that you can hopefully help me understand the best way to write a management plan. Because we are an ecosystem conservation area and we are the only one in the state, we have a little bit of leeway. There are obviously other managed areas within the state of Florida that manage coral reefs and so we are looking to their plan to see what other things we left out. Are there focus areas that we have not been working on that we perhaps should? In which case we can try to incorporate those things into the management plan. So, looking at Biscayne National Park, looking at the sanctuary south of us, looking within our own region. FWC manages critical wildlife areas and there is one within Miami-Dade County just South of Port Miami in government cut and while those don't have a management plan, per say, they do take management actions and they are very similar to the ones we see in the SEFCRI region that we have been doing and the ones that partners south of us have been doing throughout the reef tract. Again, although we do have the ability to be a little more flexible because we are a one off managed area, we sit within the part of DEP that oversees the now 42, we had one aquatic preserve designated this fiscal year, so we now have a series of 42 aquatic preserves throughout the state of Florida. And although the ECA is not currently an aquatic preserve, we can look to make our management plan similar where there is overlap and it makes sense to address the different organizational structure that is in the aquatic preserves' management plans.

So, my vision is that the coral ECA management plan is going to contain a comprehensive review of the background and history of what has been conducted within this region to date. So, all of the SEFCRI LAS stuff, all of the new RR stuff you started in 2017, all of our community working group recommendations, the recommendations that will come from the fisheries stakeholder group that Kai is currently overseeing and facilitating, looking at those other plans for the reef south of us, looking at areas within the ECA that we can perhaps be consistent with, and again the aquatic preserves which are near and dear to our heart within DEP's Office of Resilience and Coastal Protection. So, finding the overlap and the organizational structure from all of that that makes the most sense for the ECA. We have some new data that has been developed by USGS about coastlines and coastal protection and how much a certain area can be protected and how much intrinsic value there is to that protection that coral reefs provide within a five-county region. We will also be incorporating information from existing and past SEFCRI projects as well as projects but some of our partners have carried out, for example, the Boynton Inlet Contributing Area Watershed management plan. So, looking to other plans again that are within the ECA

region and finding those commonalities and pulling those together into one master management plan is the idea. The vision is that this management plan will set the background for us to provide a little bit more regulatory teeth within this region. It will, once we have a plan established, potentially help us bring some more funding into the region for the resources. It will also help us determine which of those focus areas we want to focus in on the most, which ones are the ones with the highest priority. We will coordinate with our sister agency, FWC, as we are drafting this plan and ensuring that DEP is doing the short work that we have authority to do and working with FWC on what they have the authority to do and making sure we create the language in there that allows for us to respond to emerging threats and emergency work. Things that we can't predict right now. My current idea is that it would be a ten-year plan, but certainly there are shorter plans (3- and 5-year plans) and longer plans in some management areas. Ten seems to be good based on funding cycles, etc. Once it's drafted, we'll have a draft ECA Management Plan and we'll take it out to the SEFCRI Team and TAC to provide feedback. We'll update based on your feedback and then we'll send it out to the public for review. Kai process will take about 2 years, but in the meantime, we're working to implement LAS Projects and drafting historical sections of the Plan.

John Sprague [chat box]: Does the recommendations that came out of the official coastal ocean task force (COTF) that was made up by the 4 county governments and stakeholder recommendations?
Jamie M: I hadn't included in this presentation, but the COTF is a separate body. There may be some overlap with the OFR recommendations because both may have used the same data and background information. SEFCRI LAS Projects are separate, but they will still support the Management Plan.

Michael Dixon: In 2018, we tabled FDOU 55 until the end of the day and then got into an amazing discussion which ended with Francisco stating we would vote, and ultimately approve, FDOU 55 as is. Since then, I'm not sure what's happened, and I believe I signed up to be part of that project team. We are trapped in time as SEFCRI since that day. That's where I'm lost, are we all still understanding that we are all back at that moment? Has something changed?
Jamie Monty: I will definitely go back to review those minutes and get back to you. But in 2018, we started to draft the history section of the management plan to write about benthic resources, the history of SEFCRI, LAS Projects, etc. Some work has begun on this, but until we have the fisheries stakeholder recommendation synthesis, we can't finish quite yet. Once we get a new FDOU Coordinator on board, we'll start to re-visit those sections. As homework to this meeting, we'll send around LAS Projects with active project teams so you can sign up and start moving those forward.

Michael Dixon [chat box]: So, we still need to constitute the FDOU 55 project team, yes?
Cristin Krasco [chat box]: If we signed up to serve as a member on this team, will we be contacted?
Erin McDevitt [chat box]: Is this a DEP initiative at this point? If not, who is on the project team?
Cristin Krasco [chat box]: Jamie, is there some way to share a list of active and non-active projects along with SEFCRI members who signed up to work on active projects?
Jamie M: Yes, we will be sending a list of all active and non-active projects. We have some time tomorrow and as homework to re-start those projects and we'll be establishing new project teams as follow-up to this meeting.

DD Halpern [chat box]: Can you post the FDOU project Mike is talking about?
Michael Dixon [chat box response]: FDOU Project 55: Create a coordinated management strategy for the southeast Florida region incorporating pertinent information and data generated from previous and ongoing SEFCRI LAS Projects.
https://floridadep.gov/sites/default/files/March-2018-SEFCRI-Team-Meeting-Minutes_0.pdf

Other [unanswered] questions in chat box due to time constraint:
April Price: With additional funding, are we going to continue to build the spatial planner? I truly feel if we could input all of our known regulatory and existing management areas it would assist in expediting good management decisions. Thank you Jamie.

Kathy F: I thought management was going to be approached as a joint effort between DEP and FWC and that we were not going to call it a management plan.

3:05 – 3:35 SESSION IIa: SEFCRI History and Project Overview – Jamie Monty

When we talk about SEFCRI, we're talking about a Team, a location, and a series of LAS Projects. Now, we have the Southeast Florida Coral Reef Ecosystem Conservation Area or Coral ECA that we should start referring to. In 1998 President Clinton established the US Coral Reef Task Force. In 2002, this group adopted the Puerto Rico Resolution calling for the local jurisdictions to establish coral reef strategies. In response in 2003, Florida established SEFAST (now called SEFCRI) by DEP and FWC to better understand the reef system north of Florida Keys. After, DEP's CRCP was established to help coordinate and facilitate the SEFCRI Team. Original LAS published in 2004 in four focus areas: MICCI, FDOU, LBSP, and AA.

In 2013, we started planning the Our Florida Reefs Community Planning Process, which lasted 3 years from 2014-2017. In 2017, new LAS projects were established and Reef Resilience (RR) was added as a new focus area. In 2018, Florida Legislature designed the Southeast Florida Coral Reef Ecosystem Conservation Area (Coral ECA).

SEFCRI is governed under the Charter which includes mission, roles and responsibilities, organizational chart, etc. This has been updated twice since 2004. It can be found on our website. There is a total of 64 Team members representing 9 different stakeholder groups. The SEFCRI Chair is the CRCP Manager, and there are Vice Chairs from each of the 9 stakeholder groups. For LAS Projects, those are led by one SEFCRI Team member and the CRCP Coordinator in that focus area. Primary members establish alternates in the event of their absence. Advisory body to the SEFCRI is the Technical Advisory Committee (TAC) has 25 members with expertise in different topic areas. Objective of the Team is to formulate, coordinate, and provide recommendations to the CRCP Manager. Team members serve as a liaison between organization and community with the CRCP Manager, also participate in LAS Project Teams to implement LAS Projects.

Minimum participation requirements include: attend meetings on a regular basis and put in the time required; serve on a minimum of one project team (we'll be sending that around soon for you to sign-up for active projects; respond to a majority of correspondences; help identify other funding sources to bring in other external funds to support projects; once within the 4-year term limit, we encourage participation in outreach events and communication with constituents.

Looking at all the status of all LAS Projects (since 2004) and OFR Recommended Management Actions (RMAs):

- 2004 LAS: total of 140 projects; 138 are either completed or ongoing = 93% completion
- 2017 LAS: total of 28 projects; 12 are either completed or ongoing = 43% completion
- Combined 2004+2017: total of 168 projects; 150 are either completed or ongoing = 89% completion overall.
- OFR RMAs: total of 68 projects; 14 have started or completed = 21% completion

Managers struggle with how fast the system is changing and so by the time we're able to secure funding, one LAS may no longer be relevant, or may require some tweaking so it means we need to be flexible and adaptive.

As homework in preparation for this meeting, you completed a survey to pre-select your highest priority projects for us to consider in the next grant cycle. We removed some projects that DEP couldn't carry out, or if they didn't match up with our funding cycle, so 26 projects were included in the survey. Team Members had the opportunity to select the top 5 projects. Two of the top 3 projects also aligned with DEP CRCP's priorities and so those were selected to be included in our next grant cycle:

1. FDOU 51: Trends and gaps in water quality, fish, and benthic data and protocols
2. MICCI 28/28b identify means for improving turbidity, suspended sediments, and sedimentation during dredging, beach renourishment, or other coastal construction project.

Today, we're going to dive deeper on these two projects. The previous project teams for both projects met back in early 2018, but of course things were put on hold. In our breakout group session today, we'll look at the notes and outcomes from those meetings and use that as a starting place. Any questions?

3:45 – 4:00 Public Comment

No public comments were made.

4:00 – 4:55 SESSION IIb: Prioritization Activity and Project Planning – Jamie Monty, Shelby Wedelich, and Kristi Kerrigan

Jamie Monty (FDOU 51 Background information) – This project compiles water quality, benthic, and fish data from all past years to run a few types of analyses: (1) methods assessment to help answer key management questions (e.g. where is there high nutrients?). Are there additional management questions that we have that could help mine this data; (2) can we recommend changes to the protocols to answer those questions; and (3) conduct a meta-analysis of the data and results to determine the areas where monitoring programs overlap by combining all the data. Contractor would be hired to conduct these activities to produce a report and/or a presentation.

Shelby Wedelich (MICCI 28A and 28B Background information) – the goal of 28A is to identify improved methods for measuring turbidity and suspended sediments during coastal construction projects and use that information to support criterion revisions. 28B take any new methods that were identified in 28A and test those. We did have one project team meeting in 2018, and we have those meeting summaries. There was a lot of discussion about the existing turbidity criterion processes, light attenuation measurements, intensities/frequencies/doses, synergistic effects of other factors such as temperature, environmental windows for construction activities, use of sondes for taking measurements, pros and cons of aerial monitoring, benthic measurements for sediment deposition, mixing zones of the plumes. Other complimentary efforts including the turbidity criterion revision process, partners at EPA to develop a Water Quality Action Plan, Dave Whitall's ongoing water quality monitoring project, and CRCP 9 is measuring PAR, turbidity, and total suspended solids. Some of our data gaps are the different impacts on

turbidity and sediment on different life stages of corals and how they relate to the morphologies. Need to determine the focus of this project.

Jamie M – now that you have a little bit of background information, we're going to divide into breakout groups and start planning each of these projects. There will be 6 breakout groups and you will spend time on each project. CRCP staff will be there to facilitate and take notes. Kristi will virtually send you to your pre-assigned breakout group and in about 45 minutes, we'll return to the main room.

Kristi K orients the Team with the layout of the breakout group and further explains the process. There are 6 questions for each project and each breakout group will start with a different question to ensure we get all 6 answered.

Kristi K initiates breakout groups in Adobe Connect. Breakout group discussions were not recorded, but live notes were captured by CRCP staff to answer each question. For copies of the session notes, please email Coral@floridadep.gov.

4:55 – 5:00 Wrap-up and Adjourn

Kristi thanks everyone for their participation and patience using this virtual platform and provides an overview of the agenda for Day.

Jamie also thanks the participants for time and closes Day 1 of the meeting.

Day 2: Wednesday September 2, 2020

Attendees:

DEP Staff and Presenters: Kristi Kerrigan, Jamie Monty, Evan Hovey, Alycia Shatters, Mollie Sinnott, Joanna Walczak, Shelby Wedelich, Michelle Graulty, Jennifer Coley, Marian Hanisko, Dale Griffin, Dave Whitall, Julie Espy

SEFCRI Team Members: Alastair Harborne, Joana Figueiredo, Brian Walker, Wilson Mendoza, Shana Phelan, Lisa Carroll, Steve Blackburn, Jocelyn Karazsia, Omar Beceiro, Xaymara Serrano, Lauri MacLaughlin, Jena McNeal, Sara Thanner, Patrick Quinn, Kathy Fitzpatrick, Baret Barry, Jenny Baez, Jane Fawcett, Cristin Krasco, Nick Morrell, Angela Smith, DD Halpern, Erik Neugaard, Christie Hurley, Ron Coddington, Joey Massa, Michael Dixon, Mike Jenkins, April Price, Laura Eldredge, Zach Boudreau, Amanda Kahn, Erin McDevitt, Derek Cox, Donald Vacin

SEFCRI Team Alternates: Kurtis Gregg, Kirk Dotson, Charles Callaway, Melissa Sathe, Elizabeth Pudlak, Erick Ault

Public Observers: Maurizio Martinelli, Gary Jennings, Nathan Smith, Bri Kleiner, John Sprague, Kellie Ralston, Victoria Barker, Janet Zimmerman, Jessica Ward, Katie Lizza, Alyssa Freeman, Dana Wusinich-Mendez, Trip Aukeman, Carolin Ciarlariello, Wade Lehmann, Pepper Uchino, Nikole Heath, Chris Bergh, Maurice Pierre, Susana Hervas, Jim Bohnsack, Pamela Sweeney, Ken Banks

12:00 – 12:30 Early Registrants

12:30 – 12:40 Welcome / Housekeeping

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

12:40 – 1:25 SESSION III: Current CRCP & SEFCRI Project Updates – Keep short

Reef Resilience (RR) – Kristi Kerrigan
Focusing on the SEAFAN, BleachWatch, and Marine Debris data. Since our last meeting, SEAFAN has received a total of 56 reports (mostly reporting's of coral disease). There have only been 8 reports in 2020 so far. Four of those were reports of marine debris in Miami-Dade and Broward County areas, three reports of algal blooms (one in Miami-Dade and two in Monroe), and one other report of a sponge disease in Palm Beach County. The low number of reports is likely due to COVID.

Looking at BleachWatch totals, we have received 40 reports total in 2020. Of those, 29 reported bleaching and 11 no bleaching. Eight reported seeing disease and 32 saw no disease present. Of the 29 bleaching reports, most came from Palm Beach and Broward counties, with one in Martin and one in Monroe County. No reports were received from Miami-Dade County, so that is an area we want to target moving forward.

We have done a lot of trainings over the last year, a lot of classroom trainings, we tested out a new virtual platform earlier this year which was very successful (over 300 participants). Did some in-water trainings and held an instructor workshop. Through all of these efforts we have gained 227 new observers. We have had 3 instructor workshops so far. We gained 11 new instructors this year, bringing it to 30 in total.

Some new communications products came out in the last year: flyers and PSAs (15- and 30-sec).

During our 2019 Annual Reef Cleanup, we had 191 volunteers, removed 506 pounds of debris, and visited a total of 23 sites. This year we put the cleanups on hold due to COVID. The cleanups are now summarized on a two-page flyer/report (available for download on our website).

Awareness and Appreciation (AA) – Michelle Graulty
The Traveling Teacher Trunk program currently has four elementary school trunks and five middle school trunks. During this past school year, we served over 5,000 students in the four-county region. We had extra funding available to create new materials for the teacher trunks. We now have three trunks with K-2 and 3-5 modified lessons, three middle school trunks, and three new high school trunks. New lesson plans include information on coral reef biology, threats to FCR, and improving resilience of FCR. We are not planning on shipping out the trunks this fall due to COVID-19, but the resources are available on the SEFCRI website.

We also have a new PSA about Florida's Coral Reef (discussed yesterday).

AA5 is maintaining the SEFCRI website, which is something I do with a contractor. If you have any suggestions of what you would like to see on the site, please let me know.

AA20/23 are community events and promotional items. We had a lot of new events this year: 4ocean Village, Hollywood Cardboard Boat Regatta, Miami Shores Green Day, Broward County Oceanfest, Fort Lauderdale Winterfest/3rd Annual Stoked on Salt Ocean Conservation Day and Super Bowl LIVE. We also had some virtual events: Force E Facebook Live, Loggerhead Marine Life Center, and Coral Reef Webinar week (5 different class with 1,711 people attending from all over the world).

Reef Injury Prevention and Response (RIPR) – Mollie Sinnott
Florida's Coral Reef Protection Act (CRPA) was enacted in 2009 and it makes it illegal to anchor on and/or otherwise damage coral reef in state waters. It is the mechanism we use two pursue unplanned

direct impacts to coral reefs in South Florida and the mechanism where we can recover damages. The goal of the CRPA is the reduction of coral reef impacts through increased legal authority. In July this year there was an update that increased the civil penalties that we are able to pursue.

The CRPA has a defined civil penalty schedule that is based on the area of impact by square meter. Penalties are now as follows:

- <1m2 of damage is ~~$150~~ $225
- Between 1m2 and 10m2 is ~~$300~~ $450 per sq meter
- >10m2 of damage is ~~$1,000~~ $1,500 per sq meter

Penalties can still be increased with repeat violations, aggravating circumstances, and if it happens in a state park. Penalties are capped at ~~$250,000~~ $375,000 max, per occurrence. The responsible party is still liable for damages. Compensatory mitigation still has no maximum dollar cap.

There were a lot of incidents reported in Broward and Miami-Dade County, which can be attributed to high vessel traffic of the commercial anchorages. We had a total of 66 incidents reported to us last year. We personally checked 63 of them. There were two incidents where ships hit the channel wall. The only three we did not check were the beached barge, one vessel that ran into the wall in Port Everglades, and one potential sinking vessel (they went offshore, and it was resolved). We pursued six new CRPA cases. We have a number of open cases as well.

We are working to prevent or minimize future impacts to coral reefs in the southeast Florida area. We have a restoration project with Clipper Lasco and Spar Orion that was conducted a few years ago that involved restoring two ship grounding sites. This past year was our year five of monitoring, so we are in the process of starting to get a report together. We provide mooring buoy support to the counties. We also conduct outreach events, which a majority of the events have been rescheduled due to COVID.

Maritime Industry and Coastal Construction Impacts (MICCI) – Shelby Wedelich

Where we left off in June 2019, we were trying to seek representative coastal construction project with native material rather than mined material. The collection evet during these projects were consistent of PAR, turbidity measurements measured in NTU, TSS measurements at the surface and mid-depth, and high and low tide before, during, and after collection. At the time, we finished 196 collection events during Jupiter Island beach nourishment. Our goal was to complete sampling with one day pre-construction, four days during construction, and one day post-construction in representative projects in remaining counties. Since the sand sources in Miami-Dade and Broward are out, there were not any projects in that region, we tweaked the design a bit to hopefully still get useful information.

To go over the sampling design for CRCP 9 Phases One and Two. Phase One was in Martin County and we looked at the Jupiter Island project from February - May of 2019. Phase Two was split between Delray Beach and Ocean Ridge in Palm Beach County.

As mentioned before, Broward County and Miami-Dade County have no more sand sources to pull from so a lot of their beach nourishment projects are truck hauls with mined sand. Since we wanted to get a sense for that native material, we tweaked the design of the project to look at turbidity and TSS around the three ports in the ECA (Port Miami, Port Everglades, and Lake Worth Inlet). Multiple collections took place at different distances from the channel. If anyone wants access to this report, we can send it out once it is finalized.

There were a couple of lessons learned from this. For turbidity measurements it is important to include salinity data. In order to have more accurate measurements of PAR, collecting light data with cloud cover at set times of day and being sure to implement irradiance corrections is very important. This was done

for the latter Phases but not Phase one. Most importantly communication and flexibility is key with construction associated projects, especially for pre- and post-timing.

In the planning phases, we have CRCP 13, which is a sediment microbial study. The goal is to complete sediment sampling before and after an anthropogenic disturbance and see what changes there might be in microbial community of sediments in the port and on adjacent reef. Port Everglades has an upcoming operations and maintenance dredging scheduled for winter 2020. We thought this would be a good opportunity to see what happens in the port. The study will include a small subset of water samples for nutrients and a small subset of sediment samples for nutrients and trace metals.

The coral turbidity criterion update is next. DEP's Division of Environmental Assessment and Restoration (DEAR) is undergoing a Triennial Rule Review to update water quality standards. One of standards being included in the update is the turbidity standard. There have been several workshops to date. The draft rule concept, which is still being tweaked by stakeholders, applies to all areas of coral reef or hardbottom, similar to provisions in off Florida water, to have 0 NTUs above background variability, and they proposed to establish background variability methodology.

There were some criterion concerns expressed. People agreed there was a need for justified numeric criteria, a need for more data to validate change, and there were concern over project cost increases, shutdowns, delays, and increased costs of project bids. The methods of obtaining natural background do not capture adequate open water conditions and variability, and ship traffic conditions.

The next steps in rule development, this is an ongoing effort and we are still asking for and incorporating feedback from stakeholders meetings. We discuss the current proposal and any alternatives that are protective of the resource yet achievable within the scopes of these projects. There will be subsequent workshops held, which you can reach out to me or anyone at DEAR if you would like to participate. There is a continued opportunity to comment at this link: https://floridadep.gov/dear/water-quality-standards/content/triennial-review-water-quality-standards.

We are hoping to continue the CRCP 13 Sediment Microbial study, explore next steps from CRCP 9 PAR-NTU-TSS pilot so that we can improve design moving forward, and to continue to working with partners on water quality standards improvements, and really delve into the planning of MICCI 28A and 28B.

Land-Based Sources of Pollution (LBSP) – Allie Shatters
There are three main things I would like to talk to you about today: the best practices manual, an LBSP reduction demonstration project, and the water quality assessment project we have going on.

At the last SEFCRI meeting I talked about the low impact developments and green infrastructure best practices manual and the decision matrix tool that accompanies that. This product is specifically tailored specifically to reducing LBSP in the ECA region. Since the last meeting, we have shared it with a bunch of our partners already, but we would like to continue to get this tool into the hands of those who are working with LID and GI solutions already. We are working on an outreach package that will include copies of the manual and the decision matrix tool and a presentation. The purpose of creating these materials is to continue to work with our current partners in the cities and municipalities, as well as try to expand our partnerships in order to help provide relevant information that decision makers need to implement effective LBSP reduction strategies. A key component is to remember the connection to coral reefs, and how upland solutions can have direct and positive effects on coral reef ecosystems and their inhabitants in terms of water quality in the ECA region.

Also, at the last meeting, I mentioned we were supporting the construction of several rain gardens. However, due to several logistical issues we aren't continuing with that project. We were able to find a replacement project. We are currently partnering with Palm Beach County Environmental Resources Management (PBC ERM) on a pilot project in Lake Worth Lagoon (LWL) with the intent to create intertidal habitat to provide long-term wildlife and water quality benefits within the LWL. The idea is to create low profile oyster reef habitat that will be planted with mangroves after construction. Where we are in the process so far is that PBC ERM has completed permits, site designs, and did location surveys. Hopefully construction will begin October.

The last thing I wanted to go over is the background on the water quality assessment project (Dave Whitall will give more details later today). It started in 2016 as a NOAA-led sampling project in two of the inlet contributing areas (ICA) around the St. Lucie Inlet and the Government Cut Inlet. In 2017 the State-led funding was added and allowed this project to expand the rest of the inlets along the SE Florida coast. Starting in 2019 to the present, it is a fully state-led project that is continuing to sample all of the 9 ICAs along the ECA region. The southern boundary is the Biscayne Bay and the northern boundary is the St. Lucie Inlet. For each of these 9 ICAs, there are three types of sites we are sampling (reef, inlet, and outfall) and there are 115 sites total. We are sampling suite of nutrient and field parameters at all of the sites. As of this month, we are able to start sampling chlorophyll at all of the sites instead of just some.

This data is now available:

- Data from NOAA contracted lab available via NCEI (https://www.ncei.noaa.gov/)
- Data from Broward County lab available via WIN (https://prodenv.dep.state.fl.us/DearWin/public/welcomeGeneralPublic?calledBy=GENERALPUBLIC#)

Report is available: Data from NOAA contracted lab available via NCEI (https://www.ncei.noaa.gov/)

The original goal was to characterize the state of water quality for offshore environments in ECA region. We now have data since September 2016 and a good portion of the data through December 2018 was analyzed. We want to continue sampling and analyzing the rest of the data including comparisons with environmental datasets. We are changing that goal to reduce LBSP through management actions and we will be tailoring the assessments to reach that goal. Later today we will have a targeted discussion of how we can use this data in the ECA to reach our new goals. We are going to be creating a set of one-pagers for the main takeaways from the data analysis results.

Nick Morrell: I have a question for Mollie. The revision to the CRPA that was carried out in 2020, who initiated such an update or is it automatically built into the original legislation?
Mollie S: I am not 100% who initiated that to be honest. I didn't know about it until it was going through. If Joanna or Jamie are here maybe to comment, otherwise I can definitely look that up and see who proposed it. But it was included with a suite of other environmental accountability updates to try to increase some regulatory fines.
Nick M: I just wonder if it was something that originally that said if inflation is more than 3% or 5%, then it has to be revised or whether there is something automatic that makes revisions happen or whether somebody has to stand up and say "look, it's about time we revise this thing." Let me know Mollie what you can find out. Thanks.
Mollie S: Ok. Yeah, thank you.
Joanna Walczak [chat box]**:** No, revisions are not automatic.

Xaymara Serrano [chat box]: Shelby - great overview of the work done and planned. Can I get a copy of the CRCP9 report?
Shelby W [chat box]**:** Xaymara - yes! The report will be made publicly available on the website. Also, I forgot to thank Broward Labs for their role assessing the TSS data

Ron Coddington [chat box]: Port of Palm Beach has a dredge event scheduled mid-October for both the channel and to empty a portion of the settling basin. Sand will be placed in the nearshore disposal area south of the South Jetty. I'm not sure why it's not going directly to the beach.

Kathy Fitzpatrick [chat box]: It's H.R. 4160, the Restoring Resilient Reefs Act (RRRA), introduced in the House by Representative Darren Soto. We have been actively supporting the bill (the counties and regional planning councils). I can provide the letters for background to anyone who is interested. I will work with Jamie and crew to make the info available.

1:25 – 2:10 SESSION IV: Regional Updates from SEFCRI Members (Pt. 2)

1. **FWC Commission Meeting Updates – Derek Cox (FWC)**

I am new to the SEFCRI Team, replacing Mason Smith. I will be providing an update on a few commission items since the last meeting, focusing on those that are pertinent to our region.

The State-wide Reef Fish survey (similar to the Gulf State Reef Survey) is a 3-prong data collection program that involves mail, in-person, and through citizen science observer program. Partcipation is mandatory for recreational anglers targeting the following fish groups: snappers, groupers, triggerfish, hogfish, etc. It's a free permit that you can just add to your account. This started on July 1, 2020 and the benefits include better data collection for those fisheries that are data-poor, improved stock assessments, and allows the state to continue tracking the Gulf red snapper throughout the state.

Next, Biscayne National Park has been finalizing a fisheries management plan with the goal to increase size and abundance of marine species. This plan will help make the rules and regulations consistent throughout the various management zones. The goal was to increase the recreational size limits by 20%, but there were a couple exceptions, for example mutton snapper and hogfish (since regulations had recently changed). Also introduced some previously unregulated fish, such as grunts. This should hopefully allow these fish to get larger and older. To address the goal of increasing abundance by 20%, established a 10-fish aggregate bag limit for listed species. Finally, added the protection of reproduction areas that are prohibitive to use traps and to harvest lobster year-round. We'll evaluate the effectiveness within 5 years to determine if any changes need to be made. For commercial activities, we created a no-trawl zone to protect sea grasses and a trap-free zone in a high-use zone close to headquarters.

Other pertinent updates: (1) Blackfin tuna regulations were set (there were none previously) – 2 per person or 10 per vessel; (2) Apalachicola oyster harvesting was shut down to rebuild that resources; (3) spotted sea trout has regionally-specific bag limits; (4) red Aphrodite fishery was closed from red tide, and extended the catch and release only to allow this fishery to re-build; (5) stone crab size limits increased and season was shifted going into place Oct 1; (6) blue fish on the Atlantic coast bag limit dropped to 3 fish (from 10) per person.

Some continued and ongoing efforts: (1) always working on lionfish education and outreach including removal events; (2) coral crew was established for targeting coral-specific education and awareness; (3) coral rescue came out with a dashboard for tracking rescued corals in response to

SCTLD; (4) safe fish and ethical handling education and outreach; (5) artificial reef program is still very strong and include monitoring and deployment of new artificial reefs throughout the state.

New flounder regulations will be visited at the next Commission meeting. Continue to work with FKNMS on their Restoration Blueprint. Later next year, we'll be updating the Commission on Goliath Grouper. Brand new Best Fishing Practices section will be shared with the Commission too with information on safe reef fishing.

Jane Fawcett [chat box]**:** Derek, please provide link to the Dashboard you mentioned.
Derek Cox [chat box]: https://myfwc.com/research/habitat/coral/disease/dashboard/

Cristin Krasco [chat box]: Derek, what is the date for the commission meeting that will include best fishing practices information?
Derek Cox: October 7th-8th, 2020

2. Port Everglades/Port Miami Expansion Project Updates – Jocelyn Karazsia (NOAA)

I am going to be providing updates to two expansion projects: Port Everglades and Port of Miami. These are substantial projects, which will include many years of dredging. As a coral reef stakeholder, you may want to monitor the environmental impact studies and provide public comment. I'm going to focus on Port Everglades today since this project is further along and there are new alternative methods to monitoring turbidity and sedimentation that are relevant to CRCP 8 and MICCI 28 that we discussed yesterday.

At Port Everglades the maintenance dredging project is expected to take no more than 45 days to complete and will be used to test some of the alternative ways to monitoring turbidity and sedimentation both during and not during dredging activities. As part of lessons learned from the last Port of Miami deepening project, the US Army Corps of Engineers (USACE) promised to impose more minimization measures, that were not previously considered. The first one that is being recommended is a dredging window which would not allow dredging to occur during spawning months (July to September). This also coincides with the time of year that corals would be exposed to the most thermal stress. Another minimization measure is restricting overflow for those larger projects that result in a lot of sediment-laden water being released at different dredge sites. The USACE also agreed to prohibit rock-chopping which is extremely destructive to coral reefs. These measures should be viewed as firm commitments.

We are expecting a draft NEPA review for this project to be released in December 2020, with the project taking 5-6 years to complete starting in August 2022. EIS will describe impacts to 20-30 acres of coral reefs with an additional 10 acres of seagrass. Impacts from sedimentation and turbidity could exceed 100 acres. The figures in the PowerPoint were developed by the Army Corps with a wide range of impact which will really depend on the type of equipment being used.

While it's still draft, we're working with USACE and NOAA AOML to deploy buoys to detect near real-time water quality condition data including light and turbidity. This will also help with corrective action during the project since it's near real-time. Since these buoys will be collecting data every 15 minutes for 6 years, we really need to rely on computers to synthesize and send alerts. We also have a diver component of this adaptive management plan to monitor accumulated sedimentation. We want to deploy these measures at least one year prior to project initiation to help us capture background conditions at the site. This is a partnership effort and this project is going to generate a lot of publicly accessible data and we hope to rely on the scientific community to understand the data more.

Sites with water quality instrumentation are shown in the map. Some locations will capture near-real time data and some will require downloading every 30-45 days. Instruments will measure temperature, salinity, light, sediment deposition, turbidity, currents or waves. AOML will be developing the AI to analyze data and send around alerts for more adaptive management using a stop-light system (red, yellow, green) which will also get sent to the equipment operators to alter them of harmful usages for corrective actions. We hope to deploy 1 water quality monitoring station before the maintenance dredging project.

I would also like to take a moment to introduce one of our newest SEFCRI Members, Xaymara Serrano, from the USACE. She brings a tremendous amount of knowledge and we're lucky to have her. If you want to stay informed on this project, there will be a public comment opportunity in the December/January timeframe after the EIS.

For Port of Miami, there was a maintenance dredge project planned, but now that's not being pursued. If you want to stay informed, the USACE has a dedicated webpage. I can also alert the SEFCRI Team along the way.

Kathy F [chat box]**:** Do you have an estimate cost for one of the installations?
Jocelyn K: I think that the initial water quality station that we plan to deploy for the maintenance dredging project will cost around $100K. Overall, for the 5-6 years of dredging planned, to operate and maintain 16 stations is $5-6M.
Xaymara Serrano [chat box] Thanks Jocelyn. Your estimates are correct. The near-real time data acquisition and the ADCPs are the main drivers of the costs per station.

DD Halpern [chat box**]**: Will NOAA and/or other agencies be monitoring the impact during the Port of Palm Beach dredging (mentioned earlier by Ron)? Would be interesting to see if turbidity affects fish activity at the nearby Blue Heron Bridge dive/snorkel site.
Jocelyn K: We will monitoring, but I still need to get more caught up on Port of Palm Beach dredging. DD and Ron, if a follow-up call is needed, I'm happy to have one with you!
Ron Coddington [chat box]: Call me, I can update on POPB dredge event. Our dredge events are short even though we are about the same quantity as Port Everglades maintenance event. Our dredge spoil is that nice clean beach sand.

Nick Morrell: I was very impressed by the proposed monitoring for PE and it's a lot more than we ever had for Port of Miami project. How are the limits for the red, yellow, and green levels determined?
Jocelyn Karazsia: We are using a combination of literature, and unfortunately, the literature isn't in turbidity, so it's based on professional judgement. I'll also say that it's not final and we'll continue to update throughout the project with an emphasis on adaptive management.

Jane Fawcett [chat box]: Jocelyn, did you say that a schematic (drawing and blueprint?) of the Water Quality Installation is available?
Jocelyn Karazsia: I think most of the drawings are general and not specific to the PE area, but I think I have something I could provide if you wanted to follow-up via email.

3. Other Team Member Announcements (Open Floor)

Melissa Sathe: I'm the new president of DEP CRCP's Citizen Support Organization, Friends of Our Florida Reefs. I just wanted to share a new fundraising opportunity that we're undertaking in partnership with the MEEC and Carpenter House in Hollywood Beach, which is a unique facility

caring for captive turtles and a number of education displays. We are going to help them fundraise for a new coral tank containing Florida corals and display about our local reefs. If you want more information, visit www.floridareef.org.
Kristi K: Thanks! You're welcome to send me any information and I can always forward along to the Team.

April Price: I just wanted to let everyone know that the Marine Industries Association completed their 13th Annual Treasure Coast Waterway Cleanup. Instead of setting up 15-20 different sites, we did the whole week virtually. Although participation was down, we still were able to remove 3.43 tons of trash – some folks went out multiple days. Following this new approach, we now have a data portal tool for people to submit online data removal to help track debris. You can access this at www.tcwaterwaycleanup.com. We have a dive cleanup that happens every year. Weather did not permit it to happen on the regularly scheduled day, but they plan to go out next week. Let me know if you're interested! Here is the link to the digital data card: https://form.jotform.com/201255403322036
Kristi K: Very exciting and I love the new model for cleanups!

2:20 – 3:35 SESSION V: Water Quality Updates and Tools

1. Outfall Project Results – Dale Griffin (USGS)

We were looking for a way to document a negative effect on the reef systems surrounding the outfalls. Looking at the microbial community is a good indicator of an effect. Certain cells when the temperature is right in their environment and there are plenty of nutrients, they will replicate every 20 minutes. It is easy to document genetic change when you have that type of replication rate in an organism. We know microorganisms respond to the presence of antibiotics. We proposed to do a study around the Hollywood outfall, which we will focus on today.

It's always in our news that someone goes to the beach with a cut or scratch and they get in the marine water and they end up getting infected by some type of bacteria. A lot of times it is by *Vibrios*, of late we have seen a lot of infections by antibiotic resistant *Vibrios*. It is not just a problem in Florida, it is a problem globally.

For this project we used a molecular assay called polymerase chain reaction (PCR). It allows you to copy regions of genes so you can design primer sets for your genes of interest. We looked at 15 genetic targets. We have a primer that binds to the upstream and a downstream primer. They bracket that gene region and they move towards each other to clone that gene. We are using real time PCR so you have an internal probe that is labeled with a fluorochrome. When that fluorochrome gets liberated as the DNA gets cloned, it emits light. You pick that light detection up and that determines whether your sample is positive or not.

We based this on some work we did in the Northeast United States. We did a couple hundred samples (some coastal and some riverine sediments) and looked at prevalence of those 15 targets in that environment. In the high concentration areas in Maryland and New York, we were detecting almost sewage level, what you would see in a sewage plant, influent. The number of genes we were detecting was between 7 and 11 popping up as positive out of the 15. What all these sites had in common was that they were located near outfalls (stormwater, sewage, and so forth). It showed that if there is a source of antibiotics to the environment, then in the soils and sediments around that environment will have a lot of antibiotic resistant microorganisms.

Not much work has been done in marine environments in regard to antibiotic resistant microorganism survey type studies. We took the same approach we took in the NE and came down to the Hollywood outfall and conducted a study around that outfall. We have 2 others but focused on Hollywood. We did a simple antibiotic resistance test. The diver took a sample of sediment and brought it up to the surface in a 50-mL tube, sent it to my lab, tumbled it for about an hour, and let it sit for about 10 minutes to let the particulate settle out. Then took 200 µL of sediment and spread it onto auger and put little pellets of different types of antibiotics around the sample. The clearing means the microbial community in that sample can't grow to it because they don't have resistance to it. The colonies that grow within that clearing zone of antibiotics have resistance. We have seen this at other sites within the reef system.

This was just a preliminary test/pilot kind of project that shows that we do have antibiotic resistant microorganisms in the offshore environment. The question is, is this naturally occurring, or do we get an increase of number if we get near a source? From the outfall pipe, we took samples every 25 meters, then every 50 meters in eight directions radiating from the outfall. Then we went north and south at 100 meters, 200 meters, 400 meters, and 600 meters and then inland towards the beach along the pipeline at similar distances.

During the dry season in March we did sampling. The water temperature is about 25°C, which is 5 degrees cooler than in the summer, so it was thought that they would have depressed metabolic rates and wouldn't have seen a lot of prevalence. We got a few detects at and south of the pipeline. No detects going north and no detect past 200 meters going south.

During the wet season in June you see a lot more prevalence in antibiotic resistant genes possibly due to an increase in metabolic rate from the water temperature being warmer. When the water is colder you have suppressed metabolism so even though the pollutant is in the water column you are not getting exposure acquisition as you do in the summer during high metabolic rate conditions. The highest point is 25 meters above the outfall pipe at 5 targets out of 15. There are points along the pipe that indicate a leak. I would say that about 2 hits are normal, but when you get 3 or more you are seeing abnormally high levels of antibiotic resistance gene targets. There is a new assay out now that allows us to look at a single sample for 86 antibiotic resistant genes that I am getting ready to start on a new project. It would be great to do this again with something like that that gives you more bandwidth for targets.

We did some analysis of samples from the wastewater treatment plant, outfall boil, and the array of sediment samples around the Hollywood outfall for the wet and dry season. We saw a lot more hits for target genes in the dry season but fewer in the sediments. We had fewer in the wastewater stream during the wet season when it was hot but 7 times more hits in the sediment in our transect ray.

Brian Walker: I was curious about the possibility of looking at the effects of our disease interventions on the reef. We have been doing quite a bit of disease intervention and those interventions include an antibiotic paste that we put on the coral. There are concerns from lots of folks about putting those antibiotics into the environment and what it might be doing outside of their intended purpose. Would there be any use in using this type of analysis to look at the effects from those disease interventions?
Dale Griffin: Yeah, I did that for DEP in a study in the Florida Keys on a patch reef. The team collected samples at the reef before they applied the antibiotics and then 2 weeks later went back out

and collected samples again. We had samples for pre-treatment and post-treatment. The only resistance that showed up before was tetB, but I think that is a natural resistance since it shows up a lot. Afterwards tetB showed up again, but the gene that imparted resistance to that antibiotic showed up. That was a one-time study. We know that if you use antibiotics, you're going to drive acquisition of resistance within the microbial community. We know that coral mucus has a very diverse microbial community so it wouldn't surprise me if you applied antibiotics that resistance would show up within that reef community.

John Sprague: Do you do sampling around areas of city, county, major sewer pipe breaks, and inland waters?
Dale Griffin: We didn't for this project, but I have done a lot in the past in the Florida Keys looking at septic tanks and the influences of septic systems and in the canals and the nearshore waters of the various islands throughout the keys, we have done a lot of that type of work. And work in some of our coastal rivers along the west coast of Florida so you have freshwater environments that quickly go brackish and quickly goes marine as the river hits the gulf. This is not unusual to see fecal type microorganisms to be able to detect it in those environments where there is a source of impact like septic systems or an outfall. We haven't screened those for antibiotic resistance, but we have done a lot of source tracking with other pathogenic microorganisms.

2. WQM Update and Results – Dave Whitall (NOAA)
I'm going to give an overview of our main findings from this work. This has been published as a report and if you're interested in the details of this I strongly recommend you download the report (https://repository.library.noaa.gov/view/noaa/22999). The data itself is also available (https://dev.seacar.waterinstitute.usf.edu/). If you cannot get access to either of these, please shoot me an e-mail or if you have questions, please let me know.

There were 115 sites across the nine inlet contributing areas (ICAs). We were mostly interested in the sites on the reef. We do also have sites at the inlets and outfalls because we recognize how important those are as sources of pollutants to the system. We have been doing this monthly since 2017. We do refer to this as a water quality project. Even though there are other things that make up water quality, we will just be talking about a subset of water quality today, specifically nutrients and sediment related compounds.

The first take-home message that I want to convey to you today is that we can see the influence of the inlets and outfalls in the chemistry data. This is not surprising, but it is good the chemistry data backs up how we think the system behaves. For example, we can look at mean turbidity by site types, this is comparing all of the inlet sites versus the outfall sites versus the reef sites. You see statistically higher turbidity at the inlet, which is not surprising because you see sediment and other components that affect water clarity coming off the land. You can also look at a variety of chemistry. One example of this is looking at ammonium, specifically showing you Baker's Haulover, which I want to show you what I see at an outfall. The ammonium concentrations at the outfall are significantly higher than out on the reef. Because the outfalls are human waste, that waste is going to be high in ammonium and urea, so this is about what we would expect.

The second take-home message that I want to talk to you about is that we can see differences between the ICAs. This could be a natural phenomenon, for example this could be driven by physical oceanographic factors, but my hypothesis is that this is being driven by land use, at least in part. Just

to remind us, there are differences in land use between the northern part and southern part of the SEFCRI region. If it is driven by land use, that is somewhat good news because that is something we can manage if we choose to do so whereas if it was a natural phenomenon, we could not do that. So when you look at the data of mean orthophosphate by ICA you see some pretty stark differences between some of the ICAs. The pattern that you see for nitrate is maybe not as extreme, but you still do see statistically significant differences between some of these ICAs.

The third take-home message that I want to share with you today is that we can use these data to evaluate the water quality status at individual sites as it relates to previously proposed water quality thresholds. I think we are all very aware that the State of Florida does not currently have water quality criteria that are specifically related to coral reef health protection. I know that Florida DEP is working closely with the US EPA developing coral specific water quality criteria. Turbidity is the first analyte that is likely to have criteria for it but I think it is important to have some kind of threshold to compare our data against. We can make some assessment of whether we think these values are high or whether we think that we can keep an eye on it, that these are likely not levels to be harmful to corals. We looked through the literature and there are a bunch of different published threshold values you can find. We used values from a 1997 paper from Lapointe because the values he proposed were specific to reefs in SFL. Thresholds for both Dissolved Inorganic Nitrogen (DIN) and Soluble Reactive Phosphorus (SRP) were proposed. We were able to compare our data from each site to those threshold values. We looked at the mean values and for phosphorus, 25 out of 115 sites exceeded the threshold. For nitrogen, all of the sites exceeded the threshold in terms of mean values. While these numbers proposed by Lapointe are not necessarily the magic values and may not be the values that the state and EPA eventually arrive upon, I think this is a valuable exercise because it does reinforce the idea that the levels of nutrients we are seeing in the system are very likely to be detrimental to coral reefs.

The fourth take-home message I would like to talk to you about is that we can use tributary flow data to help explain the observed temporal differences in water quality. If you are not familiar with the DBHydro database, its managed by the South Florida Water Management District. It has flow data for almost all of the canals, tributaries, and rivers in the region. We were able to gather up that data and identify the farthest downstream sites for each ICA. Then we were able to look at the statistical distribution of the daily flows for each of those sites. What this allowed us to do was to determine for a given day if the flow rates were the base flow, meaning business as usual, or if they were high flow, meaning that there was either a water release or precipitation event that increased that flow significantly above what it normally is. Once we had done that for each of those sites on a daily basis, we were able to walk that back to our water quality sampling dates and thus categorize each water quality sampling data in the offshore waters as either occurring during a high flow event or base flow event. When we did that, we were able to statistically compare high flow versus base flow. What we have found is that there is a statistically significant positive relationship between flow and observed concentration. So in other words, with high flow you have higher concentrations. This is consistent and what you would expect is that you can increase the mass flux of nutrients and sediments during high-flow events which result in higher water column concentrations in the near shore waters. There are some ICAs where this isn't the case, such as in Boca, there is no statistical difference or possibly even reversed. In fact, there are some analytes at some of the ICAs where there is a negative relationship between flow and observed concentration. So, in other words, when the flow is increased you actually have lower concentrations. What this reflects is a nonlinear relationship between nutrients or sediments and total flow. The way to think about this is there is a finite amount of

material in the watershed and when that all gets flushed out during high-flow events and you keep adding more freshwater to the system, what you end up doing is essentially diluting that. So, it's not that there is less total mass, it is just that you diluted it with additional freshwater.

The final take-home message that I want to talk to you about is that you can compare the water quality data with existing biological datasets, specifically here I am talking about the National Coral Reef Monitoring Program (NCRMP). Our reef sites are co-located with previous NCRMP sites and this is by design so we can do these types of comparisons. Obviously, there are a lot of different parameters that drive coral reef biology so I'm not proposing that these patterns are driven only by water quality. Similarly, correlation does not equal causation, but I think it is very illuminating to look at some of these relationships to see what relationships in the data we can find. What we did was look at the benthic cover data from NCRMP and then we correlated that with the water quality data in terms of maximum values and mean values for each of these analytes. We used Spearman rho correlation coefficient. The negative value means there is a negative relationship. As nitrate or phosphate go up, the benthic cover in each of these types of benthic habitat are going down. Intuitively this makes sense, as water quality gets worse you would expect these ecosystem types to become less prevalent. Some of them maybe don't make as much sense. For example, I'm not sure why as TN_mean nitrogen goes up that the turf algae goes down because that seems counter-intuitive but there is a lot more information going into this than just the water quality. Similarly, as you might expect, when some parameters go up, the habitat types also go up. For example, here as nitrate max goes up, the turf algae goes up as well. That makes sense. I'm not an expert on gorgonians but maybe encrusting gorgonians are more tolerant to total suspended solids and that's why we are seeing them go up as TSS_Max and TSS_mean go up. We are seeing very interesting correlations here and I think this also speaks to the utility of co-locating sites to have the biology next to the chemistry. I think it's very informative.

What else could these data be used for? Currently I am working with Brian Walker and some other scientists who look at how disease data for South Florida might be related to these water quality data. There will be some modeling work that we will be doing over the coming months to look for relationships between the water quality data I have discussed today and the disease data that Brian and others have collected. The other thing that this dataset will be really useful for is the development of SEFCRI specific water quality threshold. I mentioned Florida DEP is working with the US EPA on criteria. These kinds of data are absolutely critical for those types of criteria development. It is very difficult to come up with scientifically meaningful criteria without datasets like this. And finally, these data are useful for detection of change over time. For example, when the outfalls are eventually decommissioned, if we don't have this dataset to know what the ambient nutrient concentrations were in this period when the outfalls were operating, it would be impossible to say what turning the outfalls off has done to the system.

To wrap-up, I want to mention that DEP is currently still sampling all 9 ICAs so this is in fact ongoing data collection which is really great that they are able to continue this work. I think I have demonstrated to you the utility of co-locating data, so having different types of data at the same place is going to really add some value to what you can say out of your data. We have been encouraging other scientists when they're thinking about related work in the area to continue or to consider co-locating their sites with ours and that certainly can leverage the work that has already been done. And finally, I want to say that this project really highlights the importance and utility of state and federal partnerships. I think this project has really been great and I don't think it would have been nearly as

good if it was done as either a federal only or state only project. As you might imagine a lot of really smart hard-working people have worked on this. Thank you to everyone who helped conceptually, with daily operations, or in the laboratory or in the field.

Kathy Fitz: Thanks Dave, do you have any thoughts about modifications to the analytes being sampled?
Dave Whitall: I am always careful about how I answer this question. I think that if we wanted to reduce the number of analytes being sampled have to be very careful about how we consider that. I don't think there's any obvious analytes that we should cut and obviously you can't undo that once you have done it. So, I wouldn't necessarily advocate for reducing any analytes that we are measuring. In terms of adding new things, as an example, DEP is already doing more chlorophyll a sampling then we have done in the past. There may be some utility to adding microbial sampling that would fit into the work that Dale talked about earlier. There may be utility to adding sucralose, which is a human dietary tracer. It is a good indicator of human waste as well. If funding is available, I think there is definitely the logistical framework of us already doing the fieldwork where we could add additional analytes. It is just a question of how we pay for that and what is that worth to the user community.

3. WQ Tools for the Coral ECA – Julie Espy (DEAR)
I work for DEP. I am the director for the Division of Environmental Assessment and Restoration. I am going to go over what we do in our division to help address Restoration.

The framework of our division starts with setting water quality standards. That is the first step. We develop water quality standards or criteria that are used to set the limit of what is considered a healthy water body, you know, what is the healthy condition to support those aquatic life ecosystems. We also do a lot of monitoring. We have staff throughout the entire state who collect data for various projects and monitoring networks that we have throughout the state. All of that data, along with the data collected by probably many of you, and we use data from our Water Management Districts and local governments and we use all that information to then evaluate: what is that condition of our water bodies in the state, what is the water quality? And when waters don't attain those water quality standards or criteria, we consider those to be what we call impaired. We have a running list of all of the water bodies that are impaired and the particular parameters they are impaired for, so that can be bacteria, nutrients, metals, or a long list of different parameters that we have criteria for, and we assess against. When those waters are determined to not meet those standards, that's when we really start looking at restoration. One of the first things we do is look at setting a restoration goal or the Total Maximum Daily Load (TMDL). If the water body gets a TMDL, we then look at what we are going to do to implement meeting those restoration goals. What is the plan going to be to address that impairment? And then we go through that wheel all over again with more monitoring, more assessment, and evaluating the restoration goal and what activities we've implemented to achieve those goals until water quality standards are met.

This slide is just to give you an idea of how long this process can take. Currently we have hundreds of water bodies listed on our running tally of waters that are not meeting standards. We then have to look at that list and prioritize them. What are the ones we are going to select for TMDL development? We use a variety of components to look at what is the use of the resource. Is it an OFW, is it an outstanding Florida water body, do we have stakeholders in the area that are really active and interested in addressing the water quality? Those are all factors we consider when we are looking at

developing TMDLs and also BMAPs for that matter. Needless to say, it can take a while. Throughout the presentation I will talk about some alternatives to some of the normal process that DEP does.

As far as the assessment, I want to quickly go over how we do that. We have the state divided up into 29 different basins and we use those groupings to help us bring data together and also to prioritize which areas we're focusing on in a year. The way that it works is we work on one basin group per year right now. We are looking to change our process. There will be more information coming out on that in the fall. We will be holding some webinars to talk to folks about that. We are looking to start evaluating or assessing the entire state in a 2-year cycle rather than a fifth of the state in a one-year cycle. That is the way that we have been doing it since about 2000. It is still a lot of work, but we are hoping to change that so that we can provide more current information to folks on what the assessment is on the water quality conditions.
We collect some of our own data, but we also collect data from about 100 different providers from around the state. All of that data goes into our WIN database at DEP. Then we crunch all of that information into our Impaired Waters (IWR) Database. That really takes the methods from our rule. Our rule talks about data sufficiency, so numbers of samples, when the samples have to be collected so that you are capturing seasonal variability, and all the other different types of conditions. All of that different information is coded and then we take the data from WIN and crunch it through that code and output it into our IWR Database. That information is available to the public if anyone wants to see it. It has a nice little front-end where you can look up water bodies and get the information you might be looking for. It gives you that information by a Water Body Identification Number (WBID). In the database you can look up Biscayne Bay or Miami River or whatever the case may be. There are different segments of water bodies you can look up. You don't have to have the identification number to get the information you are looking for. It gives you the information by parameter and assessment. We also utilize data from some of our other sources. We have a biological database that is primarily freshwater biology or bio assessments we call them. We have tools to look at streams and lakes and algal communities. Most of that data is in our statewide biological database. We do try to get outside information from other folks, like seagrass surveys that are done around the state and those types of things as well. Certainly, we get data from DOH, Department of Agriculture, and USGS.

The next step after doing the assessment part, now we look at which ones are we going to do TMDL. What exactly is a TMDL? It is the maximum amount of a pollutant, whether it be copper or nutrients or bacteria, that can be introduced into a water body so that the water body will still attain standards and not exceed those criteria. It is really just a target. The TMDL itself doesn't do anything other than tell you what that target should be. Some of the things we look at while we are developing TMDLs, of course we are looking at the sources of the pollutants. Wastewater outfalls are one of the big things that we look for and the contributions from those point sources, but we also look at nonpoint-source like agriculture, stormwater, and all of those other types of things that happen on our landscape that can contribute pollutants to the water bodies. We are doing modeling and different types of things to try and establish that target. Sometimes it can be a very sophisticated computer model, or several models put together to actually develop the TMDL. And sometimes for a bacteria TMDL, it might be much simpler to do some type of regression or other types of things that you can do, but most of them are pretty complicated. Once we establish those TMDLs, we do have to get those approved by the EPA and we also adopt them at the state level. For nutrients, those TMDLs become the new criteria. We do have state water quality standards for nutrients throughout the state for all of our water bodies. When we are doing a TMDL, it is more of a site-specific evaluation so those targets can become a new numeric nutrient criterion.

The next step, we consider those water bodies that we have TMDLs for and we try to prioritize and consider which ones we are going to do BMAPs for. Currently we have the majority of the state covered by BMAPs. There are still some areas, such as Biscayne Bay or others, that we might consider developing BMAPs for so we can implement TMDLs to get those projects, those activities, whatever it is going to take to achieve that restoration goal. Some of the things that go into BMAP, I think the most difficult part, is just getting all of the stakeholders together. Everyone who is affected by the BMAP, who contributes pollutants to that water body, needs to come to the table and understand what their contribution is and tell us what they are going to do about it. That is one of the challenges, but it can also be very satisfying when you bring those folks together and you can actually work on the water quality restoration as a larger group of folks, everyone working towards the same goal.

We do have some restoration alternatives. They are essentially restoration plans that can be done in lieu of that TMDL or the BMAP. Both of these are really stakeholder driven processes. The local stakeholders coming together without DEP taking the lead through our regulated process of developing the TMDL and the BMAP. I know lots of areas we have done it in Tampa Bay very successfully where they had their Nitrogen Consortium Group come together with the Tampa Bay Estuary Program and they developed a Reasonable Assurance Plan and have implemented that plan and have been very successful in restoring Tampa Bay and the seagrasses in that bay. A Pollution Reduction Plan is not quite as intense as a Reasonable Assurance Plan. It is one of those types of plans where you might not have every stakeholder in the region, but you might have the larger stakeholders who want to put a plan together and start working towards restoration. What that does is more or less delays TMDL. So while the water body might not be attaining standards, we know that we've got some local stakeholders who are interested in working on restoration, so we are going to put that as a much lower priority for doing TMDL. We want to let the locals do what they want to do, have control of the process, and start working on that restoration while we keep an eye on it. We are continuing to monitor and assess to see if things are getting better. In both cases, as the plans are put in place, we are continuing to monitor that and as we see progress, we don't do TMDL. We are going to keep delaying the TMDL in the case of a Pollutant Reduction Plan. And in the case of the RA Plan, it really replaces the TMDL. However, if for some reason a RA Plan fell by the wayside and folks weren't going and doing those activities and projects as promised, then we might have to step in and do something. This can happen at any time. It doesn't have to be waiting on DEP to start or trigger this process.

Benefits of some of these alternative plans is that the locals are more in control of the process. There is not as much heavy-handedness by DEP. We are there to help guide along the process. We are happy to help develop these plans but obviously it has to be approved by the Department. We try to stay involved but we are not leading the process. It also allows locals to get that recognition for having those proactive efforts. The public can work with local governments or organizations (nonprofit organizations, volunteer organizations) to address water quality or their local water body on these types of plans.

To summarize, there are different ways to get at restoration. We have our DEP driven process where we are assessing, prioritizing for TMDLs, and prioritizing for BMAPs. Or we have our more stakeholder driven process where you can do some of these, where you're monitoring, you're

assessing, and you're doing it as an alternative restoration plan. Ultimately, the goal is the same. We are very interested in doing whatever we can to restore the water quality here in Florida.

WQ Targeted Discussion – Allie Shatters ~53 – Allie's Notes

Q1: Does a RAP process make sense for the Coral ECA? Why or why not?

KF: We don't need more process. The tools are there to identify the sources of water quality degradation. It just needs to be enforced.

JE: TMDL/BMAP/RAP does give power to enforce, coral would probably be target community to be protected in a restoration plan, there is not a lot of coral specific criteria, a RAP would put in stakeholder hands to take data and put it into action

KF: DEP needs to enforce the rule on the books. If these existing processes were working, our water quality would not be tanking.

DG: TMDL/BMAp great, microbial component needs inclusion. Ex. clear water in Keys, but live pathogens from septic and canals make it unswimmable. Microbial component broadens ability to accurately assess water quality. Not that costly or time consuming to add microbial component to plan.

LE: multiple resolutions related to health of Biscayne Bay involved stakeholders not necessarily represented in SEFCRI, movement toward a RAP for the area

AP: I concur with Kathy's comments regarding enforcing current regulations

Q 2: Knowing that Government Cut is the focus of DEP for WQ and Watershed work for LBSP reduction, does the Team agree that we should also focus here?

BW: reminiscent of local group prioritizing Boynton Inlet, are we shifting gears to further south?

JM: adding to that list, not saying one is more important, just recognizing there is a lot of work in the Gov't Cut Region so might be a good first place to try a RAP if there are more partners and more current work

BW: makes sense, take advantage of momentum in region.

JM: Gov't Cut means whole ICA est. around Gov't Cut previously starting at inlet, working backward up land to ID rivers, tributaries, etc. that contribute to the water that runs off an eventually goes out the inlet and onto reefs

BW: analysis of data off Haulover that would support the initiative in that area

DC: OK for focus of efforts for wq but would like other ICA's not to be ignored esp since there are differences btwn them

AP: All regions are important, however it makes sense to work in the region were we can be most effective.

DW: Just as a heads up, the US Coral Reef Task Force has a "Watershed Working Group" that is probably going to designate additional priority watersheds in the next year or so (the current watersheds are in Puerto Rico, Hawaii and American Samoa). While this designation doesn't necessarily come with $$, it does bring additional federal attention (and possible resources to the table). I'd encourage this

group to coordinate closely with whatever watershed FDEP puts forward for that whether it be Gov't Cut vs Boynton

LE: If anyone has questions specific to the Biscayne Bay area, please feel free to reach out. The bay has undergone historic losses of seagrass in the Tuttle basin since around 2012 and just as of Aug 10th had a fish kill of size and species diversity that had never been recorded. So a high amount of conjoined stressors within the watershed.

BB: I agree with Dave W.

3:45 – 3:50 Public Comment (Pt. 4)

No public comments were made.

3:50 – 4:10 Restoring Florida's Coral Reef – Kristi Kerrigan

4:10 – 4:50 SESSION VI: Opportunities for SEFCRI Team Member Engagement

~22 **Overview of SEFCRI Engagement – Kristi Kerrigan**

Activity: Engagement in Stakeholder Groups BOG Notes Here (9 Groups)

~40

4:50 Marina Topics

No marina topics were brought up.

4:50 – 4:55 Acknowledgements

1:00:00 - Not sure if you wanted anything written out here.

4:55 – 5:00 Wrap-up and Adjourn

1:12:00 - Not sure if you wanted anything written out here.