

***FLORIDA KEYS NATIONAL MARINE SANCTUARY ADVISORY COUNCIL MEETING***

**Marathon, Florida**

**Tuesday, June 21, 2022**

**NOTES**

**Attendees:**

**Council Members:**

Boating Industry: Ken Reda  
Conservation and Environment: Ben Daughtry  
Conservation and Environment: Jerry Lorenz  
Citizen at Large – Lower Keys: Mimi Stafford  
Citizen at Large – Middle Keys: George Garrett  
Citizen at Large – Upper Keys: Suzy Roebling (absent)  
Diving – Lower Keys: Joe Weatherby (absent)  
Diving – Upper Keys: Elena Rodriguez  
Education and Outreach: Shelly Krueger  
Elected County Official: Holly Raschein (absent)  
Fishing – Charter Fishing Flats Guide: Will Benson (absent)  
Fishing – Charter Sports Fishing: Michael Nealis (absent)  
Fishing – Commercial – Marine/Tropical: Ken Nedimyer  
Fishing – Commercial – Shell/Scale: Justin Bruland (absent)  
Fishing – Recreational: Karen Angle  
Research and Monitoring: Erinn Muller (absent)  
South Florida Ecosystem Restoration: Kelly Cox  
Submerged Cultural Resources: Diane Silvia  
Tourism – Lower Keys: Andy Newman  
Tourism – Upper Keys: Lisa Mongelia

**Council Alternates (present):**

Conservation and Environment: Jessica Bibza  
Conservation and Environment: Caitlin Lusic  
Citizen at Large – Lower Keys: Stephen Patten  
Citizen at Large – Middle Keys: Bobby Dube  
Citizen at Large – Upper Keys: Dave Makepeace  
Fishing – Commercial – Marine/Tropical: Jeff Turner  
Fishing – Recreational: Gary Jennings  
Research and Monitoring: Patrick Rice  
South Florida Ecosystem Restoration: Marisa Carrozzo  
Submerged Cultural Resources: Sara Ayers-Rigsby

**Agency Representatives (present):**

Florida DEP: Nicolas Parr  
Florida FWC - DLE: David Dipre  
US Coast Guard: Alexandra Hughes

US Navy: Ed Barham

**Municipalities (present):**

None

**I. CALL TO ORDER, ROLL CALL, CHAIRPERSONS COMMENTS**

Chairperson Garrett welcomed advisory council members and viewers to the meeting and requested a roll call from support staff. The meeting was called to order at 9:02am.

**Meeting Administration**

- Motion to approve the agenda made by Ken Nedimeyer; motion was seconded and approved.
- Motion to approve the April 2022 notes made by Ben Daughtry, motion was seconded and approved.

**Opening Remarks**

Council Chair George Garrett welcomed the group back to an in-person meeting and thanked our virtual public attendees for also joining. George reviewed a full agenda and noted that public comment can be submitted during the meeting today at [floridakeys@noaa.gov](mailto:floridakeys@noaa.gov).

Sarah Fangman welcomed the Advisory Council to the meeting and noted that the next meeting will be held on July 12 and will be a rollout of the draft rule. John Armor, Director of ONMS extends his thanks to the Council for their service.

**II. COUNCIL BUSINESS AND UPDATES**

**Welcome to New Council Members**

George Garrett introduced the new members that were selected following the recent recruitment period. Some are returning to the council for an additional term, others are serving for the first time. These recently selected members are:

- Bobby Dube - Citizen at Large: Middle Keys
- Jerry Lorenz - Conservation and Environment (seat 2)
- Caitlin Lustic - Conservation and Environment (seat 2) alternate
- Jessica Bibza - Conservation and Environment (seat 1) alternate
- Bob Beighley - Fishing: Charter Flats alternate
- Kelly Cox - South Florida Ecosystem Restoration
- Marissa Corozzo - South Florida Ecosystem Restoration alternate
- Diane Silvia - Submerged Cultural Resources
- Sara Ayers-Rigsby - Submerged Cultural Resources alternate
- Lisa Mongelia - Tourism: Upper Keys
- Ginny Oshaben - Tourism: Upper Keys alternate
- Andy Newman - Tourism: Lower Keys

As this is the first in-person meeting for many of our members, George invited all members to go around the room and introduce themselves and share a little of their background. All members introduced themselves to the group.

### **Acknowledgement of Outgoing and Retiring Members**

Sarah thanked the outgoing members for their service, and recognized the amount of time and effort all have contributed. Outgoing members include: Chris Bergh, Christopher Benson, Dale Bishop, Elizabeth Jolin, Corey Malcom, and John O'Leary. In particular, Chris and Corey each served for two decades. It is bittersweet to say goodbye to these members, but we welcome the new members and look forward to many years together.

Sarah Fangman also acknowledged that the two commercial fishing representatives, Justin Bruland and Jeff Cramer, have agreed to stay on and continue to serve on the SAC. No new applications were received, so they have agreed to stay on the council while we proceed with a special recruitment. More information on this recruitment will be shared with council members and the public when it is available.

### **SAC Member Orientation**

*Liz Trueblood, Volunteer Coordinator, Florida Keys National Marine Sanctuary*

Liz Trueblood provided a brief orientation on the SAC. The National Marine Sanctuaries Act authorizes the creation of advisory councils, and these exist around the country at each sanctuary. The FKNMS SAC was established in 1992 and is the largest advisory council in the national marine sanctuary system. The purpose of the SAC is to provide advice to the Superintendent and to bridge the gap between the community and sanctuary management. When representing the SAC, and identifying yourself as a SAC representative, those viewpoints must have been previously discussed and approved by the SAC and Superintendent. Scott Atwell is the communications coordinator and can help answer questions about SAC communications with the media. SAC members are ambassadors to the sanctuary and important for connecting with the larger community; this role will be especially important over the next several months as members of the public will likely approach SAC members with questions about the Notice of Proposed Rulemaking. A variety of tools and educational resources will be available to assist with outreach.

Council operations are outlined in the charter. All members and alternates are equally welcome to attend meetings and sit at the table. Each seat has only one vote, and the goal is for the member and alternate to discuss and agree on votes cast. Voting is by consensus. Any interested member should email George Garrett and copy Liz Trueblood to bring a discussion topic to the table. Any actions up for a vote by the council require advanced public notice (ie. inclusion in the agenda in advance). As needed, subcommittees and working groups focused on a specific issue area can be established; these also operate under SAC charter rules. Subcommittees are composed entirely of SAC members, while working groups also contain members of the public.

Communications occur regularly between the SAC, FKNMS management, and the public. When members of the public attend SAC meetings in person, the expectation is the SAC will listen to their comments and if needed address issues at the next meeting. Dialogue is not always possible in the meeting timeline, but members of the public are encouraged to speak with their SAC representatives prior to meetings and share their views and concerns.

More information about the SAC, including the SAC Charter, member information, meetings schedules and agendas, etc. can be found online at [Florida Keys National Marine Sanctuary - Sanctuary Advisory Council \(noaa.gov\)](http://FloridaKeysNationalMarineSanctuary-SanctuaryAdvisoryCouncil.noaa.gov).

**Chairperson Elections:** Liz provided a reminder about the roles of the Chair and Vice Chair. Ballots were distributed for the members to cast their votes.

Nominees included the following:

Chair: George Garrett

Vice Chair: Ben Daughtry and Andy Newman.

- Ben Daughtry provided a few comments. He appreciates the work the SAC does and would like to see the restoration blueprint through. Would be happy to take this role, but also believes Andy would do a good job.
- Andy Newman provided a few comments. He noted that Ben is more experienced in Marine Science, he has more experience in public relations and the tourism industry. Tourism is an important part of the sanctuary and he's played a big role in moving the TDC toward a greater promotion of environmental responsibility.

The council voted by paper ballot, and results were tallied and announced later in the meeting. George Garrett was re-elected to chair, and Ben Daughtry was re-elected to Vice Chair.

Andy Newman requested a minute to discuss a few additional topics related to his seat:

- A month ago, Key Largo celebrated the 20th anniversary of the sinking of the Spiegel Grove. That was an incredible story for the Key Largo Community. Dave Score, the former FKNMS Superintendent participated in a panel discussion as part of the anniversary events.
- Similar to last year, the TDC is embarking on another intensive lobster mini-season educational campaign that emphasizes the rules and respect for the environment. A new video is forthcoming. Thanks to Joanne Delaney (FKNMS Resource Protection and Permit Coordinator) for supporting the copy editing.

### **III. SAC BUOY WORKING GROUP UPDATE**

*Beth Dieveney, Policy Analyst, Florida Keys National Marine Sanctuary*

Beth Dieveney provided an update on the planning and execution of the SAC Buoy Working Group. At the April meeting, the council discussed and approved the creation of a working group to provide advice and recommendations to the Superintendent on our buoy program. This was originally intended to be a mooring buoy working group, but that has been expanded to include all buoys. The types of issues this working group may discuss may include:

- Zone marking, including buoys that mark SPAs, the Ecological Reserves and WMAs
- Parameters for mooring buoy placement. For example, important habitat types, other important resources, endangered species, etc.
- Number and location of mooring buoys. We currently have ~500, most of which are in the SPAs to facilitate snorkeling and diving; others facilitate access to fishing and historical resources.
- Innovative uses and management tools. This may include rotating mooring buoys, subsurface buoys, etc.

As a working group, this will include SAC members and community members and is an opportunity to bring more voices to the table. Will Benson and Lisa Mongelia have volunteered to be Co-Chairs. Other representative seats from the SAC may include fishing, diving, conservation & environment, research & monitoring, tourism and boating industry. To date, Ken Reda, Lucja Rice, Karen Angle, Ben Daughtry, and Gary Jennings have volunteered to participate. Additional interested members should reach out to Beth or Liz. We are hoping for 6-7 SAC members. From the community we hope to have a range of interests and geographic representation from throughout the sanctuary. Agency, county and municipal representatives can also participate to provide advice and share information with the working group. Thus far Monroe County, FWC, DEP, USCG and FKNMS staff have been identified to participate in the agency expert capacity.

Next steps and timeline: The goal is to finalize the membership, objectives and meeting schedule this summer. This working group will consider public and agency input on the draft rule as they formulate their recommendations. In October, public comment on the NOPR will close; the December SAC meeting will allow for additional SAC discussion and final input on the proposed rule. The working group will likely start in January so they may consider the full suite of input and public comments.

This is an issue-specific working group and will be sun-setted once the advice and recommendations are given. This will be a time commitment of a few weeks, which will be spread over several months.

**Council Member Discussion:**

**Q:** In the past, folks have brought up the idea of using mooring buoy sponsorship as a way to raise money for conservation and fund mooring buoys and maintenance. Is this still on the table?

**A:** This has not been done in the past but that doesn't mean we cannot explore it. Innovative ideas are part of the conversation we hope to have with the working group. Although community groups helped install and maintain the buoys when they were first deployed, for a very long time only FKNMS staff have been responsible for this. However, we've recently begun to explore new options and are evolving that program. For example, we recently hired outside contractors to help with installations. This is worth discussing, especially as new zones and additional moorings represent a lot more work; we need to be creative about how we implement that.

**Q:** Think that's a great idea, it's equivalent to the 'Adopt a Highway' model. We have almost 1 million registered boaters in the state of Florida and we do not have enough mooring balls to accommodate use. Last July 4th there were more boats at Alligator Reef than he'd seen in 32 years. There were 250-300 boats at that location. We need more moorings - recognize this is costly so this is a good idea. More people keep coming to the Keys and our reefs are stressed. We need to expand this system.

**Q:** The technology exists to more readily recognize "sponsors" for individual buoys. Consider how the Waze app notes what is nearby; maybe we can do the same thing where our online sanctuary maps show information about the business that is supporting a buoy. We need more buoys. On another topic, there has been a cottage industry popping up recently of sandbar tours. This didn't exist 5 years ago. Now a sandbar that had 100 boats now has 1000. This is a long-time problem but it's unclear how to regulate this business. Perhaps have a Blue Star-type program for the sandbar tourism industry?

**Beth** acknowledged that there is clearly a lot for this working group to discuss and reminded the

SAC to reach out if interested in participating in this group or with other suggestions for membership.

#### **IV. NOTICE OF PROPOSED RULEMAKING UPDATE**

*Sarah Fangman, Superintendent, Florida Keys National Marine Sanctuary*

Sarah Fangman, provided an update on the status and timeline for the release of the draft rule and NOPR. This is the next step in the Restoration Blueprint process. The timeline started with the release of the Condition Report. The draft rule will be released at the July 12th special session which will replace the August 2022 meeting. This will be in-person in Marathon. This will kick off a 100 day public comment period.

A number of tools will be available with the draft rule release; this is intended to help people understand the draft rule. These will be available on the website on July 12. These tools will present the information in a variety of formats including videos about zone types, a document library with the full rule itself, an updated socioeconomic document with information that underpins what is in the draft rule, maps that compare existing vs. proposed rules, the management plan (this is as important as the regulations; it speaks to non-regulatory aspects of the draft rule which includes buoys, permits, education, research, etc. which is necessary to protect and manage sanctuary resources). There will also be an interactive map similar to last time. We will also have a summary presentation available for viewing. The goal is to make it really easy for people to access the information and to comment.

We also have in person engagement opportunities. August 16th will be a virtual Q&A session. This is a month after the release so people have time to look at the information first. There are also a number of Public Comment sessions: August 30th virtual; September 20 - Key Largo, September 21 - Marathon, September 22 - Key West, October 18 - SAC Meeting in Marathon. Additionally, FKNMS will also present to Chambers, Rotaries, Commission meetings, NGOs, etc. These are meetings to present the information, but are not official public comment meetings.

#### **Council Member Discussion:**

**Q:** When the additional rotary, chamber etc. presentations happen, is that calendar public? If so, she'd try to join if nearby.

**A: Sarah:** As of now we haven't planned that, but we'd be happy to provide it.

**A: Scott Atwell:** We will promote this on social media; we will consider other ways to provide that information to the SAC.

**Q:** Do you have a communications plan? It's important to really be able to create awareness of these meetings and opportunities for the public to give comments.

**A: Scott Atwell:** Rollout plan is being coordinated with ONMS. Reminder that there are specific meetings that are for public comment. These events will be promoted extensively.

**A: Sarah:** While events listed on this slide are how people can stand and deliver public comment, that is not the only way. Anyone can go to regulations.gov at any time to register their views on what is being proposed.

**Q:** Are public comments published?

**A: Beth:** All public comments from DEIS in 2019 and from this NOPR will be at the same

docket/webpage at regulations.gov. The “comment now” button on the website takes you to our page, so anyone, even right now, can go to that page and see all the comments posted from the DEIS; this is also where the NOPR comments will be posted. There is a brief review when comments come in, so there is a slight delay. Staff try to upload those every 3-4 days so they are accessible.

**A: Sarah:** This will be a 100 day public comment period. If the last time is any example, there will be a lot of public engagement. Some of the comments are a reflection of a lack of understanding about what is being proposed/the intention behind them. We will do everything we can to clarify if there is misinterpretation. Please help us by highlighting any issues that you hear so we can try to respond to this in real time. We want people to understand what we’re suggesting so when they provide public comments the feedback is helpful and based on what is actually being proposed. This is an important role for the SAC as stakeholder representatives. Feel free to also help correct people and direct them to these various tools and information available online.

**Q:** We’ve been through a public comment and revision. Is this the end or will there be another revision after these comments?

**A: Sarah:** We cannot give an exact date until this is done. There are parts of this that we don’t control. Our intention is to take public comments and confer with our state partners, get their comments and resolve to a final place. How long this will take is TBD, but we will do our best to keep you informed.

**A: Beth:** Reiterated the uncertainty of the timeline. Staff are committed to doing this as efficiently as possible. Since we are at the NOPR phase, we’re not reviewing comments for 4 alternatives this time so we hope it will move more quickly. Could come out with a FEIS 9-12 months after this public comment. That Final EIS does do a final environmental and socio-economic analysis of the final proposed rule. We’ll have a final rule and opportunity for state partners, the Governor and Congress to comment. Hope for 9-12 mo. for final release. Often there is only 1 public comment opportunity because DEIS and Draft Rule come out at the same time. Given the nature of this proposal and the value we place on community input we made the choice to separate those processes. It does make it longer.

**A: Sarah:** The community and ONMS leadership both contribute to how long this will take. Are we willing to compromise to get something that is better than nothing? This will not be perfect. Would like to see us get to the finish line, even if it’s a little imperfect - so we can get there and do something. It’s time to do something. That is in all of our hands as the community - what can we live with because it’s better than what we have and will take us in the right direction.

**Q:** There is a lot on the website. How will the average person find this information? Can we have executive summaries or is that too complicated? In the end when this is all done, who makes the decision on the alternatives and what you carry forward.

**A: Sarah:** The general website is different from a separate singular website for Draft rule. The intention is for this to be very clear and present information in a variety of ways to allow folks to access information according to their preferred style. This will be front and center on the

website once it's published.

**Q:** Last time with the Restoration Blueprint draft it was cumbersome to sift through. Suggest we present information geographically/regionally. When we present maps and graphs, the yellow measuring device needs to show latitude and longitude.

**A: Sarah:** We have collected maps and presented them regionally, hope this will help.

**Q:** How do we make this easier? Avoid this again?

**A: Sarah:** Know there are other issues we want to take on and provide guidance and action on. We can do that as they come up vs. collect them for a decade and make this more cumbersome. Some issues may be tabled as part of this process; we can pick them up and address them in smaller bites. That's been part of the problem - it's complicated to do this all at once.

**Q:** In KW it was extremely difficult last time. People were so opposed to this. Saw that so many people focused on one thing; when you asked if they read the plan the answer was no but I heard. It's important for the SAC, as ambassadors, to be ready to answer the questions and combat misinformation. When you are there, lend your support, or bring attention to what you don't support equally.

From David Dipre (FWC): People always say "more laws we cannot enforce what we have." We have speed limits and traffic laws and there is not an officer to enforce those all the time - not everyone who speeds gets caught. The laws and rules aren't created with the idea that we need to catch every single person or there's no point. There will never be enough LE to catch everything. LE does a bunch of things at the same time; are able to multitask. Don't make decisions based on whether you think LE can cover this. LE will do the job.

## **V. CONNECTIVITY TEAM UPDATE**

Council member Jerry Lorenz introduced the Connectivity Team. This working group was established to look at issues that affect the sanctuary but occur outside of the sanctuary's boundaries - including Everglades National Park. It's also trying to place FKNMS geographically as part of the everglades landscape - we are intimately connected to what occurs in mainland Florida. We have decided to cancel the July WG meeting because it occurs one week post NOPR release. Instead the team will look at the draft rule from a connectivity team perspective, then bring that to the full team in September for further discussion. Last meeting SCCF presented some of the work they're doing in the Caloosahatchee area that may impact FKNMS. Paul Julian has since been invited to join the Connectivity Team. He works on water quality issues for SCCF. He may be able to produce conditions reports on a weekly basis for water quality/salinity, etc. He can put this into a usable format for lay people to look at and understand. This will be discussed at the September meeting.

In March, we discussed sewer outfalls in the mainland. Senate bill 64 says non beneficial discharges should be eliminated by 2032. Keys are an example of getting this done. Unfortunately there are municipalities that are not working towards this in time to accomplish this deadline. Several of the team members put together a resolution to this effect.



Council member Kelly Cox introduced the resolution. She spoke about non-compliant and faulty sewer outfalls on degrading wastewater conditions. This is a threat to FKNMS water quality due to excessive nutrients. Numerous local governments are designing and implementing wastewater upgrades. Resolution is to urge them to employ Advanced Water Treatment standards for wastewater disposal including monitoring to reduce impact to the receiving waters of FKNMS.

George made a motion to discuss this resolution. Jerry seconded.

### **Council Member Discussion:**

Jessica Bibza suggested that under whereas clauses # 10 and 11, some local governments are on the right track and others are a bit behind. But item 3 lumps them all together. Should we split these out more to give an attaboy to those who are on the right track/press harder to those who need more of a push. Do those not meeting deadlines need more encouragement?

- Kelly Cox: Our intention was not to set aside good vs. bad. We're expressing support for implementing BAT and AWT as it pertains to all municipalities, recognizing that some are not meeting requirements toward deadlines. We could amend this if the SAC wants. Part of discussion was that Miami-Dade and Broward have a much more complex endeavor - amenable to proposing an amendment.
- George: Dade County has consent orders to meet obligations over and above the statutory requirements.
- Jessica Bibza: suggested new wording to express SAC appreciation for past efforts in the first group, and instill a sense of urgency for completion for Miami Dade County and Broward County.
- Kelly motioned and Jerry Lorez seconded the addition of this amendment.
- The final draft resolution will show this change

**Q:** Ken Nedimeyer: Do we actually directly engage someone like this as the SAC vs. sending through Sarah.

**A:** Karen Bohnsack noted that the SAC handbook allows both options..

**Q:** Would this be better coming from the county commission?

**A:** This doesn't prevent them from doing this too. George offered that he has drafted a similar resolution for the City of Marathon City Council, the County may do the same if they choose. Ben Daughtry mentioned that Holly Rashcein is our county representative for the SAC, and George will bring this conversation to her attention when he meets with her later in the week.

### **Public Comment on the proposed resolution:**

NONE.

*The resolution was unanimously approved by all voting members present.*

## **VI. MISSION: ICONIC REEFS UPDATE**

*Lisa Symons, Regional Response Coordinator, Florida Keys National Marine Sanctuary*

Lisa Symons provided an update on Mission: Iconic Reefs including an overview of recent operations, the installation of monitoring pins for conducting baseline photomosaic work, progress on building an algal removal tool, and the initiation of a Reef Guardians pilot program with Blue Star operators.

She reviewed challenges to M:IR including SCTL, an APAL and ACER mortality event in 2021 and a current *Diadema* disease outbreak. This was confirmed in the Keys last week. Unhealthy *Diadema* should be reported to FWC and Dr. Andy Bruckner. It's important to understand where this is occurring and what is causing it.

Opportunities - an internal dashboard was developed to track partners; an external portion of that website will be available soon. Additional staff have also been hired - including by FKNMS, the restoration practitioners, United Way and the National Marine Sanctuary Foundation. Efforts are also underway to increase the visibility and awareness of M:IR including the branding and website.

To track progress, baseline imagery is important. Multiple layers of imagery are necessary to do this, including small scale with divers to large scale data acquisition. The key is for this information to be georeferenced. Photomosaics are high resolution and can help track outplant growth overtime. Video zooms into Eastern Dry Rocks. This helps understand changes in algal cover, outplants, etc. This partnership now has 362 data sets packaged together; soon we'll have this high resolution data for multiple M:IR locations. Once processed, this data will be available to the public.

Regarding grazers, work is underway to investigate the viability and best practices for *Diadema* and caribbean king crab monitoring and support. Considering the *Diadema* disease, we will modify plans for outplanting. Site preparation and maintenance is also occurring. *Palythoa* and algae compete with coral recruits, so an algal removal tool is in development. This is a 'glorified french press with a vacuum.' It includes a filter tank with a plunger system that is still a prototype. The hope is that this will improve the nuisance species removal process by reducing the need for hand tools. This will facilitate site preparation and maintenance. If it works, we will build additional tools down the road. Care will be necessary in using this tool to avoid impacts to coral and other benthic organisms. This has not yet been field tested.

There is also a new stewardship initiative associated with M:IR. First step to set this up is working with Blue Star Operators to develop a program called Iconic Reef Guardians. This will be a 3 tiered program that will allow Blue Star dive operators to take divers to tour nurseries, support nursery maintenance, and engage in additional maintenance at M:IR sites (tier 3). We are currently piloting Tier 1 of the program.

United Way has been a critical partner for M:IR. They brought in early donations of \$3.5M from the United Arab Emirates. and have helped us reach into the community. They have awarded \$2.3M in grants to CRF and RRUSA, developed an online marine resource guide, and provided money for marine science education grants and local college scholarships. They are also working on initial development of an M:IR curricula for Ocean Guardian Schools.

This is a 20 year, \$100M project, we are 3 years in and have brought \$22M to the table. This undercounts the contributions and fundraising in support of M:IR by restoration practitioners, as

well as in kind staff support, etc.

The partnership for M:IR has grown and will continue to grow as more people become engaged, and innovation continues.

### **Council Member Discussion:**

**Q:** Regarding the upcoming data acquisition projects - will Looe Key buoys be removed again this year? Is it possible to do this at a different time of year?

**A: Lisa:** We are removing mooring buoys 2-21 for a 4-5 day period. This will be July 11 - 15 or 18-22nd depending on the weather. This is after July 4th and before the underwater music festival. Lisa noted that operators were contacted in January to let them know; the primary operators weren't concerned about losing business during that time period. We are trying to avoid the weekend which was problematic last year. Based on feedback from last year, we are trying to limit this to mid week. To get good photographs, we need the same conditions that recreational operators do - clear water is key for cameras to work; this means we are limited to July August timeline; any later and we are likely to have worse water clarity due to being stirred up from storms.

**Q:** Can we generalize the success of this coral outplanting overall? I've heard that most of these corals don't survive.

### **Answers:**

- **Lisa:** Yes, it's working. We are ahead of where we thought we'd be. Had some setbacks with the mortality event last year, and we're putting SOPs in place to ensure that doesn't happen again. We are starting to see benefits at some of these sites. That's why we need baseline data collection so we can quantify the benefit.
- **Ken Nedimeyer:** Some species do great, some do great for a while then die - esp. ACER. The challenge is finding the right areas and the right genetic strains for those areas to ensure long term success. Overall we've seen good success. APAL has done great and is a success story. The brain and star corals are doing well too. Mixed messages with the staghorn coral.
- **Sarah Fangman** added that this is why we are investing so extensively in monitoring. So we can answer the question of what's working and what is not. We are being smart with what we are planting and where for population management. It's not just an investment in outplants, but planning and monitoring to support that. It's not realistic to expect 100% success.
- **Ben Daughtry:** The techniques used now are different than even 5 years ago. They are improving BMPs to set out more coral more efficiently and with less stress to the coral. This will continue to increase the success rate.
- **Andy Newman** requested that we communicate these successes as they occur. People need to know that these efforts are working.
- **Sarah** noted that we have hiring actions that are underway or will be soon, to bring on board among other things a dedicated M:IR communication person to make sure we are sharing the messages of M:IR. This is an FIU position with FKNMS; the funding is from M:IR funds.

**Q:** There is a buzz from the dive industry but it will take time. People are noticing and saying that things are getting better and this is making a difference. M:IR is one of the best kept secrets - a communications person would be really valuable.

**A: Lisa:** We needed to grow the program to make it coherent enough that we were ready to take

this next step. With the new branding, etc. now was the right time. There are a lot of opportunities with this. NPS is doing the same methodology at Dry Tortugas NP, and a similar methodology is being replicated in USVI. There is a lot of interest in this locally and internationally.

**Q:** Do we solicit partners for M:IR? Where is UM RSMAS? I'm a board member with CCA who wants to do work in the Keys - unsure what they can contribute other than money.

**A:** Both: Some came forward on their own and some were solicited. Money is an easy answer, but there are also more opportunities for additional engagement coming.

**Q:** Regarding the partners, is there a report or pie chart that says who is doing what? Bullet point for how partners are involved in the process?

**A: Lisa Symons:** we have this in a few different forms, not exactly how you've articulated it. We'll think about how best to present the information this way for future presentations.

## **VII. IDENTIFYING CAUSES & CONSEQUENCES OF SEAFLOOR EROSION TO GUIDE CORAL RESTORATION STRATEGIES**

*Dr. Lauren Toth, USGS St. Petersburg Coastal and Marine Science Center*

Dr. Lauren Toth, USGS, presented work from the USGS Processes Impacting Seafloor Change and Ecosystem Services Project.

We know that US coral reefs are valuable - fisheries, tourism etc. is valued at \$8.5B per year in south Florida. This estimate does not include the impact of reefs on shoreline protection. This is another \$650M per year in flood risk reduction. What is less familiar, it's not just the veneer of living coral, but the geologic structure built by corals over 100s to 1000s of years that supports these ecosystem services. Protecting this structure is just as important as protecting corals.

The PICES project began at Crocker Reef. Kim Yates was trying to find a place to install equipment - the spot identified was shown on the chart as 2 feet of water, but it was 10 or more feet in reality. She set out to figure out why there was such a difference. Lidar data shows that this is actually 12 feet of water. What is going on here? A lot of nautical maps include information from as early as the 1930s - wouldn't be an issue if seafloor was stable, but in this case over 10 feet of elevation was lost over 70 years. This is not unique to Crocker Reef. Hens and Chickens show a similar striking example of how extreme reef erosion can be. Harold Hudson set up an erosion experiment in 1998; drilled a whole in a recently dead coral, filled with cement. Erosion due to parrot fish, etc. at the reef. In 2015, the USGS team measured the elevation of that reef. This was a foot of reef loss in less than a 20 year period. At all the sites Harold drilled, the average reef erosion rate was 5.5mm per year. This is just a little bit slower than the growth rate of these corals, so this is substantial.

USGS investigated how widespread this phenomenon was across the Keys. USGS conducted a large-scale study looking at reef elevation data from 1930s data and comparing it to more modern bathymetric data in the Upper and Lower Keys. Findings were striking. The Upper Keys shows net elevation loss, overall. In most habitats; average elevation change was 10 cm over this 70 year period. Scaling that 10 cm over this entire area - 38 million cubic meters of reef volume lost. 1M cubic meters is the volume of the empire state building. This is also happening in the Lower Keys. They had a smaller study area around Looe Key - elevation loss was ~30 cm. They looked more

closely at the habitats where these changes were occurring. Most significant changes were in shallow reef habitats. Only substantial elevation gain was in offshore habitats where sediments pushed offshore and piled up in deeper water. Project showed this was happening in USVI, Hawaii, etc. too. Reef erosion because of coral reef degradation is a problem around the world.

This is important because loss of reef structure = loss of habitat to support ecosystem functions, also increases water depth over the reefs. We know sea-level rise will be a problem for So. FL; erosion will exacerbate this problem. Water depths over reefs will increase more than we'd expect from SLR alone. This is important because water depth is the main factor in determining whether reefs can protect shorelines and buffer waves. If you project historic models into the future, the divergence between seafloor and sea surface increases over time. Expect at least 1m more water depth over reef at the end of the century compared to the beginning of the century.

1m loss of reef elevation more than doubles the coastal flooding risk in habitats in So. FL. Predicted flooding in a 100 year storm with current elevation vs. a loss of 1m of reef elevation significantly increases risk to our shorelines. The value of this impact is \$675+M/year of increased risk of flooding and lost economic activity.

We want to mitigate this, but need to know what causes it to do so. Historic models are helpful for showing patterns of reef elevation change, but do not get at the processes that drive those changes (e.g., reef degradation, storm driven, etc.). Next phase of the project is to gather higher resolution data over a single decade to figure out these processes: Discovered that reef spurs are eroding. In the reef grooves, see net elevation gain. Sediments move offshore to fill in grooves and deposition forms the spurs. This elevation gain does not increase the ability of the reef to provide coastal protection.

The final phase of the project is moving to a higher resolution dataset (mm scale resolution). This is accomplished by using Structure-from-motion Quantitative Underwater Imaging Device (SQUID 5). This includes 5 cameras under a towed system. Can image large reef areas relatively quickly. This will help quantify small scale elevation changes; this is more relevant to the scale of coral outplants. USGS just released data from the EDR survey. Raw imagery is available to the public and each image is georeferenced.

Last July, SQUID 5 imaged Looe Key. Calm days and clear water are key for the imagery. From this they can get 5mm digital elevation models. It only took a few days to get the whole data set. With this data, could potentially detect individual coral growth rates and track outplants with this data. It's important to be able to tie this data with that collected by divers underwater. Are working on developing user friendly means to do this, using National Coral Reef Monitoring Program data. Have data from multiple sites that can be tied to these data sets since 2000, to look at historic change.

USGS wants to get at the processes that drive elevation change; this is key to mitigate it. Potential factors = physical movement of sediments, coral growth, bioerosion, chemical dissolution. Use models to look at the gorgonian contribution to reef elevation. Able to see event driven deposition of sediments (e.g., burial after Irma); also developing carbonate budgets. This is a way to estimate the positive growth of a reef by looking at abundance and growth rates of corals vs. bioerosion to determine net reef growth from biological processes. Majority of reefs in Florida are net erosion. Were able to show the potential impact that M:IR targets could have on reef growth, using carbonate

budgets. Took the coral cover targets for elkhorn, staghorn and star coral; saw M:IR could significantly increase reef growth - comparable to long term historic baseline from geologic records, keep pace with SLR and better close the gap with expected future SLR. Closing the gap between SLR and reefs can have a huge economic impact in So. FL. USGS looked at mitigation of coastal flooding in the future if coral restoration occurs. Study estimated that reef restoration could prevent \$232M in damages annually. This does not account for the opposite which if we do nothing and continue to let reefs erode which is \$675+. In total, this equates to ~\$1B per year in reduced flooding.

Because coral restoration is expensive and time consuming - we need to make sure corals are not being outplanted on eroding reefs or where they'll be covered in sediment. With data, we hope to develop tools to show where the seafloor is most stable overtime so that restoration is more likely to be more successful.

Over different timescales, the amount of elevation change is different. With Hurricane Irma, we saw much larger sediment deposition with just one event. Post Irma, the reef has eroded rapidly as those sediments get pushed back offshore. These different time periods; and ability to say where and why changes are happening on the reef is important for informing management actions.

July 11-20 USGS will go back to Looe Key to run the 2022 SQUID 5 mission. This is the first repeat survey and the highest resolution dataset they'll collect yet. This will give lots of information on processes that drive change on that reef. This will be compared with diver data, carbonate budget surveys, etc. This helps answer questions about where restoration will be most successful and impactful. Also project what reefs will look like in the future, then tease apart where and why elevation changes are happening to inform management.

#### **Council Member Discussion:**

**Q: Kelly Cox:** To what degree does USGS coordinate with US Army Corps of Engineers? USACE has said that reef restoration isn't viable as a resilience strategy for So. FL because of the degree of protection it provides.

**A: Lauren:** They do work directly with USGS on occasion - especially on the economics of flooding risk. If we can convince them that restoration and green infrastructure is as important as gray infrastructure before and after storms, that could create new opportunities for incorporating restoration into large scale management plans.

**A: Lisa Symons:** After Irma, we discussed natural and nature based solutions. Because the models weren't good at the time (pre USGS information), most of what has been proposed for Keys is not nature based. Because of USGS work and that of others, we now have more room to push this further in the future.

**Q: George Garrett:** How much does reduction in reefs have to do with ocean acidification? What is the character of the change? Elevation decreases in some areas and increases in others so may flatten out the reef?

**A:** Chemical dissolution is a huge unknown over the large scales. Small scale studies have shown this to be an important part of the equation but it is hard to measure over large scales. There is a sister PICES chemical project that is aimed at asking if we can quantify the sediment dissolution component. Elevation changes overall - they are looking into this. Definitely seeing flattening of the reef. The large loss from the 1930s deals with dead corals that have collapsed = large scale flattening (e.g., with APAL die offs). With sediments that move around; we discover

that this is very dynamic. At Looe you might have a lot of sediment pile up over a few months, but then that washes away over a few years; it really isn't preserved over time.

## **VIII. AGENCY REPORTS**

### **Superintendent's Report - Sarah Fangman:**

#### **Florida Department of Environmental Protection - Nick Parr:**

##### Recreation and Parks:

- Lignumvitae Key Botanical State Park
  - Installation has been completed of 116 No Internal Combustion Motor signs (89 existing and 27 additional), 4 new channel markers along Indian Key Channel, and adding 5 new channel marking buoys along Yellow Shark Channel.
  - For the next 5 years, monitoring and aerial photographs will be evaluated to show the results of new and replaced signage. This work was completed with monies from Keys Restoration Fund In-lieu Fee Mitigation Program.
  - In addition to the NICM project, phase I of the Indian Key Channel revetment project has been completed. This project targets areas along the north side of Indian Key Channel where cliffing of the adjacent sea grass bed was observed. Fill was installed along the edge of the channel to help protect the exposed edge from further erosion. In conjunction with the channel revetment project, topographic restoration was done on a large scar into the flat and 137 bird stakes installed into the scar. Funding came from the BNCR (Bureau of Natural and Cultural Resources (\$300,000) for fill and District 5 \$8,220.00 for bird stakes installation.
- Bahia Honda State Park
  - One very positive thing happening here at Bahia Honda, that goes above and beyond their daily duties, is the repurposing of recovered crab trap line from the ocean. Volunteers at the park that have been creatively repurposing that rope and making some interesting items. At our Earth Day event, they had a demonstration that taught visitors how to weave a doormat or a trivet. Another demo showed macramé plant hangers and Celtic knot hot pads. Since then, one of the resident volunteers, Jill Long, has created an interpretive piece of artwork for the park out of the rope. Her name is Myrtle and she is a life size sea turtle made from 100% marine debris. Jill braided, wove, and knotted her way through over a mile of the rope to create this interpretive piece. We will be displaying it at the park and hope it brings attention to the problem of marine debris in oceans. A video can be found on the Friends of Bahia Honda State Park Facebook page:  
<https://www.facebook.com/FOBHSP/videos/552591973131755>.

## **Florida Fish and Wildlife Conservation Commission - Capt. David Dipre:**

- 14 officers in academy right now (CFK and Tallahassee) that will come to Monroe County. We are working to ensure we get people from Monroe County for Monroe County. This is the first academy and if successful will continue to have more academies in the Florida Keys in partnership with Monroe County Sheriff's Office. This helps build relationships between partner agencies from the bottom up. This is important because we all work together and it allows us to have local knowledge among our law enforcement.
  - Have more support with NOAA OLE and the new officers in the academy. The Joint Enforcement Agreement is 2500 hours of patrol in SPAs, etc. but everytime they are out there they are doing patrols on behalf of FKNMS. For example - boater education support FKNMS. It's important if you see something, say something.
  - Will get more specific about what FWC can, should be, and will be doing for you at a future SAC meeting.

## **NOAA National Marine Fisheries Service, Southeast Region - Heather Blough:**

- The South Atlantic Council's new dolphin and wahoo catch limits and management measures took effect May 2 including new commercial trip limits for vessels with trap, pot and buoy gear on board and the reduced 54-fish recreational vessel limit for dolphin
- The Gulf Council's red grouper allocation changes and catch limit reductions took effect June 1
- NMFS is already in the process of implementing modest increases in red grouper catch limits through a second rulemaking and the the South Atlantic Council is considering additional changes to dolphin regulations in response to feedback and concerns they heard on the last round of changes.
- They discussed a number of options when they met in Key West last week – many of which have already been implemented by Florida - and they intend to invite public input on those between now and their December meeting when they will also review stakeholder feedback on a Management Strategy Evaluation Project NMFS' Science Center is exploring to help inform future decisions about dolphin management.
- Also the South Atlantic Council continues to explore actions to
  - Require electronic logbook reporting for commercial fisheries
  - End overfishing of red snapper and reduce snapper grouper discards
  - Improve private angler data collection and reporting through a potential new permit requirement
  - Adjust catch limits, allocations and management of tilefish, greater amberjack and snowy grouper
  - Implement a new rebuilding schedule and related management restrictions for gag
- They intend to hold public hearings on proposed snowy grouper and tilefish changes before their September meeting and to take final action on greater amberjack in September
- The Gulf Council is meeting this week in Fort Myers and is tentatively scheduled to approve actions to:



- Enable for-hire vessels to be exempted from location reporting requirements when their equipment fails
  - Adjust Gulf Group king mackerel catch levels.
- They'll take public comments on both those actions Thursday afternoon, and also invite comments on NMFS' Gulf aquaculture opportunity area initiative – the agency initiated the scoping process for the aquaculture initiative last month and are taking public comments through August 1
- Also this week, the Gulf Council's considering actions to
  - Further reduce for-hire reporting burden
  - Transition the shrimp electronic logbook program to a new platform.
  - Revise essential fish habitat designations
  - Protect mesophotic and deepwater coral areas
  - Increase red snapper catch levels
- They're discussing temporary actions to address overfishing of greater amberjack and gag while they work on longer term rebuilding measures for those stocks.
- They'll discuss whether and how to respond to the goliath grouper rule change in Florida state waters
- They'll receive a presentation on NMFS' draft Equity and Environmental Justice strategy which is open for public comment through August 19.
- Finally, NMFS is soliciting pre-proposals for their FY23 Saltonstall-Kennedy Competition. This competition distributes about \$10 million to 40 or so projects each year. FY23 priorities are projects that directly benefit the fishing and aquaculture industries through: 1) promotion, development, and marketing; or 2) science or technology that promotes sustainable seafood production and harvest. Awards will be up to \$300,000 over a 1-2 year period. Pre-proposals are due July 18.
- Please contact Heather if you have questions or want additional information about any of these topics.

**United States Coast Guard - Alexandra Hughes:** Alex gave an overview of recent USCG activities and helped explain where the USCG Living Resources division fits into law enforcement, resource protection, and boater safety in the Florida Keys. She shared that USCG frequently partners with NOAA OLE and FWC on enforcement operations, but recently USCG assets have been busy with migrant interdictions in the So. FL area.

**U.S. Navy - Ed Barham:**

- Least and Roseate tern nesting has been good this year. Least terns are using the nesting platforms installed on Big Coppitt and Geiger Keys. Roseate tern nesting has been documented on Truman Annex rooftops.
- Sea turtle activity has been busy with nests on the Boca Chica shoreline and Truman Annex.
- Naval Air Station Key West won the 2022 Secretary of the Navy Environmental Award for Natural Resources Conservation. NASKW demonstrates a successful balance between sustaining its multifaceted mission and effectively managing natural resources and critically endangered species. NASKW is a leader in natural resources conservation in the U.S. Navy

and sets the standard for others to follow on how to successfully sustain missions in an extremely critical and sensitive environment.

## **IX. CLOSING REMARKS**

Chairperson Garrett thanked council members and the public for tuning in to this virtual meeting, and for a robust discussion. The next meeting will take place on Tuesday July 12, 2022 in Marathon. The exact location will be announced shortly, and an agenda will be posted to the website in advance of the meeting.

The meeting adjourned at 2:47 pm.

## **PUBLIC COMMENT RECEIVED VIA EMAIL**

One comment received via email from Tim Birthisel - see attached.

## **Comment received via email during hybrid meeting:**

### The Terra Sub Aqua Project: Aquaculture Uncaged

My family and I, with the help of volunteers, operate a live rock aquaculture farm located in the EEZ about 6 mi. offshore of the FL keys, in the desert-like sand flats just outside the shallow reef line. We have developed a robust and economical system to suspend the rocks above the sand bottom, providing new habitat for the coral reef ecosystem.

As a zoologist I see the obvious beneficial effects of substrate stacking, not just on the live rock, but on fish populations, which serve as “algae police,” grazing on the algae that can smother the more desirable growths such as hard and soft corals, both on the substrate stacks and the wider surrounding area. We have observed cycles of reproduction at the operating site, including fish eggs on the substrate rocks, clouds of fish fry, schools of fingerlings sheltering at the aquaculture structures, diverse fish and shrimp interactions including parasite cleaning stations, the eventual maturation of fish that can migrate away from the installations, and large schools of adults that gather at the site for spawning aggregations. We have observed over 100 fish species as well as many invertebrates, including turtles, squid, sharks, grouper, etc. that use the farm. We have seen coral growth by natural settlement, not only for soft but hard corals as well, a net gain of coral habitat. Today we only harvest small amounts of live rock, generally planting more than we harvest, so we effectively create new habitat in the area, notably including game fish.

The collapse of the once-prominent stands of Elkhorn, Staghorn, and Mountainous Star corals, listed endangered species, that used to dominate the hard bottom reefs in the Keys is profound. The historically high relief reefscape is more flattened now, covered more by sponges and algae, and this space provides poorer fish and coral habitat. That the endangered species exists at all, visible mostly as small colonies, is largely due to the heroic efforts at out-planting shore-raised coral fragments. Due to the frequency of intensive storms and other stressors vs. slow growth rate of the planted areas, the hoped-for return of the actual functional habitat, described as geologically “rugose,” (high relief) may require something on the order of several human lifetimes, assuming the starter colonies can thrive over time in locations they used to occupy. Unfortunately, that doesn’t seem likely, there is growing skepticism about the current efforts, the estimates are that we have lost 98% of the corals in Florida, and that those reefs will be practically dead by 2040.

We have seen that the deeper reefs in federal waters are faring better, and the sand flats area we use is deeper than the fringing reefs inshore. The water is cooler and cleaner, and there is potential to protect it from overfishing, since it has not been very productive due to the historic lack of reef cover or edges. Following on the heels of pioneers like Ken Nedimyer, J. Harold Hudson, and many others who have paved the way to develop the techniques of aquaculture and restoration in use today, I think we have created a sustainable method of operation that could form the basis of an economical way to extend useful habitat for the larger coral reef community, to the benefit of corals and related organisms that will be able to survive there and to help connect biodiversity “hot spots”

like the isolated MPA's and remaining reefs in the Keys and offshore. We are not done trying to save Florida's corals.

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