Draft Hybrid Meeting Summary
Florida's Coral Reef Coordination Team (FCRCT)
Meeting #3
September 7, 2023

1. Welcome and Introductions

Wes Brooks, Chair, called the meeting to order at 1:03PM. As they all know Florida's coral reef has been significantly declining since the 1960s and 70s. The loss of more than 90% of live coral cover has been driven primarily by deteriorating water quality but strongly punctuated by bouts of coral disease and bleaching events from hot and cold-water stress. The ongoing interactions of these factors and the low density of coral populations remaining has made natural recovery highly unlikely in the near future. The State of Florida has primary authority over water quality and Gov. DeSantis has done more to ensure that the dominant cause of our reef's decline over the last five decades is finally being addressed. They have invested $5 billion in reducing nutrient loading and restoring wetlands and hydrological connections. A significant portion of those investments are happening here in the greater Everglades region. The state is working to reset foundational water quality conditions to support the large-scale recovery of coral populations here in southeast Florida. The Governor also launched the Florida's Coral Reef Restoration Recovery Initiative with the goal of developing the infrastructure, technology, skilled workforce, and logistics necessary, by 2050, to support the long-term recovery of no less than a quarter of Florida's coral reef and the living coral cover therein. With the largest budget for coral reef management and restoration in the state's history, Florida has more resources and tools than ever to complement the efforts of our federal and non-governmental partners to repopulate corals on the reef with better climate and disease resilience. There's no question that a severe bleaching event has been taking place along some areas of Florida's coral reef and it is being driven by higher-than-average water temperatures that have persisted for many more weeks than normal. While this event has been devastating at some sites in other areas there is hope and they are not seeing the same level of impact.

He noted the importance of the unified framework they are working on. Collecting data for analyses, getting information out to the public and decision-makers is critical. Done correctly, the framework will be an important part to ensure that these stories get told more accurately and ultimately more effectively. This in turn will hopefully support better decisions, better budgets, and better management outcomes. One thing is certain, without finishing the job to fix the state's water quality woes and accelerate our active intervention to propagate and restore more resilient coral populations, they risk losing the significant environmental, economic, and cultural benefits this critical ecosystem provides to communities in southeast Florida including hundreds of millions of dollars in flood risk reduction each year. Under Gov. DeSantis, the State of Florida is implementing that very same "no regrets" strategy, which may simultaneously reduce the ecosystem susceptibility to the disease and temperature linked bleaching events that they can expect will continue in the future. Everglades restoration is going to play a larger role too and they need to have the monitoring architecture in place to measure its effect and fully develop all the tools and operational measures necessary to succeed in restoring our reefs.

Erik Stabenau, Vice Chair, said it is important to learn from the larger Everglades restoration program and similar programs that have paved the way for decades to provide them with a sense of how they will go about doing this both organizationally and through the tools they use. For example, the

Integrated Delivery Schedule approach is being recognized in other areas. There are tools and programs to improve water quality upstream that are already in place that they can leverage. The National Park Service (NPS) has also taken very specific efforts recently to look at the research, stewardship, and strategy for coral reefs, not just here in Florida but across the Caribbean. The NPS considers this a critical resource and is proud to be a partner in this process.

Adam Gelber, Director of the Office of Everglades Restoration Initiatives (OERI), noted that the OERI is here for whatever this team needs to succeed as an advisory body to the Working Group and Science Coordination Group.

2. Meeting Procedures and Member Introductions/Whip-around

Allyn Childress (OERI) reviewed the procedures for the workshop to include ZOOM technical information.

Wes Brooks, Chair, recognized the members that were in attendance:

VOTING MEMBERS	ATTENDANCE
Wes Brooks, PhD, Chair Florida's Chief Resilience Officer	√
Erik Stabenau, Vice Chair NPS South Florida Natural Resources Center (SFNRC)	√
Christian (Chris) Eggleston, Project Leader USFWS, Florida Keys National Wildlife Refuge Complex	√
Sarah Fangman, Superintendent Florida Keys National Marine Sanctuary	√
CJWade Lehmann USEPA, Oceans and Estuarine Management Section	√
Gil McRae, Director FWC's Fish and Wildlife Research Institute	√
Nicole (Nikki) Morgan, PhD FDEP - Division of Environmental Assessment and Restoration	√
Christopher "CJ" Sweetman, PhD, Federal Fisheries Section Leader FWC-Division of Marine Fisheries Management	√
Joanna Walczak FDEP Office of Resilience and Coastal Protection	√
Dana Wusinich-Mendez NOAA's Coral Reef Conservation Program	√
NON-VOTING MEMBERS	
Cassondra Armstrong, Section Administrator SFWMD - Coastal Ecosystems	√
Angela Delaney, Manager Broward County's Marine Resources Environmental Program	√
Deb Drum, Director; **Katelyn Armstrong**, alternate, in attendance Palm Beach County ERM	√
Laura Eldredge, Chief of the Restoration and Enhancement Section Miami-Dade County DERM	√
Ian Enochs, PhD, Coral Program Lead NOAA-Atlantic Oceanic & Meteorological Laboratory	√
Elizabeth Kelly, PhD, Coodinator Martin County Environmental Programs	√

Christina (Chris) Kellogg, PhD USGS - St. Pete Coastal and Marine Science Center	√
Shelly Krueger Monroe County, SeaGrant, UF/IFAS Extension	√
Gina Ralph, PhD, Lead Scientist U.S. Army Corps of Engineers	√
Adam Gelber, Director USDOI Office of Everglades Restoration Initiatives (OERI)	√

Chris Eggleston (Florida Keys National Wildlife Refuge Complex – alternate for Jennifer Feldner) stated that they are not doing any direct monitoring of the reef in their area but comments from the public have been that the bleaching is widespread and a huge problem in his area.

Gil McRae (Florida Fish and Wildlife Conservation Commision - FWC) stated that FWC's coral reef monitoring and research group has been monitoring the reef for over 30 years. They have a long time series which, unfortunately, shows a significant decline in coral cover even prior to Stony Coral Tissue Loss Disease (SCTLD). That disease targeted the framework corals, the big boulder and brain corals that are responsible for the structure of the reef itself. Once there is that many disturbances on the reef, it becomes susceptible to further disturbance by bleaching and high temperature. The evidence supports widespread bleaching on the corals and coral cover is down. FWC is involved in the coral rescue efforts in response to the SCTLD and they now have corals scattered in zoos and aquaria throughout the country. Those coral will ultimately be used as brood stock to kick-off an unprecedented scale propagation campaign by the Florida Department of Environmental Protection (FDEP) and FWC. They have been fortunate over the last few years to get significant support from the Florida Legislature and the Governor. They are learning as they go and collaborative groups such as this one will be more important than ever.

Nikki Morgan (FDEP) noted that from the images she is seeing, they are also seeing bleached octa corals – purple fan corals that are important to fishery species.

CJ Sweetman, also with FWC, is within the Division of Marine Fisheries Management and his group relies on a lot of the work that Gil's group and other people do to inform management decisions and understanding not just what's going on with the coral, but the subsequent downstream effects towards the fisheries that his group manages. They are also involved at the federal fishery level. He sits on the Gulf of Mexico Fishery Management Council and his boss sits on the South Atlantic Fishery Management Council. All these meetings are useful in making management discussions as they try to get a better understanding about how impacts to the reef are ultimately affecting some of the upper trophic levels like some of our reef fishes.

Joanna Walczak on behalf of FDEP's Coral Protection and Restoration Program and the newly named Florida's Coral Reef Resilience Program, which is co-led by FDEP, FWC, the National Oceanic and Atmospheric Administration (NOAA), and NPS, stated that they have been collectively responding with all our partners to the bleaching event as well as the continued response to SCTLD. There are different ways that they are responding to the event, both through evaluation of emergency response funding at the federal, local, and state levels. They are also looking at the triage of priority corals from nurseries that were impacted. Through the Florida Keys National Marine Sanctuary, they are evaluating some ways to intervene and test if they can protect some of these priority sites. They are also working on the

messaging to make sure they are all using the same appropriate messaging about what's happening out there. As they all know, the media likes to grab a little sound bite and run with it and as it turns out the entire reef is not bleached. In fact, there are severe locations, but even those locations are patchy even within the reefs themselves. While there have been severe impacts, there is still quite a lot out there that is stressed but doing fine so far. FDEP continues to work on supporting funding to all our partners for all the awesome work that's happening. They are also out there doing disturbance response monitoring, which is the monitoring they do every year whether there is bleaching or not. That information will come out in the spring and will help them better understand the impact of this current event.

Dana Wusinich-Mendez (NOAA) said that NOAA's Coral Reef Conservation Program has been coordinating as a part of Florida's Coral Reef Resilience Program to understand the needs on the ground and prioritize actions in response to the bleaching event and thermal stress where some of the corals aren't bleaching but just dying from the unprecedented high temperatures. They are working to support all the partners on the ground in prioritizing investments in restoration efforts. They have been working to identify funding through the National Coastal Resilience Fund that can go to support those restoration partners on the ground. Rescue is also an intervention that they can apply in response to disease, bleaching, or any major disturbance where it seems to make sense to remove corals temporarily or permanently from the system. Hopefully they will be able to support all the major players involved in this massive evacuation effort.

Cassondra Armstrong (South Florida Water Management District, Coastal Ecosystem Section Administrator) said that the district's primary role with corals is through managing and monitoring the water quality that runs off the landscape and they try hard to improve both of those for the benefit of all coastal habitat and communities.

Laura Eldredge (Miami-Dade County's Department of Environmental Management – DERM) said that they have had some recent monitoring throughout the county through their Surface Water Quality Monitoring Program that's been in existence since 1979. Some of the data they are getting from that is water temperatures hitting historical records of 91°F in those southern areas within the county like Card Sound and Barnes Sound where they do have very high hard bottom coverage. In early August they saw temperatures reach 93°F in other areas around the bay but those are not historic values for those areas. In their offshore waters, their artificial reef and offshore monitoring program staff have been doing offshore field surveys as many as 4 days a week. They are seeing high 90s offshore with some sites reaching 91°F at the sea surface. Staff continues with disease monitoring and intervention efforts. On a positive note, they have now successfully completed their mooring buoys expansion. They are hearing from some of their partners that some areas are experiencing a 100% loss due to bleaching and hearing from other partners that they are noting majority survivability, so they are seeing a lot of variability within Miami-Dade County's waters.

Chris Kellogg (Senior Scientist with the U.S. Geological Survey at the St. Petersburg Coastal Marine Science Center) mentioned that Elsa Kuffner, a scientist in her office who has calcification stations in various places along the Florida's coral reef, recently took her team down to the Dry Tortugas to help the NPS do anything they could to help the corals. She then went to her site in Key Biscayne and found that all of those corals had been lost.

Gina Ralph (US Army Corps of Engineers, lead scientist and RECOVER Program Manager) stated on the Comprehensive Everglades Restoration Plan (CERP) Biscayne Bay and Southeastern Everglades Restoration (BBSEER) Project, the Corps released their round 3 alternatives for that project last Friday. The purpose of that project is to deliver clean, fresh water to the coastal ecosystems. They have lots of new innovative tools that they are using to assess that area. In addition, the Corps has a new initiative, an Integration Team for all their projects (resiliency, deep draft navigation, aquatic ecosystem restoration, and flood risk management) in Miami-Dade County.

Wes Brooks suggested Gina Ralph could present on the BBSEER alternatives at the next meeting and get this group to comment on how those alternatives may or may not impact the reef system.

Sarah Fangman (Superintendent, Florida Keys National Marine Sanctuary - FKNMS) apologized for not attending in person. She provided a couple of quick updates from the sanctuary. The prior day they published in the Federal Register the establishment of a temporary special use area for corals that were moved in response to the temperature event. Many know that the restoration practitioners, their nurseries are in shallow water and the water was heating up so about a hundred coral nursery trees were moved into deeper water for survival purposes. They were concerned that they would be at risk of physical impacts, so they were able to establish a temporary special use area. It is in place for 60 days with the possibility of expanding for another 60 days. They are in the process of installing buoys that can provide real time surface, midwater, and bottom seawater temperature at 7 iconic reef sites. As soon as they are in place, she will share it so the FCRCT can have access to those data. There is currently a team out at one of the iconic reef sites doing a pilot study to look at intensive removal of predators to see if that can help corals survive, there is evidence to suggest that it can. They along with their partners have been involved in a 10-day synoptic survey of the 7 mission iconic reef sites to assess the condition of those reefs. She reinforced the fact that not all the corals are dead, yes, there are reasons to be concerned, but there are also corals that are bleached but still live or, bleached and then have colored tissue underneath. They will do a second synoptic survey at the beginning of the new year to make a comparison between what they are seeing now and seeing then. The last little bit of hope is that the water temperature has been decreasing and in many places in the Keys, they are a little bit below bleaching thresholds. They are hoping that the worst is behind them.

Wade Lehmann (Environmental Protection Agency - EPA - Region 4, Southeast Region) stated that they do not do any direct monitoring, although they do provide funding to the Fish and Wildlife Research Institute (FWRI) and some other partners for water quality, seagrasses, and coral surveys. They are currently reviewing grant proposals for this year; they are funding to approximately $9 million dollars. A few are coral related and may be applicable to both CERP projects and coastal projects.

Angela Delaney (Manager of Marine Resource Program - Broward County) reported that they have been conducting their annual mooring buoy inspections, which the county does in addition to what their contractor does on a monthly basis. Observations of paling or bleaching were minimal. Broward County doesn't seem to be experiencing the bleaching that's being seen further south. They have also started their disease response monitoring. It's a collective assessment of the reef so that they can get a regional perspective of what's going on with the corals and those preliminary observations show minimal bleaching and a few colonies paling. They were out a few weeks ago doing some inspection dives with FDEP and bottom temperature was 87°F degree, which was very concerning. They were out again last

week at about the same depth of water and the temperature was around 80°F degree so they are seeing a decrease in temperature.

Ian Enochs (Lead of the coral program at NOAA's Atlantic Oceanographic and Meteorological Laboratory) state that their research ranges from disease to ocean acidification, climate, restoration, technology, development, and habitat erosion. Their central site at Cheeca Rocks, a site they have been monitoring extensively, has been at the epicenter of this warm water event and they have seen full bleaching and every single coral has been impacted. Some are extremely pale and some are entirely white. Corals have been bleaching and, in many cases, have gone straight to death and the tissue has just fallen off them. As mentioned, this has very strong ecological ramifications. His team has been monitoring sites extensively and frequently, charting the progression of this event and the storm has made conditions and visibility quite difficult recently. His team was out the prior Friday and while they did see some mortality, there are areas where there does appear to be color coming back to some of the corals. They are not out of the woods and while there is a little bit of optimism, in the past, a lot of the mortality associated with these bleaching events has come afterwards due to disease that follows when these corals are still metabolically compromised.

Elizabeth Kelly (Martin County) apologized for not attending in person. She is the county's environmental program coordinator and focuses on water quality. Martin County has been focusing its work with the different coral groups. They are trying to develop their monitoring programs and have applied for multiple grants for water quality monitoring. A lot of their work has also been focused on resiliency projects. They recently received a draft July 2023 report from Sustainable Coastal Solutions and the Univ. of Massachusetts who are helping them provide a basis for some of their water quality monitoring projects and look at land-based sources of pollution coming out of the St. Lucie Estuary and the Indian River Lagoon. This is designed to help them inform their coral reef management. They have seagrass studies coming and they are trying to get projects in line so that they will be able to say they are looking at everything that comes off the land. They would like to have monitoring stations from the lake all the way down to the estuary.

Wes Brooks noted that the South Florida Clean Coastal Waters Act calls for a monitoring system like that to be set up. It would be fantastic if they could extend that to the reef as well.

Shelly Krueger (Monroe County representative and the Florida Sea Grant Agent for the University of Florida IFAS Extension) collates Florida's coral reef resilience program's disturbance response communications team. It's been a new evolution and they didn't expect for a disturbance to occur so quickly. They have been collaborating closely and have created internal talking points that they have shared with dozens of partners. They have also created a qualitative report so that researchers and scientists can report what they're seeing in real time. They have been working with the Key West National Weather Service to get temperature readings in real time and provide it to the entire disturbance response network. The Disease Advisory Committee has evolved into a Disturbance Advisory Committee and a lot of these reports are being shared with everyone.

Deb Drum (Palm Beach County) introduced Katelyn Armstrong who was attending in person. Katelyn Armstrong said she has been out on the reef doing disturbance response monitoring. They have somewhat of a happy story up in Palm Beach County. Water temperatures range from 87°F degree to 84°F degree and temperatures are decreasing. Bleaching is less drastic than what they are hearing about in the Keys. One out of 10 corals on our southern reefs, Boca, and Del Ray Beach, are fully

bleached or paling, but there's tissue still on those corals. The prior day she saw octocorals that were losing their tissue and that was a first for her. They will continue their disturbance response monitoring and recording surface and bottom temperatures.

James Erskine (FWC and Chair of the South Florida Ecosystem Restoration Working Group) thanked everyone there for their time and for bringing their expertise to the table.

Mark Raines (Chief Science Officer for the State of Florida and a representative on the South Florida Ecosystem Restoration Working Group) thanked everyone for serving on this committee. Everyone there was doing a great service to the people of the state of Florida and more importantly to the coral reefs themselves. This is a particularly difficult summer, and they were all stunned by some of the sea surface temperatures they were seeing, not just in Florida, but all over the world. When he kept seeing these numbers and puzzling over them, he met them initially with disbelief. They have been reduced in many cases to reactive responses and it's unsatisfactory. There's long been a gap between freshwater and marine settings. They train differently, attend different conferences, and manage them differently. It would be surprising if there wasn't that gap but they know they're linked. And when they talk about landscape scale connectivity, they say that landscapes are connected from ridge to reef. It's a convenient thing to say and he has probably said it or written it thousands of times. He said this team could build a framework around that idea of connectivity, but not just connectivity from ridge to reef. Because it's more than that. He was really struck this past week or so following Idalia which tracked right up the eastern Gulf of Mexico and sucked a lot of heat energy out of the eastern gulf. Sea surface temperatures dropped 2 and a half degrees Celsius throughout the eastern Gulf and a lot of that water was in the southward flowing leg of the loop current and you could sort of predict where it was going and then watch it day to day. It flowed south into the western Florida Keys and then around into the Gulf Stream. Around the outer keys in the southeast coast it leaked into Florida Bay and throughout the bay except the uppermost bays and sounds. The idea that these reefs being not just connected to the terrestrial environment, but also being connected to one another and of course being connected to the broader global climate for things which are driving the sea surface temperatures in the first place. That makes the job of this group the most difficult one he can imagine as well as the most important. He is excited and optimistic that this group can take on that challenge.

Wes Brooks recognized Dr. Luke McEachron from FWC and noted that he is the lead author of one of the reports they have been using to integrate all the monitoring activities within this framework. Dr. McEachron said they are there in the crowd to talk about data and they have maps and anything this group needs for support. They intend to attend future meetings as well.

3. Meeting Summary Approval

The summary from the February meeting was provided. CJ Sweetman made a motion to approve which was seconded by Laura Eldredge. There were no objections, and the summary was approved.

4. **Comprehensive Everglades Restoration Plan (CERP) Biscayne Bay Coastal Wetlands Phase 1 Project**

Cassondra Armstrong introduced Bahram Charkhian, lead scientist within the Coastal Ecosystem Section, who has put his heart and soul into the Biscayne Bay Coastal Wetlands CERP project. He is a guardian angel for that project and has done a fantastic job.

Bahram Charkhian said he is responsible for assessing the restoration benefits of the Biscayne Bayne Coastal Wetlands Phase 1 Project. He recognized several agencies that have been working side by side with him on this project to include Miami Dade County, Miami Dade County Parks and Recreation, Everglades National Park, Corps of Engineers, FDEP, Florida International University, and Fairchild Tropical Botanic Gardens. The project has three components (Deering Estate, Cutler Wetlands, and the L-31 E Flow-way). They have completed construction and initiated operation on the Deering Estate component and the other two components are under construction. The goal of this project is to restore the quantity, quality, timing, and distribution of fresh water by diverting the water through a series of pump stations along the shoreline and diverting it in the form of sheet flow to the coastal wetland and near shore to improve the quality of water. They have a monitoring program for completed component and do baseline monitoring for components under construction. An in-depth presentation was provided on the project which is performing as intended.

Erik Stabenau noted the excitement in having sawgrass, a freshwater species showing up in a place where they did not have it before. At the coast they are taking this water and moving it directly into the bay right out the large canals, moving it across into these culverts and into these wetlands. That's nutrient reduction going to the bay. This project is wonderful, and he appreciates Bahram's work.

Allyn Childress noted the Task Force has 3 Strategic Goals:

- Goal 1: Get the Water Right which includes the hydrology as well as water quality.
- Goal 2: Restore, Preserve & Protect Natural Habitats & Species including coral reefs as well as address invasive exotics.
- Goal 3: Foster compatibility of the Built and Natural Systems and the example of that is seeing the canals that were constructed to benefit the suburbia are now being reimagined for the natural environment.

This hits all three goals and the intergovernmental capacity and cooperation that the Task Force is all about. Wes Brooks agreed with everything that was said and added that it is one of the few sites small enough and near enough to people where they can see Everglades restoration progress. He thanked the Corps, SFWMD, and Miami-Dade County for making this project a huge success.

Wes Brooks noted they have had a very good response rate and a lot to think about both from the last meeting and the online homework. They have 2 documents, the Framework document itself and a working "thought" document.

5. Draft Monitoring Framework

Joanna Walczak provided a high-level review of the comments received on the "thought" document. Background comments - while they all agree that this is an important strategy focusing on water quality, the goal of this group is to develop and recommend indicators for the RECOVER group to consider. Implementing into the broader restoration strategy. There were multiple comments that while water quality will get them part of the way, they need to have ecological monitoring upfront to effectively get there, otherwise they are just going to have uncoupled data that won't allow them to get to the actual charge of this group. They need to start looking at whatever biotic data they would want to include in the framework as they are thinking about water quality and its impacts. Part of what also was commented is that they do have a significant lack of modeling resources for the region as it relates to

this interaction of the estuaries to offshore. They need to understand these systems a little better. They don't want to just look at these small snapshots but at the broader area. There are many opportunities to leverage things that aren't even related to anything they would normally be thinking of and harness some of those things like harmful algal bloom monitoring.

Gina Ralph, regarding the second bullet (under Background), said the time is now for comments on BBSEER, they are headed into their final round of alternatives. Gina will send the information to this group for review and recommendations. This group should have the opportunity to comment. Joanna Walczak added that BBSEER currently has a provision for reuse, however, there's no firm decision upon inclusion. If included, they'll need additional sampling beyond just the standard water quality parameters.

General Approach

Quite a few folks called out the fact that they need to include a statistician upfront. They want to make sure that they can have confidence in the data they use to make decisions. They also need to include the development of conceptual ecological models (CEMs) and hypotheses clusters. These are tools that are used by the RECOVER group for the broader effort. They need to either develop those or revise the ones that already exist. They were developed almost 15 or 20 years ago for Florida's Coral Reef, and they might need to be tweaked and amended so that they fit cleanly with this. It's a perfect place to at least start the conversation. Some suggested they need to understand the performance measures and ultimate indicators of success. Many highlighted the need to continue working on what is in their Charter to include working with the stakeholder groups that are already working on water quality issues in the areas within the Florida Keys and the coral reef ecosystem conservation area. There were multiple comments that they need to think about what happens if change is detected and whether they need to identify an adaptive management step at this point. Is it the charge of this group to identify what those adaptive management steps would be or does this group make that recommendation to RECOVER?

While they hope to be able to unify all these water quality monitoring programs across all these different entities, the reality is that there are many different goals and many different plans in place for how these things are monitored and why they're monitored in certain ways. Folks might not be open to changing those to meet this group's recommendations for consistency. They need to try to automate the formatting of the data in a way that would allow this group to harness all their information without it being a burden on those folks running those programs.

Chris Kellogg – when she was reading through this in preparation for the meeting, what should we be monitoring and wondered if they couldn't repurpose other efforts. NOAA has done a great job up in the Chesapeake where they've developed models where they can use salinity and temperature to predict a microbe that is an issue both for infecting open wounds but also shellfish and other vibrios are opportunistic coral disease pathogens. If they are putting new water into the system and it is changing the nutrient regime and changing the salinity and they have a temperature problem, will this cause a vibrio bloom that might in some ways also impact coral health.

Joanna Walczak – said that's a great example of what they are ultimately trying to drive towards, let's look for things that they don't currently package together in that way. Chlorophyll, for example reacts faster than anything else, although it is not necessarily a super great indicator of what's happening on

the bottom. But if they have enough information to know that the water is mixing enough, they can potentially use satellite data to better understand what's happening when they can't do monitoring at every location.

Step 2: Design a monitoring program to detect changes in water quality along the coastal marine environment attributable to Everglades restoration and freshwater management system-wide changes.

Generally, everyone is on the same page, talking about the linkages. They might have to establish a step 1 to focus on what the detectable change from the Everglades projects will be then step 2, how do they detect change on the reef because it's going to be a very complex conversation. They may need to do this in a phased approach. There was a comment about monitoring associated with human health such as cyanobacteria and E. Coli, etc. That's an interesting perspective but would like to hear back from the group on whether this is out of their bandwidth or if that's still within our charge. It's at least an interesting perspective to look at other data that's out there. The FWS provided some interesting information about a project happening down in the wildlife refuge in the Florida Keys.

Moving to should we also consider other planned operational changes? Yes, and they also need to consider sea level rise. Drainage and flood control involve water and influence water quality and there was strong support for that. Generally, folks support region-wide monitoring to capture project changes but not project specific monitoring and think this should be a broader framework that would allow the data to be more broadly used for everything else that's out there.

Erik Stabenau noted this is something they're also struggling with in the restoration program because much of their individual projects have their monitoring programs that are established with the project but do not have funding to support long-term broad multi-project monitoring efforts. Just coordinating on exactly what parameters and locations they should be doing that in and tying that together is difficult to set up. RECOVER has this important aspect of tracking the overall performance of the Everglades restoration program. This group needs to be aware they may not have as clear funding and support for the general monitoring as opposed to the targeted specific monitoring within an individual project footprint. But that doesn't mean that they can't have feedback on the project and get the project monitoring to match the broader need.

Step 3: Crosswalk the monitoring needs identified in Step 2 to the existing programs identified in Step 1. Is there meaningful value in other datasets not already identified in Step 1? Yes, there are projects that are designed to identify specific questions and to incorporate the data from those projects. They must understand why they were designed in a certain way, and they might inform how we design ours. Should we limit this framework to just water quality or look to link where possible with biological or ecological monitoring? It was a resounding yes. Do we need to better understand the original objectives of existing programs? A strong resounding yes, it's imperative that they understand the original objectives.

Step 4: Implement recommendations to monitoring programs to detect change from Everglades restoration and to inform upstream and Florida's Coral Reef restoration activities. There was a thoughtful comment about designing the framework for this effort needs to consider all the different types of ecological indicators that could help us identify the type of thing they want to evaluate and whether it is the long-lived species versus the short-lived species. What is it that they really want to aim for as they look at detecting change in the system? If they want to generate additional value for

adaptation and adoption of this framework, they're going to need to generate value for the other institutions to buy into this program. That naturally comes from just the collaborative nature of them developing it together. They can add in what they think is the most valuable as they move forward.

Wes Brooks noted that a group of volunteers took a crack at that document and tried to work in all those comments and sort of reshape the character of the document to reflect those comments. Right now, they have a very strong narrative that brings together the goal of this team and what this monitoring framework is trying to accomplish in the context of both Everglades and Florida's Coral Reef restoration. They laid out more clearly what questions the framework is designed to answer and what those questions are. That's right up front and very clear. Then they moved a little bit away from the stepwise approach, which is very structured and sequential into really a different framework with priority focus areas looking at specific objectives within each kind of grouped focus area and then laying out some actions that this group could either take directly or help to facilitate to achieve those objectives. His goal for the remainder of their time is to try to go through and review this document and try to come to agreement on those focus areas, on those objectives, and on those actions. This will be their roadmap for continued work on fleshing out the framework. They will have very clearly defined expectations for themselves as they developing products associated with it. In the end, they will have a very strong, comprehensive framework for what data and how that data supports their conservation and restoration efforts here.

Gina Ralph acknowledged that invasive species are important, but it wasn't part of the original CERP framework. They have now included it in our updated conceptual ecological models and hypothesis clusters, but if you're sticking with WRDA language, invasive species is not included. Wes Brook said they will find a way to include that in there as well.

Wes Brooks reviewed the draft Monitoring Framework noting that it reflects a comprehensive and iterative approach built around four priority focal areas to structure data collection efforts and the evaluation of available evidence to answer the following three questions:

- Can we detect changes in nearshore water quality as a result of Everglades restoration's hydological improvements?
- If so, how do those changes affect coastal habitats and ecosystems, such as seagrass beds and coral reefs?
- And, ultimately, do those ecosystem responses manifest in measurable benefits for neighboring human communities?

CJ Sweetman asked whether they are considering maybe something beyond seagrass beds and coral reefs as their ecological indicator. Wondering if that is represented currently in the way that these questions are structured and maybe it might be appropriate to add some language for number 2.

Erik Stabenau said it was a great question and using "such as" an example, is that setting it up for the reader to think more broadly or do they need to be more specific or explicit about thinking more broadly about it. He hasn't asked the question, but it's an interesting point that same concept shows up between the first and second bullet in terms of defining "nearshore" and where those ecological things fit that connects with part of their life cycle up in mango roots and the rest of it out on a reef and those type of connectivity across the system. They should pay attention to see if they are being broad enough to bring those other connections in.

Gina Ralph asked how they would quantify those benefits for the third question. Do they have performance measures to quantify measurable benefits to neighboring human communities.

Wes Brooks said he does not believe they have that yet but thought it's important to lay out that point. They all love the Everglades, they all love the reefs, but the only reason we're all being paid by their respective agencies to sit there and do this is because those systems have an impact on human communities and at some point, their success is going to be measured by the benefits to those communities. Even if they don't have the answers today it's important to lay that question out.

One of the members said that on the west coast, Charlotte Harbor and Tampa Bay are doing new economic impact estimates and assessments for sea grass beds and whatnot. There are data sets that they can kind of base some of those ideas off.

Dana Wusinich-Mendez - going back to CJ's question on the second bullet, wondering if just simply adding "and the species that rely on them" is a little more inclusive so that they're not just focusing on habitats but also potentially choosing some indicator species.

Erik Stabenau said it seems like they're connecting with conceptual ecological models and hypothesis clusters they were speaking about earlier and that is something they could dust off and look at.

Wade Lehmann wanted to go back to Gina's point, a good one, for question 3, there is a big focus with this administration on environmental justice and there are a lot of tools out for deciding which communities fall into that category. They could then take her question and relate it back to where those populations occur. Not only is it beneficial for this group but it would be beneficial for the program at large to help define what those benefits might be. EPA has a tool, and the White House has one as well.

Ian Enochs asked whether they care about coral communities that are not coral reefs in the geological perspective. He would argue that there are many hard bottom environments where they are in danger or Endangered Species Act (ESA) listed corals that will be strongly impacted by these activities, and they should not forget about that.

Wes Brooks replied that part of how they untangle that knot is by going back to their charter language which specifically spells out coral reefs and associated habitats, which includes mangroves, seagrass, and hard bottom, and they can make mention of species or populations as well. But this might satisfy everybody on number 2.

Erik Stabenau said that just tracking all the notes on this he thinks they will end up with a document that's tight and not exceptionally wordy, again trying to get to the concept of capturing those broader considerations. Having the bulleted approach at the top level and then bringing more detail further down where it's appropriate under the priorities and objectives.

Laura Eldredge, going back to the comments that Joanna made, coral health mortality and question number 2, asked whether they are thinking about how the changes are affecting the health of these habitats and ecosystems. If they're going to have statements later thinking about potential thresholds, indicators, do they want to frame it as early as this question?

Wes Brooks said his initial feeling is that it will depend as they go through the focus areas and the objectives, whether health is of part of all of those or not. If it isn't, then, maybe they want to call it out in specific objectives rather than up top. Health is subjective and they need to be careful about how

they want to define that. For bullet number one, he thinks they are missing the word “anticipated” between Everglades restorations and hydrological improvements. This document will be sent around one more time with these changes incorporated. If the changes are relatively minor, maybe they can advance the document before the next meeting.

Mark Raines, on the first bullet, said this is going back to this idea of having a conceptual framework and hypothesis clusters guiding this, which he thinks is a really good idea but what he is not seeing in here, is that there are basically 2 kinds of considerations, like sea level rise and there’s pulses which would be storm surge, not a water quality element, but both important to think about.

As it reads now, looks like they are going to restore the Everglades and they anticipate there will be hydrologic benefits, which leads them down the pathway of doing a status and trends type of approach, which is perfectly valid, a big important part of it. But there's going to be pulses, short-term excursions, higher salinity, or a heating event that are equally important and maybe more so in some cases. He suggested adding that to that first one. Can they detect long-term trends in short-term excursions in water quality to formally state that they are interested, not just in status and trends, but also in some continuous monitoring.

CJ Sweetman said that's a really good idea. From what they have seen in the summer, sometimes these short pulses can be more impactful to some of the broader conservation efforts that they are trying to deal with coral reefs right now.

A member suggested making this very broad to say “spatial temporal changes” which is basically any changes from anything.

Priority focus: Inventory Existing Monitoring Programs

Wes Brooks noted they have already done a good bit of this in previous meetings.

Objective 1: Inventory existing water quality monitoring programs along Florida's coral reef and near shore coastal waters of South Florida. That objective has three actions.

Cassondra Armstrong brought to everybody's attention that there is a parallel effort being conducted by FIU to develop a broad water quality database for the Biscayne Bay area and off coast. She could provide contact information for that effort.

Dana Wusinich-Mendez, for the third bullet, recommended substituting the word programs with methodologies. Wes suggested programs or methodologies adding that this group has zero power to eliminate any programs. They are not looking to do that and are trying to identify and harness the ones that fit.

Objective 2: Inventory existing biological monitoring programs related to coral reef, hardbottom, seagrass, and mangrove communities. That objective has two actions.

Wes Brooks explained that what they did with that was essentially create an objective to essentially parallel what was happening with the water quality monitoring and maybe they can just standardize some of that language throughout.

Gina Ralph mentioned that RECOVER just went through an exercise where they surveyed all the Science Coordination Group team members to provide their monitoring for use in a workshop that they hosted

back in July. They had over 754 entries and she was happy to provide that to this group as a starting point. It does not include any of the hard bottom information, but it does include sea grass, water quality, hydrologic monitoring stations, and a lot of information that that could be useful.

Priority focus: Define an effective monitoring program or Methodology to detect changes on FCR attributable to Everglades restoration.

Objective 1: Develop a list of appropriate parameters for FCR monitoring. This objective has two actions, one of which is ensuring standard operating procedures from the Florida Department of Environmental Protection are met where appropriate.

Joanna Walczak explained there are 2 types of data out there, manager level data that is used for management decisions, and then there is regulatory data with a much higher bar that must hold up in court. If they are monitoring water quality and not adhering to the SOP needed at this high level, they can't use it to affect change. She recommends that anything they consider moving forward adhere to those SOPs if they exist.

Nikki Morgan said she is pretty sure a coral monitoring SOP does not exist. For the water quality data, there are some standard procedures that are pretty well written out.

Gil McRae, FWC, said that there is a career worth of work in this objective. It is not reflected here, but they need to recognize there is sort of a tiered approach here. There are basic water quality parameters that are easily sampled and don't require specialized laboratories. They have a decent understanding of how they might affect coral reefs, temperature, salinity, turbidity, those kinds of things. Even nutrients which are relatively easily sampled but typically you need to send to a lab with standardized procedures, it's not always clear on how dissolved nutrient concentrations taken at a point in time is going to impact even seagrass let alone coral reef. They can think of the potentially difficult things to sample and analyze such as pharmaceuticals and other elements that we don't really have the science built yet to even standardize, let alone determine the impacts. There is a tiered approach that is going to be pragmatically necessary when they start trying to tackle this.

Erik Stabenau noted they've had several prioritization efforts over the last couple years, and he wondered if they have developed a list of appropriate parameters. Right there, adding the word prioritization comes into it. If that might start to capture what we're looking for. Hopefully somebody captured the rest of those ideas to narrow it down, so they get the meatier answer behind that.

Wes Brooks agreed with Gil and reminded folks that part of the reason why the document is in the format it is now is because we can lay out those objectives here and start tackling them on the side. The way he ultimately envisions this working is if they approve this roadmap, eventually there will be a document that they continue working on that will be linked specifically to this objective and could contain a tiered approach or however the team wants to do it. They may want to go more broadly than this team to seek those answers and responses.

The WG and SCG and RECOVER often do workshops and that's certainly an option this group could consider in the future to tackle something that is detail intensive.

Deb Drum said she liked the focus on monitoring. She thinks all the ideas on paper are great so far. But with this conversation, there's kind of the implication that the data will be used to consider or create

some additional or different regulatory responses. If that is the case, she was not sure where this fits in because it's and a very large part of resilience question. But she thought they need to ask themselves whether the regulations governing coral protection and endangered species and the regulations governing shoreline protection compatible.

Wes Brooks said his first reaction is that it's outside of their charge. They report all this information up to their respective agencies, the WG and SCG and ultimately up to the Task Force. The work they do in developing this framework and the data that comes out of that will ultimately inform some of those responses on a policy level and so he thinks in some ways that's inherent to all of this. Don't know whether this group will be directly involved in that.

Deb Drum said it's really important for this group to keep that in the backs of our mind and kind of under and figuring out if you are coming up with monitoring that we can understand the full picture, so they have the parameters that they need to help inform that policy decision.

Wes Brooks agreed, stating that it may be as much about thinking about policy as just expanding their available data. They have major coastal construction projects happening around the state and in this area, the most developed portion of Florida and it's a missed opportunity every time the monitoring associated with one of those projects is not sufficient in quality or quantity. They need to seize every opportunity when data is being collected. Hopefully they will develop this framework to guide folks to that path.

Angela Delaney noted that for the nourishment projects that are occurring, there are SOPs that are required with FDEP. Looking at this objective and identifying the biological monitoring programs, she has mentioned it before in previous meetings that there is some framework that exist, and it just needs to marry with what they can come up with additional monitoring. Like Deb said, make sure that they are looking at the compatibility of the regulations, knowing that SOPs do exist.

Objective 4: Identify Everglades restoration projects, water management activities, and operational schedules that may influence water quality in the biological or ecological characteristics of Florida's coral reef and associated marine habitats. Two actions associated with objective 4.

Wes Brooks pointed out that they do need a little bit more consistent language. Previously, they said physical chemical and biological data. They talked about biological monitoring before, now they're saying biological or ecological characteristics. They just need to sort through that and be consistent in how they approach that and additionally in terms of the habitats they said, Florida's Coral Reef and associated marine habitats, they didn't spell them out this time and this needs to be cleaned up.

Laura Eldredge said to categorize the potential for individual CERP and non CERP projects, as previously mentioned during the discussions on BBSEER, they are now moving forward with thinking of how they're impacting together. She suggested potentially individual and cumulative because they understand there are going to be cumulative effects across CERP and non-CERP projects throughout the region.

Objective 5: Propose conceptual ecological models and hypothesis clusters for FCR. Two actions were proposed for this objective.

Wes Brooks commented that the specific actions involved with that objective, which would again support their charge in terms of ecological indicators, are also seen in objective 6. He thinks those were drawn heavily from how RECOVER and some of that basic Everglades modeling work is conducted.

Gina Ralph said that RECOVER just went through a very robust exercise of updating all their conceptual ecological models and hypothesis clusters which were presented at their July workshop and all that information is housed on the EvergladesRestoration.gov website. She clarified that there is not a conceptual ecological model for Florida's coral reef and that will need to be developed by this group.

Joanna Walczak stated that the existing CEM, NOAA funded through the MARES project back in 2010.

Gina Ralph commented that at some point, it might be good to provide an overview of RECOVER to this group and what the roles and responsibility of RECOVER are. They are mandated by WRDA 2000 as well as the Programmatic Regulations and they are CERP only and where CERP affects changes to the environment. They can lend information, resources, data, and tools to other endeavors but as far as including this in RECOVER's Monitoring and Assessment Plan, they have resource constraints and priorities that focus primarily on those terrestrial and near shore environments. RECOVER is not a decision-making body, and it offers recommendations to the CERP implementing agencies, which are the US Army Corps of Engineers and the South Florida Water Management District.

Erik Stabenau noted the conversation the prior day on these conceptually ecological models and hypothesis clusters and getting the monitoring right to detect the key features within those clusters and being aware of other factors that could adversely impact the monitoring. The example used in the meeting was related to invasive species, potentially having an unexpected impact on a particular performance metric that they are tracking over time. They could have a variety of errors when interpreting the data. When looking at Objective 5, we have these models and hypothesis clusters he can picture them on a page and where the performance metrics come in and we have performance metrics and observations in another objective set, he wants to make sure they are connecting the dots and there are no missed opportunities.

Gina Ralph offered to provide an overview of CERP's applied science framework, how they utilize conceptual ecological models and hypothesis clusters, how they have identified indicators, and how they've used their monitoring program to inform planning, design, construction, implementation, and operations.

Wes Brooks said that RECOVER has established such a well-respected process that is well understood in the Everglades world and emulating that for the reef makes a lot of sense.

A member commented that since they have moved from that linear process to these models and clusters and indicators that will also help them go back to objective 3 and figure out the parameters they need.

Wes Brooks said that whatever they adopt here and then flesh out, eventually this group or a future iteration of this group can then follow the same roadmap to update all this work based on what's come out of it.

Objective 6: Propose ecological indicators for FCR with two proposed actions.

Wes Brooks noted Joanna previously made a comment about pink shrimp and whether that was something that might be useful for the reef, even though that's not something that they are actively funding right now but maybe one day it will get funded again. One of the charges of this team is to propose ecological indicators for the reef. It is up to the SCG for potential inclusion in everything they do.

Gina Ralph said the ecological indicators will be the attributes in your conceptual ecological model, and you'll just have to identify which of the suite of attributes will be the priority for inclusion in the report. Wes Brooks asked whether Gina recommended combining those 2 objectives or whether to let the attributes stand on their own. Gina replied that they will have to have a conversation centered around which ones are going to rise to be an actual indicator that's reported on in the stoplight report.

Priority Focus: Identify monitoring gaps.

Objective 7, Define pragmatic changes to existing monitoring programs or implement data solutions that would improve data interoperability and enhance utility while preserving original program aims with two priority actions.

Wes Brooks said they have a little word smithing to do here. No comments.

Objective 8, assess the extent to which pragmatic changes to existing monitoring programs would yield an effective monitoring effort across FCR. Conduct a gap analysis to determine what is still needed to detect Everglades restoration signals that cannot be captured by existing programs even after adjustments within those programs are accounted for.

No comments.

Priority focus: Develop, track, and support implementation of consensus recommendations.

Objective 9, issue consensus recommendations to unify and enhance monitoring efforts. The actions involved include drafting, said recommendations, and then presenting those recommendations for approval through appropriate task force mechanisms.

Wes Brooks said they have some work to do to figure out exactly what that would look like, but certainly reporting it up to the WG and the SCG.

No comments.

Objective 10, facilitate implementation so they will look to identify opportunities for new resourcing and partnerships that enable utilization or expansion of existing monitoring efforts or inception of new monitoring efforts in line with recommendations. They will lean on partner agencies involved in this effort to help with that. Other actions include devising strategies and schedules with key agency partners to fill remaining monitoring gaps. Highlighting implementation progress through appropriate Congressionally mandated Everglades restoration reporting products. Lastly, work with the State of Florida to incorporate recommendations into its coral reef action plan and monitoring requirements associated with permits and grant agreements. Effectively implementing the recommendations which will remain the purview of the state and its agencies to do.

Dana Wusinich-Mendez said that the coral reef action plans are a requirement of the newly reauthorized Coral Reef Conservation Act and they are working on a process that's stipulated in the

legislation to define reef management units of ecological significance in conjunction with state, federal, and territorial partners. After they have consensus and agreement on what those reef management units are, then there's the opportunity to develop these coral reef action plans for the reef management units. They will then pull partners together to agree on priorities for implementation in those reef management units and access different grant programs that are currently being stood up and are defined in the new reauthorization. For example, it enables the development of stewardship partnerships focused around those reef management units and these stewardship partnerships can come together representing multiple organizations and access stewardship partnership funding.

Joanna Walczak stated that at this point, because the state is still developing the strategy, they are going to take the priority planning documents that are already in place. This group is new, and they want to make sure that this group is incorporated into whatever is developed as Florida's Action Plan.

Wes Brooks asked whether they should list the federal agencies involved in this in a general fashion. Joanna Walczak said that's a great idea, however, she was not sure how the federal family feels. Wes Brooks said that it wouldn't be tied to the Reef Action Plan but potentially some of the requirements.

Dana Wusinich-Mendez added that since it was specified here that the recommendations would be incorporated into the Coral Reef Action Plan, then that is an opportunity for state and federal managers to work together. They don't know at what level those action plans are going to get developed at this point. They are trying to come to agreement on what makes sense in Florida in terms of these ecologically significant reef units. The Florida's Coral Reef Resilience Program and the Executive Coordination Team and steering committee are meeting the following Friday to discuss options. It could end up being one plan where all the resource managers are coordinating together to develop that Reef Action Plan at a system-wide level. It would be implicit that if they are trying to apply the outcomes of this process to that plan, they would all be working together on that.

Eric Stabenau said he didn't have the authority to speak on putting it in here with a specific implementable action, but he was comfortable saying that they are working to coordinate together. Coordination is an important term that they can put in. They are also putting this forward as a framework that'll go through some review and approval process. There will be plenty opportunity to get this language right. At this point, he suggested that implementation will require some state, federal, Tribal, and other partnerships.

Wes Brooks noted the charter language for the WG, SCG, and this team essentially says that no decision made by any of those bodies constitutes a requirement for the associated agencies to take any action. They don't have that authority in the first place but suggesting that folks continue to work together is a good thing.

Erik Stabenau said he was struggling a little bit when they got to objective 10 as to how long they will be implementing for, when do they look at the implementation plan a second time, what's the review cycle associated with this and so on. Going back to the original document at the top, they were talking about this in a general concept and were being soft on things like putting a specific time or date or dollar amounts or even the number of stations. It's intentionally kept at a high level looking at what the monitoring framework needs to look like and what their overall objectives are. He believes the funding cycles and other actions will cause there to be a periodicity that that happens down the road from this document. Put it out to the group for consideration.

Wes Brooks added that part of why he likes the current way this document is structured is by breaking up those objectives cleanly and clearly and having them be separable elements that this group or future group could go in and adjust as needed. It wouldn't have to be a revamp of the entire framework at any given time. Next step is to send this document back out to everyone with the comments they have discussed. Give folks about a week or two to look it over and then perhaps put it up to a virtual vote on whether they try to present it to the WG and SCG at the next opportunity and get their feedback.

Public Comment

Mark Perry commented on the north section of the Florida reef track, which is in Martin County, specifically the 5 miles south of the St. Lucie inlet which are some significant reef habitats. South of the inlet is the St. Lucie Inlet State Park Preserve Reef which is about 5 miles long and includes 21 corals, about 100 invertebrates, 23 agal, 250 fish species, and 4 sea turtles. It was recognized back in 1982 when he was out diving with others like Walt Chap, John Hallis, and John Reed. There are significant reef resources and is the northern limit for a lot of hard and soft corals. Recognizing that, John Reed proposed it be a National Marine Sanctuary, and it was on the site evaluation list for many years. The concerns they have for the reef have to do with CERP. He has been involved with CERP planning since 2000. The IRL-South plan has 2 components of which will attenuate flows and loads of nutrients and others to these outside reefs. The operational planning of CERP, which is inclusive of the Lake Okeechobee System Operating Manual (LOSOM) or the Lake Okeechobee Regulation Schedule. As they've worked through the LOSOM process, their objective is to minimize or reduce to zero the harmful discharges that happen not only to the St. Lucie Estuary and IRL but as they flow out over this nearshore reef system. This has been very well documented over the years and they have all probably seen aerials from time to time showing large plumes over the track. The two things that come to mind is salinity and the nutrient loading. Martin County, consulting with FDEP's Coral Reef Program staff, did a study and they came up with two thresholds for salinity over the reef. From March to October, the surface reef levels salinity should not drop below 33 parts per 1,000. And then the rest of the year, November through February, the bottom level should not fall below 30 parts per 1,000. Those are the criteria thresholds for the spawning in the spring and summer months and the adults in the November through February timeframe. The study found that there were many times that it went to 20 to 24 parts per 1,000 over the reefs when they get large volume discharges from Lake Okeechobee and others. The salinity right now in the outer estuary are about 20 parts to 25 parts per 1,000. The water temps are around 86-to-88 °F. They also found that discharges or releases from the St. Lucie Estuary and Lake Okeechobee, if above 1,000 cubic feet per second would really provide impact to the reef environment by lowering these salinities. Lake Okeechobee has been studied a long time and from 1980 to 2015 a 36-year period record, the average inflows to the St. Lucie from Lake Okeechobee were 71 billion gallons. Containing 493 metric tons of nitrogen, 46 metric tons of phosphorus, and 8,160 metric tons of total suspended solids. There have been a lot of recent studies to include one by FWC in 2012 to assess stressors. He didn't want to belabor the issue but wanted to stress that it is a real ground zero there. The sabellariid worm reef north of the inlet which is a mile long is a very unique reef system as well and these exist from Cape Canaveral to Brazil and this is one of the world's best examples of that. That is also covered under the Coral Reef Protection Act. This is a critical site, and they try to protect the reef from other human impacts.

Mike Elfenbein (online) said it was impressive to see what this group was able to come up with collectively. Two things that he thought were worthy of mentioning as Wes went through his

presentation. On objective 4, identify Everglades restoration projects, water management activities and operational schedules that may influence water quality and the biological or ecological characteristics of FCR and associated marine habitats. He thought there'd be an opportunity to address a decades long conversation, about water coming south of the trail at the S-12 structures. Also, in consideration of recent suggestions that sparrow protections will have impacts on BBSEER. These coral reef systems are just as important down in the Keys as they are off Miami Dade, Broward, or Palm Beach County. He thinks there's an opportunity to use this framework to finally address that issue once and for all and try to alleviate it. As for objectives 7 and 8 and how they tie into objective 10. He wondered if there's an opportunity to incorporate some outside of the box thinking, recognizing that the resources are short. Is there an opportunity in using diver's groups or sportsmen's organizations or other people who are on the resource daily to help with monitoring and data collection. Perhaps they can use this program to facilitate some new metric or create some kind of program that doesn't corrupt the scientific processes but still allows them to collect additional data from people who might be in the same place daily. To help complement the data staff and resources can collect.

Next Steps, Assignments, and Closing Comments

Wes will work with Erik and Allyn to get the document cleaned up and out to everyone. Then they will decide on moving it forward to the WG and SCG.

Meeting adjourned at 3:56PM