

FLOWER GARDEN BANKS NATIONAL MARINE SANCTUARY
Sanctuary Advisory Council
Meeting Minutes
September 20, 2023

HYBRID MEETING

Meeting Attendance Roster:

Jake Emmert, Conservation, Present
Joanie Steinhaus, Conservation, Present
Andy Lewis, Dive Operations, Present
Kristen Maples, Dive Operations, Present
Janavi Mahimtura Folmsbee, Recreational Diving, Present (virtual)
Chris Ledford, Recreational Diving, Present
Sandra Metoyer, Education, Present
Michelle Sluis, Education, Present
Vacant, Commercial Fishing, Vacant
HD Pappas, Commercial Fishing, Absent
Sepp Haukebo, Recreational Fishing, Present
Shane Cantrell, Recreational Fishing, Present
Don Craig, Energy, Present
Vacant, Energy, Vacant
Michael Dance, Research, Present (virtual)
Diego Gil-Agudelo, Research, Absent

Alicia Caporaso, BOEM (non-voting), Present (virtual)
Jim Sinclair, BSEE (non-voting), Present
Vacant, EPA (non-voting), Vacant
Rusty Swafford, NOAA Fisheries (non-voting), Absent
Vacant, NOAA OLE (non-voting), Vacant
Rachel Parmer (representing Emma Clarkson), TPWD (non-voting), Present
LTJG Shelby Threlkeld, USCG (non-voting), Absent
Michelle Johnston, Acting Sanctuary Superintendent (non-voting), Present

Total voting member attendance: 12 of 14 voting members; 8 votes needed

Others in Attendance:

Taylor Burley Galaviz, Kelly Drinnen, Ryan Hannum, Olivia Eisenbach, Kelly Martin, Claire Mullaney, Kelly O'Connell, Marissa Nuttall, Gretchen Luchauer, Tarice Taylor, Frank Burek,

Adrienne Correa (virtual), Josh Harvey (virtual), Justin Blake (virtual), Patricia Broom (virtual), Grant Burdine (virtual), Donavon French (virtual), Jaree Hefner (virtual), Morgan Huette (virtual), Jessica Lee (virtual), Janice Leriorato (virtual), Terence Palmer (virtual), Michele Paularena (virtual), Laura Wright (virtual), Michelle van Deventer (virtual)

9:10 Welcome and Announcements- Kelly Drinnen and Michelle Johnston

Today's hybrid meeting, located at and hosted by Flower Garden Banks National Marine Sanctuary (FGBNMS) on NOAA's Galveston Lab in Building 305, is being run through a webinar.

Roll call of council members by Kelly Drinnen.

Michelle Johnston welcomed everyone to the meeting and introduced new Constituent Engagement Specialist, Taylor Burley Galaviz, who replaced Leslie Clift in coordinating the advisory council.

9:15 Administrative Business and Announcements - Jake Emmert

Call to order at 9:15 AM.

Adoption of Agenda - Motion from Shane Cantrell, second by Chris Ledford. MDBC update requested during public comment. No objections on the draft agenda, motion approved.

Adoption of Minutes from May 25, 2023 meeting – Objection from Joanie Steinhaus. Under section titled Cruise Ship Industry Discussion, paragraph ten, “perceptive” needs to be changed to “receptive”. Motion to approve amended minutes from Joanie Steinhaus, second by Kristen Maples. Motion approved with amendment.

Chair Jake Emmert (Conservation) welcomed new members and thanked those who selected the new members. Jake also thanked Brian Shmaefsky for serving as the Education seat for two terms.

9:21 Constituent Updates

Shane Cantrell, Recreational Fishing: As far as recent updates on Wahoo, there seems to be limited pushback from people he has talked to regarding fisheries management. Manta rays are being spotted in the Galveston jetties with reports of 4-5 individuals spotted recently. NOAA fisheries was recently awarded money to address Right and Rice's whale populations. Shane plans to share a link to give public comment regarding the proposed rule to designate critical habitat for Rice's whale.

Don Craig, Energy: Would like to be kept in the loop regarding Rice's whale regulations and would like to know what the sanctuary's involvement is. New technology is still of high interest at BP.

Chris Ledford, Recreational Diving: Texas A&M University at Galveston (TAMUG) ran an offshore research diving class last summer. This endeavor was relatively successful with 3-4

students completing the course, most of which were able to join the sanctuary team offshore and participate in research activities. This class helped create a workaround to resolve some of the insurance and liability issues that hinder collaboration between the University and the sanctuary. Additionally, this allowed newer divers that don't meet the minimum dive requirement to participate in research activities. This class helped students get involved earlier in their academic career than would normally be possible. Chris also mentions that insurance rates for recreational divers and charters have skyrocketed. Additionally, new Coast Guard regulations are being applied to day boat passengers for crewing vessels that will make access to the sanctuary more expensive. This will likely have significant repercussions through recreational community and the industry will likely shrink over the next couple years.

Joanie Steinhaus, Conservation: Joanie just returned from an event focusing on efforts to end fossil fuels. Turtle Island Restoration Network (TIRN) hosted 54 events last fiscal year with 391 participants. Each event has differing messages and education goals but FGBNMS is always mentioned. Microplastic testing during FGBNMS dive trips continues. Joanie and TIRN are hoping hard to reduce plastic waste and have been working with a nonprofit to provide local businesses an affordable option for reusable utensils. Moody Gardens will act as a washing center and TIRN would like to get all local businesses involved. They are trying to match what they currently pay for takeout containers so businesses are more inclined to participate. There was 200,000 pounds of trash picked up over July 4th weekend during beach cleanups and has become a major problem in our local area. There was a proposal for critical habitat protection for green sea turtles. This is currently up on federal registry and comments are open through this weekend. Joanie and her team have been working to advocate for and protect Rice's whales for past few years as only 50-100 individuals are left and primarily stay in the Gulf of Mexico. One was spotted and documented recently in the western Gulf of Mexico.

Jake Emmert, Conservation: Moody Gardens had a lot of success with diving this year. They now have a rebreather team and have built more partnerships, particularly in regards technical diving at deeper depths. Jake hopes these new diving tools will help the sanctuary get more work done among the mesophotic depths in FGBNMS. Moody is excited to host the Gulf of Mexico Reef Symposium coming up in November. Moody is also planning the second annual Dive into the Gulf, which will be held in February. The team at Moody Gardens have been working hard on reimagining their conservation programs.

Sepp Haukebo, Recreational Fishing: Mentioned a study conducted by NOAA Fisheries last year that audited the estimated recreational fisheries harvest nationwide. The existing survey overestimated harvest and effort by 30-40% overall and about 14% in the GOM. Although news outlets tend to overinflate this issue, Sepp believes that fisheries is doing a good job predicting estimated harvest in the Gulf. Sepp just got back from Bahamas, where he has been working with local guides in the sharing of knowledge. They had a learning network launch with over 30 guides where they discussed climate change and coral bleaching. Every guide said this was the hottest year on record. Impacts from bleaching are unprecedented. The guides reported that the fish are moving into deeper waters much sooner and stay offshore much longer. Climate change impacts are hitting certain parts of the world much harder. Sepp will be attending the annual sanctuary advisory council summit, where he will be representing FGBNMS. He hopes to share the information about the success of the sanctuary in preparing for future climate impacts

including the near completion of the climate vulnerability assessment. He would also like to chat with HQ and other sanctuaries about the council's wahoo recommendation and learn more about how other councils approach fisheries management matters.

Andy Lewis, Dive Operations: The Fling has been running full trips, with approximately 1000 divers per year. They are back up to pre-COVID numbers. Half of the participants are new divers and half are returning divers. The diving itself has been great this season with awesome visibility and little current. They have been getting a lot of people coming out with closed rigs. There have also been multiple sightings of frogfish, sponge crabs and some coral bleaching. They have noticed the water temperature at depth is 86 degrees in some places. Associated Press is doing a story on FGBNMS. People are always interested in what is happening at FGBNMS in dive club meetings. Last meeting with the Gulf Coast Council of Dive Clubs, they had short discussion about moorings. Andy is interested in making sure that the mooring infrastructure remains available for recreational diving. He is impressed with new technology and looks forward to seeing its utility. Some of the moorings the Fling likes to dive are still not there. The Fling's season will go through November this year. Fling has added internet and outreach has increased exponentially. There is a lot more social media traffic and information going out about the sanctuary.

Sandra Metoyer, Education: Sandra is new to the education seat. She is currently at Galveston College (GC) and has invited sanctuary staff, Michelle Johnston and Kait Brogan, to participate in their career panel. Kelly Drinnen and Michelle Johnston are coming to GC for a lionfish dissection program. This is part of a National Science Foundation (NSF) project to get underrepresented students involved with STEM and coastal science.

Kristen Maples, Dive Operations: Texas Scuba Adventures has been taking divers out to FGBNMS for day trips out to Stetson Bank. Girls that Scuba just released an article regarding 18 top diving destinations and FGBNMS made it on the list. Two weekends from now, Texas Scuba will be supporting a Try Scuba event for Big Brothers Big Sisters at Lasker Pool. The team hopes to expose underrepresented kids to scientific diving techniques by having them participate in underwater surveys. There will also be topside activities for the kids to learn more about the sanctuary.

Michelle Sluis, Education: Michelle is new to the education seat. She currently works at Texas A&M University at Galveston (TAMUG) as research scientist studying highly migratory species. Her background is focused in otolith chemistry and acoustic population connectivity. She has starting to compile samples to look at microplastics in larger predators across the Gulf. She occasionally teaches marine ecology courses and just included the sanctuary in a mutualistic relationship class.

Rachel Parmer, TPWD: Rachel is filling in for Emma Clarkson at Texas Parks and Wildlife (TPWD) at this meeting. She expresses that it has been a little quiet at Artificial Reef Program over the last few years. COVID had major impacts on their team but they have been working hard to get their program up and running again, including working on partnering with the sanctuary on lionfish and artificial reefs. A lot of oil and gas platforms are getting decommissioned in the Gulf and not as many new ones being put in. They are interested in the

move to wind energy and the tie ins to artificial reefs. Next year they will be starting their monitoring program back up. TPWD is staying on top of Rice's whale and green sea turtle designation.

Michael Dance, Research: Mike has been busy this summer downloading receivers from banks and platforms nearby. All of the acoustic receivers successfully came up this summer after a year's deployment. Coverage goes beyond the sanctuary to the east near the Mississippi River. They picked up a few manta rays. There were also many detections from amberjacks as well as movements between individual banks. They have also noted movement between artificial platforms and some of the natural reefs. Collaboration with Marissa Nuttall at FGBNMS has allowed for tagging of grouper, snapper, and creolefish.

Janavi Mahimtura Folmsbee, Recreational Diving: Divers reported lush coral spawning this year, lots of mantas on their dives and bleaching noted. The Aquarius Tunnel won the People's choice award in the 2023 CODA awards. This art piece has been accessible to people worldwide and has brought a lot of attention to FGBNMS. There was flooding in the tunnel this summer that caused some damage. Waterproofing above tunnel was taken down and left art vulnerable. Janavi hopes to repair the damaged areas. She will be doing another small installation in the airport, which will be upstairs near the international terminal. She is also writing an article for a photo travel magazine. Janavi will be sending some artwork for the upcoming Gulf of Mexico Reef Symposium in November.

Alicia Caporaso, BOEM: BOEM executed the IA for the characterization of habitats within the no-activity zone and will be working closely with the sanctuary to expand the knowledge of expansion banks. BOEM's dive team is back up and running and available to work in the sanctuary with the team.

10:04 Sanctuary Updates – Michelle Johnston

Office of National Marine Sanctuaries (ONMS) updates: There are currently six sanctuary designations in process. Three of those are in the northeast, two in the Great Lakes, and the other is Hudson Canyon. As a result, the eastern region is very busy right now. There are opportunities to provide public comment on these and the sanctuary encourages constituents to do so. Capitol Hill Ocean Week (CHOW) was in June and there was a big focus on climate. The National Marine Sanctuary Foundation (NMSF) has a new CEO his name is Joel Johnson. He has worked with several nonprofits in the past and is a master naturalist story teller.

OMNS regional updates: There are record temperatures in the Gulf and that has had severe impacts on our partners in the Florida Keys. Mission: Iconic Reefs has rescued nearly 1000 corals amidst the killer heat wave. Many of their restoration efforts have been foiled. Florida Keys NMS is working to store corals on shore to maintain genetic diversity. They have also begun moving some of their coral nurseries deeper to help buffer some of the hot temperatures.

Staffing updates: GP Schmahl retired as Superintendent on May 31st. Taylor Burley Galaviz started as the new Constituent Engagement Specialist in August. Two seasonal divers, Kaitlin

Buhler and Josh Harvey, joined the team, as well. Current vacant positions are superintendent (in process), research ecologist (in process), and education coordinator (on hold).

Facility updates: Building 216 HVAC repairs to begin in January 2024, HVAC maintenance plan to be put in place and Building 303 door is to be repaired.

FGBNMS Cruises: 2023 cruises included mooring buoy maintenance, drilling cruise, Stetson Bank long-term monitoring, manta ray tagging, Reef Environmental Education Foundation (REEF) fish diversity trip, two lionfish invitationals, East and West long-term monitoring, mooring install and bleaching and National Coral Reef Monitoring Program (NCRMP) fish calibration cruise.

Bleaching update: FGBNMS is currently at bleaching alert level 2 and hit eleven-degree heating weeks in a row. Bleaching was observed by staff in mid-August. Bleaching for FGBNMS is usually a month and a half behind Florida Keys NMS. Temperatures have begun to cool down in the sanctuary. Staff is hopeful there will not be a major bleaching event.

Lionfish invitational highlights: June trip removed 93 lionfish and July trip removed 157. Culling appears to be working, especially at Stetson Bank. 300 lionfish removed is 1-2 million native fish that don't get eaten by lionfish that year. Marissa Nuttall was able to tag lionfish on these cruises for the ongoing collaborative acoustic project. The newest TX record was set this year with the largest lionfish at 46.1cm.

RV Manta: Sanctuary staff had a hard summer with the RV Manta. There have been a number of issues related to the breaker, compressor, AC, a-frame, skiff, and skiff davit motor. RV Manta crew have been working hard to deal with these issues and has created a temporary fix for the compressor that uses seawater for cooling until it can get fully repaired. These issues will be fixed in the yard period (November- June) as the sanctuary plans to do a major rehaul with engine rebuild. The boat has Starlink now and internet access has helped improve safety and weather communications offshore. New skiff is on its way from Canada.

USCG Helicopter Evac Drills: In June, the sanctuary collaborated with USCG Air Station Houston on a training drill. The Coast Guard flew down medivac helicopters to practice sending the evacuation basket up and down. Sanctuary staff, as well as reciprocity divers and volunteers, participated. Staff also practiced putting someone on backboard and getting them to the top deck in preparation for an emergency

New Sofar data buoy: There is a new data buoy at East Flower Gardens Bank (EFGB) that provides near real time data with a public dashboard for weather conditions. This includes wind speed and direction, wave height, period, etc. This is the sanctuary's effort to replace the Texas Automated Buoy System (TABS) buoys which were removed due to funding cuts. The Sofar data buoys have temperature sensors at the surface and at depth that provide relevant temperature information about the reef. The sanctuary hopes to get additional buoys at Stetson and West Flower Garden Banks (WFGB). Partners at Coral Reef Watch hope to integrate this data into bleaching models so the sanctuary can use in situ data rather of surface temperatures. The buoys cost about \$12,000 for the initial purchase and \$200 a month for satellite service. The sanctuary

would have to work through National Marine Sanctuary Foundation (NMSF) to get funding for additional buoys. Michael Dance commented we can use receivers for temperature records.

FGBNMS Reports: Condition report expert review has been completed. The draft will go out for invited review with a handful of people on October 4th including Kelly Martin, Randy Clark, and a person from NOAA fisheries. Then it will be cleaned up and published. The climate vulnerability assessment has made it through all edits and is up at HQ for copyediting. That will be done in the next two months and published by the end of this year. The condition report will be done early next year and both will feed into new management plan.

There is a new climate dashboard in the works. Gretchen Luchauer (who is in attendance) is doing interviews to assess stakeholder engagement in the sanctuary. She is working with Marine Biodiversity Observation Network (MBON) to use modeling predictions for the future conditions of the sanctuary.

Gulf of Mexico Reef Symposium: Happening on November 2-3, 2023 at Moody Gardens. The sanctuary will rehash the science needs for the sanctuary in this upcoming meeting. These needs were last drafted in 2010 and are in need of an update. Thank you to Janavi Mahimtura Folmsbee for creating the logo.

Reanalyzing old data with new methods: Sanctuary staff have been analyzing photos from 1980s to 1990s with the new coral point count methods. Historically, there was a significant increase in macroalgae during this time and this large jump disappears with new analysis. Staff believes this discrepancy is an artifact of old methods and lesser technology. The analysis is now completed with thousands of photos reanalyzed and staff are currently working on paper to compare the old and new data.

Wahoo update: On July 6th the official letter from the SAC for Wahoo recommendations passed in the main meeting. Michelle Johnston drafted a letter on behalf of sanctuary to Matt Brookhart and John Armor suggesting the sanctuary system to engage with FGBNMS on this matter. Sepp Haukebo plans to work on next steps in person at the SAC summit next week.

Rice's whale recommendation: There is currently public comment open to provide feedback on designation of critical habitat for Rice's Whale. Regulation will come later. The sanctuary supports protecting whale habitat and wants to be included as rules and regulations are made since that can impact operations offshore.

Wind energy: Michelle Johnston has been invited to be a part of a Gulf Ecosystem Initiative for Offshore wind. The goal is to get people throughout NOAA and partners to talk about impacts. The group hopes to get recommendations together regarding impacts of wind energy in the Gulf. Michelle would like to talk to the council to get their opinion on this.

Partner engagement highlights: The sanctuary wants to establish a more active partnership with Texas Parks and Wildlife Department (TPWD) for lionfish removals and to monitor differences between artificial reefs and natural reefs. TPWD is also interested in new mooring designs to create uniformity between the groups. Moody Gardens currently has 100 fragments of 5 different

species of corals from FGBNMS. The sanctuary hopes to get 100 more fragments for the purposes of housing, genetic diversity research, and coral restoration. National Weather Service (NWS) will be using data from the new Sofar buoy to help inform weather models in Gulf. They were able to introduce the sanctuary to some tools to help with weather predictions offshore. MV Fling Staff have been great collaborators with the sanctuary and sharing of knowledge. Sanctuary assisted with new advanced dive methods class at TAMUG (including lectures in coral and fish ID), lionfish dissections, career socials, and continued guest lecturing.

Two Nancy Foster Scholars for FGBNMS: Amanda Croteau is a student from California State University interested in climate and coral disease looking at signature from coral cores. Amanda will be reanalyzing past scenarios using corals. Philip Fan Yang is a student from University of Arizona and will be focusing on mesophotic habitat.

Education programs: FGBNMS has had 8 public programs, 6 media interviews, and many social media post and web stories. Get Into Your Sanctuary event, led by Sasha Francis, was a hit, Participants at Lasker Pool were able to drive the small ROV around the bottom of the pool to collect “samples”.

FGBNMS volunteer of the year: This year’s volunteer of the year was Dr. Adrienne Correa, our former SAC member. She was previously at Rice University and now appointed to USC Berkley. Adrienne was selected for her involvement with the coral disease response. A plaque will be presented at Gulf of Mexico Reef Symposium.

Adopt a Whale for Ginny Schmahl: Ginny, wife of former superintendent GP, passed earlier this month. She loved whales and staff will honor her by adopting a whale. This will be on a personal basis.

Jim Sinclair is retiring from Bureau of Safety and Environmental Enforcement (BSEE). Jim has been a partner of FGBNMS since 2004 and integral in establishing funding in conducting Stetson long-term monitoring. Staff presented a photo of Stetson Bank for all his contributions.

11:08 Coral Disease Update – Adrienne Correa

There have been recent efforts to understand what the coral disease is at FGBNMS. FGBNMS has collaboration Dr. Correa, Dr. Brandt, and Dr. Holstein due to their previous work on Stoney Coral Tissue Loss Disease (SCTLD) and white plague in U.S. Virgin Islands (USVI). SCTLD is a rapidly moving coral disease different from others due to its ability to impact 20 different species of corals. They often see whole sections of tissue slough off of skeleton leaving bare lesions. SCTLD has been absent from FGBNMS but can easily be confused with other diseases.

So, what is the disease that showed up last year in 2022? Dr. Correa’s team has participated in two cruises to date, September 2022 and March 2023. During the September cruise, they collected samples from apparently healthy and diseased corals *Pseudodiploria strigosa*. In March 2023, samples from *Pseudodiploria strigosa*, *Orbicella franksi*, and *Porties astreiodes* were collected to look at corals with different levels of susceptibility to disease. To date, the following assessments have been done or are in the process of being completed: gross

morphology assessment from March cruise with a visual comparison, comparison of disease responses and disease models, machine learning comparison and classification of each disease and transmission electron microscopy (TEM) imaging of September 2022 FGB samples.

The findings to the identity of the disease were inconclusive. March 2023 morphological observation showed that FGB disease is visually more similar to white plague than SCTL. March 2023 FGB species affected are more specific to white plague. The caveat to this is that disease may have moved through highly susceptible SCTL species in September 2022. The Sept 2022 gene expression in *Pseudodiploria strigosa* has no gene matches to known SCTL in USVI. Transmission electron microscopy images show some evidence of virus structures but the field lacks key comparative data for white plague.

The gross morphology of FGB coral lesions from those sampled in March 2023 were subacute with bare white skeleton in only a small area near the tissue/denuded skeleton interface, while majority of lesion had green-yellow color. The lesions were not fast moving across the colony. Lesions were primarily focal (some were multifocal), peripheral (usually on the margins of the colonies) and had distinct edges. Lesions primarily found on *Orbicella*. The second most affected being *Pseudodiploria strigosa*, which is not typical of SCTL. Lesions were also found rarely on FGB *Porites astreoides*, does not tend to get SCTL easily. Certain colonies were tagged to track, if needed.

Comparatively in USVI, disease observed is multifocal and center forming. White area is thicker, indicating that lesions are moving faster. SCTL lesions on USVI *Orbicella* are often preceded or accompanied by bleached margin. This was not seen in FGB samples. *Orbicella* is affected after brain corals in USVI.

Gene expression questions: What is the response of FGB *Pseudodiploria strigosa* host and symbiont to the disease (In the form of differentially expressed genes (DEG))? Does this response match what we know about SCTL from USVI? We did not see a lot of gene expression changes associated with FGB disease. Two genes upregulated for DNA damage repair and involvement of calcium sensing and binding proteins. Compared to USVI, 63 genes were upregulated in known SCTL samples.

No common disease responses between *Pseudodiploria* FGB disease and SCTL from VI
No distinct SCTL gene expression responses.

The differences in USVI white plague versus SCTL are that SCTL showed more unique gene expression signature compared to white plague, including anti-viral genes, starvation and cell proliferation stalling genes, and genes related dead or dysfunction of symbionts in cnidarians. In symbiont, white plague has no differentially expressed genes (DEG) and SCTL 36 had DEGS, including obvious damage to symbiont photosynthesis machinery.

Using a machine learning approach, USVI white plague and SCTL transcriptomes from all species can be compared. All know data is put into a machine learning program to define samples as white plague or SCTL based on gene expression. This makes a classification system. These genes are biomarkers for these diseases. More genetic data you have, the better the

classification system. This tells us what disease is likely present in an “unknown sample.” We are waiting on sequencing data from March 2023, when we have that then we can apply the data to this model and see where it falls.

Using TEM imaging, filamentous virus particles detected in symbiont cell in USVI in known SCLTD samples. We used samples collected in March 2023 to compare the photos to these known TEM photos from USVI. Although we saw one virus like particle and it wasn't a prominent feature. We did see early stages of filamentous infection, but not close to what we would see in SCLTD. We saw multi-lamellar bodies in disease lesion that indicates this disease could have viral components.

Indicators of stress in cells and virus infection could be playing a role in FGB but doesn't look like viral signatures from known Florida SCLTD infections. The viruses are RNA genome which will also get sequenced with the sample so we will be separating this RNA to learn more about it. That will help us confirm if it is a viral feature and what that virus is. We are continuing to make progress and have two additional research cruises coming up.

Michelle Johnston adds that in Florida corals with SCLTD, SCLTD is suppressed due to bleaching. The lesions at FGBNMS are reacting similarly.

Adrienne Correa answers that patterns observed previously, sometimes increase in temperature causes disease to speed up, sometimes puts it into remission (like FL). When affecting symbionts, increased temperatures could slow disease progression. What happens when temps cool? Will disease pick back up?

Jake Emmert: Questions will be collected and sent to Adrienne Correa to save on time. The council wants to set a time to invite Adrienne back once sequencing is complete.

11:45 Mooring Buoy Update – Ryan Hannum

Update given based upon council interest. In May 2023, 8 of 17 buoys were actually deployed in the sanctuary. The sanctuary had a lot of setbacks the past few years from COVID and the coral disease outbreak in 2022. They had to pivot plans last year to tackle the coral disease outbreak. The last drilling cruise they had before this season was in August of 2019. Josh Harvey joined the team in May 2023. He brings a lot of good engineering and mechanical skills to the sanctuary based on his background in firefighting and military service.

During the June 6-9, 2023 cruise, mooring buoy maintenance began. Old buoys were replaced with new gear at all 3 banks (East, West and Stetson). Stetson U-Bolt #1 was found in workable condition but U-bolt #3 at Stetson broke a week later.

Mooring buoy drilling began June 21-23, 2023. Seasonal training began at EFGB, site #7. RV Manta's hydraulics were utilized to drill, now with biodegradable hydraulic oil. The sanctuary can plug straight into the boat instead of using a gas-powered engine. This method has less exhaust, less noise, and is easier to manage. So far buoy deployment offering near real-time

conditions deployed near old OA monitoring location. It's brought a lot of good information to sanctuary and our partners.

Mooring buoy drilling continued during the June 26-30, 2023 cruise with drilling completion of EFGB U-Bolt #7. A temporary U-bolt setup was developed to attached to the broken U-bolt #5. Sanctuary team as well as ship port engineers designed this method to use clamps to secure into broken U-bolt. The team was able to attach a temporary mooring to these clamps to secure boat while conducting drilling operations. Two U-bolts were successfully installed at EFGB sites #7 and #5.

Three buoys were installed (one at Stetson #5, two at EFGB (#5 and #7)) during the last mooring buoy maintenance trip September 1-2, 2023.

The new mooring techniques utilizes new Dyneema subsurface components, have four times the working load for the same thickness, reduce the wear on U-bolts and extend the lifespan. This technique also utilizes soft shackles and subsurface buoys.

Ten of seventeen buoys are now in the sanctuary. The next priority sites are Stetson #2 and #3. WFGB #2 and EFGB #1.

In FY 24, the sanctuary is looking to add Mesophotic Deep Benthic buoys at several locations. The sanctuary has been working with the Mesophotic and Deep Benthic Communities (MDBC) team and Navy saturation dive groups to select sites for mesophotic buoy installations. The design will look similar to the new design, just physically larger to accommodate deeper areas. These buoys will be designed larger vessels, especially those vessels that accommodate MDBC research. These buoys will also allow access for sanctuary vessel to have a resting place in the evening during trips to the expansion banks in the future. Banks included in this project are Rezak, Bright, Geyer, MacNeil and EFGB Brine Seep.

The sanctuary is collaborating with TPWD to design artificial reef moorings that will match the sanctuary design. They will be easy to deploy and remove. This promotes site accessibility as TPWD moves to monitoring different locations. Some of these may become permanent installments.

Andy Lewis gave thanks to staff for getting buoys out and for looking at new tech. Sites are inaccessible without moorings.

12:14 Cruise Ship Industry Discussion - Joanie Steinhaus

Joanie Steinhaus wrote a draft letter to send to cruise ship industry and offer suggestions on how to improve impacts to resources. She would like the letter to go out to sanctuary council.

Cruise industry is exploding in Galveston with cruises overall up 22% and passengers up 123%. Galveston is the 4th most popular cruise port and only one in TX. There is a 4th terminal proposed by Pier 16 and proposing largest Carnival ship in their fleet. The motivation for this discussion is to assess the potential impacts to our sanctuary. Research shows that over a billion

gallons from excrement and food scraps get discharged every year. Joanie wants to look at where this dumping is happening and have a discussion about impacts. Joanie suggests sending recommendations to Port Director about educating cruise ship staff about National Marine Sanctuaries. The cruise industry is not receptive to ideas about education and outreach within their facilities but Joanie hopes the council can change their mind.

Jake Emmert comments that this issue is larger than Galveston and would like all of OMNS and NMSF to work with the cruise ship industry to improve information availability. The public is aware of where their money goes and what it is doing to make the world a better place. Jake would like to work on opening up lines of communication to these industries to improve collaboration on a national scale.

Michelle Johnston mentions Thunder Bay NMS's collaboration with Viking Cruise Ships. This cruise line supports citizen science and ecotourism in the Great Lakes. Their cruises send down ROV and submersibles. They also have kayaking options. Michelle supports working with cruise ship industry, if they are passing near National Marine Sanctuaries, they should have an overall educative push to inform visitors. FGBNMS is on the list for a visitor center which may help improve sanctuary visibility to cruise ship visitors. Gray's Reef NMS's "boutique" visitor center could be a nice example of what FGB could accomplish in historic downtown area near the cruise ship terminals. These are conversations that are happening in sanctuaries. The council will all eventually need to provide input on what this visitor center would offer to the public. The new NMSF CEO Joel Johnson has worked with Royal Caribbean. During the next SAC chairs meeting, the council hopes Sepp Haukebo can have a discussion about cruise ship industry with Joel.

Kristen Maples requested FGBNMS pamphlets we can put in Texas Scuba Adventures to improve sanctuary visibility in downtown area by tourists.

Sepp Haukebo explains that Joanie's letter is a great start to working toward a strong partnership with the cruise industry. He insists there are two components, local and global. The letter with some good editing could go a long way to offer opportunities to work together. The council chatted about a non-voting member to sit on a SAC to inform and learn.

Shane Cantrell discusses the relationship between sanctuaries and cruise ships throughout the nation and how it is different from California to the Florida Keys. It is unlikely Galveston will get less cruise ships so the council need to focus on education and bring awareness to the Gulf's natural resources.

12:32 Public Comment

Gretchen Luchauer is a PhD student working on public policy for climate change resiliency. She has been sending out surveys to staff and constituents relating to their involvement with climate management in the sanctuary. Gretchen plans to interview new SAC members and those who have not yet filled out the survey. The climate dashboard in progress will also be a product for all National Marine Sanctuaries. This dashboard will be a tool to model future climate conditions. Gretchen is available at: Gml0044@auburn.edu for any further questions.

Sepp Haukebo asks what Gretchen hopes this project will accomplish. The goal is to help people look at management decisions for marine protected areas. She hopes this project will provide stakeholders new methods to collaborate with different types of industries and improve education relating to these protected areas.

No additional public comments.

12:42 New Business

Kelly Martin gives a Deepwater Horizon Mesophotic and Deep Benthic Communities Restoration update. The oil spill happened in 2010 and 273 million dollars was advocated to MDBC program. 126 million dollars of that was allocated to projects focusing on mapping, habitat assessment, propagation techniques, and active management projection. These projects represent a lot of work that has yet to be done so they heavily focus science to inform management.

The mapping team is working on ground-truthing habitats in the Gulf, providing seafloor mapping products for research scientists, and creating predictive habitat modeling datasets. The habitat assessment team is looking to understand the biology and ecology of these ecosystem as whole. The propagation team is working on fragmentation and the study of these deep-water coral in aquarium with a focus on later replantation. The active management and protection team is working on marine debris removal and documenting threats affecting these ecosystems. The program hopes to use all this information to inform resource managers and constituents about these habitats to may help to better inform decisions.

MDBC wants to engage with natural resource managers to make relevant reports, data, or analyses available for use in decision making processes regarding the management and/or protection of MDBC in the northern GOM. Kelly Martin and the MDBC team want to receive feedback about the utilities of those products. Has this information we have been provided been useful?

Kelly Martin has been working with the SAC chair Jake and has decided to have standing agenda items for SAC meetings. The MDBC team wants the SAC to know that any member is welcome to reach out to her (Kelly.martin@noaa.gov) with questions, requests, feedback, etc. She opens up the floor to discussion regarding these topics.

Jake E. discusses the connections between FGBNMS and these mesophotic and deep benthic communities and how closely they are tied together. Jake supports the idea that the SAC continues to receive updates from the MDBC team due to their impressive progress and constant involvement in new projects.

Sepp Haukebo asks if MDBC could expand their reporting to fish, especially those stocks that are important for recreational and commercial fisheries.

Kelly Martin explains the habitat team is working on annotations for all things noted in these communities, and that includes fish. Though there is a separate team working on fish, the project goal is to eventually connect these projects.

Rachel Parmer asks about GIS shapefiles for these habitats. Kelly Martin explains that eventually National Centers for Environmental Information (NCEI) will archive all the shapefiles created by the MDBC team but they can try and plan on getting those files to you for planning purposes.

Future meeting action items: Links for proposals to designate critical habitat for Rice's whale (public comment ends Sept 22nd) and green sea turtle (public comment ends Oct 17th) to be sent out to SAC. Joanie Steinhaus requests draft letter regarding the local cruise ship industry be sent out to SAC for review and. would like SAC to discuss where discharge from cruise ships is occurring and the impacts at next meeting. SAC would like to set up time next year for Adrienne Correa to follow up after sequencing has been completed and machine learning models have been run.

13:02 Adjourn

Jake Emmert motioned to adjourn. All in favor. Motion approved.

Next meeting is scheduled for November 9, 2023.