

**Minutes - South Florida Ecosystem Connectivity Working Group
November 15, 2022**

Attendees: Karen Bohnsack, Jerry Lorenz, Shelly Krueger, Cara Capp, Erin Muller, Caitlyn Bozza (FDEP), Brian Cumbie, Emma Haydocy, Suzy Roebling, Steve Blackburn, Chris Bergh, Steve Friedman, Paul Julian, Tylan Dean, Gina Ralph, Luke McEachron, Kelly Cox, and Jim Riley

Absent: Jolly Benson, Adam Gelber, Nick Parr, Steve Davis, Amelia Moura, Joe Weatherby, Mike Goldberg, Chris Madden, Matt Semcheski

November 15, 2022 Action Items

- **Action Item 1:** Tylan can share FWRI report on localized seagrass density in Florida Bay and recovery and links to satellite imagery.
- **Action Item 2:** Future potential actions by this group: 2023 Florida State Legislative session – state planning board specific to development impacting the Everglades
- **Action Item 3:** Gina Ralph can send information about the BBSEER meeting this week
- **Action Item 4:** December 13 and 14, there will be a two-day SAC meetings in Marathon for the Restoration Blueprint. Karen can share information on how to attend.

Agenda:

10:00am Welcome, Introductions, Administrative Items (15 min)

Jerry Lorenz called the meeting to order at 10:03 am. Welcome remarks by Jerry Lorenz. Karen with roll call and housekeeping. Caitlyn Bozza introduced herself, she is in a new position within FDEP as the Water Quality Protection Program coordinator.

10:15am Florida Bay Algal Bloom (1 hour) by Tylan Dean

Tylan Dean is the biological branch chief at Everglades National Park. He provided an update about the current algal bloom in Florida Bay. The title of his presentation is “Florida Bay phytoplankton booms: work in progress, a history of the algae blooms since the sea grass die-off of 2015.” *Synechococcus* is dominant genus of cyanobacteria responsible for blooms in Florida Bay.

(Reference: Berry et al. (2015) “Shifts in cyanobacterial strain dominance during the onset of harmful algal blooms in Florida Bay, USA Link: <https://pubmed.ncbi.nlm.nih.gov/25661475/>).

Synechococcus Clade III is dominant and common in Florida Bay (phycocerythrin). During blooms, Clade VIII become the dominant clade (phycocyanin), which can tolerate lower salinities and form a mucilaginous polysaccharide that is resistant to zooplankton grazing. These *Synechococcus* are the same genus, but different clades. Blooms of Clade VIII causes light attenuation with impacts on seagrass densities, sponge mortality, fish and lobster mortality, changes to the zooplankton community (reductions to predatory zooplankton), and frequently hypoxia.

The 1987 and 2015 seagrass die-offs led to algae blooms within central Florida Bay especially. The National Park Service has 77 sites monitored every other month: Temp, DO, salinity, pH, Secchi disk, FDOM, *chlorophyll a*, turbidity, and nutrients. FWC performs flow cytometry, pigment analysis, and some phyto ID. Hurricane Irma had significant effects – disturbed and transported a lot of nutrient laden soil, suspension of sediments and nutrients, defoliated mangroves, mangrove die-offs, and deposition of organic material into Florida Bay.

Fall 2017: Upper Florida Bay in the central basin, post-Irma, had very high recorded chlorophyll levels that continued from SEP 2017 to January 2018, although reduced in size from September levels into wintertime. Upper middle basin has recorded high chlorophyll levels especially in September.

2022: Elevated chlorophyll levels began in May and persistent through September. Hurricane Ian occurred at the end of September but last sample collection was September 12-16, prior to Hx Ian. Using satellite imagery from NOAA and USF shows low bloom concentrations in central upper Florida Bay persistent from October 15, 2022 through at least November 13, 2022. Due to staff shortages, may rely more on satellite imagery with limited ground truthing onsite for efficiency in the future.

The National Park Service is using a continuous monitoring YSI EXO *in situ* data sonde to measure *chlorophyll a*, dissolved organic matter (FDOM), and salinity. DOM point sources include East Cape canal, House Ditch, Slagle Ditch, smaller creeks, Alligator Creek, and McCormick Creek, that contribute tannic water and transport nutrients from the land. Tylan showed data from September 2017 for *chlorophyll a*, total nitrogen (TN), total phosphorus (TP), and total organic carbon (TOC) and May 2018, which had decreased levels. Unfortunately, mangroves not recovering well post-Hx Irma and anaerobic decomposition/sulfide toxicity killed many new recruits through suboptimal conditions. The upper basins may be slow to recover due to lack of healthy mangroves in that system and excess decomposition without uptake. Looking to restore mangroves in some of those areas, especially Snakebite for nutrient uptake.

Bloom Summary: algal blooms appear related to seasonal hydrology. Blooms are harmful but not toxic. Garfield Bight is the epicenter of the blooms, followed by Terrapin Bay. Elevated nutrient concentrations trending with timing and location of blooms. Blooms will probably continue.

Question and Answer:

Mangrove restoration in NPS – still in preparation, likely plantings since there are plenty of propagules. Likely small scale at first. May focus on the middle of basins that mangroves are still not recovering compared to other areas. Some evidence after Hurricane Donna, the mangroves never recovered to previous densities (1960?).

NPS recording DOM at higher levels than baseline in portions of the year. Nutrients are essential, but too much nitrogen and phosphorus in coastal systems can lead to eutrophication and algal blooms, and shifts on the trophic levels using these nutrients.

Q. Did Hurricane Ian help with anaerobic conditions? A. Have not seen too much of a signature so far from Hx Ian. Contributed to a lot of water movement.

Q. Estimate of mangrove dead zones? A. First assessment following Hx Irma was 50 square miles of shoreline mangroves throughout Everglades fully defoliated but recovery occurred at different rates. Slowest near Snakebite and Terrapin, and to the east of Flamingo. Cape Sable to Flamingo slow, but then have recovered but density is variable and patchy.

Q. Satellite imagery – influence out to the coral reefs? A. Have seen the flow out to the reefs from the central portion to southern end to the reef tract. Have seen flow through tidal passes from central Florida Bay, Lignum Vitae, and even Big Pine Key out to the reef.

Q. New seagrass die-off in 2022, e.g., is current *Synechococcus* bloom killing seagrasses? A. There has been some smaller to substantial localized seagrass die-off but not necessarily correlated with the bloom.

Q. Any documentation of how much seagrass remains? A. FWRI has a report that Tylan can share. Seeing recovery and increases in areas and also areas of localized die-off.

Action Item: Tylan can share FWRI report on localized seagrass density and recovery and link to the satellite imagery.

Q. Do you see Florida Bay responding to restoration efforts? What is the timeline? Do you see any specific projects that may be more useful than others? A. Yes, seeing improvements but it is incremental and not currently at the scale to prevent seagrass die-off at the moment. More water during the dry season is essential. Areas around Flamingo have some great possibilities to compliment ongoing Everglades restoration. Shark River used to flow through Flamingo, increasing conveyance could have localized positive improvements in the upper basins. Moving Old Ingram highway to the east had some significant impact even though a small adjustment.

11:15am Public Comment (10 min) no public comment

11:30am Team Member Updates (30 min)

Monroe County BOCC and others, including this group, urged Miami Dade to vote no on a major development outside the urban development boundary – this was passed by county commission; the Mayor vetoed, but the commission over-rode the veto. Voting on it today – and it passed. The footprint is smaller than previous but still substantial. Resolution was resent on Monday morning to the Miami Dade Commission from the Sanctuary and Superintendent Sara Fangman and Villages of Islamorada. This approved industrial development will likely have litigation from agencies and organizations.

There is overall a lack of statewide growth management – formerly under the department of community affairs – any new development that would impact a statewide resource would need

local and statewide approval. The Department of Community Affairs was dismantled by Governor Rick Scott, and there is no state planning board in place. Florida State Legislature session March-May 2023, new legislation being reconsidered for any project that would impact the Everglades. Failed in 2022.

Action Item: Florida State Legislative session – state planning board specific to the Everglades

How will expanding the urban development boundary be affected by the passing of this new development, especially regarding funding for BBSEER? BBSEER funding is secured, but the planning will be impacted by an industrial complex within the footprint. All of the computer modelling for BBSEER have this development included and will have negative impacts on Biscayne Bay. BBSEER Team Meeting this week, draft round 2 alternatives for ecosystem benefits and funding through Congress.

Action Item: Gina R. can send information about the BBSEER meeting this week

Action Item: December 13 and 14, there will be a two-day SAC meetings for the Restoration Blueprint. Karen can share information on how to attend

Ideas for future meetings:

Minimum flows and levels and the regs that go along with that for Florida Bay. Jerry and Cara will find speakers and go through possible topics for our January 2023 meeting and beyond.

12:00pm Review Action Items & Adjourn

Adjourned at 11:30 am.

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Note: Previous Action Items for September 20, 2022 (note: May 15, 2022 action items are at the very bottom of these minutes; please see pg 6 for potential presentations for upcoming meetings that were not specifically noted as action items)

Action Item 1: Erin Muller will draft a comment regarding adaptive management for new coral restoration and nursery areas that come online to create a mechanism to add future sites.

Link to Connectivity Team Working Group (CT) Google Drive:
https://docs.google.com/document/d/1ScAh13MLR3HBJEyz_MNJLnE1tLq-w3NY/edit?usp=sharing&oid=101270934445107027562&rtpof=true&sd=true

Action Item 2: We stress that specific, time-bound, and measurable goals should be included in the Management Plan.

Action Item 3: Adam Gelber will obtain the Coral Reef Coordination Team amendments made at the September 1, 2022 meeting and provide to the CT; these will be posted publicly online soon as well. Adam will email to Karen and she will place into the Google Drive.

Action Item 4: Ask for a CT presentation from the Task Force once there is more development on the new Coral Reef Coordination Team (Jerry).

Action Item 5: Karen will send new links to Google Drive to everyone (COMPLETED, SEE September 20 email).

Action Item 6: The CT subcommittee writing team may be able to get back together for some edits on what to recommend to the the FKNMS SAC prior to the SAC meeting on October 18th in Marathon. Please send comments by September 27, 2022 to Jerry, Karen, or Cara – if you can access the Google Drive, please add your comments directly. If you do not have access to the Google Drive - send written comments in an email to Jerry, Karen, and Cara. CT recommendations need to be finalized by October 4 to get on the SAC agenda. Link to Google Drive - https://docs.google.com/document/d/1ScAh13MLR3HBJEyz_MNJLnE1tLq-w3NY/edit?usp=sharing&oid=101270934445107027562&rtpof=true&sd=true

Action Item 7: Ask Heather Blough to speak about fishing gear outside of the Sanctuary that may enter the Sanctuary including derelict fishing gear, turbidity from bottom trawling, and bycatch.

Action Item 8: Tylan can take the lead on a presenter for the ongoing algae bloom in Florida Bay for the November 15 meeting and work with Jerry and Karen to get an update. WQPP SC would likely also want to hear that presentation, or a TAC meeting// **Action Item 9:** Karen will follow-up with Tylan and Jerry on Connectivity Team updates to the WQPP SC or a TAC meeting?