FLORIDA KEYS NATIONAL MARINE SANCTUARY ADVISORY COUNCIL

MEETING NOTES
Tuesday, February 20, 2024

Marathon City Council Chambers
Marathon, FL 33050

Attendees:

Council Members:

Boating Industry: Ken Reda
Citizen at Large – Upper Keys: Kate DeLoach (absent)
Citizen at Large – Middle Keys: George Garrett
Citizen at Large – Lower Keys: Mimi Stafford
Conservation and Environment (seat 1): Ben Daughtry
Conservation and Environment (seat 2): Jerry Lorenz
Diving – Upper Keys: Seanna Knight
Diving – Lower Keys: Joe Weatherby (absent)
Education and Outreach: Shelly Krueger (absent)
Fishing – Charter Fishing Flats Guide: Will Benson
Fishing – Charter Sport Fishing: Greg Eklund (absent)
Fishing – Commercial – Marine/Tropical: Ken Nedimyer
Fishing – Commercial – Shell/Scale: Daniel Padron (absent)
Fishing – Recreational: Karen Angle (absent)
Research and Monitoring: Erinn Muller (absent)
South Florida Ecosystem Restoration: Kelly Cox
Submerged Cultural Resources: Diane Silvia (absent)
Tourism – Upper Keys: Lisa Mongelia (absent)
Tourism – Lower Keys: Andy Newman (absent)
Elected County Official: Jim Scholl (absent)

Council Alternates (present):

Boating Industry: Ben Murray
Citizen at Large – Upper Keys: Jessica Dockery
Citizen at Large – Lower Keys: Stephen Patten
Conservation and Environment (seat 1): Jesse Joy
Conservation and Environment (seat 2): Caitlin Lustic
Diving – Lower Keys: Lucja Rice
Education and Outreach: Dora DeMaria
Fishing – Charter Fishing Flats Guide: Bob Beighley
Fishing – Charter Sport Fishing: Brian McCadie
Fishing – Recreational: Gary Jennings
Research and Monitoring: Karen Neely

Submerged Cultural Resources: Sara Ayers-Rigsby
Tourism – Lower Keys: Eddie Kertis

Agency Representatives (present):

Florida DEP: Nick Parr
Florida FWC Fisheries/FWRI: Tom Matthews
Florida FWC Dept Law Enforcement: Capt. David Dipre
NOAA OLE: LT Joe Scarpa
US Coast Guard: ENS Jordan Haas
US Navy: Wendy Wheatley-Techmer

Municipalities (present): none

I. CALL TO ORDER, ROLL CALL, CHAIRPERSON'S COMMENTS

The meeting was opened with the Pledge of Allegiance and called to order with roll call at 9:02 am. Council chair George Garrett introduced the agenda for this meeting as well as the notes from the December meeting for council approval, both were motioned, seconded, and subsequently approved. Will Benson made the motion to approve the December notes with no edits, with a second from Ben Daughtry. Ben Daughtry made the motion to adopt the agenda for this meeting with a second from Eddie Kertis.

George and Sarah noted the recent passing of long-time council member Joe Weatherby who passed away last week. Joe had been a SAC member in the tourism seat, and later in the dive industry seat, since April of 2012. Joe was a long-time advocate for artificial reefs, and a video of Joe at the sinking of the USNS Vandenberg off of Key West in 2009 was shared. Sarah Fangman acknowledged all that Joe brought to the council. He could always be counted on for his unique ability to bring warmth and humor and to keep people focused on what we were collectively trying to accomplish. Joe was one of a kind and will be missed by many.

Council coordinator Liz Trueblood announced that a recruitment cycle was recently completed, and requested two volunteers from the council to participate on the applicant review panel along with the chairs. We received 21 applications. The applications will be reviewed, scored on a rubric, discussed with the others on the review panel, and the recommendations shared with the superintendent. Jerry Lorenz and Karen Neely volunteered to support this part of the council application process.

II. MEMBER UPDATES

Council member Kelly Cox shared updates from the recent Everglades Coalition Conference which she co-chaired in January. Fellow council member Marisa Carrozzo was honored with the 2024 Conservationist Award at the conference for her many years of environmental stewardship.

The Everglades Coalition is an alliance of nonprofit organizations that collaborate on Everglades Restoration. The conference had over 460 attendees and over 165 organizations represented, including Florida Keys National Marine Sanctuary. FKNMS participated in a panel discussion titled "A View from the Reef: Marine Ecosystem Connectivity" which featured Superintendent Sarah Fangman, Emma Haydocy of Surfrider Florida Keys, Mike Goldberg of ICARE, and Dr. Wes Brooks, Chief Resilience Officer for the state of Florida.

III. MISSION: ICONIC REEFS

George introduced Dr. Katey Lesneski, FKNMS M:IR Monitoring Coordinator, who gave an update on the recent Mission: Iconic Reefs winter reef surveys. Katey began with a reminder of last summer's work in response to the heatwave, and then shared the rationale behind the February surveys and preliminary results. She also gave an overview of the recent M:IR implementation workshop which included many of the M:IR partners.

The marine heatwave this summer was unprecedented in recorded history – the Florida Keys reached Alert Level 2, the highest bleaching alert level. As a result of the severity of this event, NOAA Coral Reef Watch created 3 new alert levels to be used in future years. This is the coral equivalent of creating a Category 6 or 7 hurricane designation.

In August, Mission: Iconic Reef Field Staff conducted a survey on the Shedd R/V Coral Reef II. This 10 day cruise surveyed strategic sites within the 7 M:IR reefs. The main targets were elkhorn and staghorn corals, which are threatened and a focus of coral restoration ourplanting. Over 800 elkhorn coral were surveyed, and only 16% were found alive. Almost 3000 staghorn surveyed with 31% survivorship. The primary cause of recent mortality was observed to be heat stress or predation, with the exceedingly high temperatures accounting for the majority. In August, the highest survival was at Carysfort Reef, the northernmost M:IR site. Survival was lower at the southern sites.

In late November through early February, the team conducted a number of snorkel census surveys to begin to categorize survival during the winter. Through roving snorkel data surveys, the team looked for surviving elkhorn and staghorn coral. This data was used to target sites to survey more extensively during the February follow-up cruise.

In early February, the team embarked on the MV Makai. Although the weather caused the cruise to be cut short, priority surveys focusing on staghorn and elkhorn corals were completed at 63 sites across 5 of the M:IR reefs. We know corals are susceptible to disease following bleaching, so this survey also allowed the team to evaluate what was still surviving. Overall, less than 5% of elkhorn outplants and 21% staghorn outplants were found alive. Carysfort once again had the largest survivorship; whereas no live staghorn or elkhorn outplants nor wild colonies were documented at Looe Key reef. Unfortunately, the team was not able to conduct boulder coral surveys during this cruise, however, when they were able to take a look, these large species looked to be healthier. Dr. Lesneski showed some photos of star coral outplants, which was representative of outplanted and wild coral observations on the reef. These seemed to fare better than the acroporids.

In the coming weeks, the team will compile the data and share this with restoration partners. Data on survivors will be reviewed to examine how they were able to survive this heat event. Variables to be considered include when and where they were outplanted (including sub-habitat zones of the reef), genotypes, etc. Dr. Erinn Muller has noted that survivors in their southern nurseries were likely all the sexually produced outplants, rather than fragmented clones.

Mission: Iconic Reefs also held an implementation workshop in January to discuss how to proceed with M:IR in light of the summer's heatwave. M:IR has always been built on the principle of adaptive management, so the program is being reviewed to assess whether change is needed. Outcomes from the workshop include an effort to develop and implement targeted experiments to evaluate other methods for restoring coral. They will also explore other metrics of success, such as genetic preservation and diversity on the reefs. They will also consider plans to focus more on restoration of boulder, massive and brain corals. This is still being discussed as an opportunity to gain more success in both the short and the long term. The team is also planning ahead for the possibility of 2024 temperature impacts, which may include installing deeper nurseries, applying shading structures, and/or conducting additional gene banking to preserve diversity in land-based nurseries.

Council Discussion / Q&A:

Q: Karen Neely: Have you looked into how those adaptive strategies worked this summer? Were deeper nurseries helpful?
A: Ken Nedimyer: Deep nurseries were a mixed bag. All corals were initially doing better, but after 3 months some of them started to fade. It was beneficial for a period of time, but beyond that the depth proved to be a maintenance barrier and not suitable for the branching corals long term. Boulder corals fared better. Shade wasn't added until August. May try shading again this summer, and include PAR readings. The shade held up until the November storms that came

through. There are a few other things we can try to do, such as lowering trees down to the bottom in the existing nursery. Across the board, the bottom third of those lower nurseries fared better.
A: Phanor Montoya, of Coral Restoration Foundation, shared that as a result of the heat event, the largest population of acroporids right now are in the hands of the restoration practitioners. Genetic preservation is successful. In addition to shading and lowering trees, abundance and redundancy help mitigate losses. CRF has 4 nurseries in the Keys with different species and genotypes. Genetic diversity is key, but in his opinion a combination of sexual and asexual propagation are necessary for success.

Q: Will Benson asked for clarification about the sexually reproduced corals having greater success. How many corals was this? What species are being sexually reproduced?
A: The data will need to be reviewed by Mote, but preliminary data show that some of the best survivors outplanted in the lower Keys were their sexually produced recruits (which were grown following spawning in the lab), compared to asexual propagation (fragmentation) of one genetic lineage. The genetic recombination may have provided an advantage for corals in the southern sites. The surveys conducted also only included parts of the reef, so data from the restoration practitioners will help fill data gaps. Elkhorn and staghorn corals, as well as boulder and massive and brain corals have all reproduced sexually in Mote's lab.
Q: George followed up and noted that sexual recruits take longer than asexual fragments. Can you mimic in sexual reproduction the rapidity of fragmenting corals?
A: This does take longer. Corals typically only spawn once per year unless the technology and perfect conditions can be created to induce spawning. It can take several years before those new recruits are returned to the reef.
A: Erinn Muller shared that the acroporids can be outplanted within about a year after settlement; Mote had 100s of corals that survived; not all are in M:IR sites.

Q: Mimi Stafford: The Great Barrier Reef has very little bleaching so far; but they were discussing shading and similar techniques. There is also a lot of soft coral cover there. Is anyone reproducing and outplanting sea fans and gorgonians to provide natural shading and more protection?
A: This is an interesting thought. We have found that a lot of soft corals were doing fine up to this summer, to the point that they take up so much space that there is limited space for outplanting.
A: Ken: They also abrade the hard corals and cause some damage. They are not necessarily compatible for restoration in the same places. In some situations, practitioners must selectively remove these to create space for hard coral outplants.
A: Karen Neely: Most octocorals were lost inshore this summer as well.

Q: Jessica Dockery: Has there been discussion on altering M:IR outplanting goals and expectations?

A: Yes, this has been discussed, but no decisions have been made as of yet. The program is considering focusing more on the boulder, massive and brain corals now, where were originally going to be introduced later in the M:IR effort.

Superintendent Sarah Fangman acknowledged the sobering nature of this information. The percent survival numbers are troubling. Many people have spent years working to plant these corals and this past year was a devastating turn of events. That said, all is not lost. While those corals were alive, they were providing habitat and ecosystem services. We are losing these corals because of extreme temperatures, and we have to address this greater issue. The restoration practitioners are buying time for these habitats, but the root problems of temperature and water quality will need to be addressed. This work will continue and there will be an adaptation to the strategy moving forward.

Q: Will Benson: We heard about the post heat wave analysis, is this isolated to the main reef tract, or has anything been done inshore?
A: The data shared today was from the 5 offshore reefs of M:IR. Targeted surveys have not been conducted at Cheeca Rocks and Newfound Harbor yet. The cruise surveys focused on acroporids, which don't classically exist in the inshore reefs. Surveys at those sites will be conducted soon.
A: Karen Neely: Added that the wild colonies offshore fared better than inshore, but inshore was variable. At Newfound Harbor and Cheeca Rocks, 20-25% loss was observed, but at other sites they didn't observe any losses, and some bleached sites have recovered their pigmentation.

George reiterated the global drivers leading to these losses. The ability to buy time is relatively recent, but we have to speed it up - both on the restoration side and in controlling the bigger climate issues.

Q: Brian McCadie: Agree that climate is the number one problem with the reef. He is on the water over 200 days per year so he is familiar with what is going on out there. Anchors are also a problem - he regularly sees people throwing anchors on the coral.
A: Will Benson: The buoy working group recently completed a proposal to FKNMS on how to upgrade the buoy network in recognition of these challenges. This is a work product of the SAC. These concerns have been heard loud and clear, and we are hoping to make some changes that will be effective.
A: Liz added that FKNMS recently produced a new "how to use a mooring buoy video." The team is constantly working on how to improve outreach to boaters and welcomes the council's input.

Q: Jesse Joy: Regarding the potential switch to massive corals, how large of a shift would that be logistically?

A: Those aren't necessarily deeper corals; they can live at a variety of depths. The restoration practitioners have already started to build out their stock of these corals in preparation for adding those individuals to the outplanting pipeline.
A: Ken Nedimyer: We've been working on this a long time. It's a lot to gear up, but we are doing it; taking steps to scale up.
A: Phanor: Ocean based non-acroporid propagation has increased over the past 5 years. Thousands of these massives have already been outplanted too. These are slower growth corals so they will take longer to get to the scale that we've been able to achieve with acroporids.

Q: George Garrett: Are there inherent differences in how fast or well one can fracture one species over another?
A: Ken Nedimyer: Orbicella corals are easy to grow and grow fast. Some of the brain corals are a little more challenging. It's a matter of working with the various species and finding the best and fastest way to do it. We're working through it and we're confident we'll solve that problem.

IV. SEAFAN: MARINE INCIDENT REPORTING

George welcomed Dr. Nicholas Parr, Florida DEP, Environmental Manager for FKNMS & Southeast Aquatic Preserves, to discuss the importance of reporting marine incidents and one of the ways community members can do so. SEAFAN, the Southeast Florida Action Network, is a reporting mechanism for a large variety of issues on the water, and is now up and running in the Keys. The goals of the program are to enhance marine debris efforts, increase response to vessel groundings and coral damage, and to provide early detection of potentially harmful biological disturbances. Marine incidents that could be reported include: discolored water, anchor damage to the reef, coral disease, bleaching, invasive species, and marine debris. For any law enforcement issues that are actively going on, reporters should still contact law enforcement as the first option. Additional training is available for community members to report coral disease and bleaching.

When an observer reports to SEAFAN, DEP transfers the information to an appropriate point of contact for the response. The website is SEAFAN.net and reports can be submitted online and requires information about the type of incident, date observed, location, etc. Curated questions will follow, depending on the type of incident reported. Marine debris removal efforts can also be reported. The report form also requests information about the reporter, and allows for photos to be uploaded. In some cases, the reporter will be redirected to an emergency number for a more immediate response, such as for a stranded marine mammal.

Please reach out to Nick for additional points of contact who should be added to the response network. Assistance getting the word out about this program is also appreciated.

Council Discussion / Q&A:

Q: David Dipre: Is DEP doing these removals or contracting for removal of derelict traps? There is a lot of debris out there; the number of reports received may overwhelm the system.
A: TBD, trap removals need to be permitted, so there are a few partners who are eligible. For other marine debris it will depend on who is in the vicinity. Also, response will depend on what is reported. A full team cannot be mobilized to remove a few small pieces of debris. There will be a lot of partnership efforts to respond to these marine debris reports in a way that is efficient.

Q: Jerry Lorenz: Is Everglades National Park included?
A: Not at this time. We do have contacts in the parks that information can be forwarded to.

Q: For a lot of these things, could imagine that multiple agencies may respond because multiple reports were filed. What interagency coordination is taking place to eliminate redundancy?
A: DEP will work with partner agencies to keep communication channels open. USCG is still the POC for hazardous discharges such as fuel or oil. Otherwise, when DEP receives these reports, FWC will be looped in to facilitate coordination on traps.

Q: Ken Reda: How is this information being shared with the larger public?
A: This is part of DEP's normal outreach efforts, and they are also working with partners to get the word out. Materials will be at the Nautical Market at the FKNMS table. There is also an effort to ensure dive shops are informed.

Q: With coral disease and bleaching, Mote's Bleachwatch program has a long history. Will this dilute their efforts?
A: This program redirects reporters to the Bleachwatch program, and Mote will be looped in on any such reports.

Q: Will Benson: Invited DEP to table at the Lower Keys Guides Association's annual marine debris cleanup in January.
A: Marine debris is a priority for DEP with this, and is something they may be able to join.

Q: Bob Beighley: Have there been any results from the spinning fish tests?
A: Some limited results will be shared in the agency updates later today.

Re derelict traps, Tom Matthews: There are tens of thousands of lost traps, which far exceeds capacity. There are now 30 organizations permitted to pick up debris during the off season. There are places where this tends to accumulate. Over 1000 miles of lost rope are retrieved in FKNMS each year - there is plenty to keep up. Tom can direct anyone interested in getting a permit to the FWC Division of Marine Fisheries.

- Marlies Tumolo: FKNMS Goal Clean Seas program includes 18-19 permitted dive operators who are trained to remove derelict traps.

Q: George Garrett: Is there enough money to go out and pick up traps after the season closes?
A: Tom Matthews: Not enough. Fishery includes a $25 fee each for lobster and stone crab. That money is returned to them to pull 3000-5000 buoyed traps per year. Non buoyed traps often remain and are only removed through these other marine debris removal efforts.

V. SPONGE RESTORATION IN FLORIDA BAY

George introduced Bill Sharp, of the Florida FWC Fish and Wildlife Research Institute here in Marathon to speak about the nearshore hardbottom habitat of the Florida Keys, including ecological importance and sponge restoration efforts in Florida Bay.

Sponge research and restoration on the nearshore hardbottom have been ongoing for about ten years. The nearshore hardbottom habitat covers about 30% of nearshore areas in the Keys and includes sponges, macroalgae, corals, etc. These ecologically important areas are essential fish habitat with 192 species identified, including a lot of juvenile reef fish with economic/fishery importance. Juvenile spiny lobster utilize this habitat, as do red grouper, yellowtail snapper, etc.

Sponges serve many functions in this ecosystem. They have associations with many microorganisms that produce chemical transformations in the water. They are filter feeders and remove particulate matter from the water column, while also producing dissolved inorganic nitrogen (DIN) for uptake by various other components of the ecosystem. They also act as habitat for larger and commensal animals that utilize their tissues (shrimp, worms, brittle stars, etc.), and often serve as shelter for immature spiny lobster.

Sponges have experienced widespread mortality in Florida Bay over the years, primarily in the aftermath of cyanobacterial blooms in central Florida Bay originating from the Rankin basin. This has been tracked since the early 1990s across multiple blooms. An area of 500 km in the central bay has been most notably affected. In 2015, FWC began sponge restoration efforts, including testing the efficacy of sponge nurseries. Efforts focus on six species that are both amenable to propagation and also serve as important habitat. The original goal was to produce 15000 sponges and outplant them into Florida Bay. This effort has had some setbacks along the way, including Hurricane Irma in 2017. In 2020, 17000 individual sponges had been propagated and were ready to outplant. The outplanting strategy was to create four 0.25 ha (0.62 acres) sponge restoration plots and three control sites, all of which would be monitored for changes in community structure annually, including community composition, sponge biomass, benthic invertebrates, and finfish. All sites were on the bayside of Grassy Key, which had been unaffected by cyanobacteria blooms but were severely affected by Irma in 2017. Baseline data

from 2014 were available from another project, which was beneficial as a point of reference. Following Irma, several species were no longer present. Sponge transplantation began in the winter of 2020. Two sites were completed before COVID delays; the final two sites were established in 2021.

Data were collected pre-outplanting, immediately following outplanting, and then annual surveys each of the 2 years after, and show a general growth trajectory across all species, acknowledging that some grow more slowly than others. In 2022, we had a pervasive cyanobacterial bloom and unfortunately those bloom conditions were documented at these sites in October 2022. This affected sponge survival. MODIS satellites can track satellite blooms based on reflectance on the water, and over the years, these blooms seem to be getting more common. Thankfully, the losses weren't as bad as previously documented in central Florida Bay. Post-bloom surveys show survivors, including the old and slow-growing loggerhead sponges. Even those species that were affected had survivors. The site on the south side of Burnt Point did not experience bloom conditions, and there the sponge biomass is increasing across 4 of the 6 species. In July - August 2023, nearshore waters in these areas reached an unprecedented 95 degrees fahrenheit. The sponges were stressed and covered with a film of mucus and cyanobacteria. Fortunately, October surveys from the southernmost site show decent survivorship among the loggerhead, glove, and other sponges. The fast growing vase and brown branching sponges did not fare as well.

Future activities include continued efforts to refine sponge restoration efforts, with funding support from DEP and EPA. A south Florida sponge restoration strategy will be developed in conjunction with resource managers via a series of workshops. FWC will also be testing relative tolerance of sponge species to cyanobacterial blooms, refining nursery design to grow sponges more efficiently, etc.

Council Discussion / Q&A:

Q: David Dipre: Does FWC look at the commercial harvest of sponges in light of the temperature event.
A: FWC began regulating the commercial sponge fishery in 2005/2006 with a limited entry permit. Only 3 species are harvested (yellow, sheepswool, and grass). Research by Mark Butler following regulations going into effect suggests that that fishery does not have a large impact on the community. Those species are only responsible for a small percentage of the biomass of a healthy sponge community.

Q: Ken Nedimyer: Have you considered engaging the commercial sponge industry in aquaculture so they could have leases and grow sponges. This would benefit their industry and the environment. How long can you keep sponges out of the water?

A: No, they haven't, but this is an inspired suggestion. There are conversations about what we can do differently or better, including investigating ex-situ nurseries similar to coral. A small first experimental outplanting of lab grown sponges was just completed. Sponges are kept out of the water for no more than a few seconds; they hate being dry so they try to keep them submerged as much as possible. As a result, nurseries and outplant sites may be best co-located to avoid hauling around a lot of water. This is something that FWC is teasing apart- what is the optimal nursery design? Should we have a few large nurseries as spawning hubs, or smaller nurseries that are more spread out.

Q: Karen Neely: With the increases in sponge biomass, was that all growth or also recruitment?
A: Almost all growth. They have seen some minor recruitment, noted as small individuals of those species. This is something that gets documented during annual surveys to measure community change.

Q: Karen Neely: As far as monitoring, this is 30% of the nearshore habitat. Are there long term hardbottom monitoring programs? What changes have you broadly observed?
A: Historical data does exist beginning in 2002 with Mark Butler, and FWC took over in 2005. A total of 36 sites were done across the Keys from Key Largo to west of Key West between 2002-2007. This summer, FWC went out to revisit these sites that were last revisited in 2007 to determine how they had changed. That changed with the thermal event, so only a subset of the sites were completed. The surveys are labor intensive. Overall, there are very few healthy sponge communities between Long Key to Marathon and north into Florida Bay. This summer, we lost octocorals at some sites as well.

Q: Will Benson: Regarding sponge composition/diversity of species in one area - he's heard this is important. Does restoration account for this? This is a critical habitat for larval recruitment of juvenile fish. Are restoration priorities matching with the needs of the fish community to promote these fish habitats?
A: Thus far the focus has been on these 6 species. There are smaller species that largely still remain on these sites, as they were not as impacted by the cyanobacterial blooms. There are some quick colonizing species that have also returned (e.g., fire sponges). The focus for now is on the slow growing species that are larger and important for structure in these ecosystems. The restoration effort is tracking community change with an eye toward their importance for fish, and FWC has been trying to recreate structures to enhance juvenile finfish abundance and lobster abundance. This is being tested at an experimental scale.

Q: Will Benson: In Sugarloaf, there is constant sponge harvest in those shallow bays that have limited water flow. Does that targeted harvest have a proportionally larger impact? Is there a future plan to expand restoration efforts further south in these areas? Is there a way that more restoration and a lot of healthy sponges can help mitigate heat? Shallow bays get very hot.

A: Localized extraction does have the potential to change communities at that local scale. FWC is looking toward future expansion to other areas, especially following the marine heatwave impacts observed this summer. A thermal response may overwhelm the biological effect on the system.

Q: Bob Beighley. How is the health of sponges in KW compared to the rest of the Keys?
A: Unknown, some sites were surveyed in the Lakes region west of Key West in 2022. These areas were not affected by the cyanobacterial blooms, so changes would be due to other stressors.

Q: Mimi has been working with Shelly Krueger on a sponge restoration project in the Lower Keys for several years. They identified a nearby donor site and selected multiple species that were present in that ecosystem. They will continue working here. After this summer, they observed a lot of mortality at this site. We need to consider soft coral restoration here too, as those were also lost.
A: An FWC colleague will test propagating and growing 3 species of octocorals. FWC observed losses in their nearshore sites too. Without these species in those habitats, the area is very flat with hardly any rugosity.

Nick Parr: DEP coral protection and restoration program has funded Mark Butler and FIU to look at impacts that these sponge communities have on WQ on the reef, as well as what they do for pathogen loads. Those data should be available later this year.

Q: How large is the commercial sponge industry here in dollars?
A: Unknown. There are a handful of permit holders down here. It's more than 6 figures but not tens of millions of dollars.

VI. NOAA OCEAN GUARDIAN SCHOOL PROGRAM: GROWTH AND PARTNERSHIPS

George turned the floor over to Marlies Tumolo, the sanctuary's Education, Interpretation and Outreach Team Lead. Marlies, accompanied by Channing Gaufillet and Jessica Dockery of United Way of Collier and the Keys, gave a presentation on the Ocean Guardian Schools Program highlighting recent growth in Keys schools.

OGS engages K-12 students in the protection and conservation of local wetlands, the ocean and special areas like national marine sanctuaries through hand-on stewardship programs at their schools. This has expanded in recent years and is currently in multiple states and U.S. territories. Schools in the program identify a project pathway, and are granted five years of funding to do their work. Pathways include: Habitat, marine debris, ocean energy & health, 6Rs

(Refuse/Reduce/Reuse/Recycle/Repair/Rot), and watershed restoration. Once a project is selected, its components will include a project introduction presentation, hands-on activities, student artwork, internal outreach within the school, external outreach to the community, collecting measurable data, and a project wrap up to tell the community about what they did.

Students who participated in this program have an increased commitment to the environment, a desire to volunteer, and develop a sense of community. To date, 594 schools and 3500 teachers are involved, and over 88000 students. Over 1600 kgs of debris have been removed, over 64000 square meters of native plants have been planted, and over 59000 square meters of non-native plants have been removed from school project sites.

Local OCG participants include: Key Largo School is in the Schoolyard Garden/Habitat pathway. They have had success expanding their native plant population which helps counteract erosion, sedimentation and pollution in the waterways. In the 6Rs pathway, Plantation Key School, Stanley Switlik Elementary School and Sugarloaf School are participants. The Academy at Ocean Reef and LCC Day School (St. Petersburg) are participating in the Marine Debris pathway. The Academy at Ocean Reef is now a program alumni, and they continue to participate in the community. Ocean Studies Charter School in Key Largo was in the Habitat pathway and became an alumni school this year.

In 2020, United Way received a gift from UAE for coral restoration, education grants and scholarships and global partnerships. Those funds helped to kick off M:IR, and also provided education grants and scholarships issued to schools to support coral restoration work. UWCK supported the Reef Futures conference in Key Largo, and in the future they are looking to facilitate a global information exchange on coral restoration.

The next goal is to become an “Ocean Guardian School District”, which entails district wide programs that demonstrate Monroe County School District’s commitment to protecting and improving the health of our waters. It is a three-year process to become an OGS District: Year one is a prep year with pilot schools to work on and design a project that will eventually be implemented district wide. Year 2’s goal is that 55% of schools will implement those programs. Finally, in year 3, at least one ocean/environment/literacy program will be implemented across all levels of schools. Once completed, Monroe County will become the 2nd Ocean Guardian District in the country and the first on the east coast.

The community can support OGS by supporting a school in their external outreach events (e.g., host a school presentation at your business), or by connecting schools with funders. $15,500 supports a school for the 5-year duration of the OGS program.

Council Discussion / Q&A:

Q: Ben Daughtry: Regarding the alumni schools, their programs continue? Can you elaborate?
A: Once schools have completed their 5-year cycle they no longer receive funding or are required to do annual reporting, but they are still in the OGS network with access to resources and staff support. They also help mentor new schools in the process. Schools also tend to continue with the projects they have integrated into their community.

Q: George Garrett: Does OGS include high schools?
A: Yes, for OGS District we will have to expand into high schools. No high schools are currently involved, but the local high schools are primed and ready to go.

Marlies noted that Ken Reda did external outreach with the Ocean Reef Academy. Ken Nedimyer has also supported this effort. Both can provide more information about how a business can support this program with external outreach and hands-on engagement.

VII. PUBLIC COMMENT OPPORTUNITY

George opened the floor for public comment. He reminded the council and the audience that this is an opportunity for the council to hear from our community members. This is not a time for dialog and discourse, rather it is a time for the council to listen. Each commenter has the floor for three minutes. Comments appear here as summaries and not as word-for-word transcriptions.

Commenter: Gary Jennings, council member speaking on behalf of the American Sportfishing Association
Comment: On behalf of the American Sportfishing Association, ASA is concerned about the recent articles regarding disagreements in fishery management authority between FWC and FKNMS, especially in light of the Restoration Blueprint. ASA encourages deferral to FWC for management authority to develop protocol for cooperative fishery management. In comments on the proposed rule, ASA requested that the public have an opportunity to review the agreement before it is finalized. Concern about how the protocol may change prior to the final Restoration Blueprint release. Request release of the protocol before the final rule so that the public can review it ahead of completion of the final rule. This could be done through FWC, fishery management council meetings, or FKNMS council meetings.

Commenter: Kelly Ralston, Bonefish & Tarpon Trust
Comment: Echo comments about protocol for cooperative fisheries management - that needs to be presented for public comment. Encouraged continued discussion between FWC and FKNMS. Regarding inshore impacts to soft corals, that is an important habitat for fisheries in their life cycle. If there are ways for the sanctuary to look at restoration efforts inshore - both natural and

with artificial enhancement - they would encourage that. Regarding SEAFAN, BTT and other organizations can help amplify that message via social media.

VIII. AGENCY REPORTS

FKNMS: Superintendent Sarah Fangman

- On January 22, ONMS held a memorial garden ceremony behind the Eco-Discovery Center where a sculpture has been established to honor people who have contributed to the national marine sanctuary system. Sixteen new members were inducted, including two FKNMS volunteers.
- Cory Malcom was honored for his service on the SAC over the years. He was presented with a plaque.
- FKNMS has several new staff members: Alex Fine (biologist), Karli Hollister (M:IR team), and two new temporary buoy team members (Jardin Macdonald and Kieron Whitehead). Sarah hopes to announce a deputy superintendent at the next SAC meeting.

Florida DEP: Dr. Nick Parr

- State Parks Updates:
    - Lignumvitae Key Botanical SP is starting a new round of seagrass restoration projects. Boundary buoys will be installed around the San Pedro wreck, and additional no internal combustion motor zone signs will be installed around Lignumvitae Key. These will support both education and enforcement.
    - Bahia Honda SP has reopened the Silver Palm trail following Hurricane Irma, the park's Annual Earth Day celebration will be on April 20th.
- Aquatic Preserves: Alyssa Panzer and Talia Bailey have moved on to new jobs. Alyssa will be sustainability coordinator for Islamorada. Nicole Charnock has joined the team as the Florida Keys Aquatic Preserves Manager.
- Regarding fish twirling behavior observed in the Lower Keys, DEP did some water testing on Dec. 6th and 7th when the reports were first received. This included DO, temp, pH and salinity, as well as samples sent to St. Pete to test for algae blooms, all measurements taken in the field were normal. At the end of January a more extensive sampling was taken. 10 sites, including 4 in Big Pine Channel were sampled, 1 in Cudjoe Bay, 2 in backcountry, 2 in CBAP, 1 at Shark Key (control). The lab tested for chlorophyll-a, nutrients, pharmaceuticals, pesticides, and herbicides. All preliminary results are below the detection limit (meaning essentially zero - lab cannot test it). DEP is continuing to collaborate with FWC and partners on additional testing and response.

FWC-FWRI/Fisheries: Tom Matthews

- The Florida Fish and Wildlife Conservation Commission (FWC) has been documenting reports of abnormal fish behavior (spinning and whirling) in the Lower Keys

- There also have been infrequent reports of small-scale fish kills in these areas, including several recent sawfish mortalities. First observed in November 2023, and since 12/1/23 over 100 reports of abnormal fish behavior have been received
- At this time, the cause of this abnormal behavior and mortality is not known. However, the FWC is working with Florida Gulf Coast University (FGCU), University of Southern Alabama (USA), Bonefish & Tarpon Trust, and the Lower Keys Guide Association to actively investigate this event, and collection and analysis of both water and tissue samples are ongoing.
- Species impacted include: Striped Mullet, Silver Mullet, Tarpon, Permit, Snook, Pinfish, Bigeye Scad, Ballyhoo, Jack Crevalle, Southern Stingray, Mutton Snapper, Grey Snapper, Blue Runner, Sand Perch, Pilchard, Scaled Sardine, Toadfish, Goliath Grouper, Grunt, Blue Striped Grunt, Atlantic Needlefish, Leatherjacket, Yellowfin Mojarra, Silver Jenny Mojarra, Key Silverside, Smalltooth Sawfish, Sergeant Major and an unidentified stingray.
- Most important actions:
    - Please report abnormal fish behavior and fish kills to the FWC's Fish Kill Hotline: 800-636-0511 or MyFWC.com/ReportFishKill. Fish Kill Hotline:
    - Sawfish Hotline: 844-472-9374 or Sawfish@myfwc.com
    - Wildlife Alert Hotline: Marine mammals, sea turtles, protected species 888-404-FWCC (888-404-3922)
- What we know so far:
    - Based on fish necropsy data, there are no signs of communicable disease, and specimens were negative for bacterial infection. Fish had low levels of parasites, which is normal.
    - Dissolved oxygen, salinity, pH, and temperature are not suspected to be the cause of the fish behavior or kills.
    - Red tide toxins (brevetoxins) produced by Karenia brevis have not been detected in samples.
    - Other potentially toxic microalgae including the genus that causes ciguatera have been observed in samples.
        - We do not yet know if these cells are producing toxins. Results of toxin analyses of water and tissue samples are expected within the next several weeks.
        - In the meantime, the Florida Department of Health surveillance is ongoing.

Will Benson: Thanked Tom for sharing this information. The guides have been on the forefront doing the reporting on this, and have assisted with sample collection. Reiterated importance of reporting abnormal sightings.

Mimi Stafford: Any evidence of cross species effect - with birds or other marine animals?

- Tom: None has been seen at this point.

FWC Law Enforcement: Capt. David Dipre

- FWC officers are on track for patrol hours in FKNM (yearly goal of 2500 vessel hours).
- Staffing is currently 15 officers down; a 30% deficit. Two officers were recently promoted to the offshore patrol vessel program to support DRTO and larger scale fisheries.
- Boot Key Harbor patrol recently completed in coordination with MCSO and USCG. This is done one week per year for a variety of issues such as theft, narcotics, boating safety regulations, undocumented vessels, etc.

NOAA Office of Law Enforcement: LT Joe Scarpa

- OLE FY24 quarterly report has been circulated.
- Most of the violations encountered include fishing in SPAs; there have been 9 FKNMS violations since the last SAC meeting. ATBA cases are the second most common cases (includes cruise ships, supply cargos, private yachts).
- Operation SPA Watcher occurred in Islamorada in late November/early December. No activity observed.

U. S. Coast Guard:

- Migrant interdictions remain constant but low. Living Marine Resource (LMR) boardings have increased in the past month.
- Will participate in TED mission in April with NOAA OLE officers

U.S. Navy: Wendy Wheatley-Techmer

- Two shoreline cleanup events held since December SAC meeting - one along the Sigsbee Causeway and another along Bomb Farm Road on Boca Chica. Approximately 500 pounds of manmade debris was collected and removed from the shoreline.
- Last month, the Environmental Office held a national public lands day event to restore habitat for the LK marsh rabbit. Environmental held a National Public Lands Day event on Geiger Key intended to restore habitat for the critically endangered Lower Keys Marsh Rabbit habitat. During the event, volunteers helped plant approximately 1,000 native grasses and vegetation.
- Home squadron kicked off a “pilot for a day” program for middle school students to experience a day in the life of a Navy fighter jet pilot.
- 14 ft sawfish washed up on the shoreline; coordinated with FWC to collect the fish for additional sampling.

IX. CLOSING REMARKS

George thanked the council and members of the public for attending. The next meeting will be April 16, 2024. Meeting adjourned at 12:48 pm.

APPENDIX I. AGENCY REPORTS SUBMITTED BY EMAIL

NOAA Fisheries: Submitted by Lauren Waters

Protected Resources Updates:

- The final rule to designate critical habitat for Nassau Grouper under the Endangered Species Act published January 2.
- The final rule to list the Queen Conch as a threatened species under the Endangered Species Act published February 14.

Fisheries Updates
SUSTAINABLE FISHERIES

- Announced season opening of Gulf of Mexico migratory group king mackerel gillnet component for January 16th, 2024 (1/3)
- Announced final rule to implement changes to the acceptable biological catch control rules for the fishery management plans for the snapper-grouper and golden crab fisheries in the south atlantic, and dolphin and wahoo fishery in the atlantic (1/3)
- Request comments on a proposed rule for a framework action to update private angling red snapper calibrations and gray snapper catch limits in the gulf of mexico (1/17)
- The calibration ratios would be modified for Alabama, Florida, and Mississippi based on updated state survey data provided to the Scientific and Statistical Committee. Louisiana did not provide updated state survey data, so a change to Louisiana's ratio is not considered in this proposed rule. Texas has never participated in the federal survey, so no conversion is needed.

South Atlantic Council

- The next meeting will be March 4 - 8 in Jekyll Island Georgia the agenda along with details on how to provide public comment will be available on the Council website.

Gulf Council

- The Council last met January 29 - February 1 in New Orleans, Louisiana.
- The Council passed a motion to approve the abbreviated framework action: modifications to catch limits for Gulf of Mexico lane snapper which would increase the overfishing limit for Gulf lane snapper stock to be 1,116,331 lb whole weight, and the acceptable biological catch to be 1,088,873 lb whole weight, and set the annual catch limit equal to the ABC.
- During public comment, there was a request that the Council consider adding the FKNMS Protocol for Cooperative Fisheries Management as an item for discussion. The memorandum between the FKNMS, FWC, South Atlantic and Gulf of Mexico Fishery Management Councils, and NMFS, outlines some aspects of fishery management in the

Sanctuary. SERO is committed to continue to work with all parties in the development of that memo.

- The next meeting will be held April 8 – 11, 2024 at The Lodge at Gulf State Park

AQUACULTURE

- NOAA Fisheries is seeking input from aquaculture growers, fishers and other members of the seafood industry, researchers, coastal community members, tribes, government partners, and the public to plan for various budget scenarios (i.e., increases, decreases) that would impact NOAA Fisheries aquaculture services. These listening sessions will provide an opportunity for you to give input on aspects of NOAA's aquaculture-related science and services that are most valuable to you.
- For more information on the purpose of the listening sessions, please visit this Public Listening Session Information webpage.
- South Atlantic/Gulf of Mexico (Virtual) - February 15, 4:00p - 6:00p EST
- Caribbean (Virtual) - February 23, 2:00p - 4:00p AST (1:00p - 3:00p EST)
- National (Virtual) - March 8, 3:00p - 5:00p EST

Habitat Conservation

- HCD and PRD continue to work with the U.S. Army Corps of Engineers on their proposal to deepen the Port Everglades federal navigation channel. The current schedule has the dredging beginning in 2028 with necessary precursor work beginning at the U.S. Coast Guard Station in 2025. Mitigation measures to offset impacts to coral and coral reef habitat are still under development. As part of this effort, the Corps is completing an inventory of the coral nursery industry in Florida, including current and future production capabilities by species, size class, and genetic strain.