SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

HABITAT PROTECTION AND ECOSYSTEM-BASED MANAGEMENT ADVISORY PANEL MEETING

Town and Country
Charleston, South Carolina

November 1-3, 2022

Transcript

AP Members

Cynthia Cooksey, Chair
Stacie Crowe, Vice-Chair
Dr. Rene Baumstark
Laura Busch
Dr. Laurent Cherubin
Anne Deaton
Joel Fodrie
Jeff Hartzler
Brian Hooker
Thomas Jones
Paula Keener
Casey Knight
Dr. Wilson Laney
Paul Medders
Steve Miller
Dr. Steve Ross
Jeff Soss
Kevin Spanik
Shane Staples
David Whitaker
Sam Young

Council Members

Mel Bell
Trish Murphey

Council Staff

Myra Brouwer
Cindy Chaya
Dr. Chip Collier
Allie Iberle
Kelly Klasnick
Roger Pugliese
Dr. Mike Schmidtke
Nick Smillie
Christina Wiegand

Attendees and Invited Participants

Jen Banks
Kasey Cantwell
Heather Coleman
Nathan Craig
David Dale
Beth Dieveney
Tom Harrigan
Frank Helies
Amanada Mayhew
Katherine McGlade

Ashley Oliver
Michelle Willis
Callan Yanoff

Dr. Pace Wilber

Additional attendees and invited participants attached.

The Habitat Protection and Ecosystem-Based Management Advisory Panel of the South Atlantic Fishery Management Council convened at the Town & Country, Charleston, South Carolina, on November 1, 2022, and was called to order by Ms. Cindy Cooksey.

MS. COOKSEY: Good afternoon, everyone, and welcome to the fall 2022 Habitat Protection and Ecosystem-Based Management Advisory Panel meeting, and I wanted to note that this is our first in-person meeting of the AP since the fall of 2019, and so it has been three years since we've been able to physically get together, and so welcome to everyone who is here in-person, as well as any potential attendees that we have online.

My name is Cindy Cooksey, and I am currently serving as the chair of this AP, and I have with me my vice chair, Stacie Crowe, and we have a very full agenda ahead of us for the next two-and-a-half days, and so I wanted to start out by asking if we had any questions or comments or suggestions regarding our agenda. I do not see any raised hands. Do we have anything online? Okay. Then I will consider that an approval of the agenda.

Our next order of business is the Approval of the November 2021 Advisory Panel transcript. Do we have any comments or questions regarding the transcript? Are there any hands up online? Okay. Thank you. We have approved our November 2021 AP transcript.

MR. PUGLIESE: Are you going to ask for any public comment?

MS. COOKSEY: Yes, and so, as Roger just noted, at the beginning and at the end, the final day of this meeting, we will open up the meeting for public comments, which I would like to do at this time. Anything online? Okay. Well, we will close the public comment period for now, but please note that we will have a public comment period at the end of the meeting as well, and so our next order of business --

Well, I will just quickly kind of mention, since everyone approved the agenda, that, today, we're going to be focusing on a variety of essential-fish-habitat-focused conversations. Tomorrow, we'll be heavily focused on energy, as well as looking at mapping of South Atlantic deepwater ecosystems, and then some time focused on climate scenario planning. Then, on Thursday morning, we will again be focused on research and tools supporting essential fish habitat conservation, and then we'll close out our session with a discussion of the Florida Keys National Marine Sanctuary restoration blueprint, but, for now, I'm going to turn it over to Roger for an update on the Coral Amendment 10 disapproval.

MR. PUGLIESE: Okay. Just a quick message to members, and I think everybody received the documents. On July 28 of this year, we got a notification from the Regional Administrator that Coral Amendment 10 had been disapproved, citing some inconsistencies with EFH and some of the other aspects of the amendment that was moved forward with how the minimization of bycatch, et cetera.

The council, at the last meeting, received a presentation by Andy David on research that NOAA had actually accomplished since that period of time, or earlier this year, actually, in April, I think, of this year, where they put ROVs down a line of the area that was being proposed and provided the review of all that information to the council, essentially not finding any coral or bottom

habitats, whether it be live coral, high-relief coral, or rubble, or any types of -- It was sand and mud in all the areas that the ROVs had identified.

The council subsequently made a motion to look at the amendment and potentially, in the future, move forward with resubmission, based on the newer information on the impacts to habitat, and so that's where we're at with that, and, you know, it's still in the works, in the background, and that's where we are.

MS. COOKSEY: Thank you for that update, Roger. I did want to open it up to any questions. No? Okay. Thank you. Wilson.

DR. LANEY: Hi, Cindy. Not a question so much, but just a comment, I guess. It's good that it was surveyed, and I will quote Dr. Porch, who said, when the council was deliberating earlier, know before you go, and that was his comment, and I believe that's a direct quote, which I think is always a good idea, and so I'm glad it was surveyed, and, despite the fact that they found no coral habitat there, I think that the Habitat AP concerns, as well as the Coral AP concerns, were still somewhat justified, based on the fact that, when the HAPC lines were originally drawn, they were drawn with the intent to provide a buffer adjacent to the coral areas, and so, personally, I think it's still a good idea to maintain that buffer, and it will be interesting to see what the council ultimately decides to do, in terms of resubmittal.

MS. COOKSEY: Thank you, Wilson. I do not see any other hands raised, and so I would like to move us to the first -- One second. I would like to recognize Paula. She has a hand up online.

MS. KEENER: Thank you very much. I agree with the previous comments, and I also wondered, and do we have any thoughts regarding the timing of any of this and what the actual next steps will involve?

MR. PUGLIESE: I mean, this is in the queue to be accomplished, and I know Mel Bell, vice chair of the committee, is going to be with us tomorrow and touch on that, but, right now, it's going to depend on everything else that's in the queue to get accomplished on when we actually can readdress Coral Amendment 10, and that's kind of where we're at.

MS. KEENER: Thank you.

MS. BROUWER: I would like to just add that the council did approve a motion to have us resubmit that amendment to National Marine Fisheries Service, but it's just going to have to be part of our workplan for 2023, depending on other council priorities, but they did approve a motion to resubmit it.

MS. COOKSEY: Thank you for that, Myra. Do we have any other hands raised online? Okay. Thank you, and so I believe we are ready to move on to our first agenda item of the meeting, and that would be an update from Dr. Pace Wilber, with the NOAA Fisheries Habitat Conservation Division. Come on up, Pace.

DR. WILBER: Okay, and so this is my somewhat annual presentation to this AP on the status of the essential fish habitat program run by the Southeast Regional Office of NOAA Fisheries, as administered in the South Atlantic and the Caribbean. Some of this will be somewhat repetitive

of stuff that you guys have seen in the past, but hopefully we'll go through that pretty quickly, and, you know, the big message here is that we have changed our program quite dramatically in the last ten years.

Ten years ago, we focused a lot on reviewing public notices, mostly from the Army Corps of Engineers, and now that's a relatively rare event on our part. We have a lot of other things that are going on that we'll be talking about today, and so the first thing I would like to do is just introduce the South Atlantic and Caribbean Branch team, and we have Fritz Rohde and Twyla Cheatwood in our Beaufort office, and we also have a vacant position in Beaufort that hopefully we'll be able to fill sometime this year or next.

In the Charleston office, we have myself, Kevin Mack and Jordy Wolfe, and Cindy Cooksey, who is the chair of the AP. In the West Palm Beach office, we have Kurtis Gregg, Jocelyn Karazsia, and Xaymara Serrano. Xaymara is a new hire to the team, in the last year-and-a-half. In Puerto Rico, we have Jose Rivera, and Dinorah Chacin in St. Croix.

Now, the one thing to note on this, if you can make it out, is that several of these folks have funding lines that are tied to hydropower, or tied to the Florida Department of Transportation, or the NOAA Coral Reef Conservation Program, and so their availability for what we would traditionally call EFH work is somewhat limited, because of those funding lines and the various obligations that come with that,

Now, one thing that I always try to stress to folks is that, while we do habitat conservation work, we also do a lot of fish passage work in the branch, and I just have a couple of slides, real quickly, to kind of show our fish passage program and the extent of it. While we are the South Atlantic and Caribbean Branch, we actually do the fish passage work from Texas to North Carolina, plus the Caribbean, and you can see, in this map, there are some various patterns here that are pretty obvious, and one is that, west of the Mobile River, most of their dams are Corps of Engineers dams, and so those are the sort of orangish, or reddish, boxes, and the green circles east of the Mobile River are dams that are licensed by the Federal Energy Regulatory Commission, or FERC, and, again, there's a clear spatial pattern to that work.

There is about 500 of these dams that we keep an eye on, and so it's much more work than we can actually accomplish, and so we have to have some kind of a plan for how we select the dams that we're actually going to try and get involved in providing fish passage at, and so we have a list of focal species, and it's slightly different for the Gulf of Mexico than for the Atlantic watersheds. Many of these species also have protections under the Endangered Species Act, and you can get into all the nits of the different types of protection that they have, but many of them, other than American shad, do have some of those protections.

We also have a management model that looks at the focal species, the feasibility of providing passage, the management interest and passage being in place, process opportunities and watershed location, and you can see there is some very clear kind of patterns to those variables in our management model, and then we sum all those scores together into this map, and this map basically has the red areas, and the orange areas are the areas of highest priority for our fish passage program, based upon the earlier model, and it identifies eight watersheds that are our focal watersheds, or priority watersheds, that stretch from the Roanoke-Chowan Basin down to the Apalachicola Basin in the Florida Panhandle.

All of these basins, except the Neuse, have substantial FERC-licensed facilities in them, and so we focus on the underlined ones through the Federal Power Act, and the Neuse River, which is the only one that is not underlined here, we're limited to the Fish and Wildlife Coordination Act for our authorities in that basin.

This table is way too busy, and I will say that right upfront, but one thing I will note is that, if we kind of focus on the columns, and not so much the rows, and we're going to focus first on the Passage Prescribed column and the Passage In Place column, and you will see, usually, a fair number of years between those two columns, and so, for example, in Roanoke, we put in place the requirement for fish passage at the Roanoke Rapids Dam in 2004, but it took us until 2009 to actually have it constructed and operating, and, since it's been operating, there is always annual tweaks, trying to optimize it and make it work as efficiently as possible.

Skipping down to the Cape Fear row here, the passage requirement was put in place in 2000, and it wasn't put in place through the Federal Power Act, but it was put in place through the Endangered Species Act, and it took until 2012 before fish passage was in place on the Cape Fear River, and, in 2021, we completed a major rehab of that fish passage ramp that I will show a picture of in a moment, to try and optimize its performance, but, again, the basic point is that, once you get a requirement for fish passage in place, you now have a lot of time, and a lot of human resources have to go into making sure it's actually constructed and that it's optimal in its operation, and so it's a much -- It's a very labor-intensive program to operate.

Here is an example of some of the optimization. This is an aerial image of the Nature-Like Fishway at the Cape Fear Lock and Dam in 2013, soon after it was constructed, and you can see that it's a series of pools, with the idea that, under high water, the edges of the pool would be available for fish passage, and, during low water conditions, the center part of the ramp would be available for fish passage.

It worked pretty well, especially for American shad, and not so good for some other species, like striped bass, that were also an important part of why this fish ramp was built, and so, in 2021, there was a major rehab of the fish ramp, and that created some corridors for fish passage, and it also included some notching within the dam itself, to provide more water into those corridors, and we're now just beginning to get the first year of monitoring data, to show how effective the rehab of the Nature-Like Fishway has worked and have we been able to kind of bolster the fish passage for the species that weren't doing particularly well without integrating the fish passage for American shad and the species that were doing well. I will also note, too, that we have seen some -- We have some evidence too of sturgeon using this particular ramp, that we're quite excited about.

Offshore wind, everyone knows that offshore wind is the top environmental priority, or at least seems to be the top environmental priority of the Biden-Harris administration, and that's certainly the message that has filtered down to us that are involved in looking at offshore wind projects.

Inside the realm of the South Atlantic Council, there are three areas really worth talking about, and I think you're going to hear some more from a BOEM representative tomorrow. CVOW, the Coastal Virginia Offshore Wind project, began as a two-turbine experiment, about five or six years

ago, and it now is going through the final approval stages at BOEM to build out to, what, Cindy, and is it 176?

176 turbines, and that project, even though it's in Virginia, because of the overwhelming work our sister region, the Greater Atlantic Regional Office, is experiencing with all of the wind projects in the Northeast and the Mid-Atlantic, Cindy has stepped up and is leading the EFH reviews for the CVOW project and completed the cooperating agency review a couple of weeks ago, and literally this week, hopefully by Friday, is completing the first round of the EFH reviews, but CVOW has been an exciting project to work on, and it's in close proximity to the Kitty Hawk project, which is in the northern part of North Carolina.

Now, Kitty Hawk is a single lease to a company called Avangrid. Even though it's a single lease, Avangrid has elected to divide that lease into two pieces and pursue them as two separate projects. Avangrid calls them Kitty Hawk North and Kitty Hawk South, and you will see, in a minute, why they really should be called Kitty Hawk West and Kitty Hawk East, but, you know, we'll go with their names right now for North and South.

The schedule for Kitty Hawk has kind of been sliding. When it first came out, two years ago, the schedule had us doing the EFH review actually this summer and this fall, but they've had problems pulling together a lot of the environmental information for their authorizations under the Marine Mammal Protection Act, and, because of the intertwining of the MMPA authorization and the ESA authorization and the EFH one, that's caused the whole schedule to kind of slide a little bit to the right, and so, right now, we're scheduled to do the EFH reviews for Kitty Hawk North in 2023, and we really have no schedule for when the EFH reviews for Kitty Hawk South are going to be done. They're much farther behind than Kitty Hawk North.

We'll get to a little more about Kitty Hawk South in a second, and then, lastly, there's the two projects that have gone under various names in the last ten years, Wilmington East, Wilmington West, Carolina Long Bay, all kinds of different names, but, basically, it's an area off of the Cape Fear River, and it was broken up into two leases by BOEM, and those leases were awarded last spring, and we're just now beginning to have our very first meetings with the companies that are holders of those leases on what their schedule is for the project, and we're actually meeting with Duke Energy on Monday to talk about Carolina Long Bay.

Just to talk a little bit about Kitty Hawk South, you can see, in this diagram, that the pinkish area on the eastern side of the lease is Kitty Hawk South, and the non-colored area on the western side of the lease is Kitty Hawk North, and that's why I call them east and west, but they're going to call them north and south.

Kitty Hawk South is still investigating lots of options for how it's going to bring its power to shore, and the simplest option is to use the same pathway that Kitty Hawk North will be using to bring the power to the southern area of Virginia, but Avangrid is looking to explore markets, you know, in the North Carolina area, and they're looking at two potential pathways to get the power to shore from Kitty Hawk South.

The one that is labeled here "Ocean Route" is about 150 miles long, and it keeps the export cable out in the ocean and brings it ashore roughly near Havelock, North Carolina, and the other route that is under consideration is shorter and heads towards Marine Corps Air Station Cherry Point,

and that brings it right through Pamlico Sound, and, to get through Pamlico Sound, it's going to have to cross the barrier islands, somewhere near Rodanthe or Salvo.

As many of the sturgeon people in the room know, there is a lot of sand and swale complexes out there underwater that are where Atlantic sturgeon love to hang out, and then you're going to have lots of seagrass impacts, once you get onto the barrier side of the island, the bay side of the barrier island, and then you'll have perhaps some additional seagrass impacts as you cut through Pamlico Sound. Avangrid has kind of floated this approach for bringing the power ashore for a couple of years, and all of the agencies have said don't go through Pamlico Sound, but it's still on the table, and we'll find out more, whether it really remains on the table or not.

Port Everglades, I think you guys have had presentations before on Port Everglades, and they could go on for hours and hours and hours, and there's all kinds of neat technical things, and so I'm just going to kind of give you a couple of highlights, in two slides.

The things you really need to remember about Port Everglades is it is the largest authorized destruction of coral habitat anywhere in the United States or its territories since the passage of the Clean Water Act. We're talking 150 acres of coral habitat will be damaged by the dredging project, and there is an additional 300 or 400 acres of habitat that is being closely surveilled, in case the indirect impacts are much more than what are expected, and so this is a seriously large project.

To offset those impacts, you have to have a really big mitigation project, and mitigation projects are all kind of still being, you know, discussed, but the range right now in the mitigation for Port Everglades is somewhere between 146 and 174 acres that they're going to mitigate for upfront, and they will be doing additional mitigation, should the monitoring show the indirect impacts are greater than planned.

At 146 acres, that is the largest coral restoration project, in terms of acres, anywhere in the world that has ever been done. This is, again, a seriously big project, and, if you're happy about the Army Corps of Engineers managing those contracts, more power to you, but we're working really closely with the Army Corps to try and make sure that this is set up as best as possible to succeed, assuming they successfully get through all of their environmental reviews. They still have to go through a lot with NOAA Fisheries, and they still have to go through a lot with the State of Florida and the Florida Department of Environmental Protection, and they still have a lot to go through with EPA, and this project is going to kind of drag on for a couple more years.

Just to give you a real quick tour, this area here, inside the pink line, this is the footprint that the Corps has proposed for the impacts to Port Everglades. It's from a spill model that they used, and they've actually stitched two different kinds of spill models together to create this impact footprint, and that's what it's called the combined spill model.

This area out here in yellow, east of the channel, that is an area that we believe, quite strongly, is going to be directly impacted by the dredging project, but it's not currently within the footprint that the Corps of Engineers is proposing, and so, when we total up the acres, we use our own GIS analysis to add the coral habitat that's within this area east of the channel.

This area north of the channel and south of the channel, those are areas that are going to be very closely surveilled, to make sure that the indirect impacts are not occurring within those areas, but

the Corps has committed to mitigate for any impacts the monitoring shows within these areas north and south of the channel, and then there's an area here called the Near Shore Ridge Complex that is also going to be closely monitored for impacts, to see if it needs to be added to the mitigation tally.

Now, one of the things that kind of complicates Port Everglades is that the Navy has a very important testing area just to the south of the channel, and that big area that is all outlined in gray here, and below this dashed line, it is excluded from any -- It excludes any ESA protections inside that area, and so, when we talk about coral critical habitat and all that kind of stuff, if it's inside the Navy box, it doesn't count under the Endangered Species Act, but it does count under the Magnuson Act as essential fish habitat, and so, when you hear things about Port Everglades, you will see very different numbers for the ESA impacts versus the EFH impacts, and that is because the EFH gets to call all of the impacts under its umbrella, whereas the Endangered Species Act can't count the things that are inside this naval exclusion zone.

Now, one of the really cool things about Port Everglades though has been a partnership that has developed between the Army Corps and the NOAA Oceanographic and Meteorological Lab to develop an array of sensors that are going to monitor this dredging project in real time at sixteen different stations and report all this data into an artificial intelligence system that is going to sort through those data and have literally stoplight indicators on the bridge of the dredge that are either going to be flashing green, yellow, or red, as to whether or not the levels of turbidity and sediment accumulation, almost in real time, are meeting or exceeding what the expectations are, and there's been some trials of this, during operation and maintenance dredging events in the past year, and hopefully everything will go well when we scale up from one or two trial stations up to sixteen, when this project eventually moves forward.

Now we're going to get into the more traditional EFH stuff, and, as I've mentioned before, in past presentations, our core authorities, that existed well before the Magnuson Act was amended to include essential fish habitat, or the Federal Power Act, and the Fish and Wildlife Coordination Act. What Magnuson did, when it came online, is it gave us a really powerful tool for focusing our FPA authorities and Fish and Wildlife Coordination Act authorities, and Magnuson didn't really add any new authority to us, and it just give us a tool for focusing our existing work.

As you might guess, across a region as big as ours, and with a staff of only, you know, ten people, we have a lot more work that we could be doing than we have human resources to accomplish, and so we have various ways that we triage that work, and one of them is built into the Magnuson Act itself, where it talks about levels of information used for EFH designations, and it ranges from the simplest level, presence and absence of fish, up to the highest level, where we're identifying the areas that actually produce the fish that recruit into the fishery.

Here's a quick map that kind of shows the distribution of our EFH consultations in the South Atlantic, and I have excluded the Caribbean part of our portfolio for these maps, and it's really the cumulative map that's on the right side that really has the more of the geographic story inside it. You know, the first thing you can see is that, when you look at all the public notices going through the Army Corps of Engineers, literally almost all of them is for something literally right on the coast.

Yes, there is hundreds and stuff away from the coast, but there is thousands, when you get literally right on the coastline, and the other thing to note too is that almost all the public notices running through the Army Corps of Engineers are for things that are happening literally on land. There are very few public notices out here in the federal waters, beyond three miles, and so we're really about working on coastal habitats, and coastal fishes, and those interactions, and we're not really about working with things that are going on outside in federal waters.

The other thing you can kind of note, on these maps too, is you can always see where the major population centers are, Orlando, Jacksonville, Miami, Charleston. Where there is lots of people, you see lots of opportunity for people that want to dredge and fill things and needing a permit from the Army Corps to do that.

This is going to be a little bit complicated. This chart here shows the number of EFH consultations that we received each year from Fiscal Year 2014 to Fiscal Year 2021, and so anything inland, above the tidal zone, it's not counted in this chart, and this is just the stuff that's literally happening in tidal waters, and you can see, from 2014 to 2021, we got somewhere between 500 and 650 EFH consultation requests a year, and before you start to think, well, the last four years are showing a downward trend, I did a quick tally of the FY 2022 numbers, which aren't shown here, and we were back up above 600 in FY 2022, and so, anyway, the total number that comes into the office is about 600, in a typical year.

The next thing to look at is, because we are not required to review every consultation request we receive, we somehow put some into a bin where we're going to review, and, in others, they go into the bin that we're not going to review, and that's really the difference here between the orange and the blue. The orange includes this orange stippled area as well the solid orange parts of the bars, and the blue is the hashed, as well as the solid blue parts of the bars, and so you can see the blues are the ones that we review, and the oranges are the ones that we do not review, because we don't have the human resources to pull it off, and, in order to sort of have a reference point, there's a black bar in each of these years, and that black bar is the 50 percent number, and so that's roughly where 50 percent of the consultations would be.

You can see there are years, like in FY 2014, where we fell considerably short of reviewing half of the consultation requests we received, but, in more recent years, we've always managed to make it above the black line, and so we're able to get to more than 50 percent.

The other thing to note too is that this is the difference between the solid blues and the hashed blues. The hashed blues here, the bottom part of each bar, those are the number of projects receiving EFH consultation recommendations or some other form of recommendation authorized by the Magnuson Act.

In fact, in 2015, we reached our high point of 171 projects getting those reviews, but, since FY 2020, and this actually continues to FY 2022, it's been less than thirty a year, and that's not because the projects have gotten better, but it's because we've gotten a lot more busy, and we don't have the time, necessarily, to get to all of the really complicated projects, and I will kind of just sort of expound a little bit for the economists in the room. There's something called a perverse incentive in economics, and that's where you're incentivized to do what, in the long run, is not good for you, but, in the short run, you're incentivized to do it.

This comes back to those 50 percent lines in this here, and I have to get 50 percent each year, because, you know what, it's in my performance plan, and so I have to make sure the group gets to 50 percent. If we're spending all of our time on these really complex projects, and we really don't have the time even to really write as many letters as we used to do, well, how do I get to that 50 percent? I get to that 50 percent by reviewing these dock permits, you know, and I can do like five dock permits in an hour, you know, and you can get to that 50 percent really easily by picking these really, really simple projects that honestly really don't benefit a whole lot from an EFH review, and then, unfortunately, because of that situation, there's a fair number of projects up in the orange area, particularly large beach nourishment projects, that are no longer being reviewed by us, because we don't have the human resources to do it, but really would benefit from such a review.

This next slide sort of makes the same point. In the last few years, one of the huge changes we've had in the Southeast Regional Office is we put a lot more effort into our annual activity plan, and it's been really great. You know, we start each fiscal year now with a really good idea of where we want to be at the end of the year.

Inside the Habitat Conservation Division, we basically break up all of our human resources into a conservation bucket, a restoration bucket, and a partnerships bucket, and what those buckets translate to, in my branch, is the conservation work is largely where all the EFH work goes, and the fish passage work is what's in the restoration bucket, and our support to the NOAA Coral Reef Conservation Program is what's in the partnership bucket.

Now, looking at this, kind of just at first glance, it looks pretty good. I mean, we're putting 47 percent or so of our human resources into the conservation bucket, which would really help EFH out a lot, but the problem is that we don't start each year with a clean slate. Every year, we start with a bunch of legacy projects, projects that we've been working on for years and years and years that just don't go away, like Port Everglades, like Port Miami, like the Savannah Harbor expansion project, like a bunch of projects in North Carolina that we could talk about too, and, to pick on South Carolina, the Post 45 deepening project.

Those are projects that we agree, in principle, on what should be done, but we have to be actively participating to make sure that agreement is fulfilled and the monitoring data are all there, and so these hashed areas, inside each of these buckets, is the amount of labor that was already committed before I even sat down to develop my FY 2023 plan, and you can see, with the exception of partnerships, I'm at nearly full capacity already, and I have very little room for new work.

When we have things come down the line, like the Bipartisan Infrastructure Bill, which, you know, is the new name for the Infrastructure Investment and Jobs Act, and we have all sorts of disaster-related recovery things that are now kind of coming through the system, and a bunch of new public notices for developments and marinas and beach nourishment projects, and I've got to fit all that stuff into a relatively small part of my labor pie, and, if I go over to fish passage, fish passage also has a relatively small part of its labor pie that is still available for new work, and one of the nice things, actually, about the Bipartisan Infrastructure Bill is all of the opportunities for enhancing fish passage and enhancing efficient operations of hydroelectric facilities. All of that is the kind of stuff that our hydropower team spends their time on.

The NOAA Coral Reef Conservation Program, it's relatively immune, so far, from all of these other things being imposed on it, and we have a little bit more flexibility, right now, there than we do in the other bins, but it's going to take us a while to figure out how to best kind of distribute that effort.

Okay, and so just some take-away bullets on the habitat side is we're almost exclusively working in tidal waters. When we venture out of tidal waters, it's only to work on projects that are very close to our fish passage corridors that we work on under the Federal Power Act. The number of projects receiving detailed reviews is declining, unfortunately, particularly if you take out all the dock projects that we use just to kind of pad my numbers, and that trend is probably going to continue, and then the larger projects are the ones that are getting the most attention from us, and I have crossed beach nourishment out, because that used to be one of our highest-priority activities, because it was a way to deal with hundreds of acres at a time, but we just don't have the human resources anymore to pull that off, because we now have to deal with the wind projects, and the wind projects are taking up a huge amount of our time, and the infrastructure projects have also expanded greatly in the last couple of years.

Hopefully, you know, what we can kind of think about is that, in the last ten years, we've gone from a program that's very much focused on trying to review lots and lots of public notices and get the most conservation value out of every one of those notices that comes across the desk, but now we're moving away from public notice reviews and focusing more on these big programs that come down from Congress and making sure that our sister federal agencies are getting all the support they need to execute their parts of their federal programs, because, honestly, we want them to support us in executing our part of those federal programs too, and so we all have to kind of help each other get through that.

Now, the consequence of that is we don't do a whole lot of public notice reviews anymore, and we don't go to a lot of pre-application meetings anymore, and I know that frustrates a lot of people who organize those meetings, and why can't the Fisheries Service show up, and, well, this is why we can't show up, and, you know, it's not really a high priority for us anymore, given everything else we're doing.

One of the things that I hope that you guys can eventually talk about is what -- By us kind of stepping away and creating a little bit of a vacuum, is there an opportunity for the council to step up and provide some of the services that we used to provide before?

In the past, when we've had a really high-priority project, I've always gone to Roger and asked Roger, hey, Roger, we really need a letter from the council, and over my, what, fifteen years, or sixteen years, working for NOAA Fisheries, Roger has a 1,000 batting average on that. Every time I've asked, I've gotten that letter from him, and I've gotten it on time. Now we have to see if we can somehow work with that success and start trying to get a little more participation from the council, because the council has a lot of the same authorities that we do, but they just don't have necessarily the infrastructure to pull it off, but maybe there's some way that we can talk about doing that as well. That's it for me. Any questions?

MS. COOKSEY: Wilson, I saw your hand, and then Anne after that.

DR. LANEY: Pace, wow. Great presentation. Clearly, you all are doing a huge amount of work, even though you lack sufficient staff to get it all done. A couple of observations, and I won't ask you to go back to the table slide, but you had Kerr listed on the Roanoke there, and I think you meant to have the Roanoke Rapids and Gaston listed, as opposed to Kerr, since Kerr is a Corps facility, but I will give you a heads-up, and I'm sure Fritz has already, but we do have an American eel passage on both the Roanoke Rapids and Gaston now, and so it won't be too terribly long before eels are going to be bumping their noses on the Kerr Dam, and we did advise the Corps, during the relicensing process for Gaston and Roanoke Rapids, that, at some point in the future, we would be coming to talk to them about eel passage at Kerr.

I can't remember, and I would have to go back and look at what we wrote into the new FERC license as a threshold criterion, if in fact we did put one in there, and you may remember, and I don't know, and I'm sure Fritz would probably remember, as to what sort of numbers we had passed that Gaston might trigger some discussion with the Corps, and maybe, under Section 1135, we could start some discussions with them about eel passage at Kerr, and so that was one comment I will make. Then it would be interesting to see these same sort of statistics from our Fish and Wildlife Service colleagues in the Ecological Services Program, and I will leave it at that.

DR. WILBER: I just wanted to note, and so we listed Kerr there because of the work that we're doing to try and get more natural-like waterflows from the Corps, and that helps our work at Gaston and at Roanoke Rapids, more efficient, and Smith Mountain is listed there because we actually have a reservation of authority in place for Smith Mountain.

DR. LANEY: Yes, and I was going to ask you, and I thought I did have a recollection that you all did file reservation of authority at Smith Mountain, which is way, way upstream, but still within the historic range of American eel, for sure.

MS. COOKSEY: Thank you, Wilson. Anne.

MS. DEATON: I was just going to mention that, with the BIL money, North Carolina, and other states I think, are seeing a lot that they're receiving funds for positions to handle all the extra wind applications and all the infrastructure permits they're expecting, and so I'm just a little surprised that NMFS can't, you know, take advantage of that, or somehow get that funding, but I also just want to say, at a state level, we really appreciate the support from NMFS, whatever it is, and it -- You know it really helps if you have a federal agency, as well as state agencies, with similar concerns, and so we just -- It's good that we know the people, and we're just going to keep bugging you when we have a big project.

DR. WILBER: So, yes, there's been some money appropriated to NMFS to augment staff to deal with various things, and authorized money versus appropriated money, and that's the distinction that we all kind of understand, and there's been a lot of authorizations, and not a whole lot of appropriation yet, partly because we don't have an FY 2023 budget.

The money that has been appropriated so far to augment EFH and ESA reviews has all gone to the Northeast to supplement their group that reviews wind projects. They have nearly twenty wind projects that they're wrestling with, and it's the Biden-Harris administration's top priority, is getting those wind projects in the water, and so, you know, while it's not an exorbitant amount of

money that has been appropriated, it is rightfully channeled to the Northeast for now, so that they can kind of get their heads above water.

Hopefully more money will be appropriated, and there will be better venues for us to try and get some of it, and I can tell you that Andy Strelcheck, our Regional Administrator, is fighting, every day, to try and get us the funds for the additional human resources.

MS. COOKSEY: Thank you. Do we have any other questions? We'll go with Stacie and then to Wilson.

MS. CROWE: I just want to say that I agree with Anne, coming from a state agency. You guys know, having sat above me for years, that we really do rely on our federal partners. I also agree with Wilson that it would be nice to see Fish and Wildlife's numbers, compared to yours, and, if there is any way that the council can support some of that, it would be appreciated. I did also have a question for you, Pace, about the sturgeon passage at Cape Fear, and can you share any details about the evidence you have?

DR. WILBER: Yes, and so I'm passing this on second-hand, or third-hand, or maybe even fourth-hand, but so there's been some eDNA sampling recently, and the eDNA sampling has confirmed an Atlantic sturgeon above the Lock and Dam 1 on the Cape Fear River, and we know that it must have used the rock arch ramp, because the lock has been inoperable for a couple of years, and it was definitely inoperable during the months prior to the eDNA sampling, and so the only way that fish got up there was either somebody catching it in a net and driving it in the middle of the night and dumping it into the dam, or it used the rock arch ramp.

MS. CROWE: That's good to know.

MS. COOKSEY: Okay. Thank you. Wilson.

DR. LANEY: To follow-up on Stacie's comment about sturgeon there, there also, Pace, I believe, was an actual observation of a leaping sturgeon at Lock and Dam Number 2, maybe last year or the year before, and so we are pretty certain they are getting above that lock weir, and I certainly share your concerns with respect to Atlantic sturgeon, and I think you are aware of recent comments that I provided to Protected Resource about one project in particular that I think may have some implications for sturgeon, which is Vesta North Carolina, and I think I copied you and Anne both on those comments, and I won't say any more about that.

I did want to ask you, and I noticed that you didn't list the Atlantic Coastal Fisheries Cooperative Management Act as one of your authorities, but I think you could legitimately list it, because that act does specify that both NMFS and the Fish and Wildlife Service are responsible for providing support, in terms of habitat conservation, to the Atlantic States Marine Fisheries Commission.

In that regard, I will just mention that the long-awaited fish habitats of concern document actually goes to the ISFMP Policy Board for review very soon, and it will be interesting to see their reaction to that, and I think hopefully you were involved in the review of that draft, and Anne may have been ask well, and Jimmy Johnson certainly was, and so, hopefully, when that is finalized, your dream of having that document and being able to cite it for those species managed solely by

ASMFC will come to fruition, at long last, and I think that was it, the last comment that I had. Thank you.

MS. COOKSEY: Do we have any hands up online? No. Okay. Thank you. Thank you, Pace. As he pointed out, I'm working on all of this, and intimately familiar, and so I thought that was wonderful, but the one slide that I missed, that you often include, is the acreage slide, and I don't know if you have that as one of your back-ups. There we go.

It is a -- It can be somewhat of a dire message. As our workload has shifted, and the number of public notices that we no longer have time to review, but we are still able to review and provide conservation recommendations, as needed, for the vast amount of acreage in our area, and so, you know, we are still trying to work hard to protect as much EFH as we can, and it's gone down, as our priorities have shifted, but I do think that this does a good job of showing the amount of acreage that we do work on, and so thank you. Wilson.

DR. LANEY: Just one more comment, Cindy. Back to the Fish and Wildlife Service again, and I am reasonably certain, based on continuing conversations with colleagues in the Ecological Services field offices, that the same trend is happening, you know, within the U.S. Fish and Wildlife Service, just due to staff shortages, but, in the services case, in the Southeast Region, because of a tremendous amount of litigation over threatened and endangered species, their endangered species workload has eclipsed just about everything else, and so they spend a whole lot more time on threatened and endangered species than they did historically, I think, and that has certainly cut into permit review and the Fish and Wildlife Coordination Act work, for sure. It would still be good to see the numbers though, Cindy, and I agree with you and others who have made that comment.

MS. COOKSEY: Thank you. So I do not see any other hands raised. Is David Dale online?

MR. PUGLIESE: Yes, he is.

MS. COOKSEY: Okay. The next item on our agenda is a discussion of the NOAA Fisheries EFH Five-Year Review Process, and David Dale is joining us from the NOAA Fisheries Habitat Conservation Division, and Pace left the mic, but we might want to have him come back and join us, because he is also going to be part of this conversation, as we move through the agenda item, but, if David is ready to take over, I invite you to start this conversation.

MR. DALE: Thanks, Cindy. My name is David Dale, and I work in the Southeast Region Fisheries Regional Office in St. Petersburg, and I work directly for our Assistant Regional Administrator, Ginny Faye, as does Pace, and one of my responsibilities down here is management of the agency's essential fish habitat program, a title we call EFH Coordinator. Cindy had given me a heads-up that you guys were scheduled to talk about the five-year review and asked me to come in, and I just have two quick slides that I want to kind of lay the groundwork for some discussion on five-year reviews.

This slide really highlights the statutory and regulatory foundations for essential fish habitat. The top three bullets are from the 1996 amendments to the Magnuson-Stevens Act, which gives us the statutory definition of EFH and directs the National Marine Fisheries Service and the fishery management councils to identify and describe EFH, as well as minimize the adverse effects of

fishing on EFH, and it also directs federal agencies, through actions that may adversely impact EFH, to consult with us to protect and conserve EFH.

The agency issued an interim rule in 1998, and, after learning what we did wrong and right, we went back and issued final rules in 2002. Those regulations are contained in two sub-parts, at 50 CFR Part 600, and Sub-Part J is the guidelines to fishery management councils for identifying and describing EFH in fishery management plans, and we'll get into a little bit more detail on the next slide, and Sub-Part K is the procedures and requirements for federal agencies to consult with National Marine Fisheries Service on their activities that may adversely affect EFH.

The EFH regulations are about, I don't know, about nine pages of the Federal Register, and so I just cut out this little portion, which is the part of Sub-Part J that outlines what must be provided in fishery management plans with regard to EFH, and this is really the meaty part of our EFH regulations, so to speak, particularly Sections 1 and 2, Section 1 being the guidance on identifying, describing, and mapping EFH, and Section 2 on the guidance on evaluating adverse effects of fishing activities on EFH and developing measures in fishery management plans to minimize, to the extent practicable, those effects from fishing.

Kind of the forgotten sections of the guidance sometime are fishery management plans must also identify fishing activities not managed under the Magnuson-Stevens Act, as well as non-fishing activities that may adversely affect EFH.

Plans should also analyze how cumulative impacts of fishing and non-fishing activities influence the function of EFH. Plans need to identify conservation and enhancement actions, list major prey species for managed species, identify habitat areas of particular concern, and those are areas that have important ecological functions, are sensitive to human-induced degradation, are under stress from development, or are considered rare.

Number 9 is identify EFH research and information needs, and then, finally, Number 10 is the part of the regulations that tells the agency and fishery management councils to periodically review EFH information, and it guides us that that should be done not less than every five years, and so that's really kind of the foundation of what we want to look at during a five-year review process, is all ten of these components.

There is no recipe on how to conduct a five-year review, and each council does it differently. In some councils and regions, the outcome of a five-year review is an amended fishery management plan. In the Southeast, we tend to take a review as, you know, a deep-dive look into the EFH information, and then the Regional Office providing kind a report card, so to speak, of the information and providing some recommendations on what would benefit us, as essentially the end user of the EFH information and designations, what would benefit us in doing our job, and so I do want to stress that we really want to look at all ten of these requirements.

Councils tend to get trapped into that one Part 5, the mapping, you know producing maps of EFH, which are very useful, but that is just, you know, one segment of what we need to be looking at. That's really what I wanted to stress at the opening, and I don't know, Pace, if you've got anything that you want to add, since you're really the primary end user of this.

DR. WILBER: No, I don't have anything to add. You did a good job, David.

MS. COOKSEY: Thank you, David. I actually wanted to expand on this, in that, you know, we have had a history with the council, over the past number of years, where we have done, in essence, previous reviews, and we can go back and look at the original drafting of the EFH users guide that is heavily circulated, at least by me, and I provide it to end users on a regular basis, and then, in 2019, we, in essence, did a deep dive on EFH as part of the Fishery Ecosystem Plan, FEP II, development, and so those two items have, in the past, historically kind of been our checkmarks along the way of this required periodic review of EFH.

If we look at 2019, the FEP II, as being our last point, a five-year review would, in essence, be due sometime in 2024, which is we are two years out from that, and so now is the time for us to begin the planning and discussion of how we want to do it, what we're hoping to get out of it, and give that some extra thought, and so, again, thank you to David for providing this overview of the process, but I am hoping to generate some comments and discussions, within the panel, about how folks would like to see us move forward on that.

This worked out really well, in that we had Pace go first, so you kind of see how our designations are used, in order for us to conduct our EFH consultations, and they have to be designated first, and so this is kind of a unique opportunity to begin the process and begin the process with enough time to do it well, to take a good, hard look at our designations, see if they need to be revised, see if we do something as straightforward as revisiting the users guide, and, you know, do we need to do updates there, or do we need to go back in and look at our mapping of some of our designations that are not very well spatially described, and have that discussion, and so I would like to open it up for comments. Wilson.

DR. LANEY: Thank you, Cindy, and so a couple of things strike me, looking at the list here. In terms of -- Roger can chime-in and elaborate on these, I'm sure, but there's been a great deal of mapping that has occurred since the last iteration, and it continues, and, at some point, I think it would be nice to be able to seamlessly assemble all of that operation, and NMFS may already be doing that, and I'm not sure, and Roger would know, I'm sure, but I think, given all the mapping that has occurred, we may be coming close to, for some species, at the least the ones that we know a lot more about their habitat requirements, and we're getting close to the point where we might be able to even start talking about species production as a function of how much acreage of their optimal, or preferred, habitat is out there, and that's one thought that I had.

Moving down to Number 4, non-fishing-related activities, we've already talked about offshore wind, and this says that may adversely affect EFH, and Brian didn't pay me to say this, but I think we maybe should also look at those that might benefit EFH. There is some discussion, at least in terms of the offshore wind hard structures themselves, that they would provide habitat for species that use hard structure, and so there could be, you know, some benefits there for some species, in terms of those offshore wind placements.

Jumping down to Number 7, for prey species, Roger and the Ecopath team are to be commended, especially one Lauren Gentry, who is the diet guru now for that whole South Atlantic ecosystem model, and I use Lauren as a resource all the time, and she always comes through. Most recently, the New England Council, I guess, or maybe it's GARFO, is doing the stock assessment for Atlantic mackerel, and I advised Jennifer Cudney, from HMS, who contacted me on behalf of some of the mackerel folks wanting diet information, that Lauren was the holder of all that

information, and she immediately jumped on that and provided all the information that she had on not only what Atlantic mackerel are eating, but what eats them as well, and so there's a tremendous database there for diet information that should enable us to start teasing apart, you know, what these things eat and who eats them. I think there's just a lot of information out there, Cindy, that would be available for helping to update and refine EFH, for South Atlantic species in particular.

MS. COOKSEY: Thank you. Do we have additional -- Roger looks like he's ready.

MR. PUGLIESE: I think this panel has played a critical role in essential fish habitat from its inception, from actually the in-the-dirt making all the -- Combining the information and providing it and then following-up with providing the detailed information that is supported from the habitat plan, to the transition to the Fishery Ecosystem Plan, and then to the interactive Fishery Ecosystem Plan II, and the attempt there was really, especially on that last transition, was to -- The user guide came from that activity, to try to figure out ways to, you know, functionalize and make some of this even be more useful, mor accessible.

The online systems of mapping to combine, as Wilson has talked about, as much as we know about the designations, whether it be EFH or EFH HAPCs or really any other mapping information that we -- That our partners may have in the area, and that was very different than some areas, because we really worked closely with the individual states and pointed to, or integrated, their most update mapping information on say the estuarine habitats that are absolutely critical to our managed species, and so very different than where, in some places, they really wanted to homogenize things, and we tried to go to where the best representation was.

You may, on a seagrass layer, have the combined information, at the highest resolution from the individual states, as to what we would identify it, and so it's somewhat of a different track, but I think the most useful, and, again, our partners with the AP has made this come to a reality.

We have real opportunity. In the past, we have run this panel, where we have really hands-on, and, in order to do some of those, that's how those got done, and we had working sessions during our meetings, to be able to look at the different things, to provide some guidance, and move forward on how to expand a number of these different things, and I think, again, that Fishery Ecosystem Plan II interactive had a lot of things that are identified in here on prey and different things that made the connections to our partners as well as what we had as foundational information, and here's a real opportunity to get ahead of the discussions and engage and begin to focus on, you know, what has been accomplished on there and then with some, I guess, guidance from NMFS, in terms of what things might be priorities or help in making that happen, and say our upcoming next sessions, in the spring and fall of next year, and this could really put us in a good position to, you know, really maximize what we know, what we have, and where we can go from here, to make sure that we're covering these even in a better form, but we have to be a partnership to do it.

In our region, we have taken on one of the biggest ones, the non-fishing activity, again, in the past, greater than many of them, and we'll be discussing an upcoming policy statement and addressing some of the issues, and that is really important, because one of the aspects there is -- They're kind of -- All of these are all hooked together, and that's why I'm kind of weaving them in as I talk, because, say the policy statements, and they're going to be discussing the beach renourishment, beach dredge and fill, and large-scale coastal engineering projects.

The intent of those is to be able to have those to provide to agencies, to provide to partners, to provide to states, to provide to any individuals that are involved in this process, and the council, in terms of, if there's going to be comments, we can defer to our policy and integrate that, or provide that, and so it's one thing to try to get ahead of the curve, if you're not able to get, as Pace has talked about, as many of those things in place.

Plus, it also is a vehicle that they have effectively in the past done, worked with say the Corps of Engineers, and gotten them to understand some of these different things, and those don't show up on any of these numbers. Those are the pre-working, to sit there and go, well, don't go that road, because of these, and they were very successful, for a long time, in getting some of those things done, and it's still a challenge, because of the amount of dollars, the amount of push, the storms, and everything else, but I think it provides those vehicles.

How this panel, and then how we have the information integrated so far, there is opportunities, I think, that we can step ahead, in terms of what that next five-year review is really going to really make it work, and it doesn't necessarily have to be, and I think that's what they've talked about, is amendments to the plans, if there's significant changes and actions that are recommended, and that's one thing. We've done it in the past, where we've put in some of the different specific regulatory actions, et cetera, that were recommended, but, you know, as you go through, I think getting the information accessible and available and backfilled, so that it does do it.

One thing I will note is that the big dog in the background is we're all talking about all these designations, and I think, at the national level, through the CCC, we are going to potentially make a pitch to have a workshop on how do we deal with EFH and the change in climate, and so that's something I think that needs to be in this queue in here, and it's not necessarily in the directives yet, but it's something that we're going to try to get ahead of the curve on some of those discussions, but, again, back to the partnership with all the different organizations, to get us ahead of the curve, that's why Brian has played a critical role in making sure we're involved with the energy policy in the first place and how we go forward, and we've got all the players that are going to be at this meeting, and so here's opportunities to make sure these things mean as much as they can in times of limited resources for some of our partners, but also critical times that we need to, you know, kind of dig the heels in to make it very clear about what we're trying to protect, and I will get off my soapbox.

MS. COOKSEY: Thank you, Roger. Laura.

MS. BUSCH: Back to Wilson's comment about the mapping, and, as the Navy is required to follow mitigations for anything in hardbottom or corals or submerged aquatic vegetation, we have created a database where we ingest data, and then, obviously, the higher-quality data lays on top of the lower-quality data, so that when -- We have a program that, when sailors go out, they have to put what activity they're going to do, and where they're going to do it, and then the mitigations pop up, and so we need that database layer of where habitat is that can be shared, if anybody wants to look at that, and we have it for -- It's for the east coast and Gulf of Mexico, because that's our big study area, but that's something that is constantly updated by someone in my office.

MR. PUGLIESE: Laura, I didn't mean to downplay, and I think the Navy being at the table has been critical, because we've got some of the highest-resolution mapping in the past, in areas, when

we were looking at the edges of the deep coral HAPCs, and they were right adjacent with that, and we were able to collaborate really closely with that.

In the last iteration, when you were dealing with the broader naval activities, that close coordination was really almost a model of how that really can work well, and so it's been another key thing, but, if we can, you know, continue to highlight those, where some of these different ones are available through the different ones, and BOEM has a lot that's coming down the pike too on this, and that's going to get right to Wilson's, and I think advance us even further, in terms of that mapping aspect.

MS. COOKSEY: One of the things that I would like to suggest is that we start planning, for the spring AP meeting, that we take a deep dive on one of our, you know, federally-managed species, their EFH designation, and I'm thinking shrimp, because that is one of our big ones, where we look at the overlap of where consultations are occurring and where EFH is designated, so that we can take a good, hard look, and meet as a working session with this group, and potentially bring in some outside experts to kind of update us on the latest science associated with shrimp life histories, with the changing climate and shrimp life histories, and look at the latest science, look at what the EFH designations currently are, and then have that discussion about an update for it, and is it enough to rise to the level of needing to pursue an amendment, or is it more providing additional commentary, with an updated users guide, and determine that and figure out the best path forward, starting out with one group of our organisms that we manage and moving from there. Any comments on that thought? Wilson.

DR. LANEY: Well, I would certainly support shrimp. They got me two graduate degrees, and so they're one of my favorite organisms, and, for those of you who may not know, they also appear to already be responding to climate change, because we now have a large white shrimp contingent that is using the Chesapeake Bay as a nursery area, and so much so that Virginia has been able to establish a penaeid shrimp fishery, using small beam trawls, off their coast, and so, you know, we're already seeing changes there.

The other thing is it's often said, you know, when things change, somebody wins and somebody loses, and I guess that's particularly true with respect to species, and, from the penaeid shrimp perspective, sea level rise could wind up creating more habitat for those, depending on how well we do in allowing and enabling our, you know, shrimp nursery habitats to move landward as the sea rises, and so that's something I think -- There's been a lot of modeling work on that.

Duke University, in particular, I think Pat Halpin's group, has done some of that modeling, and so, yes, Cindy, I would definitely support that, and, when you say shrimp, I presume that you're talking mostly about the penaeids, the whites, browns, and pinks, but we have other shrimp species as well that are out there, too.

MS. COOKSEY: Correct, and I was just coming at it from the perspective of trying to keep an initial working session relatively narrow in scope, so that we can actually do a true deep dive and assessment on it, and really figure out a path forward from there, and so, yes.

AP MEMBER: There's no mention of aquaculture and how that impacts some of that assessment and what's going on land-based and shore-based, and it's just taking hold right now in federal

waters, but it's coming on faster and faster, and so I don't see that -- We don't have a placeholder for that in this whole scheme of things, that I see.

MS. COOKSEY: But it's definitely something that we could bring up as a discussion point as we begin this review process. Anne.

MS. DEATON: I just have a process question, and so this essential fish habitat -- Whose responsibility is it to do this? It falls on NMFS, but we are advising the council? I mean, the council AP is advising NMFS, or how does that work?

MS. COOKSEY: It falls on the council, and we're trying to help the council.

MR. PUGLIESE: I think what's a little complicated sometimes is that the actual kind of the initial part of the review highlights -- I think, as David had indicated, they highlight -- As you go through, they highlight the different things that they see could be addressed, and so I think that's where it's a pretty critical frontend, and so I think that's getting to exactly what your point is. That's kind of the frontend, to identify those, and then we can, you know, respond and clarify this. He has kind of given a broad response, as we need to look at these things, but I think that -- When we've had them in the past, they've been very specific on this area might need to address this, and --

MS. COOKSEY: I did want to say that, even though it kind of comes from that perspective of we're trying to help the council, the council could make the decision that they would prefer it be handed over to NMFS, and that would likely involve an exchange of money for NMFS to then take the spearhead, especially if we're talking about a more elaborate process for one or more of our managed groups, and so, I mean, that is a possibility. Pace was grinning at me, and so I didn't know if he wanted to speak. No? Okay.

MR. PUGLIESE: I'm curious if David has any comments on that.

MS. COOKSEY: Wilson, yes.

DR. LANEY: Well, just relative to the aquaculture comment, to me, that would fit under Number 4, non-fishing-related activities that may -- It says, "adversely affect EFH", but it could also benefit EFH, and I know the oyster folks, in particular, are always pointing out that, you know, oysters are beneficial, from the standpoint of providing both habitat and water quality improvements, which is certainly true, albeit, in most cases, it's a rather limited period of time, because you harvest them at the end of three or four years, but, still, I think it would fit nicely under Number 4, and I know there's been a great deal of emphasis on aquaculture, both inshore and offshore, and so that's certainly something that, to me, would legitimately fit within the review criteria.

MS. COOKSEY: I did want to ask if there's anyone online that has raised a hand, and I didn't want to miss anyone. David, please go ahead.

MR. DALE: Wilson just mentioned one of the points that I was going to bring up, that, yes, aquaculture would fit under that Number 4, and the comment of whose responsibility it is to review the EFH information, I mean, the regulations are pretty clear that these are mandatory content of a fishery management plan, and development of fishery management plans is a council

responsibility for council-managed species, and so the only EFH designations that the Fisheries Service has made is for highly-migratory species, which are our management responsibility.

Again, there is no -- You know, it just says that we need to review the information, and, like I said, each council, and within each region, the reviews have been handled differently, and then, within each council, it's also been handled differently, and so, again, we've tried to take the approach of the councils reviewing the information and us providing some feedback on that review or the existing information that would help us. Again, the two main -- The two main outputs of the EFH program are conservation and protection of EFH from other federal actions that may adversely affect EFH and fishing activities.

I mean, that was really the founders' intent of EFH regulations, and, as Pace noted, Magnuson didn't give us any new authority over the habitats that we were already consulting on, and it just provided a focus on federally-managed species, and it also added that requirement that, hey, if you don't pay attention to NMFS' advice, you've got to send them a letter back and tell them why, and so I think that's a valuable part of the EFH provisions of the Magnuson Act, because, before, our comments would go into the record, and they didn't have to specifically address them, other than note that our comments were received, and this is -- As we considered everything else we have to consider, this is what our decision was.

You know, we have looked at -- One of the major criticisms of the EFH program in general has always been, well, everything is EFH, and so why is anything EFH, and I think that really comes down to being able to tease out the what meets the regulatory definition of EFH by life stage of each of the managed species, because, when you do that, and kind of tease that out, then you can address that overall criticism of the program, that shows that, hey, we manage a lot of species, and we have to identify and describe it by life stage, and there is several life stages for each one of these species, and, when you put that all together, yes, we end up with a lot of area identified and described as EFH, but, when you start presenting that information independently, people realize that it's a big ocean out there, and certain species only use certain parts of that ocean. Then, when you start throwing the egg and larval stages in, that kind of mucks up that argument, but, when you go into the later life stages, it really focuses what the habitat usages are, and I think that was all the points that I wanted to raise.

MS. COOKSEY: Thank you, David. Are there any additional comments? Roger.

MR. PUGLIESE: Just one other aspect of it, and we -- You know, while that's all said, we do actually have some tables that do show at least what we know, compiled as we were doing Ecopath, actually, as a matter of a fact, by life stage, as much as we could in these different areas. However, in our region, given that so much of the areas are at Level 1 and Level 2, presence/absence or some distribution-based information, we have -- Most of our designations are by the complexes.

Our snapper grouper complex, unless we have very specific information for say golden tilefish and blueline, which we created a subset area for that, and that was actually in response to a five-year comment, way back when I think, and much of those are connected, and there's also another reason that some of those are, because many of them have overlapping habitats, and so the idea of trying to connect those.

I think, if we could get -- As we go through this process and highlight where maybe new information is, they can get up to that, or at least a strategy of what research may need to be done in our region to get to that ultimate, you know, production level that Wilson had mentioned earlier, and that will be part of this process too, and so we can elucidate what might be there, because there's been work done on seagrass recently, and some of the other species, and they're going to connect to some of our most significant habitats and species, like gag and the ones that are in some interesting positions right now, and it may have a lot to do with some of the changes in other habitats and other activities beyond fishing that are going to be important to understand.

MS. COOKSEY: Okay. Well, it seems like there is some general agreement of an interest in doing a deep dive, and we'll go with the penaeid shrimp as our first effort at this at our spring meeting, and, in the interim, I am opening it up, and, if anyone has experts that they would recommend that we reach out to to be part of the spring meeting, as well as any materials that folks would like to, you know, have us consider ahead of coming together, please, you know, send that in to either myself or Roger, so that we can compile that ahead of the spring meeting, to make that meeting as productive as possible.

Thanks again to David for coming in and helping us get this conversation started. We have been at it for about an hour-and-a-half. Before we get to the next agenda item, I wanted to see if folks were ready for a ten or fifteen-minute break, and so it is 2:30, and we will resume at 2:45. Thank you.

(Whereupon, a recess was taken.)

MS. COOKSEY: Okay, folks. It is 2:46, actually, and if we can resume our seats, and we will get started on the last agenda item for today. Okay, and so our last topic for today is our policy statement on beach dredge and fill, renourishment, and large-scale coastal engineering. This was an item that we spent a considerable amount of time going over a year ago, in the fall of 2021, and we were going to revisit it in the spring of 2022, but we did not have a spring meeting, and so now we are finally circling back to this policy, and so, just so folks know kind of what has happened in the past year, is we basically went line-by-line through the draft policy last fall and provided a series of comments.

I went back in, with the help of the transcript of the minutes, and tried to incorporate all of the comments into the policy, and then I'm bringing it back to all of you, who have hopefully been able to review it, so that we can incorporate any needed changes before we submit it to the -- I believe it would next go to the council for review, and so I will, I guess, open it up for comments, if folks have had a chance to review the document and would like to provide comment or, if there is a desire among the panel, we can kind of go through it together once again, and I'm open to either option.

MR. PUGLIESE: (Mr. Pugliese's comment is not audible on the recording.)

MS. COOKSEY: Okay. Roger is suggesting that we kind of walk through it together, and so we've got it up on the big screen. This is -- Yes.

MR. PUGLIESE: Anybody who is online, it will show up.

MS. COOKSEY: So the folks online can see it as well?

MR. PUGLIESE: Yes, and, if they have questions, they will show up.

MS. COOKSEY: Okay. I can't see that, and so that's why I keep asking if there -- I'm like I have no idea of the small stuff up there. She's making it nice and big for me. Thank you, Myra. I appreciate that. Okay, and so this modeled off of similar policies that the council has on their site, and so trying to kind of follow the existing policy structures.

We start out with the policy context, and it's just kind of standard discussion of policies for the council, and then we set it up for discussing the findings that we have identified to assess the threats to EFH potentially posed by activities related to large-scale dredging and placement of sediments in the coastal ocean and adjacent habitats and the processes whereby those resources are placed at risk.

The policies established in this document are designed to avoid, minimize, and offset damage caused by these activities, in accordance with the general habitat policies of the council, as mandated by law, and so that's kind of boilerplate language. Does anyone have comments on the intro section? I am not seeing any hands raised, and so the next section is EFH at risk from beach renourishment.

These are our findings, and Number 1 is, in general, frequent and widespread beach renourishment projects (dredge and fill) occurring in the United States Southeast together constitute a real and significant threat to EFH under the jurisdiction of the council. Coastal communities are strongly encouraged to evaluate the full range of alternatives, including retreat, to these types of projects when addressing erosion and sea level rise.

One of the points that had been noted, in the previous meeting, was the need to make sure that we recognize that beach renourishment, and nourishment, is kind of the vernacular that's used amongst coastal communities, as well as the regulatory community, but that these are still dredge and fill projects, and so I was trying to highlight that throughout the document, by including "dredge and fill" in parentheses.

Finding Number 2 is the cumulative adverse effects of these projects, especially in relation to increasing frequency of activity, change in season of activity, and recovery from these activities, have not been adequately assessed, including impacts on public trust marine and estuarine resources, state and federally-protected species, and council-designated EFH and EFH HAPCs. Long-term geoengineering of the southeastern coastline is being conducted without review of the collective consequence of these activities. Comments? Okay.

Number 33 is the majority (74 percent) of the U.S. Atlantic coastline is less than sixteen kilometers from a large-scale beach renourishment project that has the potential to impact a variety of habitats, including: waters and benthic habitats; waters between dredging and filling sites; waters in benthic habitats in and near the fill sites; and waters and benthic habitats as sediments move subsequent to deposition in fill areas. Comments? Okay

Finding Number 4 is, while some environmental research studies have been completed for select beach renourishment activities in the Southeast, these have often been limited by small sample

size, short duration or inconsistent sample design. Right, Stacie? I am citing one of her papers. Historically, emphasis has been placed on the logistics of dredging and economics, with environmental considerations dominated by compliance with the ESA for sea turtles, piping plovers, and other listed organisms. Less emphasis has been placed on the hundreds of other species affected, many with direct and significant fishery value. Comments? Yes, Wilson.

DR. LANEY: Since we've already had a good deal of conversation about it this morning, maybe just go ahead and stick "Atlantic sturgeon" in there, along with the sea turtles and piping plovers.

MS. COOKSEY: Thank you. That's a good idea.

DR. LANEY: I say "Atlantic", as opposed to "shortnose", because shortnose, in the South Atlantic anyway, doesn't spend all that much time in the ocean. I mean, there have been a few cases where individuals carrying acoustic transmitters did go in the ocean, but those are rare exceptions, and I think the Atlantic are the ones that spend a good bit of time in fairly shallow water close to shore.

MS. COOKSEY: Great suggestion, and we will add that in.

AP MEMBER: I just want to suggest that, where you have "sea turtles, piping plover, and other listed organisms", maybe, since redknot is a concern as well, maybe it should say "sea turtles, shorebirds".

MS. COOKSEY: Okay.

AP MEMBER: Then the sturgeon, as Wilson suggested, and other listed organisms.

MR. PUGLIESE: (Mr. Pugliese's comment is not audible on the recording.)

MS. COOKSEY: Right. Remove "piping plovers" and list "shorebirds". Anne.

MS. DEATON: That's where you would add sturgeon too, and so it would be like for fish, because "Endangered Species Act for sea turtles, shorebirds, fish, and other listed organisms", or no?

MS. COOKSEY: Well, I think it might make sense to go ahead and call out Atlantic sturgeon. Brian.

MR. HOOKER: Thanks, and it's not my area of expertise, but has this been updated since -- There was a new EIS, right, that put together like a toolbox that I think was controversial, because it actually took away some of like the dredging windows and stuff, because they wanted to consider these other species more, and is that -- I guess my question is, is this still fairly accurate, given that new EIS, and so it meant to try to open it up to not be dominated by dredging windows for turtles, I guess is my question.

MS. COOKSEY: I believe you're referring to the SARBO, and so the SARBO is specifically for ESA species, and, when it was put into place, it was actually made very clear, by Fisheries, that it could not be used for consultation purposes of EFH, and so this policy is, in essence, trying to get to some of those issues for EFH.

MR. HOOKER: Thank you, and you said SARBO, biological opinion, and I realize it wasn't an EIS, and it was a biological opinion, and so thank you.

MS. COOKSEY: Wilson.

DR. LANEY: To that point, Brian, that -- The Corps', the Wilmington District Corps', proposal to eliminate the use of biological, or environmental, dredging windows for the ports of Wilmington and Morehead City was litigated, and they lost, I guess, the case, or at least the counsel of record believes that the Corps lost the case, and I tend to concur with them, and so their EA, in that case, has been remanded back to the Corps, and I don't know, at this point in time, you know, what the next steps will be. It was also -- The Brunswick district did the same thing, and that was also litigated, and Paul may want to say a word about that one too, because I think that case was won by the --

MS. COOKSEY: Okay, and do we have any other comments on Finding Number 4? No? Okay. Then Finding Number 5 is, although minimization strategies have been developed for beach renourishment activities, such as those listed below as best management practices, increasing demand for more and frequent renourishment activities from a growing number of coastal communities have increased pressure to locate borrow areas for sand mining in vulnerable habitats, such as ebb-tide deltas, allow insufficient time for recovery (if recovery is even possible), and conduct activities during periods of high biological activity. Any comments? Okay.

Finding Number 6 is large sections of South Atlantic waters potentially affected by these projects, both individually and collectively, have been identified as EFH or EFH HAPC by the council, Mid-Atlantic Fishery Management Council, and National Marine Fisheries Service Highly Migratory Species. Potentially-affected species and their EFH under federal management include summer flounder, bluefish, many snapper and grouper species, black sea bass, and I'm summarizing a little bit there, penaeid shrimp, coastal migratory pelagics, corals, areas identified as EFH for highly migratory species. In addition, numerous species of crustaceans, mollusks, and annelids that are not directly managed, but form the critical prey base for most managed species, are killed or otherwise directly or indirectly affected by large dredge and fill projects. Comments? Anne.

MS. DEATON: On this, it just seemed like it deserves a letter, and it's sort of like a hanging paragraph, and so either be part of 6, like 6(i), or maybe part of Number 7, as sort of about species that don't fall under EFH, but are still important, and, you know, it just seemed like --

MS. COOKSEY: So have an (i) instead of as a hanging paragraph?

MS. DEATON: Or put it with 7, is what I would suggest.

MS. COOKSEY: I am open to either option, and does anyone have a strong opinion way or the other? How about we add it as an (i), in that we do have oversight over prey species, correct? I think it makes sense, consequently, to keep it as an (i), because of that prey oversight, and so that hanging paragraph at the end of the Number 6 finding, under (h), that would actually now be -- The "in addition" would now be (i), instead of just hanging. Anne.

MS. DEATON: Can I go back to 5? There was something.

MS. COOKSEY: Absolutely.

MS. DEATON: Before we go further away, and so this is about minimizing strategies exist, using borrow areas, ebb-tide deltas, not sufficient time, and I wonder if, here or elsewhere -- Like, in North Carolina, there are a lot of side casting still going on in inlets, and they are side casting, because they don't seem to have -- The logistics are too difficult to use that good sand and put it on the beach, and meanwhile, they are developing borrow areas in sturgeon habitat off the Outer Banks at several -- At multiple communities and it seems that -- This one just struck me as they're not doing that, you know, at all. They're not trying to uses the high areas, or the --

MS. COOKSEY: So noting -- In South Carolina and Georgia, we're actually really actively looking for beneficial reuse of beach-compatible dredge material, and either putting it directly on the beach, or, actually, what a lot of folks are doing is looking at nearshore placement, so that it can naturally be, you know, in essence, recirculated into the beach sediment calculation, and so I'm surprised that that's not being used in North Carolina.

MS. DEATON: It's more specific in the Outer Banks, and, also, they don't -- They say that it's too rough there in the winter, and so they are doing summer beach nourishment, and then they say they can't get the pipe and the dredge in Oregon Inlet, Hatteras Inlet, to some extent, some of those channels leading to Ocracoke Inlet, and so just some kind of an incentive, or some kind of a --

MS. COOKSEY: Beneficial use. I mean, the beneficial reuse of operation and maintenance dredging, and is that what you're --

MS. DEATON: But they'll say it's too logistically difficult, more money, and, you know, they do have -- There is a rule that they have to use the cheapest option first.

MS. COOKSEY: But they can get around that, sometimes, if there is --

MS. DEATON: Okay. Maybe a BMP, when we get to BMP, that using the inlet sand --

MS. COOKSEY: Right. That might be the best place to -- Beneficial reuse of maintenance dredging material. That's a good idea, rather than having a new borrow area, certainly.

MS. DEATON: I'm sorry that Pace left, because he's been dealing with it for us. Again and again and again they come back, because -- Anyway.

MS. COOKSEY: But would adding it as a BMP -- Would that work?

MS. DEATON: Yes. I like that.

MS. COOKSEY: Okay. We were, I believe, done with Finding Number 6, and so Finding Number 7 is beach renourishment projects also potentially threaten important habitats for anadromous species under federal, interstate, and state management (in particular, inlets and offshore overwintering grounds) as well as essential overwintering grounds, and that's kind of repetitive, and other critical habitats for weakfish and other species managed by the Atlantic States Marine Fisheries Commission and the states. That's a little repetitive in its wording.

MS. CROWE: (Ms. Crowe's comment is not audible on the recording.)

MS. COOKSEY: Stacie just suggested taking out the second "essential overwintering grounds" and have it just be "as well as other critical habitats for weakfish". Any other comments on Finding Number 7? Sometimes it is useful to read it out loud. Yes, Wilson.

DR. LANEY: Can we think about that just a little bit, Stacie, because the -- I think that may have been in there because we have pretty well documented where the overwintering habitats are for migratory striped bass, and Atlantic sturgeon as well, and I'm trying to think if we can -- If we still can pick up on that concern if we take that out and just say, "as well as other critical habitats for weakfish and other species". Maybe so. Let me sleep on that one.

MS. COOKSEY: Right. Well, it was just because it was in parentheses, the "in particular, inlets and offshore overwintering grounds".

DR. LANEY: Okay. Okay. I've got you, and so it's still in there. It's still in there. Okay. Yes, that's good.

MS. COOKSEY: Okay. Finding Number 8 is many of the habitats potentially affected by these projects have been identified as EFH HAPCs by the council. The specific fishery management plan is provided in parentheses: all nearshore hardbottom areas; all coastal inlets; nearshore spawning sites; benthic sargassum; from shore to the ends of the sandy shoals of Cape Lookout, Cape Fear, Cape Hatteras, Hurl Rocks, reefs off the central coast of Florida, nearshore hardbottom; Florida Bay, Biscayne Bay; Hurl Rocks; EFH HAPCs designated for highly-migratory species in the South Atlantic region. Any comments on Number 8? No? Okay.

Finding Number 9, our last finding, is habitats likely to be affected by beach renourishment projects include many recognized in state-level natural resource management plans. Examples of these habitats include Critical Habitat Areas established by the North Carolina Marine Fisheries Commission, either in species-specific fishery management plans or in the North Carolina Coastal Habitat Protection Plan. Anne.

MS. DEATON: Sorry, and I was just going to say that the Marine Fisheries Commission changed their rules a while ago, and we don't use the term "critical habitat areas" anymore, and so they list fish habitats, and it's basically like your EFH, because it's pretty all-inclusive, all the things a fish needs, and then they use -- We have designated -- We have designated habitat areas, and so those are in rule, the primary nursery areas, anadromous fish spawning areas, and so that's more like your HAPCs, in a way, and so I was just going to say maybe change the critical habitat area to fish habitats, or just don't capitalize it, and I think that would be all you would need to do.

MS. COOKSEY: So it would be non-capitalized and no acronym behind it?

MS. DEATON: Yes.

MR. PUGLIESE: Or did you want to include the specific designated ones, because, I mean, that was a designation before primary and secondary were formal.

MS. DEATON: We used to use that, and they changed it, because of the confusion with critical habitat.

MR. PUGLIESE: With critical habitat, with ESA stuff. Yes, absolutely.

DR. LANEY: I was just asking Anne if we -- North Carolina has strategic habitat areas that are designated, or they're at least under consideration for designation, if they've been nominated, and so those would be SHAs, but I will leave it to Anne as to whether those should be included or not.

MS. DEATON: Examples of these habitats include -- I would say designated fish habitat areas established by the Marine Fishery Commission, blah, blah, blah. I think the word "designated" gets at that. Strategic habitat areas are defined in our rulebook, but they are not designated, because we're still doing some validation sampling.

MR. PUGLIESE: So would this include the primary and secondary two or no?

MS. DEATON: Yes.

MR. PUGLIESE: So just a parentheses or --

MS. DEATON: Yes, and we have primary nursery areas, secondary nursery areas, special secondary nursery areas, anadromous fish spawning areas. I can look it over and wordsmith it with you guys later, if you want.

MR. PUGLIESE: Yes.

MS. COOKSEY: Were you able to capture that, Roger?

MR. PUGLIESE: Yes, and I've got primary, secondary, and spawning areas, and what's in the middle, or is that the main ones?

MS. DEATON: We have anadromous fish spawning areas, but we also have crab spawning sanctuaries, and you can update the reference and take my name away and put "DEQ, 2016", and that's the updated document.

MS. COOKSEY: We need to make sure we get that changed in the reference section. Thank you.

MR. PUGLIESE: Okay.

MS. COOKSEY: Please. Go ahead.

AP MEMBER: Real quick, since we're having so much trouble with 9, I want to go back to 8, and I'm sorry.

MS. COOKSEY: No, it's fine. We'll just go back up.

MR. MEDDERS: It just dawned on me, and I was thinking -- When I was thinking about these nearshore hard-bottom habitats, and, for Georgia, I would think about the artificial reefs, because

they're considered special management zones, and, if it's not appropriate, that's fine, but I wonder, in there, when you're thinking about these habitats that could potentially be affected by these projects, if the nearshore hardbottom areas are -- Could possibly be affected, then the nearshore artificial reefs are the same way, I think, and we even have what we call beach reefs, which are really close, and they're designated special management zones also by the --

MS. COOKSEY: Well, so, instead of creating a new letter, could we add "all nearshore hardbottom areas, South Atlantic Fishery Management, snapper grouper, artificial reefs"?

MR. MEDDERS: That would be fine with me, yes, and they're technically special management zones, if it matters, if that gives us it more oomph.

MR. PUGLIESE: Well, these are the actual -- So artificial reef is one, and so we could just add it to the list.

MS. COOKSEY: Right. Instead of creating another letter, add it to the list, so that we're highlighting it.

MR. MEDDERS: Right. Thank you.

MS. COOKSEY: We will need to spell out "SMZ", because I think that's its first use.

MR. PUGLIESE: Yes, and the SMZs are EFH HAPCs too, and so --

AP MEMBER: Just as a small point of clarification, all of our reefs aren't SMZs now, and we do have some that aren't, and so listing both I think is good, because I think they all should be, but we just have some that haven't -- We missed the mark getting them designated, and so they're not, at this time, designated.

MS. COOKSEY: Okay. I think we're ready to move on to the next section, where we go in and list our findings of exactly how we feel that EFH and our HAPCs and special designated areas will, or are, be threatened by these large coastal engineering projects, and so we find, the South Atlantic Fishery Management Council finds, that beach renourishment activities (dredge and fill) and related large-scale coastal engineering projects (including inlet alteration projects) and placement of material for navigational maintenance, threaten, or potentially threaten, EFH through the following mechanisms. Do you folks want me to read through every one? Anne said no, and so --

MR. PUGLIESE: Just to touch on it you have direct mortality and displacement and altered communities, direct mortality of fish larvae, as well as planktonic and nektonic, direct mortality, displacement, and altered community structure of organisms, including nekton and individual sediments and elevated turbidity and deposition and alteration of seafloor topography, alteration of seafloor sediment size frequency and distributions and decreased primary productivity at the dredge sites, increased deposition of fine sediments and organic matter in the dredged areas, elevated turbidity in and near individual fill sites and surf zones, alternation of nearshore topography in current and wave patterns.

Then movement of deposition sediment away from the initial fill sites and hardbottom and alteration of large-scale sediment budgets, sediment movement, and other ecological relationships, and alteration of movement patterns of water, secondary effects on the water quality and biota, alteration of movement patterns and successful inlet passage for larval juvenile adults in the marine estuarine system and alteration of long-term shoreline migration patterns, including ecological cascades, and then, finally, the exacerbation of transport and/or biological uptakes of toxins, but it just kind of, in a snapshot, kind of gives you the whole scope of -- Which I think is pretty comprehensive.

MS. COOKSEY: It's pretty large. We have a hand raised online, and I want to recognize Jeff Hartzler.

MR. HARTZLER: A quick question on Number 1 on this section, and I guess it's through a couple of them. When it says "near", like "near sediment dredging sites", is it possible -- Do we have the information where we could put like an actual number of miles, like within a dredging site, because "near" can be kind of vague and interpreted, in my opinion anyway, by different people, and is it within five miles, or fifty miles, or do we know? I'm just curious if we had an actual number that we could put there, instead of the word "near".

MS. COOKSEY: So, we just had a big exchange of looks between myself and a couple of other folks here, and there is so much variation, depending on where the borrow area, the dredge site, is, and depending on the currents, that "near" actually does vary, depending on the oceanographic conditions present in that area, and so I think it would be really challenging to put an actual definition, but thank you for the question. Wilson.

DR. LANEY: I am wondering if, on Number 3, we might want to stick a parentheses after "organisms", and specifically mention mole crabs and coquina clams, because those two are key prey for not only fish species, but also shorebirds, in a lot of cases, and we do have specific studies, which I have been negligent about providing to Roger and you for inclusion in this list of references here, that were done by Bob Dolan and his students on the Outer Banks, and Dennis Stewart did some of that work as well, that looked at the actual changes in those organisms as a consequence of the sand bypassing at Oregon Inlet.

I thought I had provided those in the past, but obviously I haven't, and so I need to do that, and I made myself a note to do that, but do you all think that's a good idea? I mean, those two are the organisms that are frequently the target of any sort of studies that look at mortality, displacement, and altered community structure on sites that are receiving material dispersal, or deposition, or no?

MS. COOKSEY: Anne.

MS. DEATON: Well, there's a lot of invertebrates too thought, and there's polychaetes and things, but maybe you should add invertebrates specifically, and so you don't want to -- You could put it in parentheses, but I think just saying invertebrates and nekton.

MS. COOKSEY: Okay, and so direct mortality, displacement, and altered community structure of invertebrate organisms and nekton at initial sediment fill sites.

MS. DEATON: Do we need "organisms"?

MS. COOKSEY: No. Altered community structure of invertebrates and nekton at -- I mean, because some -- Did you put it in there? What do you guys think of that structure? Stacie.

MS. CROWE: Cindy, I was just wondering, kind of going back to what we said in Number 1, "at or near sediment dredging sites", and do we want to say "at or near initial sediment fill sites" for Number 3?

MS. COOKSEY: Good point, because of movement of material after placement, and so "at or near initial sediment fill sites". Wilson.

DR. LANEY: Don't you still need to leave "dredging" in that first one? The way it was worded, it sort of started out with looking at the source of the material.

MS. COOKSEY: We didn't want Number 1 altered.

DR. LANEY: Yes, and so I think it should stay the -- Either stick "dredging" back in there or leave it the way it was, one or the other.

MS. COOKSEY: So Number 1 should read "direct mortality, displacement, and altered community structure of benthic organisms at and near sediment dredging sites". Then 3 is "direct mortality, displacement, and altered community structure of invertebrates and nektons at or near initial sediment fill sites". Anne.

MS. DEATON: One question, going back to Number 1, benthic organisms, and would that include seagrass and oysters? Organisms, I think of like an animal, and so I think of the oysters, yes, the coral, yes, and does it include seagrass?

MS. COOKSEY: This is my bias, that I work primarily in South Carolina and Georgia, and so we can add seagrass.

MS. DEATON: I'm thinking of an instance where they were dredging an internal channel and the inlet to put on a beach, and there was seagrass right next to it, on the sides, and so there could be impacts to the grass. They're not supposed to, but it could also be covered by the turbidity one in Number 4.

MS. COOKSEY: So, for Number 1, "direct mortality, displacement, and altered community structure of benthic organisms and seagrass at and near sediment dredging sites".

MS. DEATON: Or organisms and habitats, because that covers -- You know, with organisms, you're thinking about benthos, probably, and then habitats covers everything else,

MS. COOKSEY: We're getting vague. I mean, if you want to have seagrass, then I think we should say seagrass.

MS. DEATON: What about coral? Would that come in play in Florida? Or oysters? Oysters are pretty tough, but --

MS. COOKSEY: Right, and it's tough, because I know the corals and shelf habitats would already be excluded from you know, being impacted by these activities.

DR. LANEY: But just a reminder, and, you know, Pace just talked to us about Port Everglades, and so there's, what, 150 acres worth there.

MS. COOKSEY: So, you know, we can -- So "altered community structure, benthic organisms, and habitats (seagrass and corals) at and near sediment dredging sites".

DR. LANEY: Should we throw -- I will defer to the Florida folks on this, but should we throw mangroves in there as well too, or is that too far afield?

MS. COOKSEY: Most -- Sorry. Go ahead, Brian.

MR. HOOKER: I wasn't going to speak to mangroves, but go ahead if you want to.

MS. COOKSEY: I was just going to say that most of the Florida fill comes from inland, and it's trucked in a lot, but go ahead, Brian.

MR. HOOKER: I was just going to ask, and, for consistency in the document, I know, oftentimes, we use "submerged aquatic vegetation", versus "seagrass", and I didn't know if you wanted to use that term, instead of seagrass.

MS. COOKSEY: So "submerged aquatic vegetation" instead.

MR. HOOKER: While I have the mic a little bit, it does seem to me that 4 -- I know we're not quite to 4 yet, but, when reading 4, is that an impact? It's just talking about elevated turbidity levels, but it's not talking about what it's --

MS. COOKSEY: It would be impacting things like seagrass and corals and shelf habitats, by covering them.

MR. HOOKER: Yes, and I realize -- I guess it seems like it's a little different than the other ones though, where you're talking specifically to --

MS. COOKSEY: Right, and so 4 was kind of getting to those habitats in the --

MR. HOOKER: Yes, exactly.

MS. COOKSEY: But, I mean, it doesn't necessarily hurt to also add them in.

MR. HOOKER: That's what I -- It just seems consistent, if we're trying to be consistent in the way that it's approaching -- The other ones are talking about this activity affects this, you know, prey species, and turbidity is just like there's turbidity.

MS. COOKSEY: Right, and so 4 would be "elevated turbidity and deposition of fine sediments down-current from dredging sites adversely altering habitats".

MR. HOOKER: Or just using -- Copy-and-paste what you just did.

MS. COOKSEY: Wilson.

DR. LANEY: To Brian's point, it's not just for -- For 4, it's a bit broader in scope, I think, and it's not just the elevated whatever it is, and it rotated off the screen there, but elevated turbidity and deposition of fine sediments, and so, here, we could be talking about not just down-current habitats, but down-current organisms that are trying to feed, you know visual predators, for example, or filter feeders whose filtering apparatus gets clogged with fine sediments, the whole thing, and so it increases it from an actual potential physical impact to now an alteration of behavior, such as predation. To me, I think 4 is a bit broader in scope, maybe.

DR. CHERUBIN: In regard to 4, I think the water column is the habitat, right? I mean, if it becomes turbid, anything below it that doesn't receive the light, that is supposed to receive it, is going to die, and so I think, in itself, the water column is the habitat as well.

MR. HOOKER: I don't disagree, but I think that's exactly this discussion. In reviewing this, and using this policy statement, it's like, well, and turbidity, and what is it that I'm looking for in this application, you know, that I am concerned about, and is it, like you said, like impacts of foraging behavior, impacts of photosynthesis, or light penetration for corals, and it's not clear what the -- You know, what that trigger -- What that impact-producing activity is on the EFH, I guess.

DR. CHERUBIN: I see what you mean, and like you want to add something here, like altering photosynthesis or -- For instance. Like, for the corals or anything, I mean, light is really the key down there, in addition to smothering of the organisms.

MR. PUGLIESE: Okay, and so what did you want to add in after the adversely-altering all of these different pieces?

DR. CHERUBIN: It's altering water quality, and, basically, that's what it is, right, at the end of the day.

MS. COOKSEY: Wilson, did you have your hand up?

DR. LANEY: Just to tag onto Laurent's comment there, so water quality, maybe especially clarity, because that gets to the seagrass, the SAV, impacts, since incident light is critical for them.

MS. COOKSEY: Anne.

MS. DEATON: I would keep it more general, because sometimes it's not just the sediment, right, and so water quality includes the clarity, but I'm thinking of larval impacts, and like we look at how the sediment can clog the small fishes' gills and things, and so smothering of corals, and so there is many mechanisms, I think, that the turbidity can impact different animals, and it varies, or plants.

MS. COOKSEY: So the question is how do we want to capture all of that? I think I went with the simplistic of, you know, it's turbidity, and everyone knows all the things that turbidity negatively impacts, and I didn't list them, but, you know, it's obviously going to be improved by,

you know, including some of those areas, and so, you know, what do we want to include, and how do we want to phrase it? Wilson.

DR. LANEY: To me, Cindy, the key term in Number 4, that maybe differentiates it from the ones that preceded it, are the words "down-current", and I think we're trying to capture the entire footprint, the potential impact footprint, and so the first three sort of look at the direct impacts at the source of the sediment and where the sediment is deposited, and now we're kind of looking at what's down-current from those sites, and so it's actually a larger footprint, and we're specifying that by saying down-current, and that, to a certain extent, although not exactly, gets to that earlier question about what constitutes "near". As you pointed out, it's different for every single site, and you can define "near" differently, but one of the ways that you could define "near" is in terms of how far down-current the turbidity plume extends.

MS. COOKSEY: Right. Or duration, and so, I mean, something that is discussed with nearshore berm placement, beneficial use of dredge material, is we have to -- Even though if it's not getting placed directly on the beach, we still require that it be beach compatible material, to avoid the creation of long-term plume issues associated with trying to put, you know, fine or silty material in that habitat, and so it's not going to be elevated turbidity for extended periods of time. For 4, we've got elevated turbidity -- I'm going to give myself a headache trying to read it up there. Roger, can you read what it says?

MR. PUGLIESE: Yes, and it says "elevated turbidity and deposition of fine sediments down-current from the dredging sites adversely altering water quality, larval impacts, smothering coral", and I pulled some of this as we were talking, and so the question is, is that what you want for Number 4?

MS. COOKSEY: Is that adequate, or do we need more?

MR. PUGLIESE: You did have one -- When you were talking about duration, should that be up in the front, "elevated turbidity, deposition, and duration", or somewhere in there, to address that point that was just made?

MS. COOKSEY: Yes.

AP MEMBER: Well, if you look at the ones that follow, you talk about water quality, but Number 9 is essentially Number 4.

MR. PUGLIESE: Let me get down there, and, also, we have Jeff Hartzler online, too.

AP MEMBER: You're trying to incorporate, but you do have a lot of turbidity stuff in the next several ones.

MS. COOKSEY: Right, and like 9 is highlighting the surf zone, but, you know, we do -- Movement of deposited sediment away from initial sites, especially on the hardbottom, and so, you know, we are trying to -- We are capturing it in different ways, trying to get those different points, and so is what we have up there good? Anne.

MS. DEATON: Okay. Just glancing through these, they all start out with what the impact is, and like Number 3 is direct mortality, displacement, blah, blah, blah, to the organisms, due to something, but this one starts out with elevated turbidity, and so I think that's what somebody's question was, Brian's, and so maybe turn it around, or you could say, "stress or mortality to whatever, to organisms, downstream, due to elevated turbidity".

MS. COOKSEY: Because like 7 has decreased primary productivity at dredge sites, due to greater depths and increased turbidity.

MS. DEATON: It's more consistent, I think.

MS. COOKSEY: Right, and so, I mean, I don't know, and do we take 4 out altogether, since we are kind of hitting those points later on?

MS. DEATON: Well, you could take that 9 and add to 9 "and downstream of", right, because 9 -- "Elevated turbidity in and near initial fill sites, especially the surf zone" --

MS. COOKSEY: "And downstream", and so like we've "especially in the surf zone and downstream".

MS. DEATON: Yes. Cover it all in one.

MS. COOKSEY: I am going to get Jeff online next. Go ahead, Jeff.

MR. HARTZLER: Thank you. Actually, that -- Sorry, but I didn't catch whose name that just said that, but that was my thought too, and I would like to combine those, because, when you start seeing "elevated turbidity" multiple times, it just kind of blends, in your mind, and so I think you might as well combine them, and I like that, and so no question, and somebody took it. Thank you.

MS. COOKSEY: Okay. Thank you. Stacie.

MS. CROWE: I wanted to point out that you say it in 7 as well, and you start out by the impact, the decreased primary productivity, but due to increased turbidity, and so --

MR. HOOKER: That's the structure that I think makes the most sense, and like -- But I realized too, after you were scrolling down, that there are some other ones that kind of don't necessarily follow that same pattern, and so -- I don't want to necessarily have to wordsmith every single one of these, but I think that was just a thought, a recommendation.

AP MEMBER: (The comment is not audible on the recording.)

MS. COOKSEY: Anne.

MS. DEATON: Yes, you could do that, but you would just have to organize it, and I would do like bullets or something, and so you could say "adverse impacts associated with turbidity, such as" -- Then bullet of decreased primary productivity, bullet whatever.

AP MEMBER: (The comment is not audible on the recording.)

MS. DEATON: And how long the sediment stays suspended. I guess it would take some -- I don't think we should have to wordsmith it right now, maybe, but you could do it, but I would keep those distinct points within.

MR. PUGLIESE: Essentially, what you want to do is merge 4, 7, and 9.

MS. COOKSEY: So, just from a -- Again, we're hoping to kind of finish this up and have something that we don't have to wait on another AP meeting to submit to the council, and, just from a technical standpoint, we're going to do this wordsmithing, and do we need to go through the panel again, or are we going to feel comfortable sending it up to the council?

MR. PUGLIESE: What we can do is just look at those tonight, and we can add that to whatever we end up with the rest of it as we finalize it over the meeting.

MS. COOKSEY: Okay.

MR. PUGLIESE: So just tweak that thing and see if we can come up with a merge, and everything else -- I mean, we know what the intent is, and we'll just get that one line, and then everything else we can wrap up and just have that fine-tuned, and I just pulled them all together. All I need to do is just email it to the group, to the whole panel, and we'll hammer that one thing out and deal with anything else.

MS. COOKSEY: Perfect. I just didn't want it to get hung up. Okay. Any other comments on this section? No? Okay. So we have six best management practices for beach renourishment projects and related large coastal engineering projects listed. The council establishes the following best management practices for unavoidable beach renourishment and related large-scale coastal engineering projects to clarify and augment the general policies already adopted in the Habitat Plan and Comprehensive Habitat Amendment.

For Number 1, for each project, a comprehensive environmental document should be prepared, based on the best available information, and should include defined areas of direct and indirect impact, using guidance provided in -- Areas of direct impact should, at a minimum, include the borrow sites (dredged or mined areas), the beach/nearshore sites (fill areas), and the equilibrated toe of fill. Areas of indirect impact should, at a minimum, include the areas adjacent to direct impact areas that would be affected by indirect project impacts.

b) is baseline surveys designed with appropriate methodology to adequately document pre-project conditions for biological, physical and water resources in both direct and indirect impact areas. Baseline surveys should follow the BACI sampling framework. Biological resources, at a minimum, include benthic infauna and epifauna, submerged aquatic vegetation, hardbottom habitat, hardbottom-dependent species, coral reef habitat, and coral-reef-dependent species. Physical and water resources, at a minimum, include topography, bathymetry, water quality (turbidity, sedimentation, total suspended solids, and dissolved oxygen) and sediment characteristics (grain size, sorting, and mineralogy).

c) is an analysis of alternatives, including alternatives that may minimize future need for additional nourishment activities, for example sand bypass, to include the following components: identification of avoidance and minimization efforts; identification of the direct and indirect project impacts that cannot be avoided or minimized, using appropriately designed baseline surveys identified in c) above; identification of cumulative impacts that, at a minimum, includes impacts associated with other beach dredge and fill projects, as well as any other large-scale coastal engineering projects that are both geographically and ecologically related. So this is trying to get at that cumulative impact.

d) is, during the construction monitoring plan, as deemed necessary for a specific project, designed with appropriate methodology to adequately detect and document both direct and indirect project impacts. Monitoring plans should follow the BACI sampling framework.

A post-construction monitoring plan for biological, physical and water resources designed with appropriate methodology to adequately detect and document both direct and indirect project impacts. Monitoring plans should follow the BACI sampling design. Post-construction monitoring should include quantitative comparisons of abundance, biomass, species diversity, and community composition in direct and indirect impact area and reference areas before and after dredge and fill operations. Brian.

MR. HOOKER: So is that basically a standard for every beach nourishment project, that they have a before and after control impact process? I mean, I know these are just recommendations that come out, but how -- I mean, is that still a reasonable thing to include in there, or is there something else?

MS. COOKSEY: Well, I mean, it's something that we highly encourage. In cases where we have projects that are going on across multiple years, and they follow some of the best management practices that are outlined further on, like they're happening during periods of low biological activity, and we've previously studied it, then I know, from, you know, the regulatory end, then we're not going to require that kind of large-scale study every time, but, especially when we've had applicants seek to do the work outside of previously-studies timeframes, or in areas that have never been studied, then that's when we would encourage this, as needed. Does that make sense?

MR. HOOKER: Yes, and that's a great clarification, and I don't know if that's something you want to try to include in the policy. I don't know, and, you know, like when it is more appropriate than others? I mean, obviously, it's something you want all -- It would be great if everyone did it all the time, but is there a recognition in there of like --

MS. COOKSEY: So I would like it if they did it all the time, but, from -- You know, putting on the little regulatory hat, and when you're actually in discussions with applicants, I mean, you have "as practicable" that often comes into play, and I would hate to dilute these recommendations, at this stage, when I already know how easily they're diluted when you're actually sitting down at a table during a pre-application phase, if that makes sense.

MR. HOOKER: That makes sense. I was just asking.

MS. COOKSEY: Did anyone else have -- Anne.

MS. DEATON: Also, I'm seeing a lot of pushback, in our state, when they've already done it before, and so they're like, well, we did it before, and we monitored it before, and so they don't think they should have to monitor it again, and so I think I agree with you that put it in there, but we know that it may not always happen, or it might be as a caveat, like certain situations, certain magnitude of a project, that kind of thing.

MS. COOKSEY: We could always add "as practicable". I mean, that's the wiggle word that everyone loves. Stacie says don't give them the out, and, I mean, it's -- You know, there's something to be said for establishing that this is what we, as, you know, members of the AP, would like to see happen, especially from the cumulative standpoint. You know, one of the things I see is that, you know, you have a project where they originally did the study, and they said, oh, we would never do a dredge and fill more than once every ten years, and now they're coming in and doing it every two to three. At that point, is it now worthwhile to engage in another study to understand the cumulative impacts of that temporal nature of the activities occurring? Yes.

DR. CHERUBIN: I have several questions, and the first one is does this apply to both the dredge and the fill areas?

MS. COOKSEY: Yes.

DR. CHERUBIN: Now, when it comes to the fill areas, we know sometimes they are ephemeral, and so does that -- Does it have anything to do with whether the project is viable or not, and should we do the renourishment again if, a month from now, it's going to be gone, and what's the purpose?

MS. COOKSEY: To a degree, that is up to the communities, which is why we started this out as saying that we were strongly recommending that communities look at every option for evaluating. Yes, Anne.

MS. DEATON: That was actually one of my comments that I was going to say. Do we need a BMP that says that communities should evaluate -- I'm not sure how you would word it, but should evaluate relocation or other options when there's been -- When beach nourishment --

MS. COOKSEY: I mean, that's our first finding in the whole document.

MS. DEATON: It's a finding, but it's not a BMP.

MS. COOKSEY: I guess we could make it a BMP.

MS. DEATON: You know, if it gets so that it's just not lasting, and it's every year, or every two years, I think they need to like have them reevaluate.

MR. HOOKER: Isn't the term we use now like "shoreline retreat", and isn't that how that's discussed? I mean, you said that's used in the beginning of the document.

MS. COOKSEY: So the first BMP is coastal communities are strongly encouraged to evaluate the full range of alternatives, including retreat, to these types of projects. I am seeing lots of nodding heads. That would now become the new Number 1 BMP, is that people actually evaluate whether or not they should engage in that activity. I want to recognize Shane.

MR. STAPLES: Cindy, I was getting ready to mention something about doing the studies, because I know that we made them do the one, based on it's going to be done once every ten years, and they have definitely picked up the pace on some of that stuff, and, you know, spatially too, and they're kind of stacking them on top of each other down the shoreline, right after the other, and, I mean, they're not spaced out, and some of the things that originally were discussed --

You know, they were going to be spaced out, and there was going to be longer time periods, but, now, it seems like they're just doing twenty miles of beach at once, but that was mainly -- You kind of hit what I was getting ready to say beforehand, and, also, sometimes just, in a study, and I don't know how to address it, from that regulatory standpoint side, but I was reading there -- You know, what they claimed was a full restoration, you know, after however long, based on some diversity index, and, I mean, it went from here's a pretty diverse, you know, benthic community to it's a bunch of -- We had the same diversity of species, but it was kind of all -- I mean, technically, they had their diversity numbers, but it had significantly changed in composition, you know, and I don't know how exactly to hold them to -- To hold their feet to the fire on that, or what the cumulative impact is, now that it's been going on, you know, for -- I mean, I guess that was 2011, was the first one. Anyhow, that's just an observation.

MS. COOKSEY: Thank you, Shane. That's something that I've seen in multiple studies, where, when they have kind of your disturbance-tolerant invertebrates move in, they like to claim that that meets the biodiversity's return, when, in actuality, the community is completely altered, which a good BACI design will help us pick out. Anne.

MS. DEATON: Well, I was just going to say I think what Shane was pointing out is that -- I mean, it differs on your shoreline, but we have, at the Outer Banks, a long shoreline, with multiple communities, and they're doing -- One starts a project, and then the other one is doing a project that's going to happen right after the first project, and so it's the cumulative impact thing, like a four-mile project is a twenty-mile project, and then there is no control, and it's difficult to confine to a control, and so maybe we need --

MS. COOKSEY: Well, we've got research needs at the end of this.

MS. DEATON: Okay.

MS. COOKSEY: That we're trying to get at that, because that is a massive unknown, given the massive geological scale that we have started to engage in these projects, and so we will, I think, get to that point.

MS. DEATON: Because it impacts recovery.

MS. COOKSEY: Yes. For those on the computer, Roger just absconded with my computer. Okay, and so are we ready to move on to Number 2? Wilson.

DR. LANEY: My comment was going to be on Number 2.

MS. COOKSEY: Awesome. Let me read it, really quickly. Fill material should match the sediment characteristics of the recipient beach as closely as possible.

DR. LANEY: Yes, and so I'm thinking, because of a prior conversation that you and I had about olivine sands, in particular, should we -- Do we have a basis for it, but should we consider, if we can scroll down to Number 2 at some point, when Roger gets through typing there, but should we say that the sediment deposited in an area should not only physically, but chemically match? I mean, is there a justification for that? I know that the folks who are proposing this olivine sand climate change mitigation deposition, or deposition for climate change mitigation, have done some limited amount of toxicity testing with that particular sand variant, but I was wondering if we had enough science behind it to be able to say that it should, you know, not only match physically, but also chemically.

Typically, we tend to think about grain size, and we may think about temperature changes, which certainly is a function of whatever type of mineral it is, and then its light reflectivity and all that kind of stuff, which affects the gender of sea turtle nests and so forth and so on, but could we say chemically as well? I mean, with the olivine thing, it's an unknown, to a large extent.

MS. COOKSEY: So, to me, sediment characteristics includes grain size, as well as minerology, and the olivine -- For those who are not aware, there is a push by a company from Europe to deposit olivine sand that is mined out of Norway and transited to the U.S. and placed in near-coastal, near-beach, habitat, where it could then be used to sell carbon capture credits, by taking up carbon dioxide, and so it's an approach that has been proven in laboratories, using beaker-based science, but it has yet to be done at a mesocosm scale, much less at a, you know, actual deployment in the coastal ocean, and so that's where that discussion is coming from, but I do think that sediment characteristics is broad enough to include minerology, so that we could hopefully use that in our discussions with this company.

DR. LANEY: Well, that's good. I mean, we've got it on the record in the discussion here, that that is something we're thinking about, at least, and so I think that captures it, but I will just add that the preamble of the Clean Water Act does say chemical, physical, and biological integrity of the nation's water, and so we would be consistent if we did say chemical and physical. We would be consistent with the preamble, but I agree with you that it's captured the way it's worded, and so I think we're good.

MS. COOKSEY: Okay. BMP Number 3 is dredging should be limited to bathymetric peaks (rather than depressions or level sea bottom) in areas characterized by strong currents and sand movement, in order to increase sediment infilling rates and decrease the duration of impacts to benthic habitats. Okay.

4 is the depth of material removed, the depth the sediment surface is lowered by the act of sediment removal, should be limited to the shallowest depths possible to minimize changes in wave energy and currents, thus reducing the likelihood of infilling with fine-grained sediments. That was something that we word-crafted quite heavily last time, and so hopefully that works for everyone. Okay.

DR. CHERUBIN: How you do -- The depth of material removed, how do you minimize the effect on the depth?

MS. COOKSEY: We talked about depth, and we talked about how deep into the sand they pull the material, and so, instead of going ten feet, they're going down three feet, a meter, instead of multiple meters, and so, again, we were kind of collapsing in bottom dredge materials, and so hopefully you're not getting pits that we see happening in some borrow areas.

DR. CHERUBIN: But also means that, if you can't go deep, you have to spread horizontally, right, and so that's -- Because, when you read it, you don't get that feeling, and they're going to ask you, so what do we do, and that's what --

MS. COOKSEY: Right. They're either going to go deep or they're going to go far, but the idea is that, if you kind of spread your impacts further out, then you're increasing the likelihood of recovery, and that's --

DR. CHERUBIN: Absolutely, but I didn't really read it that way in the -- I think the horizontal dimension is missing here.

MS. COOKSEY: Right, and we don't say anything about the horizontal dimension, but we do acknowledge that that is what it means, that they'll have to go further out. Yes, Wilson.

DR. LANEY: I mean, Laurent is correct, and what you avoid -- Another thing that you can possibly avoid, if you make your cut shallow, versus deep, is you avoid areas going anoxic, you know, depending on how deep it is and whether or not the water stratifies and that sort of thing, but you definitely -- Generally speaking, if they need X volume of material, and you're going to only dig it one foot, as opposed to ten feet, then, yes, the area is going to be a whole lot larger, the area of impact, but you may avoid, you know, anoxia when you do that. Again, that's one of those site-specific sorts of evaluations that would have to be done to figure out what you're gaining by going shallower versus deeper.

MS. COOKSEY: Anne.

MS. DEATON: I was just going to add that I have heard that, from the permitting side of it, by increasing the area of the impact, you know, it's a bigger impact, right, and so they might have to do -- I don't know, and it's harder for them. The way the regulatory agencies are going to look at it is they're going to look for less impact, even though we know, the deeper it is -- I mean, there's several studies that show that, if it's deep, it may never recover.

MS. COOKSEY: So putting it in here I think is helpful.

MS. DEATON: It's good. I do think so, because it is complex, I guess, and, ecologically, it's better to be shallow, even if it's bigger, but, from a permitting aspect, it puts them in a bind, because they don't want to do that, and so, yes, I'm just pointing that out, and I didn't know if something was --

DR. CHERUBIN: So maybe all we need to do is justify it by citing the research.

MS. DEATON: Citing some of those deep --

MS. COOKSEY: Well, that's what we did in the threats section. A lot of those papers cited studies that found that going shallower was better for recovery than going deeper. I am looking at Stacie, because she was involved in a bunch of that. Okay.

Number 5 is, in areas with seasonal benthic recruitment periods, beach renourishment and large-scale coastal engineering activities should be conducted during periods of low biological activity, ahead of spring/summer benthic recruitment periods, to allow maximum recovery of adversely-impacted communities.

Number 6 is habitats designated as EFH HAPC or recognized in state-level natural resource management plans should not be used as borrow areas for sand mining, and that one is nearest and dearest to my heart. Yes, Anne.

MS. DEATON: Okay. Number 5, I missed that, and I had a note here that, you know, it says during periods of low biological activity, but I recall that we talked about mentioning the importance and need for environmental windows, and do we need to be more specific that environmental windows -- That we should strive to do that as a minimization measure, because, right now, I mean, there's a push to not even have environmental windows, and, when they do, from a fishery perspective, we usually -- We just use the bird and turtle window, and that pretty much covers the fish.

MS. COOKSEY: So I know, when we were drafting this, early on, we were trying to have some consideration of the fact that this is inclusive of Florida, which doesn't really have the seasonal windows for the benthos, and, you know, they don't have the big spring/summer recruitment pulses that we have further up, and so I think that was -- But I am willing to -- If there is some specific wordage that you would recommend, that we could certainly try to use. Wilson.

DR. LANEY: Maybe we could say "where appropriate", you know, and that would kind of put Florida's special case in perspective and acknowledge that, the further north you go, the more appropriate environmental windows are, and I don't know, and does that grab you, Anne, as being appropriate?

MS. COOKSEY: Really, if we can suggest wordage for Roger to type in, that would be the most helpful.

MS. DEATON: This is really all about the benthos, right, because it's talking about --

MS. COOKSEY: Yes, it's about benthos.

MS. DEATON: It's talking about benthic recruitment periods, and the environmental windows are about organisms in the water column.

MS. COOKSEY: Yes.

MS. DEATON: So that's a difference, and it might need two sentences, but it could be both in Number 5, and it might be long in one sentence.

MS. COOKSEY: I mean, if you've got wordage to suggest, go ahead.

MS. DEATON: Okay. I like what's there in Number 7 on the screen, and to minimize -- Environmental windows to minimize impacts to fish and invertebrates, or, actually, no, because it's birds and everything.

DR. CHERUBIN: I would even say fisheries, and so, for instance, in Florida, the winter months is the big pompano fishing season, and they feed on sunfish on the beach, and, this year, it happened in front of my house, and like the fisheries was because of the beach renourishment, and so that's one of those cases.

MS. DEATON: So I guess you can do it as two separate ones, or it could be one, and is that what you're saying, Laurent?

DR. CHERUBIN: I mean, in Florida, ahead of spring and summer benthic recruitment periods, but maybe ahead of winter fisheries as well.

MS. COOKSEY: Right, and so, I mean, I think that that's where the "when put into place" -- When you've got the regulatory community working with, you know, individual applicants, that there should be some wiggle room to try to find the least impactful timeframe, but how do we want to capture that in words?

MS. DEATON: I wouldn't say winter fisheries, because that pins you down to Florida, because, in like North Carolina, summer fisheries is when they're chasing the mole crabs, and in the fall, and so the seasonality is kind of an issue if you add that in there.

MS. BUSCH: What if you, you know, just said "large-scale engineering activities should be conducted during periods of low biological activity", and then say, "for example, ahead of spring benthic recruitment". That means it kind of captures everything, but then here's an example of one.

MS. COOKSEY: Yes, and so it's still "activity, for example ahead of", and then "to allow maximum recovery", and so we're not saying you have to use the spring and summer, but we're just using that as an example. I like that.

MR. PUGLIESE: (Mr. Pugliese's comment is not audible on the recording.)

MS. COOKSEY: No, none of that, and so just "in areas with seasonal benthic recruitment periods, beach renourishment and large-scale coastal engineering activities should be conducted during periods of low biological activity, for example ahead of spring/summer benthic recruitment periods, to allow maximum recovery of adversely-impacted communities". Anne.

MS. DEATON: One last thing. Could you put, in parentheses, after "periods of low biological activity", "documented environmental windows", or "environmental windows", and I just wanted to get that wording in there, and then we don't need Number 7.

MS. COOKSEY: I'm fine with that, and then we don't have the Number 7, and so, in parentheses, after "spring/summer benthic recruitment periods", "environmental windows". I know we are over

our time, and I apologize for that, but we literally have one tiny little section left to do, that I think it would be really great if we could get through, and so thank you. Yes, Wilson.

DR. LANEY: One other comment, and I'm not sure we've captured it, but Dennis Stewart, when he and Bob Dolan were working on the sand bypassing on the Outer Banks, down-drift of Oregon Inlet, they came up with a way of deposition out, and whether you remember this or not, Anne, but they discovered that if you -- Instead of just adding the fill material linearly, you add it in like a cuspate shoreline fashion, and it greatly increased the --

It shortened the restoration timeframe for mole crabs and coquinas, if I remember correctly, and so whether we would like to stick that in here as a BMP or not, I don't know. I need to pull that literature, and get that to everybody, so that we can look at it, and it may be that that was particularly useful on the Outer Banks, but not necessarily useful elsewhere, and I don't know, but that was something they found that seemed to work up there, and it required a change in the way that you placed the material on the shoreline, and so I just mention that again as something that we should take a look at. It may be that we can throw that in the research recommendations.

MS. COOKSEY: Anne.

MS. DEATON: I think that might be really specific to the beach, because of the orientation and the currents and everything, but you could maybe put some generic statement, and I was looking at Number 2, and fill material should match the sediment characteristics of the beach, as close as possible, and consider placement in a way that maximizes recovery.

DR. LANEY: That works for me.

MS. COOKSEY: So, for Number 2, after "possible", "and" --

MS. DEATON: "And in a manner that" --

MS. COOKSEY: "Maximizes recovery"?

MS. DEATON: "Maximizes recovery time of benthos", because you're talking about the benthos. They probably aren't going to do it though.

MS. COOKSEY: Okay. Research needs. We've got three items listed, and, again, these were captured out of discussions last fall, and so the South Atlantic Fishery Management Council encourages the funding of scientific research on the following topics: an analysis of the spatial and temporal dimensions of these beach renourishment (dredge and fill) combined with other large-scale coastal geoengineering projects, within the South Atlantic Fishery Management Council geographic range and so what are we actually doing across the Southeast with regard to dredge and fill and repeat dredge and fill? If anyone has a better way to say that, please step forward.

This section is actually kind of a first-draft attempt at this, in that I took everyone's comments from last time and kind of condensed it down into these three points, and so let's go through all three.

Number 2 is cumulative impacts on the productivity and biomass of nearshore ecosystems, occurring as a result of beach renourishment, specifically a meta-analysis which incorporates both spatial and temporal dimensions. First, we need to understand what is happening, and then we need to understand what that may mean for impacts on productivity and biomass, and then 3 is appropriate compensatory mitigation for beach renourishment and borrow area impacts. Does anyone have any idea how we would mitigate for this? Well, there may very well be some very smart people out there that could come up with ideas, if we reach out to them, and so, please, thoughts, comments, ideas, suggestions. Brian, yes.

MR. HOOKER: The only one that comes to mind is something that Anne brought up earlier, and that is reuse. You know, do you need a study on, you know, how to use maintenance dredging or -- I have heard, even on stuff that I'm involved with, that it's like, oh, if you're going to dredge something, isn't there a way to put it up on the beach, and then it's like, no, it's too complicated to do, or you need something else to -- That's another project, and you just can't do it, and so it's not only maybe technically feasible, if you're going to channel trying to capture what you're dredging, but then to go the extra step of actually placing it somewhere, where the public might be, is even another hurdle, and so is there a study there to understand regulatory hurdles and actually trying to reuse maintenance dredge fill material in beach nourishment, or maybe that's already been done, and maybe that's a study, but it sounded like something that was brought up earlier today.

MS. COOKSEY: I know, within Georgia and South Carolina, there are robust groups that have formed to approach regional sediment management and to try to find beneficial reuse of as much material as possible out of dredging, and so I'm aware of projects that are forming for Tybee Island, as well as Jekyll Island, for the reuse of, you know, operations and maintenance dredging, but it sounds like North Carolina might not be as far along.

MS. DEATON: They are doing that in certain counties, and so Carteret County has a beach management plan for the whole county, even though it's multiple towns, and so multiple towns come together and be cooperative and plan it out better, and Brunswick and New Hanover I think are working on that. That example that we talked about of Dare County, they're not right now, but maybe they will.

MR. HOOKER: I guess my question is so there's no technical, or regulatory, study in there, and it's just the will of people just to do it, it sounds like.

MS. COOKSEY: Well, there have been studies that the Corps has been involved in for a decade or more that they look at the regional sediment budgets and see the need for keeping material in the system, rather than placing it in, you know, dredge disposal areas, and so that's been done, and now we're in the process of trying to figure out how to do it well, and you do have various communities that have already implemented it, and, at least in Jekyll Island, they're studying it right now, and so it is going on. Wilson.

DR. LANEY: One beneficial use that comes to mind, and Anne and I know are aware of this one, is for benefiting, enhancing, changing succession, on bird nesting islands, and at least that's something that's been ongoing for twenty years, or more, in North Carolina, and Jim Parnell at UNC Wilmington was very instrumental in starting that, and there is -- I guess there's still an active group that looks at that, and that is material mostly coming from navigational dredging, I

guess, that is used to supplement bird nesting islands for colonial nesting seabirds, and then I have a question for Roger and Myra, I guess.

That is are we supposed to -- I know we're a Habitat AP, and so that's clearly our primary focus, but these sorts of -- There are economic impacts associated with this activity as well, and so is that something that the Habitat AP is supposed to look at, or is that mostly -- That's a council issue, and we leave that alone on the Habitat AP?

MR. PUGLIESE: I will jump -- Myra may add in, but, you know, the focus needs to be on what your expertise is, and so the recommendations here -- Some of those types of economic ones have to be balanced in, you know, processes outside of the council, and so I think your high ground is identify the science and the recommendations and to address the mandates of the conservation of EFH and the managed species.

DR. LANEY: Yes, and the only reason that I brought it us because you all -- A lot of you have heard me say this before, and I have never seen an economic study that was complete, that looked at all of the aspects of economic impacts resulting from any kind of ecological disturbance, and so I will just put on the record that, if somebody else does an economic study of how these sorts of activities affect, you know, anglers and surfers and tourists, ecotourism in general, et cetera, et cetera, et cetera, it would be nice if somebody did a complete study and looked at not just the immediate economic impact of keeping anglers off the beach, but the further economic impact that results when they don't make the trip, they don't spend money in restaurants, and they don't spend money for lodging, et cetera, et cetera, et cetera. You know, it would be nice if we could see a complete economic study, but, again, that falls into somebody else's bailiwick.

MS. COOKSEY: Anne.

MS. DEATON: I think the Corps of Engineers has to do those economic studies before they -- If they're involved in a beach nourishment project.

DR. LANEY: Theoretically, they do, yes.

MS. COOKSEY: Okay. Well, we are coming on to a half-an-hour past the time that I thought we were going to finish by, and so --

MR. PUGLIESE: Brian had talked about, and we kind of went around and ended with --

MR. HOOKER: It sounded like it needed to be a study, and is that what you're talking about?

MS. COOKSEY: I believe, Roger, you have captured kind of our edits, as we've gone along, and you're going to send it out to the group?

MR. PUGLIESE: Yes, and I was originally going to send that just grouping, and I said, well, I'll get this draft right here, and I'm basically ready to fire it off, and it's got all the ones that we worked on highlighted, and so then the biggest one is to do that merge, but then you've got the opportunity to think of anything else, and then we can tweak it right when we get to the end and save this for like maybe a last item for the meeting, to just approve to send it up to the council for consideration.

AP MEMBER: (The comment is not audible on the recording.)

MR. PUGLIESE: I can, but I will take a look at it, and, if I can do something, I will. Otherwise, I may let some of the experts that know that even better, but let me look at it, because I was trying to do it on the fly, and that didn't work. There were just too many pieces there.

DR. LANEY: Well, I think Anne's suggestion will help you out on that one, Roger, but, basically, what she suggested, if I heard her correctly, was just put the turbidity impact upfront and then say, you know, elevated turbidity results in Number 4, Number 7, and Number 9, and just pull out those individual impacts as bullets under the general impact heading, and did that capture it? Yes.

MS. COOKSEY: Okay. Well, thank you, everyone, for putting in a very long afternoon, and I'm glad that we were able to get through the nourishment policy, and it looks like we'll be able to get it finalized by the end of our meeting. As we wrap up for today, I did want to remind everyone that we will be beginning again tomorrow morning at 9:00, right here, bright and early, and hopefully there will be caffeinated beverages for us in the morning, and, otherwise, I think we are done for today. Thank you, all.

(Whereupon, the meeting recessed on November 1, 2022.)

- - -

NOVEMBER 2, 2022

WEDNESDAY MORNING SESSION

- - -

The Habitat Protection and Ecosystem-Based Management Advisory Panel of the South Atlantic Fishery Management Council reconvened at the Town & Country, Charleston, South Carolina, on November 2, 2022, and was called to order by Ms. Cindy Cooksey.

MS. COOKSEY: Good morning, everyone, and welcome to day-two of the Habitat Advisory Panel fall 2022 meeting. Welcome to everyone who is in the room with us, as well as to those attending virtually. We have a very full day ahead of us, but, before we get into the meat of the agenda, I wanted to welcome Mel Bell to give some opening comments this morning. Mel is currently the Vice Chair of the Habitat Committee for the council, and he is going to be providing us some opening comments.

MR. BELL: Thank you, and nothing major, and I appreciate it. Trish Murphey is the chair of the committee, and Trish couldn't be here today, and she may try to be online, I think, and I apologize for not being here yesterday. I was on the road, but I do appreciate you all being here, and I appreciate your willingness to serve on the AP. As you know, the council process, we do lean heavily on our APs for technical advice and input, and so that's very important, and you're in a unique area, in that your particular area of expertise touches all of the other things that we spend the majority of our time stressing over, and so, as my friend Wilson likes to say, habitat is where

it's at, but all of the species that we find ourselves spending a lot of time on, and, if you kind of watch the council meetings, touch on some component of habitat.

In addition to that, as we move forward with things that are going on in the nation right now related to energy, and there are things that will touch on habitat, which we, again, are grateful, and I know, working with Roger, we've been able to utilize information and data that the council has, in terms of where our essential fish habitats are, and we have used that, in the past, to provide comment related to energy development concepts or oil and gas exploration, and then, as we move into kind of the wind world here, that's going to become important as well, is understanding where our essential fish habitats are, and so I do appreciate you all being here, and traveling, and I do really appreciate your participation, and, on behalf of Trish and myself, thank you so much.

MS. COOKSEY: Thank you, Mel, and so our first item up for today is a discussion of BOEM offshore wind activities in the South Atlantic region, and this is going to be headed up by Brian Hooker, who has brought in a host of speakers to update us, and so I'm going to turn this over to Brian, so that he can introduce his speakers and get this topic going. Thank you, Brian.

MR. HOOKER: Thanks, Cindy, and I didn't know that I was supposed to introduce all my speakers, and I will probably do a horrible job, and I will probably ask them to introduce themselves when we get to their projects, but I did want to start off, and I do have just a few slides.

It's been a little while since I think we've last met in-person and had an update on a lot of our projects, and, again, by way of introduction, for those who don't know, my name is Brian Hooker, and I'm the Biology Team Lead within the Office of Renewable Energy Programs at BOEM, and so, in the Environment Branch, we're the group responsible for doing the environmental consultations, the EFH assessments, biological assessments, et cetera, and supporting the environmental process for each of the construction and operations plans that we receive for our leases.

This is just meant to -- I apologize, and this slide is a little bit out of date, but it just gives you a sense of, you know, how many of these sales that we've completed, and I think the most recent ones from the South Atlantic are -- What I refer to as those Wilmington East, the Carolina Long Bay, I don't are included in this tally, but it just gives you a sense, and I want to point you down toward, you know, how many leases that we have, at the top, under construction and operations plans, and we have at least twelve, and I think we're up to at least fourteen under review.

We've only approved -- Other than the CVOW research lease area in federal waters, we have only approved two commercial-scale projects, and both of those are in southern New England, but we have several more under review right now, with ocean and wind off of New Jersey kind of leading the way in the next tranche of EISs that we're reviewing.

The other piece that is a part of all this is, you know, guidance, and we do have several guidance documents around all different aspects of information requirements for our construction and operations plans, and we actually just published, and I think it was this week, a guidance on information needs prior to going forward with a notice of intent to prepare an EIS, but there's guidance around, you know, fisheries surveys, essential fish habitat, by habitat surveys, avian surveys, geophysical surveys, et cetera, on BOEM's website.

I don't want to leave out that we do have, just recently, a final sale notice, and we haven't actually had the auction yet, for our first leases off the California coast as well, and not pictured really here, because of the way the slide is, we are doing an area -- We're going through an area identification process, beginning the leasing process, in the Gulf of Mexico.

This is just a slide of the most recent leases in the South Atlantic, and we recently had an auction, and there are now two new leases in the South Atlantic region, the first south of Cape Hatteras, and, again, early on, I think these were referred to as the Wilmington East call area, and later turned to the Carolina Long Bay call area, and we'll have both TotalEnergies and Duke both giving us an update on their projects a little bit later on.

Also, I know of interest, in this region, is where we are with the Central Atlantic, and so we did issue a call for information and nominations, and we did have a request from several east coast states in the Mid-Atlantic for additional areas to lease, to help meet their renewable energy demands, and so, back in April, we published this call for information and nominations, and I forgot to update that bullet, and we definitely received more than four comments.

The comment period is closed, and it included these six call areas, and we are very close now to publishing the draft wind energy areas, and that's the next step in the lease area identification process, and so we've taken into account all the information that we received through that comment period, and we are also working with NOAA's NCOS, the National -- I am going to get this wrong, and so, if any of my NMFS colleagues want to help me out, but the National Center for Coastal and Ocean Systems, or something like that.

MS. COOKSEY: National Centers for Coastal Ocean Science.

MR. HOOKER: Science. Not systems. Thank you. Anyway, we're working with them and trying to really develop -- Making sure that we're having an open and transparent process for identifying all the different constraints on each of these areas, and so there will be like a companion document to the draft wind energy areas, to really elucidate, you know, what went into the area identification process on the draft wind energy areas, and so that's anticipated in the near future. This will be the first floating offshore wind sites that we are considering on the east coast, and those are those deepwater sites, which are E and F on that slide, off the shelf break.

Okay, and so I put in here, and hopefully these will pop-up, for those that are able to access the briefing book, these slides, and I really -- Excuse me. Links. I really did want to highlight the project status, and most of our projects that we are reviewing, at the construction and operations plan stage, are what we term, you know, FAST-41 projects, and so there is a dashboard, at the permits.performance.gov website, where you can actually track, you know, where they are in the environmental review, from the point of that notice of intent was published, a notice of intent to prepare an EIS was published, when we intend to submit the biological assessment, when we plan to have the biological opinion completed, and you just go to that website, hit "Projects", and select "BOEM", and then you'll get all the projects on the east coast that are in that phase of environmental review, and you can find out exactly where they are in the process. I refer to it quite regularly. I also put up there the Carolina Long Bay and Central Atlantic.

I did want to highlight that we also have a brand-new fishing and offshore renewable energy website, and we're really working to try to make information available to the fishing community

and easier to access, and so I encourage folks to take a look at that and provide feedback. We're always looking for feedback on how we can make information more easily available to, you know, both fishermen and fisheries managers as well.

I did want to talk a little bit about, you know, where we are with some of our initiatives, and we published, back in June, a draft fisheries mitigation guidance document, and we had a sixty-day comment period, and we received eighty-eight comments around those four topic areas in the draft guidance around general approach, project siting, design and navigation and access, safety measures, environmental monitoring, and then, lastly, probably the most controversial piece of the guidance is around financial compensation, and so this would be the first time that the agency is kind of, you know, putting forth a guidance document of what we are looking for in construction and operations plans that are submitted to BOEM regarding financial compensation for lost income, gear loss, et cetera, in those plans.

We do hope to have the final guidance published this winter, and, you know, we'll have like a public meeting associated with that to explain what comments were received and what updates we made to the draft guidance based on the final guidance, and so the objective there is to have that done prior to the ocean wind FEIS, but I think, if you're paying close attention, you will notice the last EISs that have been published all have a BOEM-proposed measure of financial compensation included in the mitigation table. There is the link, at the bottom of this slide, that has more information on that draft guidance, if you want to check it out.

The other big announcement that we have is -- We amplified it this week, or I think it was late last week, is that the National Academies -- We partnered with the National Academies of Science to establish a new standing committee on offshore wind energy and fisheries, and this is a new national committee devoted exclusively to fishing. One of the things that we've been investigating, for quite some time, is how to improve communication between BOEM and fishing interests, and we've investigated, you know, establishing another federal advisory committee or other -- You know, in the past, we've been using forums like this, or state-led fishery advisory groups, to kind of communicate with and receive feedback from, but this really elevates it to a much higher level.

BOEM isn't, or doesn't, directly oversee this committee, and it is overseen by the National Academies of Science, and we actually use them, currently, for our Committee on Offshore Science and Assessments, our COSA committee, and that helps advise us on our environmental studies program, and this will be kind of an -- This will be a separate group, of up to fifteen members, that we're going to be standing up, that they are going to be standing up, in January, but, for everyone here, and please consider nominations for this.

The National Academies is accepting nominations through November 9, and so we are including, trying to include, every region in the U.S., including the South Atlantic and the Gulf, and so I strongly encourage you, if you're interested, to submit a nomination to the National Academies of Science, and the link is at the bottom here to do so, and so we're excited about that new venue to be able to talk about all kinds of things, either from, you know, policies, guidance, studies, et cetera, but, ultimately, I think the committee will really help define what it is that is of interest to talk about.

Going into the environmental studies, we are just now beginning to kick off our FY 2024 process, and so, every year, we do send a solicitation for study ideas, and so keep an eye out. If you aren't getting those emails, I encourage you to go to the BOEM website and click on the -- There's like an email icon to get on our email list, so you can get the email notification from our Division of Environmental Sciences, when they publish that solicitation, and so what we do is, you know, submit a -- We ask the public to submit study ideas, and we consider those and work with our subject matter experts to formulate things that we want to potentially fund in FY 2024, and then, around this time of the year, we'll have a final list of studies that we actually want to fund, and so that's that process.

I just wanted to highlight some recently-completed studies that we've done, and we have completed some baseline fish telemetry work in southern New England, New York, Delaware, Maryland, and Virginia, and the -- I think one of the newest ones that is of interest is the hydrodynamic impacts in southern New England, and so we did hydrodynamic modeling of, you know, the placement, the full buildout, of turbines in southern New England and looked at an agent-base model to see what the transport of larvae, like scallop larvae, and we looked at hake and winter flounder, all to seek if there was any, you know, changes in the distribution of those larval transport pathways for those species as a result of the full buildout of projects in southern New England.

We also just recently completed another kind of follow-up EMF study on eels, and that's there as well, and that was conducted primarily off of Long Island, New York, where there is some existing cables already there, and, again, there's the BOEM Renewable Studies page.

Just some recent kick-offs that I think would be interesting are we're still continuing to fund our RODEO project, the Real-Time Opportunity for Development Environmental Observations, and that is now included in the Coastal Virginia Offshore Wind Project -- That is supposed to be CVOW-R, CVOW-Research, and not CVOW-Commercial. Sorry. Observations there, and at the Block Island Wind Farm, and we did recently revamp that webpage, so it's a lot easier to access, a lot of the reports, and you can really look at how quickly the foundations become fouled and the marine growth that appears and the use -- You know, the occurrence of different fisheries, depending on where you are, in southern New England or the Mid-Atlantic.

Two new ones that we're kicking off is one regarding connectivity among offshore wind turbines, and I think one of the questions is, is it just really an island effect, or do you get connectivity between islands, and so we're really trying to look at -- Primarily at Block Island, look at, you know, is there a lot of movement, depending on the spacing of turbines between the foundations, or is it really just little discrete islands in and of themselves, and then another one that we're doing is evaluating the effectiveness of nature-inclusive design materials.

I think one thing we've been asked is, you know, how effective are things like cable protection measures and scour protection measures at actually having like an artificial reef effect and looking at the different materials and how they may, you know, prohibit, or limit, epifauna growth, or encourage it, and there's different materials out there, and the Nature Conservancy actually published a catalog for the U.S., for the first time this year, and so we're looking at that Nature Conservancy catalog of materials, and we plan on deploying some of those materials offshore to look at how well they are at providing actual habitat and benefit to fish. I think that's it for me,

and I think we'll probably do questions at the end of everybody's slides, or I can take some questions now, whichever you want, Cindy.

MS. COOKSEY: I think it might be helpful to at least open up briefly for questions right now, because that was a great presentation, and there was a lot of information provided, and so I just wanted to see -- Wilson.

DR. LANEY: Thank you, Brian. Excellent presentation, as always, and, once again, I just thank BOEM for being so transparent, in terms of your studies and data and everything, and posting it, to make it so available for everybody. With respect to the catalog of materials for offshore, is that for the pylons and the, you know, turbine towers themselves or for the associated infrastructure that's used for cementing them, or whatever the proper term is for connecting them to the bottom?

MR. HOOKER: Thanks. It is exclusively the scour protection and the cable protection, and so there's -- You know, in certain areas, where they can't meet burial depth for cables, or they have to cross another cable, there's a requirement to protect both the other asset that they're crossing and the cable that they're laying, and so that includes like -- I think they're often referred to as concrete mattresses but different mattresses have different pH levels, and, depending on different areas, they don't -- They may inhibit growth and aren't as successful in actually kind of recreating a hardbottom structure habitat than others, and so we're just really trying to evaluate what materials are available, and, that catalog, I can send that, after our discussion this morning, out to the AP, if everybody is interested in seeing that catalog from the Nature Conservancy.

DR. LANEY: So, to me, this kind of fits into our discussions somewhat from yesterday, when we were talking about, you know, there was the potential for adverse impacts, and there's also the potential for benefits, and, in this one in particular, I guess, you know, the companies would be looking for some kind of balance. I mean, you don't want to have a full-fledged artificial reef, I guess, developing on your protective materials, but, on the other hand, you don't want something that is so toxic that it, you know, totally kills everything that attempts to settle on it too, and so that will be an interesting discussion for the future, I guess, is, you know, what's the balance there, both ways.

MR. HOOKER: Thanks for raising that, Wilson, and it is interesting, and, you know, from the earliest project that I was involved with, with Cape Wind, and I think, as a matter of a fact, Cape Wind had like a program that they were going to actually clean the foundations, you know, as a part of it, and none of the projects now have a -- Or are going to go out there and, at least to my knowledge, clean off any growth, and I think it's more of a hands-off approach to the foundations, if anything, and so it's -- You know, what we've seen in the Gulf of Mexico is that some of the materials, after a while, will slough off on their own, and I think we've seen that, to some extent already, at Block Island, with those foundations, and so, you know, we will see some of those materials, especially like blue mussel growth, right around the foundations, at least in the Mid-Atlantic and southern New England areas.

DR. LANEY: One last follow-up, and, you know, I'm not all that conversant in artificial reef ecology, but it seems, to me, that, if you encourage those sorts of organisms that tend to crop epifaunal production anyway, then that might be a good balance to strike. You know, you get some epifaunal growth on the materials, but then you also encourage things like sheepshead, that

come in there and eat barnacles, and keep it cropped down to the point where it doesn't become a problem, from an operational perspective, maybe.

MR. HOOKER: I will leave that to the engineers to comment on.

MS. COOKSEY: Thank you. Do we have any other questions in-house, before we move on? I don't see any hands raised online, and so back to you, Brian.

MR. HOOKER: Thanks. I don't have anything more. I think, next, we were going to have the veteran, I guess, leaseholder go next, and that would be Kitty Hawk, and they've been, you know, more active, and that lease has been around for a while, and we are getting our environmental review of the Kitty Hawk North project, and so I'm looking forward to a project update from them, and so I will turn it over to the Kitty Hawk team to introduce themselves and get us started there.

MS. MAYHEW: Thank you so much for having us here today. My name is Amanda Mayhew, and I am the permitting manager for the Kitty Hawk project, and with me today, and also speaking, is Callan Yanoff, and she's our Fishery Liaison Officer, and she'll be introducing herself, when she goes through her slides, a little bit further in the presentation, and I guess, just, as Brian mentioned, we've had this lease, the Kitty Hawk lease, since 2017, I think is when we won the lease auction for that, for $9 million, which seems to be a bargain nowadays, and we have made a lot of progress since then. We did end up splitting the project into two parts, which I will get into shortly, but, again, happy to be here today and talk about this project, which is pretty well developed, but it still has a long way to go here.

I missed the first part of Brian's presentation, when he was speaking, but I assume you were talking a little bit about how some of these lease areas were made. Back in 2011, the North Carolina Intergovernmental Task Force, as well as BOEM, analyzed pretty much all the area off of North Carolina, working with many stakeholders, including fisheries, the military, the Park Service, among others, and came up with the final determination, which shows, on the graphic on the left, which is kind of a weird triangle shape, much different than the CVOW one, which is more of a nice little block, and so, as I mentioned before, we did receive the award for this, back in 2017, with a $9 million bid, and so, again, pretty cheap at the time, and I think it makes our project pretty competitive as well.

As I mentioned before, we did split our lease area into two blocks, two projects, and the pink area is our Kitty Hawk North project, and that's approximately 40 percent of the lease area, and our Kitty Hawk South project is the green area on the eastern side of our lease, and you will see that there is some overlap in the middle of the lease area that we're working out, through permitting, to make sure that you can either have the wind turbine generators in that overlap area either go to one project or another, and so we'll have the determined in the next year or so.

Just another note, and, originally, if you've been on other presentations in the past, we were noting that we would likely have a capacity of around 2,500 megawatts. However, due to the changing technology and increases in turbine efficiency, we are able to get a capacity of up to 3,500 megawatts from our lease area.

Just diving into a little bit more detail on both projects, for Kitty Hawk North, we are planning for up to sixty-nine wind turbine locations, plus one electrical service platform within the pink area,

and we are proposing to make landfall at the Sandridge area of Virginia Beach in Virginia, and we did submit our project COP to BOEM back in December of 2020, and, as Brian mentioned, we have been working closely with BOEM, as we go through the NEPA process, and we did have our notice of intent issued back in July of 2021.

We do not expect to have our ROD issued until Q4 of 2024, and we'll have our draft environmental impact study probably over to us in Q1 of 2024, and so we are still working with BOEM on coming up with dates, and I know Brian mentioned, in his presentation, the FAST-41 dashboard, permitting dashboard, and, if you do look on that, both Kitty Hawk North and South are being updated, and so we hope to have that updated with BOEM and the permitting council in the next couple of months, and so we'll have -- What it shows now is having the DEIS last month, which, obviously, is not the case, and so we are working to get that updated. Just in terms of construction, we would not begin any earlier than 2026, but likely more of a 2027 start date.

Moving on to Kitty Hawk South, this project is a little bit behind Kitty Hawk North, just in terms of development, and we did submit the application, the COP, to BOEM in April of 2022, and so not that long ago from this year, and we have not started any start permitting. We are just in the beginning of doing stakeholder outreach.

As you will see on this map, we have a handful of different options, one going to Sandbridge, similar to what we have for Kitty Hawk North, and then a couple of options going to make an interconnection in the Havelock area of North Carolina, and so we are still working to get our power purchase agreement between either someone like Duke, or Dominion, and so that will help inform us of our landfall locations, when that time comes, but, in our COP, we're trying to keep all of our options open and working through stakeholder outreach, not only with the public, but with agencies and folks like yourselves, to determine what issues are going to arise on any of these routes.

We have heard many comments about a Pamlico Sound route is going to be very complicated, and we understand that, and we look forward to hearing, maybe from today, any comments on what you've seen in Pamlico Sound, in terms of any other past projects, which I don't think there's any of this nature going through the sound, but, in my understanding, there is other cables going through there, and so any feedback from those on the phone would be great, and then we have what we call an Atlantic Beach route that goes kind of along the Outer Continental Shelf and into the Atlantic Beach area of North Carolina.

I will just add that, for the Kitty Hawk South area, we are proposing up to 121 wind turbine generator positions and then two electrical service platforms, and I guess one other thing I will add here is we do not plan to have a notice of intent issued until the 2025 timeframe, and I know that seems like -- Well, there is a pretty big lag between our COP submittal and the NOI, but we did have some changes, on our side, in terms of surveys, and we're looking into the new NOA checklist that BOEM provided out for comment, and so we'll certainly be providing comments on that and seeing how that -- I don't want to say impacts, but how that will potentially change how we're doing our supplemental filings and our next revision of the COP. I guess the last thing I will note is, for construction, we wouldn't begin any earlier than 2028 for this project.

Just a little bit about the wind turbine generator we're proposing, and, currently, the largest one on the market is shown on the graphic on the left, and that GE turbine, which is 853 feet tall, is what

we're using on our Vineyard Wind project that's underway up in the Northeast, and, for our Kitty Hawk projects, both North and South, we're proposing up to a twenty-megawatt WTG, which reaches heights of about 1,000 feet, and so that's what we have proposed, and it's what's in our COP for both projects, and we would not expect to have any larger turbines than that.

Just another item that I think I failed to mention on the Kitty Hawk South is, for Kitty Hawk North and the Kitty Hawk South option going to Virginia, we are proposing a high-voltage alternating-current cable over to Sandbridge, Virginia, and then, if we do go into North Carolina, since it's a much longer route, we are looking at doing a high-voltage direct current cable to help with line losses, and that route that was shown going to the Atlantic Beach area is about 200 miles long, and so we're looking to get the most efficiencies for cables when we are designing.

Just to talk a little bit about proposed foundation types, in our PDE, we are proposing three different types, the typical monopile foundation, a jacket-type foundation, and we have up to three positions for a suction-type foundation, and we're not fully there, or I guess the industry is not fully there, in installing these foundations yet, but we want to leave that as an option in our COP, in the event that we would like to do some pilot projects or tests, to see how those would work, and so, right now, we're looking between the monopile and the jacket, and it will certainly depend on WTG size at the time of construction, but it will be one of those two types of foundations.

All right, and, as I mentioned before, for Kitty Hawk North, we've been doing a lot of stakeholder engagement, and we're just starting that for Kitty Hawk South, and so, for Kitty Hawk South, we are planning to have public open houses in the North Carolina areas, in February and March of 2023, and we are starting, and continuing, outreach to state and local officials, and we will continue engagement with federal, state, and local permitting agencies, as well as non-governmental organizations, and, obviously, going through BOEM, through the NEPA process, for Kitty Hawk North, we'll have the public comment period during DEIS, and then, for Kitty Hawk South, during the NOI, and so plenty of time to put any comments in, and I look forward to hearing your questions, but, before that, I will hand this presentation over to Callan, and she can go through the fisheries.

MS. YANOFF: Good morning, everyone. I'm Callan Yanoff, the Fisheries Liaison for Kitty Hawk Wind, and so, as Amanda touched on, the Kitty Hawk wind site was defined through pretty careful planning and review by BOEM, including those environmental studies and the public engagement processes.

Our site, specifically, was refined to minimize impacts to other ocean users, like she had mentioned, and that includes the U.S. military, shipping industries, and my focus, which is specifically commercial and recreational fisheries, and so we've been working with local fishers to understand the history and the operations of fisheries within the project area.

As an example, in that nautical chart to your right, the draft layout that you see is oriented based on input from local commercial fishermen to accommodate historical trawl tow directionality, and so, with the assistance of these partnerships and community outreach, we have a publicly-available fisheries communications plan, which was developed to assist with providing timely, but accurate, information regarding the Kitty Hawk project.

Our communications plan also coordinates efficient and comprehensive two-way communication and public engagement, but it also works to build trust within Virginia and North Carolina fisheries, but proactively seeking their input through the development, design, implementation, and operation of the project, and so a few examples here. To gather more input from the community, Kitty Hawk sponsors many big game fishing tournaments, where we attend and gather feedback from recreational fishers, answer any questions about the project that they might have, and we attended -- I think it was seven last summer, and a few more have been added for 2023.

Also, to get a true sense of the historical fisheries in the area, we partner with fisheries representatives, and they are typically fishers, commercial or recreational, or a group representing active fishers, and so our FRs represent the interests of local fishers, by ensuring the project is receiving feedback, while also spreading information on project activities offshore, and so, while these FRs are compensated for their time, they do not work on behalf of the company, and their duty is essentially to the fishing region, industry, gear type, or sector that they represent.

Kitty Hawk Wind is currently developing an effective pre and post-construction fisheries monitoring plan to monitor those marine resources within the project area, and so, in the next year or two, we hope to establish several research partnerships with local academic institutions to carry out that plan. That includes surveying, monitoring, and evaluation of our project areas, and we aim to conduct this research, using local fishing vessels and universities, as they have a great familiarity with the region and the different gear types in the area.

In 2020, we launched a buoy that has provided the public with real-time ocean conditions off of North Carolina's coast. You can see, in the photo there, the little green dot, and so that's a FLiDAR buoy, and it's our 310 Buoy, and, here, you can see the dashboard that's proven to be a great resource for recreational fishers, since it collects data from the sea surface, to monitor wave height, surface temp, and more, and so, if anyone would like to check it out online, different ocean users can access that live data at the link we have on there.

Lastly, we've been working with the Mid-Atlantic Maritime Academy to develop an offshore wind simulator, as a tool for navigating around wind farms, and so fishers, and other maritime personnel, have used this as a resource in Norfolk, to gain real-time visual experience of literally operating near offshore turbines, like physically steering a boat around the piles, and so, if anyone is in the Norfolk area and is interested, we are continuing to provide demonstrations in-person.

We're happy to take any questions that you might have, and, if they come to you later on, this is our contact information, but thank you to the council for including us, and we look forward to the discussions around energy. Thank you.

MR. PUGLIESE: Thank you.

MS. COOKSEY: Thank you, and so I wanted to open it up to the room, or to online, for any questions regarding Kitty Hawk. Yes, Wilson.

DR. LANEY: Thanks, Callan, for that presentation, and the question that I have doesn't relate to fish, or at least I don't think it does, and so this one may be more appropriate for Amanda, and I know that, looking way down the road, at ultimate decommissioning of turbines, the blades have been a big issue, I guess, in terms of what to do with them after their usable life is over, and so I

wondered if Avangrid is looking into -- I know there's some efforts ongoing to try and make them out of a material that would be recyclable, at least, and that's question one.

Question two is I know that I read something, at least in the past, that indicated, in terms of reducing bird strikes, if you painted the blades red, that did seem to, at least in one case, reduce the potential for bird strikes, and I was recently in Europe and looking at some of the wind turbine blades over there, and they weren't entirely painted red, but they did have red bands on them, and I was wondering if that was something they were doing to try and reduce bird strikes, and so that's question two, is are there things you can do, and is painting red -- Painting them red one of those?

MS. MAYHEW: Thanks, Wilson. I will try to answer your questions, and so, I guess, on the first one, on the blade recycling, we understand, and it's not just for Avangrid, but the industry as a whole, to find ways to best recycle, repurpose, reuse, any aspects of wind turbine generators, blades or whatnot, and I believe there has been some advances in material types and design, and, obviously, we want to have the blades be up there as long as possible, and so having to reduce the times you need to replace them, which my understanding is it's not very often, but I guess I don't have a good answer for your question, but it's something that the industry is looking into and will have probably better ideas for it once we get a few more turbines in the water and kind of see what it looks like, in terms of maintenance on those blades and any other parts of the wind turbine generator.

Then I guess, to answer your question, or at least discuss it, because I don't have a good answer for you on that one, and I apologize, but, on the different-colored blades, I had not heard about that. You know, we've gotten requests for changing the color types of the blades, and the turbine itself, from visual perspectives, sometimes changing, or adding some red to the tip of the blades, for aviation purposes, to see them better, and I have not heard anything about changing the colors to prevent bird strikes, but we are in conversations regularly with the U.S. Fish and Wildlife Service, and, if that does come up, we will certainly entertain it and do anything we can to prevent that as possible. So two non-answers on that, and I don't know if someone else can jump in there.

MR. HOOKER: I will jump in a little bit, and so, Wilson, I know, from the BOEM side, we are aware of that European study that did look at -- I think it was darker, and I can't remember if it was actually red or like a dark array that had a lower collision risk, but I did want to take that opportunity, since that you raised that, that we have been working very closely with the Fish and Wildlife Service on a new collision risk model, and it's called SCRAM, the Stochastic Collision Risk Assessment Model, that we'll be using in our EISs moving forward.

Even the results of this model, which are basically an update to a previous model, called the BAM Model, named after the person who developed it, continues to show that the siting of these facilities on the Atlantic coast are really pretty -- In very low-density avian areas, and so I continue to be encouraged by the results of these models, that we really seem to have done a good job in siting these, from an avian perspective, and so I think that model might even be live now on an open website, but I can send you that, too. I am compiling a list for you here, Wilson.

DR. LANEY: Thanks, Brian. I appreciate it, and Sam just asked me a question that I couldn't answer, which is what is the longevity of a blade on a wind turbine?

MR. HOOKER: I don't know if Avangrid wanted to reply to that, but I believe there's not any replacement necessary during that thirty-year lifespan, but, if any developers in the room want to correct me on that, please go ahead.

MS. MAYHEW: Yes, that's right, and we intend for them to last the life of the turbine, which is, we anticipate, between thirty and thirty-five years.

MS. COOKSEY: Thank you. Do we have -- Anne.

MS. DEATON: I have just one question, which I think I missed it, and how tall -- I'm looking at the slide with the examples of the heights, and how tall are these turbines projected to be at I guess east, or north, and maybe you don't know, but it's southwest.

MS. MAYHEW: I'm sorry, but could you say that last part again?

MS. DEATON: How tall do you think Kitty Hawk East -- How tall are the turbines?

MS. MAYHEW: I'm sorry, and so, even though it is east, we do call it the North and South, but I see the confusion there, but we're expecting to be about a thousand feet tall, and so we have, on here, and hopefully you can see my slides, but a thousand feet tall from tip height to sea level.

MS. DEATON: Got it. Thank you.

MS. COOKSEY: I actually have a question, and it may be that you're unable to answer it at this time, especially until after our next presentations on Carolina Bay, but, for Kitty Hawk South, one of your proposed cable routes goes around Cape Fear, and we are also looking at the development of Carolina Long Bay, which may also potentially have similar routes coming in from south of there, heading north, and are you engaging in any discussions with either of the two Carolina Long Bay leaseholders on routes?

MS. MAYHEW: That is a wonderful question, and, no, we have not, but certainly we need to, and we're not aware of what routes they're proposing, but it's a good idea for us to reach out to them, and so you said your name is Cindy, and are you with one of the developers, the developers for Carolina Long Bay?

MS. COOKSEY: I'm Cindy Cooksey, and I'm the chair of the panel, and I'm also with NMFS SERO, and so I'm also on the team involved in the regulatory end of this as well, for both Kitty Hawk and Carolina Long Bay, and so a little bit of insider knowledge at-play as well, having viewed many documents, but I have been wondering about, and this is kind of my first opportunity to have all the parties in one virtual room, so to speak, and so I wanted to ask about those early -- The potential for the beginning of early discussions about shared routes, in order to minimize adverse impacts.

MS. MAYHEW: Again, thank you for the question and bringing it up, and it's something for Avangrid to consider with, I guess, Duke and Total, and so I can see their names on some of the emails going back and forth, and so I can certainly reach out to them and get those conversations started.

MS. COOKSEY: Thank you, and so do we have any other questions in the room or online? No? Okay. Yes.

AP MEMBER: Thank you. First, I wanted to say that this is some of the most important work that this country is doing right now, in terms of reducing emissions, and I think we're already falling behind our projections for reducing carbon in the air, but my question has to do with electromagnetic fields around the cables and potential effects on the species passing through, and I know there's not a lot of research done on that that's really indicative of anything at this point, but, if that's true, and I don't know enough about the physics to judge, but could the cables be shielded in certain areas of high migratory activity and certainly could multiple routes converge to one spot that crosses a migratory route.

MR. HOOKER: I can tee it up, and, if any of the lessees want to chime-in as well, feel free, but I -- You know, if the impression is that there hasn't been a whole lot of studies on EMF, I feel like we're letting the public down. I mean, early on, we identified that as a potential concern, and there's been studies in the U.K. as well, setting up mesocosms and tagging fish and looking at the behavior above and around cables, and so, in the U.S., we have done a mesocosm study, using direct current cable in Long Island Sound, and I think I mentioned a follow-up study to that one with eels in Long Island Sound as well, and then there's been tank studies as well, and I think each of these studies that we've done, and we've done some crab studies on the west coast as well with cables, and, in each of these studies, I think the predominant theme is that there is no barrier to fish movement at all across these fields. You know, if anything, you get some foraging inquisitive-type behavior, you know, is there something there, and, if not, they move on.

The cables that are being used for these facilities, you know, we're talking a little bit about some of the high-voltage direct current and then the alternating current, and, at least for the alternating current, they are shielded, and so you're not getting direct, you know, e-fields. What you do have is a bit of a magnetic field, and then, when animals move through a magnetic field, there is like a secondary e-field just from the animals moving through the magnetic field.

Again, that's really the only exposure, and there's not, you know, a direct e-field exposure, not only due to the shielding that they have, but also the way that the cables are lined within the package, and they have, you know, currents going across each other, one going out and the other coming back in, that work to cancel each other out as well, and maybe that's as far as I'm willing to go, because I'm not an electrical engineer, but I put on my list here to provide that, and we have an EMF fact sheet, and several other resources, on our website that evaluate that, and so we do take that concern seriously, and, again, so far, the information is that this is not any type of barrier to fish movement.

AP MEMBER: Thank you. That's good news, and I certainly don't propose to be an expert on this, and I have more of a layman's background on that, but thank you very much, and that sounds encouraging.

MS. COOKSEY: Anne.

MS. DEATON: I mean to ask earlier, and, on the electromagnetic field study, and so BOEM, on your completed studies, that's really just BOEM-funded studies, and does BOEM have just a

compilation of data on the EMF, because, for fish people, that's a big one, and I just didn't know, and I've been asked, and I didn't know if it existed.

MR. HOOKER: That's a great question. Thanks, Anne. We do, and it's through the Department of Energy though, and I think it's the Pacific Renewable Lab, or, no, it's NREL, I think, that actually manages it, but it's called Tethys, or I'm getting the Y and the E backwards in the spelling, but I highly recommend that everyone check out the Tethys website, and they do have -- You know, you can sort it by just all renewable energy studies, and I think they even have one where you can do just EMF studies, but that's -- I can send that out as well to the AP, following this.

MS. COOKSEY: Thank you. I think sharing that is a great idea, and it would be of interest to a lot of the folks. Wilson.

DR. LANEY: Well, just one last follow-up observation, based on the comments about the routing for this one, and my sense is, and it's good to know that the EMF studies have shown, thus far, little to no impact, but I would say, from an overall environmental perspective, shorter is better, and, as much as you can shorten the transmission lines, that would be certainly desirable, from an environmental perspective, and anything going through the middle of Pamlico Sound, or going around Cape Fear, either one, would probably be pretty challenging, from an environmental perspective, just from the sheer acreage of the impact alone, and so shorter is better, and probably keep that in mind, from a design perspective.

MS. MAYHEW: Thank you. I couldn't agree more.

MR. STAPLES: I reiterate that 1000 percent, please. Stay out of the Pamlico Sound, please. That would be the least amount of coastal management jurisdiction, and so I don't have to deal with -- I don't want to have to deal with the permit, and that's just my two-cents on it.

MS. MAYHEW: I appreciate that feedback.

MR. STAPLES: It's fraught with many pitfalls, the Pamlico Sound route.

MS. MAYHEW: Yes, and we understand that, and it's certainly not -- Neither one of those routes going to North Carolina are ideal, by any stretch, but we still need to keep them on the table until we know a little bit more and can take them off.

MR. STAPLES: I am just reiterating that the Pamlico Sound route is the most fraught with pitfalls, from our standpoint anyhow.

MS. MAYHEW: Thank you for that feedback.

MS. COOKSEY: Okay. Thank you. I think we're ready to move on to the next presentation.

MR. HOOKER: Yes, and so thanks, Cindy, and the next group -- The next presenters, we'll have Total and Duke Energy both presenting kind of a joint presentation on their -- On the Carolina Long Bay sites and where they are in their respective processes, and so I will let them get settled and introduce themselves, and thank you, guys, again for coming today.

MS. COOKSEY: When you're ready, you can just hit the button for the red light to come on, and then you're ready to speak.

MS. BANKS: Hi, everyone. I'm Jen Banks with TotalEnergies, and I am the Permitting and Development Director, and I've been with Total for about three-and-a-half or four months now, and so I'm fairly new, but we are building up our team, and we're looking forward to chatting with more of you today.

Just a quick background on myself, I have been working in the offshore wind industry since 2007, and I was at the American Wind Energy Association for about three years, until 2011, and I was the offshore wind lead there, and I've also worked some specifically in North Carolina and the Southeast Region, doing business development, and I was part of the BOEM task force in 2011, where we were identifying the lease areas in North Carolina, and then, more recently, I've worked with developers, doing permitting for a project in Maryland and consulting, doing the BOEM submittals for a project off the coast of Massachusetts.

MR. CRAIG: Good morning, everyone. Thanks for having us. I'm Nathan Craig with Duke Energy, out of Charlotte, North Carolina. I am supporting the Duke Energy renewables wind lease as an environmental lead for that project. Just a little bit of background about myself is I've been with Duke for fifteen years, and I'm positioned in Charlotte, North Carolina, and, primarily, my background has been consulting, as well as working with Duke on federal permitting initiatives, whether that's NEPA, ESA, or other Clean Water Act permitting activities, primarily associated with projects that are subject to federal authority, hydro, nuclear, as well as some transmission and natural gas lines. Thanks again for having us here.

While we're waiting for the presentation to load, it may be good for us to go ahead and introduce Katherine McGlade, and she is the fisheries liaison for the Duke Energy Renewables Wind site, and, as we go through this, we'll give her an opportunity to introduce herself and give a little bit of background as well.

Just a little bit of background about Duke Energy, and we're pretty much a large-scale energy infrastructure company, primarily located in North and South Carolina, Florida, and Indiana. We have a pretty large commercial business arm as well that owns, operates, and develops renewable energy across the United States with regard to wind, battery storage, as well as solar. Really, for Duke Energy, we're in the midst of leading a transition of our electric generation fleet and really kind of decarbonizing the generation within our service territory, at the same time while trying to promote economic growth within our communities, and so you can see the carbon reduction goals we have for our entire fleet, and that includes not only the Carolinas, but Florida and Indiana, with the ultimate goal to have net zero carbon emissions by 2050.

MS. BANKS: For TotalEnergies, I feel like we're new to a lot of people in the U.S., and particularly in the Southeast. We are a global multi-energy company, and we are working towards becoming one of the top-five renewable companies in the world, in the next few years, and we have a 100 gigawatt for renewables by 2030 and, similar to Duke, we have a carbon neutrality goal by 2050.

We have our headquarters in France, but we have majority shareholders in North America. Our U.S. headquarters are in Houston, and we have about 10,000 employees over twenty-seven states

in the U.S. right now. We have a pretty large pipeline of renewables in the U.S., due to some acquisitions. We purchased Sun Power in 2011, and we acquired a 50 percent stake in Clearway Energy Partners in May of this year, and so I think -- I'm going to go off the top of my head and say I think it's about twenty-five gigawatts for all renewables in the U.S. right now, in terms of our portfolio, and so that's renewables and storage.

In terms of offshore wind, this slide is a little bit outdated, and we have over ten gigawatts, and, well, I guess it says over, but we're closer to twelve gigawatts of offshore wind in development and construction, and, across the world, we have assets in Europe, southeast Asia, and then we have our leases here in the U.S. We have a New York Bight lease, which is under the name Attentive Energy, and the Carolina Long Bay lease as well.

I skipped ahead, but so this shows the assets that we have worldwide in offshore wind. A third of our portfolio is floating, and two-thirds is fixed bottom. What we would be looking at in the Carolina Long Bay lease would be fixed bottom, due to the water depths, but we also have interest in the west coast and the Gulf of Maine, and those areas would be floating technology.

MR. CRAIG: We'll give a brief description of the Carolina Long Bay offshore wind lease areas. Just a little bit of history, and Brian alluded to this in his presentation, and, as BOEM was developing the call areas, really back in, I guess, the 2012, the early 2010 to 2012, timeframe, they identified three areas off the coast of North Carolina, Kitty Hawk, at the time Wilmington East, and another site for Wilmington West, and so, as BOEM was going through their kind of process, prior to the auction and approval, they decided to only auction off the Kitty Hawk site in 2017, and then they moved forward with the auctioning of the Wilmington East, now referred to as Carolina Long Bay, in May of 2022.

As BOEM went through that process, you know, obviously, if you look back, you will see that the Wilmington East site, or formerly the Wilmington East site, was configured slightly different, slightly larger, than what the auction was, and so BOEM did take steps to deconflict the lease area, as much as possible. Obviously, with the North Atlantic right whale and the issues around Wilmington West, that lease area was not auctioned off, and I'm not sure if there is plans to in the future, but it's just the Wilmington East site that was auctioned off, and that's up for development, and so the site is roughly 110,000 acres. Each lease is about 54,000 to 55,000 acres, and I think we're estimating somewhere around -- We have 1.6, to possible two, gigawatts per lease area, as far as generation capacity.

We're still in the early stages, and so we're still kind of setting out our like survey plan and our approach, and, really, our schedule and timeline, with regard to construction and operation plan submittal as well as, you know, construction timeframe and operation dates. Another thing is I think, just to mention, it is about eighteen to twenty nautical miles from Bald Head Island, and then just slightly, you know, almost over the border, or near the border, of South Carolina as well. Jen, would you like to add anything there?

MS. BANKS: Yes, and I will just add that, you know, as Nathan mentioned, we're sort of on -- We're straddling the border, and I know there's no state borders in federal waters, but we are essentially just as close to South Carolina as we are to North Carolina, and so, for that reason, we are engaging with agencies in both states, with tribes in both states, and we'll be looking to sort of do all of our outreach equally in both areas, because we recognize that there is both the opportunity

to interconnect into each state and impacts to stakeholders, or potential benefits to stakeholders, in both states as well.

MR. CRAIG: Yes, and, just to tie-in on Cindy's earlier questions, you know, we're still in the early phases, and so, as we develop our site characterization and understand, you know, the site itself, then we'll start developing cable routes, or preferred cable options, but I think we're probably somewhere in the twelve to eighteen-month timeframe before we kind of determine, you know, what the cable route looks like and landing location, I would say.

This is the activities that we've taken thus far, and so the auction was held in May, as I said previously, and the lease was executed in June of this year, and so we submitted our fisheries communications plan, and, really, that's the strategy of how we're going to engage with fishery stakeholders, and we brought on our fisheries liaison, and we've also completed our draft agency engagement plan, and so we've had initial discussions with federal as well as state agencies, and that includes NOAA Fisheries, the Corps of Engineers, Fish and Wildlife, the Coast Guard, and the Department of Defense, as well as the state agencies, and so that's out for review to those state agencies, and then we plan on starting kind of our ongoing communications with the relevant agencies, probably in the first quarter of next year, as we start developing our survey plan.

Right now, we've conducted our desktop studies, kind of identifying what's out there now, based on readily-available information, and we're developing our survey plan, really to support submission of a proposed, you know, met buoy locations within the lease area, and then that will feed into our site assessment plan, and, once that's approved, we'll be deploying these met buoys to further characterize the site.

MS. BANKS: These slides will look very familiar to you, and so, for the TotalEnergies project, we also have just submitted our fisheries communication plan and our agency engagement plan drafts to BOEM, and we are working on the activities that we'll carry out in the next year or two, identifying the surveys that we will need in order to support our site assessment plan and determining sort of a timeline for our construction and operations plan as well, and the more detailed surveys that would be required to support the construction and operations plan, but, you know, at this point, what we're really looking for next year is to meet the requirements for submitting a site assessment plan and getting the approval for the buoys that would be deployed, likely in 2024.

MS. COOKSEY: We can open it up for questions, and I'm going to start, and so BOEM, a number of years ago, did a great job in funding some site characterization assessments, headed up by Chris Taylor's group, out of NCOS, in order to refine the area and avoid the most delicate of habitats, but, for the Carolina Long Bay program, you do have this excellent starting point from those earlier studies, and are you in talks, or consideration, for further engagement with that program, to build off of what's already been done in your study area, to, again, continue to avoid live-bottom habitat as you move on?

MR. CRAIG: Yes, and we've been in contact with one of the contractors that did that work, the geophysical contractor and geodynamics, and so we've been working with them to better understand the site, and, as we develop our survey plan, we'll continue to look at that existing data as kind of our first step to determine where we should locate these buoys, or where we shouldn't locate these buoys, rather to say, as well as start to supplement that data with additional data that

would inform our site design and turbine locations, and so that's kind of in the works, where we're working with the private contractor. If there's a contact within BOEM and NOAA that we should be working with that as well, we'll be happy to do so.

MS. COOKSEY: Well, I would definitely recommend Chris Taylor, with NOAA's National Coastal Ocean Science Centers, NCOS, as a study lead, and he's presented to this panel on the results of the BOEM-funded study, and that, I think, would be a great contact for your area. Anne.

MS. DEATON: I was just looking at my notes, and you said fifteen to eighteen months before you start to consider cable routes, but cable routes are going to depend on that live rock information, and so that sounds a little bit maybe too soon, and I don't know, and I feel like it's going to take a while to get the specifics you're going to need to do that and avoid the live rock.

MR. CRAIG: Yes, and, I mean, I think, you know, in the next fifteen to eighteen months, I think what we're thinking is where we're going to do surveys for potential cable routes, and so we'll probably have some cable route preliminary locations, and then we'll go out and do the site characterization geophysical work for those routes, to actually site them.

MS. BANKS: I think that's right, in terms of what I see as the year-and-a-half from now, is that we would have analyzed some of the potential points of interconnection, identified some preliminary routes, based on desktop data, existing data, and then that would be the time where we would have something on paper, a few routes that we could bring to groups like yours and say this is what we're thinking, but it's also the point where we then go and do the site-specific data, to understand exactly what's on those routes, and then we would re-route, as needed, based on that.

MS. COOKSEY: Brian.

MR. HOOKER: I think, really, Jen covered what I was going to say, because it is an iterative process, and I think there is some confusion, sometimes, for folks, when they see it for the first time, and it's like, well, how did you get to this particular route, and it's a huge investment to survey those routes, and the government isn't paying for it, and so it is that iterative process of just a desktop study to first look at, okay, how do I get from Point A to Point B, and then identifying, based upon that best available information, that, okay, this is the corridor that I am going to survey through there and trying to find the best path.

Sometimes you end up having these deviations, where they find something that's an obstruction, and then an alternate corridor is found, but that's generally the process, and so it's not like -- So, if the state has any idea on what the right cable is, you should reach out to them to tell what your thoughts are, or even any other federal agencies, because it is a challenge, when we get to the later stages, and we do get a lot of questions of like, well, how did you get to this cable route, and that's the process, and usually, at that point, it's very difficult to say, well, what about this route, because there is only one, or maybe two, routes that have the information necessary to do an environmental impact statement on.

MS. COOKSEY: Wilson.

DR. LANEY: Again, thanks for the presentations, folks, Nathan and Jen, and I appreciate that. One thing I was going to say, and I would welcome feedback from other members of the panel, is

that, when you get around to beginning your analysis of existing fishing, both recreational and commercial, in and around the area, you might want to take a look at what Rick Robbins had put together for Avangrid earlier on in that process, and I thought that Rick did a really good job of tapping into existing fishery databases and looking at, you know, the actual amount of fishing that was occurring, the landings that were coming from that area, and so is that the same sort of analysis that you all are thinking of undertaking for the new name, the Long Bay -- The Carolina Long Bay areas now, because I thought that -- You know, my perception is that they did a really good job on Kitty Hawk, and I see Anne nodding in ascent, and so you might want to take a look at what they did as a possible template for doing something similar.

MS. BANKS: We'll certainly take a look at that. One thing that I failed to mention in my presentation is that we have a fisheries liaison that has been hired and will start at the beginning of January, and so I am personally very excited about this hire, and I think we -- I will look forward to introducing that person to those of you that are here and other stakeholders, once he is onboard, but that's certainly something that our fisheries liaison will be looking into, once he is onboard, is understanding exactly what the fishing activities are within the lease area and doing more research to characterize that adequately.

MR. CRAIG: Yes, I agree, and I think we'll be -- Katherine is here for the Duke Energy wind site, and we're just now starting our outreach, as well as conducting our preliminary analysis of what data, with regard to fisheries, occurs within the area, and we have been in communications with Rick Robbins on some of the efforts that he undertook as well, and I think we'll continue that communication with him. Katherine, if you want to --

MS. MCGLADE: I read most of Rick's stuff that he put out with Avangrid, and he did a really good job, and so certainly we'll be using that inform my activities, and, really, we're just getting started on the project, and I'm looking forward to digging in a little bit deeper and developing a more detailed plan and working with some of the familiar faces that are here, and I know that Anne and Joel and I have worked together in the past, and so I welcome input from all.

DR. LANEY: Again, just as a follow-up, and I can't even remember if I've told Anne this yet, but there is a tremendous amount of historical data that was generated by Carolina Power and Light, and now Duke Energy, when the Brunswick Steam Electric Plant was under construction and in the early years of its operation, and so that information mostly is in the gray literature, and not a whole lot of it was ever published, but the North Carolina Museum of Natural Sciences is working now to get a lot of those reports digitized, and so that information would also be available, if it's of interest.

It does provide a historical perspective to what was there in the lower Cape Fear River estuary and offshore, and I believe Frank Schwartz did offshore sampling too, Anne, I think. Yes, he did, and so that information is there, and it's from the -- Let's see. It's probably the mid-1970s through the mid-1990s, maybe, and so at least a decade of data, and, again, historical, and it may or may not be of tremendous relevance, but at least I wanted to let you know that that is available, or it will be shortly.

MS. MCGLADE: I appreciate that.

MS. COOKSEY: I would like to open up the panel for a large discussion, and I am grateful to BOEM and Total and Duke and Avangrid for all having representatives available today for this, and it's actually quite special, I think, to have these groups all here and open for interactions with us as a panel, and so, please, I would like to welcome as many questions as we have. Yes.

MR. SPANIK: Hi. I'm Kevin Spanik with SC DNR. We've started to see a little bit more interest in people wanting to potentially push aquaculture offshore in the region, and there's been some examples showing that aquaculture, kind of in conjunction with the offshore wind farm, can reduce impacts on fisheries, and so I was kind of just wondering if Duke, or any other companies, would be receptive to multiuse opportunities on their infrastructure, or if anybody has even kind of reached out to start developing those relationships at all.

MS. BANKS: I think my first response to that is, you know, we're open to having conversations with anyone, but our lease is very specific to the activities that we're allowed to do, which is only offshore wind, and so there would be a lot of hurdles, in terms of having approval, to do anything other than that.

MS. COOKSEY: Brian.

MR. HOOKER: I can -- I mean, BOEM has been in discussions with NMFS before about these, you know, co-use opportunities, and I don't know if the lessees would want to say it, but I think the hardest thing is they have enough permitting hurdles right now to get to the projects that they need to build. I think, once we actually have some, you know, underway and built, then I think that conversation may be more ripe on how that could be integrated, but I think probably the focus of both groups right now is just permitting the offshore wind energy piece.

MS. COOKSEY: Laurent.

DR. CHERUBIN: Related to that, I wanted to ask, and, you know, there is usually a lot of fishing activity around oil platforms in the Gulf of Mexico, and I was wondering if there would be any limitations on fisheries as well in the vicinity of those structures, or at those structures.

MR. CRAIG: Whether there would be access restrictions?

DR. CHERUBIN: Yes.

MR. CRAIG: I think, you know, everything that we've seen in the Northeast, as well as has been informed by BOEM, is that there wouldn't be any access restrictions to the lease area. There will be some restrictions during construction, and there may be some restrictions, you know, around the turbine itself, or the turbine foundation, but, at this point, I don't think we envision any restrictions, any access restrictions, to the lease area or around the turbines themselves, and I don't know if Jen --

MS. MAYHEW: I was just going to jump in, and I agree that we do not expect to have any restrictions once the construction is complete, and we hope people go in there and fish.

MS. COOKSEY: To expand on that question then, and this might be for the fisheries liaisons that have been engaging with our communities, are recreational fishers showing an interest in expanded opportunities that they may gain by the construction of this hardbottom habitat in these areas?

MS. MCGLADE: I was going to toss that to Avangrid, because they're a little bit ahead of us on this, but my understanding is that, if they're not excited, they should be, because a lot of habitat will be created, and I think, using offshore oil and the fishing that has occurred on the rigs, and even the Block Island project, it seems like it's really good fish habitat and good for fishing.

MS. YANOFF: I am very happy to chime-in, and that's a lot of the feedback that we've gotten at different fishing tournaments, that there is excitement about the biomass that these structures could bring. I think a few people have mentioned, you know, using those pilings as fish aggregating devices, which I know that there's a lot of back-and-forth on, and so I'm not exactly sure that that will be the case, or has been the case, with existing structures, but they definitely have a sense of excitement, and a lot of positive feedback, around the pilings in the water.

MS. COOKSEY: Go ahead.

AP MEMBER: It's probably certainly premature to talk about this, but I was just sitting here wondering, and, if you do allow fishing around these devices, or these towers, if you put cameras onboard to watch the fishermen, then we could get some fishery data from those guys' catch rates, and maybe even species that are being harvested, relative abundance of species, at least in that area, which might be reflective of the population as a whole, and so that's maybe a down-the-road possibility that could be helpful to fisheries science.

MR. PUGLIESE: I am just going to jump in, and something that -- Brian knows where I'm going with this, and that is that one of the things that I think -- In addition to opportunities, there is the potential for expansion of ocean observing capabilities, and I know that the task at-hand is to get things established and set up and everything, but hopefully that's something that gets discussed, in a broader way, throughout BOEM, and through other areas, because I think the opportunities to expand the system and be able to collect everything from eDNA to, you know, sound and different things in the water, and actually characterization of the species.

In some of the discussions we had with Rick, ultimately, you potentially could have something that would actually be deployable and capture information that's in the area, and so there's some real opportunities that would enhance both the monitoring for storm systems in our area, but also for fisheries assessment, and the biggest thing right now, and one of the reasons that we're going forward, is understanding climate change and getting refined information from these types of things that would fit into there.

Hopefully there is going to be resources available that could go -- That could make this happen, from the ocean observing association levels, from like SECOORA, in our region SECOORA, and MACOORA in the Northeast, and maybe some collaboration, and that's really something that hopefully comes from a national perspective, and the amount of information that could ultimately be collected would just be phenomenal, both for the lease holders, but all for all these different other, you know, joint opportunities that may come.

I think that's one of the things that we've been more focused on, is opportunity on that, and so hopefully, as that goes down the road, maybe there can be some discussion at the higher level that helps facilitate those, at least the seeds of those being connected in there and how you do it, and I think it would be a lot less onerous than the bigger picture of some of the joint efforts, like the ocean aquaculture, and that has to be advanced on its permitting capabilities and everything, and we're in the infancy in the Southeast right now, but that's in the works, but this is something also that I think is really a pretty critical opportunity that could really enhance a lot of things, and a lot of benefit to both the leaseholders as well as the entire region.

MS. BANKS: I will just jump in, really quickly, just to say that, you know, that's part of why we're here today, is to get to know the groups that are engaging, data that's being collected, how we can add to that, how we can create partnerships as we move forward to gather data that would be helpful for our project, for sort of the whole of the industry to understand what's out there, what's happening, and I think we're definitely at the position now where we should start having those conversations.

It is very early, and they won't happen for a while, but, in terms of planning and understanding how these technologies could be incorporated into our plans, those are discussions that need to be had now, and, particularly for our buoy, which would go out in the next year-and-a-half or two years, being able to determine what sort of equipment could be added to that and incorporated into that process.

MS. COOKSEY: I am going to recognize Jeff Soss online, who has had his hand up for a little bit, first.

MR. SOSS: I just wanted to -- I've got a little bit of a three-parter here, and the first is, if those structures were in my backyard, I would be very excited about fishing. It seems like it could be a great opportunity for bottom fishing and trolling, and it just seems like a really nice possibility, as long as we're not restricted too much by proximity to the towers.

Somebody mentioned putting cameras on these structures, and I think I raised this, from a citizen science perspective, or from a use perspective, and that's something that the Navy -- They weren't very happy about that, and so I would be very interested to see what they think, now that we're bringing this up about a year later, and then, from a perspective of science that could be occurring on these structures, I would love to see some acoustic receivers on these, as well as on your buoy, and it seems like it could be a really nice area to fill in some of the holes for the ACT network, which is a network that, whenever scientists retrieve their acoustic receivers, they're able to identify fish that have tags in them, and so I think that could be a really good opportunity there. Thanks.

MS. COOKSEY: Brian.

MR. HOOKER: I think just one thing I wanted to follow-up on what David said is there's a citizen science aspect, that I think was just raised as well, and, you know, it's area where we've had discussions with some of these commercial application folks, you know like -- I can't remember the name of the fishing apps, but they've got data, and how to use that data, and I think what's missing is like do they have enough subscribers, do they have enough users, to make it actually beneficial, and BOEM certainly can't, you know, regulate private recreational anglers, like you

shall use this app to report your findings, and so I think the more that's done from the ground up, you know fishing organizations to promote the use of some of these apps, so that there is enough information that can be valuable, from a monitoring, or even a pre-construction, you know, type of analysis, because private recreational angling is hard, from a public-data-source-level, because you're relying on basically shoreside interviews at the end of trips and so forth.

I think that's a great idea, and I know BOEM is definitely interested in being able to use that information, once, I think, there's some momentum and, you know, regular usage, that it makes sense that it could be incorporated into monitoring or environmental assessments, and so thanks.

MS. KEENER: I can't overemphasize the importance of these platforms as stationary ocean exploration sites, platforms. As we all know, the ocean is very little explored, and ocean exploration is extremely expensive and time-consuming to do, and we certainly need to know much more about the ocean than we do, particularly in exploration in the fourth dimension of time, and, if you begin to think about the massive amounts of data that could be collected, and the variety of sensors, in situ sensors, that could be attached to or deployed from these platforms, the potential for all of that to feed into the blue economy is enormous, and so I would just encourage, those of you that are responsible for thinking forward like that, to really think outside the box and color outside the circle. Thank you.

MS. COOKSEY: We've got so many hands, and I'm not sure who put a hand up first, and so we'll start there and work our way around.

AP MEMBER: Just from a recreational standpoint, I have two questions. One is are these structures lighted, as it relates to navigation?

MS. BANKS: Yes.

AP MEMBER: Every one?

MR. CRAIG: Yes, and so like the first thing that we'll put out there is the meteorological buoy, and so we'll have a private aid to navigation permit from the Coast Guard that will have that lighted, and then the turbines themselves, the towers, will be lighted as well.

AP MEMBER: They will be lighted? Okay. Then, secondly, I fish the tower, the platforms, in Venice, and you can -- They make these hoop -- Tethered to a rope, a hook that goes around one of the legs on the rig, and you can tie-off to it, and is that going to be prohibited on these structures, or will that be allowed, or --

MR. CRAIG: I don't know if we've gotten to that point yet, and maybe Avangrid has. You know, I think it may depend on the foundation, the actual foundation design, what can and can't be attached to it, but I don't think we've gotten to whether that's going to be allowed or prohibited, and I don't think we've asked that question.

MS. MAYHEW: We will certainly have the ability to dock vessels to the turbine, but I don't know that we would allow private folks to do that, if you were out there just trying to fish, and we wouldn't want any actual attachments to the foundation.

AP MEMBER: They can be creative.

MS. MAYHEW: Yes, they can be creative, and I don't know if you have a real long anchor or something, but yes.

MS. COOKSEY: I think Laurent had his hand up next.

DR. CHERUBIN: I think it's good to engage right now in the discussion, because, in the oil industry, in the Gulf of Mexico, a lot of their data is private, and, actually, it's kept from the public, and it's okay, and I understand, and they're a private company and private funds, and they don't want other companies to benefit from the data, and so I think maybe being open right now about being able to share some of the data that you collect for your own purpose --

As she said, it's very relative to the future of ocean science, and SECOORA collects all of this kind of information in a platform that people could access, and so you wouldn't have to provide information yourself, but you go to that network and be able to -- Public stakeholders could access it, but, also, it allows science to grow from that, without you having to do anything, but I think -- If you think about the oil industry, that I am working with, we don't have access to a lot of their data, and it's still secured and not accessible, unless you work with some other companies that are contractors, but there's very much it, and so it's not available to science. I think, you know, making sure that it happens now is important.

MS. COOKSEY: Wilson.

DR. LANEY: Just to echo endorsement of what everybody else is saying about trying to co-locate instrumentation that would allow the collection, monitoring and collection, of data, particularly what Jeff said about the acoustic receivers that would be, or could be, part of the ACT network, and those, of course, are underwater, typically, but I know there are receivers for not only the acoustic transmitters that are out there, but also for marine mammal vocalizations, and then, also, we don't tend to think of them as much, but there are bats offshore too, and I know that --

I think if I am remember correctly, Amanda, Avangrid may have put an acoustic receiver for bat vocalizations on their buoy, and I know there are some that are offshore, and so think about the aerial part of things as well as the aquatic part of things, and I think that would go a long way toward building positive PR, to the extent that, you know, the companies can co-locate instrumentation on those platforms, as Paula pointed out, and Laurent pointed out, to generate data that are useful not only to the companies, as you're monitoring conditions within the lease areas, but also to the public at-large, as we're trying to understand how the ocean operates.

MS. COOKSEY: Laura.

MS. BUSCH: I want to kind of go back to Jeff's question regarding the Navy and cameras, and also the underwater acoustics, and I think the Navy would certainly want to be pulled into any discussions on what to put where, because, obviously, you know, our submarine signatures are classified, and so underwater acoustic buoys, although the Navy does put them out, and it depends on where they are, and kind of the same with cameras.

All of our ship movement is classified as well, and so I'm assuming, if you had a camera that was trying to capture fish information, that would be very localized to that local area, but, you know, kind of wide-ranging cameras -- I'm not saying that the Navy would be completely opposed to it, but we would certainly wish to be involved in any discussions on those type of things, and I'm sure BOEM is well aware of that, and it involves DOD and all of those type of things.

MS. COOKSEY: Paula.

MS. KEENER: Thank you, and you may already know, but, through NOAA, there is a National Ocean Exploration and Research Program, and so that would be, I think, the first place that I would go to look at potential collaborations for exploration.

MS. COOKSEY: I had a question for discussion, something that we really haven't talked about yet, and that is heat generation associated with these cables, as well as the transfer stations, cooling systems for those, and so we have an interesting situation of the creation of hardbottom habitat associated with thermal refugia, in essence, associated with potential heat generation, and so what does this mean for range expansions of our species in our area, inclusive of invasive species like lionfish, and are we engaging in any kind of conversation about that?

MS. MAYHEW: I don't have a good answer for the science aspect of your question, unfortunately, but I will note that, particularly for Kitty Hawk South and our offshore sub-stations, which would be HVDC, if we were go into North Carolina, but we do address cooling, how we would cool the water generated -- Or used to cool down any systems within the ESP, and we do have that noted in our construction and operations plan, and I don't have the details off-hand, but certainly we would be happy to talk a little bit more about what we can do to ensure that we don't raise the temperatures around the ESPs, specifically.

MS. COOKSEY: Well, I just note that Cape Hatteras is, of course, a pretty major biogeographic break within our system, and, again, with the lionfish as an example, we don't see lionfish taking a strong foothold north of Cape Hatteras, and we do encounter them, on occasion, but they tend to die off, because of the colder temperatures in the wintertime, and so what does this mean for lionfish, or any of our native species, with range expansions, as we deal with climate change as well? Yes, Brian.

MR. HOOKER: Thanks for that question, and I think, you know, that's definitely something that we would look, you know, in our environmental assessments as well, is we've had that question, not so much for lionfish, up in the Northeast, but for some of the invasive tunicates that are located up there and how they may be, you know -- What species may be colonizing, or utilizing, those structures, and so I think that's definitely something that would be part of BOEM's environmental assessment.

I think, as Amanda was referring to just now, really, the only heat generation that is significant enough to actually, you know, potentially change some of the temperatures is in a converter station from AC to DC, and that's usually one single structure, and the turbines themselves aren't anticipated to raise the temperature around, although you are, you know, creating a hardbottom structure.

Now, in the Southeast, there's already a lot of hardbottom out there, and so it's not necessarily some of the same type of effect that you may think about in the Mid-Atlantic, where you're putting hardbottom in a largely sand environment, where, the further south you go, you're getting into this existing patchiness of hardbottom anyway, and so you're not -- You're probably not really altering it, you know, as significantly as if it was a completely sand environment.

MS. COOKSEY: Like Kitty Hawk is pretty much a sand environment, and it was well placed, from that perspective, and it doesn't really have any hardbottom habitat in its mapped area, and so this would actually be a pretty significant change, and then, if they're going with the southern route for Kitty Hawk South, and we've got one of the big converter stations in there as well, and so it's just something to think about, and it's not something that I heard brought up yet. Wilson.

DR. LANEY: Cindy, I think that's a good question, and it just so happens that, because the Brunswick Steam Electric Plant has an offshore diffuser that runs out into the ocean a good ways, many, many years ago, when yours truly was in graduate school, my masters work was done to characterize the critical thermal maximum of penaeid shrimp, which it sounds like we're going to be talking a whole lot more about in the not-too-distant future.

There was -- Because of the proliferation of coastal power plants at that time, EPA did actually two thermal ecology symposium volumes that are out there in the literature, and I'm not sure whether they're accessible online or not, and I happen to have hard copies of both of them, because some of my work was published in one of those, and so there is a good bit of literature out there on thermal tolerances for estuarine and nearshore coastal organisms that we could look to.

My suspicion would be, as Brian points out, that the only heat source that would be there would be those -- Whatever you call those things, but the converter stations, and then it might not be a huge issue, but it's certainly a question worth asking, for sure, especially with respect to the possibility of creating a lionfish refugia in there.

MS. COOKSEY: I am not seeing any other hands, but I do think it was very interesting to hear about the interest in expanding ocean observing systems and being able to work with the offshore wind energy community to understand what this also means for, you know, commercial and recreational fishing. We alluded to this, and Callan I believe alluded to it, that we have these fish attractors, and, of course, the question remains of is it increasing biomass within the area, or is it just concentrating and attracting the biomass and making it easier to harvest, and so it sounds like you've got a lot of people in this panel that are interested in further research opportunities with the offshore wind community, and so hopefully we can expand on that. Roger.

MR. PUGLIESE: Just I wanted to jump in on just kind of, as we move into the future on this, the work that Rick had done, earlier on, a lot of it was focused very much on the state activities, and then he followed-up with really focusing also on council-managed species and FMPs and making sure that those -- That's where a lot of the opportunities and things came out, in those discussions, and so, as the new liaisons come onboard, making sure that that's crafted in too, so that it has a council-focused effort too, other than just -- A lot of the inshore populations, or historic populations, that he addressed, and I think, as you go down the road, look to some of those, to make sure.

One kind of side one, also, is that our council has made it very clear that artificial reefs are essential fish habitat in the Southeast, and they actually have utilized those, for closures and different things like that, and have pretty much identified those as significant areas, and so I think the foundation of the opportunity, and the capability of structure in the ocean, is more of a given in our region than maybe some of the other ones, in terms of the endorsement of it, but, not only that, taking it a step further and saying how important these components, and it's really highlighted in some of the more recent activities.

One of our deep corals, one of deepwater marine protected areas, placement of new information and expanded pelagic activities, and it was phenomenal, and it was just beyond belief, and it was meant for, you know, protecting the benthic systems, but that whole combined effect is something that is really important to understand, and I think that really provided a lot of support, into the future, for any of these types of things, and so this, I think, kind of gets brought into that, and so I know there's that discussion on production versus aggregation, but I think more on, you know, put additional structures out there, and especially with the pelagic opportunities that are moving through, and also definitely, as the structure goes and begins to become part of the system, it's becoming part of the habitat.

MS. COOKSEY: Yes.

AP MEMBER: Who is the best person to follow-up with with future questions for Duke, or updates? Is it Katherine or Nathan or Jen or someone else?

MR. CRAIG: You can direct questions for the Duke Energy site to both Katherine and myself, and we'll track that down. Katherine will be our fisheries liaison, and I will be primarily looking at the environmental studies and permitting requirements.

AP MEMBER: Do you have email addresses or phone numbers?

MR. CRAIG: We do, and we can give Katherine's email address to Roger.

MR. PUGLIESE: Yes, and we can follow-up with the members, to make sure that everybody knows, and we definitely are going to make sure that the group, as we move forward, has direct connections, and, as things begin to evolve, that we can get back together and see how things are advancing forward, but what we can do is look at the groups and then identify, maybe with you all's help, just the liaisons, if you have a question about permitting, whatever, and then just come up with something that just kind of keeps this collaboration moving forward.

MS. BANKS: For TotalEnergies, I would be your point of contact for right now, and, as I mentioned before, once we have our fisheries liaison officially onboard in January, then I can connect you all with him.

MR. CRAIG: We haven't developed the project website yet, but, as the project develops, our fisheries communications plan, agency communications plan, as well as the engagement communication plan, would all be located there, and additional updates and information, and so, once that gets updated, that information will be there.

MR. PUGLIESE: We work really close with Brian, and have provided even the links to the BOEM components that highlight each of the different projects ongoing, which have all the links to go to all the different things you're talking about too, and I think there are multiple opportunities to make sure that we keep kind of in the queue on all of this.

MS. COOKSEY: Well, we're coming up on 11:00. We have a question from Anne.

MS. DEATON: Sorry. Just a comment that there was a wind energy summit, did they call it, in North Carolina, in Wilmington, in the last few months, and I missed it, but Katherine was there, and the idea is to pull in the information and get some of the stakeholders and NGOs more information on potential impacts on the wind energy, and more information, so they can be involved, and they're going to have follow-up meetings, and so that will be a good opportunity for the companies here to participate in. If I hear about them, I will get the information to them.

MS. COOKSEY: Okay, and so, again, I wanted to extend my thanks to all of the companies and the representatives that were willing to engage with us today, and also extend my thanks to Brian, for helping bring it together. David.

MR. WHITAKER: While you guys are pondering whether or not to have security zones around these areas, I would suggest that more eyes on the water, more boats present, would actually enhance security, and also enhance public safety, as more people sort of congregated in areas like that, and I think that's certainly the case in the Gulf of Mexico.

MS. COOKSEY: So, again, opportunities to engage with the community. I believe we should go ahead and take a fifteen-minute break, and give everyone a chance to stretch their legs, and so we will reconvene at 11:15, where we will begin our discussion on revision of our EFH policy statement on energy, and I did want to note that we will kind of continue this discussion, or learning about offshore wind development, during our lunchtime break, and we will be playing the BOEM Center for Marine Acoustics -- Their presentation on consideration of underwater sound during offshore wind development, and so let's get back to it in about fifteen minutes. Thank you.

(Whereupon, a recess was taken.)

MS. COOKSEY: Hi, folks. It's 11:20, and so I wanted to gather us up to start the rest of our morning session. We have such a -- I hate to interrupt the conversations, because it is exciting that we're finally all in a room together, after three years, but we do have an incredibly busy schedule that I want to try to keep us moving along on, and our next agenda item is building upon everything that we just discussed with the offshore wind, which is a revisit of our EFH policy statement on energy.

I was hoping that Roger could kind of kick us off with that discussion, and everyone should have had that policy, and right up there is one of the attachments in our briefing book, and just kind of an overview is we'll begin this discussion, and we will try to take our lunchbreak, hopefully starting either around noon, or 12:30, and we'll have, I guess, an hour for lunch, or maybe an --

MR. PUGLIESE: I think we're doing good, in terms of time, and, if you want to break at 12:00 and come back at 1:30, because I think we have enough time to do that.

MS. COOKSEY: So we've got an half-an-hour that we can kind of go over the bones of the policy, and we will have the DOSITS presentation running in here, but we'll plan on breaking at noon and returning at 1:30, and then we can continue the EFH policy statement on energy. Roger.

MR. PUGLIESE: Okay. I really appreciate all the discussion this morning, and it's been an excellent opportunity, and it really was intended to be the springboard for this discussion, because the council has been engaging on energy from back when they wanted to drill in the Florida Keys, all the way back in those days, and that was a long time ago, but it has weighed-in on trying to make sure that one of the most significant things are essential habitat for managed species are protected, but also continue moving forward.

In the most recent update, the council moved forward and developed the Policy for Protection and Restoration of Essential Fish Habitat from Energy Exploration and Development Activities, and it was really a great effort, because, when we did go down this road, Brian was on the panel already, and he was able to engage directly and help craft how this effort was moving forward, and the document is -- You will recognize some of the structure similarities, and there's been some tweaking, in terms of the way it's laid out in the more recent ones, but you do basically get the layout of the policy, which identifies the mandates, the threats, the purpose of addressing this, and, in this document, it does address wind, oil and gas, methane hydrate, estuarine marine hydrokinetic, liquid natural gas, which, when we were discussing that, it was blowing up at that time, pipelines, offshore and onshore facilities, and onshore power plants.

It really did not get in -- Even though it has wind in the front, it didn't get into the level of detail. At this point, things were still pretty new in the development, or consideration, of wind and so, while we include it in here, I think everybody knew that that was a thing in the background that would need to be addressed into the future, and I think it's been highlighted in even our discussions as we were developing a habitat blueprint, that this group was going to identify -- The panel was going to help identify priorities for as these policies move forward, and I think this one is really one of the ones that definitely, beyond the last one we just did, and the next in line was the recommendation that the council begin to address, and basically get the mandate from the council, to move forward with this.

The structure of the document, again, identifies EFH at risk from energy exploration, and so it does get into all the different types of habitats, and this will need to be updated some, because there is some fine-tuning, but it does have the foundational structure, from pelagic to benthic habitats, drawn directly from the EFH designations, and so it does tap into everything from coral reef systems, live hardbottom habitat, and, just for the benefit of our energy reps, the council actually does have a federal fishery management plan for coral, coral reefs, and live hardbottom habitats.

So, essentially, everything out there on coral, live hardbottom, and structural habitats are umbrellaed under those, under fisheries, and we prohibit the removal from the fishery side, but we also, under these policies, try to address conservation of those in the area, and so that's something that is a driver that also goes beyond necessarily the EFH designation, the actual formal fishery management plan of the council, but it does get into baselines of siting of systems, and it also talks about different areas, and it begins to connect the actual EFH designations that are by our council, but also touch on other partners.

You do have everything from our council, but also things in the region, and so things such as summer flounder and bluefish, other species that our council doesn't manage, but are managed through partnerships with other -- Either ASMFC, the Atlantic States Marine Fisheries Commission, or with say the Mid-Atlantic Council.

It does highlight those, and one of the other aspects that it goes beyond here is it does also acknowledge -- The council has understood the connection of diadromous species, basically the river connections and key critical parts of those species, especially the prey aspects of those, for many of our managed species, as well as some of the endangered species, like shortnose and Atlantic sturgeon.

It does literally go in and then identify -- It does a crosswalk between the EFH HAPC, the activity in the FMP, and it lays out, you know, some of the potential issues that could be addressed, or could be impacted, and what FMPs are there, and so you get something just -- For example, the inshore and nearshore areas, you're talking about wind, oil and gas, marine hydrokinetic, LNG regasification, and pipelines, as it's affecting the Coastal Migratory Pelagic FMP, and those are for individuals in our region -- They are king and Spanish mackerel, and, originally, it was cobia, but that's been transferred over to ASMFC, with just a little tab of cobia that is addressed in our region.

It does go through the HAPC designations, and it will link it to what species, or FMP, and the activity that may be of at least a focus on what you're considering. Beyond that, it also does go into the actual threats itself, and it talks about, again, like I said -- Very similar to the structure we did with the beach renourishment and large-scale coastal engineering policy, it touches on the activities and then the impacts of those activities on the system, and so like the whole issue on direct mortality and displacement and organisms near dredging, drilling, or trenching areas, and so it begins to set the foundation of what these recommendations -- Or what the potential threats are from the activities.

I am not going to go necessarily into every single one right now, and I think the intent here is that everybody get familiar with this again and that, if it's important, which it of course is, to recommend that the council request the advisory panel engage in an update to this, to address all of what's going on right now in our region, because it's only going to get more, and we have a real opportunity to -- You know, with this first step here, it's to directly engage our partners at BOEM, as well as the actual organizations, to help make sure that we accomplish the direct mandates that the council has, but also advancing, you know, some of the critical needs for addressing climate issues in our region, too.

It also then goes from the threats directly, again, as we had in general policies, and I think this is where we probably have some, you know, very limited, relative to renewables, and I think this is an opportunity to maybe look even beyond, and so I would look to Brian to kind of look into the future on other things, such as wind -- I mean, ocean turbines and different things like that, so we can kind of be ahead of the curve, to make sure that it's all part of this package, so we don't kind of get down the road, and, oh, those are coming, and we knew that was coming, and we need to go ahead and readdress it again. We can do it early and just at least identify those as making sure that we understand as many of the issues that I think are going to apply to the same areas.

Then it does actually get into a specific discussion on the EFH review, administrative policies, licensing policies, and best practices, and so it goes a little beyond some of the other ones, because we are tied directly to some of the recommendations, specifically to oil and gas, and the council has weighed-in, over the years, a number of times on activities in our region, to the degree of really highlighting, you know, the conflict that that had with so many of our different habitats and species and managed areas, et cetera, and we have provided this policy statement, multiple times, to individuals as we are developing comments on oil and gas in the past, and has even supported state activities, where they were addressing how to limit exploration, when there was all the work going on on seismic testing,

That gives us at least a basic structure of where it's going, and I can go through in a little more detail, if you want to do this, to at least get a feel, but I just wanted to at least touch on the highlights, on what the structure is, and maybe we could talk in general concepts of some of these things.

MS. COOKSEY: I agree, and kind of going over some general concepts and opening it up to the panel to discuss general concepts, or maybe questions, or concerns, that folks have seen that they would like to see addressed in an expanded policy, things that we need to include, and, I mean, there's also a lot of new science.

Brian was bringing up the new BOEM studies, BOEM-funded studies, that have been coming out, and there is kind of a wealth of new information that has become available since this information was originally written that we should be including and expanding the reference section and reevaluating threats, as we now have, hopefully, a better understanding of those threats, as we've seen studies coming out of the wind farms that you've seen in the Greater Atlantic Region.

There's an awareness, for example, with the best management practices with EFH assessment, and myself and Pace have been engaging with the Greater Atlantic Region on development of an EFH template, working with BOEM to develop a template, that could be used for all offshore wind projects in the Mid-Atlantic, North Atlantic, and South Atlantic, just to help improve the EFH assessments, moving forward, so that we have a template, and then the EFH consultation agencies work with BOEM and the applicant to refine that template for an individual project. There are things like that, that are being developed, that could be included in an expanded policy.

MR. PUGLIESE: Yes, and I think one aspect of this that actually parallels our aquaculture policy statement is that the aquaculture policy statement highlighted benefits and not only just -- It did that, and I think we're at a different situation. A lot of what was done when this was the essential attack on oil and gas on region, but to really beef up and highlight what those impact were, and I think all the discussion we've had is everything from opportunity for science, as well as opportunity for fishing opportunities and all those that I think can be highlighted to help, you know, kind of balance some of these things in here, and so I think it becomes a really rounded policy for the council.

MS. COOKSEY: I think that's an absolute great example of how we could include the importance of engaging with ocean observing systems, engaging with the broader community of the Southeast, to get a maximization of scientific potential from the development of these activities, and that would be a real positive gain from a revision of the policy. I am happy to open it up to the entire panel, to give, you know, an opportunity to exchange thoughts on this. Yes, Wilson.

DR. LANEY: Thank you, Cindy, and so Paul will probably want to weigh-in on this one too, but he and I were having a discussion, during the break, about the need for us to look at the entire life of these projects, you know, not just the construction phase and the operation phase, but also the decommissioning phase. What happens to turbine blades, for example, after they reach the end of their useful operational life, and so forth and so on, and I know Paul had some further thoughts on that, and so I will defer to him to share those.

MR. MEDDERS: Thank you, Wilson, and so I was just -- When Wilson said that, and I'm kind of stretching this a little bit, I know, but I was thinking about a problem we have in Georgia that's a serious problem, because we do the artificial reef stuff too, and everybody wants to give us boats, and we'll take steel boats, but the idea of fiberglass boats and what to do with them, and I think the blade issue, of recycling those blades, is the same issue. Nobody recycles vinyl ester or polyester or epoxy, whatever they are, and I think closing that loop on -- Now we're talking about the energy-producing people, and then we're also talking about the boat manufacturers, but having a policy that says how do we close this circle on fiberglass things that we can't get rid of.

The other side of that is Wilson is right, and the idea of then having a plan of how we decommission those things that are in the ocean that look like mini oil rigs, and I know the oil industry probably knows that pretty well, and we've got some Navy towers off of Georgia that are -- They've been saying this for two years, that the Navy is going to decommission, but it's the same thing, and, luckily, we're getting those as artificial reefs, but that led me to the idea of closing that loop, like Wilson and I talked about, and so those are a couple of random thoughts, big-picture ideas, that relate to the discussion.

MS. COOKSEY: It's definitely a case where I don't believe that our current policy is focused on that, and, again, a great way to it being more inclusive. Do we have any hands online? It seems like -- Wilson, go ahead.

DR. LANEY: Well, one way, maybe, for us to capture it is there's an old, trite saying that comes to mind of from cradle to grave, and we could look at these projects from cradle to grave, and that may help us to think about some aspects that we might not have otherwise normally considered.

DR. LAURENT: I mean, it's supposed to be renewable energy, and it's not supposed to die, Wilson.

MS. COOKSEY: So it seems like there is an interest in us, as a panel, going forward with a revision of this, and I'm seeing shaking heads, and so is there, similar to what we did with the beach policy, an interest in forming a working group that could come together and begin this process? Do we have anyone that is interested in stepping us as a leader to take charge of that group to revise the policy, and no one is making eye contact with me except for Paula. Paula made eye contact. Everyone is looking at their pens, their drinks. Wilson.

DR. LANEY: I don't know that I am interested in leading the group, and I certainly would be willing to participate in the group, for sure.

MS. COOKSEY: Well, I think that's a great start, and so we've got -- If we can get interested parties that are willing to participate, and then, from within those parties, we can nominate a leader,

and did I see a hand up? We have Wilson is interested in participating, and I'm interested in participating, and do we have others?

MS. KEENER: I am interested in participating, and can I ask how long of a process, or just an idea of a timeline, for this revision?

MS. COOKSEY: So the beach policy, which is my most recent experience with that, has taken not quite two years, but I believe, in part, that took so long because of COVID, you know, in that it hampered our ability to gather and work on the issues, and so, I mean, I would envision that, ideally, we would have something by fall of 2023, if we can form a group that could begin working on it now, so that, at our spring meeting, we had a draft policy that we could review as a group, similar to how we did the beach renourishment, and then the group will be able to take all the comments that were gathered from going over the draft and then finalize it for the fall of 2023. Do folks think that's a reasonable timeframe? Roger.

MR. PUGLIESE: You know, who knows how fast -- The first step is these recommendations are going to be brought to the council, and so they will basically kick this off, if there's a desire to move forward, which I'm pretty sure there will be, because I think that's already been a priority laid out earlier from this group to the council, and understanding everything that is happening, and I think that's going to be important.

We can help to, you know, have webinars, or group meetings, and set up -- You know, be able to facilitate some of those things, so we can do that and make sure that this moves forward, and so, you know, once that happens, after the December meeting, we can look at, you know, maybe a couple of steps in advance of the spring meeting, to get a shell of it, and then finalize it in the fall, and that seems like a reasonable approach.

You may accomplish more, but just, if you want to get it as rounded as you can, I think there's an opportunity to address -- We've talked about a lot of additional types of things that are different than some of the other ones, to highlight opportunities and benefits and all those things, and I think it's going to be important to make sure that we have the time to focus and make sure that you all can get that done.

You know, you're not going to be left hanging, and the issue with the other one had timing with a lot of other things going on, and COVID was overwhelming with some of that, but I think it can happen more rapidly, and there's a significant structure there, but we just need to look at going outside the box for some of these other types of things that need to be addressed.

MS. COOKSEY: It definitely makes it easier to have an existing policy that we're seeking to revise. Laurent, you had your hand up, and then Paula.

DR. CHERUBIN: So my question is maybe we should discuss about what exactly needs to be addressed in that plan. I mean, what are we talking about here, and what sort of specific additions, or changes, that need to be done, in terms of what has changed today, so we get a better idea of how to move forward with that, because, right now, I would love to participate, but I am completely in the dark.

MS. COOKSEY: Right, and so, you know, first, we seem to be agreeing that we want to go to the council and ask about, you know, getting support to revise this, but we definitely have to have people that are willing to kind of lead that effort outside of the existing panel meeting, because it does require literature searching and having, you know, sidebar meetings, but we're looking for the entire panel now to kind of help bring that focus in. Paula.

MS. KEENER: So would this group have support of the council staff?

MR. PUGLIESE: Yes, and that was the point that I was making before. As this moves forward, what we can do is help get GoToWebinars set up, get those types of things, and, I mean, that's something that we've been trying to do more with this panel, and I think we're going to anticipate that even happening more, especially as we start talking about weighing-in and setting up the things for the EFH and activities there, and so I think, you know, there's going to be -- Yes. The short answer is yes, and that's going to be important, to make sure that we can advance that.

I think, to Laurent, I think we need to look at it closer and think about some of this discussion that we're having and come up with a frame of priorities and different -- That's kind of the way it was last time, the big areas that needed to be changed, other ones, new things that needed to be added, and I think, as you think about it more, and put it in context, and we will be relying a lot on Brian and making sure that we address key things that may not have been there before, which I think there's a lot, because we just didn't get a chance to, and it was so much research has been done since there, so much activity, and so much coordination, and we can highlight it.

I think there's opportunities there too, something similar to the way we did with the ecosystem online system, is have a lot of the linkages to a lot of information within these things, or at least highlight where those can be done, and so the answer to your question is yes, but I think it's also going to be an opportunity to engage the different expertise of the members around this table and beyond and to the full panel.

MS. KEENER: So is it appropriate to switch the request out from someone to lead the group to chair the group?

MR. PUGLIESE: However you would like. I think that's -- We did not necessarily make it that formal, when we did it last time, and just to have -- I think the dynamics of the group -- While you have a lead, somebody may do more on one aspect of it, and so I think there is -- One other thing is it's a collaboration of a group to provide the foundation for the discussion, to go beyond the initial take, because that's the whole thing, is to get the first step on it, and then refine and fine-tune it, and then I think a lot of things are going to become obvious, what may not have been addressed yet, or may not -- You know, where else you need to go beyond the first cut.

MS. COOKSEY: Right. Anne.

MS. DEATON: Well, I was just going to say that I like how the beach nourishment policy was changed, with the up-to-date references, but not excessive, excessive, and just key references, and it's pretty succinct, and it's like here's all the issues, and these are our BMPs or whatever that we would recommend, but I wonder, and would it be a conflict of interest if Brian Hooker was the lead, since he knows all about energy?

MR. HOOKER: I don't know how well that work, that, oh, BOEM was the lead on the energy policy for the South Atlantic. I am happy to participate, and you can put me on a list to participate, but I think that the lead should probably be someone else.

MS. COOKSEY: I would actually say that I might not be the best person to be the lead either, given, you know, my involvement in the consultation and regulatory end as well, and so I would like to be a member, but, you know, I would be hesitant to take the lead as well. Wilson.

DR. LANEY: Well, I would just say -- I think Roger just pointed it out, but one of the things that is different, perhaps, about this one, and we definitely need to integrate into it, is the whole discussion we had about the opportunities for collaboration for putting monitoring devices on the platforms and generating data that would be useful, not only to the operators of the facilities themselves, but to anyone interested in offshore science, and so that's something we definitely need to think about, integrating it into this.

Laurent was talking to some of us last night about some of the really cool work that he's doing to understand and interpret grouper vocalizations, and, well, here's the perfect opportunity, and, you know, you could almost start from scratch. You've got these brand-new platforms that are going to be, you know, in place in the coastal zone, and I'm sure Laurent has some ideas about how grouper conversations could be monitored around these platforms in the future, which would be of interest to anglers, and those who want to learn grouper speak as well.

DR. CHERUBIN: Thanks, Wilson.

MS. COOKSEY: So we've already got kind of this idea of the basics behind where the revision would go, and we want to be updating the references and keeping the succinct, and Anne knows that we're both big believers in keeping these documents manageable lengths, something that someone will actually read, but incorporating more of a forward-encompassing approach to this, highlighting how we can integrate ocean observing systems and scientific activities with this, so that it becomes a benefit, in more than one way, and understanding the cradle to the grave issues with this. You know, the existing policy doesn't really go into that, and so you've got the bones behind it, but how can we make it improved in that way, so it's more inclusive of what we're dealing with now? Anne.

MS. DEATON: I am willing to be on the group, given that North Carolina has a lot of new stuff, but I'm just thinking about just like the LNG references, and I don't know anything about LNG, and I think that's off of Florida, primarily, and I don't even know.

MR. PUGLIESE: Yes, and the original proposals were off of Florida, and that all shifted, and, originally, it wall to build export areas and the water withdrawals that were happening and all that, and then it flipped around, and then they were doing exports out of the Gulf, which they still are in some areas, but we don't have additional ones proposed or anything right now, as far as I know.

MS. COOKSEY: Right, and so we could really diminish the LNG component of this, which is huge, as well. Wilson.

DR. LANEY: But Anne will remember that there was an LNG facility proposed for Radio Island in North Carolina at one point in time, and so there's a body of information out there on that

facility, and it was, you know, slightly non-controversial, of course, and it never did get built, but all of the environmental review information is there, and so I think, again, we don't have to start from scratch on that, and there should be that information out there somewhere, where somebody did look at, you know, the implications of having an LNG facility, in North Carolina anyway.

MS. COOKSEY: Go ahead, Roger.

MR. PUGLIESE: Just one other connected aspect is something that was talked about when we were first updating the full suite of policies, with the FEP II, when we started moving down that road, is to try to at least make sure that we address any some of climate-related types of things, and this one I think is unique, because that could get folded in under the opportunities side, because opportunities to understand shifting currents and all those types of things, and that may be something that could be a collaboration, to enhance what the implications --

Or what we know of the ocean relative to that and what the implications may be in the longer term, going to that birth to grave type of thing, that, you know, we know some changes are going to occur in our system, at least understanding what the implications may be, whatever might be crafted in there, but we had kind of set the stage that I think it's more significant for some of the other ones, when we're talking about specific habitats, et cetera, but it's good to at least touch on that within this, because I think that was something that was intended, as we move down each one of these, is to understand that there's been significant things to discuss.

MS. COOKSEY: So, right now, I have Wilson, Paula, myself, Stacie, Brian, and Anne that have all indicated an interest. Anyone else?

MR. WHITAKER: I am interested in serving, if you still need some more people.

MS. COOKSEY: Okay. Paula, yes.

MS. KEENER: If the members who have expressed interest, or proposed members who have expressed interest, will support the leader of the group in areas where he or she does not have expertise, then I am happy to step forward and lead the group, at least initially.

MS. COOKSEY: Wonderful. Thank you.

MS. KEENER: You're welcome, and I don't think I have any conflicts of interest, do I, Mel, on that? Okay.

MS. COOKSEY: That's awesome. Thank you, and so, gameplan-wise, Roger.

MR. PUGLIESE: There will be a report-out by Cindy to the council at the December meeting, with the highlights of what has come out of this, and as the recommendation on moving forward, and I think it can be provided, with a context of, once it gets acknowledged, we can begin to start that process in the first part of next year and look at being able to structure something going into the spring meeting, and it could be a frame, or it could be whatever.

MS. COOKSEY: Right, and maybe it's setting up a working group session at the next meeting, where we do take a deeper dive in it, and it just would depend.

MR. PUGLIESE: I think it sets everything in motion. It provides the recommendation to the council to acknowledge it, and then that would be the stage -- There's going to be a lot that goes to that spring meeting, I think, and there's going to be a lot that's going to happen this year, and, truthfully, after thinking about what we were talking about with the EFH, we may try to do some in-between webinars to help these advance, so it can go beyond just this, and so we may focus that and be able to do, you know, additional support, or additional opportunities, because I think it's going to take it for some of the other aspects too, and so that seems like at least what the timeline -- It gives us a good strategy, and I appreciate everybody that has stepped up, and I appreciate all the industry reps around here, because I think we're going to be able to tap in and discuss and coordinate, since we've got everybody at the table, and it's worth the opportunity to engage early and get this done the way it needs to be.

MS. COOKSEY: Paula.

MS. KEENER: Can I -- I think this is appropriate, to request that industry reps be part of this group, correct? I mean, would we not want all stakeholder input in looking at the revision? Is that possible? I don't know.

MR. PUGLIESE: We've done that, and I think he may not have been actually part of the group, but I think like Brian engaged with some, and we reached out, and I think back to maybe like aquaculture, and we had gone to the Headquarters, and we had engagement, but, usually, these groups are AP members, and then we could maybe have a webinar and then have them participate or something, and we could bring them in to discuss things or something like that, and I don't know, but I will defer to Brian on how to best make sure that we do this.

MR. HOOKER: I think my recollection is similar, and I think it has been the AP members developed a policy statement, and then, I guess, process-wise, I will reiterate I think what you were saying, Roger, is that the AP then brings it to the council, and the council will then have a session on it, where they invite other comments, you know, and people to be able to engage on it, and that may happen over, what, two council meetings or something like that, and it doesn't -- I don't think it's necessarily presented and they adopt it right away, right, and it's like kind of presented.

MR. PUGLIESE: It depends on how we structure it and how far along the AP provides this.

MR. HOOKER: So there is that, and it's not like the group develops it and then it's done. There is a bit of a process there to allow, you know, the public, or other industry stakeholders, to be able to provide that input, and it could happen at the AP level too, you know, that there's a joint AP meeting, like today, where you have other people there and get feedback on it at that point, and I think that's probably the best way to go.

MR. PUGLIESE: Yes, and I think that's probably been the way, you know, some of these get put together. If we have members attend that meeting, the AP could be working on it and get, you know, a back-and-forth question and answer and engagement, so that then you can fine-tune it based on that input, and so kind of building from what we're doing now into actually how we engage into the future, and you could be giving updates on where you are, but, also, how that could fit into, you know, our policy or how we advance that, and so I think you're right on the money, and that's probably the high ground to work on that.

MS. COOKSEY: Wilson.

DR. LANEY: One thing I will mention, which I think would be beneficial for this one, is that I think we would benefit from a good bit of coordination with the Atlantic States Marine Fisheries Commission Habitat Committee on this one, because ASMFC, and Mel may want to weigh-in on this one, has been pretty vocal about how much of their state members' time is being occupied with offshore wind, in particular, and so I think they will be very interested in whatever sort of a draft policy we develop, or at least the Habitat Committee members will be, and the Habitat Committee, just coincidentally, is meeting next week, and so I can let them know that we have formed a working group and that there is some overlap, at least in my case, between that committee and this AP, and so I think that will be a good thing.

I don't know, Mel, and the commission was even talking about the possibility, at the Executive Committee level, about maybe even considering hiring a staff person, and I don't know what happened to that, and maybe it's still being discussed, but Mel can certainly weigh-in on that, but I know that ASMFC is very, very interested in offshore wind and the implications of it.

MR. BELL: Not weighing-in officially on behalf of the commission, but I also am a commissioner for South Carolina, and, yes, it comes up a lot at the Executive Committee meetings and in discussions with the committee, because I think what we're learning from our colleagues in the Northeast and the Mid-Atlantic is that, when the states become engaged in this, it is apparently rather intensive, in terms of the involvement of staff, and I have heard that, over and over again, from some of my colleagues, that, boy, this is a lot of work, on behalf of the -- Speaking from a state perspective.

Yes, the commission has had some discussion about the potential -- I would have to kind of go back and see where we are on that, Wilson, but, yes, there's that much going on, from the commission's perspective, that the commission was actually discussing perhaps bringing a staff person onboard to help coordinate some of that, and so, while this is certainly playing at the level in federal waters that the council deals with, it's a big, big deal for the commission, and the participating states as well, and so, as we kind of come further south, into our region, both North Carolina and South Carolina are looking at this and listening to what folks are telling us from the Mid-Atlantic and New England about the involvement, but, yes, there is definitely -- This is playing out as a big issue for the commission as well, and the states, of course, involved in that.

MS. COOKSEY: Wilson, I did want to mention that, you know, while I think it's a great idea to interact with other groups that can help us put together the best policy possible, you know, we are the South Atlantic, and what is happening in the Mid-Atlantic and the Northeast is kind of a very different beast than what we have going on here, and so I wouldn't want to be derailed by what, you know, our northern colleagues are dealing with, and we have this potential to kind of create a policy that's unique to our region.

MR. BELL: Right. Good point, because each of the fisheries regions are definitely different, different areas, and close to shore or offshore, and I think just -- There is already sort of an organic connectivity between the commission and what the councils are doing, just because of overlap of members and things, but, just so you know, yes, it is -- For those of you who aren't listening to commission meetings, it does come up a lot.

MS. COOKSEY: Wilson.

DR. LANEY: Lest I forget, I just wanted to note that Dr. Lisa Havel, who has been both the Habitat Coordinator and the ACFHP coordinator for ASMFC, has departed to take a job with the National Estuary Program in Texas, and will be much missed, but there is a vacancy announcement now out on the streets, for those of you who haven't seen it, and so, if you know people that might be interested in jumping into that role at ASMFC, make sure they see that vacancy announcement.

MS. COOKSEY: We are coming up on our lunchtime break, and I feel like we have kind of come up with a gameplan, moving forward, that we will recommend this out in December to the council, that we pursue this, and we have a large group of folks that are interested in working on it, and Paula has, very thankfully, stepped forward and volunteered to help take the lead on that, and, after we hear back from the council, we can begin working on what steps we need to pursue next to begin this policy revision. Otherwise, I think we are ready for lunch. We will gather back here at 1:30. Everyone enjoy their lunchbreak. Thank you.

(Whereupon, a recess was taken.)

MS. COOKSEY: Welcome back to today's afternoon session of the Habitat AP. We are going to kick-off our afternoon by focusing on the mapping and characterization of South Atlantic deepwater ecosystems, where we are going to be joined by Heather Coleman, Tom Hourigan, and Kasey Cantwell, who will be presenting to us today, and I believe we are being led off by Heather. It's all yours.

MS. COLEMAN: Thank you so much. I wanted to thank everybody listening, and it's always really nice to be able to talk with councils and advisory panels, and I'm really happy to be here, and, today, we just wanted to talk about the Southeast Deep-Sea Coral Initiative, and Tom and Kasey will share a few highlights.

The initiative lasted from 2016 to 2019, and we put about two-and-a-half-million dollars into research over those four years for the South Atlantic Council, the Gulf of Mexico, and Caribbean Council regions, and so, today, of course, we're just talking about the South Atlantic regional results, and those included -- For the whole area, that included twenty-one expeditions and five research vessels and a dozen small projects. I think you have the summary report that was just released earlier this year, in 2022, that details all the stuff, and so I'm not going to go into everything, and Tom is going to give you a few highlights.

Tom is the Chief Scientist of the Deep-Sea Coral Research Technology Program, and then he'll be followed by Kasey Cantwell with NOAA Ocean Exploration, and so, without any further ado, I want to hear what Tom has to say, and so thank you so much, Tom and Kasey, and thank you, everybody, for listening, and we're more than happy to answer any questions from people. Thank you.

DR. HOURIGAN: Thank you, Heather, and, as Heather mentioned, I am the Chief Scientist of NOAA's Deep-Sea Coral Research and Technology Program. I've been with the program since before its start, and I really appreciate this opportunity to highlight some of the recent work of our program and our partners in the South Atlantic Council region.

In today's talk, I will give a little bit of a brief introduction to our program and then discuss some of the key findings from Southeast Deep Coral Field Research Initiative, especially the deep-sea coral reef habitats in the Blake Plateau, and most of that I will be leaving to Kasey, since she has some really fantastic video and images, and a lot of this work was really led by the Ocean Exploration Program. I will also focus on some of the first surveys of the Carolina Canyons coral habitats, and also some of the shallower shelf-edge coral habitats, many of which have been protected under the council's Snapper Grouper MPAs, and, finally, I wrap up with a few words on where we expect to go next.

NOAA's Deep-Sea Coral Research and Technology Program was authorized under the 2007 reauthorization of the Magnuson-Stevens Act. It supports mapping and surveys, research, analysis, and modeling, and it integrates expertise across NOAA, and all of this is really focused on providing information to managers, and, since this is under the Magnuson-Stevens Act, particularly to the fishery management councils.

NOAA's 2010 strategic plan recognizes the importance of deep-sea coral, and also deep-sea sponge ecosystems, and it sets out the agency's roadmap for exploration, research, and conservation of these ecosystems. The Deep-Sea Coral Research and Technology Program is the only U.S. program specifically designed to study deep-sea coral and sponge ecosystems. As I mentioned, it's implemented collaboratively through the National Marine Fisheries Service, but also the National Ocean Service, the National Centers for Environmental Information, and the Ocean and Atmospheric Research, which is where Ocean Exploration sits.

Much of our research is focused on locating, characterizing, and understanding coral and sponge habitats, in order to address, for managers to address, fishing and other threats. We focus on spatially-explicit analyses, modeling, and visualization, and we've developed feedback loops so that scientists, data providers, managers, and stakeholders can all help to inform our program and ensure constant improvement.

The conservation focus is really what sets our research apart from, for example, the basic science mission of The National Science Foundation or the exploration focus of NOAA's Office of Ocean Exploration, and we characterize our mission as providing sound science to conserve vulnerable deepwater biogenic ecosystems.

The major components of our program are multiyear field research initiatives, and these are complemented by smaller, targeted projects in other regions, and these are all brought together by a centralized data management effort. The centerpiece of our program are the three to four-year field research initiatives, and our very first initiative, starting in 2009, when we were first funded, was in the South Atlantic region, and we have now completed at least one initiative in each region, and our second initiative in this region was from 2016 to 2019, which I will be talking about.

The Southeast Deep Coral Initiative, SEDCI, was really the most ambitious research initiative that we've had, with new research in three council regions, the Gulf of Mexico, the U.S. Caribbean, and the South Atlantic Bight. In total, there were twenty-one research expeditions, 250 days at-sea, more than 160,000 square kilometers, and most of that by the Ocean Exploration's vessel, the Okeanos Explorer, and we also conducted data rescue, bringing in information back to 1998, and,

through this, just in the South Atlantic Fishery Management Council region, we more than tripled the available data on both corals and sponges.

Here, I want to acknowledge the exceptional regional team who carried out this work. Heather and I sit in Headquarters in Silver Spring in NOAA, but it's really our regionally-led folks who make this all possible, and I would especially like to acknowledge Dr. Peter Etnoyer from the National Ocean Service, the National Centers for Coastal Ocean Science, and he was the lead PI for the Southeast initiative, and he's based on the NOAA lab in Charleston, and Rachel Bassett, who works in his lab, served as the initiative coordinator for the final two years of the initiative.

Also, many of our PIs are listed there, the project leads, and they're people with a long history of research in the South Atlantic region, like John Reed, Sandra Brooke, Chuck Messing, and others, and our program really depends on extensive partnerships. We're a small program, but this allows us to pursue joint priorities and leverage expertise and resources.

This slide shows some of the many groups, federal and academic partners, involved in this research. In particular, NOAA's Exploration Program, Ocean Exploration Program, and the NOAA ship Okeanos Explorer, were the lead for much of the new mapping and exploration, and you'll be hearing about that from Kasey Cantwell.

Collaboration is really central to the way we run these programs, and, in each region, we kick-off the initiative by bringing together researchers, managers, including representatives from the fishery management councils, and potential partners to identify management and science priorities that will shape the research plan, and this is the workshop in 2015, which we held down in St. Pete. The program then develops a research plan, and this collaborative approach continues through the data collection and analysis and all phases, to ensure that the research is really responsive to and can inform management decisions. We then provide that information to regional fishery management councils, National Marine Sanctuaries, and other resource managers, as they, in turn, develop their management measures.

Our Southeast Deep Coral Initiative, participating with Ocean Exploration, the Bureau of Ocean Energy Management, or BOEM, U.S. Geological Survey, and other partners, participated in nine expeditions in the South Atlantic region, conducting nearly a hundred dives, and the majority of this work was focused on the Blake Plateau, which Kasey will be talking about next.

The focus on the Blake Plateau really reflects the known importance of the deep-sea lophelia coral mounds, or reefs, in this region, and these types of reefs are known from Norway to Argentina, and the concentration and extent of the reefs which were discovered in this initiative in the South Atlantic region are truly exceptional, and, in addition to the stony corals themselves, these reefs, these deep-sea coral mounds, support many other coral and sponge species and are hotspots for biological diversity.

I won't be talking too much about this, because I will leave that to Kasey, but, because of their size, these lophelia mounds, or reefs, are one of the few deep-sea coral habitats that can be identified from multibeam sonar mapping, and so this has been one of the major tools that has increased our understanding just of the extent of these habitats on the Blake Plateau, and these new findings emphasize the foresight the South Atlantic Council displayed in protecting these ecosystems and deepwater coral HAPCs. Now, most of the newly-discovered reefs occur within

the existing deepwater coral HAPC. However, some of the areas, newly-discovered areas, extend beyond this.

The second major focus was on the Carolina Canyons area, a system of submarine canyons off of North Carolina, including the first surveys of Keller Canyon, Hatteras Canyon, and Pamlico Canyon. Canyons are known to support a higher diversity of corals and sponges than other areas of the continental slope, and, while the diversity of corals that was found here was lower than, for example, on the lophelia reefs, these canyons supported a very different suite of coral and sponge species.

Such canyon systems extend from the Carolinas up to the Canadian border and beyond, and they have recently been the focus of conservation actions by the Mid-Atlantic and New England Fishery Management Councils, which have closed the deeper extents of these canyons, practically to all bottom-contact fishing, and BOEM, the Bureau of Ocean Energy Management, is also interested in the canyons and has conducted research in the Mid-Atlantic canyons as potentially sensitive habitats to offshore energy production, and so the council may wish to consider whether similar protections may be warranted for these canyon systems in the South Atlantic region.

The final area that I would like to touch on are the shelf-edge coral gardens, and these are the shallow-water shelf-edge aggregations of gorgonians, black corals, and sponges on hard grounds near the edge of the continental shelf. These habitats are associated with hard grounds and have been the focus of the council's existing Snapper Grouper MPAs. They have also been a long-term focus of remotely-operated vehicle surveys, ROV surveys, by NOAA Fisheries Southeast Fisheries Science Center and Harbor Branch.

In particular, our initiative supported both analysis of these older surveys as well as additional surveys, particularly in 2018, and one of the most astounding findings in the surveys which were conducted in 2016, and in 2018, were these large areas, fields, of the coral Swiftia exserta, a gorgonian coral, with many fishes associated with those as well.

This slide shows -- The red dots are the dives which were conducted in the 2018 surveys, all the way from Florida up to the Carolinas, both inside and outside the MPAs, and these surveys discovered new coral gardens and found that the richest Swiftia aggregations were outside the current boundaries of the Edisto MPA off of Charleston, and so the council may want to consider whether some of these new findings merit additional recommendations to protect essential fish habitat in these areas.

All of this information, all of the data, including images, the habitat results, habitat modeling, and much more, are available through the Deep-Sea Coral Research and Technology Program's Deep-Sea Coral and Sponge Data Portal, and we're also in the process of a major upgrade to our data portal, which will add significant new tools to understand the distributions of coral and sponge habitats.

Looking forward, since the end of our Southeast field work initiative in 2019, the Ocean Exploration Program has conducted several additional mapping and ROV explorations at the Blake Plateau, which you will be hearing about. Just this last Monday, the National Ocean Mapping Exploration and Characterization Council, NOMEC, published the report on strategic priorities for

ocean exploration and characterization in the U.S. EEZ. The Blake Plateau was identified as a top priority for further exploration and characterization of the benthic habitats.

The Deep-Sea Coral Research and Technology Program, working with partners, can provide the council with further targeted analyses on any of these coral and sponge areas, or habitats, that I've been talking about, as well as other areas of interest, and we're also now starting to incorporate fish data for many of these areas, which provides additional information in identifying essential fish habitat.

Also coming soon, our Southeast Deep Coral Initiative participated with BOEM in both some coral predictive models, developed by NOAA's National Center for Coastal Ocean Science, and in a multiyear study, the DEEP SEARCH study, which included the Ocean Exploration Program, BOEM, and USGS, and it was led by researchers at Temple University.

Finally, there's a major, multimillion dollar effort that has begun to restore mesophotic and deep benthic communities in the Gulf of Mexico that had damage by the Deepwater Horizon oil spill. A major focus of this will be understanding the shelf-edge coral habitats in the Gulf of Mexico, which have great similarities to those in the South Atlantic region, and so what we'll be learning from that $126 million effort in the Gulf of Mexico has a really great opportunity to provide additional information on these deepwater habitats in the South Atlantic region as well. That was sort of my quick introduction here, and I think now I will put off any questions, unless there is initial questions right away, and I will turn this over to Kasey Cantwell from the Ocean Exploration Program.

MS. COOKSEY: Thank you, Tom. Before we get into Kasey's presentation, if there were any very specific and directed questions for Tom, we can have those now. Otherwise, we'll have a larger open discussion after Kasey's presentation. Wilson.

DR. LANEY: Thanks, Tom, for the presentation. A couple of quick questions, and one is have you all, as you've been doing this mapping, undertaken any determination of the degree to which these system have been impacted by past activities, and I guess those would mostly be, in some cases, bottom-tending gear, like trawls, and then the second question is do you have a feel, and maybe you do, from some of the modeling work, as to what percentage of these systems have been mapped, to date, and how much is left to still map, and so question one and question to. Thanks.

DR. HOURIGAN: Those are great questions, and it really varies, depending on the type of coral habitat that one is looking at. Most of the deepwater lophelia coral reefs are deeper than most of the fishing activities that occur. There are some activities from the royal red shrimp and golden crab fisheries which potentially would impact, could impact, on the shallower end of those current HAPCs, and we haven't seen, in the South Atlantic region, evidence of impacts to those, though we have seen some derelict fishing gear, which has been caught up in some of the coral areas. Most of those deepwater reefs though are quite pristine.

In shallower waters, we do know that -- Certainly there is good evidence of impacts that fishing has had on the Oculina areas, before they were protected by the South Atlantic Fishery Management Council, and we've also seen more fishing debris in these areas of the shelf-edge habitats, and there's probably less -- Fewer impacts in the South Atlantic region than in some other U.S. regions from fishing, because there isn't a large bottom trawl finfish fishery there. There are

concerns about potential impacts from future oil and gas, and that has been documented, in the Deepwater Horizon context, in the Gulf of Mexico.

There is also -- Because of changes in climate and in ocean acidification, changes in ocean acidity may, in the future, be hitting these deepwater coral reefs especially hard, and ocean acidification can affect the ability of corals to lay down their skeletons and the ability of the skeletons to survive, and this will be impacting deepwater corals sooner than it will shallow-water coral reefs, and so, while these deepwater corals don't have symbiotic algae, and they don't bleach the way that shallow-water coral reefs do, they are, as well, subject to impacts of climate change, potentially. What was the second question?

DR. LANEY: The second question was how much of the existing extent of deepwater corals have been mapped, whether you have a feel for that or not.

DR. HOURIGAN: There are two aspects of that. One aspect is the multibeam mapping, which provides evidence of these deepwater coral mounds, and most of those mounds that we have explored have a greater or lesser extent of live coral at the summit of the mounds, and so the recent mapping that has occurred in the Blake Plateau really increases our understanding of where these coral habitats may be.

Multibeam mapping is also valuable as to understand the geology on which other corals may sit, but, unlike these deepwater lophelia coral habitats, we can't really tell, from that, whether you're going to find deepwater corals there or not, and you may be able to tell that there's likely more hardbottom habitat there than soft, sandy bottom, and almost all, but not all, corals, and sponges, occur on hard substrates, and so it's a little bit more difficult to give a percentage of area that might have been surveyed for deepwater corals other than these stony corals, but that really depends much more on visual surveys, and we've really only -- Each remotely-operated vehicle dive, or submersible dive, that is taken can really only cover a tiny postage stamp of area, and that's where applying some predictive modeling, habitat modeling, for where the suitable habitat for those corals may be allows us both to target our surveys and to extrapolate, from the existing information that we have from surveys, to where more of those corals are likely to occur. I hope that answered your question.

MS. COOKSEY: Okay. Thank you.

DR. LANEY: Yes, it did. Thank you, Tom.

MS. COOKSEY: Thank you very much, Tom. I do not see any other -- Paula has a hand raised.

MS. KEENER: Thank you, Tom. That was a good presentation, and would it be possible for you all to share the link to that document that you stated I think, and I don't know, within this past week has listed the Blake Plateau as a priority area for exploration?

DR. HOURIGAN: Yes, we certainly can, and my colleague, Heather, is on that committee which developed that document, and so I think they can put the link to that in the chat here, and we can send it out afterwards as well.

MS. KEENER: Thank you.

MS. COOKSEY: One more question.

MR. YOUNG: Thank you, Tom. I have a quick question, and could you help me understand how ocean acidification would reach that deep? In my understanding, and this is from the oyster guys up in Maine, is that they were -- It's more at the surface, versus the bottom, and so they were having to lower their strings and baskets deeper into the water column, and I didn't think it would get down to this kind of depth that quickly, and could you help me understand how that chemistry works?

DR. HOURIGAN: Yes, and I'm not an expert on the chemistry itself, but, basically, corals, and other organisms which produce calcium carbonate skeletons need to take calcium carbonate out of the water, in order to convert it biologically to skeletons, and, in shallower waters, those are super saturated, or oversaturated, with calcium carbonate, but, as you get deeper and colder waters, the calcium carbonate saturation level goes down, and, when you get to a certain depth, they then become -- Those waters become lower saturated with calcium carbonate, particularly the form of calcium carbonate that these deep-sea corals like lophelia use to build their skeletons, aragonite, and we have seen, with increasing acidification of the waters, that this threshold, saturation threshold, has been getting shallower and shallower, and so, currently, areas which are prime areas for lophelia, what you see in this slide here, are well below -- The saturation horizon is well below the depths where these occur.

As that saturation level rises, there will come a point where skeletons that these organisms have put down will start to dissolve, and I'm not sure of cases of -- You know, for oyster farms and such, that they're also nearshore, or maybe also there are effects there that affect the acidity of the water and the level of calcium carbonate in those waters.

Lophelia occurs in the North Pacific as well, but it doesn't build reefs there, and the reason people believe that's the case is because that saturation, aragonite saturation, horizon is much shallower than these corals occur in, and so they can build individual colonies, but, when the colony dies, it doesn't -- It dissolves and doesn't build up these reefs.

MS. COOKSEY: Okay. Thank you. I believe we are ready to move on to Kasey's presentation.

MS. CANTWELL: Thank you, guys, so much for inviting us to present today, and, Tom, your presentation was great, and so what I'm going to talk to you guys about today is basically summarize the work that we've done as part of our ASPIRE campaign, that we've spent the last four years exploring the Atlantic Basin, and a huge part of that has been the work in and around the Blake Plateau area and generally looking at some of the deep-sea habitats around the southeast U.S.

I think I have actually spoken with you guys now probably three or four times now, and I think this might be the fourth time that our office has met with this panel, and so I know that you guys are largely familiar with us, and so I will kind of go through some of the intro stuff fairly quickly, but I am Kasey Cantwell, as folks mentioned earlier, and I work for NOAA's Office of Ocean Exploration and Research and NOAA Ocean Exploration, and our office's role within NOAA is o lead national efforts to explore the deep sea, so that we can learn more about these largely-unknown ecosystems.

One of the tools that we use to do that is the NOAA ship Okeanos Explorer and our ROV, Deep Discover, and I believe we had you guys out to visit the ship and our ROVs, for a ship tour, back in 2018, when we were pulled up in Charleston, and so a couple of you guys, at least, have gotten to see the ship in-person, and I believe, over the course of the last several presentations we've done, you all have learned about some of our deep-sea technologies that we use that include multibeam mapping of the seafloor, as well as using our remotely-operated vehicles to collect samples, as well as in situ visual data and environmental data about these ecosystems. I would like to start this with a video about the -- It's a quick summary of some of the work that we've done in the Blake Plateau. When the video started, did you guys hear audio besides me?

MR. PUGLIESE: No, we're not hearing the audio to the video, and we're just hearing you, and you can go through this because we do have a number of new members here, and so take the time you need.

MS. CANTWELL: Okay. Sounds good, and so let me try one thing, real quick, in the background, and you guys can then let me know if you can hear it or not, and I believe -- Did you guys hear any of that?

MS. COOKSEY: No, we did not.

MS. CANTWELL: Okay. Let try try again, and, if not, what I can do is I can talk through what the video is showing, but just give me one second to adjust, so that I can actually hear when you guys are talking. Okay. The area offshore of the southeast U.S. is the Blake Plateau area, and the map will show up here in a second.

This area was one of the areas that we chose to focus on with ASPIRE, because it was one of the largest gaps along the U.S. east coast in multibeam data coverage. It was an area that a large portion of the plateau had gaps in exploration data, and so not only multibeam mapping, but also in sort of environmental data, as well as in situ exploration. There has been quite a bit of work that had been done along the coastline that was a little bit closer to shore, but not much in the deeper areas, all the way out to the edge of the Blake Escarpment.

Much of that area that I'm talking about is within the HAPC, and much of it was unmapped though, and so you're seeing here some video from some of the initial exploration that took place back in the early 2000s of the sort of edge of what I will talk about in a moment, the area that we're now calling Million Mounds.

What we've been doing is sort of looking at this area, and, as we've kind of worked across the Blake Plateau, with each of these expeditions kind of building upon each other, we've found more and more habitat, deep-sea coral habitat, in this region, and you will see some of that imagery here in a moment. One of the things that has been particularly successful about these campaigns, and, here, you can see how the mapping has kind of built on top of each other on each expedition, but this is a great way for us to look at partnerships that might support the National Strategy for Ocean Mapping, Exploration, and Characterization, or NOMEC, what Tom mentioned before, the recent document that came out with priorities for exploration and characterization throughout the United States.

This area has been, and our exploration here, has been a collaborative effort between several different NOAA line offices, as well as with resource managers like yourselves, where we've been able to gather input from them early on in the process and use that input to help us basically figure out where we need to go and where data is needed, sooner rather than later, and that's kind of the story of the Blake Plateau, that I will get a little more into detail with you momentarily, but it's been a huge success, and it's, honestly, one of the ways that we are looking at moving forward with future exploration in other areas, using a similar model that we have here, where resource managers can really have input at the ground level, when we're developing our campaigns and planning all of our expeditions, and, hopefully, that gives you all more information as you start looking towards making management decisions in the future.

I will let some of the pretty images play out a little bit longer, and these are some of those lophelia reef complexes that we talked about that have been discovered here and that Tom mentioned earlier. They are absolutely beautiful ecosystems that support not only coral habitat, but many other fauna that live in those areas as well, and so apologies that you can't hear some of the audio on these things, and I will talk through them, so that you have a little bit of a guide, but please bear with me, and I apologize for not having the audio there.

The campaign that I was talking about before, ASPIRE, the Atlantic Seafloor Partnership for Integrated Research and Exploration, has mapped just under 120,000 square kilometers on the Blake Plateau. We've completed the mapping of almost all the remaining gaps in the multibeam bathymetry of the Blake Plateau deeper than 200 meters, and we have mapped several hundred new deep-sea coral mounds, including dense mound aggregations on the western end of the Stetson-Miami Terrace Deepwater Habitat Area of Particular Concern.

We've conducted twenty-four ROV and HOV dives within the HAPC, and corals and sponges have been observed on all of them, as well as several high-density and high-diversity coral communities have been found that were newly discovered. The dives, and the mapping, and the subsequent analysis, have gone far enough along at this point that we are very happy to say that this region has been identified as the largest continuous cold-water coral habitat that's been discovered on Earth, to-date.

ASPIRE started many years ago, back in 2016, and we kind of were collecting community input from 2016 to 20198, where we started talking directly to folks throughout the Atlantic Basin and building up sort of interest and community buy-in to the work that we were going to do starting in 2018.

One of the partners that we engaged early on was the South Atlantic Fishery Management Council, as well as the Deep-Sea Coral Program and their project that Tom was just summarizing before, SEDCI, and then we also did outreach directly to the science community, where we asked them to identify targets and help us sort of winnow-in on our boxes of where we should be spending each of our expeditions over the coming years.

This map here is what existed within the Atlantic Basin when we first started ASPIRE, and, if you want to pay particular attention to the Blake Plateau area, this is what it looks like now, and we've had over fourteen cruises that OER has sponsored that have collected mapping data on the Blake Plateau, and we've supported three DEEP SEARCH, or the DEEP Sea Exploration to Advance Research on Corals, Canyons, and Cold Seep Habitats. Those expeditions have also been

partnered with the Deep-Sea Coral Program, the Bureau of Ocean Energy Management, and the U.S. Geological Survey, and then we've also supported two contract surveys that have been completed by an industry partner, Fugro, and those have closed some of the significant gaps within this region. There's still a little bit left to go, but you can see the map looks quite different now than it did just a few years ago.

In terms of addressing the specific priorities that were outlined by the council, we have closed most of them, and so we've completed addressed Priorities 1, 3, and 4 from this map here, and so this one, this one, and this one, and we've mostly completed 2, 5, and 6, with, honestly, some of the limitations being that, as you get up into the really shallow areas here, and up into the edges, corners, of the HAPC, they are, honestly, a little beyond the capabilities of our vessel, and so we have left those priorities transitioned over to our partners that are able to map in shallower waters than we are able to with the Okeanos Explorer.

Then, further down towards the southern end, it has, honestly, been an issue with just trying to get close enough to the edge of the U.S. EEZ, when we've had permission to operate in Bahamian waters or not. Due to the hurricane a couple of years ago, they were letting in marine scientific research permits, which made it so that we weren't able to get close enough to the edge of the EEZ to complete the mapping target there.

All right, and so let's take a look at some of the areas and some of the things that we have found, and so this area here, that I have highlighted in the northern part of the HAPC, might seem familiar to a couple of you, because it made really big news a couple of years ago, and so this was an area that we found in some of the initial mapping that Okeanos did in this region back in 2018, and that was then followed-up by the DEEP SEARCH program, and they spent quite a bit of time conducting HOV dives, using Alvin in this area, and they have since done quite a few more expeditions and projects in this region, where they have identified quite a significant amount of coral and sponge habitat, and you can see some photos here from the news stories, as well as this is a model by one of my colleagues, Derek Sowers, and I believe that you guys received a presentation from him two years ago, in 2020, and where he has modeled the maximum relief found in this region, and you can see it's quite a dense aggregation of mound features along this horseshoe reef area.

This is known as the Richardson Reef Complex, and, from what I hear, there are soon to be quite a few scientific papers that are coming out associated with this project, and they certainly are going to be really interesting to read, when they are available.

The next area that has always captivated folks' attention is the Million Mounds area, and so this area, as it is named, has thousands upon thousands of these mounding features that, every one that we have looked at so far, and we have looked at quite a few of them, have had significant coral habitat, and that's not just been for lophelia, and there's also been a good amount of secondary colonizing from other organisms, including other scleractinian corals, as well as several octocorals as well, making a diverse habitat for this ecosystem.

In terms of the significance of the Million Mounds province, you can see here a map from Derek's dissertation and modeling efforts. It has shown that this nearly continuous cold-water coral province counts as approximately 6.9 million acres, and I do say "approximately", because, now that we have completed the most recent mapping of the Blake Plateau, there are a couple of areas

that we've gotten new data over, and so Derek will be rerunning those models this winter, and we do anticipate a new updated number coming out, probably in the next couple of months, as to exactly how large the Million Mounds area is.

That being said, a lot of this core province area has been mapped already and was used during the initial assessment, and so it shouldn't vary that much, but it is still quite a significant province here, and the sort of densest area of this region covers approximately 1.2 million acres, or 5,179 square kilometers.

I have another video here, and so I want you guys to be able to see what some of these habitats look like, and you've seen a little bit already, of the coral ecosystems, but one of the things that we have discovered, while working in the HAPC, is that it's not just biological resources that you have in this region, and so, back in 2021, in the fall, we actually found a significant discovery for underwater cultural heritage, and so this shipwreck here, that you are about to see, is known as the Bloody Marsh.

This was a shipwreck that was torpedoed in World War II, by a U-boat, and it exists within the HAPC area, as it is, and so we'll just wait a minute or two here, so you guys can see the shipwreck feature. It's a pretty impressive wreck, though, over time, it has deteriorated, with just some of the wreckage ageing over time, but as well as there was significant damage. We did not find the full wreck, and so additional exploration is needed to find the rest of it, and the particular significance of this wreck was that it is on the Coast Guard's potentially polluting list of wrecks.

We did not find any oil seepage at the time, and the tanks that we could investigate appear to be in good order. However, there has been, in the past, noted oil sheens from the surface in this region, and so it is possible that there is another piece nearby, the second half of the wreck, that might actually have some small leakage that's coming from one of the oil tanks that is onboard.

That kind of covers a brief summary of the habitats that are within the HAPC, but the area that we looked at throughout the course of our exploration in this region didn't just restrict to the HAPC, and we were also looking across the Blake Plateau, and so what the mapping has shown us is that there is significant habitat and hardbottom outside of the HAPC as well, and the area extends -- It's partly with the Million Mounds area province, kind of extending into these two middle polygons here, and this one to the south, and you can see kind of an inset of this one in the south is shown here, with the HAPC border basically just having a couple of mounds outside of that. Then, within the central Blake Plateau, I will show you some more images from that area here momentarily.

The other area that has -- That we've found deep-sea coral habitat is along the Blake Escarpment, and those areas as well have been quite a diverse community, though different, distinctly different, from what has been found up on the sort of main part of the Blake Plateau.

This is some of the mapping that we did over that central Blake Plateau area, and you can see a series of these really distinct mounds that exist in this region, and, again, I will show you some video here, and this is one of my favorite videos from the ASPIRE campaign, and it really shows you how these mounds kind of run one right into another, and not only how they do that, but how, up the top of these features, you have these dense, dense thickets of lophelia, and, if you look

closely, you can also see a number of other species that have made these thickets their home as well.

It's almost as far as the eye can see, when you're down there, and it's covered in this coral, and it's incredibly just dense, and just kind of as far as you can see in any direction, and it's covered in these lophelia colonies that are very happy and healthy, and you can see a couple of the organisms that make these corals their home. It's an absolutely incredible ecosystem that you guys have here just offshore.

One of the things that you can't hear in the commentary of this video right now is that this is one of the areas -- These mounds that we looked at in the central Blake Plateau were some of the densest aggregations of lophelia that some of the scientists that we've been working with had seen, as they had done other projects in the region and had been associated with a couple of other DEEP SEARCH, as well as a couple other projects, and they had seen lophelia at the top of these reef crests, but not nearly in as dense aggregations of healthy and thriving colonies as we saw in the central Blake Plateau.

Particularly, as you made your way across the Blake Plateau, as we looked sort of in a transect across the Blake Plateau, we saw that there was a significant amount of secondary colonialism, sort of the further away from the Million Mounds area that you went, and I can't pretend to tell you that I know exactly why, though we've had several people that have thrown out hypotheses that it has to do with the location of the Gulf Stream, and, as you move across the Blake Plateau, you're not under as strong of an influence and food source as it might be under the Gulf Stream, but, increasingly, as we moved away from the Blake Plateau, we saw more and more secondary colonialism, where maybe 15 to 20 percent of live lophelia pertusa and madrepora species -- Where you begin to see dense coverage, particularly as you got out closer to the Blake Escarpment.

You would see a diversity of black corals and octocoral species, and then you begin to see an abundance of additional visible crytofauna as well. In particular, one the things that we noted along the Blake Plateau, again in that central plateau area, was that the substrate was carbonate shelves and coral skeleton, or some sort of mix thereof, or the coral skeleton matrix, and that makes up a lot of the Million Mounds area, and it was not soft sediment, as we had heard predicted when we were in the area.

Many people thought that that central Blake Plateau area was just kind of mud, soft sediment, and there wasn't going to be really anything there, and it wasn't until we started doing sort of systematic mapping in that area that we saw that that really wasn't the case.

The Blake Escarpment, that I've talked a little bit about, is another area where we've had new mapping that has changed kind of our perspective, and so this image here was generated based on satellite altimetry before we mapped the area, and this is what it looks like once multibeam -- Once we had new multibeam data, and so you can see here that it looks quite different, and that there's quite a bit of steep habitat out here, and it's sort of a series of steeped features along the Blake Escarpment.

We saw this on a number of different places on the Blake Escarpment, and, as I mentioned before, it's definitely dense colonies, at times, but also a huge diversity of coral and sponge species, just depending on where you were and what you were -- What depths you were at and sort of which

part of the feature we were looking at, and each of it had a slightly different colony, or colonization, collection.

The last thing here that I will say today is a huge, huge thank you to everyone on the South Atlantic Fishery Management Council and at the Deep-Sea Coral Program. You guys have been so incredibly helpful to us, as we have tried to explore the Blake Plateau, and have been very warm and welcoming, as we've tried to navigate the southeast U.S. and make sure that we have opportunities to engage both you all as well as the other folks within the community, and, as we've looked to get data into your hands, you have been so receptive, in hosting us for several presentations.

Like I said before, you've really sort of set a model for how we would like to interact with fishery management councils in the future, and so thank you so much, and, Tom and Heather, you guys have done such a wonderful job facilitating these conversations and inviting us to come back each time, and so thank you, guys, so, so much, and, if you have any questions, I am happy to take them now, or you can email me, and I would encourage you all to check out our social media channels, and share them, if you would like to engage on more of the public side of what we do, or, if you have any questions or would like to access data, it's all available on oceanexplorer.noaa.gov.

MS. COOKSEY: Thank you so much for that wonderful presentation. I wanted to open up the floor for questions or points of discussion from the panel. Yes, sir.

AP MEMBER: That was a very nice presentation, and I was just wondering, and it seems like somebody is doing a lot of trips, and a lot of dives, and has there been any thought of integrating eDNA sampling into these dives, in order to get a broader look at biodiversity associated with these deepwater habitats?

MS. CANTWELL: Yes, and, actually, we did just add eDNA sampling protocols to our docket last year, and so there's actually quite a bit of eDNA data that was collected in the southeast U.S. It's not done being processed yet. As we are sort of a very standardized operation, we collect the same ten data types for -- I am using a number kind of arbitrarily, but we collect the same ten data types routinely, and we have a very rigorous data management process and making sure that the data are QA/QC'd and publicly available quickly.

We are in the process of adding eDNA into our standardized protocol, and so, since 2021, we've been doing a number of different testing in the Blake Plateau area, because we've worked there so frequently, and there were so many questions associated with what aren't we seeing in these habitats that we did two cruises that were our test bed for the eDNA protocols, and we should be receiving those results soon, but they haven't been sequenced yet.

MS. COOKSEY: Thank you. Do we have any other questions? Roger.

MR. PUGLIESE: I just need to jump in. This has been such a long-term partnership with both the Deep-Sea Coral Program, as well as Ocean Exploration, and, really, the first information we had on any of the deep coral areas was some of the early, early work of Ocean Exploration, and so this has been, you know, an evolving process, and I think her presentation really highlights how close they have followed what our desires to know what is within the systems and then know the extent of the systems, and now we've essentially got that entire area.

If I go all the way back to when we first had the proposal on the table, some of the priority for looking at the areas are exactly where they went, and ultimately did it, and, even though we had the progression over time to highlight it and get the work done, they have stepped up and really, really been, you know, moving the assets, the capabilities, and, as they said, even evolving technologies, and so we're getting the best of everything, and it didn't just stop with the designation. It really continued on, to really provide the most information that we've had on any area that we've looked at in the past.

MS. COOKSEY: Yes, Laurent.

DR. CHERUBIN: I would like to know if there is any other ecosystems associated with those deep habitats, and so I think about marine mammals, for instance, and, in relation to that, are there any fisheries that are associated also with this type of environment, so we understand a little bit the value beyond, you know, the presence and the existence, but what is the added value of those systems to the general ecosystem, but maybe also to fisheries or other activities.

MS. CANTWELL: So I will start answering that question, and then I'm going to defer to Tom and Heather, who know a little bit more about the broad-scale ecosystems, and so the first thing I would say is, absolutely, I'm sure that there are a lot of interconnected ecosystems throughout the region that we didn't get a chance to see.

On an ROV dive, we only look at a fraction of the feature that we're looking at, because we just are time limited, and the vehicles go slow, and we just don't cover all that much ground, and so there is 100 percent, I can guarantee you, things that we're not seeing, and that's why we were very excited about the ability to integrate eDNA into our workflow, so that we can see some of the things that maybe are scared off by the ROVs, or maybe don't make themselves readily apparent when we're there with a very, very bright system.

That being said, we did see some of the managed species, and we definitely saw chiasson crab in several areas, in several dives, and then the video that I am playing here right now is of a swordfish fall that had happened maybe an hour or so before we arrived, and we just kind of happened on it while we were looking for the Bloody Marsh, and these are two different species of sharks that are eating the swordfish, and, while in that area, and we sat on this for a while, because it was fascinating, and we also had several wreckfish that came into the view, and what you will see here, momentarily, is that we had the first in situ documentation of a wreckfish eating one of the sharks, and Peter Oster wrote a nice paper about it, and apparently it had been documented from like the guts of -- Gut assessments of wreckfish in the past, but it had never been filmed, and others that might be fish biologists can correct me on this, but, from what I understand, there was thoughts that this was originally -- Like the wreckfish were kind of scavenging dead sharks and eating them, but not, as you will see momentarily, eating them sort of whole, in one gulp, as they do here.

You can see the wreckfish just out of view here. As they coming into view, and you will get a different camera angle momentarily, and there is the wreckfish, and this was actually a separate wreckfish, and there were probably a swarm of about seven or eight during the course of this time that we were there, and you can see the wreckfish just ate, in one big gulp, the shark, and so the sharks are kind of small, but that was quite a significant-sized wreckfish, too.

MR. PUGLIESE: Thanks, Kasey, and I remember when this happened, because we were watching it, and we were in the middle of doing the Ecopath/Ecosim model, and I immediately went to Lauren Gentry, who I think is online too, asking, do we have documentation of this, and it turned out that George Sedberry had documented it, but exactly what you said, and had made the assumption that it was scavenging, and so this documented the actual true predation by wreckfish on sharks, which was pretty exciting to see.

MS. CANTWELL: So there definitely is fishery information, but I will let Tom or Heather answer more about if these ecosystems have other connection points to the managed fisheries.

DR. HOURIGAN: I don't have pretty pictures and excited videos like yours, Kasey, but there are species which, beyond just the wreckfish, which occur in these habitats, that are fisheries species in other regions, and so some of the roughies and the alfonsinos are deepwater species that are fished, for example, in the Azores and in other regions.

In addition to that, there is some exciting evidence that some of the midwater fishes, which are some of the most abundant fishes in the world, in their daily migrations, that they actually come down to the level of the tops of some of these coral mound features and serve as a way of linking that mesopelagic ecosystem with the benthic ecosystem there, which is part of what probably makes some of these coral mound areas so rich.

The biggest benefit, of course, is one of those that's not as easy to quantify as fisheries, which is just the biological diversity. Like shallow-water coral reefs, these really are home to innumerable other species, and so that's one of the other values that people look to, is just the existence value of these amazing ecosystems.

MR. HOOKER: Roger, I don't know if that answered your question of how big he was.

MR. PUGLIESE: Kasey, do you remember the length on that? It was like two-plus feet, wasn't it, or almost three-foot, and it was a fairly big wreckfish.

MS. CANTWELL: I believe the wreckfish, we estimated, was between two and four feet, and so the -- I can go back, and we had centimeter laser scales on it at one point, but, compared to the size of the ROV, I mean, it's several feet across.

MR. PUGLIESE: Yes that's a big fish, and I just was going to jump in and follow-up on the comments that Tom had made, with a little historic perspective. In designation of this area, the council also prohibited not only bottom trawling, but it prohibited mid-water trawling, and it was a proactive measure, because some of the species that associate on top of some of these different -- Like the roughies, on those systems, are targeted by mid-water in those areas, and, where they've scoured the tops, the traditional fisheries, for slimehead or roughy in the other areas for that.

This was a conscious effort to make sure that those types of fisheries did not come in and destroy these basically untouched, pristine habitats, and that's what is in place right now, is not only bottom trawl, but that too, to address some of these other pretty extensive species within the systems, but, again, I think Casey made it pretty clear, and Tom, and, I mean, you're only getting some snapshots of the extent from the pelagics, all the HMS and tuna and whatever, and feeding on other ones, and, of course, wreckfish, and probably some blackbelly rosefish, and numbers of different ones

throughout those areas that are connected into council-managed species. Chiasson does use some of the deep water and then move into the shallow, and it has a lot of movement by those species.

DR. CHERUBIN: Just, Roger, do you mean this is also I would say like a sanctuary for some of the deep species, like swordfish, that we saw?

MR. PUGLIESE: In the areas that some of these are located, associated with the Gulf Stream, it's almost invariable. I know that, on the pinnacle systems in the Oculina, John Reed had occurrences, where he was going out, and, basically, he had swordfish attack the ROV, or the submersible, on those areas, and so any of these structural areas I think have that linkage, and I think, when they're talking about the linkage, especially when you have prey moving up and down the column, and those species using that open system, I think you're going to have a broader scope of pelagics into the benthics and into the, you know, mesopelagic species.

MS. COOKSEY: Wilson.

DR. LANEY: Thank you, Madam Chair. Kasey or Tom, either one, as you all have been doing these surveys, and I know you note other species that are present, and you also, I think, have collected some of them in those baskets on the front of the ROV, and have you all made any attempt to estimate, or calculate, an index of biotic diversity, you know, similar to what some of the states do in freshwater systems to produce an IBI, and is that something that you have either done or are thinking about doing?

MS. CANTWELL: For us at NOAA Ocean Exploration, it is not work that has been done yet, because we've been waiting to do a lot of that stuff associated with sort of summarizing the complete package of work that's been done in an area, and I anticipate that some of that stuff will come out in the next year or so, and so we have a new data analytics team that is looking into sort of standardizing and automating some of the ways that we get those indices, and we've been working with Scott Francis's lab at the University of Louisiana at Lafayette, and he's been doing all of the annotations work, and, as they are wrapping up this series of expeditions associated with ASPIRE, they're going to be putting together probably one or two publications summarizing some of the benthic habitats, and doing some initial assessments on them, and so that stuff will come. That being said, Tom, I assume some of the SEDCI work might -- Because you're a couple of years ahead of us, and you might already have some of this stuff collected.

DR. HOURIGAN: Well, we haven't really tried to do, you know, total biotic assessments. One we've been focusing, from the standpoint of our program, primarily, on the corals and sponges and associated fishes, but, also, just because the majority of the biodiversity in these areas are probably the little critters that you can't see in the video from the ROV, and the only way to collect them would be to take, you know, large chunks of the coral and coral substrate and go through those and identify what occurs there.

There have been some studies in lophelia habitats, particularly in Norway and off of Ireland, that have looked at some of those, and they have found that these lophelia reefs are incredibly -- You know, they have an incredible number of associated species.

Some earlier work that John Reed did in the Oculina habitats estimated that the number of associated invertebrate species on those reefs, which are much shallower than the lophelia, you

know, was approaching that of associated species on shallow-water coral reefs. The question that was raised about eDNA as a sampling method is one opportunity to start to get at some of that diversity which we can't see in, you know, even the best video, and, in most cases, remotely-operated vehicles can take a few samples, but they can't -- You know, they're rather clumsy when it comes to taking -- To doing more quantitative sampling.

MS. COOKSEY: Thank you. I am not seeing any other hands raised, but I did have a question, to open up some discussion with the panel, and I think one of the interesting take-home messages that I was able to get from these presentations is that, one, the mapping has shown that the initial boundaries of the coral HAPC did a really good job of capturing many of these amazing habitats, but they have also discovered that we missed some of these habitats, and both on the western and the eastern borders of it, in that we're seeing some really beautiful coral mounds to the west of the existing boundaries and then the shelf-edge coral gardens that are -- The coral gardens that are on the west side and then the deeper habitats on the east side, and so what are some thoughts from the panel regarding any potential recommendations that we would have to the council regarding this? Paula.

MS. KEENER: I would recommend that the council look at potentially expanding the boundaries to include the newly-discovered and documented areas. Thank you.

MS. COOKSEY: Thank you. Do we have any other comments along that line or support for it?

AP MEMBER: Is the area too deep for trawling? I mean, is it going to -- By its sheer depth, is it prohibitive to -- In other words, do we need boundaries if it can't be fished or harmed by fishing gear?

MR. PUGLIESE: Well, I think the way we've gone into this in the past is many of the areas in some of the eastern side of that boundary were probably not trawlable anyway in certain areas, and I think the charge was to look at the distribution of these unique habitats within the region that are managed under coral, coral reef, and live hardbottom habitat plan, and, to the extent we can, have the council consider conservation of those systems, and so I think the intent is that, while you may not have the potential for some of the deep trawling in those systems, you still have other non-fishing threats, such as oil and gas, and I think the original boundaries actually provided a lot of incentive not to proceed, in our region, because of the extensive nature.

This is a continuation of the collection of research that documents the distribution and uniqueness and pristine nature of these, and so it's within the council's boundary of how they would like to proceed in the longer-term conservation of the system.

I think one of the things that has happened, with these latest efforts, is showing the continuous nature, especially like that Million Mound area that extended far in there, and the only reason you have some of those hard lines before is -- So there was literally no mapping beyond that line, and that's all this panel, the council, and the public had to see, in terms of what really was there, and so it was really restricted to what we knew and what could be addressed with maybe some of the modeling efforts too, and so that's also something that can help round and add and consider it, and I think that's a charge for the longer-term conservation under these efforts, and, actually, the council had said to investigate this before, when we were initially looking at this, and to keep it going.

Not necessarily they were moving at that point, but, now that it's all, you know, provided in the context -- This is the most extensive mapping and characterization in the area that we're even just beginning to consider in any other managed area that I have known going in. I mean, when we did the original HAPC, you saw how many of the areas that we asked to be mapped, and that was already designated, and so they've gone above and beyond and clarified, and so a long, long explanation is it's up to the council on to what degree they want to view this.

I will tell you that this is unique in our region, because these areas, managed areas by the council, have also been designated as essential fish habitat habitat areas of particular concern, and that's very intentional, because that puts it into a different realm when you get into the permitting process. There's a lot more scrutiny on all the habitats, and so, with them talking about getting -- When you get to the point of knowing the complexity and details, you really are supposed to look at everything from the pelagic to the multiple benthic habitats and not just the coral systems, and so it's an opportunity to advance conservation in the region, especially in areas like right now that are shown as fairly pristine, untouched systems.

AP MEMBER: Then, based on your -- Thank you, Roger, and I get it, and I would concur to extend those boundaries, and is it limited just to the boundaries that are now known, that we didn't know before, or could we make proposed boundaries based on what we don't know?

MR. PUGLIESE: Well, I think that's -- As this moves forward, that's something you investigate, and you can combine the mapping characterization, the ROV information, and some of the modeling work and begin to craft the -- You know, potential proposed boundaries, based on the available information, and, if there is enough information to understand that, you know, these coral mounds are extended up to here, and that's where we end the mapping, there may be some justification to do it, and plus the timing. As this moves forward, they may actually focus and fill in some of the other key components, maybe do additional ROV, with some of the prioritizations that have been highlighted that they just identified, and we may even see more of that information, detailed information, that could provide the context, and so I think that's where it all starts.

We literally -- When we did the last round, we literally had John Reed walk to the table, off a cruise, and provide the most recent characterization, and the AP provided a revised boundary, based on the newest information of the real mapping and characterization work that was done, and so it's been a hands-on and direct opportunity, and, in this case, one of the things I think that's also key is there's that big charge out there to all the regions in the entire country that, by 2030, you're supposed to have 30 percent conservation areas.

Our council has created a lot, and this is one of the biggest chunks of conservation, for all different levels, and, really, I think one of the first examples of an ecosystem, because of the coordination with the fisheries on the inside sections, the conservation at the level to try to even look at any types of gears that could do it, and, you know, potentially expansion could, you know, boost up our numbers in our region, probably pretty significantly. A ballpark, just on a footprint of what they're talking about, it may be over 7,000 acres, and that's just if you focus in on like the footprint areas. It's 7,000 square nautical miles, to clarify.

MS. COOKSEY: Wilson.

DR. LANEY: Thank you, Madam Chair. In addition to the oil and gas threat, which Roger mentioned, there's also the minerals mining threat, I suppose, and Brian would know a whole lot more about that than me, and I don't know whether there are mineral resources, you know, in or adjacent to the Blake Plateau that could be mined and whether or not there are plans to begin such mining or not, but I think that's another potential threat that we need to consider, and then the other thing is, and I mentioned it in a different discussion yesterday, but it's not just the coral areas themselves, and I think we need to think about, you know, buffers.

We do this in the terrestrial systems, when we're talking about Carolina Bay wetland ecosystems, which are highly important for amphibian breeding, and you can't just protect the Carolina Bay wetland systems itself, because most of the animals that use it for breeding purposes live on adjacent uplands during the rest of the year, and so you have to think about, okay, how far does the spotted salamander, or a gopher frog, you know, have to hop or crawl to get to its breeding site, and so you've got to put buffers around these things as well as protecting the habitat itself.

MS. COOKSEY: Go ahead, Brian.

MR. HOOKER: Thanks, Wilson, for teeing-up -- There have been, you know, a lot of discussions about critical minerals and deep-sea mining. I'm not aware of any active plans, and I know there's a lot of discussion around, you know, what the resources may be and what the environmental effects are, but I can put you in touch, or I can reach out, to our Marine Minerals Program, which I believe are the ones that are kind of point at BOEM on those discussions, but it is something that is discussed, and I think, given a lot of global commodity concerns around criterial minerals, and, specially, any resources that are within our domestic territory, are being taken fairly seriously.

While I have the mic, I did want to say that -- I mentioned, earlier today, that, you know, we have some deepwater offshore wind energy sites in the central Atlantic, and this modeling study that we funded initially, I think from the kind of the oil and gas side of things, the results of that study are actually helping out with the model results, and actual sitings are helping out even up in the central Atlantic, and I think you saw, on one of those earlier slides that they had, that it did -- The model domain, I think, extended up a bit into that central Atlantic area as well, and so, anyway, we're not proposing any deepwater sites for offshore wind in the South Atlantic right now, but, again, I think it has a very similar type of -- Looking forward to the future, there may -- If there is enough interest, and enough demand, from states, that that's another potential use of those offshore areas as well.

MS. COOKSEY: Go ahead, Wilson.

DR. LANEY: Just to follow-up on that too, Brian, that, even though those are floating, potentially floating, sites, they've still got to have anchor points, right?

MR. HOOKER: That is correct, and so there is an impact, and I think the good thing is, there, that I think a lot of the cabling -- You're at such depths that you're not burying the cable, and the cables are going to be suspended at some point in the water column, and likely not being buried until they're like up on the shelf, and so -- But the anchoring systems will have impacts to the seafloor.

MS. COOKSEY: I wanted to jump in, and we had the question about protecting from adverse impacts, and something that folks may not be aware of, and it's a relatively minor impact, but it is a growing impact, and, I mean, just in the past year, I've seen two applications for fiberoptic cables

that are coming into Myrtle Beach, which is a new and exciting hub in the Southeast for bringing in cabling from South America, and people often don't think about it, and I will say that one of the very nice things that occurred in my consultations with them is, when they came to the table, they said, oh, we've already seen these maps of the coral HAPCs, and we will not be turning in from our deep-sea placements until we are north of those areas of concern, and then we worked from there to continue to avoid, you know, other marine protected areas.

There is a surprising amount of value in designating these sites for protection, even if we're not concerned, necessarily, about direct fishing impacts, as we continue to see growth in all areas of our use of our deepwater systems. Anne.

MS. DEATON: Well, I agree, and I agree with what Paula recommended, and I think, just for the awareness of people -- Before they even get started thinking about something, they will say, oh, well, we might need to avoid that area, and so I'm just thinking of do we need a formal like motion and all that, recommendation, to the council to say that we want to consider expansion or modification of boundaries, or is it informal?

MS. COOKSEY: All right, and so we've had two of the panel members suggest the expansion, and I am also in support of a revision of the boundaries of the coral HAPCs, based upon emerging science from the Deep-Sea Coral Mapping Program, and I would recommend that we recommend that to the council, and I'm seeing lots of shaking heads saying yes, and so there seems to be general support for that. Roger.

MR. PUGLIESE: I mean, we generally have done consensus for all these types of actions with this, unless -- Mel, do you think we need to have a motion from this group? I think it's going to be a recommendation, whether it be a motion or not, on what is advanced.

MR. BELL: (Mr. Bell's comment is not audible on the recording.)

MR. PUGLIESE: Usually it's been through consensus.

MS. DEATON: We don't have to know exactly how we want to adjust the boundaries yet? Okay, because I think there is definitely a lot that needs to be looked at.

MR. PUGLIESE: Yes, and the intent is to bring forward the recommendation, and a lot of those types of details have to be -- You know, the council has to determine, you know, how they're going to advance it, if they can do it, the timing with regard to twenty-seven amendments moving forward, but it's something that I think, given the amount of information, it's really important to weigh-in and at least get it back on the table, because we had discussions before, and it just, you know, got caught in a lot of other things going on, but it actually was good timing, because it allowed them to compile everything together, and they're still doing it, and they're still going to be even beyond this, but it's pretty impressive to see everything that's been done.

MS. COOKSEY: Paula.

MS. KEENER: Thank you, Madam Chair. I certainly understand the discussion here regarding a recommendation and a motion. I would like to discuss, for a few minutes, or just briefly, if a motion -- I would think that a motion carries more weight than a recommendation, and I don't

know, and I know that I'm getting down into the weeds here, but, given the topic, I am just being transparent. I mean, if we send forth a recommendation, does it carry the same weight as making a motion?

MS. COOKSEY: My understanding, based upon the rules of the panel, when I joined it, was that the way our panel is run is recommendation, based upon consensus, would, in essence, carry the same weight as a formal motion. Mel.

MR. BELL: Thanks. I don't think there's any magic to it. Some of our APs do make motions, but, I mean, I think you've put on the record here your clear discussion of this and what you're -- If it comes to just a consensus, I don't think it, procedurally, matters if it's a motion or if it's a consensus recommendation that this is what you do. I mean, the intent is understood, based on the presentations and based on we know an awful lot more now that we did back when those lines were originally drawn, and so, logically -- It's a very logical recommendation, from your standpoint, and I don't think, procedurally -- I follow you, but APs make motion sometimes, and it's really up to you, whichever you feel more comfortable with, but I think it would be well understood, based on your record that you've established.

MR. PUGLIESE: The fact that we have Mel, the Vice Chair of the Habitat Advisory Panel, and Trish Murphey, the Chair of the Advisory Panel, in the middle of this, I think relaying the intent of the AP is going to be --

MR. BELL: If Trish is listening, I would defer to her. If she would rather have a motion, fine, but, I mean, I think you're okay either way.

MS. KEENER: Okay. Thank you for that.

MS. MURPHEY: It's, I think, just what Mel said. It's very clear, you know, your intentions, and so, either way, we'll get the same message, and it will carry the same weight.

MS. COOKSEY: Thank you, Trish. Wilson.

DR. LANEY: The only question I had was for Roger, and that is, you know, how did we do it the last time? Obviously, somebody is going to have to draw some lines on a map, and we've got all of the mapping information, and so did we put a workgroup together the last time, or what did we do?

MR. PUGLIESE: No, we didn't, and that was mostly done in-house, building from that and coordinating with the researchers and getting the information compiled, and so then it came to the panel, and they refined it as it went forward. I mean, the council has to move on this, to be actually -- You're getting a little ahead of curve on some of it, because I think, while everything is there, we need to get the trajectory moving forward, and then we can begin to look at how that is, and, as I mentioned, you know, there's different aspects of it, and there's more recent modeling efforts that we need to add in here, because that may give us opportunities to refine a proposed boundary, and all those types of things will be considered as we move forward, and so that's going to be the next steps beyond here, and then it depends on where in the queue the council wants to -- If they can.

MS. COOKSEY: Right, and it was noted, in the presentation, that they are revising the modeling work for the Blake Plateau, and they anticipate completion in winter of 2022 to 2023, and so, you know, it's capturing the point that we want the council to consider the revisions, based upon the best science, and, as Roger pointed out, we can begin that process, but we don't have the information right here, right now, to draw those boundaries, I feel like.

MR. PUGLIESE: As a follow-up to the modeling discussion, we are going to have that model, once available, presented to the SSC, and so that adds even more addition to understanding how that connects into the actual mapping and characterization, and so this is in the queue for the spring, and hopefully we can get it in there, and they get overwhelmed, but I think, timing-wise, we had made that commitment, to try to get that done as soon as it's available, and it's still not at that point quite yet.

MS. COOKSEY: So we can -- When we do a report-out to the council, we can recommend, based upon a consensus from the advisory panel, that that is what we would like to see happen. Wilson.

DR. LANEY: I was just going to suggest a minor tweak to the process, I guess, and so, technically, Mel, usually a recommendation from the Habitat AP would go to the Full Council, obviously, but it also can go through the Habitat Committee, and, since you and Trish are both a party to this conversation, I imagine that you all will weigh-in when the chairman delivers the Habitat AP report to the council, and then Roger just mentioned the SSC, and it's important to get their buy-in as well, not just on the model, but I guess on -- Would they not review any proposed boundary modifications as well?

MR. PUGLIESE: Again, going -- I don't think it went through them last time to do, other than the amendment, as it was moving forward. However, again, this is something that we have to take the next steps with the council first and then figure out the process of how to advance and get the information. We've seen the compilation, and now we need to go -- You know, begin to figure out exactly where we can go, based on what the decision of the council is, and so that's going to be an important next step, so that we can move that into the future.

MS. COOKSEY: I wanted to recognize Steve Ross online, and then Paula after Steve.

DR. ROSS: I've tried not to jump into this conversation, so I wouldn't complicate things or repeat what other people were saying, but, originally, the Coral AP took the lead on drawing these boundaries, and John Reed and I were both members of the Coral AP, and I still am a member of that AP, and most of the data we had were based on mine and John's cruises at that time. Subsequent data has indicated those boundaries weren't that bad, but we had a tremendous amount of missing information from a lot of these places, and there were a lot of assumptions made.

I would certainly support, and I wanted to add that I support, expanding the boundaries. The original intention, in all of our discussions, when we finished drawing those boundaries, was that they would be revisited, and they would be adjusted, and probably expanded, and I'm kind of surprised that hasn't happened really yet, in a major way, but now we have data to support that. I would also like to add that I think the Coral AP should be involved and that both APs, this one and the Coral AP, should make a recommendation for boundary reconsideration and expansion, and so that's all I wanted to add there.

MS. KEENER: Thank you, Steve. You covered exactly what I was thinking, that the Coral AP should be briefed and come before the council collaboratively on this. Thank you.

MR. PUGLIESE: Just as a footnote to that, yes, it was a joint effort, and we had, actually, combined Coral and Habitat AP meetings, when these were moving forward, and so it was a combination of both groups as we advanced development of the past amendment.

MS. COOKSEY: So I will, in addition to the official reports out, I will reach out to the chair of the Coral AP and make them aware of our consensus recommendation.

DR. ROSS: The Coral AP hasn't met in quite some time, but it's a fairly small group, and I think they should -- I can't imagine that anybody on that group would be opposed to this recommendation.

MS. COOKSEY: Thank you. We are at -- Paula.

MS. KEENER: Sorry, but, just to be clear, are you going to brief the Coral AP on this Habitat AP recommendation, or are you going to inform them that we have discussed it and would like to put a recommendation forward and would like for them to join us?

MS. COOKSEY: I will speak to the chair of the Coral AP and make them aware of these discussions, as well as Steve's recommendation, and that it would probably be most helpful if, at their next meeting, that they would bring this item up for discussion, and we would hope that they would join us in recommending it.

MS. KEENER: Perfect. Thank you.

MS. COOKSEY: You're welcome.

MR. PUGLIESE: We're in the planning process right now for next year, and so we'll figure out exactly how -- What the most appropriate way to move forward with an AP meeting, or a combination.

MR. ROSS: The only thing that I would add to that is I don't think there's a Coral AP meeting scheduled anytime soon, and we wouldn't want this to drag on, and so we might have to accelerate that process somehow.

MS. COOKSEY: I will reach out to Jocelyn, and it helps that we're coworkers. Like I said, we are now coming up on 3:15, and I wanted to thank our speakers, again, for their presentations, and I would suggest that we take a fifteen-minute break, resuming again at 3:30, where we will address our last topic of the afternoon, the East Coast Climate Scenario Planning Update. Thank you.

(Whereupon, a recess was taken.)

MS. COOKSEY: Welcome back, everyone, to the Wednesday, last portion of Wednesday, for the Habitat AP, and we are now going to begin the East Coast Climate Scenario Planning Update agenda item, being led by Roger, and so I am handing it off to you.

MR. PUGLIESE: I think we have the perfect amount of time to walk through this and get you all to a reasonable time for dinner today, but it's an extremely important opportunity and effort that is underway, and this is really meant as an update in timing and just really an understanding of what this process is, where it's going, and there will be significant engagement in the future, as we get further down the road in this.

Today, I'm going to be discussing the East Coast Climate Change Scenario Planning update. This is an effort that -- It was initiated as an effort that was originated through the Northeast Regional Coordinating Council, which is all the Northeast, Mid-Atlantic Council, New England Council, ASMFC, other -- The Northeast Regional Office, the Northeast Science Center, and all those coordinating -- But we have come in and are a partner with them with the South Atlantic.

As a group, they determined -- It really has some roots to discussions we had a council meeting, a number of years ago, where we brought the Mid-Atlantic and New England in and began the discussion about, as we see climate change, as we see populations beginning to move, we need to be ahead of the curve in two fields, one understanding what governance and management is going to need to be able to address these as we move forward, and, I mean, our council is unique in having some of those already kind of done, with expansions on Spanish mackerel up through the Mid-Atlantic region, managed under the council, and dolphin wahoo -- The South Atlantic manages the entire Atlantic coast, in cooperation with the Mid-Atlantic and New England.

The second tier was also then the science and all that, and so there's a couple of trajectories that are linked, but this one is really focusing on taking a good, hard look at what needs to be done into the future to begin to do this, and so this initiative was started.

The objectives are to explore how the east coast fisheries governance and management issues will be affected by climate-driven change in fisheries, particularly changing stock availability and distributions. In the Mid-Atlantic, they're more direct. Some of the species, like black sea bass, have had significant changes, where some states have no allocations. I mean, they have allocations, but they have no fish, or lobster, that has extended up into Canada, versus some of the traditional areas there, and so they're having some things absolutely immediately that have forced a lot of these discussions.

The second objective is to advance a set of tools and processes that provide flexible and robust fishery management strategies which continue to promote fishery conservation, resilient fishing communities, and address uncertainty in the era of climate change, and so those are some big-picture objectives that set this in motion.

What this process has involved is it's scenario planning, and so the idea is that what you're going to do is you're going to build potential future conditions and think, in these different conditions, what may need to be done to be able to manage in the future conditions, and so we went through, originally, an orientation that established some objectives, that we've highlighted, scoping, to get an idea of what some of the forces out there, and the exploration that really provided analyzing some of the forces and seeing what some of those really drivers of change really would be, and then moved into a creation, where we actually had a narrative workshop that occurred, and then into the application phase where is where we are right now.

To get a little more detail, this really was pushed off, after that kind of preliminary scoping and foundational work, in a June meeting, and we had seventy-five stakeholders and staff attend, and we had a two-and-a-half-day workshop, where what we were doing was looking at drivers of change, and we created breakout groups.

We looked at common themes and patterns across these, and stories, and then we literally created draft scenarios of the future in twenty years from now, what the conditions may be, and, at the workshop, it's like what happens with stock production, and there were critical uncertainties, and so these were kind of the drivers that gave us the scope of the different scenarios to look at.

One would be what happens to stock production and species production as climate changes out to 2040, and so we had to get everybody in the mindset to be thinking in that timeframe into the future, and does it result in declining productivity, along with worsening habitats and low rates of species replacement, or is productivity maintained, or increased, and the maintained has more to do with like the net productivity of the area, versus like increasing stocks, and I think, in this case, it would be the spectrum.

What you have is two spectrums, mostly declining conditions, and mostly maintained, or, really, increasing, in some aspects, and so that brings us to the second critical uncertainty, which really gets to how unpredictable are the ocean conditions, how well is science able to assess and predict stock levels and locations by 2040.

Do the conditions become far more unpredictable, where existing science clearly is unable to provide much useful information, or are the conditions sufficiently predictable to allow science to really provide the most accurate information, and so, again, we have the spectrum of unpredictably, and, basically, you don't have the science, and you can't get the information that you really need to do it, to the side where, you know, you have advanced, with resources, and a lot of that has to do with resources, to really be able to document where the species are, what they're doing, the conditions, the environmental situation. It's like the best-case scenario, in terms of understanding the entire spectrum of what's there, and so those are the ones that kind of provided that boundary of the system.

What you end up with is this four-tiered area, where you have stocks maintained, but they're hard to assess and locate, on the left side. As you go down, you have stocks declining, and they're hard to assess and locate, and so that's the like the worst-case scenario, in the lower-left tier of this, and you have where stocks are declining, but it's straightforward to assess and locate, and so you have decline, but you can actually understand, and then you have the one where they're maintained, or increasing, and they're more straightforward to assess, and so that one is like the ultimate. If we have all the technology, and we have all the capabilities, and we have the ability to shift, then, ultimately, that may be the area.

That comes out to what we've termed as four different scenarios, and these different scenarios are, one, ocean pioneers. Again, in the left corner, it's basically a wild west of new ocean users, and they're risk-taking fishery operators taking advantage of confusing and unpredictable -- Ultimately, it's positive conditions.

Then you move down to stress fractures, where the world is multiple sources of stress facing operators and managers and the industry, and it begins to fracture between -- Some play it smart

and do what they need to, and others basically lose, and then you move to the next, and it's called seafood lemonade. That's a world where the science is good, but the news is bad, and, basically, the population -- You have the science to assess really well the bad conditions. Then, ultimately, checks and balances, where strong science really combines with collaborative management to help mitigate and adapt to climate change in the ocean.

These are more details of the actual areas. Ocean pioneers, the conditions are really moving all over the place, in terms of the environment, and it's really unpredictable, in terms of the environmental conditions. The ocean, however, is resilient in maintaining, in aggregate, and there's no real tipping points that have quite been made. The seasons and locations of traditional fisheries are changing rapidly, leading to changes in interactions with protected species that are resulting.

Traditional stock assessments are less reliable, and real-time data from vessels and other users are more valuable than the traditional science in this situation. New assessment approaches have to generate questions over data rights and data aggregation. Extreme weather often creates dangerous fishing conditions, and the ocean activities are dominated by entrepreneurs and technology, because you have a competing of fishing, aquaculture, and offshore wind. Winner typically have deep pockets, sharp elbows, and new technology. The willingness to take risks is where you're going to see success, and then, really, uncertainty about how long abundant stocks can keep delivering.

Stress fractures, again, is that declining, hard to assess and predict situation. Unpredictable conditions in the environment, storms, and population growth are creating even more problems, and pollution and quality, and disease is more prevalent. There's high stress on fishing operators, rising costs, and harvest opportunities are reduced, because of low abundance in traditional stocks, and new area closures are needed to protect endangered species. More interactions have occurred.

The science appears to be unable to really help the management community adapt. Stock assessments rely on insufficient data, and lawsuits are non-stop. Stocks experience range shifts, but are incorrectly classified as overfished, and there is mistakes that undermine the management process. Low levels of trust between a number of the stakeholder groups, and, you know, it really requires operators to shift effort to lower-trophic species in this type of situation, and the government would step in to save some domestic fisheries, but only select fisheries would probably get assistance, and fishing is no longer the dominant activity in the ocean in this type of situation, competing with all the other industries for space.

Then, again, moving further to the side, where, again, the stocks are in decline, but the science is there, and so you understand. You know there is declining productivity, but you understand the things that are happening, things such as the cold pool shrinks in size, and so that negatively impacts species in pelagic habitats, depending on pelagic habitats, and range shifts, as species move north and east, but not much range expansion, because of the condition of the populations, and, in some regions, management really puts limits on newly-arrived species, allowing establishment of new reproducing populations. Marine and wildlife interactions and bycatch challenges are addressed through improved forecasts and really fishing community innovation.

The success of small fishermen adapt to reduced catch limits and new stocks, and so you're creating more of almost boutique fisheries, in this type of situation, and the unsuccessful regional

struggles to develop really effective responses, and mainly because of the limitations and the science to be able to address these, as well as the resulting actions, such as interaction increase, the fleet consolidation, loss of markets, and artificially cheap seafood, or imports, and decline in historic fishing communities, and, ultimately, aquaculture, in this situation, becomes more prevalent, because of the impact, or the reductions, of the overall fishing opportunities.

Then, again, to the ultimate higher-end one, and to the future, in 2040, you know, all this technology has provided the opportunity to really predict change, understanding the tolerable conditions, and sea-level rise is really more gradual than originally -- Because we're really only talking, you know, twenty years out from here.

The climate mitigation efforts have reduced greenhouse gas emissions and has little effect on ocean conditions in the short-term. However, better pollution reduction and habitat protection and restoration is reversed, and a lot of habitat damage in areas are considered, and the science capacity really booms, because it's delivering effective ocean monitoring, real-time catch monitoring, and food web and population monitoring and bycatch avoidance.

Species composition is changed, because you're talking twenty years down the road, and these changes in ocean conditions -- You're going to see new opportunities, but widespread data means that the management can provide for full and flexible balance and use of these available stocks. Opportunities come up, and the science is there to be able to address those and effectively work on it.

Investments in other ocean and coastal uses leads to competition. Aquaculture and collaboration -- Fisheries science is booming because of, in some part, and it's all the discussion that we had a little bit, and this is anticipating, if we really have close coordination, as these ocean activities go forward, it -- You know, the fisheries may be a big winner in these types of situations, and the recreational sector is really healthy, thanks to stable productivity, increased coastal wealth, and gentrification becomes a concern. The commercial sector also, because of the increased or maintained stocks, and so those, are in a snapshot -- I am not necessarily go that deep into it, but I think it gives you the real context of the different challenges, and that's the intent of this.

The different challenges that are going to be before a management body with those types of conditions, with very limited science, and the types of things with extensive science of where we are, and with the gauge of how extreme the environment gets, versus maybe less than some of the extremes. However, most of the news coming lately is pointing the other direction.

What that does is it created the narratives. The narratives now have been -- They have been developed and are moving forward to be a sounding for the opportunities then to refine those. WE had some deepening webinars, where we looked at those and had inputs that refined some of those kind of captures, because this layout that I had was really was more to the original discussions.

Then we are now in the application phase, and we had the initial springboard from here was we had manager sessions, and we had a couple that were held in September, and it was September and October, where there were council members and ASMFC commissioners, and so the Mid-Atlantic and New England Fishery Management Council, the South Atlantic Council, and ASMFC commissioners were involved directly in brainstorming sessions.

The intent wasn't trying to resolve these, but look at these, and what are going to be the challenges, and what are going to be some of the significant things that we need to discuss, and so what that was doing is setting the stage for each component to have a deep dive, and that's where we're at right now. We are going to be having -- During our December council meeting, we're going to have a climate initiative workshop, and we have a facilitator that is going to be providing -- He's been working with us throughout the entire process, to create the stage.

He worked directly with the Pacific Council in developing a scenario planning process similar to this. However, we have some very unique directions, and I think we're definitely going farther. They kind of fell short in some of the efforts in the Pacific, and getting to basically kind of this stage here, and then not going beyond it, really as much as I think originally intended, and so I think we've learned from that, and so Jonathan Stark is going to be facilitating this at the December council meeting.

Each of the councils are meeting. ASMFC is meeting in a couple of weeks, and they're actually going to take the first stab at this effort and, from an ASMFC perspective, begin to address where we can go, and then the South Atlantic -- Ours is December 5th, and, the first day of the council meeting, we have a dedicated session to work on this. The Mid-Atlantic will be following, and New England, and I'm not sure which one is before, and I can't remember, but everything is going to happen between now and the end of this year.

The idea is that all of that is going to then feed into concepts and ideas to bring a full-blown summit, and so there is going to be a summit of managers that's going to happen in February, and I think the dates have already been pretty well set, just because trying to make all those entities meet at one time was insane, and it's the 15th and 16th of February, and that intent is that that's actually going to be the hands-on discussion about how do we address some of these, and there's going to be specific components that come out of all these discussions, and so the core team -- I should have mentioned that in the beginning.

We have a core team of representatives that are designated from each of the councils and the commission to craft this and to advance this, with the help of the facilitator, and I serve for our council on that core team, and we have my counterparts on the other ones are all in the trenches and keeping this whole process moving along.

The idea is that next stage is we have the discussion at the council meeting, and we'll provide, you know, concepts, areas to address, and recommendations, and the other partners do, and we'll combine those to set the stage of what the context of that summit is going to be, to advance how we look at governance and management in the future, given all these, and lay out what that process is going to be, and it's not intended to be the stop.

That's supposed to be the springboard from which that happens, and there becomes some things that can be either locally, regionally, individual partner recommendations, and there can be opportunities to look at a whole suite, and I think that's what we're trying -- That's after -- I think some of this will be more clear once we have the actual discussions at the management sessions, to be able to then package those on where are the partitions on near-term actions that could be taken, longer-term actions, the foundational science that needs to be done to support these, and I think the way to look at this is, if you want to go to that top end, the perfect scenario over there, there's a lot of things that have to be done to support management to be able to do that.

I think those are going to be some things that are going to have to be really clear. Now, I'm not sure where there's going to be a follow-up from NOAA Fisheries -- A number of years -- It's almost two years now, I think, that we had a coastwide workshop on the science, and there's some critical things that have to be discussed on how do these different surveys and things talk, as you have species moving across here, and the collection systems, just the outright collection systems, and the permitting systems, and there's a number of those that the ducks need to be getting in a row in the future, so that you can effectively have the tools, the capability, and the baseline information to be able to manage it.

That's the process, the effort, and the initiative, and, as I said, the idea is that, once we get past some of these, there's going to be things that I think are going to get pushed forward that then, ultimately, you know, we will have engagement of our advisors, of members, and we'll figure out exactly where we go and how we address it under individual plans, et cetera, and so that's, in a context, what the effort is. I think we have a question from Steve Ross.

MS. COOKSEY: Steve, if you're speaking, we can't hear you. We may have lost internet.

MR. PUGLIESE: Did we lose internet? Oh, yes, we did. We did, across the board. Okay. Let's go there, and we'll work on that, as we move forward, but --

MS. COOKSEY: Tom.

MR. JONES: Something that you've implied in all of this deals with water levels, global warming, and is that something that is going to be discussed with this group as well?

MR. PUGLIESE: What was that?

MR. JONES: Global warming and water levels, is what I was getting around to, and you've implied it in a lot of places, in the fourteen-page report, but I didn't know if that was something that was going to be -- It's got to be an assumption, but I don't know where it falls in the assumption.

MR. PUGLIESE: Yes, and it's connected into that suite of all the different environmental and oceanographic changes that may be there, and so sea-level rise is definitely a part of that, because of the implications you have for loss or expansion of habitats, loss of access, loss of -- There's a lot of things that, twenty years down the road, or more, you could see some really significant changes in our system that are going to be a challenge for managers to address, and so, yes, absolutely that was one of the big driving functions under the climate-driven issues that we see.

MR. JONES: Thank you.

MS. COOKSEY: I just wanted to see if we have our virtual community back. I was able to reconnect my computer. Is there anyone online that can hear us?

DR. COLLIER: Mike Schmidtke, if you can hear us, let us know.

DR. SCHMIDTKE: Yes, I can hear you guys.

MS. MURPHEY: I can hear you guys.

MS. COOKSEY: Okay. Thank you. I had Steve Ross's hand up earlier.

DR. COLLIER: There is a question from Casey as well. Steve, give it a try again. If you can hear us, Steve, go ahead and type your question into the question box, because, unfortunately, we can't hear you right now.

MR. PUGLIESE: Casey was saying that she did not lose us, and so I'm not sure what happened on this end, but it apparently was still running. We're up and running. If anybody has questions, just raise your hand again. Steve has a question.

MS. COOKSEY: Casey had a question.

MR. PUGLIESE: Her point was -- It wasn't a question, but it was that she didn't lose connection, and so let's move in here. I don't have any other hands, other than Steve, and I'm not sure if that was from before or not, and so we can move on.

DR. CHERUBIN: Roger, from my understanding, you have these four scenarios, and the question is so you want to understand how the scenarios can be used for future management, right, and how to adapt management based on what comes out of those scenarios, and my question is, at some point, you have to prioritize, or identify, in which scenario we fall, and how are you guys going to do that, or is there a plan to do that, or is it basically having this sort of universal approach, where you look at all the different cases, and you come up with a set of rules, or plans, and then --

MR. PUGLIESE: Some of that is actually going to evolve as we get to the manager sessions. Now, we have specific questions that we're asking. I think, as we get further in there, some of it is going to get away from necessarily the scenarios and the challenges under the different spectrums of science and environmental and how you address those, and so we're still refining how to actually dive into those, because the amount of time -- It may be useful to just look at like two different extremes of those as examples, because the whole idea of those is to give the foundation of understanding, given those situations, what are going to be the challenges for management, if we have, you know, this type of situation, and so we've been talking about prioritization, and I'm not really 100 percent sure exactly how that's going to unfold, until we actually, I think, have some of this discussion, the first-level discussion, at each of the partners' meetings, and then I think we'll be able to understand how we can actually get them to get into those.

I think it's going to be a challenge to, you know, kind of cover everything in that forum, and I think that is going to take some strategic way of looking at it and looking at similarities, and that's one of the biggest things, is similarities across those that might need to be addressed, and so that might be the highest tier, ones that have to be addressed under any of these situations, or then ones that are specific to this situation, and that may be a way to weed out and begin to work through that prioritization of what are going to be the most important things to be addressed as we move into the future, and so, yes, it's evolving.

DR. CHERUBIN: I think I can see the spectrum of the range of possibilities, in the sense that different species may fall into different categories of those four scenarios, and so that's really why you need to look at all of them, in order to know what to do when something happens with a particular stock, or a particular environment, and my question is do you have an idea at which point you're going to be able to -- Will there be a session on where you decide that, okay, this particular aspect of the environment is predictable for a long period, or the evaluation of such parameters of such stock is predictable, or it's not, and what is going to be used to gauge that?

MR. PUGLIESE: Well, I think some of what were identified -- A lot of the material that I provided has probably a more deep dive into this, especially the workshop, on this, because there was a lot of things that went into identifying those critical uncertainties, ones that are -- It gets to exactly what you're talking about, ones that are predictable and ones that -- We actually had some gauging of that.

In developing the narratives, some of those were dealt with that way, and it was like these are predictable ones, these are anticipated, these are possible, and so it kind of -- That's why you ended with some of the areas being identified as most likely occurring, versus like acidification wasn't as high as say the temperature changes, because of the observed shifts already that we're seeing in those situations, and so I think some of those were integrated directly in those discussions for that, and I think that will take an additional -- Again, maybe the consolidation, to say which ones apply across, which ones -- Again, the same type of thing.

Which ones apply across, but then which ones are more likely going to be the situation, because we had gotten to a point where we were also saying that maybe there would be an opportunity to say which one of these scenarios is closer to where we are now, and then which one is potentially where it could be in twenty years, but what you don't want to do is get so buried in the scenario that you don't look at the drivers that are going to be needed.

I think your point about having -- This is why it was a real challenge to make sure that everybody stayed on the bigger picture, because you need all of those, because, as you said, it's going to be a challenge, and, under different species, you're going to have -- Or different FMPs, and you're going to have different types of things that need to be done, and some things are already in place. We've already got some, and is that going to be able to be used to go further, or is there something that needs to be changed to be able to do that for this species versus that complex?

I kind of bounced around your question a little bit, but I think this process has been evolving, and this is the first time we really have had kind of looking beyond just conceptual and into what are going to be some real management challenges that are going to come from this, and that's kind of where we are right now.

DR. CHERUBIN: Thank you.

MS. COOKSEY: Wilson.

DR. LANEY: Well, I was going to tag-on to what -- To the question that Laurent asked, and I was going to ask you, Roger, if you all discussed at all what the probabilities are for each one of these scenarios, and I agree with Laurent that it's going to vary by species and, to a certain extent, maybe by geography as well, but it's already happening, and a good example of that is striped bass, and

you noted a couple of others, but, with Atlantic migratory striped bass, North Carolina has got allocations for haul seine, gillnets, and trawls, and, unless Anne corrects me, I don't believe that North Carolina has landed a migratory striped bass in the ocean since 2011, and so, you know, eleven years already, and those allocations are functionally gone, because the fish are not there in the ocean anymore.

Then you could look at black sea bass, which appears to be, you know, making a major expansion, range expansion, northward, and it occurs, to me, that maybe one way to get a certain degree of handle on which species may fall into which scenario is to look at those climate vulnerability analyses that were done, you know, by the -- GARFO did them, and we're doing them, and the South Atlantic is doing them, and they're going to be completed at some point, I presume, and so that may give us some ideas, Laurent, to your question as to which one falls into which quadrant.

MR. PUGLIESE: Just following-up with that, I think one of the key things is this is, you know, getting to some of the real high-end of the science inputs on some of these, just because what you're trying to do is get enough in there so that it sets the -- I mean, this really is a scenario, and you're looking at stories, and you're looking at conceptual ideas beyond here, and I think some of those challenges are going to be really taking it to the next step, and that's where the coordination between the different centers, the regions, the Northeast Science Center and the Southeast Science Center, are going to be critical, and partners in our region, about how you really can, you know, document where we are with some of these different ones and what the challenges --

Eventually, when we get our climate vulnerability analysis, have the species-specific challenges, and I know we've had a number of presentations, but we still -- We are specifically asking about where things stand on a number of these, and so it's going to be important, but definitely -- I do want to qualify that, because, you know, we are -- It's not going to be at a level of like a modeling exercise or something on this right now, and this is intended to really drive the conceptual discussion about, when you're in these situations, where we may have to go with management under these different situations, and, of course, that's going to lead to individual councils, across councils, and ASMFC across the areas and councils, on what some strategies may be to be able to do it, either within the individual or throughout those different areas, and so it's a lot to bite off.

I think, if we had had the perfect situation to get even more science, then it would have been -- But I think the idea here is to focus a lot on what the challenges are going to be and then how do we step those forward, and, as I said, I think one of the critical points is going to be to highlight where that information is lacking to be able to do those.

You say, well, we can take this process, but, if you don't have that ability to really, truly understand the shift in those populations, or you don't have the understanding of the current regime changes, or the, you know, key foundational information, it's going to be challenge, and so I think those all feed into this discussion and are really going to move it forward, but I think some of the clarity of what you're talking about here, I think, is going to come as the managers sit down and begin to look at, okay, if we're here in twenty years, what does this mean for what we have.

I think it's going to be really important to keep them in the mode, and we had a really good effort, when we did the workshop, to keep people, and people did do that, and we pulled them back, and everybody was like starting to think about their initial, but then they pulled back to see that, okay,

let's really look, because that's going to be coming faster than you realize, and, you know, what's it going to mean for, you know, the fisheries, the managers, and how do we deal with it.

MS. COOKSEY: Anne.

MS. DEATON: A question that I received recently was are we going to continue to be managing these species, species-by-species, when changes are happening more holistically, and, rather than putting each species in a bin there, maybe it could be done by fish guilds. You know, that climate vulnerability assessment indicates that, you know, is it very mobile, or is it very stationary, and is it highly dependent on -- There are factors that determine how vulnerable they are and whether they're likely to shift or not shift, but, if they're going to shift, it may be easier to manage them more comprehensively, and so I'm just sharing that.

MR. PUGLIESE: Well, that's an important aspect, because I think, you know, the council is trying to do that, and, if we can get away from the individual ones, to try to do it on say the snapper grouper complex, and understand that, and a management strategy evaluation is being looked at, and there's some vehicles to take the next steps afterwards, and that could be that exact type of thing, where you're looking at those groupings, because, if it's going to affect one within that area, that depth, that whole grouping has got to have some types of changes.

MS. COOKSEY: Casey Knight.

MS. KNIGHT: I think that was still holdout from when I responded to the internet.

MR. PUGLIESE: That's fine. Thanks, Casey.

MS. KNIGHT: Sorry. Thank you.

MS. COOKSEY: David, you had a question?

MR. WHITAKER: I was wondering, and Cape Hatteras is kind of a natural break for the distribution of a lot of species, an ecological break, and so it's convenient to have the break there between the South Atlantic and the Mid-Atlantic, more or less, and I'm wondering if there's a consideration to changing the boundaries of the councils, as opposed to sharing management. In other words, a whole new way of looking at this, and I wonder if maybe a commission kind of thing, and like the military had closing down bases, and somebody that doesn't have a dog in the fight, but knows what's going on, might take a look and say a reasonable step to do is extend to two councils on the east coast, as opposed to three, or something like that, and I like to think about stuff like this, and I don't expect an answer from you, but it seems, to me, that that's ultimately what -- Something like that is going to have to happen, with sharing resource responsibilities or changing boundaries.

MR. PUGLIESE: I mean, you kind of hit the nail on the head, in terms of what the scope of the discussion at the management level is, is everything from those types of efforts to refining the existing types of systems, and so I think any of those things are essentially on the table, and there are some foundational reasons that we have the boundaries we do, in terms of the social and operational characteristics of our individual regions, and I've seen those up close and personal for a number of years, and so I think those discussions will be definitely had.

How far some of those will go, it's going to depend on what the real challenge is going to be with some of the species, and we've had discussions, in the past, about extending the Snapper Grouper FMP, and that kind of hit a wall, when we first talked about it, but now, if we have like have the system moving, is that going to be a consideration, or not, or are some of the biogeographic boundaries going to be more significant than even people are thinking about, because a lot of the movement to the north is to the north, and a lot of movement is on the edge of that boundary already, and so are you going to see some of the more nearshore and inshore species actually change, versus some of the deepwater species, like tilefish, et cetera, snowy and different things that are in a more stable environment throughout that entire range of area, and so those are all questions, but it gets back to your comment of those are intended to be on the table for discussion.

That's why it's governance and management, and I look at management as adjusting the existing systems, and I look at governance as those type of discussions that, if you had to go further on something, what would you have to do, in regard to ensuring that there is the coordination and collaboration between the partners, and so, yes, it will be discussed, I guarantee you.

MS. COOKSEY: I am just looking around, and I don't see any other hands raised. Thank you, Roger, for that. We appreciate it. You have a massive challenge ahead of you, and seafood lemonade will be sticking with me as a title for a while. We have covered all of our topics for today, and we are a tiny bit ahead of time, but I think that's okay, because today has been very, very long, and I really appreciate everyone sticking it out and providing such great input, and so I say that we wrap it up for today, about fifteen minutes early, and I will see all of you again tomorrow morning, where we will reconvene at 9:00 a.m. Thank you.

(Whereupon, the meeting recessed on November 2, 2022.)

- - -

NOVEMBER 3, 2022

THURSDAY MORNING SESSION

- - -

The Habitat Protection and Ecosystem-Based Management Advisory Panel of the South Atlantic Fishery Management Council reconvened at the Town & Country, Charleston, South Carolina, on November 3, 2022, and was called to order by Ms. Cindy Cooksey.

MS. COOKSEY: Good morning, everyone. Welcome to the last day of the November 2022 Habitat AP meeting. I had a great suggestion this morning that we actually go ahead and do an around the table, introducing ourselves to each other, since we do have new members, and better late than never, and so I will start out, and then we will go around the room clockwise.

My name is Cindy Cooksey, and I'm with the NOAA Fisheries Southeastern Regional Office Habitat Conservation Division, and I am located here in Charleston, South Carolina, and I am currently serving as the chair. Stacie.

MS. CROWE: Good morning, everyone. I'm Stacie Crowe, and I'm with South Carolina DNR's Office of Environmental Programs here in Charleston, and I am currently serving as Cindy's vice chair.

MR. YOUNG: Sam Young from Stuart, Florida. I'm a former city counselor in Marco Island, the Sounds and Waterways Committee, and I ran and won on water quality in 2020, and I sat on the Gulf Council's Aquaculture Committee and the MREP Advisory Committee, and I'm also -- In Stuart, since I moved, I'm participating with the Florida Oceanographic Institute for Citizen Science, and it's a pleasure to be a part of this council as well.

DR. LANEY: Wilson Laney, and I'm currently an Adjunct Assistant Professor in the Department of Applied Ecology at North Carolina State University, and I'm also serving for the North Carolina Coastal Federation on the Atlantic States Marine Fisheries Commission's Habitat Committee and the Atlantic Coastal Fish Habitat Partnership Steering Committee, and a bunch of other stuff, which I won't go into.

MS. DEATON: Good morning. I'm Anne Deaton, and I'm from North Carolina. I work with the Division of Marine Fisheries, with the Habitat and Enhancement Section. I guess that's enough, and so, you know, this is very helpful, being on this regional -- There's a lot of overlap between issues in our state and what happens on a regional level, and so that's all. Thanks.

MS. BUSCH: Good morning. I'm Laura Busch, with the U.S. Navy U.S. Fleet Forces Command in Norfolk, Virginia, and my command is responsible for all the training in the east coast and Gulf of Mexico, and part of my job is to make sure that we follow all environmental laws when we're doing that, including EFH.

DR. CHERUBIN: Good morning. My name is Laurent Cherubin, and I'm a research professor at Florida Atlantic University, at Harbor Branch Oceanographic Institute.

MR. WHITAKER: David Whitaker, and I'm from Charleston. I retired from DNR as Assistant Director of the Marine Division, and I'm an adjunct faculty member at the College of Charleston. I was on the council for a few years, and I was on this committee back in the 1980s or 1990s, and I can't remember, but it was about six or eight years, but, anyhow, I'm glad to be on the committee.

MS. KEENER: Good morning, everyone. I am Paula Keener, and I am a marine biologist who has -- My roots are in SC DNR, doing fisheries research with MARMAP, with the MARMAP program, and I have recently retired from eighteen years with NOAA, with the Office of Exploration and Research, and you saw a presentation from that group yesterday. I have a small consulting company, Global Ocean Visions, and I am also a senior associate and program manager for Ocean Associates, Incorporated, out of Arlington, Virginia. I serve on DNR's MAC, and I am the chair of the advisory board for the Graduate School of the College of Charleston, and I'm on this committee, and I've had way too much committee and that kind of work over the years, and so, anyway, it's a pleasure to be here, and thank you all for what you do in your individual positions to protect the natural resources and study them and explore them and learn more about them. Thank you.

MR. SPANIK: Good morning. I'm Kevin Spanik, and I'm a biologist with the Coastal Finfish Section at SC DNR. I work on a number of projects, including the MARMAP Offshore Reef

Survey, the SEAMAP Coastal Trawl Survey, and a deepwater longline survey, which I will talk to you all a little bit more about shortly.

MR. HOOKER: Brian Hooker, Bureau of Ocean Energy Management. I've been at the Environment Branch for the Office of Renewable Energy Programs, and I've been there for a little over ten years. I feel like I've been on this AP just as long, as with many others, and so, basically, my group is responsible for all the consultations, including EFH and ESA consultations for all of our offshore wind projects.

MR. METTERS: Good morning. I'm Paul Metters, and I work with the Georgia Department of Natural Resources, Coastal Resources Division, and I have the pleasure of leading the group that does artificial reefs, oyster habitat restoration, and we also have piled in the boating access, the public boat ramp, piece in our group, too.

MR. MILLER: Good morning. My name is Steve Miller, and I'm a famous rock star. Actually, I represent the St. Johns River Water Management District. I work on wetland fisheries issues along the entire length of the St. Johns River and the estuary.

MR. JONES: Tom Jones, and I'm the Georgia recreational fishermen representative, and I've been on the AP for about ten years, and so thank you for that service, and what a great education it's been. Thank you.

MR. FODRIE: Hi. I'm Joel Fodrie, and I'm a professor at the University of North Carolina Chapel Hill, the Institute of Marine Sciences, which is in Morehead City, North Carolina. I'm sort of an estuarine ecologist, but we've done a lot of work on black sea bass and summer flounder. I was pretty involved with research with the Deepwater Horizon. I do typically work more inshore, and so this has also been very informative to me. I've been involved in North Carolina management a bit, on advisory panels, and so this -- Like Anne said, it's a nice chance to step out to a regional context. Thank you.

MR. PUGLIESE: I'm Roger Pugliese, Habitat and Ecosystem Scientist, with the council, and I have been working on our habitat and ecosystem activities from the inception of this, and I have seen the evolution of this panel to really provide the foundation for probably the most significant conservation of any council that I know of in the entire process, and so kudos to the entire group, and I think you all have set the bar even higher, with everything you've been discussing and where we go from here, and I think, also, go ahead, and we have Casey Knight online. Casey.

MS. KNIGHT: Good morning. I'm Casey Knight, with the North Carolina Division of Marine Fisheries. I'm in Morehead City, and I've been back and forth between our Fisheries Management Section and our Habitat Section. I previously worked in the Habitat Section, with Anne Deaton, on the last iteration of the North Carolina Coastal Habitat Protection Plan, and I have, more recently, taken a position back in the Fisheries Management Section, overseeing several of our coastwide programs, and thank you, guys, for having me, and I apologize for not being there in person, and I was stricken with one of the multiple cruds that are going around right now, and I did not think that you all wanted me to share that.

MR. PUGLIESE: Yes, thank you for not sharing. We do miss you here, and I think getting back into the in-person mode is going to be really important for this panel to keep moving forward on a lot of the things, and I think that's the only way that we work. Next, we have Rene Baumstark.

DR. BAUMSTARK: Good morning. I'm Rene Baumstark, and I'm with the Florida Fish and Wildlife Conservation Commission at the Fish and Wildlife Research Institute. I lead the Information Science Management Group, which includes folks who do habitat, with several other things, and apologies that I'm not able to attend in-person. Our team has gotten closely wrapped up in the response to derelict vessels and hazardous material containment post-Hurricane Ian, and I felt that I needed to prioritize that, but, fortunately, our virtual environment here is much easier to work in, and I hope to see you guys again soon.

MR. PUGLIESE: Sounds good, Rene. Shane Staples.

MR. STAPLES: Hi. I'm Shane Staples, and I'm currently with the Division of Coastal Management, in a regulatory role, permitting and development, here on the North Carolina coast. Formerly, in fisheries, and I was working there with coastal management, doing the job that's now with Anne in the habitat section, permits, previously, and so I started out in fisheries and ended up here in regulatory, but I would be there, but, like I told Roger, we're waiting on Baby Number 2, and so I don't want to be gone too far from home.

MR. PUGLIESE: Yes, stay home, and be close. Also, we do have our chair of our Habitat Committee for the council, Trish Murphey, who is online, and I don't know if Trish wanted to just say good morning or hello. Good morning, Trish.

MS. MURPHEY: Good morning, everyone. I'm Trish Murphey, and I'm with the North Carolina Division of Marine Fisheries, and I am vice chair of the council and chair of the Habitat Committee, and I apologize for not being down there in-person with you guys, and I had other meetings that I really needed to attend, but I appreciate all the input and discussion that I've heard online, and I hope to be at your next meeting in-person, but thank you all so much.

MR. PUGLIESE: Thanks, Trish.

MS. COOKSEY: Thank you, all, for that, and now we are going to dive into the first of two agenda items that we have today, and we are on schedule to work this morning from 9:00 to hopefully adjourning the meeting by noon, and our first topic is regional research and tools supporting EFH conservation, and Roger is going to discuss the status of the habitat blueprint.

MR. PUGLIESE: Yes, and I'm going to be fairly quick, and I know I had Myra on there, but I'm just going to touch on it. We do have a workgroup, through the council, to develop this. Due to a lot of other priorities and different activities moving forward, it's had to have taken a little bit of a backseat to a lot of other things that are moving in advance, and so the bottom line is this is going to be picking back up in 2023, and so hopefully we can get this moving forward and more formalize some of the different operations, including how important this panel is in contributing and advancing the council's efforts on habitat, and so that is something that we will get back into.

We've had a number of early presentations on where we're starting, where we're going, workgroup deliberations, but next steps will happen as we kick up on a number of different other priority

actions that I think are going to be timely too, but that's really all I wanted to do, is give you a heads-up that not a lot has been done since then, just because of priorities. We're moving forward, but we wanted to move from here and make sure that at least we had parts of all those discussions and that discussions also included capabilities and different things that are going to help support where we're moving with a lot of things on habitat and ecosystem and climate, and that leads into some of the next discussions.

MS. COOKSEY: Thank you, Roger. I would like ot now dive into an update -- Wilson.

DR. LANEY: Just one quick comment. I know that Roger, in the past, has worked with the South Atlantic Landscape Conservation Cooperative, or at least what used to be known as the South Atlantic LCC, which now has sort of morphed into the Southeastern Conservation Adaptation Strategy, and the reason I mention that is because Roger and this panel were very much involved with the South Atlantic LCC when they created the conservation blueprint for the South Atlantic, and it was unique in that it included the offshore parts of the ecosystem, all the way out to 200 miles.

That is still available online, and those of you who also work with wetland ecosystems and riverine riparian corridors and things like that also would be probably benefitted by accessing that conservation blueprint, which is still online, and we used it very successfully a couple of times for applications for the North American Wetlands Conservation Grant Program, which is a pretty substantial annual grant program, and we assisted Georgia and South Carolina and North Carolina in getting grants under that, in part because the areas that they were trying to acquire were deemed very high priority for conservation within that conservation blueprint, and so I just wanted to mention that and remind everybody that it's still there.

MR. PUGLIESE: Wilson, I appreciate that, because, really, that was one thing that I was hoping to maybe reengage our group with, SECIS, because of that connectivity, and I think, as we move with the EFH updates, there's going to be a lot of opportunity to make sure that a lot of what is integrated in there, especially in distribution of offshore habitats and all that, is the most updated, and we can, you know, have input into there, and there's a lot of really important things in corridors and different activities that I think are really important to do it, especially when we talk about the climate change and the most updated information on distributions of habitats and different things, and I think the whole intent, when we were doing the LCC, was that those merge, and I think it's already advancing on SECIS, and the most recent blueprint has been posted, and so a reengagement, I think, would be really important, to make sure that, as we're talking about these connections between all these systems, that we have that, and so, in the future, hopefully we can pick that back up.

MS. COOKSEY: Paula.

MS. KEENER: Thank you. Wilson, thank you for that. Roger, at a very high level, given the conversations yesterday about revision and review of the EFH policy statement, and you're much more involved in this blueprint, and down in the weeds, than we are, and can you just, at a high level, tell us how you see that the blueprint might inform policy revision?

MR. PUGLIESE: Well, I think one of the -- You know, I haven't actually had input in the latest iteration on this, but I think, as we were moving forward before, one of the most important things

was making sure that information on the distribution of say our managed areas and the information we had on offshore distribution of habitats, and maybe they could begin to integrate species information, and some of those things, I think, have some natural crossover between this and opportunities to advance that.

I mean, there is distribution of hardbottom systems, and I think there's an opportunity to weigh-in on refining what our EFH presentations are, and then that feeding into refining and updating, and the great thing about the opportunity is then building the connections with the nearshore and inshore habitats and the information from the states and the most recent things that they've provided there, so that we don't reinvent the wheel on here, and so I think that's where I think there's a huge benefit, plus it gives priorities, and it has linkages and shows how important some of the inshore areas are. In the water, they may have high priorities, but also the idea of seeing additional benefits beyond what those are to managed species and prey and habitats and migration and emigration and egress, all those types of things.

I think there's a real plus, and it's very climate focused on what's happening in those areas, and so, if there's other information on change, et cetera, that's at the state level or at the local levels, that may be a way to get into that process and to be able to pull that and draw from that as we move into either refinement of things or how some of that may influence some of the policies, because we may be able to draw from things that are going on at the state, local, and regional levels that this has been trying to do, to try to get that big picture.

We lost a lot when the LCC dropped off, but this picked up -- Basically, the whole core of it has moved forward, and it's basically primarily a state-focused opportunity and efforts there, and we don't have the same seats at the table, because we were a member, originally, of the LCC, and we just don't have the -- But all the other states and participants are directly involved.

MS. COOKSEY: Wilson.

DR. LANEY: I will just say that the Fish and Wildlife Service staff of the South Atlantic LCC are still there, and they stand ready to help people interpret and use that conservation blueprint, and that's part of their mission, and so Hillary Morris and Amy Keester and Louis Vaughan and Rua Mordecai are all still based in Raleigh and co-located with the North Carolina Wildlife Resources Commission, and they're all very accessible and very responsive.

MR. PUGLIESE: Just as a last follow-up, because this really isn't in here, but, I mean, this is really critical. There are real opportunities to -- As we look at some connections in here, we've had some of the Fish and Wildlife connections drop away from operations in the councils and different things, and there are creative ways to make sure we reengage and connect in where individuals are still interested in continuing with this, so that we don't lose that other facet of the capability of this panel, and so that may be ways to draw in that, and, also, we had connections closer with USGS and the EPA, and there is other avenues, I think, that that might be able to do to have access to other coordination efforts that will complement ours without having to, you know, try to pull something from some other area that then doesn't really have the time or whatever, and so there's opportunities, I think, there to advance and expand our connections and draw on that, versus reinventing the wheel.

MS. COOKSEY: Great. Thank you, everyone, for that discussion. I believe we are ready for Kevin and Tracey, if you could come up here to the presentation area, and they are going to provide us an update on the regional surveys and enhancing the capabilities of the SEAMAP biological surveys integrated with the SECOORA data portal.

MR. SPANIK: Good morning, everyone. I'm just going to provide everyone with kind of a brief overview of several of the fishery-independent surveys occurring within the region. Most of them fall under the SEAMAP South Atlantic umbrella, but, specifically, I will talk about the SERFS Reef Fish Survey, the SEAMAP South Atlantic Coastal Trawl Survey, the Pamlico Sound Trawl Survey, the coastal longline survey under SEAMAP as well, and the Deepwater Longline Survey, or SADL.

Briefly, I will touch on a little bit of background for each of these surveys, some of the methodology, and then I will give some examples of some of the recent data that we've been able to provide.

Right off the bat, that was a lot of acronyms, and we're going to see several more here, and so I just kind of want to identify these and get them out of the way. MARMAP stands for the Marine Resources Monitoring Assessment and Prediction Program, and that's based out of SC DNR. SEFIS is the Southeast Fishery Independent Survey, and it's based out of the NOAA Beaufort Lab, and SEAMAP South Atlantic is the Southeast Area Monitoring and Assessment Program South Atlantic.

Starting off with the SERFS Reef Fish Survey, it's a collaborative effort with MARMAP and SEFIS and SEAMAP South Atlantic. It's a long-term survey, and it's been running since 1972, and it provides abundance and life history information for the U.S. South Atlantic snapper grouper species. It's conducted on the R/V Palmetto out of SC DNR, and the R/V Savannah out of Skidaway Institute of Oceanography, and the NOAA Ship Pisces.

The survey area goes from Cape Hatteras to Port St. Lucie, Florida. It's over known live bottom and hardbottom habitat and covering between the depth contours of about fifteen to 135 meters. The survey runs annually from April to October, and it's trying to get at least 1,500 gear deployments per year, and these will be deployed located from a randomly-selected universe of about 5,000 stations that we have available right now.

The primary gear for the survey is the chevron trap, which I am showing here, and it's baited with Atlantic menhaden. We use a few other gear types, including a longline, which predominantly, in recent years, has been about a twenty-hook short bottom longline, and we also do some hook-and-line sampling. In about 2009, we added video cameras to the traps, and so, right now, they're mostly GoPros, but we've actually even started with a stereo camera system, where we can actually measure lengths of fishes that are present on the cameras, and we've got a lot of new information with these cameras. There's better abundance information, what types of fish assemblages are there, and we can get better information on rare, cryptic, and large species that won't enter a trap. It really helps us to characterize habitat better, and we can get more information on species interactions.

Just for some examples of that, I mentioned large fish that won't go into a trap, and this is a large group of goliath grouper, which we may not have seen without those cameras before, and I

mentioned species interactions, and so this is a scamp grouper, and he showed -- This is a gray-head phase, and that's specific to only when they're actively spawning, and so, with the cameras, we can get better information on seasonality of spawning and spawning locations for different species. Large pelagics, highly migratory species, and I mentioned being able to classify habitat a little better, and, also, we can get more information on invasives, like lionfish in the bottom corner here.

We collect a lot of biological data to study age and growth, and, for that, we collect otoliths and spines, and you can read those structures like rings on a tree and see how old they are, and we look at reproduction, using gonad histology and fecundity, and so you can see, in the top-right here, and that's just a cross-section of a histological sample, and that's called a post-ovulatory complex, and so this is indicative a fish that has recently spawned, and so you can tell spawning seasonality. A lot of these fish have complex life histories, where they're actually changing sex, and so we can kind of track that and identify when that happens. We can also look at total egg production from fecundity studies.

We also study diets for ecosystem-based management advancements, and we've kind of cut this back, and it's really only kind of directed studies at this point, just due to funding reductions, and we've also done a number of other ancillary studies, including population structure, habitat use, and mercury, and, for this, we'll usually take things like fin clips, muscle tissue, or even eye lenses.

These are just some of the most frequently-encountered species by SERFS. At the top is tomtate, and then you'll see some numbers here, and some are red and some are green. This is from 2019, and that just indicates either an increase or a decrease in the total -- In the rank of that species abundance, and so tomtate, vermilion snapper, recently increasing and black sea bass, and it's kind of down to Number 3 from Number 2, and red snapper, in years past was Number 6, but now it's shot up to Number 4. Gray triggerfish, red porgy, bank sea bass, and then several grouper species that are a little bit less frequently encountered.

Just to show some kind of recent trends, we'll start off with sort of the bad news bears of the group here, black sea bass and red porgy. Don't worry too much about the Y-axis. This is a standardized relative abundance, and so the dashed line going across is just kind of a long-term average. For the recent years, both of these species are -- You can see a pretty strict decline.

A couple of groupers, and it's kind a steady, low biomass, and, again, both of these are below the long-term average for gag and scamp, and then, finally, something a little bit hopeful, and there's a pretty sharp increase since about 2010 for red snapper, and a little bit of increase and then a bit of leveling-off for vermilion snapper.

The data are used primarily for stock assessments, and you can see -- These are just kind of the recent stock assessments for SEDAR that we have contributed data to, and gray triggerfish and black sea bass are ongoing now. We provide trends reports to the council, which will be that information that I just showed. Those abundance graphs are usually included in those, and we also provide a lot of peer-reviewed scientific publications and presentations.

Moving on to the SEAMAP Coastal Trawl Survey, it's the only long-term regional trawl survey in the Southeast, and it was established in 1986, and it provides abundance and life history information for a diverse assemblage of nearshore fishes and invertebrates, and that study is done

aboard the R/V Lady Lisa, shown here, and it's a St. Augustine trawler. It runs from Cape Hatteras, North Carolina to about Cape Canaveral, Florida, in shallow coastal waters between about fifteen and thirty feet, and they do three seasonal cruises per year, in the spring, summer, and fall, and there's about 102 stations targeted each season.

The gear is a paired 22.9-meter Mongoose-type falcon trawl, and there is no turtle excluder devices on these nets, and so it does provide some data on turtles, and, recently, starting last year, we put on Simrad multisensory mensuration gear, so you get information on door spread and tongue height, and you get more detailed information on sort of the area swept, and you can better calculate abundance that way. Additionally, the Lady Lisa is a very old vessel, and she's well past her expected lifespan, and so we're hoping to have a new vessel come on soon, and this information will help for gear comparisons between the two, when we switch over.

They tow for twenty minutes, and then the catch from one of the nets is processed and sorted. They did some studies, over the past couple of years, and it was kind of a big downtime pandemic study, to look at statistical differences between the two nets, and they found that there really wasn't any, and so, for efficiency, they went to processing only one of the nets.

They collect a lot of the same biological data as the Reef Fish Survey, and so for priority species, age and growth studies, reproduction studies, and diet studies as well, although, similarly, funding has kind of limited those studies. For priority invertebrates, like shrimp, white shrimp, brown shrimp, and crabs, blue crabs and ocean crabs, egg development and recent mating evidence is recorded, and so these are some of the most encountered species for this survey, and you see species like croaker and spot, and I mentioned white and brown shrimp, butterfish, kingfish, harvestfish, weakfish, and we also catch juvenile Spanish and king mackerel and Atlantic menhaden.

Shown, similarly, some of the recent trends, and this red line is just going to be the long-term average. This is good news, and we're seeing a pretty sharp increase for croaker and spot. I'm not sure exactly why, but I read a paper, recently, that states that they think, with the warmer temperatures over the winter, that there's been higher larval and juvenile survival. Weakfish and southern kingfish are also both showing increases, but a little more steady in recent years, and then brown shrimp and white shrimp -- Those are, you know, kind of annual crops, and so they're much more variable year-to-year, depending on conditions.

Data from the trawl survey are also used frequently for stock assessments, and the nearshore waters are kind of more under the ASMFC purview, and so a lot of data goes towards them. They were used, in the past year, for the Spanish mackerel assessment with SEDAR, and, again, a number of peer-reviewed publications and presentations come out of this survey as well.

Also under the SEAMAP South Atlantic umbrella is the Pamlico Sound Survey. I'm not as familiar with this survey, and it's done -- It's operated by the North Carolina Division of Marine Fisheries, and it was established in 1987, and they sample the Pamlico Sound and associated rivers and bays, and they sample June and September annually, and they use a stratified random sampling design to sample about 104 stations per year. The year is similar to the SEAMAP trawl survey, and it's twin thirty-foot Mongoose-type trawls, and they also tow for twenty-minute tows, but they combine and process those two nets together. They're a little bit smaller nets, I believe. They also

do life history studies and biological data for priority species as well. Unfortunately, I don't have any trends information for that survey at the moment.

Again, under the SEAMAP South Atlantic umbrella is the Coastal Longline Survey, and this is a bit of a partnership with NMFS COASTSPAN and Cooperative Tagging Program, and it's also jointly done with North Carolina DMF, SC DNR, and Georgia DNR. It was established with South Carolina DNR in 1993, and they primarily study the adult red drum population and coastal sharks. They look into the sounds and nearshore known live bottom stations, and they have random site selection within each stratum, which can be pulled from about 253 random sites, and they primarily are sampling between about the three to twenty-meter depth contours.

The gear has changed a little bit over the years, but, currently, I believe it's a one-third-mile longline with forty hooks, and there is a little bit of variability, but they soak for about thirty minutes during daylight hours. Most of the fish are tagged and released. However, some -- There is a subsample, and I think it's about ten per day, are subsampled for age and growth, and they do population genetics, and they've also done some diet studies. It's important to note, as well, that some of these larger adult red drum are kept for brood stock for SD DNR's mariculture program, and they do a lot of restocking.

Just to look at some of the shark species composition, in 2021, a lot of blacktip sharks and sandbar sharks, and the most abundant is the Atlantic sharpnose sharks, which is not surprising, blacknose sharks, bonnetheads, and finetooth sharks. This is just showing -- The darker blue is the number of total captured, and the lighter blue is the number tagged, and so, as I mentioned, most of them are tagged and released.

Just a quick recap on recent trends for red drum, and this is a CPUE, catch per set, and so it's not normalized, and so, in recent years, it's been sitting right around one or two red drum per set, and it's holding pretty steady, and there's a little bit of a drop between 2020 and 2021.

For sharks, just showing those most abundant ones, the two blue colors here are blacktip and blacknose, and they're showing a little bit of an increase in recent years, and, conversely, sandbar in green, and finetooth in purple, have been decreasing, just over the past year, but it's relatively steady.

Similarly, the data are used for stock assessments, and you can see mostly for SEDAR, who manages most of these shark populations, and there's pretty big sample sizes to support those studies of Atlantic sharpnose, red drum, sandbar, and this assessment for lemon shark is ongoing, and they have also provided a large amount of peer-reviewed scientific publications and presentations.

Moving on, this is a newer survey, and it's not long-term yet, but we hope it will be, moving forward, and it's a deepwater longline survey intended to generate indices of abundance and life history information. I want to take a second, real quick, to acknowledge Todd Kellison, with the NOAA Beaufort Lab. I grabbed a couple of these slides from a recent presentation that he gave, and we -- The Reef Fish Survey used to do a fair amount of longlining, but we couldn't really get -- Based on funding, we couldn't get the coverage that we wanted to, and so a lot of these deepwater species were kind of data-poor, and so this survey is coming onboard to address those knowledge gaps. The focal species for this is tilefishes and deepwater groupers.

It's a cooperative effort with industry, and it was implemented in 2020, and we've repeated it in 2021 and 2022, and we hope, like I mentioned, for it to continue into the future. The industry participants are contracted by SC DNR. When we started off in 2020, we had two participants, and that's grown to four in 2021 and 2022, and the data are collected not by our biologists, but by NMFS observers at-sea, and, of course, we grab the site-specific details of data, time, locations, depths, et cetera, species-specific lengths, abundance, and biological samples as well, which we process back at SC DNR, otoliths and reproductive samples, primarily, and, like all the other surveys, oceanographic information is taken for each location.

Now we're able to cover a lot more area from North Carolina to the Florida Keys, and it used to be a little more patchily distributed, and it's focusing between about seventy-five and 366 meters depth. The survey is stratified by depth and by latitude, and the gear is a three-mile mainline, with 150 hooks per mile, and they are 12/0 offset circle hooks baited with two-inch squares of squid.

In 2020, with two vessels, there were forty-six samples, and, in 2021, with four vessels, we were able to bump that up to 187 sampling deployments. This is just showing, again, some of the major species caught on this survey. There's blueline tilefish, golden tilefish, snowy grouper, almaco jacks, mutton snapper, red snapper, red porgy, amberjack, blackline tilefish, gag grouper, yellowedge, and scamp grouper, and, based on catches so far, the species now in red are the ones that we are pretty confident that we will be able to have enough data for index development.

Finally, just to kind of touch on some of the value of long-term monitoring, it's really important to be able to look at abundance over time and how that may be affected by different instillments of management and by changes in fishing pressure. It's really important to be able to see species distributions over time, so we can look at range expansions or range contractions for different species, and, like I mentioned, all of these surveys are collecting hydrographic information, and so it's a really great baseline database for looking at things like climate change and ocean conditions over time.

Finally, I will point out that these data are mostly publicly available, and Michelle is going to talk to us about that next, and she'll give you details on how to find information from the survey. With that, I just want to thank a lot of folks, the Reef Fish staff, the Coastal Trawl Survey staff, and the Longline staff, our vessel and operations, and those guys spend a lot of time out there with us at-sea, and we couldn't do it without them. Then our SADL partners, Todd Kellison and our NMFS observers, and these are our cooperative research partners that we're currently working with for the longline survey. If there's any questions, I will be happy to take them.

MS. COOKSEY: Thank you, Kevin. I actually wanted to start out by asking, based upon the locations for the Carolina Long Bay wind energy area, are you anticipating any adverse impacts to any of these surveys?

MR. SPANIK: I think they're just outside of the range of the trawl survey, and it's over -- I believe they were pretty well sited for just over sand, and so it shouldn't interfere too much with the Reef Fish Survey, which are only on known hardbottom and live bottom spots.

MS. COOKSEY: Okay. Thank you. Any other questions? Brian.

MR. HOOKER: Thanks. The bottom longline survey, I guess that's new, right, and so this is only, what, two years in?

MR. SPANIK: Yes.

MR. HOOKER: Is there a Mid-Atlantic counterpart to that? Do you know?

MR. SPANIK: I don't believe there is. There actually are some talks, right now, about expanding up that way, and I know there's a lot of data deficiencies for -- There's a bigger blueline tilefish commercial fishery up that way and golden.

MR. HOOKER: I mean, I guess, to that, and so it is now a -- So it's under the -- It does have potentially long-term funding under the Cooperative Research Program of NMFS, and is that correct?

MR. SPANIK: I'm not sure that it's necessarily under the Cooperative Research Program. I can get back to you on the exact source of that, but it seems that it's pretty well supported, and they are anticipating it to be pretty stable in the future.

MR. HOOKER: Great. Thanks.

MS. COOKSEY: David.

MR. WHITAKER: I was interested to see that you're getting red snapper in that deepwater longline survey, and I missed the number, by the time I saw the -- It's in red there, and so not a lot of them, but some are out there, and that depth range was what?

MR. SPANIK: It's seventy-five to 366 meters.

MR. WHITAKER: Do you know the deepest they've been caught, by any chance?

MR. SPANIK: Not off the top of my head, and I don't think it's much deeper than the lower end of that range, but I can look into that and get back to you.

MR. WHITAKER: I am just curious. Thank you.

MR. FODRIE: A question, and is there access to visibility as to where the drops were and how far north and how far south the drops were, whether it be longlining or trawling?

MR. SPANIK: Access to the visibility? I'm sorry.

MR. FODRIE: Either on a PowerPoint or some report to show, geographically, where it was, and, I mean --

MR. SPANIK: For the Reef Fish Survey? Yes. Sorry. I've got to skip back. So just off of Cape Hatteras is our northern end, and it runs all the way down to Port St. Lucie.

MR. FODRIE: How many drops were there?

MR. SPANIK: So, per year -- It varies, but we try to drop about 1,500 traps, and then, additionally, on top of that, depending on funding and weather and everything -- What do you think? How many longlines?

UNIDENTIFIED: For bottom longlines, probably about 200.

MR. SPANIK: So 200 or so longlines, and that is -- The longline gear is kind of more on the slope, where, you know, it's a little bit harder to get a trap to kind of land in an optimal position for that.

MR. FODRIE: Okay. I was just curious, because, on the Gulf side, we had issues with where they were counting actual red snapper species, and they missed the whole southern portion, because they didn't put visuals down there, and, when they did, there was a 300 percent differential in the data, based on the algorithm.

MR. SPANIK: Every trap that goes down will have the cameras, and so I don't think we miss any portion, and it's all going to be equally covered throughout this range, and so we wouldn't miss like a chunk in the south or anything like that, and so we get an index of abundance from the camera and from the trap, and they're not independent of each other, and so they're both considered, and they're kind of combined, in the end.

MR. FODRIE: Thank you.

MR. PUGLIESE: Just there's been a very definite work, through SEAMAP and MARMAP and the SEFIS components, to make sure that you can maximize whatever you're getting, in terms of resources, to cover the entire area, and so I think this has evolved from where some of those issues that you're talking about, with the missing different areas, to a point where I think the distributional locations of these areas now is really, you know, maximized with the resources you have to cover the trap areas, to cover the trawl areas, to cover the longline, in as efficient way as you possibly can.

I chair the SEAMAP committee, and so that's been one of the things to guide, because it's foundational, and one of the reasons for bringing it forward here is because it's foundational for all the information we've had for habitat, for species, for assessments, for -- As we move into, as you've already alluded to, into climate, into interactions with some of the other regions that Brian had talked about, is I think that connectivity are critical, and so I think that has definitely been at the forefront, is to make sure the coverage is there to do it, and its bottom line has always been resources, and how far you can go, but I think it's been a very direct way to make sure that what you do have is covering and supports the best available information on the distribution of the species, capturing the methodologies, the evolution of the techniques, in terms of adding cameras now, really do provide a lot more.

Additional resources will even make it better, and one thing about the SEAMAP program is it does have a five-year plan, and we actually adopted that into the Fishery Ecosystem Plan, because it talks about these types of things and needs, even beyond where we are now, and so it's important, I think, and they've done an excellent job, and I think just showing the distributions and what you're able to find, once you do have adequate -- It's really making things go a lot further in our

region, and we'll have the next steps on how we integrate that with other information too in the next presentation by Michelle.

MR. SPANIK: I will just add, real quickly, to that, and so I mentioned the cameras came online in 2009, and that's also when we started partnering with SEFIS, and so, prior to that, we were just sampling with the Palmetto, and so that's essentially located kind of in Charleston, and so we used to have to do all that with that boat, but now we kind of primarily focus, with the Palmetto now, from South Carolina and North Carolina, and then that other vessel is out of Skidaway, in Georgia, and they, you know, focus most of their effort down in Georgia and Florida, and so they're pretty equally covered, and we can do a lot more with that boat, and as well as the NOAA vessel is out of Morehead City, and so they kind of cover more of that tip, the northern range of North Carolina.

MS. COOKSEY: Okay. We've got Anne and then Wilson.

MS. DEATON: A quick question. On the Deepwater Longline Survey, you showed there were four industry members, and does that mean like there's just four commercial fishermen, like maybe one per state, and is every state covered, and Florida is so big, and is it like just the east coast or the Keys or both, and I just am curious.

MR. SPANIK: They are -- It's a bid process, and so it has worked out, and so we only have these four regions, and it is, right now, so that each one of those guys kind of -- Their homeport is in the area that they'll sample, and, you know, they're not going to run from Florida up and sample North Carolina kind of thing, and so this is who we have right now. It's Dewey, Steve Shelley, Jim and Mike Freeman down in -- Jim and Mike and Vincent are down kind of in Florida, and Steve and Dewey are our more northerly partners right now, but it's a bid process, and it opens up every year, that kind of thing.

MS. COOKSEY: Okay. Wilson.

DR. LANEY: Thank you, and Kevin already said it, but I will just reiterate that these sorts of long-term datasets are invaluable, in terms of assessing not only population trends, but also under the umbrella of climate change now, and they're critical for us to be able to detect differences that occur through time, and I think Joel is also the custodian of another similar longline survey for sharks that Dr. Frank Schwartz started years and years ago, and that one has been going on for decades, I believe, Joel, and isn't that correct, I think?

MR. FODRIE: Fifty-one years.

DR. LANEY: Yes, and so that's an even longer time series, and there just isn't any substitute for these things, and so it's incumbent upon us, I think, as AP members, especially those of us that are free to contact congressional representatives and advocate for adequate funding for these surveys, and I know that SEAMAP has had its ups and downs, and I think MARMAP maybe as well, and so, in the periods of time when the funding for these has diminished, they have had to cut back things, like Kevin alluded to, and, you know, the diet studies got cut back for a while, and all of those sorts of sources of data are critical for those Ecopath models that are so very important in helping us to understand and gain insight into the dynamics of these systems, which are incredibly complex.

I will put my two-cents' worth in of appreciation for Dewey Hemilright as well, and Dewey has been involved in cooperative research for a long time, and I know at least decades, because, during the cooperative winter tagging cruises, when we were tagging and putting acoustic transmitters in spiny dogfish, Dewey was also out there working, at the same time, with Dr. Roger Willison at East Carolina, doing cooperative research, and so he's been engaged in it a long time, and we appreciate those fishermen who are willing to collaborate like that.

MR. PUGLIESE: Kevin, I think one really important aspect too is, specific to some of the discussions we've had with this panel over the last couple of days, is the ability of these different things to be able to give us even more detailed information at different life stages, and I think -- I know some of the efforts are starting to try to get -- That's been one frustration, as the chair on SEAMAP, is not having resources to get to the point where we are starting to look at things such as, you know, early life history of gag and different things, but I think some of the efforts now are being -- At least at the level where diet has been restored, and you're beginning to do that, and my question really was opportunities to maybe go beyond that, maybe in-between stages, different things that will help us, because the directives under EFH are to look at, you know, all the species use by life stage or the complexity that, you know, like Wilson had said, is the complexity of the different systems, and so not just the managed species, but everything that connects into those.

MR. SPANIK: We actually got a little bit of money last year to start a development of a juvenile survey, for indices of abundance for juvenile species, and so some of them are encountered with the trawl surveys, and so these surveys are kind of all connected, and we'll get juvenile snappers and groupers in the inshore, over sand bottom, and we really just don't get them in enough numbers for really reliable indices right now, and so we're trying to use different gears and kind of scope out areas where we think that we can really find the juveniles more reliably, and it's really kind of under development right now, and we're just not there yet.

You mentioned gag, and we're looking -- They're all the creeks right now, and, surprisingly, if you look on social media and things like that, you've seen -- It's been a banner year for juvenile gag grouper, and, if anybody follows any, you know, fishing pages or anything like that, everybody is taking pictures with them this big in the creeks, and so we are looking into them right now, and I mentioned one of the things that we look at is like stable isotopes, and we're using eye lenses right now, and so we have sampled some of the gag in the creeks this year, and we've kind of taken advantage of that abundance, to try and get some more information on how they're using habitat, how long they're staying in the estuaries, and are they overwintering or not before they're moving off, and so that is a directed study that we're trying to expand right now.

MS. COOKSEY: That's really exciting news, to hear that, and that's something that I could definitely get behind, throwing more support behind those kind of efforts, because right there is the intersection where we see most of our adverse impacts occurring, and continued strengthening of that connection, through science, especially as we go through the process, over the next couple of years, of reviewing the EFH designations, could be really important.

MR. SPANIK: Yes, and we're just really trying to figure out where to find them.

MR. PUGLIESE: Well, and that's kind of where I was going from one of the things is, from your perspective -- Because one of the unique aspects of what we have in the Southeast right now is that all of these are connected, and, as we get further into it, as Michelle gets in there, of how we

have the opportunity to really look at these in combination now, which is very unique for, you know, any of us, and the thing that I've always pushed is, you know, we're kind of left in the background, in some of the other regions, where some of the technology is available, and, in your view, what are some of the other types of things that, if the resources were there, or the opportunities, either through any of the different partners that have different types of things that could be employed in here, because that's always the balance of, you know, not to, you know, affect the actual operations, to make sure those are retained, but then, also, what else can be potentially added in, everything from, you know, things that are out there now, like eDNA, and we had always talked about the opportunities, and we actually someone come in and show us an AUV that could be potentially deployed and map while you're doing other work.

Things that, if you had the opportunity, with all the kind of different array of things, that maybe we could work with some of the different partners, or, you know, go through NOAA and some of the resources that are coming down for climate, for different things, that we really need to have that would enhance the operations of any of these different things.

MR. SPANIK: A lot is being done with like ROVs and towable video systems and things like that for red snapper, and I think one of the big issues is just looking at kind of unconsolidated bottom, where you're not quite sure if, you know, species like red snapper, or these juveniles, and we just don't really have a great handle on exactly where they are right now, and so just to really locate them.

eDNA would be great, and we've started doing a little bit of that. Just a lot of these things are, you know, resource and time-intensive, and we just don't really have a dedicated source of funding to look at any of those sort of things right now. I think the video is really helpful, and we went and just kind of looked for nearshore -- Like we pulled out a map of wrecks and things like that that were close by, to look for juvenile snapper and grouper, and so we're putting cameras down in those areas, to see if we can come across more suitable habitat for them, and we just really have to kind of identify what that habitat is, and then, with all the work that's been done with mapping, and it's probably been more offshore, right, and I'm not sure how to get that equipment in the shallower waters, really, where we would be able to kind of extrapolate it, like you had mentioned, like a productivity model of available habitat for that life stage.

MR. PUGLIESE: One last thing, and I think it's going to be also really important to look at the way the information is collected, because there's been also discussions on opportunities to look at where you have core distribution habitats, but then building an understanding of foraging areas and different things where you might be able to visably see them on non-hardbottom, where it's part of -- You know, other than just the hardbottom system, you have additional components that are foraging use areas, and so your footprint of what would be functional essential fish habitat may be larger, in different places, and so information coming out of these different surveys may enhance that discussion, or at least understanding of how we maybe need to look at a broader sense, as the group starts looking into EFH.

MS. COOKSEY: All right, and I would highlight the importance of a better understanding of the shallower sand habitats for juvenile habitat, because, again, that's where we see the intersection of our adverse impacts, with the continued pressures for sandmining, for beach renourishment, ever expanding, the desire to mine our ebb tidal deltas of sand, as well as further offshore areas, and we alluded to this yesterday, during one of our discussions, but there is actually increased interest in

mining nearshore sand deposits for heavy metals that are important for the electronics industries, and that's now being discussed slightly, and so understanding the habitats better, and the critical nature of those habitats, for our juvenile species will be huge, when we have that intersection of impact and habitat.

MR. PUGLIESE: Absolutely.

MS. COOKSEY: Laurent.

DR. CHERUBIN: Kevin, a quick question, and so why is there no survey in the Keys?

MR. SPANIK: I think it's just outside of our management jurisdiction, pretty much, right, and so there may be, but it's just not one that -- I think there is.

MR. PUGLIESE: Yes, and, I mean, the state and the Florida Keys Sanctuary are the ones that are really monitoring and connecting, because of the tropical nature of the components within the inshore and within the sanctuary boundaries and the state boundaries, and so most of it has been traditionally dealt with in that location, but, you know, that's kind of the way this evolved, plus, if you go back to the origins of SEAMAP, really, it truncated earlier to the north, and I think Chip is going to come up and touch on exactly maybe what -- Or highlight something.

DR. COLLIER: Down in the Keys, there is issues with using traps, those large traps potentially impacting the coral, and so there is a dive survey that's being done down there, and there's a -- It's a cooperative project between Florida, the Florida Keys, and NOAA, and all those groups are working on it, and that was recently expanded to go to slightly deeper water and trying to get a little bit better index of abundance for some of those species that might not just be in the typical shallow-water depths that are in the fore reefs, and so it's now being expanded out into the middle reefs, to try to get it, and the other issue is sampling down there is just -- As you know, the current is very strong, and so even longline gear, that works very well in the Gulf of Mexico, doesn't work as well in the South Atlantic, where we have a strong current, and so things have to be modified, depending on which area that you're in.

DR. CHERUBIN: Thank you for that. One more question, and some of the species that you caught on the deep longline survey -- I didn't see greater amberjack, and it's one of the species that is widely distributed from the Gulf of Mexico around the Florida peninsula and all the way --

MR. SPANIK: Greater amberjack is here.

DR. CHERUBIN: Because that's a species found in the Keys as well, and so, if you want to look at population recruitment, or, you know, spawning aggregations in those kind of areas that are important for downstream populations, if it's not counted, I wonder if that is biasing, maybe, the interpreting the trends that you see in the data.

MR. SPANIK: They're on the lower edge of what they think would be appropriate for an index on that survey, but we do encounter them a lot in the Reef Fish Survey as well, and they're certainly on the -- They don't trap quite as well, but we do see them on the videos quite a bit, and we encounter them with hook-and-line gear, when we're doing some ancillary studies.

MS. COOKSEY: Okay. Thank you so much for that, Kevin, and I think we're ready for Tracey now.

MR. SPANIK: This is Michelle Willis.

MR. PUGLIESE: Yes, it's Michelle, and you can introduce her.

MS. WILLIS: Hi, everyone. I am Michelle Willis, and I'm here for Tracey Smart, and she wasn't able to be here today, but I am happy to be here and tell you a little bit about where you can find the data that Kevin just described to you. He went over the surveys that are included, and these are the SEAMAP South Atlantic surveys, and I will go ahead and point out that the SADLs data is not part of the data portal that I'm about to share with you, but the other four surveys are.

We have the Coastal Trawl Survey and the Pamlico Sound Survey, and those were two of the original South Atlantic, SEAMAP South Atlantic, funded surveys, and the Coastal Longline Survey and the Reef Fish Survey began receiving supplemental funding in 2008. At the same time, there was a push for funding for data management, and so, since a lot of these surveys are operated out of SC DNR, the data management component was shifted to the DNR.

These are some of the products, like Kevin mentioned, that you can find in our online portal. We have data for abundance and biomass, and you can do multispecies downloads, length frequency data, which is definitely going to be your biggest data download, life history, which includes age and reproduction, lengths and weights for the individual species, and another component that is not mentioned here, but that was added a few years ago, is hydrocast data, and so we do have that available currently for the Coastal Trawl Survey and the Reef Fish Survey, and that includes all downcast data. In the new data system, we hope to include more data tables, including tagging, sea turtles, and diet study information.

This is a screenshot of what our current online database looks like, and it's our first iteration, and it was developed and is currently maintained by the SC DNR IT department, and you can find data for all of the surveys that are included in the SEAMAP South Atlantic. When it was developed, we created one shared structure, and so all of the different surveys work together to create one structure that can be downloaded by users, and that just makes it easier to query across the different surveys.

There's also an administrator interface, which is used by the SC DNR data management team, and so, through that interface, we're able to upload new data, and we're able to delete data, if there are, you know, any corrections that need to be made, add code tables, and then, as far as the frontend, the user-driven end, users are able to select by survey and by type of data that they would like to view. There are several different criteria options, also including year, state, GPS range, things like that.

Metadata is available on seamap.org, and I should have mentioned that is also where the link is to this online database, and so, if you go to seamap.org, you can find the link to the database and then also find metadata about all of the different surveys, and then, through this, we also have the option for user tracking, and so, as a new user, you would register, and the inputs required are just name, affiliation, and contact information.

This is the future, where we are heading with the online database, and it's currently under development. This is a portal that is operated through SECOORA, which is the Southeast Coastal Ocean Observing Regional Association, and SECOORA is one of eleven IOOS systems, which is the Integrated Ocean Observing System, which is led by NOAA, and so it's a great opportunity for us. SECOORA also has dedicated contracted software and programmers, and so that's Axiom Data Science, and they work directly with SECOORA. In this future system, all of the SEAMAP South Atlantic survey data will be available, and, similar to the old system, we are going to have an administrator interface, where administrators can make changes, as needed. Users will still be able to have user-driven queries and select the survey and data that you would like to download an have different criteria options for the type of data that you want.

One really great thing about the SECOORA data portal is all of the historical data that currently exists there, and so, with this new system, we are excited about the opportunity to have SEAMAP SA biological data and the ability to compare across all of the physical data that SECOORA already offers.

Another thing that's going to be a little bit different with this new database is that we are going to have a zipped package for users, and so, currently, if you go to the online data portal, through the SC DNR website, or, excuse me, not the website, but through that online system, when you select your data and download it, you're going to get a CSV file, and, in this future data portal, you're also going to get your CSV file, after you select whatever it is that you would like to download, but, in addition to that, we're going to package it with the metadata about the individual survey that you have selected, and then, again, we're going to have the user tracking option with this data portal.

The decision to migrate was for a number of reasons. Firstly, the current system only offers data downloads, and that's all it's really going to have the capability to offer, and a really great thing with the SECOORA system is that it already has some of these built-in tools for summarization, visualization, and mapping, in addition to the ability to download raw data, and so, if you look at this image here, this user selected biological data that included total count and weight, aggregate weight, but then they were also able to select a time series of surface temperature, bottom temperature, and this is just one example of some of the things that users can do through this portal.

Going back to how we get the data into these databases, each survey maintains their data, and they provide the data to the SEAMAP data management team at the SC DNR annually, and it usually happens in the spring, and most surveys provide data through the most recent year of sampling, and some surveys, which include the South Carolina portion of the longline survey, and then the Reef Fish Survey, hold data back for a couple of years, and there's a little bit of a gap, and that's primarily to allow in-house staff the chance to analyze, and potentially publish, the data that they collected, and so, currently, for the Coastal Trawl Survey and the Pamlico Sound and the Longline Surveys, you can get data through 2021, with the exception of South Carolina's longline survey, and I think they're through 2019, currently, and then the Reef Fish Survey is through 2019.

The SC DNR does all of the checks for formatting, and that includes really minor things, like capitalization, that can cause data import to halt, making sure all the codes are correct and up-to-date, and then the data manager for South Carolina DNR uploads and imports that into the online system, which is a very labor-intensive and time-intensive process, and it uses an incredible

amount of bandwidth, and so, a lot of times, those importations take place overnight, when no one else is using the system.

The SC DNR data management team also is responsible for deleting and replacing as surveys find corrections, or things like that, and then, as far as metadata, each survey provides updates, as needed, to the SC DNR and the ASMFC for update to their website, and then that information, like I said, is going to be part of the download package in the future, through the SECOORA system.

Some of the challenges that we face in data management is, once you put your data online and make it publicly accessible, you lose ownership and oversight of that data, and that is certainly challenging. We provide the metadata, like I said, on the website, but we can't make people read it. We describe best practices for how to handle the data and interpret the data, but, again, we can't make people read it, and then, also, we provide citation examples for how we would like to be cited and have our funding sources cited, but, unfortunately, intentionally or not, the surveys, and the funding sources, are not always cited, and so that is certainly challenging.

Then another issue that we've come across is the demand for programmers and the difficulty in retaining programmers, and so we had that issue, at the SC DNR, with the current system, and then I know that Axiom Data Science, who is the contractor for SECOORA, has had the same struggles, and so, you know, when you lose a programmer that is intimately involved with a build-out, and then you have to kind of start over, with new programmers, and teach them the biological dataset all over, it just takes a lot of time, and so that is all that I have for you today, and does anyone have any questions?

MS. COOKSEY: Wilson.

DR. LANEY: Sam was just asking me about the Gulf SEAMAP, Michelle, and is that available through the same portal, or do they have a different portal?

MS. WILLIS: They have a different portal, and what is the name of it?

MR. PUGLIESE: That goes through, I think, the Gulf States Marine Fisheries Commission, is the connection through to the SEAMAP in the Gulf of Mexico.

MS. WILLIS: So this portal would just be the four South Atlantic surveys.

MR. PUGLIESE: This is more of a comment, but I really appreciate Michelle bringing this forward, because it's really at a critical time that this information is moving, and the challenge is to get it online, and we've been anticipating, hoping, that it was going to be even more advanced, but I think the more unique situation is the fact that all of these are combined, and you can get this to this information in one area, and, now, the opportunity that, as it involves, and you were hoping to talk about more of maybe that connectivity between the oceanographic and --

But we need to get to those next steps, and so the challenges of programmers, and those have all been a real hurdle to get to, but I think it's going to really provide some real capability that enhances a lot of our activities that we've already discussed on essential habitat, on species connectivity, on all these different things that are going to be real priorities for the long-term habitat conservation and the development of policies and development of refined information on

species information, and so I think it's really timely that we're getting to this point, especially with the climate side of things.

I guess the question I have is discussions where it is now on the types of other things that potentially could be developed as we do that transition to getting everything really operational, and then also the connectivity with the oceanographic, and do you have any thoughts about maybe other things that are being thought about in the background, and I know we've talked about kind of staging those, and, of course, those are going to take additional resources, additional programming, but I think there's some things that I know that have been discussed that should be pretty exciting as we move further down to the operationalization of this.

MS. WILLIS: The great thing about this buildout is SECOORA, historically, had not had biological data in their portal, and it was mostly physical data, and I think they did have some marine mammal data as well, but, now that we have this system set up, it makes it a lot easier for other surveys to move data in, should they choose to, but, specific to the South Atlantic, I think, particularly for this group, one thing that will be really useful, whenever we can get it online, is the diet data, and Kevin Spanik is your guy for that, but we're really looking forward to making that available and seeing how it can be utilized, but then, again, like you mentioned, the opportunity to be able to compare datasets.

That example that I showed you, this is only with South Atlantic data, and it's in a test portal that we're testing in right now, but this can be done with hydrographic data and other data, you know, many, many years back, and so we're looking forward to being able to utilize existing SECOORA data and bringing the biological data in with it.

MS. COOKSEY: Casey Knight, go ahead.

MS. KNIGHT: This is more of a comment than a question, but, just following-up, I also am happy to see the progress that's been going on here. I was in the SEAMAP position in North Carolina, about, gosh, close to ten years ago now, and so it's great to see this continuing, and I think, yes, that visualization component of it will be very useful, going forward, and then I can also sympathize with the struggles, knowing what you all were up against, and then, also, in my current position, we're migrating and upgrading our in-house database, and so the struggles with programmers and getting competent help there is across-the-board, and so good luck. Best wishes.

MS. WILLIS: Thank you.

MS. COOKSEY: Okay. Well, thank you so much for that, Michelle, and I think that that serves as a great start to a conversation that we're going to have now with the panel about council website and tools. Roger, did you want to kick-off that discussion?

MR. PUGLIESE: This was going to be kind of just, again, another little bit of a springboard into what's going to be coming down the line right now, and the council -- As I mentioned, we're delayed in moving forward with the blueprint, and part of the discussion under the blueprint was he different online capabilities and tools and different things, and I think what's going to happen, right now, is we have put in an entire new website, if individuals haven't made it to the whole thing, which I'm sure everybody has touched on different aspects of it, and we have just a baseline for the habitat section, and that has some of the core areas, in terms of the policies, the user guide,

and a number of different things, and what is not on right now is the -- What was the FEP II and associated materials, the dashboard that was developed, and there is discussions on how we integrate habitat and ecosystem as we move forward.

The idea, in the past, was that dashboard provided not only the information the council had, but also linkages to our state partners, to state plans, to other councils' information, policies, and it really set forth all the pieces in our region, because even the scope of what we were working on, so that you would have quick access to a lot of different aspects of information on habitat and ecosystems that were really affecting our species and our habitats, and so we're in the process of figuring out what is the best way to represent and provide that.

We also had the tools that had linkages directly to the distributions of habitat, the multiple GIS servers for essential fish habitat, for artificial reefs, for managed areas, and all those different ones were part of the tool packages that we are partnering with FWRI to serve online, and the atlas that kind of combined all those, but also had linkages to many other information sources, and so all of those are intended to be revisited, to be able to bring back in there, and I guess what we wanted to do is at least touch on the value of having that type of a scope of information on there, and then, as we move forward, we can have more, I guess, significant discussions, as the first iteration comes online, when we have our next meeting, but I would open that up for just general discussions on the importance of having that type of available information.

MS. COOKSEY: I wanted to kind of start out the discussion by the fact that, when Roger and I began planning for this meeting, I was bringing up with him the fact that, as part of the council redesign of the website, I had noticed that we had lost all of the FEP II dashboard materials that had been present and the fact that I had become aware, as part of my day job, with working with applicants interested in activities related to EFH impacts, and I had routinely been sending them to the council website, to gain access not only to all of our federal sources of information, but, again, to gain links to the broader wealth of information that the states could have to offer, and I started having applicants coming back to me and saying, well, I couldn't find anything. I couldn't find what you had said was available, and so I'm quite actively hoping that we can begin the process of getting that information back onto the council site, so that, at least for folks within the consulting community, that that can again serve as a resource, as we interact with applicants. Any other -- I saw Anne nodding her head.

MS. DEATON: I agree. I mean, it was helpful to see that and have a place to go, and I would just keep it, you know, simple and easy to use, because technology keeps changing, and so, anyway, it's good to have something there.

MR. PUGLIESE: What I can do is -- I planned on it, but let me open up at least the link, so that everybody can see the present habitat information, just so that individuals can see where we are, and then I will touch on the historic and just highlight, you know, some of the things that were built.

This is the present jump to the habitat section, and it does provide access to the original information on the Comprehensive EFH Amendment, which lays out the information on the designations for EFH, and it does have the mandates, and it identifies one of the more significant things that I think really is going to evolve as we move forward, especially as we refine this information for EFH and designations, et cetera. The user guide has become a really significant coordinated tool between

us and NOAA Fisheries and then with all the partners in the region. This is going to be something that will continue to evolve as this group provides additional guidance on it.

You also do have access to the baseline, and it doesn't access to the full atlas, but it does have some of like the EFH designations that you can go through and still compile and be able to access and view those.

Managed areas are connected into a new managed area section, and we had other information that's also available, but it does cover the areas that we have information on, management plans for, and connections with other regions, and so this is existing in the system. All the policy statements are provided, and you can have access to those right now, and so this is really kind of the bare-bones version of the habitat side of things.

The other thing that I can at least touch on is just, originally -- This at least gives you the scope of the perspective, and the original dashboard -- This is just like the outline of the dashboard, and these links don't -- A lot of this thing, because of the transition, are just not functional, and so I really didn't want to provide anything that was not a utility thing at this time, but it laid out like the fishery plans, the structure, and that is going to evolve, but what I wanted to do is really highlight what it did connect to and the types of things where you had connections to the different climate and food web linkages, the implementation plan, accessing information on ecosystem modeling, which has a historic baseline, which we would need to update and expand.

Then information on links to partners and on both the blueprint -- This is the LCC, but this really gets into maybe the opportunity to expand the SECAS discussions, but also NOAA Fisheries mandates, under the roadmap for ecosystem management, their policies, which this would expand significantly, the climate links and the climate areas, and how we deal with that component of it I think is going to be really important to build on national things, but now all the effort that we're doing under the climate scenario planning and other activities with the climate vulnerability assessment and how that links into our essential fish habitat information systems.

The structure of the plan itself, which has updated sections that were provided through this update for FEP II, but it had linkages back to the original FEP I, because some of those areas weren't updated at that time, and I think, as we move forward, this is the opportunity to kind of shore those up, to make sure that they are there, but then it also gets into connectivity with our partners, and so, you know, how you have the state -- Like North Carolina's habitat protection plan, and you have accessibility on there, and so it gets to, okay, if you designated those as EFH HAPCs at the state level, you can go immediately to the state information, the support information, the mapping information, and all the details, and the same with the state wildlife action plans, because some of those have very specific directives, and it really links to a lot of those designations.

The council has made it very clear, in the past, that a lot of these state designations, as they're made, become essential fish habitat habitat areas of particular concern, which is highlighted very effectively in the user guide, but this actually gives you the direct links.

MS. COOKSEY: I want to bring everyone back to the first day, when we were talking about, under Magnuson-Stevens, we require the five-year reviews of EFH designations and kind of what we consider our first review, was the development of the user guide, and our second review was the implementation of this FEP II plan in 2019, and so, in essence, our second five-year review is

no longer available for applicants and others interested in EFH, because all of this has been removed, and highlighting the importance of the state linkages, because those are a critical part of our EFH designations, and so that's another reason that we're hoping to get this material available online again soon.

MR. PUGLIESE: Yes, and it's not as if we're trying to -- It's just trying to get the core structure of the document, because we want to make sure that we spend enough time to make this effective, because the iteration and the layout here isn't necessarily the most effective, and I think we need to get some, you know, minds that understand web capabilities, in order to refine this, to make it as useful as possible, but I think doing this at least highlights all the different aspects of it, and there is more than we probably -- I think that's the key, is go beyond this, to be able to make sure that other things here, that have evolved since the time we talked about it, which are a lot with ecosystem, with climate, with all these other activities, and that will be important to include, especially other state directives, and if they have climate plans, and, I mean, all these types of things, I think there's an opportunity to make sure that those are a connection.

It does go then into the state habitat plans, and this is where -- I think one of the key things before too was to keep -- Where we have the information for say the habitat distributions and species and whatever linkages in our original documentations, these types of linkages, back to the individual state reviews of those species, those habitats and everything, are the quick and fast way to go to the most recent information that supports that, and so that's what these are.

Then it does get into the regional side, and Wilson has talked about the opportunity to build on things that ASMFC is doing and very specific habitat policies on habitat distributions that relate to species that are either prey or used by the councils, and so it was important, and even going all the way back to one of the other groups that we just really haven't has as much time to work with, the Southeast Aquatic Habitat Plan and that documentation.

We worked with that, and are a signatory to that, and so getting back up online, but then, under managed species, we had good, basic, simple summaries, and I think we can have crosswalks back with a lot that Chip has been working on, to connect that information directly into our species backup information on managed species and on how that connects into our EFH, and then the other thing I think that was also really unique is having that linkage, and there's a lot of other species in our region that are being managed, but not by the council, and you saw that one directive under EFH is to understand, you know, species in your region that may be there, and here's a quick way to get to everything from Atlantic States Marine Fisheries Commission, the Mid-Atlantic Council, the New England Council, and the National Marine Fisheries Service, when they come to highly migratory and protected resources.

Then it gets into -- This is where we're going to have some discussion in-house, the human dimensions, and a lot was tied to our existing FMPs, but I think there's been a lot that's been done, especially with performance reports that are being done for every fishery by the advisory panels, and snapshots of those, and I think our social scientists have already indicated those would be critical ones, and they're already available through our council system, but having that human dimension, whether it be just a crosswalk or a connection in here, is going to be important.

Then to the full EFH, where you have the user guide, and you have the linkages back to -- We are, again, unique in our region, because we have two fishery management plans that are habitat-based

management plans, and that's why they're called the Coral, Coral Reef, and Live Hardbottom Habitat FMP, and we have the Pelagic Sargassum Habitat FMP, and so linkages back to those was really important, to make sure that we understand that it's part of this bigger, broader essential fish habitat activity, and, of course, the policy statements.

Then spatial representations, going back to the digital dashboard and the atlas areas, and, truthfully, I think -- Let's see, real quick. That may be one that still is actually the original wording, and these are the linkages that we dealt with on that have links back to information systems, to the dashboards, where it discusses everything from ACCSP, the actual catch information, translated to spatial representations, the surveys, the SEAMAP information, and this has got a lot to do with that connection to what Kevin and Michelle were presenting, those linkages and connections, and then the opportunities to look at the specific services that are for essential habitat that have to do with our EFH and designation, the deepwater coral HAPCs, oculina information, different aspects, and so, whether it's crosswalks, as I said, with other aspects, as we evolve, or it becomes folded under here, but this did provide that direct opportunity to see this.

Moving into threats information, I think those are some things that we need to kind of touch back and revisit all the FMPs, just to crosswalk how much has been already done, and I think we did that in the blueprint, and that was one of the things -- Some of these things, I think, have linkages back to what was being trying to look at the bigger picture and be able to look, by FMP, are there things that are still issues in the fisheries.

Then the habitat was going to the specific sections, and, again, these are some things that can evolve, but then managed areas, in terms of connections, and we do have the new managed areas section, and so maybe a crosswalk that expands that with habitat-related things on this side, and that doesn't go beyond that, but then research and monitoring was pretty critical, because we can walk to the existing councils' research and monitoring plans, the system management plans, deepwater coral monitoring plan, and then mapping strategies that have been -- There was the discussion to do that, and then hopefully we can pick that up again, with regard to how we look at the different tiers and depths, and we started that again, with partnership with FWRI and the existing information from SEAMAP, MARMAP, and SEFIS, to begin to do that.

Then tools, and that got to, you know, different things, such as the dashboard and the atlas and different applications. Then the user guide, and I think one of the things that I will say, right off the bat, that was a shortfall of this entire effort was the opportunity to highlight each one of those and give you a very concise, and I think it gets right to it, and Anne had said a very concise review of what is there, and so, if you go to that page, it kind of lays it out, who can use these different things, and we just never got a chance to kind of give that good kind of a guide.

The components, as they come in, I think it's going to be important to have that kind of frontend, saying this is the types of information here, and the potential, and so you understand how the layout would ultimately go, and so that at least gives you a snapshot of the kind of broad cast we were trying to make with the dashboard, to make sure that -- All of those aspects that I've highlighted can be expanded or refined, or other areas brought in, as we move forward, and so this was to kind of give a teaser on where we were, where we can go, and then ideas and thoughts about how to evolve as we do go into this, and that's appreciated.

MS. COOKSEY: I think this is, you know, an important discussion, because, you know, obviously, there are ways that we can continue to improve the dashboard and see how we integrate it into the council website, but, right now, we just lost all of it, or the majority of it, and so, Wilson.

DR. LANEY: Those of you who know me well know that I would advocate for putting it all back, of course, and I can't tell you how many times I have been at public hearings, or other forums, where someone will say, oh, you know, the council just does everything in secret, and I can't -- You know, I don't know what's going on, and my first question is when was the last time you visited the council website, because everything was historically there, and, you know, much of the materials from the meetings are still accessible, I think, for the most part, but it was a tremendously important resource. One of the things, Roger, that I didn't hear you mention, and I may have missed it, because I wasn't looking at the screen directly, but the Ecospecies database that we put together for the fish themselves, for the species themselves, is that -- That is no longer accessible either, is it, or is it?

MR. PUGLIESE: I think the linkages back in there was to where we had compiled species information by life stage in advance of doing the fine diet composition and everything, and so, yes, the bottom line is the Ecopath component, or the ecosystem modeling component, stopped before that, because this was --

It never did get updated to get to the most recent types of things, and so I think that's something that we're going to have to work, because, you know, that's evolving into a lot of other directions, and I think that concept of actually diet composition getting into the overall system, for SEAMAP overall, fishery-independent, is going to be really an important thing to do, but having the linkages, so that you can access this information and highlight it and present like where we are with that, is going to be important, because a lot has evolved, and it's going to support some of the discussions as we go into management strategy evaluation, that Chip is heavily involved in, into the future. I think there is critical need to have some of those types of linkages and expand that information as we go in, and so, yes, it's part of this whole thing, but there's just a lot there.

DR. LANEY: Again, it was just an invaluable resource, the way it was set up, and hopefully the AP can be involved in the dialogue, as the council considers, you know, what components to make accessible once again.

MR. PUGLIESE: I will highlight that Chip is working directly on fishery -- It's the SAFE reports that were supposed to be done through NOAA, technically, but the idea is that it has snapshots of all of the different fisheries in our region, and it gives you kind of very concise presentations of information on biology and on the whole nine yards, and so status assessments and all that, and so there's that effort, and so, again, opportunities for crosswalk with the information on what we need into here, or direct linkages to the full package, I think is going to be -- Again, we don't have to reinvent the wheel, if some of that is already being compiled, but, also, where there's partners that can help, I think that's where it may be appreciated, to get other information that can enhance that, and so, again, the refinement of the overall system I think is going to help, and, again, it will be a combination of crosswalks and new information.

MS. COOKSEY: Okay. I'm going to recognize Paula, but then we're going to have to cut the conversation short, because we're going to need to take a fifteen-minute break, to allow people to go to their rooms and get checked-out and all of that, and so, Paula, and then we'll take a break.

MS. KEENER: Thank you, Madam Chairman, and so, Roger, in thinking forward, about the revision of the current EFH policy that we addressed yesterday, how much -- I mean, this is a tremendous amount of information, and how much of this -- I mean, is it safe to assume, going forward, that the policy, as it exists right now, incorporates all of this? I mean, just a short answer, yes or no.

MR. PUGLIESE: Yes. I will give you the short answer on that, and I think the intent is that, you know, if you create the policies, and then people are using those, they will look to the different places, the user guide and different things, that highlight what some of these things -- You know, the refinement of the other information, on threats and things like that, and maybe there's a crosswalk that we can talk about, refining how the policies highlight that, and then maybe something that maybe parallels that, because, right now, it's kind of on its own.

I mean, there's things that I think that can -- So the answer is yes, but I think there's opportunities to maybe refine the way that they even be operationalized, because I think there's a real interest of the council to make sure that these get pushed to the front, and so that's why those became some of the most important ones on the frontend, because, you know, those are being funneled out to our partners, to NOAA, to everybody else, and so yes. Sorry.

MS. KEENER: So are you the point person that would have that intel to tell us this needs to come forward, et cetera?

MR. PUGLIESE: Yes, and I think, like I said, whatever is going to help the overall community too, and translating what the directive to the council for EFH is, and to operationalizing review and different things like that, is going to be extremely useful, because I think that's the whole intent of why some of these have evolved to where they are, and so yes.

MS. COOKSEY: Okay. Thanks, all. We're going to take a break until 11:00.

MR. PUGLIESE: Yes, and we'll come back with Beth Dieveney on the Florida Keys Sanctuary, and so that's the next step.

(Whereupon, a recess was taken.)

MS. COOKSEY: Okay, and so I believe we are ready to begin the last part of this morning's session, where we're going to be hearing from Beth Dieveney on the Florida Keys National Marine Sanctuary Restoration Blueprint. Thank you, Beth.

MS. DIEVENEY: Thank you, and good morning, and I'm sorry that we could not be there in-person, but, really, we're pleased with the opportunity to give this presentation to you, and, given that it's been a few years, and based on the introductions at the beginning of this call, I may give a little bit more context and background, as there may be some new members who are less than familiar with this current project, and even potentially with the Florida Keys National Marine Sanctuary.

Today, this morning, I will give just a little bit of background on why we created the restoration blueprint and the current status of this project. We're at the proposed rule step of this project, and,

specific to that, I will focus on the elements that the South Atlantic Fishery Management Council commented on on the draft environmental impact statement back in 2019, but some of those elements include the overall sanctuary boundary, sanctuary-wide regulations that apply wherever you are within the sanctuary, and then marine zones and associated regulations.

Then a little bit of the socioeconomic analysis that was conducted and the management plan, and I will also highlight, very quickly, the public outreach products and tools that are still on our website, and will remain on our website, just to note that the public comment period, the official public comment period, did close on October 26. We got over 4,000 public comments, and the majority of those are campaign and sign-on letters, but we did get about almost 500 individual unique comment letters, and we have provided a late comment submission opportunity for the South Atlantic and Gulf of Mexico Fishery Management Councils, and so you still have some time.

Just a little bit of background of the Florida Keys National Marine Sanctuary and the Florida Keys environment is that it, as you may likely know, a very well visited environment, and about $2.9 billion in tourism spending, and this is from 2021 and 2019 up, and we equate 44 percent of jobs in the county, and that's the highest marine-related jobs of the counties through the State of Florida, and it also equates to 60 percent of the Monroe County economy, and so the marine environment is incredibly important to the economy in the Florida Keys, and a healthy marine environment is the backbone of that economy.

This slide just provides a little bit more specifics of the various sectors of tourism and use in the Florida Keys tourism, boating, diving and snorkeling, commercial fishing, and recreational fishing, and so it's also multiuse and multiple perspectives of the value of this ecosystem to the local community as well as the visitors.

I will touch on the natural resources in the Florida Keys. As many of you know, these resources are at risk and have been impacted by many different factors, both local, regional, and global, and, back in 2011, we released our first conditions report, and these are conditions reports that each National Marine Sanctuary does, and it's based around seventeen questions, focused on living marine resources, habitat, water quality, and maritime resources, and, generally, evaluating the condition of those resources, the threats to those resources, and if those resources are improving or declining. The resources within the Florida Keys, at this time, were generally fair to poor and generally in decline, and this was in 2011.

Since that time, this slide shows, since the time of that conditions report, that the Florida Keys environment has been impacted by many, as I noted, local, regional, and global perturbations, and so this just gives you a sense of the impacts that are continuing to affect the Florida Keys environment, but what we, at the Florida Keys National Marine Sanctuary, and with our partners, really focus on is how we can affect local action, through our regulations, through our management plan, through engaging with partners in the community, in education, outreach, restoration, our mooring buoy program, marine debris cleanups, educating the community about our environment, the regulations, the marine zones, and what people can do to be better stewards of this environment.

Now I will jump into the proposed rulemaking that is out for review, and public comment, as I noted, closed on October 26, but the councils have an opportunity to continue to review and craft comments for us for consideration.

The National Marine Sanctuary was designated in 1990, and the first suite of regulations, marine zones, and management plan were put in place in 1997, and, while there have been a few updates between 1997 and now, this is really the first comprehensive review of the management plan, the boundary, regulations, and marine zones.

The image on this slide is the 2019 draft environmental impact statement, which included four alternatives, including status quo, and we released that in 2019, and we had five months of public comment on that, including from our state partners, as well as the fishery management councils, and the comments on that really informed what is out now for additional comment in the proposed rule.

We have also updated the socioeconomic analysis and used updated environmental data, as we made decisions for what we would put out for the proposed rule, and, finally, this is maybe a little bit nuanced, but, as I noted, there are four alternatives in the draft environmental impact statement, and the proposed rule actually pulls from all of those alternatives, and so it's not one specific alternative from the DEIS, but rather a compilation of those, to propose the best possible alternative for modifying our regulations that both protect the marine resources as well as well as allows the greatest level of access for public-owned resources. Finally, I will talk -- At the end of the presentation, I will touch on our management plan, which is the non-regulatory activities, and that is a separate document.

Specifically to the South Atlantic Fishery Management letter, I have highlighted, on this, those that the council commented that are not carried forward and included in the rule, and so, for example, in the draft rule, we had a proposal for the Key Largo management area, which is a very large marine zone in the Upper Keys, and we had proposed that as a no-anchor zone, and that is not included in the proposed rule. We also included three additional large contiguous areas, shoreline to deep reef, and those are not included in the proposed rule.

This slide, however, highlights those items that were included in the South Atlantic Fishery Management comment letter that are included, in some fashion, in the proposed rule, and I -- In the next slides, I am trying to touch on each of those more specifically, and so you can use this slide as reference, but I will go through a little bit more detail as we go forward.

First is the sanctuary boundary, and the sanctuary boundary, as I noted, was designated in 1997, and that pale-pink salmon color is the existing sanctuary boundary. We do, in this proposed rule, propose to expand that boundary, which is shown in the dotted dark green, largely to protect additional habitats, connected habitats, and environments in the Tortugas, and we're also proposing to include a distinct unit at Pulley Ridge, the deepest known photosynthetic coral reef ecosystem off the continental United States.

For reference, this is also a Gulf of Mexico habitat area of particular concern that does have regulations specific to fishing vessels, anchoring by fishing vessels, bottom-tending fishing gear, and our proposal would expand the no-anchor regulation to all vessels, to protect these sensitive habitat areas. Within the expanded sanctuary boundary, all sanctuary-wide regulations would apply, and existing regulations include no discharge, no oil and gas development, no impact to the benthic habitat, and so that is our proposed sanctuary boundary expansion, and now I will just

highlight a few of the proposed updated, or new, sanctuary-wide regulations that this council specifically commented on.

We have an existing emergency regulation which allows the sanctuary to implement emergency regulations for sixty days, with one sixty-day extension, and we are proposing to expand that timeframe to a 100-day action, plus an optional 186-day extension, and this timeframe does align with the emergency regulations that the Magnuson-Stevens Act allows, and, also, it will just provide additional time and opportunity for whatever emergency response, monitoring, or action is needed. If there was a need to do a more permanent action, it would go through a full rulemaking, with all of the required public comment and public notice opportunities.

The other thing we do, in the proposed rule, is identify three categories where this emergency and temporary regulation could apply, specifically minimizing resource threats, to initiate restoration, or facilitate timely research, and one of the comments we got, through many avenues, was to more clearly identify what we considered an emergency, and, rather than defining emergency, we identified this suite of categories, and, finally, it sets a process for implementation for how we would execute this notice and engage partners.

Another element is traditional fishing, and we have an existing definition for traditional fishing that allows those activities, those fishing activities, that were in place at the time of our first management plan and environmental impact statement, and so in 1996, and those fishing activities are considered traditional, and those continue to be allowed, and so, in the proposed rule, we are proposing to clarify that definition as well, work with our partners at National Marine Fisheries Service, FWC in the state, and both of our partner fishery management councils to clarify traditional fishing activities and develop a transparent process to evaluate new or modified fishing activities, so that those could be considered as we move forward in management. This process would be done in a cooperative management agreement that we have already with NMFS, the state, and the National Ocean Service, and we would use that avenue to outline this process.

The next section focuses on our marine zones, and so we have the overall sanctuary boundary, but, within the sanctuary boundary, we have a suite of marine zones, and we have used marine zones, since 1997, as a management tool to protect sensitive habitats, facilitate restoration, separate conflicting uses, and so the majority of the proposed rule is this section on evaluating the marine zones, proposing new marine zones, and modifications.

Sanctuary Preservation Areas are an existing zone type, and, over this pictograph, it shows that the current area of marine zones is 6.4 square miles, and the proposed area is 12.1 square miles, and we propose to combine two existing marine zones, and these open circles represent all of the existing marine zones, and we propose two new marine zones, and we propose to eliminate two marine zones, and so Sanctuary Preservation Areas were initially designed to protect the reef line, important coral reef along the reef line, and separate conflicting uses, and protect habitat, and so fishing is no take, and these zones are no take, and these zones are proposed to be no anchor, and so adding a no anchor provision in the proposed rule, and they are already no discharge.

Specifically of interest to this council is the no-take proposal, and we currently have an exception in four Sanctuary Preservation Areas for catch-and-release fishing by trolling, and we are proposing to eliminate the exception, and we also currently issue permits for bait fishing within the Sanctuary Preservation Areas, and we're proposing to eliminate that permit, and the intent

there is to create consistency within this zone type, so that the user -- When I enter a Sanctuary Preservation Area, I know that it's no-take, no exceptions, and a better understanding of those regulations, better compliance, and ease of enforcement.

A few specific proposals that were included in the council comment letter is Alligator Reef is an existing Sanctuary Preservation Area, and, as you see here, this is the existing zone. We are proposing to expand, to capture deep-reef habitat, and the South Atlantic Fishery Management Council comment letter did support this proposal that was included in the draft environmental impact statement, and so protecting additional deep-reef habitat, and, as I noted, the proposal is that this area would be no anchor and no take.

Second is the Key Largo Dry Rocks-Grecian Rocks SPA, and, here, I will just walk you through this, and the existing zones are here and here, and so two existing Sanctuary Preservation Areas, and we -- In the draft environmental impact statement, we proposed to expand this, to connect those two zones, and to expand it to capture North Dry Rocks within that marine zone, and the comment letter recommended status quo, and so these two individual marine zones. However, our proposed rule does include a proposal to combine these two marine zones. However, it focuses much more tightly on those two marine zones and the habitat between them, and so it does still include a proposal to expand and connect these two marine zones, but a much smaller area than was included in the draft environmental impact statement.

The last Sanctuary Preservation Area that I will highlight, and the council commented on this, and this is Sombrero Key, an important SPA in the Middle Keys, and this is one of the SPAs that allows, currently allows, catch-and-release fishing by trolling, and so that is proposed to be eliminated, as well as you see here the proposal is to make this marine zone square, capturing a little bit of additional habitat area, as well as making it easier for marking, compliance, and enforcement.

The next type of marine zone are conservation areas, and these are our most protective marine zones, and they're really focused on protecting large, diverse, connected habitats, as well as important research sites. This actually is a new name for two of existing marine zones, and so we have ecological reserves and special use areas currently, and we are proposing to combine those two zone types into one and call them conservation areas, and so, currently, we have 194 square miles within this zone type, and we are proposing 213, and all of the zones are existing, and we're proposing six, and we're proposing to eliminate one. Again, no discharge, no take, no anchor, and these zones are transit only, to provide the greatest level of protection for these sensitive habitats.

A few examples here are Tennessee Reef is a currently a special use area, an important area for research, and it's here, and it includes the Tennessee Reef Light, and it is proposed to be expanded, again, to capture deep-reef habitats, and so this area would be a transit-only and no-take area, and the council comment letter did support this proposal.

The final conservation area that I will highlight is Tortugas South, and this is an existing ecological reserve, shown here in the neon green, and our proposal is to expand this zone one mile to the west, to protect additional habitat area near Riley's Hump that has been shown to support cubera snapper and a few other fish spawning aggregation sites, and so providing additional protection of those habitats and that important life cycle use. We also maintain the southern portion of this

marine zone, and recent data that has been collected and compiled do show important habitats, species use of these deeper ledges and habitats, and a few pictures are shown there.

The next zone type is a new zone type, as you see here, and it's currently zero square miles, and we propose to include 1.4 square miles in this zone type, and these would be referred to as restoration areas, and we're proposing two different types. Habitat restoration areas would be no discharge, no take, no anchor. However, individuals could enter for diving, snorkeling, and the actual work that would be taking place in here, and there are four of these zones proposed, and these are all active coral outplanting restoration sites.

The second type of restoration area would be nursery restoration areas, and no discharge, no take, no anchor, and transit only. There are nine proposed nursery restoration areas, and these are all existing sites where the nursery habitats, or the nursery species, are being developed, and so providing the most protective regulations for those, and just one example here is Cheeca Rocks East and Cheeca Rocks South Habitat Restoration Areas are here and here, and the total, with the Cheeca Rocks SPA, is 0.15 square miles, and I will just note that this area, the Cheeca Rocks Habitat Restoration Areas, have indicated great resilience to coral bleaching, as well as stony coral tissue loss disease, and these areas were proposed through our consultation on essential fish habitat and noting the health and importance of these habitats.

Finally, likely of less relevance for the council, but, however, just highlighting our last marine zone type, and these are wildlife management areas, and these are generally small, nearshore marine zones designed to protect species and habitat, and the species dependent upon those habitats, and so shallow-water and nearshore, and the images here show activities around nesting, roosting, and foraging bird islands and sites, as well as protecting offshore turtle nesting islands, but these zones really do protect the shallow-water wildlife and habitats.

Existing is 37.5 square miles, and the proposed is 322.6 square miles, and that indicates -- That shows we are including the Pulley Ridge proposal in this zone type, because of the addition of no anchor, to protect those sensitive habitats, as well as an existing no-anchor area in the Tortugas region, and so that's why the area jumps so much, but, here again, we're proposing to combine two existing marine zones into one, and the white circles indicate our existing, and the blue indicates the proposed new, and clearly this zone type has the greatest number of proposed new marine zones, and there are twenty-three, mostly within the backcountry, and so the bay side of the islands, protecting sensitive seagrass habitat, islands for birds, and the like, and we do also propose to eliminate two existing sites.

I'm sure you can't really see the map at this scale, but this is sanctuary-wide and showing all of the wildlife management area and really just indicating they are largely nearshore, and the regulations that apply within these zones would be no entry in red, no motor in orange, and it's probably too small-scale to see idle speed and no wake, but some of the dark-black ones are idle speed with no wake, and so the regulations that are applied within these marine zones, the wildlife management areas, are really tailored to the resource needs at that site.

An updated socioeconomic analysis for the proposed rule, this was largely in response to comments we received from the fishing sector, for the most part, that the data that was used to analyze the draft environmental impact statement may not have been as updated as possible, and

so we did do an updated analysis using 2015 to 2019 data for commercial fishing and 2014 to 2018 for recreational fishing.

In general, our proposed action is intended to improve the sanctuary resources, and so the benefits are maintaining productive fisheries, tourism, recreational opportunities, and the non-market visitation aesthetics, those kinds of -- Costs do assume the maximum potential loss of whatever activity may be going on, and it could be fishing, commercial or recreational, or diving, and so it assumes the greatest amount of loss, as well as no replacement, and so I can't fish here, and it assumes you're not going to move elsewhere, and the data there shows that less than 1 percent of annual revenue for all affected fisheries, excepting lobster fishing, where there is a slightly greater annual loss.

As I noted, we have a management plan, and this is a separate document, and it's non-regulatory activities, sort of what we do on a day-to-day basis, to both implement the regulations as well to research, regulatory compliance, community involvement, stewardship, and all of those activities are included in this draft management plan, which is also available for comment at this time.

One of the things that was updated, following public comment on the draft environmental impact statement, is really acknowledging that there are some real priorities that the community has identified, and that we as well have identified, for the greatest focus, and that is our management effectiveness and adaptive management, being more responsive to the impacts to the environment, new or more intense uses and how we become more nimble and responsive in our management, water quality, restoration, visitor use management, and so mooring buoys, numbers of visitors, and how do we manage this place with all the various sectors and users, enforcement, and stewardship and engagement.

Finally, super quick, we do have a website, where everything is posted, videos that highlight the marine zone proposals, and the document library has the management plan, the updated socioeconomic analysis, a page that includes packages of all the marine zone maps, comparing status quo to the proposed rule, an interactive map, where you can go in and zoom-in and choose what you want to look at, and get more information there, as well as an overview summary presentation, and it goes into a little bit more detail than I am going in here, and it has notes, so you can use that as a reference.

Finally, this should have more checkmarks, and all of these should be checkmarked, but we really tried to do a good job of getting out into the community and providing opportunity for engagement and public comment, and that is all that I have.

MS. COOKSEY: Thank you, Beth. I appreciate that, and that was a very informative presentation, and I wanted to open it up to the panel for questions and comments. Yes.

MR. PUGLIESE: Just as a connection into that, the council will be providing comments on this, and so we're reaching out and asking, where panel members have input, to provide those, and so here's an opportunity in-person, and, also, you can follow-up beyond this point.

AP MEMBER: Thank you for the presentation, by the way, and it was well done. My question is relative to the Pulley Ridge area, and, in what you're proposing, and I think I heard, but I just wanted to confirm that that, if approved, would be a no-fishing zone that is proposed.

MS. DIEVENEY: I will talk through that again. We are proposing to expand the overall boundary to include Pulley Ridge. Existing and proposed sanctuary-wide regulations would apply, and so no oil and gas development, impact to the benthic habitat, the emergency, the updated temporary and emergency regulation would apply, and we are proposing no anchor for all vessels. The Gulf of Mexico Fishery Management Council has fishing-related regulations, and so they manage and regulate anchoring by fishing vessels as well as bottom-tending fishing gear, and so we are not adding any specific fishery regulations to that area above what already exists by the Gulf of Mexico Fishery Management Council, and we're kind of filling a gap for anchoring by all vessels. They can only manage and regulate fishing vessels, and so we're trying to protect the habitat from any additional vessel anchoring, and does that make sense? Does that help?

AP MEMBER: Yes, it does. I mean, I have fished that a number of times, personally, and the regulations are existing today where you cannot anchor in what's considered Pulley Ridge, and so that's where I kind of got lost.

MS. DIEVENEY: To our understanding, that anchoring regulation that exists today applies to fishing vessels only.

AP MEMBER: Okay. That's all I ever see out there.

MS. DIEVENEY: Thank you.

MR. PUGLIESE: Just as a comment to that, that's one thing that we have had the struggle in the past about, because that's what we are mandated for. We try to address some of these other things through other avenues, but this is, you know, their opportunity to try to address non-fishing vessels, and we dealt with that, I remember, in discussions when we were dealing with the deepwater coral HAPCs. Our limitation is to fishing vessels.

MS. COOKSEY: I just wanted to say that -- I wanted to note that, given the cascading levels of adverse impacts that you are dealing with as a sanctuary, I felt like this seemed a well-balanced approach to the comments that the council had given, and, again, this is coming from the purely habitat perspective, and I was pleased to see the increase in the special protected areas that have been suggested in this. Anne.

MS. DEATON: Thank you. Yes, I was going to say similar, Cindy, and I support -- I am in North Carolina, but I used to live in Key Largo, and I worked in Pennekamp, and we saw, even at that time, the impact of the people. There is so much people pressure, and there's the water quality pressure, and they've had all those other stressors.

I know people that still live there and fish recreationally and commercially, and they go deeper, and they catch less, and they say, you know, it's just not what it was when I was there in the 1990s, and so I know we're doing our best, but there's increasing technology, and there's just more people pressure and stress, environmental stress, and so I think that the sanctuary did address a lot of the council's concerns, and me, being the habitat person, I would have -- I mean, I would have gone further, in some areas, and I think we talk, all the time, about ecosystem management in this advisory panel, and so expanding, when you have two reefs, and including the area between them, when they're close, just makes sense, and that's ecosystem management.

When they originally implemented this, the wider Florida Keys National Marine Sanctuary, I was down there, and they had those three large zones in the north, central, and south that would be more protective, and it didn't fly, because of public concern, and now they've pulled back on that, and so I think this is, I guess, a balance, and it could certainly be more, have more teeth, but I do -- I would say that it is important to emphasize that the National Marine Sanctuary staff, and maybe they already are, but actively engage in commenting on the development and water quality impacts going on down there, and I was with the state parks, and we always were doing that, and I don't know if they have even the authority to do that, but it does help, and so I don't know if you wanted to go through these, since there was these -- Do we need to go through the ones where they didn't take the advice, or just overall discussion?

MR. PUGLIESE: I think the key -- The comment letter that's been provided actually was on the EIS that was developed, the rule on that, and this is actually a proposed rule for the conservation, the blueprint conservation, and so there's going to be a whole separate one, and that one was addressing some, and so I think the idea is are there other ones that, in what she has presented now, that may be of concern, or recommendations, and that's where we're at right now, because we're going to have a new comment letter crafted, based on the existing -- What's out there for comment now.

MS. COOKSEY: Sam.

MR. YOUNG: To follow-up on Anne's comment, Pulley Ridge extends a long ways north, that being what you've got outlined as the southern tip of it, but it goes up almost towards Tampa, if I'm not mistaken, but it's a big geographic -- That's valuable habitat on the entire ridge, and, for the sake of looking forward and preventing exploration for oil and gas, or laying cables and what have you, and some of the other things that we've talked about in the last couple of days, to me, it would make sense to extend that, to cover the entirety of Pulley Ridge, and that's just my two-cents.

MS. DIEVENEY: Real quick, on that, I believe that the Gulf of Mexico habitat area of particular concern actually does include that northern portion, and so a much larger area. However, they only have specific regulations for the zone that is outlined here that we're proposing to align with that, and, at present, we're not proposing to expand to include that entire area.

Just one piece to respond to what Anne said about water quality, and we do have a proposal to update our existing discharge regulation, to prohibit all discharges from cruise ships. Currently, there's an exception for gray water that we are proposing to update to remove that exception for cruise ships and propose no discharges from cruise ships while they're in the sanctuary waters, and then our management plan has a section specific to water quality and how we work with the existing water quality protection program that is administered by Florida DEP and the U.S. EPA, specific to the Florida Keys, as well as how we are working with the South Florida Ecosystem Restoration Task Force, which is focused on the Everglades and all that is associated with that, and so there's a whole objective within the management plan focused on our work, and our partners work, on water quality.

MS. COOKSEY: You know, I think we've heard a couple of different comments being supportive of the proposed changes that you presented to us, Beth, and I wanted to give a chance to open it

up to the panel members, if there were any concerns or opposition to any of the proposed changes, and I am not seeing any hands, and so I feel like there's a general -- We're checking online. No hands online, and so I feel like there's a general consensus of support for the proposed rule, and I am seeing nodding heads, and so I just wanted to make sure that we noted that, that the panel appears very supportive of what you presented, Beth.

Barring any other comments, thank you, Beth, for bringing this forward, and I believe we are going to move on and cover any other remaining business, before we adjourn the meeting today, and so, firstly, I wanted to mention that we have received a variety of editorial comments on the beach nourishment policy that Roger and I are going to work on integrating, and they were all very straightforward, and so we're going to integrate those editorial comments, and we will advance the beach nourishment policy on to the council.

I did want to note that, in discussions with the panel members, a number of panel members brought to my attention the question of beneficial use within our nearshore environment, and the question of whether we should try to incorporate beneficial use into the beach policy or not, and, because beneficial use actually incorporates a whole host of different approaches, beyond placement on beaches or in nearshore areas, there was some discussion about whether or not we should look into the development of a beneficial use policy statement from the council, similar to the other policy statements that we have in existence, and so I think there's a lot of merit to further exploration of that topic, so that, in the spring, we might want to bring that forward as an agenda item, so that we can delve into that topic further. I am seeing nodding heads with that.

Additionally, we are going to be advancing, to the council, the need to revise the energy policy, so that we can gain support for that initiative, and, once we have advanced that, and we'll see what their response is, and we can reach out to the panel members that have volunteered their time, so we can come up with some next steps. Are there any other topics to cover, Roger or the other panel members that I have missed?

MR. PUGLIESE: I don't -- I think we've covered kind of the breadth of everything, and I think just having members in-person has made this a whole lot more effective, and being able to really accomplish what the tasks are, and I think -- You know, as you've already highlighted, some new things, and the opportunities, and that's exactly what the intent of this is, is to be the group that has the ability to provide that guidance on these need to be addressed, as we move into the future, and so that's a critical point with that. There are no other additional, and I will pass it back to Madam Chair, and we can move forward.

MS. COOKSEY: Well, I wanted to thank everyone for attending, both in-person and virtual, and it was very exciting to finally get to see so many of you again, after so many years, thanks to COVID, and a big thank you to all of our presenters that were able to engage with us, and I look forward to our upcoming activities, and I think we have a very busy few years ahead of us, between updating some really important policies, as well as looking at EFH designations, as well as dealing with all the emerging issues that we see coming forward. Otherwise, I am adjourning our fall 2022 meeting. Thank you all very much.

(Whereupon, the meeting adjourned on November 3, 2022.)

- - -

Certified By _____ Date _____

Transcribed By
Amanda Thomas
January 9, 2023

Habitat AP - 11/1/2022

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

HABITAT PROTECTION & ECOSYSTEM-BASED MANAGEMENT ADVISORY PANEL

Now Reappointed

Cynthia Cooksey, Chair
NOAA Fisheries SERO
Habitat Conservation Division
219 Fort Johnson Rd
Charleston, SC 29412
(843)460-9922
cynthia.cooksey@noaa.gov
(Agency-NOAA Fisheries HCD)

FL Sub-Panel

web

Dr. Rene Baumstark, Chair
FL Fish & Wildlife Commission
Fish and Wildlife Research Institute
100 Eighth Avenue, SE
St. Petersburg, FL 33701
(727)502-4866(ph)
rene.baumstark@myfwc.com
(Agency-FWC)

Dr. John Galvez
U.S. Fish & Wildlife Service
1339 20th Street
Vero Beach, FL 32960
(772)538-9934 (ph); (772)562-4288 (f)
John_galvez@fws.gov
(Agency-US Fish & Wildlife)

web

Jeff Hartzler
820 Palmetto Street
Oviedo, FL 32765
(407)625-9308 (ph)
Jeff.C.Hartzler@gmail.com
9/19*, 6/22*
Recreational

Steve Miller
St. John's River Water Mgmt. Dist.
P.O. Box 1429
Palatka, FL 32178-1429
(386)227-0642
sjmiller@sjrwmd.com
(Agency CZM)

Presenters

Pace
Wilbur
David Dale

David Webb
92 West Plaza Del Sol
Islamorada, FL 33036
(901)606-1886(ph)
pfishinpfun@prodigy.net
9/15*, 10/18*, 12/21*
Recreational

Sam Young
23 Island Road
Stuart, FL 34996
(239)595-6341 (ph)
Young456@aol.com
6/21*
Recreational

GA Sub-Panel

Paul Medders, Chair
Georgia Department of Natural Resources
Coastal Resources Division
One Conservation Way
Brunswick, GA 31520
(912)264-7218 (ph); (912)242-2075 (c)
paul.medders@dnr.ga.gov
(Agency-GA DNR)

Thomas Jones
163 Osner Dr.
Atlanta, GA 30342
(404)231-3600 (ph); (404)231-0092 (f)
tdjfin@gmail.com
12/11*, 12/14, 3/18*,
6/21*, 6/22*(*1-yr. term*)
Recreational

Alice Lawrence
U.S. Fish & Wildlife Service
355 East Hancock Ave Room 320, Box 7
Athens, GA 30601
(706)208-7507 x48507 (ph)
alice_lawrence@fws.gov
(Agency-USFW)

NC Sub Panel

Anne Deaton, Chair
N.C Division of Marine Fisheries
127 Cardinal Drive Ext.
Wilmington, NC 28405
Anne.deaton@ncdenr.gov
(Agency-USFW)

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

HABITAT PROTECTION & ECOSYSTEM-BASED MANAGEMENT ADVISORY PANEL

(continued)

John Ellis
U.S. Fish and Wildlife Service
P.O. Box 33726
Raleigh, NC 27636
(919)856-4520, ext 26
John.ellis@fws.gov
(Agency-USFW)

Joel Fodrie
238 Rutledge Drive
Beaufort, NC 28516
(252)510-4368
jfodrie@unc.edu
12/21*
Research/Scientific

Casey Knight
P.O. Box 769
Morehead City, NC 28577
(252)808-8094 (ph)
Casey.knight@ncdenr.gov
6/22*
Scientific/Research

Rita Merritt
38 Pelican Drive
Wrightsville Beach, NC 28480
(910)231-9730 (ph)
Miridon@ec.rr.com
3/17*, 9/20*
Recreational

Shane Staples
N.C. DENR Div. of Coastal Mgmt.
943 Washington Square Mall
Washington, NC 27817
(252)948-3950 (ph)
Shane.staples@ncdenr.gov
(Agency – NC CZM)

SC Sub-Panel

Mark Caldwell
USFWS Ecological Services Office
176 Croghan Spur Road Suite 200
Charleston, SC 29407
(843)727-4707 (Ext. 215)
Mark_caldwell@fws.gov
(Agency-USFWS)

David Whitaker
720 Tennent Street
Charleston, SC 29412
(843)696-2707 (ph)
Whitakerjd61@gmail.com
6/21*
Recreational

Paula Keener
168 Wappoo Road
Charleston, SC 29407
(843)607-7095 (ph)
pkeener@globaloceanvisions.org
9/19*, 6/22*
Research/Scientific

George Madlinger
DHEC – OCRM (Retired)
104 Parker Drive
Beaufort, SC 29906
(843)846-9400 (ph)
madlingj@dhec.sc.gov
(Agency- SC CZM)

Stacie Crowe
SC DNR Office of Env. Programs
217 Ft. Johnson Road
Charleston, SC 29412
(843)953-9092 (ph)
CroweS@dnr.sc.gov
(Agency-SC DNR)

Jeff Soss
805 Harbor Place Dr.
Charleston, SC 29412
(912)660-8416 (ph)
cuintheriver@gmail.com
9/17*, 9/20*
Recreational/Charter

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

HABITAT PROTECTION & ECOSYSTEM-BASED MANAGEMENT ADVISORY PANEL

At Large Members

Laura Busch
U.S. Fleet Forces Environmental Readiness
Natural and Cultural Res. Program Mgr.
1562 Mitscher Avenue
Norfolk, VA 23551
(757)836-8471 (ph)
Laura.m.busch2.civ@us.navy.mil
(Agency-US Navy)

Dr. Laurent Cherubin
NOAA CIOERT
Harbor Branch
Oceanographic Inst./FAU
5600 US 1 North
Ft. Pierce, FL 34946
(772)242-2314 (p)
lcherubin@fau.edu 9/15*
(Agency-CIOERT)

Dr. Roland Ferry
U.S. EPA Region IV
Coastal Section
61 Forsythe Street SW
Atlanta, GA 30303
(404)562-9387 (ph);
Ferry.Roland@epa.gov
(Agency-EPA)

Mark Hansen USGS
Center for Coastal &
Watershed Studies 600
Fourth Street South
St. Petersburg, FL 33701
(727)803-8747 ext. 3036
mhansen@usgs.gov
(Agency-USGS)

Lisa Havel
Atlantic States Marine
Fisheries Commission 1050
N. Highland Street Suite 200
Arlington, VA 22201
(703)842-0743
lhavel@asmfc.org
(Agency-ASMFC)

(continued)

Brian Hooker
Office of Renewable Energy Programs
Bureau of Ocean Energy Management
45600 Woodland Road
Sterling, VA 20166
(703)787-1634 (ph)
brian.hooker@boem.gov
(Agency-BOEM)

Dr. Wilson Laney
Dept. of Applied Ecology
NC State University – Campus
Box 7617
Raleigh, NC 27695-7617
(919)515-5019 (O);
(252)339-5717 (C)
rallaneys@gmail.com
6/19*, 6/22*
Research/Ecologist

Dr. Steve Ross
521 Mitchell Street
Hillsborough, NC 27278
(910)962-2346 (ph)
rosss@uncw.edu
12/14, 3/18*, 6/21*
Research

Kevin Spanik
1070 Valley Road
Charleston, SC 29412
(843) 953-9857 (ph)
spanikk@dnr.sc.gov
6/21*
Research

National Marine Sanctuary Designee TBD

STAFF LEAD: Roger Pugliese

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

2022 COMMITTEE MEMBERS

CITIZEN SCIENCE
Kerry Marhefka, Chair
Tom Roller, Vice Chair
Robert Beal
Carolyn Belcher
Mel Bell
Chester Brewer
Gary Borland
LT Cameron Box
Tim Griner
Judy Helmey
Jessica McCawley
Trish Murphey
Andy Strelcheck
Laurilee Thompson
Spud Woodward
Staff contact: Julia Byrd

DOLPHIN WAHOO
Kerry Marhefka, Chair
Tom Roller, Vice Chair
Robert Beal
Carolyn Belcher
Mel Bell
Chester Brewer
Gary Borland
LT Cameron Box
Tim Griner
Judy Helmey
Jessica McCawley
Trish Murphey
Andy Strelcheck
Laurilee Thompson
Spud Woodward
Mid-Atlantic:
Dewey Hemilright/Scott Lenox
New England: Rick Bellavance
Staff contact: John Hadley

EXECUTIVE COMMITTEE
Carolyn Belcher, Chair
Trish Murphey, Vice Chair
Mel Bell
Chester Brewer
Jessica McCawley
Staff contact: John Carmichael/Kelly Klasnic

GOLDEN CRAB
Laurilee Thompson, Chair
Jessica McCawley, Vice Chair
Tim Griner
Trish Murphey
Andy Strelcheck
Staff contact: Christina Wiegand

HABITAT PROTECTION AND ECOSYSTEM-BASED MGMT.
Trish Murphey, Chair
Mel Bell, Vice Chair
Robert Beal
Carolyn Belcher
Chester Brewer
Gary Borland
LT Cameron Box
Tim Griner
Judy Helmey
Kerry Marhefka
Jessica McCawley
Tom Roller
Andy Strelcheck
Laurilee Thompson
Spud Woodward
Staff contact: Roger Pugliese

OUTREACH AND COMMUNICATIONS
Spud Woodward, Chair
Chester Brewer, Vice Chair
LT Cameron Box
Kerry Marhefka
Trish Murphey
Tom Roller
Laurilee Thompson
Staff contact: Kim Iverson

LAW ENFORCEMENT
Mel Bell, Chair
Spud Woodward, Vice Chair
Carolyn Belcher
LT Cameron Box
Judy Helmey
Kerry Marhefka
Tom Roller
Staff contact: Myra Brouwer

Habitat AP- 11/1/22

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

2022 COUNCIL MEMBERS

Dr. Carolyn Belcher, **Chair**
GA DNR – Coastal Resources Division
One Conservation Way, Suite 300
Brunswick, GA 31520
(912)264-7218
Carolyn.belcher@dnr.ga.gov

Trish Murphey, **Vice Chair**
NC Division of Marine Fisheries
P.O. Box 769
3441 Arendell Street
Morehead City, NC 28557
(242) 808-8011 (O); (252)241-9310 (c)
Trish.murphey@ncdenr.gov

Robert Beal
Executive Director
Atlantic States Marine Fisheries Commission
1050 N. Highland St. Suite 200 A-N
Arlington, VA 22201
(703)842-0740
rbeal@asmfc.org

Mel Bell
SCDNR-Marine Resources Division
P.O. Box 12559
217 Ft. Johnson Road
Charleston, SC 29422
(843)953-9007
bellm@dnr.sc.gov

Chester Brewer
4440 PGA Boulevard, Suite 600
West Palm Beach, FL 33408
(561)655-4777
wcbsafmc@gmail.com

Gary Borland
422 Highwater Court
Chapin, SC 29036
(561) 290-9274 (cell)
GborlandSAFMC@gmail.com

LT Cameron C. Box
Seventh Coast Guard District
909 SE 1st Ave.
Miami, FL 33131
(305) 415-6781(ph); (786)457--6419(c)
Cameron.C.Box@uscg.mil

Tim Griner
4446 Woodlark Lane
Charlotte, NC 28211
(980)722-0918
timgrinersafmc@gmail.com

Judy Helmey
124 Palmetto Drive
Savannah, GA 31410
(912) 897-4921
JudyHelmey@gmail.com

Kerry Marhefka
347 Plantation View Lane
Mt. Pleasant, SC 29464
(843)452-7352
KerryOMarhefka@gmail.com

Jessica McCawley
Florida Fish and Wildlife Conservation Commission
620 South Meridian St
Tallahassee, FL 32399
(850)487-0554
Jessica.mccawley@myfwc.com

Tom Roller
807 Deerfield Drive
Beaufort, NC 28516
(252) 728-7907 (ph);(919)423-6310 (c)
tomrollersafmc@gmail.com

Andy Strelcheck
Acting Regional Administrator
NOAA Fisheries, Southeast Region
263 13th Avenue South
St. Petersburg, FL 33701
(727)551-5702
Andy.strelcheck@noaa.gov

Laurilee Thompson
P.O. Box 307
Mims, FL 32754
(321) 794-6866
thompsonlaurilee@gmail.com

Habitat AP - 11/1/22

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

COUNCIL STAFF

Executive Director
John Carmichael
john.carmichael@safmc.net
843-302-8435

Deputy Director – Science
Dr. Chip Collier
chip.collier@safmc.net
843-302-8444

Deputy Director - Management
Myra Brouwer
myra.brouwer@safmc.net
843-302-8436

Citizen Science Program Manager
Julia Byrd
julia.byrd@safmc.net
843-302-8439

Admin. Secretary/Travel Coordinator
Cindy Chaya
cindy.chaya@safmc.net
843-571-4370

Quantitative Fishery Scientist
Dr. Judd Curtis
Judd.curtis@safmc.net
843-302-8441

Fishery Economist & FMP Coordinator
John Hadley
john.hadley@safmc.net
843-302-8432

Fishery Scientist
Allie Iberle
Allie.iberle@safmc.net
843-225-8135

Public Information Officer Kim
Iverson kim.iverson@safmc.net
843-223-7258

Administrative Officer Kelly Klasnick
kelly.klasnick@safmc.net
843-763-1050

Habitat & Ecosystem Scientist
Roger Pugliese
roger.pugliese@safmc.net
843-302-8434

Fishery Scientist
Dr. Mike Schmidtke
mike.schmidtke@safmc.net
843-302-8433

Communication and Digital Media Specialist
Nicholas Smillie
Nick.Smillie@safmc.net
843-302- 8443

Staff Accountant
Suzanna Thomas suzanna.thomas@safmc.net
843-571-4368

Fishery Social Scientist
Christina Wiegand
christina.wiegand@safmc.net
843-302-8437

Citizen Science Project Manager
Meg Withers
Meg.withers@safmc.net
843-725-7577

SEDAR

SEDAR Program Manager
Dr. Julie Neer
Julie.neer@safmc.net
843-302-8438

SEDAR Coordinator
Kathleen Howington
kathleen.howington@safmc.net
843-725-7580

Habitat AP Meeting - Attendee Report: November 1-3, 2022

Report Generated:

11/03/2022 03:12 PM EDT

Webinar ID	Actual Start Date/Time	Duration
822-499-339	11/01/2022 12:23 PM EDT	4 hours 2 minutes

Attendee Details

Attended	Last Name	First Name
Yes	Baumstark	René
Yes	Bianchi	Alan
Yes	Brouwer	Myra
Yes	Busch	Laura
Yes	Chaya	01 Cindy
Yes	Clarke	Lora
Yes	Dale (NMFS SERO)	David
Yes	Finch	Margaret
Yes	Hartzler	Jeff
Yes	Hawes	Rachel
Yes	Helies	Frank
Yes	Keener	Paula
Yes	Klasnick	01Kelly
Yes	Knight	Casey
Yes	Laney	Wilson
Yes	Mehta	Nikhil
Yes	Patten	Willow
Yes	Ponte	Marisa
Yes	Pugliese	01Roger
Yes	Rohde	Fritz
Yes	Ross	Steve
Yes	Seward	McLean
Yes	Staples	Shane
Yes	Wilber	Pace
Yes	Wolfe	Wes
Yes	Yanoff	Callan

Attendee Report: Habitat AP Meeting - November 1-3, 2022

Report Generated:

11/03/2022 03:20 PM EDT

Webinar ID	Actual Start Date/Time	Duration
822-499-339	11/02/2022 07:34 AM EDT	8 hours 38 minutes

Attendee Details

Attended	Last Name	First Name
Yes	Baumstark	René
Yes	Bianchi	Alan
Yes	Brouwer	Myra
Yes	Cantwell	Kasey
Yes	Chaya	01 Cindy
Yes	Coleman	Heather
Yes	Gentry	Lauren
Yes	Glazier	Ed
Yes	Glazier	Ed
Yes	Helgren	SunTemple
Yes	Helies	Frank
Yes	Hiers	Homer
Yes	Hourigan	Thomas
Yes	Johnson	Shellby
Yes	Klasnick	01Kelly
Yes	Knight	Casey
Yes	Laney	Wilson
Yes	Mayhew	Amanda
Yes	Mehta	Nikhil
Yes	Murphey	Trish
Yes	Oliver	Ashley
Yes	Poholek	Ariel
Yes	Pugliese	01Roger
Yes	Rohde	Fritz
Yes	Ross	Steve
Yes	Schmidtke	01Michael
Yes	Seward	McLean
Yes	Smillie	Nick
Yes	Soss	Jeff
Yes	Staples	Shane
Yes	Vecchio	Julie
Yes	Yanoff	Callan
Yes	collier	chip

Habitat AP - 11/2/22

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

HABITAT PROTECTION & ECOSYSTEM-BASED MANAGEMENT ADVISORY PANEL

Cynthia Cooksey, Chair
NOAA Fisheries SERO
Habitat Conservation Division
219 Fort Johnson Rd
Charleston, SC 29412
(843)460-9922
cynthia.cooksey@noaa.gov
(Agency-NOAA Fisheries HCD)

FL Sub-Panel

Dr. Rene Baumstark, Chair
FL Fish & Wildlife Commission
Fish and Wildlife Research Institute
100 Eighth Avenue, SE
St. Petersburg, FL 33701
(727)502-4866(ph)
rene.baumstark@myfwc.com
(Agency-FWC)

Dr. John Galvez
U.S. Fish & Wildlife Service
1339 20th Street
Vero Beach, FL 32960
(772)538-9934 (ph); (772)562-4288 (f)
John_galvez@fws.gov
(Agency-US Fish & Wildlife)

Jeff Hartzler
820 Palmetto Street
Oviedo, FL 32765
(407)625-9308 (ph)
Jeff.C.Hartzler@gmail.com
9/19*, 6/22*
Recreational

Steve Miller
St. John's River Water Mgmt. Dist.
P.O. Box 1429
Palatka, FL 32178-1429
(386)227-0642
sjmiller@sjrwmd.com
(Agency CZM)

OTHERS/PRESENTERS
web · Callan Yanoff
web · Amanda Mayhew
· Jen Banks + Guy(?) Honaw (w/glasses)

David Webb
92 West Plaza Del Sol
Islamorada, FL 33036
(901)606-1886(ph)
pfishinpfun@prodigy.net
9/15*, 10/18*, 12/21*
Recreational

Sam Young
23 Island Road
Stuart, FL 34996
(239)595-6341 (ph)
Young456@aol.com
6/21*
Recreational

GA Sub-Panel

Paul Medders, Chair
Georgia Department of Natural Resources
Coastal Resources Division
One Conservation Way
Brunswick, GA 31520
(912)264-7218 (ph); (912)242-2075 (c)
paul.medders@dnr.ga.gov
(Agency-GA DNR)

Thomas Jones
163 Osner Dr.
Atlanta, GA 30342
(404)231-3600 (ph); (404)231-0092 (f)
tdjfin@gmail.com
12/11*, 12/14, 3/18*,
6/21*, 6/22**(1-yr. term)*
Recreational

Alice Lawrence
U.S. Fish & Wildlife Service
355 East Hancock Ave Room 320, Box 7
Athens, GA 30601
(706)208-7507 x48507 (ph)
alice_lawrence@fws.gov
(Agency-USFW)

NC Sub Panel

Anne Deaton, Chair
N.C Division of Marine Fisheries
127 Cardinal Drive Ext.
Wilmington, NC 28405
Anne.deaton@ncdenr.gov
(Agency-USFW)

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

HABITAT PROTECTION & ECOSYSTEM-BASED MANAGEMENT ADVISORY PANEL

(continued)

John Ellis
U.S. Fish and Wildlife Service
P.O. Box 33726
Raleigh, NC 27636
(919)856-4520, ext 26
John.ellis@fws.gov
(Agency-USFW)

Joel Fodrie
238 Rutledge Drive
Beaufort, NC 28516
(252)510-4368
jfodrie@unc.edu
12/21*
Research/Scientific

Casey Knight
P.O. Box 769
Morehead City, NC 28577
(252)808-8094 (ph)
Casey.knight@ncdenr.gov
6/22*
Scientific/Research

Rita Merritt
38 Pelican Drive
Wrightsville Beach, NC 28480
(910)231-9730 (ph)
Miridon@ec.rr.com
3/17*, 9/20*
Recreational

Shane Staples
N.C. DENR Div. of Coastal Mgmt.
943 Washington Square Mall
Washington, NC 27817
(252)948-3950 (ph)
Shane.staples@ncdenr.gov
(Agency - NC CZM)

SC Sub-Panel

Mark Caldwell
USFWS Ecological Services Office
176 Croghan Spur Road Suite 200
Charleston, SC 29407
(843)727-4707 (Ext. 215)
Mark_caldwell@fws.gov
(Agency-USFWS)

David Whitaker
720 Tennent Street
Charleston, SC 29412
(843)696-2707 (ph)
Whitakerjd61@gmail.com
6/21*
Recreational

Paula Keener
168 Wappoo Road
Charleston, SC 29407
(843)607-7095 (ph)
pkeener@globaloceanvisions.org
9/19*, 6/22*
Research/Scientific

George Madlinger
DHEC - OCRM (Retired)
104 Parker Drive
Beaufort, SC 29906
(843)846-9400 (ph)
madlingj@dhec.sc.gov
(Agency- SC CZM)

Stacie Crowe
SC DNR Office of Env. Programs
217 Ft. Johnson Road
Charleston, SC 29412
(843)953-9092 (ph)
CroweS@dnr.sc.gov
(Agency-SC DNR)

Jeff Soss
805 Harbor Place Dr.
Charleston, SC 29412
(912)660-8416 (ph)
cuintheriver@gmail.com
9/17*, 9/20*
Recreational/Charter

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

HABITAT PROTECTION & ECOSYSTEM-BASED MANAGEMENT ADVISORY PANEL

At Large Members

Laura Busch
U.S. Fleet Forces Environmental Readiness
Natural and Cultural Res. Program Mgr.
1562 Mitscher Avenue
Norfolk, VA 23551
(757)836-8471 (ph)
Laura.m.busch2.civ@us.navy.mil
(Agency-US Navy)

Dr. Laurent Cherubin
NOAA CIOERT
Harbor Branch
Oceanographic Inst./FAU
5600 US 1 North
Ft. Pierce, FL 34946
(772)242-2314 (p)
lcherubin@fau.edu 9/15*
(Agency-CIOERT)

Dr. Roland Ferry
U.S. EPA Region IV
Coastal Section
61 Forsythe Street SW
Atlanta, GA 30303
(404)562-9387 (ph);
Ferry.Roland@epa.gov
(Agency-EPA)

Mark Hansen USGS
Center for Coastal &
Watershed Studies 600
Fourth Street South
St. Petersburg, FL 33701
(727)803-8747 ext. 3036
mhansen@usgs.gov
(Agency-USGS)

Lisa Havel
Atlantic States Marine
Fisheries Commission 1050
N. Highland Street Suite 200
Arlington, VA 22201
(703)842-0743
lhavel@asmfc.org
(Agency-ASMFC)

(continued)

Brian Hooker
Office of Renewable Energy Programs
Bureau of Ocean Energy Management
45600 Woodland Road
Sterling, VA 20166
(703)787-1634 (ph)
brian.hooker@boem.gov
(Agency-BOEM)

Dr. Wilson Laney
Dept. of Applied Ecology
NC State University – Campus
Box 7617
Raleigh, NC 27695-7617
(919)515-5019 (O);
(252)339-5717 (C)
rallaneys@gmail.com
6/19*, 6/22*
Research/Ecologist

Dr. Steve Ross
521 Mitchell Street
Hillsborough, NC 27278
(910)962-2346 (ph)
rosss@uncw.edu
12/14, 3/18*, 6/21*
Research

Kevin Spanik
1070 Valley Road
Charleston, SC 29412
(843) 953-9857 (ph)
spanikk@dnr.sc.gov
6/21*
Research

National Marine Sanctuary Designee TBD

STAFF LEAD: Roger Pugliese

Habitat AP- 11/2/22

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

2022 COUNCIL MEMBERS

Dr. Carolyn Belcher, **Chair**
GA DNR – Coastal Resources Division
One Conservation Way, Suite 300
Brunswick, GA 31520
(912)264-7218
Carolyn.belcher@dnr.ga.gov

Trish Murphey, **Vice Chair**
NC Division of Marine Fisheries
P.O. Box 769
3441 Arendell Street
Morehead City, NC 28557
(242) 808-8011 (O); (252)241-9310 (c)
Trish.murphey@ncdenr.gov

Robert Beal
Executive Director
Atlantic States Marine Fisheries Commission
1050 N. Highland St. Suite 200 A-N
Arlington, VA 22201
(703)842-0740
rbeal@asmfc.org

Mel Bell
SCDNR-Marine Resources Division
P.O. Box 12559
217 Ft. Johnson Road
Charleston, SC 29422
(843)953-9007
bellm@dnr.sc.gov

Chester Brewer
4440 PGA Boulevard, Suite 600
West Palm Beach, FL 33408
(561)655-4777
wcbsafmc@gmail.com

Gary Borland
422 Highwater Court
Chapin, SC 29036
(561) 290-9274 (cell)
GborlandSAFMC@gmail.com

LT Cameron C. Box
Seventh Coast Guard District
909 SE 1st Ave.
Miami, FL 33131
(305) 415-6781(ph); (786)457--6419(c)
Cameron.C.Box@uscg.mil

Tim Griner
4446 Woodlark Lane
Charlotte, NC 28211
(980)722-0918
timgrinersafmc@gmail.com

Judy Helmey
124 Palmetto Drive
Savannah, GA 31410
(912) 897-4921
JudyHelmey@gmail.com

Kerry Marhefka
347 Plantation View Lane
Mt. Pleasant, SC 29464
(843)452-7352
KerryOMarhefka@gmail.com

Jessica McCawley
Florida Fish and Wildlife Conservation Commission
620 South Meridian St
Tallahassee, FL 32399
(850)487-0554
Jessica.mccawley@myfwc.com

Tom Roller
807 Deerfield Drive
Beaufort, NC 28516
(252) 728-7907 (ph);(919)423-6310 (c)
tomrollersafmc@gmail.com

Andy Strelcheck
Acting Regional Administrator
NOAA Fisheries, Southeast Region
263 13th Avenue South
St. Petersburg, FL 33701
(727)551-5702
Andy.strelcheck@noaa.gov

Laurilee Thompson
P.O. Box 307
Mims, FL 32754
(321) 794-6866
thompsonlaurilee@gmail.com

Habitat AP- 11/2/22

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

COUNCIL STAFF

Executive Director
John Carmichael
john.carmichael@safmc.net
843-302-8435

Deputy Director – Science
Dr. Chip Collier
chip.collier@safmc.net
843-302-8444

Deputy Director - Management
Myra Brouwer
myra.brouwer@safmc.net
843-302-8436

Citizen Science Program Manager
Julia Byrd
julia.byrd@safmc.net
843-302-8439

Admin. Secretary/Travel Coordinator
Cindy Chaya
cindy.chaya@safmc.net
843-571-4370

Quantitative Fishery Scientist
Dr. Judd Curtis
Judd.curtis@safmc.net
843-302-8441

Fishery Economist & FMP Coordinator
John Hadley
john.hadley@safmc.net
843-302-8432

Fishery Scientist
Allie Iberle
Allie.iberle@safmc.net
843-225-8135

Public Information Officer Kim
Iverson kim.iverson@safmc.net
843-223-7258

Administrative Officer Kelly Klasnick
kelly.klasnick@safmc.net
843-763-1050

Habitat & Ecosystem Scientist
Roger Pugliese
roger.pugliese@safmc.net
843-302-8434

Fishery Scientist
Dr. Mike Schmidtke
mike.schmidtke@safmc.net
843-302-8433

Communication and Digital Media Specialist
Nicholas Smillie
Nick.Smillie@safmc.net
843-302- 8443

Staff Accountant
Suzanna Thomas suzanna.thomas@safmc.net
843-571-4368

Fishery Social Scientist
Christina Wiegand
christina.wiegand@safmc.net
843-302-8437

Citizen Science Project Manager
Meg Withers
Meg.withers@safmc.net
843-725-7577

SEDAR

SEDAR Program Manager
Dr. Julie Neer
Julie.neer@safmc.net
843-302-8438

SEDAR Coordinator
Kathleen Howington
kathleen.howington@safmc.net
843-725-7580

Habitat AP - 11/3/22

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

HABITAT PROTECTION & ECOSYSTEM-BASED MANAGEMENT ADVISORY PANEL

Cynthia Cooksey, Chair
NOAA Fisheries SERO
Habitat Conservation Division
219 Fort Johnson Rd
Charleston, SC 29412
(843)460-9922
cynthia.cooksey@noaa.gov
(Agency-NOAA Fisheries HCD)

FL Sub-Panel

Dr. Rene Baumstark, Chair
FL Fish & Wildlife Commission
Fish and Wildlife Research Institute
100 Eighth Avenue, SE
St. Petersburg, FL 33701
(727)502-4866(ph)
rene.baumstark@myfwc.com
(Agency-FWC)

Dr. John Galvez
U.S. Fish & Wildlife Service
1339 20th Street
Vero Beach, FL 32960
(772)538-9934 (ph); (772)562-4288 (f)
John_galvez@fws.gov
(Agency-US Fish & Wildlife)

Jeff Hartzler
820 Palmetto Street
Oviedo, FL 32765
(407)625-9308 (ph)
Jeff.C.Hartzler@gmail.com
9/19*, 6/22*
Recreational

Steve Miller
St. John's River Water Mgmt. Dist.
P.O. Box 1429
Palatka, FL 32178-1429
(386)227-0642
sjmiller@sjrwmd.com
(Agency CZM)

David Webb
92 West Plaza Del Sol
Islamorada, FL 33036
(901)606-1886(ph)
pfishinpfun@prodigy.net
9/15*, 10/18*, 12/21*
Recreational

Sam Young
23 Island Road
Stuart, FL 34996
(239)595-6341 (ph)
Young456@aol.com
6/21*
Recreational

GA Sub-Panel

Paul Medders, Chair
Georgia Department of Natural Resources
Coastal Resources Division
One Conservation Way
Brunswick, GA 31520
(912)264-7218 (ph); (912)242-2075 (c)
paul.medders@dnr.ga.gov
(Agency-GA DNR)

Thomas Jones
163 Osner Dr.
Atlanta, GA 30342
(404)231-3600 (ph); (404)231-0092 (f)
tdjfin@gmail.com
12/11*, 12/14, 3/18*,
6/21*, 6/22*(*1-yr. term)*
Recreational

Alice Lawrence
U.S. Fish & Wildlife Service
355 East Hancock Ave Room 320, Box 7
Athens, GA 30601
(706)208-7507 x48507 (ph)
alice_lawrence@fws.gov
(Agency-USFW)

NC Sub Panel

Anne Deaton, Chair
N.C Division of Marine Fisheries
127 Cardinal Drive Ext.
Wilmington, NC 28405
Anne.deaton@ncdenr.gov
(Agency-USFW)

Presenter
Michelle Willis
Beth Dieveney

Ashley Oliver

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

HABITAT PROTECTION & ECOSYSTEM-BASED MANAGEMENT ADVISORY PANEL (continued)

John Ellis
U.S. Fish and Wildlife Service
P.O. Box 33726
Raleigh, NC 27636
(919)856-4520, ext 26
John.ellis@fws.gov
(Agency-USFW)

Joel Fodrie
238 Rutledge Drive
Beaufort, NC 28516
(252)510-4368
jfodrie@unc.edu
12/21*
Research/Scientific

Casey Knight
P.O. Box 769
Morehead City, NC 28577
(252)808-8094 (ph)
Casey.knight@ncdenr.gov
6/22*
Scientific/Research

Rita Merritt
38 Pelican Drive
Wrightsville Beach, NC 28480
(910)231-9730 (ph)
Miridon@ec.rr.com
3/17*, 9/20*
Recreational

Shane Staples
N.C. DENR Div. of Coastal Mgmt.
943 Washington Square Mall
Washington, NC 27817
(252)948-3950 (ph)
Shane.staples@ncdenr.gov
(Agency – NC CZM)

SC Sub-Panel

Mark Caldwell
USFWS Ecological Services Office
176 Croghan Spur Road Suite 200
Charleston, SC 29407
(843)727-4707 (Ext. 215)
Mark_caldwell@fws.gov
(Agency-USFWS)

David Whitaker
720 Tennent Street
Charleston, SC 29412
(843)696-2707 (ph)
Whitakerjd61@gmail.com
6/21*
Recreational

Paula Keener
168 Wappoo Road
Charleston, SC 29407
(843)607-7095 (ph)
pkeener@globaloceanvisions.org
9/19*, 6/22*
Research/Scientific

George Madlinger
DHEC – OCRM (Retired)
104 Parker Drive
Beaufort, SC 29906
(843)846-9400 (ph)
madlingj@dhec.sc.gov
(Agency- SC CZM)

Stacie Crowe
SC DNR Office of Env. Programs
217 Ft. Johnson Road
Charleston, SC 29412
(843)953-9092 (ph)
CroweS@dnr.sc.gov
(Agency-SC DNR)

Jeff Soss
805 Harbor Place Dr.
Charleston, SC 29412
(912)660-8416 (ph)
cuintheriver@gmail.com
9/17*, 9/20*
Recreational/Charter

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

HABITAT PROTECTION & ECOSYSTEM-BASED MANAGEMENT ADVISORY PANEL (continued)

At Large Members

Laura Busch
U.S. Fleet Forces Environmental Readiness
Natural and Cultural Res. Program Mgr.
1562 Mitscher Avenue
Norfolk, VA 23551
(757)836-8471 (ph)
Laura.m.busch2.civ@us.navy.mil
(Agency-US Navy)

Dr. Laurent Cherubin
NOAA CIOERT
Harbor Branch
Oceanographic Inst./FAU
5600 US 1 North
Ft. Pierce, FL 34946
(772)242-2314 (p)
lcherubin@fau.edu 9/15*
(Agency-CIOERT)

Dr. Roland Ferry
U.S. EPA Region IV
Coastal Section
61 Forsythe Street SW
Atlanta, GA 30303
(404)562-9387 (ph);
Ferry.Roland@epa.gov
(Agency-EPA)

Mark Hansen USGS
Center for Coastal &
Watershed Studies 600
Fourth Street South
St. Petersburg, FL 33701
(727)803-8747 ext. 3036
mhansen@usgs.gov
(Agency-USGS)

Lisa Havel
Atlantic States Marine
Fisheries Commission 1050
N. Highland Street Suite 200
Arlington, VA 22201
(703)842-0743
lhavel@asmfc.org
(Agency-ASMFC)

Brian Hooker
Office of Renewable Energy Programs
Bureau of Ocean Energy Management
45600 Woodland Road
Sterling, VA 20166
(703)787-1634 (ph)
brian.hooker@boem.gov
(Agency-BOEM)

Dr. Wilson Laney
Dept. of Applied Ecology
NC State University – Campus
Box 7617
Raleigh, NC 27695-7617
(919)515-5019 (O);
(252)339-5717 (C)
rallaneys@gmail.com
6/19*, 6/22*
Research/Ecologist

Dr. Steve Ross
521 Mitchell Street
Hillsborough, NC 27278
(910)962-2346 (ph)
rosss@uncw.edu
12/14, 3/18*, 6/21*
Research

Kevin Spanik
1070 Valley Road
Charleston, SC 29412
(843) 953-9857 (ph)
spanikk@dnr.sc.gov
6/21*
Research

National Marine Sanctuary Designee TBD

STAFF LEAD: Roger Pugliese

Habitat AP - 11/3/22

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

2022 COUNCIL MEMBERS

Dr. Carolyn Belcher, **Chair**
GA DNR – Coastal Resources Division
One Conservation Way, Suite 300
Brunswick, GA 31520
(912)264-7218
Carolyn.belcher@dnr.ga.gov

Trish Murphey, **Vice Chair**
NC Division of Marine Fisheries
P.O. Box 769
3441 Arendell Street
Morehead City, NC 28557
(242) 808-8011 (O); (252)241-9310 (c)
Trish.murphey@ncdenr.gov

Robert Beal
Executive Director
Atlantic States Marine Fisheries Commission
1050 N. Highland St. Suite 200 A-N
Arlington, VA 22201
(703)842-0740
rbeal@asmfc.org

Mel Bell
SCDNR-Marine Resources Division
P.O. Box 12559
217 Ft. Johnson Road
Charleston, SC 29422
(843)953-9007
bellm@dnr.sc.gov

Chester Brewer
4440 PGA Boulevard, Suite 600
West Palm Beach, FL 33408
(561)655-4777
wcbsafmc@gmail.com

Gary Borland
422 Highwater Court
Chapin, SC 29036
(561) 290-9274 (cell)
GborlandSAFMC@gmail.com

LT Cameron C. Box
Seventh Coast Guard District
909 SE 1st Ave.
Miami, FL 33131
(305) 415-6781(ph); (786)457--6419(c)
Cameron.C.Box@uscg.mil

Tim Griner
4446 Woodlark Lane
Charlotte, NC 28211
(980)722-0918
timgrinersafmc@gmail.com

Judy Helmey
124 Palmetto Drive
Savannah, GA 31410
(912) 897-4921
JudyHelmey@gmail.com

Kerry Marhefka
347 Plantation View Lane
Mt. Pleasant, SC 29464
(843)452-7352
KerryOMarhefka@gmail.com

Jessica McCawley
Florida Fish and Wildlife Conservation Commission
620 South Meridian St
Tallahassee, FL 32399
(850)487-0554
Jessica.mccawley@myfwc.com

Tom Roller
807 Deerfield Drive
Beaufort, NC 28516
(252) 728-7907 (ph);(919)423-6310 (c)
tomrollersafmc@gmail.com

Andy Strelcheck
Acting Regional Administrator
NOAA Fisheries, Southeast Region
263 13th Avenue South
St. Petersburg, FL 33701
(727)551-5702
Andy.strelcheck@noaa.gov

Laurilee Thompson
P.O. Box 307
Mims, FL 32754
(321) 794-6866
thompsonlaurilee@gmail.com

Habitat AP - 11/3/22

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

COUNCIL STAFF

Executive Director
John Carmichael
john.carmichael@safmc.net
843-302-8435

Deputy Director – Science
Dr. Chip Collier
chip.collier@safmc.net
843-302-8444

web ✓ **Deputy Director - Management**
Myra Brouwer
myra.brouwer@safmc.net
843-302-8436

Citizen Science Program Manager
Julia Byrd
julia.byrd@safmc.net
843-302-8439

✓ **Admin. Secretary/Travel Coordinator**
Cindy Chaya
cindy.chaya@safmc.net
843-571-4370

✓ **Quantitative Fishery Scientist**
Dr. Judd Curtis
judd.curtis@safmc.net
843-302-8441

Fishery Economist & FMP Coordinator
John Hadley
john.hadley@safmc.net
843-302-8432

Fishery Scientist
Allie Iberle
Allie.iberle@safmc.net
843-225-8135

Public Information Officer Kim Iverson kim.iverson@safmc.net
843-223-7258

Administrative Officer Kelly Klasnick
kelly.klasnick@safmc.net
843-763-1050

✓ **Habitat & Ecosystem Scientist**
Roger Pugliese
roger.pugliese@safmc.net
843-302-8434

Fishery Scientist
Dr. Mike Schmidtke
mike.schmidtke@safmc.net
843-302-8433

web ✓ **Communication and Digital Media Specialist**
Nicholas Smillie
Nick.Smillie@safmc.net
843-302- 8443

Staff Accountant
Suzanna Thomas suzanna.thomas@safmc.net
843-571-4368

web **Fishery Social Scientist**
Christina Wiegand
christina.wiegand@safmc.net
843-302-8437

Citizen Science Project Manager
Meg Withers
Meg.withers@safmc.net
843-725-7577

SEDAR

SEDAR Program Manager
Dr. Julie Neer
Julie.neer@safmc.net
843-302-8438

SEDAR Coordinator
Kathleen Howington
kathleen.howington@safmc.net
843-725-7580

Habitat AP Meeting - Attendee Report: November 1-3, 2022

Report Generated:

11/03/2022 03:35 PM EDT

Webinar ID	Actual Start Date/Time	Duration
822-499-339	11/03/2022 07:58 AM EDT	3 hours 55 minutes

Attendee Details

Attended	Last Name	First Name
Yes	Baumstark	René
Yes	Bianchi	Alan
Yes	Brouwer	Myra
Yes	Chaya	01 Cindy
Yes	Dieveney	Beth
Yes	Finch	Margaret
Yes	Glazier	Ed
Yes	Helies	Frank
Yes	Hiers	Homer
Yes	Klasnick	01Kelly
Yes	Knight	Casey
Yes	Laney	Wilson
Yes	Long	Stephen
Yes	Mehta	Nikhil
Yes	Murphey	Trish
Yes	Oliver	Ashley
Yes	Pugliese	01Roger
Yes	Ross	Steve
Yes	Schmidtke	01Michael
Yes	Seward	McLean
Yes	Smart	Tracey
Yes	Smillie	Nick
Yes	Spanik	Kevin
Yes	Staples	Shane
Yes	Vecchio	Julie
Yes	Werndli	Steve
Yes	Wiegand	Christina
Yes	Willis	Michelle
Yes	collier	chip