SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

HABITAT AND ECOSYSTEM ADVISORY PANEL

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Transcript

Habitat and Ecosystem Advisory Panel

Stacie Crowe, Chair
Cameron Brinton
Anne Deaton
Dr. Derek Detwieter
Dr. Laurent Cherubin
Dr. Brenden Runde
Cameron Luck
Dr. Christian Commander
Paula Keener
Thomas Jones
Shannon McAskill
Laura Busch
Erin Spencer
Simen Kaalstad
Benjamin Thepaut
Dr. Matt Johnson
Scott Kathey
Kellie Ralston
Kevin Spanik
Dr. Wilson Laney
Matthew Troy
Stephen Morrison
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Council Members

Trish Murphey, Chair
Tom Roller

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Attendees and Invited Participants

Lara Klibansky
Brendan Turley
Matt Kenworthy
Kiley Dancy

Observers and Participants

Other observers and participants attached.

The Habitat and Ecosystem Advisory Panel of the South Atlantic Fishery Management Council convened at the Town and Country Inn and Suites in Charleston, South Carolina on June 30, 2026, and was called to order by Chairman Stacie Crowe.

MS. CROWE: Good morning again, everyone. We are going to start with a quick round of introductions. We have a lot of new faces in the room, and presumably some online, and so I'll start here in the room. I'm Stacie Crowe, with the South Carolina Department of Natural Resources. Do you want to go around the room?

MS. HOWINGTON: Yes. Kathleen Howington, South Atlantic Fishery Management Council.

MR. WEATHER: Eric Weather with Florida FWC.

DR. LANEY: Wilson Laney with North Carolina State University Department of Applied Ecology.

MR. JONES: Tom Jones, at-large, Georgia, recreational fisherman.

MR. SPANIK: Kevin Spanik, South Carolina Department of Natural Resources.

MR. LUCK: Cameron Luck, North Carolina Division of Coastal Management.

MS. BUSCH: Laura Busch with the U.S. Navy.

MS. KEENER: Paula Keener, retired NOAA, Marine Advisory Committee for SC DNR.

MR. TROY: Matthew Troy, at-large.

MS. MCCASKILL: Shannon McCaskill, St. John's River Water Management District.

DR. JOHNSON: Matthew Johnson, Southeast Fisheries Science Center for NOAA.

MS. SPENCER: Erin Spencer, National Marine Sanctuary Foundation.

MR. BRINTON: Cameron Brinton, Georgia Department of Natural Resources.

DR. DETWEILER: Good morning. Derek Detweiler, North Carolina Division of Marine Fisheries, Habitat Section.

MR. THEPAUT: Benjamin Thepaut, South Carolina Department of Environmental Services, Bureau of Coastal Management, Coastal Zone Consistency Division Director.

MS. HOWINGTON: All right, and so, for everyone online, I believe you should be able to see the attendees and go in order. Can you?

DR. RUNDE: I do not see that, Kathleen.

MS. HOWINGTON: Okay. Then I'll just call out your names. Please make certain to mute yourself after I call out your name. That way, we don't hear you, you know, shuffling, or typing, that kind of thing. Anne.

MS. DEATON: This is Anne Deaton with NOAA Fisheries Beaufort Lab.

MS. HOWINGTON: Brendan.

DR. RUNDE: Hi. Brendan Runde with The Nature Conservancy.

MS. HOWINGTON: Kellie.

MS. RALSTON: Hi. Good morning, everybody. Kellie Ralston with the Bonefish and Tarpon Trust.

MS. HOWINGTON: Matt.

MR. KENWORTHY: Can everybody hear me?

MS. HOWINGTON: We can.

MR. KENWORTHY: Hi. I'm Matt Kenworthy with the North Carolina Division of Coastal Management.

MS. HOWINGTON: Scott.

MR. KATHEY: Good morning. Scott Kathey, representing NOAA's Office of National Marine Sanctuaries.

MS. HOWINGTON: Simen.

MR. KAALSTAD: Good morning, everyone. I'm Simen Kaalstad, and I'm with the Atlantic States Marine Fisheries Commission, and also the Atlantic Coastal Fish Habitat Partnership.

MS. HOWINGTON: Laurent.

DR. CHERUBIN: Good morning, everyone. This is Laurent Cherubin, and I am with Florida Atlantic University Harbor Branch Oceanographic Institute.

MS. CROWE: Okay. Thank you, everyone. We are going to start with the approval of our agenda for the meeting. We do that by consensus, and so, those in the room, you can just raise your hand if you approve of the agenda. Those online, if you have a comment, or don't approve, please let us know. It looks like we do have consensus in the room. Anything online?

MS. HOWINGTON: No.

MS. CROWE: Okay, and so the agenda is approved. Next, we are going to approve the minutes. Wait. Hold on. Wilson.

DR. LANEY: Madam Chair, if I could have like two minutes under Other Business to just update everybody on the Roanoke River project that we've been working on.

MS. CROWE: Sure.

MS. HOWINGTON: Can you repeat what that is, so can type it in? Wilson, what's the name of the project?

DR. LANEY: I'm sorry. It's the Roanoke River project that's funded by the Climate Adaptation Science Center and the Corps of Engineers Nature Conservancy Sustainable Rivers Program. We've been looking at how projected future climate scenarios will affect discharge on the Roanoke River and how that could affect migratory fishes and the floodplain.

MS. CROWE: Great. Okay, and so we're going to approve the minutes from our January meeting, and so, again, through consensus. If anyone online has a comment, please let us know. In the room --

MS. HOWINGTON: Yes, Brendan, and I know your name is misspelled again. I'm so sorry about that. I promise I have updated the directory seven times.

MS. CROWE: Okay, and so if we can see a show of hands for approval of the minutes, and it looks like we do have consensus in the room. Is there anything online?

MS. HOWINGTON: You mean other than I need to fix Brendan's name again?

MS. CROWE: Okay. We will note that.

MS. HOWINGTON: At some point, I'm just going to leave it like that.

MS. CROWE: Yes.

MS. HOWINGTON: No, and we're good, I think.

MS. CROWE: Okay, and so we always open the floor for public comment at both the beginning and the end of the meeting, and so, at this time, I will open the floor if there's any public comment, and I don't see any in the room. Is there anything online?

MS. HOWINGTON: No hands raised.

MS. CROWE: Nothing online. Okay, and so we will keep moving on, and, next up, we're going to have some remarks from Tom Roller. He is the Habitat and Ecosystem Committee Vice Chair.

MR. ROLLER: Good morning, everybody. My name is Tom Roller. I'm a council member from North Carolina. In my everyday life, I am a charter fisherman based out of Beaufort, North Carolina. I've been the vice chair of this committee for the last few years, and it's really nice to be able to attend a meeting in-person with you all.

As you know, our committee chair, Trish Murphey, or, if you don't know, recently became a grandmother, and so we want to congratulate her on that, and she has chosen the grandmother named Nene, which I am particularly fond of.

I don't really have much to update you on. As you know, we met in June, but I'll just take a moment here to welcome all the new members and thank you all for being here and the expertise and time that you spend here, as the work here is the foundation of much of the management we do at the council, and so thank you all.

MS. CROWE: Thank you, Tom, and, with that, we will jump right into our first presentation. I'm going to hand it back off to Kathleen, and she is going to discuss the integration of the FEP II information into food webs and -- Into the food web and connectivity policy.

MS. HOWINGTON: Good morning, everyone. Okay, and so we have been updating the food web and connectivity policy in two different ways, actually. The way that we started off, the goal was we were going to try to integrate prey information into our EFH definition, and so this would be habitats that prey use that then should be labeled as important for our FMPs.

The gameplan is, and still is, identify the very different life history test species to be able to figure out the best practices, identify their top prey, identify the habitat use of that prey, identify the habitat use of those predator by life stage, and then identify areas that are different than those two definitions and draft a prey dependency paragraph.

This is something that the other councils have done. We're trying to kind of mimic them, and get our EFH definitions to start incorporating that, and then, once we're done with those, with the test species, develop best practices, lessons learned, and then do it for the rest of the fishery management plans. That was the goal.

These are the test species that you guys already agreed on. Gray triggerfish, red snapper, dolphinfish, golden crab, tomtate, and gat grouper. Again, we're trying to go very varied, and so we want to be able to find all the problems that we're going to run into with this process, because we are going to run into some issues, and here are the issues.

That food web working group has met twice. We have been having concerns about standardizing the process, especially when it comes to different levels of taxonomic identification, sample sizes, and so we're still working with FWC staff, Lauren Gentry. She is amazing, and she is our lead on our EwE model.

I have been working with her, and she is actually developing a worksheet that's going to allow working group members to be able to go in and help identify the habitat use that each prey has. We've already identified top prey for each FMP, and so, once we do that, then, again, it's just the comparison of the prey uses this habitat, the predator uses this habitat, what is different, and, anything that is different, we're then going to try and integrate into the EFH.

That's where it doesn't overlap, where our current EFH definition doesn't cover the prey. That's the thought process, but we're still working on that worksheet. Once that worksheet is done, then the working group will meet again, and will hopefully be able to make pro progress on this.

While we were doing that, we discovered that the food web policy that we had updated from 2016 to 2024 had actually already been updated in 2018, and approved by the council, and then had been lost to the ether, and so we re-found it and started integrating that information into the 2025 food policy, to make certain that we aren't losing any of the information that's there. We did think it was very important.

The group added in the 2018 verbiage into our 2025 food policy as an appendix. The relevant sections were then linked to the appropriate policies, and so it's all linkable. It's all clickable, and then the wording was very verbose. We love Roger, but the man loved a long, run-on sentence, and so we did streamline a little bit, and we updated a lot of the references, because there was a few that were out-of-date.

Then, if you give me one second, I'll switch to the food policy and kind of show you what we've done, and so all of this is the same. This is all stuff that you've already approved, and we're good to go. We've got our big food web that, again, Lauren Gentry helped create, but then, if you go down to the actual policies themselves, for instance, we have forage fishes right here.

If you then want to look at what top-down-bottom-up controls are, you can click on that button, and it instantly goes to the appendices section that summarizes what's in the 2018, and so we're hoping that then helps make it where, again, if you're reading about prey importance, well, then let's talk about dominant energy pathways and emerging trends. You can just click on the button, go down, and there's the information that you need.

That then incorporates all the Fishery Ecosystem Plan II information into this as an appendices, which we think is great. We also added in two new tables, and so these were crosswalks. Just to help orient people, if they need it, you have your policies, of course, 1, 2, 3, all over here, and so you've got invasive species, and contaminants, and then you have your associated appendix sections, and then key ecological concepts, and so what are we trying to get at with this policy? What is the focus?

Then, finally, the management relevance. Why do we care? So, for instance, trophic pathways, key ecological concepts, top-down-bottom-up processes regulate ecosystems, and why does that care? Maintaining this pathway diversity for resilience in our fisheries, and so that's what that crosswalk is. It's just meant to help you figure out why we have all this information in there.

Then we also have this crosswalk, and so this is, again, you have your policies, and then we now have ecosystem indicators, because, in 2018, we identified those, and so now we have our relevant indicators that are associated with those policies. We have the purpose of those indicators, and then we have the data requirements for that indicator, and so, if you want to talk about prey importance, then the relevant indicator is diet diversity trophic overlap. It's important because we're identifying key prey roles, and, if you if you want to study that, then you need some diet studies.

Now, we kept this pretty generic, but I think they're helpful, if the AP thinks so, and that's just a general summary. We didn't update the prey tables, and we didn't update the food web or any of like the main policy wording. We just integrated that 2018 section into here, and so it now has all

the information it needs to back it up of why we're saying this is important, and so that's a quick summary there. I'm going to pause, Stacie, and hand it back to you.

MS. CROWE: All right. Thanks, Kathleen. Does anyone have any comments on any of that quick overview? Nothing? Wilson.

DR. LANEY: Just to say a tremendous amount of appreciation to Lauren for continuing to work with us on what is a very complicated issue, as I think everybody is aware. For those of you who haven't been exposed to it before, the South Atlantic Council, I think, may be the only council that has an Ecopath with Ecosim model for the entire South Atlantic ecosystem, and the original version of that has 140 different species, or species groups, in it, and it's so large that the working version of it I think is a lot smaller than that. They trend it down a lot, but Lauren has been and integrative part of that whole process, and we greatly appreciate her continuing to be involved in that.

MS. CROWE: Thank you, Wilson. Brendan, I see you have your hand up online.

DR. RUNDE: Thank you. Yes, and I think this is a great effort. One thought that that maybe Tom would like to reply to, and I know that the council has been taking a look at fishery management unit revisions for the Snapper Grouper FMU, and I'm wondering if this, in its current form, is helpful to the council in that for that effort, and, if not, if there are any tweaks that we could consider. I don't want to prolong the process, but just to think about how this might be relevant for that ongoing discussion at the council table. Thank you.

MR. ROLLER: Thank you for that question, Brendan. I think you raise a really interesting point. I can't really -- I'm trying to think back to those discussions as we've talked about the unit revisions from an ecosystem component. I don't really think that this is something that the council has directly discussed, but I believe they should, and so, as we discuss this, I think that that's an important thing to keep in mind.

MS. CROWE: Thanks, Tom. Any other comments? All right.

MS. HOWINGTON: Okay, and so then back to the original plan, now that we've taken that fun little detour. We're still working on data processing with FWC staff. Again, shoutout to Lauren Gentry, who is awesome, and we are now done, hopefully, with how to handle the 2018 policy. I will take this revised policy to the council in September, hopefully for their approval.

Again, we didn't change any of the main body content. We just added information, and so we should be good, and then, after that, the working group is going to meet back up, hopefully with that worksheet that Lauren has been working on, and start identifying habitat by prey, and then start doing our analysis and be able to bring you an update, if not in January, then in the next summer.

Then, long-term, the goal the gameplan is to integrate that EFH identified via the predator-prey analysis into the relevant FMPs, and then, once they're updated into the FMPs, we can then do a user guide update, and so this is going to be something I'm going to be reiterating over and over and over again.

We, an advisory panel, cannot do large changes to the user guide, and so, for the new people who are here, our user guide is our summary document for our EFH. It is very helpful for our end users. They love being able to just have one sheet that this is where EFH is, and we're good, but, legally, we cannot make large changes to our user guide. We can only do little tiny tweaks.

For instance, we updated our definition of mangroves, and just added a footnote. That was fine, but adding in all of the prey habitat information is probably considered big, and so we're going to be having to do that via the council amendment process, and that will be done during our five-year updates, which we have to do every five years, and so that's in the next four years, and so that's the plan for all -- We have I think seven new people on the AP today. The work completion goal is, again, December 2029.

MS. CROWE: All right, and so, next up, we are going to discuss another policy that we have been working on, the revision to the alterations to riverine, estuarine, and nearshore flow, and I'm going to hand it back over to Kathleen.

MS. HOWINGTON: Don't worry. You only have to hear my voice for the entire morning, and then, after that, you don't have to hear it again for today. The flow policy, you guys have been seeing this a few different times. In April 2024, we received a presentation from Indian River Lagoon. Please help me out. I had this in my brain this morning. A representative from the Indian River Lagoon Council. There you go.

In response to that presentation, the Habitat Advisory Panel requested to be able to add revisions to our flow policy, which is the shorthand for our estuary and flow policy. It was more dam focused than it was water quality, dikes, tide gates, all the new, fun stuff that's come up since -- I think this policy was in 2014, and so the South Atlantic Council agreed to that, and we have been working on that since then.

We added in information on water quality runoff, dikes, storm runoff, roadway, and you can read it. We've also updated citations, references, updated the state-specific rules, and so, in this policy, each state -- We actually went and contacted the states and made certain that the information we have is still up-to-date, and then we reorganized the policy section a little bit, for increased efficiency.

Then we did send it out to you guys in April, to just double-check. We got a few new references, fixed some grammatical errors, but we think we've done what we set out to do, and added in all that new water quality information, and so then I'm going to hand it back to Stacie. I can't -- Unlike in the full policy, where I could say these are the sections we updated, we updated the entire thing, and so I'm going to give it back to Stacie. I'm not going to review the whole thing for you guys.

MS. CROWE: Okay, and so -- Yes, and I'm not going to review the whole thing for everyone either, but, if anyone did look at the policy again, does anyone have any edits to suggest at this point, or, if not, are we good to approve the edits that were made in the document that was sent out to you? Any feedback online?

MS. HOWINGTON: Granted, they've seen it four times, and so I'm really hoping by now we have that.

MS. CROWE: I don't see anything in the room, and so, if there are no edits, then -- Go ahead, Anne.

MS. DEATON: I lost I lost the button to turn my mic on and off. I don't know where it is. Anyhow, I had a few -- Just a few things when I was looking at it from the beginning, and I thought a big part of the concern here was the large discharges from Lake Okeechobee. That was part of it, right?

MS. CROWE: I'm sorry to interrupt you, but we're having trouble hearing you.

MS. HOWINGTON: I think she was saying the Lake Okeechobee, the freshwater discharges.

MS. DEATON: Yes, and so when I just start at the very top -- Is that better? Can you hear me?

MS. CROWE: Yes. Thank you.

MS. DEATON: So, on page 2, talking about hydrological -- Page 2, Number 4. It says hydrological alterations have caused impacts to the following types of habitats and ecosystem functions, but it doesn't really talk about the function, and I don't know. My one suggestion was it should mention resulting in -- That can result in rapid change in conditions such as salinity, temperature, DO, and flow, and so that that would be more -- It would cover that. That's the rapid change, like say from discharges, but also from intakes too, or discharges from nuclear plants, you know, the water, and so I don't know. It just seemed like that kind of part of it was missing. On page 3 -- Go ahead.

MS. CROWE: I think that's a good suggestion. Does anyone else have any feedback on that? No. Okay. Go ahead, Anne. Did you have another one?

MS. DEATON: Just the next page, page 3, Number 8. Numerous habitats have been impacted, and it lists them, but I don't see seagrass, which has been impacted at Indian River Lagoon, and Saint Lucie River and stuff, or wetlands, and I guess my example for wetlands is the Cape Fear River, because of dredging, which is a hydrologic alteration as well, right, or maybe it's not covered for this, but, anyway, the dredging has caused saltwater intrusion, which has resulted in loss of -- Death of cypress trees, and just a shift in the wetland types. Nothing big, and just -- That was it.

MS. CROWE: Thanks, Anne, and so I think the seagrass and the Indian River Lagoon suggestion is good. I think the dredging part would be covered in the beach dredge and fill policy.

MS. DEATON: Yes. Okay.

MS. CROWE: Got it?

MS. DEATON: Although it's a port, you know, and it's not necessarily for nourishment.

MS. HOWINGTON: Anne, and so the two that I have, the two additions I have, are on page 2, Number 4, add in causes to rapid change to conditions, such as salinity, temperature, and DO. Then, page 3, Number 8, add in seagrass in the Indian River Lagoon. Do you have any other edits?

MS. DEATON: No, and that's as far as I got from my fresh look.

MS. CROWE: Thank you, Anne. Matt Kenworthy, go ahead.

MR. KENWORTHY: I just want to confirm that it's okay if I participate in this discussion, considering my status on the HEAP right now.

MS. HOWINGTON: So, for those who don't know, Matt has left Florida. He is now in North Carolina. He was, however, until through three weeks ago, one of our AP members. He is also presenting today, and so it's up to the chair, but he also helped write this.

MS. CROWE: Yes, and I think it's appropriate that Matt comments. Go ahead.

MR. KENWORTHY: All right. Thanks. I just wanted to confirm that. I think that's a great point that Anne brings up. One, regarding the discharge from various places along the coast, specifically mentioning Florida locations, I think we should phrase it in there as not rapid changes, but more of like pulse events.

That seems to be kind of how it's talked about in Florida, and in other places, you know, the pulse events of the changing salinity. I know it's just kind of a small thing of word choice, but I think pulse events would resonate well across multiple users, and so just one suggestion as we work through that, and, Anne, thanks for bringing up that seagrass point. I think that was a simple oversight on the group writing this, that, you know, were beating their heads against the wall on a bunch of different things, and it just got lost in translation, and so I appreciate that.

MS. CROWE: That sounds good, Matt. Thank you.

MS. HOWINGTON: With those two changes, are we approved to move to the council?

MS. CROWE: So with those two changes, do we have approval from the AP to move that to the council? I'm seeing nodding of heads in the room. Does anybody online have any objection to that? Okay. Nothing online, and so that's good to go?

MS. HOWINGTON: I think so, yes.

MS. CROWE: Okay. Next up, we are on Number 3, Life Stage Information Updates for EFH Definitions, and we are going back to Kathleen.

MS. HOWINGTON: Okay, everyone, and so I'm going to go ahead and apologize for this presentation. We all have sat in the how to make the correct presentation and don't add too many words lesson plan. This breaks that rule a lot, and I'm so sorry, but it's kind of what we had to do.

For the context, Subpart J of 50 CFR Part 600 of the Magnuson-Stevens Act identifies that one of our requirements is that we have EFH for each FMP by life stage. We do not have that currently, which is not great, but we do identify it in FMPs, and so, in the original, big comprehensive ecosystem-based amendment, we identified the life history, but then that then didn't go into the official EFH definition, which then consequently didn't go into the user guide.

While we're doing our big update on our EFH definitions, we need to try and tackle this, and see what we can do, and so there is a resilient fishery project for Coastal Migratory Pelagics, Snapper Grouper, and Dolphin Wahoo. We're going to be talking about that later, and hopefully they're going to be able to give us more life stage information. If not, we're going to have to tackle it later, but that's my goal, and that's what I'm hoping is one of the outputs that comes out of those.

Then Cameron Luck, Matt Kenworthy, again, why he's online, and out of the goodness of his heart, because he is not an AP member, and so he is here for free, and I tried to tackle a few of the FMPs. We do need one volunteer for golden crab. I contacted our advisory panel, and they're willing review a life stage summary. They are not willing to do the write-up for us, which makes sense.

I'm going to review Spiny Lobster, Shrimp, Coral, and Sargassum. While I'm reviewing this, and we're going to stop at the end of each FMP, please think about is this format appropriate and does this contain the needed information that we need to meet the requirements of the Magnuson-Stevens Act? Do we have any edits that are recommended, and are there any additions? Give me one second, so I can pull up my Word version of this. Okay.

I'm going to be taking edits throughout the whole time, and that's going to be -- Where did it go? This is why I need both screens. For those who are not online, I'm pulling up the screen on the second screen for everyone, but it's not working for some reason, because why would it?

I don't want to take a screenshot. I can't get it to go away. All right. Well, never mind. I'm just going to be taking these edits on my own, and you all are going to have to trust me, because now I can't bring it up. Okay. It's okay. It's just technology being evil. It just won't go out of full screen, is where it's at. It's okay, Rachael. It's fine. I got it. I'm just going to close it out and bring it back.

All right, and so let's move on to the next thing, the spiny lobster. Again, I apologize that there are so many words on the screen. You all should have received a Word version of this, and so please review, and give me any edits that you have, and I will do my best to make Word listen to me eventually.

MS. CROWE: Okay, and so, if anyone has anything to add for spiny lobster, and, again, we're going back to Kathleen's life stage information questions that were on the previous slide, and so is the format appropriate? Do you see the appropriate information that meets the requirements? Do you have any edits, or additions, to spiny lobster? Wilson.

DR. LANEY: Thank you, Madam Chair, and so, Kathleen, I went through -- Well, first of all, the format is fine. I didn't have any comments about that. One of the things I always do is try and go through and check all the references, and some of them were not cited in the text, and so I didn't know whether you wanted to address that question or not, or whether they were supposed to be cited in the text, because, the way you had it formatted, with general and then specific, that's fine to include references that aren't cited in the text, I suppose, and so that was the only comment that I had on that one. I thought the write-up was fine.

MS. HOWINGTON: So, again, there are three people that wrote this, but, for me, I had ones that I cited in the text, and then I had ones that were supportive, that either I found, and then I found a

different citation that I thought was more relevant, but I wasn't wanting to keep it, and so I had more like background -- Or citation and references.

In my brain, those are always two separate sections, especially with habitat, of we can cite seven papers, but there are fifteen relevant ones out there, and so I typically like to keep them separate, but, if you do not think that's appropriate, I can always remove the ones that were not cited. Cameron.

DR. LANEY: I'm good with it.

MR. LUCK: I think -- So that was my one question, because Matt and I were working in an office across from one another on these, and, for example, he didn't put them in line, and I did. Another question I had, which I communicated with you on, was the length of these, and how much detail we wanted to go into.

There's certainly a lot more information on spiny lobster that could have been provided, particularly details related to ontogenetic shifts in habitat usage as spiny lobster get older, but I didn't know how far in the weeds we really wanted to go, and so I kind of left it where it is now, which is pretty high level still in terms of habitat use.

I also didn't talk at all, and I think we will a bit later, about climate impacts, and I didn't know if that was something we wanted to talk about as well within life histories, particularly temperature changes and how those impacts are going to -- Or how those changes are going to impact spiny lobster, and so, anyway, setting some sort of boundary for how complex we want to go would be great.

AP MEMBER: I really like the length, because I see this is kind of a jumping-off point, and I think it actually ties to the references like question, because I think you should include more than what is cited here, even if you want to call it out as like further information, because the length is great, and then people can go get more information, but I think I think these are great, and they packed a lot of good information in this in a short package.

MS. CROWE: I have Wilson in the room, and then we're going to move online. Who do we have online?

MS. HOWINGTON: Brendan, Matt, and Scott.

MS. CROWE: Okay, and so we'll go Wilson, then Brendan, Matt, Scott.

DR. LANEY: Okay. Madam Chair, thank you, and so, to Cameron's point about climate change effects, I'm going to mention that when we get to shrimp, and so I would support -- If we know that that a given species is responding, i.e., the range is shifting northward, so that now we can have commercial fisheries for them, whereas before we didn't, that is something I think that's probably important enough to mention, for sure.

As always, it's always sometimes difficult to tie changes in distribution, or production, or abundance to, you know, some particular factor, and so some of it sometimes is speculative, but,

to the extent that we can find papers that actually, you know, show that smoking gun relationship, that would be great, if they exist.

MS. CROWE: Okay, and so probably -- Kathleen and I were talking that probably we shouldn't speculate, and just include the things that there are references to support, and next we are moving online to Brendan.

DR. RUNDE: Thank you, Madam Chair, and so, first off, there is a second page in the slides that I have, for spiny lobster, correct, and so I'm -- When I reviewed this, I kind of looked at both pages, and tried to answer the questions that Kathleen had, and I did want to point out that I don't see any spatial information in this description, nor do I see any depth information, and I think that those are required in order to satisfy the Section J text. Thank you.

MS. CROWE: Thanks, Brendan. Matt, you're next.

DR. JOHNSON: Yes, and all great conversations here, and, Cam, I appreciate the hard work in putting this together. I think it all looks pretty good, and I support what the other comments have been. I do have one comment about the artificial the artificial shelter structures. I think it's important to talk about the value of artificial structures in the life history of spiny lobster, and I think these are intended to kind of stick to describing life history patterns.

My request would be to not include the word "casitas" in these descriptions, and keep the language at, you know, artificial structures are beneficial in some cases, per the citation of increased juvenile abundance and carrying capacity.

MS. CROWE: Great. Thank you, Matt. Go ahead.

MS. HOWINGTON: All right, and so then, like Cameron said, there are actually two versions of spiny lobster. You have your bullet points, and then you have your paragraph. Cameron, do you want to go into like what the difference is, or they just different format?

MR. LUCK: So I wrote what you're looking at right now first, but was taking notes along the way, and it all comes back to how much information you wanted to include. Bullet points are sort of just context, bigger-picture information I thought would be helpful, but what I actually intended to be used, or expected to be used, for the life history was just the body paragraph that you're looking at right now. If we think that including bullet points as part of the format is helpful, we should probably define what those bullet points contain, and so that was my thought process.

MS. CROWE: Scott, you can go ahead with your comment.

MR. KATHEY: I just wanted to suggest that you may want to just make this very clear, since the objective is to identify FMPs, the EFH for each life stage. If you wanted to just have some headers, you know, larval, juvenile, adult, because it seems like the information is here, but it's kind of scattered, and I'm just wondering if, from a structural standpoint for each one, you just have those placeholders for those kind of generic categories of life stage.

MR. LUCK: Kathleen, I believe the Gulf is structured that way, and we had originally discussed doing that. I agree that would be a more structured approach. I think the discussion ended at let's

try and keep it as short and sweet as possible, but, if we want to go that way, I mean, it makes sense to me. It's just -- It's just a lot more information on a page, which is fine.

MS. HOWINGTON: It depends on what FMP you're trying to tackle, but I did that for the Coral and the Sargassum, but then I had to do it by different coral species, and it -- This entire thing is just going to get complicated, and we're just going to have to accept our fates.

MR. KATHEY: So is it the concern that you would have to be repeating some information for each if you were to have those different headers, and you would just be repeating yourself, and is that -- Is that the problem? I'm thinking just adding headers wouldn't seem like a lot of extra --

MS. HOWINGTON: No, and I don't think the headers are a big deal at all. I think we can add that in.

MR. KATHEY: That's all I have.

MS. CROWE: Laurent, you can go ahead and then, after Laurent, Anne.

DR. CHERUBIN: Thanks, Cam, for the great work, putting this together. In reference to what's needed for the Magnuson-Stevens Act, I think maybe we should be more specific, in terms of the habitat, you know, when doing the larval dispersal process. Of course, it depends on the spawning grounds, but I think it's not, you know, really clear where that happens, what sort of water mass, or what current boundaries they are.

I think there's a lot of like -- It's kind of vague in that sense, if we really want to relate a specific habitat to the larval stage, knowing that -- I know it's kind of pelagic, sand o it might be harder to define, but I think, you know, if we could associate the specific, and so I think a little bit more specific to the larval stage and then through the ontogenetic changes, right, and what habitat specifically they've been found, so you know where, you know, the big adults tend to be found in deeper depth, and so it's a different environment than the younger than --

You know, not the juvenile, but like the young adults that you find on the shallow reef, or shallower areas, and so I think there's a vertical component to it as well, and then there's a pelagic too, versus, you know, a narrative component to it as well. I don't know if we want to go into that detail, but I think, if we really want to talk about habitat, this has to be accounted for.

MS. HOWINGTON: Anne.

MS. DEATON: Thanks. I kind of -- I'm leaning towards supporting being a little more specific, and keeping -- In my in my head, I'm thinking, you know, how is this information used. In like an EFH assessment, the applicant has to say what EFH is there, and they have to say, you know, what EFH is within this project area, and, you know, by life stage, and how they will be affected, and so, you know, just the headings or even just a little bit more information on larvae, juveniles, sub-adults, adults, whatever, and the migration pattern and, you know, the habitat where each is. That's what I've seen for some other species in like EFH profiles.

Then my other -- I just had a question, and what is the goal of these write-ups? Will they be -- Will they replace -- Will they go into the FMPs, or is it they will be a stand-alone EFH profile or with the EFH map? I mean, not the map, but the --

MS. HOWINGTON: I'll discuss this at the end of this presentation, but, back to what was I saying earlier of that we cannot update the user guide with this kind of large-enough change, and so this is going to be integrated into our five-year EFH update, and that's going to be -- Once we get closer to that, I'm going to start having to discuss with everyone how we want to tackle the framework, comprehensive amendments, and probably that one, but it -- So that's going to be the long-term game plan.

The short-term gameplan, I'm going to recommend to the group, once we -- Once we approve the descriptions, which it sounds like you all want the working group to go back and kind of maybe re-jigger it, restructure it a little bit, but, once we approve the descriptions, I was going to recommend we add it as an appendices to the user guide, until such a time as we submit our EFH five-year update. That way, we don't lose the information. It's there if anyone wants it, but we aren't changing the user guide, and so we can't legally get in trouble.

MS. DEATON: That sounds good.

MS. HOWINGTON: All right, and so that's spiny. I'm hearing maybe focus a little more on details, add in some headers, maybe make some more specific life stage to habitat. If there's any kind of changes in climate change that we can prove, that we have supporting evidence for, add that stuff in, and adding in spatial information and depth information, and so then we're going to go to shrimp. This is, again, Matt Kenworthy. Thank you for being here. We have, and let me scroll real fast, one on penaeid shrimp and one on rock shrimp, and so, Matt, do you want to give a little description, or do you just want us to go straight to talking?

MR. KENWORTHY: We could jump straight into talking EFH, and I'll just highlight here, in thinking about life history and EFH, you know, with penaeid shrimp, there is some unique differences between the three different species of penaeid shrimp. I know they're all lumped under, you know, one species for the FMP, but, within those three species, there are distinct differences in both, you know, offshore spawning and then, you know, inshore juvenile habitat use, and so I think that's something to keep in mind when we're doing this exercise.

To Wilson point earlier, you know, there has been quite a bit of work done in the last, you know, five to ten years that have really looked at, you know, climate change impacts, environmental change impacts, and how that's impacting, you know, recruitment timing, some distribution and migration, and so there are implications, you know, on the changing ecosystem front, that I think are worth considering and talking about more, per Wilson's comment, but I'll leave that kind of overview at that level for penaeid shrimp, and we can go into the discussion.

MS. CROWE: Thanks, Matt. Does anyone have anything to offer for that? I see Wilson's hand up in the room. Go ahead, Wilson.

DR. LANEY: Okay. Thank you, Madam Chair, and thank you, Matt. Yes, and so I had a few comments, and I'll just go through them here. One, really I suppose is to Kathleen, and so, in the previous spiny lobster one, you know, most of the references were embedded in the text, and cited.

In this one, they're not, and I don't know whether we are obligated to try and be consistent with respect to whether we include them or not, and so you're nodding yes, and so I would say, if we could integrate the references into the text, that would be good.

One thing, Matt, is on the scientific names for these species, I know that they historically were changed, and so I think, for setiferus, it's now litopenaeus, and maybe for aztecus as well, and I don't know. We just need to check the scientific names. The AFS puts out a book that has accepted common and scientific names in it, and so maybe we could use that as a standard, and I don't know.

Then I did mention that white shrimp range in particular has shifted northward. They are coming out of the Chesapeake Bay now, and they've colonized habitats in Chesapeake Bay, and enabled new commercial shrimp fisheries in Virginia, and I think Maryland has initiated one now, or is looking into it.

To the extent, again, as our chair has already noted, if we can document that that's a function changing temperature, warming temperature, or maybe -- I don't know whether it's a change in post-larval distribution as well, in that somehow more larvae are recruiting into Chesapeake Bay, and I don't know. I think we can dig into that a little bit, but certainly it's a significant event if states to the north of the traditional range of white shrimp are now implementing shrimp fisheries. That would be something that we might want to mention.

Then, in the way of editorial comments, there as -- On page 6, A.F. Broad reference is out of alphabetical order, and we just need to move that up to the top, and that was it, I think, that I had for the penaeid shrimp. Thank you.

MS. CROWE: Great. Thank you, Wilson. Any other comments on penaeid shrimp?

MS. HOWINGTON: I do think that we should probably be consistent of, if we're going to update this, again, doing the same thing that we're doing for spiny, adding in the headers and making specific habitat life stage connections, and so back to what Wilson said. Since it was the three of us all writing, we kind of took -- I gave us all like this is what the Gulf does, and this is what I've done, and then we kind of all took different routes, a little on purpose and a little bit on accident, and I left it on purpose, because I wanted to see a what version you guys preferred, and so it sounds like you all want headers, and you want specific attachments. It sounds like you want a bit more detail and a little bit more climate in general, and then maybe species-specific, if needed, for all of it. Anne just raised her hand.

MS. DEATON: Thank you. I was just going to ask, and could there be more specifics on like the time of spawning, which I think is based on water temperature for the different species, just to give a visual of like distance offshore, because they do spawn offshore, and we've the oligohaline and mesohaline in there, and that's good. Just a little bit more specific on the temperature, or is it too variable along the coast?

MS. CROWE: Thanks, Anne. Matt, go ahead online.

MR. KENWORTHY: I mean, if the group wants that, you know, I've got that detail in some of these summaries. When I was working on this, when we were writing it up, I kind of went back

and forth on how much of that detail to include, or, you know, do we want to get specific of exact depths, or at least preferred depth ranges and preferred ranges.

I mean, I've got that information, and I can easily kind of wiggle it into these. It is -- I guess it comes down to kind of the overlying conversation of, you know, how much detail, how long, versus kind of these broader -- They use offshore habitat, and three is spatial separation among the three species on preferred habitat, which is included in here, and so that information is at our fingertips, and, if the group wants to incorporate it in there, we certainly can, at least speaking for penaeid shrimp, and probably the other ones, too.

MS. CROWE: Thanks, Matt. Wilson, go ahead.

DR. LANEY: So one that I missed, earlier, Matt, on page 5, the third line up from the bottom in the paragraph that says, "concentrations occurring between thirty-five and thirty-five meters", and I think that probably should be between thirty-five and some other value. I'm just pointing that out.

MS. HOWINGTON: That's thirty-five and fifty-five. We have actually already fixed that.

MS. CROWE: Matt.

DR. JOHNSON: Thanks, Matt Kenworthy, and Anne for bringing that up. I think that just simply some acknowledgement that typically spawning does not overlap, or at least larval transport into the marshes does not overlap, even though they are found there at the same time, but the inflow, and there is differences in timing among the species is probably good enough to add to the species, rather than going into the full depth ranges and the timing and all that sort of stuff.

MS. CROWE: Okay. Paula.

MS. KEENER: Thank you, and apologies. I'm just jumping back in after another call, but so for -- Did the person who presented this, and sorry, mentioned the timing, the time of spawning, for shrimp? Was that mentioned?

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

MS. KEENER: Okay. Thank you.

MS. DEATON: I will just like what Matt just said, and, you know, I don't have the vision of prompt specific -- I just think that kind of information is helpful to like somebody who is interested in how would an activity impact a species, and so dredging, and are the shrimp spawning outside that port channel, that kind of thing, and so that's -- It could be like a rough range, you know, and it doesn't have to be like specific, specific. That's what I was thinking, but it's really -- Kathleen, you know how this needs to be -- How this will be used, and so I defer to you.

MS. CROWE: Thanks, Anne. We have a hand up online. Matt, go ahead again, please.

MR. KENWORTHY: Yes, and so, to Anne's comment, in these descriptions, you know, I included -- For example, the white shrimp, which spawn closest to shore, and brown shrimp spawn

farther offshore, and, in contrast, pink shrimp, whose major spawning grounds occur on the outer continental shelf, and I totally understand there's some -- I mean, I guess, vagueness, for lack of a better term on the spot, but is that enough for your uses in evaluation projects, from your perspective, or -- I mean, we do have those depth ranges, and that could easily be translated from, you know, closest to shore, and, you know, we could easily put in there the meter range, and would that substantially enhance your ability to review projects and make comments, and, if so, then, yes, let's put these in here.

MS. DEATON: Well, just speaking from me, from NMFS, perspective, it would say yes. Thinking about the port deepening at Cape Fear, thinking about some of these ocean projects, ocean and estuarine projects, you know, that are large scale, it would, but, you know, again, it can be found elsewhere too, and so, again, I think it would be helpful, but that's just me.

MS. CROWE: Brendan, did you have a comment?

DR. RUNDE: I did. Thank you, Madam Chair. Just to follow-up with what Matt just said, I think that MSA specifies that EFH text descriptions be presented at the most precise spatial scale practical, and, to me, that includes depth, if that information is available. Even if it's a little bit mushy, I think that that needs to be in here. Thank you.

MS. CROWE: Thanks, Brendan. Scott, go ahead.

MR. KATHEY: Having processed marines sanctuary permits for many years, the temporal aspects would be very helpful to any kind of permitting or approving consulting agency, because sometimes, you know, you could allow work in an area one time of the year, but not the other times, and so, if there is some rough temporal boundaries that you could discuss in this, it would be helpful, at least just to highlight that in regulator's minds, that, hey, we may be able to phase this to a certain time of the year to make it work, whereas, other times, they shouldn't be doing it at all.

MS. CROWE: Thank you, Scott. Cameron.

MR. BRINTON: This might be a big ask, but I was curious if it's possible. For these life histories, have people used figures in the past, especially as we talk about distribution or -- You know, we could show that information graphically.

MS. HOWINGTON: No, but we we've been the first in a few of these things, and so we can be the first if you want. I think that a lot of them use life history, like graphics and stuff, in the bigger like FMP amendments, but then, when you get to the EFH definition, it goes back to the reason why, and life stage was in CEBA I and CEBA II.

It just wasn't then in the official like this is the approved EFH definition section, and so we can use those graphics, but then I don't think it's common practice to then -- Because people want to try and keep it as short and as possible, and make it easily consumable. I don't have a problem adding in that graphic, especially if we're going to add it into the user guide, and you've got your written, and then you have a graphic at the bottom. I have no issue with that, but we just need to, as a group, decide what the graphic is going to be. I can draw a fish and a shrimp if we need to.

MR. BRINTON: Yes, and I just wanted to put the idea out there, since we're talking about it, and the types of information that are being requested are similar across the life histories that we're writing, and so you could come with a standardized figure that shows cross section of depth by life stage, and also geographic distribution along the South Atlantic. I don't know what that looks like, or what that process is for us, but it's just an idea.

MS. CROWE: Kathleen and I were discussing how that would need to be consistent across all of the species, and so does anyone have any comments on --

MS. HOWINGTON: Matt does.

MS. CROWE: Matt does. Okay, Matt. Go ahead.

MR. KENWORTHY: Well, it was on slightly -- Well, somewhat similar. I think a graphic would be neat, if we could figure out who the artist is that is going to make them the nice, neat graphic, because I don't know that we have that expertise, but maybe I'm wrong, but I think specifically for shrimp, since we've got, you know, three different species within this one FMP, I mean, a simple table could probably also successfully convey all of this information, and not bog down with more text, and so I was going to toss that out there as, at least for shrimp, it could be an option, just a simple table with those optimal ranges, timings, patterns, depth, et cetera.

MS. CROWE: Kathleen says she's good at tables, and so --

MS. HOWINGTON: I can do graphics too, but tables are easier.

MS. CROWE: Anyone else have any comments on that? Any ideas? Not seeing anything in the room. Myra has got her hand up.

MS. BROUWER: Good morning, and so I was just thinking, listening to you guys talk about this, the description of EFH, the actual written description, is kind of like the official one, right, and so that's where a lot of the detail can be incorporated, right, but we do have the EFH mapper, right, and so I think, down the line, we can talk about incorporating, you know, the GIS, and having a lot more flexibility with the details that you include in there, but I would think that, for now, since this is new information that's going to be incorporated, you might want to focus on the textual description, and then we'll expand that into shapefiles and whatever, to have the spatial representation. Just a thought.

MS. CROWE: Matt, go ahead.

MR. KENWORTHY: That's good context to have from that different perspective, and knowing, you know, what some of the end products will be. That helps us for sure, in a simple comment, and so I appreciate that.

I guess a kind of question to the group, and it's probably specific to shrimp, because it's one FMP, and it's three -- Well, it's four different species, that have all kind of unique life histories and patterns, and, I mean, specific to just penaeid shrimp, like spatially, if you look at this, like EFH is going to be everything from, you know, low saline headwaters out to the continental shelf, and so I'm trying to wrap my head around the end product here too, and what it will look like, and like

I think it's very important to think about these three species differently from an ecological perspective, but from a management, and the objectives of this exercise, and everything that's going on with this effort, what does it look like in the long-term, in the final products and the deliverables, if these three species are so different?

I mean, with the EFH mapper, is it just going to be a polygon that goes from, you know, the low-salinity marshes out to the continental shelf, because that's EFH, right, for all of these penaeid shrimp?

MS. HOWINGTON: So that's where we're at right now with our EFH mapper. I do have habitat-specific EFH, but current EFH definitions are all Level 1, and so they're all presence/absence, and they don't have life stage specifics, and they don't have spawning specifics, and they don't have seasonal specifics, and so, for instance, the coastal migratory pelagics, their EFH is the Gulf Stream, all the time, the entirety of the Gulf Stream. The entire water column is CMP, which is not very helpful.

Long term, I think integrating in the life stage information to meet the Magnuson-Stevens Act, to meet that base level, and then trying to use -- Trying to use that information to identify ways that we could hopefully maybe get seasonal EFH definitions, like they do up in Alaska and on the Pacific, and they change depending on if it's a spawning season.

Now, they're able to be very specific. Instead of having an FMP, and back to the issue that Matt was going into of there's three, you know, shrimp species here, and they're able to say our FMP is one species of fish, and that fish goes northward during these months, and southward during these months, and so that's much easier than what we're tackling here, but if we can go in and actually try and figure out seasonal differences, that would be absolutely phenomenal.

Right now, our main goal is just to get to where we're meeting the Magnuson-Stevens requirements for our EFH definitions that we're not currently meeting. Long-term, it would be to improve our EFH definitions by entering this information in, making it more species-specific, and maybe even, instead of doing it in an FMP, we can't go species-specific. For instance, with snapper grouper, tilefish has its own EFH. Tilefish is a part of that Snapper Grouper FMP, but, in our EFH definition, it's here is the snapper grouper EFH, and here is the tilefish's, because it's so different. If these three species, if we determine, when we're going through this life stage description, that they're so different that we need to have it different, then that is an option we can tackle.

MR. KENWORTHY: Okay. That's really helpful, Kathleen, and I didn't ask that question with any kind of like agenda or thought, and I just -- In going through this, I was trying to wrap my head around that kind of bigger picture. That's really good examples that you provided there, and that helped me understand that a little bit better, and I think, yes, there are some distinct enough differences in the life history of these three species, spatially and temporally, that I think they should be separated out, and so I appreciate that. It makes me feel a little bit more comfortable in this.

MS. CROWE: Thanks, Matt. Wilson has a comment.

DR. LANEY: Yes, and, to Kathleen's point, and to Matt's point as well, I think adding the life stage headings might help a little bit, which we already discussed, and, Matt, the three species, at

least based on the work that I did way back in the late 1980s, the post larval -- The spawning periodicity is somewhat different spatially, as well as seasonally, and so that I think would help, if we go as specific as we can on the spawning periodicity and also separate out habitat use by life stage, because, obviously, the eggs and the post-larvae are offshore, and then the post-larvae migrate inshore, and then you switch over to the juvenile stages.

Like Kathleen said, that's the ultimate goal, I guess, would be to get past Level 1 and up to Level 2, or even higher, maybe, in terms of describing the EFH for these species.

MS. HOWINGTON: So Level 2 is going to integrate abundance, and we are also going to tackle that. I bit off a lot with this next five-year review, and I'm not sure if we're going to be able to finish all of it, but we're going to try. So I think we're good on penaeid shrimp. Anne.

MS. DEATON: Thank you, Kathleen, and I was just going to say, to wrap it, I mean, if you have additional specific information, and it differs, like for the penaeid shrimp, I would support including that, although like don't worry about the map now, but just like, you know, a table, like Matt suggested, sounded really great, or just in the text, but keep it brief, because we'll never -- You know, maybe for other species we don't have it, and you're never going to have all the information for all the species, but, if you have the information, I don't see why you wouldn't put it in, and so I think that's kind of on the same line as everybody said.

MS. CROWE: Thanks, Anne. Okay, and so it sounds like we're good on adding a table with the additional information, and I think we're ready to move on to rock shrimp.

MS. HOWINGTON: Then, again, for consistency, we're going to integrate citations, and we're going add in headers, and we're going to try and add a little bit more specifics, more specific details on life stage to habitat connection, and so we don't need to repeat all of that, and so then, Anne, if we can add in any kind of seasonality for spawning, or -- What else do I have? I think that's about it for like the generic these are all the changes we're going to make. Okay. Is there any other changes that need to be made to rock shrimp?

MS. CROWE: Wilson.

DR. LANEY: So I'll just mention this, because we had this discussion back when we were talking about prey, and we're talking here about the benthic habitat that rock shrimp use, which is certainly a true statement, but the one thing that was surprising to me, and perhaps surprising to some of the rest of us, was how often rock shrimp showed up in dolphin stomachs as prey, and so obviously -- Then I can't remember who it was, and it may have Brendan, or it may have been Kevin who was talking about the fact that they see them under the lights at night, frequently, and so they do come up to the surface, and they are preyed upon by dolphin. I don't know how important it is to mention that, but I just thought I would remind us that we had that conversation.

MS. CROWE: Thank you, Wilson. Matt Kenworthy, go ahead.

MR. KENWORTHY: A different topic, and so want to leave that open for anybody to comment on Wilson's thought there.

MS. HOWINGTON: I think -- I don't know how to tackle that, because I have -- The question is -- So, yes, they are being found at dolphinfish stomachs, and is that because the dolphinfish are diving down, or is it because the shrimp are going up? The shrimp are going up, and how often is that occurring, and is it just during upwellings, and so that's going to be then the question, is we would need to then try and tackle is this a common habitat use, or is this just because the shrimp went wee, and then they're going to go back down, and the dolphinfish just happened to be there?

How often is that occurring? Is this a common habitat? Is this something that just isn't in the life history currently, or is this something that needs to be added in to rock shrimp life history, and so that is an interesting point, and we would need to do more research to see if that's something that we would consider happenstance or normal occurrence.

DR. LANEY: Yes, and I'm fine with that, Kathleen, and it just -- It caught me off guard when they showed up in the dolphin stomachs, and then Kevin pointed out they routinely see them at the surface when they're doing the SEFIS cruises, and so it was a species habitat association that I wasn't expecting, and I guess I'll put it that way, and so I don't know. I'll defer to Kevin on how often they see them out there. Clearly they showed up in dolphin stomachs a lot more frequently than I thought they would, and the question you just posed about are the dolphin going down to eat them, or are the shrimp coming up and encountering the dolphin, was one I asked at the time.

I don't know the answer, as to whether or not this is a routine occurrence, but I would say, you know, if they are being seen by scientists who are in the ocean at the surface frequently, and they're showing up in dolphin stomachs frequently, then maybe, you know, the fact that they're up in the water column is what makes them susceptible as prey, as opposed to the dolphin going down, which we don't often think about either, and I don't know. You know, science is always -- We wind up asking more questions than we answer a lot of the time.

MS. CROWE: Myra, go ahead.

MS. BROUWER: Thank you. Thank you for that, Wilson. It just reminded me, and I'm sure you guys are aware, that the council does fishery performance reports with their various advisory panels, and so what we do is bring the APs together, and we have a series of questions, not only about the landings, and the economics of the fishery, but also ecosystem changes, and, you know, what are the fishermen seeing on the water, and so this strikes me as something that would be a good question for the Rock Shrimp AP, and maybe get a little bit more information about it.

MS. CROWE: Thank you, Myra. Online, Matt, you can go ahead.

MR. KENWORTHY: Yes, and I would be interested in having the rock shrimp experts review this life history, and broaden this conversation, for a couple reasons. One, published information on, you know, as I mentioned, their habitat use and distribution is very limited, and two primary papers that are often referenced, or cited, are the Kennedy and Cobb ones, which are -- And other various South Atlantic Council documents have been referenced.

In going through this and trying to dig into some other resources, other reports, other kind of observations, I was questioning the estuary independency of rock shrimp, and, I mean, I've got a history with penaeid shrimp, and research and whatnot, and enjoyed that one a lot better. Rock shrimp I struggled with, and have less familiarity with, but, you know, on the South Atlantic

website, and some of the NOAA websites, there's mention that there's estuarine dependency, but, in a lot of these publications, the few that are out there, and some other resources, it kind of suggested a different story, and so it kind of brought that into question, and I'm very interested to either get corrected or get some input from others, and I won't be sensitive to it, because I'm not familiar with rock shrimp.

I also, while I was still in Florida, went to the FIM group, and they dug into FIM sampling across, you know, the last twenty or so years, and the multiple species of rock shrimp did not show up much in FIM sampling, and maybe that's because of where they're sampling, and I'll acknowledge that, and Eric Weather, in the room, might be able to speak to that a little bit, but does anybody have any input on the estuarine dependency of rock shrimp?

MS. CROWE: Wilson, go ahead.

DR. LANEY: So, Matt, when I was doing my doctoral research on the Lower Cape Fear, you know, we had the ultimate sampling device, in the form of the Brunswick Steam Electric Plant traveling screens, because it was sucking in 74,000,000 gallons a day from the Cape Fear River, and I don't remember us ever catching a rock shrimp, you know, because that intake is like eight miles up the estuary.

We caught other -- We caught lots of Trachypenaeus of several different species, and we caught the Xiphopenaeus kroyeri, which was the seabob, but I don't remember us ever catching a rock shrimp up in the estuary, and so the short answer is I don't know though. I don't I don't remember Seeing them in all of the -- We did a lot of sampling with a passive gear tide traps, and so the organisms were moving into our gear, and I don't remember us catching any rock shrimp in that gear either in the estuary, but my experience is limited.

MR. KENWORTHY: Thanks, Wilson.

MS. CROWE: Sorry, Matt. Go ahead if you had something else to say.

MR. KENWORTHY: No, and I was just thanking him.

MS. CROWE: Okay. I think Brendan had a comment.

DR. RUNDE: Thank you, Madam Chair. Interesting discussion, and, Wilson, just to refresh a thread that you and I and Paul Rudershausen had going last year about the rock shrimp and dolphinfish diet interaction, there is a satellite tagging paper of adult male dolphinfish that shows significant diel vertical migrations. They are spending some significant time below the surface layer, especially at night, which most humans aren't interacting with dolphinfish at night, and so that may be why we think of them as a particularly epipelagic species.

It's Paul's hypothesis that the interaction between dolphinfish and rock shrimp is primarily occurring at the bottom, or near the bottom, when dolphin fish are deep, although, to the point that has been raised over the last few minutes, the SEFIS crowd often sees, and collects, rock shrimp in the epipelagic layer, and so it could be both. Once again, maybe this calls for a revision to the life history of rock shrimp, but, nevertheless, I think it's an open question where that interaction is occurring. Thank you.

MS. KEENER: SC DNR should have some information on this from their estuarine research studies program, but I'm just looking online, and it says that the larvae develop in high salinity estuarine waters.

MS. CROWE: Thanks, Paula. I had just made that similar comment to Kathleen, and I'm wondering if the SCECAP program has ever sampled any, collected any of them in their samples.

MS. HOWINGTON: I also think, based on -- Sorry, Eric. Based on this conversation, what we're doing with the golden crab right now is we're -- You know, I'm going to ask for a volunteer, and then we're going to send it to the AP, because all of us agreed that we don't know a lot about golden crab.

Might I recommend that, once we get the formatting, you know, stable, and we all agree on how we've identified habitat, that we send it to each individual AP, and ask them to review it, and make certain that we haven't forgotten something, because it could be that, you know, that it is that rock shrimp are higher up than we think they are, and the AP would be able to give us that feedback, and so I'm going to make that recommendation at the end of the presentation, but that should -- Hopefully then we'll cover our bases. Once we make all this standardized, we can send it out to them, and they can then tell us where we got it wrong.

AP MEMBER: That's a good suggestion, Kathleen. I think, you know, lots of studies out there, including fisheries-independent monitoring, and Florida's estuaries have indicated that rock shrimp are in estuaries, but we don't encounter them very often. Typically, we're avoiding hardbottom habitat with nets, ideally, but there are some broad studies that may elucidate, you know, their habitat use in estuaries.

MS. CROWE: Okay. Any other comments on rock shrimp? Wilson.

DR. LANEY: Well, not on rock shrimp, but are you ready to -- Were you going to talk about golden crab at the end?

MS. HOWINGTON: Yes.

DR. LANEY: Okay.

MS. CROWE: Matt did you have a comment?

MR. KENWORTHY: Just to reiterate that, if people have resources that can answer this question, because I think it's important when we dig deeper into EFH, because, if there's a handful of rock shrimp that are using estuaries at the larval stage, in early life history, is it EFH, or is it a handful that have gone a little bit shallower and gotten sucked into estuaries, and so I'm just -- It's a request for people who have more avenues for data, or understanding, or publications that are out there that I didn't come across, and send them my way, so I can get this clarified, because I'm a little a little confused on it, because, I mean, NOAA says it, and our South Atlantic website, and the Shrimp FMP says it, but I just want to -- It doesn't seem like a prominent life history characteristic, and I wanted to get some clarity, and I'll stop there.

DR. LANEY: Well, so maybe it would help to clarify things, and I'll defer to Eric on this too, because he's done so much sampling, but should we distinguish between species that are obligate estuarine dependence versus those that may be just opportunistic estuarine dependence?

This gets back to what Kathleen just said a few minutes ago about us trying to move to Tier 2, which is abundance, and so that would probably be some piece of information that would let you know whether things are obligate versus opportunistic, and I don't know. Eric, do you have any comments on that?

MR. WEATHER: Yes, and it's an interesting point. I think I it's important to kind of evaluate some of our data sources and see if -- The South Atlantic may operate differently than the Gulf, you know, depths of estuaries and habitat availability, and so more research there, for sure.

MS. CROWE: Okay. Thank you all for that conversation. We are going to move on to stony corals, and so if anyone has any comments there, and we'll start with Kathleen.

MS. HOWINGTON: So I'm the one who wrote these, and so they already have headers. Whoo-hoo. Done. But I did -- Because of the way that our EFH for coral is identified, we do actually break them out into like bigger groups, like stony coral, and so I did write, and I'm going to scroll for a little bit, and then I'll come back. Nobody panic.

We have stony corals, octocorals, deepwater corals, and then I integrated all of those into just an EFH statement. I was more of a bullet point person than a paragraph person, but I recognized that, again, we were coming here to decide how we wanted to do this, how we want to do format, and so there's also a paragraph, however you all want to do, and this is, again, an integrated EFH paragraph. I wasn't going to write a paragraph for every single coral, but I can. The EFH paragraph is long, because it's two slides, and so, with that, I'm going to go all the way back to stony coral. Please discuss.

MS. CROWE: Okay. Anyone have any comments for Kathleen on stony corals? Paula.

MS. KEENER: I just have a question. Why did we skip over sargassum?

MS. HOWINGTON: Sargassum is after coral.

MS. KEENER: I'm looking at the order of the document.

MS. HOWINGTON: My bad. The Word document is just this that I copied and pasted real fast, because I realized that this PowerPoint might be a bit too much for everyone to be able to absorb. It's word for word the exact same thing that's on here, and I just apparently put it in the wrong order. That was not an official briefing book. That was Kathleen was sitting there thinking there's no way they're going to read that PowerPoint.

So, again, adding in the citations. I already have the headers in there, which is good. Adding in information on DO, climate information, depths if it's necessary, and so all of that stuff we've already discussed I'm going to try and tackle. Is there anything else that you guys want me to try and integrate?

DR. LANEY: The only question that I had, Kathleen, on the corals was are there any cues for settlement that we should mention, you know, habitat cues for settlement, and the only reason I thought about that was because of the papers we discussed a number of years ago about the fact that, for some of the larval fishes, and Laurent may want to jump in here, there are noise cues.

You know, they apparently cue-in on the noises associated with a reef, and I didn't know whether coral larvae were, you know, using the same sorts of cues, or different cues or whatever, but it would seem, to me, that that might be an important thing to mention, if we know what they're using as a settlement cue.

MS. CROWE: Thank you, Wilson. That was an excellent question. Anyone else have -- I see Paula. Go ahead.

MS. KEENER: Yes, and, also, adding to what Wilson discussed, lunar phase cues, and so that would be additional state-of-the-art, or best science, to include. For the corals, I note that there are no species, no specific species, listed and why is that?

MS. HOWINGTON: I kept it at the level that we have our EFH separated out. I can go in and list specific species, but the stony coral and deepwater coral, those like sections, that's how we have it on our user guide right now, and so I tried to make it match what we already have, but, if you all want me to go into species specific, I can do it.

MS. KEENER: I would recommend that, just to be consistent across-the-board and, again, it's the best of the science.

MS. CROWE: Matt, go ahead.

DR. JOHNSON: Just to add in that the spawning cues for the corals are typically interacting with the correct substrate during a set time period of temperature-related growth phase, and so I think having the providing suitable substrate is probably good enough for settlement cues, for most of them, and there's always exceptions. There's lots of corals.

MS. CROWE: Thanks, Matt. Anything online? Scott.

MR. KATHEY: I was wondering if it would be appropriate to mention artificial habitats in the discussion of, you know, habitat for these species.

MS. HOWINGTON: Yes, but then I'm going to need to go into materials used, I feel like, and that might be a rabbit hole we don't want to tackle, but I'm willing to try and report back.

MR. KATHEY: If it's -- You know, if it's applicable, and it seems like that would be relevant to anybody who is looking at this from, again, a regulatory standpoint.

MS. HOWINGTON: The next groups are very similar. Again, you have octocoral, and so any thoughts on that that are different from what we just said? Anne.

MS. DEATON: I was looking something up on the stony corals, and I'm sorry, but I knew, when I lived down there, that they do this mass spawning, and it might be worth mentioning, and it's

right there. The boulder corals in the Keys spawn six to eight days after the August full moon, typically two to two to three hours after sunset, and so you don't need all that specific, but they are cued by timing. I guess it's the time of year.

DR. JOHNSON: That extends to beyond the boulder corals as well. There's a lot of corals that spawn based on a very specific lunar cycle, but it's not always consistent, is the issue. Sometimes they will, and sometimes they won't. It's just when they can spawn.

MS. DEATON: Is it always in the summer?

DR. JOHNSON: It depends on what the species is. We get a lot -- Quite a few of them are in the actual springtime as well.

MS. DEATON: All right.

MS. HOWINGTON: So far, I have adding in temperature and depth and climate information, adding in the citations, adding in cues for settlements, like acoustic information, lunar phase, species-specific information, substrate details, artificial habitat, if possible, and then spawning cues as well. Laurent has his hand up. Sorry.

DR. CHERUBIN: Yes, and, just to follow-up on Wilson's point, when it comes to sound, there's one thing about coral larvae, is that they can't really swim, and so I don't think it can direct there, but they could choose to migrate down when they feel like it's the time, or it's a good environment, but, related to sound, I just wanted to say that one of the, you know, highest diversity of coral we've seen in some places are, for instance, in the Port of Miami, where sound is a big issue.

I don't know if they go there because of the sound, but I don't know if sound is a driver, and it's a question, and so I think sound can -- Whether it's natural sound or artificial sound seems to maybe not have any effect, because I don't know if they can make the difference between, you know, a natural sound and human-made anthropogenic sound, and so I would say may not not have a strong influence on recruitment, but, yes, something to think about anyways.

MS. CROWE: Thank you, Laurent.

MS. HOWINGTON: All right. Is there anything for octocoral that has not already been said for the stony coral, because I'm going to take that and just apply it. All right. The same for a deepwater. Again. I organized mine all the same way.

All right, and then, finally, we have the -- I really did this because I wanted to ask, and do we want the format to be paragraph or bullet point, and I feel like you all want both, and so I think, for format, the feedback I am getting is integrate tables, when possible to be able to do species-specific information, and integrate paragraphs, when able to, and then, if there's sub-bullet points, put those in, and so like you have a main life history paragraph.

If there's something species-specific, add in some sub-bullet points, and add in a table when you want to compare species against each other, and would that format kind of fit? Is everyone seeing the vision I have?

You have your paragraph, your life history paragraph, that is not separated out, and it's just here is a life history paragraph with headings. Then you have, underneath any of those -- So that would be like life stage, like what I had here of gamete/spawning stage, larval stage, settlement and juvenile, and settlement is not going to be applicable for a lot of them, but for coral you have settlement.

You have a paragraph kind of similar to this, with a little bit more detail. If there's a species-specific underneath each life stage, add in a bullet point. If there's a time where, in that life stage you're comparing multiple species, add in a table. I'm seeing a head nod, and I'm seeing a shrug.

MS. CROWE: Laura, go ahead with your comment.

MS. BUSCH: Yes, and I like the bullets for quick reference. Like, if I'm getting ready to write an EFH, and I look at -- Well, back when you had the coral, then, you know, I look at, and I go, okay, this life stage is in where, you know, it would it be affected by what I do, and then I could go to a paragraph where it had more information. That's how I would use it. I mean, I like your idea too of like the paragraphs, and then sub-bullets, but a quicker way might just be --

MS. HOWINGTON: So maybe we do long form for right now. We keep it longer, less bullet points and more paragraph. Once we get this integrated into an FMP, when we move it to the user guide, we move it more to bullet points, and then say refer to these pages on this amendment for the specific long description, and would that be helpful as end users? Okay, and so then, instead of something like this -- This might be you on the user guide, but then this is going to be in the FMP description, and that's what I'm saying, and so user guide and FMP.

MS. CROWE: Is everyone okay with that? Does anyone have any other suggestions? Paula.

MS. KEENER: Just a comment. Based on all of our discussions on deepwater corals, the information that's provided there seems pretty sparse, and so I'm wondering, because of the uniqueness of deepwater corals, and the issues that we have discussed over the last couple of years, if some of that could be captured, or should be captured.

MS. HOWINGTON: I can add in more details for -- I'm going to add in more details for all of them, because, based on you all's feedback, that's what you want, and so all of these are going to get more species specific, and they're all going to get more details added in, and I'm probably going to bring it to the Coral AP, hopefully, come January, if I can get you all to meet then, and we'll see.

MS. KEENER: Yes, and I think they're, obviously, very unique.

MS. HOWINGTON: We have sargassum, which, again, this is in bullets. I tried to integrate those, but I also gave you a paragraph, just in case. I am going to integrate in citations. I'm going to integrate in headings, add in climate information, add in any kind of spawning specific -- I don't think that applies to sargassum, but, you know, just going through my generic list in my head. Any kind of climate change information on here as well. Any other feedback on sargassum?

MS. CROWE: Matt, go ahead.

DR. JOHNSON: So, generally, at least in the past, it's been accepted that there are basically two natal origin areas for sargassum, and so, as it dies off seasonally, it basically remains in an eddy in the south Gulf of Mexico, or America, and sort of off the Amazon Basin, and those have been traditionally considered the natal origins. Now, with things ramping up, and getting -- Obviously, those are getting larger, but that's some mention of sort of permanent natal areas, where it comes from initially, might not hurt.

MS. CROWE: Thank you, Matt. That's a good point. Does anybody else have a comment on sargassum? Nobody? It's not as fun as coral.

MS. HOWINGTON: It's not as much fun as coral. Laurent. Laurent wants to say something.

MS. CROWE: Laurent, go ahead.

DR. CHERUBIN: I'm not sure if there's a seasonality in the sargassum cycle, and so maybe -- Because it might depends on the trade winds, which, you know, vary in latitude between in fall and in spring, and so there may be an influence on when we see a peak in sargassum coming in and when we have basically a lull into that influx, and so I think it's important to capture that as well, so we know what we're dealing with can do.

MS. HOWINGTON: Can do.

MS. CROWE: Okay. That was a quick one, and so, next, how do we integrate this into the user guide, and so, Kathleen, I'm going to send this back to you.

MS. HOWINGTON: So I already proposed this to the group. We can't do large updates, again, and I'll just be repeating that for the next forty-eight hours, and I apologize. We need to update the FMP, and I would propose, once the working group kind of fixes the formatting, and standardizes it, and I'm going to add a bullet point in here, send that standardization that you guys approve, and hopefully we can bring it in January, to the APs that are relevant, get their approval, and then, once that happens, then add it as an appendix to the user guide, and then, once we do our five-year update, we get it integrated into the FMPs, and we can then integrate it into the user guide. Does that make sense?

Okay, and so I'm going to add recommend getting AP feedback for each one, standardize the format, and so that means that the working group needs to meet one more time, and so I did that. We are not going to recommend, based on you all's feedback, and I'm just going to go ahead and put myself under the bus with that one, and then we do need a volunteer to update for the golden crab EFH habitat use language, and would somebody be willing to write that paragraph up, and would somebody be willing to take Matt Kenworthy's shrimp life stage information and turn it into -- Like follow the standardization protocol that we're going to meet in the working group? We need somebody for golden crab and somebody for shrimp, because hugs and kisses, Matt, and you're not on the AP anymore, but thank you for being here. We appreciate it. Matt raised his hand.

MS. CROWE: Matt go ahead.

MR. KENWORTHY: I know I'm not on the AP currently, and I'm going to pursue getting back on through North Carolina seats, but I'm happy to still do legwork, and so I don't know how that works. I don't want to step on toes, but maybe you just want to get rid of me.

MS. CROWE: As long as you're willing, you're not going to get fired for doing it. I think that would be great, unless there is another volunteer in the room that really wants to take it from you, which I don't see anybody jumping out of their chair, and so, I think, if Kathleen is okay with it, it would be great if you would be willing to continue that, and we appreciate it.

MS. HOWINGTON: We need a golden crab volunteer.

MS. CROWE: But we do still need a golden crab volunteer. Wilson, are you volunteering?

DR. LANEY: No, I am not volunteering, but I had discussed with Kevin earlier the fact that a South Carolina DNR person who has been retired for quite a while, and I think Charlie Wenner, and, you know, Charlie did a whole bunch of work on golden crab, I believe, when he was still with the agency, and so I was wondering if we might, you know, ask if Charlie is still around, and he's so inclined, if he might be willing to tackle that one. I don't know.

MS. CROWE: That is a good suggestion. I do not know if Charlie is still doing anything like that. I haven't seen him in years.

MS. HOWINGTON: Who has an email?

AP MEMBER: That sounded like a volunteer by Wilson to do the legwork on that.

MS. CROWE: Yes, and is there anybody else that would be interested in the room in taking it, and possibly coordinating with Charlie, if he's willing to do that? Go ahead, Wilson. You know you want to do it.

DR. LANEY: When I was still on the council, I was on the Golden Crab Committee, or AP, or whatever we had, and the committee, I guess, and so I wouldn't mind working with Charlie. I don't want to be the lead on it, but I would certainly be willing to collaborate.

MS. HOWINGTON This is why, at the last AP meeting, we didn't have anyone willing to do the golden crab write-up.

MS. CROWE: Paula.

MS. KEENER: Yes, and I'll note that Elizabeth Wenner was really the crab person in that family, and so she might be interested.

MS. CROWE: It could be a Wenner family affair to do the golden crab write-up, even though they're retired and may not want to do that.

MS. HOWINGTON: Okay, and so I believe that's it, and so, right now, AP actions, for our volunteers, Wilson is reluctantly going to contact the Charlie Wenner family and ask them for help with the golden crab write-up. Matt is going to continue as a volunteer, and maybe will take one

of the open seats that are coming up in December. I will get the working group together, and we'll integrate the edits as listed above, and try and get it more to a format that you guys like, and hopefully bring it to you in January, where then we can integrate it into the user guide as an appendices, and then start tackling updating the FMPs from there.

Our timeline, again, we're summarizing life history information, and we're still in that, and identifying important habitats by life stage, and again still there, and then, in the next three years, identify a pathway to update that FMP EFH definitions, and then, after our five-year review, we get it integrated into the user guide, and we're good to go, and we meet the standards for the Magnuson-Stevens Act. All right, and so I believe, Madam Chair, I have us scheduled for a break, because I knew that that was going to be a long conversation.

MS. CROWE: Yes. It was a long, but good, conversation, and so thank you everyone for your feedback, and for all of the work on those species write-ups. What time would you like to break until? It is 10:27.

MS. HOWINGTON: 10:45?

MS. CROWE: Okay, and so let's go to 10:45, and we'll be back online. Thank you.

(Whereupon, a recess was taken.)

MS. CROWE: Okay. Welcome back, everyone. Our next topic is space industry activity impacts, and, even though we said Kathleen was done, I think we lied, and it's actually Kathleen again.

MS. HOWINGTON: This is my last presentation today, unless we end -- You know, end up going early, and we have to rearrange stuff, but it's fine. Okay, and so we're going to talk space industry activities, and so, again, we have a bunch of new people, and so I'm going to give you guys a little bit of background.

The space industry is very active on Florida's east coast. We have all these main players that you can see here. We had some individuals reach out from the Cape Canaveral area, and they were basically expressing concern on the impacts that the space industry is having on -- One second. I am still not sharing my screen. Unhelpful. Look at that. There you go. Okay.

That the space industry is having not just on the surrounding habitat, which is all EFH, but also on the surrounding fishery, and so what this entails is -- This is past and projected future number of space launches as of November 2025, and, according to the FAA private launches 2028 report, as of 2028, there will be 338 plus launches in a year.

Now, some of those might be on the same day, but that basically means every single year we're sending something up in orbit, and this is, of course, varied, and so the most recent proposal that the council commented on was the Falcon large launch, and it is a much larger rocket, with much more fuel, and so that is currently in development, and it requires a larger landing pad, and so the landing pad is also in development, which is basically just a giant cement circle, with larger roads, and more erosion, and more people, which also then is taxing the water system in the area, because then more and more people are moving to the area, and so then the water treatment plants are

getting overloaded, and so then there's a new proposal for a new water treatment plant. You see where I'm going.

We were interested in what information is out there, and we received a presentation from Space Florida in 2023, and the council submitted a FOIA to the United States Coast Guard for information on everything that we were kind of interested in. Between 2023 and 2025, I channeled my most annoying younger sister that I possibly could. The inner younger sister in me, that just wanted to constantly talk to the older sister came out, and I was contacting people at least once a week, to the point that they recognized it and started hanging up on me. I got there eventually, and it was a slow increase of annoyance, where I just kept getting sent in circles, and eventually -- But, ultimately, we have not received any information on this FOIA

In in July 2025, I got you all together, and I informed you that, hey, I don't think we're going to get any feedback on this FOIA whatsoever, and so where do we go, and you guys gave me a giant list of contacts. I came back last January with the initial summaries of all the environmental assessments, the EIS, the summaries of peer reviews, these four papers, anything I could get my hands on, and then I asked you for more contacts.

This is now a year of me just doing data diving and trying to figure out what we have. The overall takeaways for those papers were space launches introduce chemicals and debris pollution to coastal systems, metal contamination is documented in marine predators, acidification and toxic deposition are plausible stressors for estuaries, the baseline health of the Indian River Lagoon is fragile, and the current regulation and monitoring are inadequate for space-related pollution.

This is the list of everyone I have contacted. Again, there was a few times where I get got into phone circles, where I would contact someone they would send me somewhere else, and I would end up back with my initial contact, and, basically, I was asking them for any and all information related to space debris, space launches, failure of launches, any kind of on-site detonations that would involve pollutants or any kind of anything going into the water system.

Depending on who I was talking to, I would focus more, and so, for instance, the St. John's Water Management District, I'm talking water quality. If I'm talking to Port Canaveral itself, I'm asking about the launch numbers, and, ultimately, and this is the most depressing slide I have ever put together in my life, thank you for contacting us, and submit a FOIA.

Unfortunately, blank does -- I did redact, because I didn't want to embarrass anyone, but these are all these groups, and so they all have something to do with what we're talking about, and, unfortunately, we don't collect that information. Furthermore, I don't know of any agency that does, and I can try to find that out, but it I doubt it will be available, or I'm not sure that it will be available except from companies launching, and I doubt that they will share.

Things are evolving so quickly, and there's not too many hard details, and the links to the EISs are likely all that's available at this point, which is really depressing considering the EISs, the majority of them, including the last comment letter I wrote, there was a lot of we do not know the safety standard for blank. We don't know the safety standard for noise, and we don't know the safety standard for --

I did find one paper, and this is a summary of a 2024 remote sensing study on Cape Canaveral for coastal ecosystems. Basically, the takeaway was this. The Cape Canaveral coastal ecosystem is undergoing significant transformation, and the dominant drivers are climate and landscape related, rather than direct impacts from modern rocket launches.

According to this study, a lot of this is more -- Any of the changes in the area are more climate related, but they are being impacted more short-term by rocket launches, and so wetland loss is occurring in the area due to the altered hydrology. Rocket launch effects on vegetation are detectable, but limited. It was an interesting paper. I can send it to you all if you are interested

Dune erosion is a major concern, and I think all of us can agree with that. Forty to fifty meters of beach retreat has occurred between 2010 and 2023. Dune elevations remain lower. They are responding with dune restoration projects, but is that going to be helpful? We don't know, and so I can send this to you guys, but this is the only paper, other than the ones that we've already found, that was about the Cape Canaveral area and space launches.

Again, sea level rise is accelerating. The flooding risk is accelerating, and increased long-term activity does add a new stressor, and the larger vehicles, and the environmental review processes are underway to evaluate future impacts, and so an interesting paper.

Not helpful, but, while I was contacting people, I did get these, and so these are some fishermen photos, and so the fishermen are willing to share. If you can get them on the phone, they are more than willing to share information, to the point that I had one fisherman text me in the most recent rocket launch explosion that occurred in Cape Canaveral, and I'm sure you all saw the TikTok's and whatever social media of the fishermen who were right next to this explosion.

I got a text from one of my the fishermen I've been in contact with saying, hey, I can tell you where one debris field is, which it's very nice that they're willing to share, but that's a very depressing text to get before you get your coffee, but they're willing to talk, and so, after an entire year of trying to data dig, and after two years of trying to get any information from the FOIA, what's next?

There are individuals who are documenting observations on possible impacts from the space industry, but no one seems to be the main data gathering source. No one is the like information sink. I personally cannot go gather data, because of Paperwork Reduction Act issues. I'm not allowed to send out a survey and ask the fishermen to please tell me what's going on. I can however -- One of the things that we have discussed in previous meetings is would a citizen science project be possible.

Now, with the fishermen I was contacting, I could hear the eyes being rolled in the back of their head of another thing that we're going to have to report when I would mention this to them. However, again, they're willing to do it if we get the right audience, and if we can get the right tool.

There is still national security concerns, specifically with like debris location, and so, if we're going to start asking them for debris location, or if somebody is going to start asking for them, and, again, I cannot, and so, just for now, when I say "we", assume I'm talking about someone else. If someone is going to ask for debris location, it would have to be confidential, or it would have to be very generic.

Could a citizen science project gather closures and potentially economic loss? There are charter fishermen that are in this area that have these days scheduled, and they have to cancel because the hazard zone for these launches is too big, or it covers their inlet, or they're not able to get out on the water, or they're having to change where they're fishing, where they're having to use extra fuel to just get out of Dodge, and a few of them just straight-up told me they took the risk, and they were just fishing in the hazard zone anyway, and the only people who are really enforcing that are the private companies. The only people that are coming up to them telling them, hey, you need to get out, and they're like, okay, show me your badge, and they're not able to, and so, again, what's next?

If you guys recommend a citizen science project, if you recommend that we try to support somebody creating this, what would that then entail? I then went and talked with our Citizen Science Program Manager, Julia Byrd, and I was able to come up with a series of things that you all are going to have to start thinking about, because I'm pretty certain, and I say this with a lot of confidence, that I'm the only one who has ever had to create an app and get fishermen to report. Yes? Okay.

This is not an easy thing to ask. It is extremely complicated, and getting fishermen retention is your biggest concern, which means, from the get-go, if this is something that we are interested in, if this is something we're interested in supporting, and at least like playing matchmaker, and getting fishermen, fishing organizations, or getting fishermen to connect to an app, then this is what you all are going to have to start thinking about, and so, before we move any further, is this something you all are interested in trying to support as a group, going out there and saying, hey, we think somebody should be gathering this data, and would you all be interested?

MS. CROWE: Okay. I'm going to go online first, to Brendan, and then Kellie, when Brendan is finished.

DR. RUNDE: Thank you, Madam Chair. Thank you, Kathleen, and I just want to recognize Kathleen's herculean effort over the last I guess three years now in trying to put together this information. I have a couple of comments, and I think I'll start by answering the question that's on the screen.

I think this is something that I would support. I do want to focus on the top line of what's on the screen right now, what questions do we need answered, and is this about disturbance to fishing activity, or preclusion of fishing activity, or is it about debris, or is it about? contaminants, and I think it could be -- You know, I think the easiest thing to get from the fishing industry would be preclusion of activity, whatever it is that they're doing, whether it's private rec or charter or commercial.

Kathleen, I did want to add that, at your request, I did speak with Ocean Conservancy, Environmental Defense Fund, Natural Resources Defense Council, Environment America, and the Public Interest Resource Research Group. None of them are tracking any of this. They were all sort of like huh, and I'll also say, while I have the floor, that, in California, there is an agency, The California Coastal Commission, that is tracking this on their coast, and they require a debris offset.

One could, in theory, estimate the amount of debris in the ocean based on the amount of offset that has been paid. It's a financial penalty, or a mitigation, to that agency. However, there's a fly in that ointment. Apparently, Elon Musk never pays the offset, and so that's not something that's possible for his company, or companies, but, if there is a similar situation with a debris offset in the State of Florida, and I don't know if there is, then we may be able to get some information, or back-calculate the amount of debris from that agency, and so those are my thoughts on this. Thank you.

MS. CROWE: Thank you, Brendan. Those are good points to make. Kellie, go ahead.

MS. RALSTON: Thank you, Madam Chair. I would concur with Brendan's summary. Yes, I think this is something very much worthy of moving forward with. I will say that there is a $2 million dollar appropriation in this year's Florida budget, that was just signed by the governor yesterday, specifically looking to address fisheries and wastewater stormwater impacts around the state, and IRL is one of the target areas.

That funding will be running through the Department of Environmental Protection, presumably to the University of South Florida to coordinate those efforts, and so that may be something that we should consider, in terms of this citizen science project.

I would add too that I think there is a real opportunity to bring entities together, including the South Atlantic Council, but also Space Florida and NASA, in addition to the IRL NEP, to really try to look at these questions holistically, because I do think that it is not only debris issues, but particularly habitat degradation, water quality concerns, and changes in fish behavior and abundance, as these activities increase in the area, that really are going to require a combined state and federal approach here.

I think a citizen science project would be very important here. I think perhaps couching, you know, the questions that we need answered, in terms of at least the immediately available funding that we have, and recognizing that there is momentum within the state, and the fact that we have some really great folks from the State of Florida that are at NASA right now, that we can bring some of these together for, you know, kind of a comprehensive look.

I would say absolutely yes, and I would say let's see what we could do within our citizen science world at the council, but also not lose sight of the fact that this is really a much bigger issue, and that folks are paying attention, and engaged, and kind of ready to move forward. A little bit self-serving here, but Bonefish and Tarpon Trust certainly has this area on our radar as something that needs some significant focus, and so I'll leave it there.

MS. CROWE: Thank you, Kellie. That's very encouraging. Brendan, did you want to follow up on that?

DR. RUNDE: Thank you, Madam Chair. I appreciate you coming back to me. I imagine there might be hands in the room as well. One final point, and I think Kathleen said that there was at least one fisherman who had identified a debris field, and had offered that location. Assuming that is off Florida, and I imagine it is, I wanted to point out that I believe the State of Florida is done, or very nearly done, mapping their entire continental shelf, and one idea is to get that information, the location, from the fishermen, and look at the new Florida continental shelf bathymetric map

and see if that debris field is identifiable on that map, to try to understand what that looks like, and then perhaps assign software, or an undergrad, to look for other likely debris fields on that map.

MS. HOWINGTON: I think that fisherman was sending that as a joke, because it was after the rocket had exploded on the ground, and so the debris field was the rocket launch location, but I like that idea, and we do have the debris pictures that fishermen were able to locate, and I've been in contact with two different fish houses.

I have to be careful, just because not all the fishermen necessarily want to be associated with the council, and so I can't say names, but they're willing to at least talk with me about where this stuff is, and then I could potentially report with the Florida mapping project, and so I like the idea. I would need to figure out exactly how to communicate these locations without burning bridges.

MS. CROWE: Scott, would you like to go ahead?

MR. KATHEY: Yes. Thank you. I have a couple of questions and a comment, and so have any commercial fishing organizations raised any concerns on behalf of these fishers, or is it just kind of sporadically from individual fishers?

MS. HOWINGTON: Yes. I have been in communication with one pretty large commercial fishing group who are willing to take -- My mic turned off. So one commercial group that is willing to take point, but, again, I'm not going to say names until we can play matchmaker, and make certain everyone is friendly with each other.

MR. KATHEY: Right, and so they're willing to take point on it, you said, if the ducks get lined up.

MS. HOWINGTON: Exactly.

MR. KATHEY: So my second question was who authored that report that you mentioned, you know, that basically said, well, we see changes due to climate, that type of thing, but we don't think the space launches are having that much impact, and that seemed to be focused more on the land side than the ocean side, if I Interpreted the slides correctly.

MS. HOWINGTON: It was. I can send it to you. I do not know offhand, but I will, during the lunchbreak, send it out to the group.

MR. KATHEY: Then the comment is that the California Coastal Commission is very zealous about protecting their state waters, particularly with any kind of federal enterprise that impacts those state waters, and I'm sure the California Coastal Commission has a record of this, and, just like the fishery management council, they prepare these briefing packets, particularly if they're looking at some kind of federal consistency determination, or a permit that's required from the state, or at least that they perceive is required from the state.

Those briefing packets quite often have very, very helpful information about what the threats are that they believe to be present from the activity, and Vandenberg Air Force Base has been operating a long time, doing missile launches, and so, if there's just a dearth of information that you can't seem to track down, or at least get people to release here on the Southeast coast, the

California Coastal Commission, this would all be a matter of public record there, and, with their sunshine laws and everything else, it should be pretty easy to get it, and, although it's, you know, 3,000 miles away, I would think that the issues from these platforms are going to be very, very similar.

Things like water contamination, fishery disturbance, and that type of thing would -- There would be a cross-connect there, and what it would do, if you could get ahold of some of those documents, is tell you what we need to be looking at, perhaps, and what has been looked at out there, and possibly even researched. Have you had any opportunity to check California Coastal Commission files for this type of information?

MS. HOWINGTON: No, and most of the recommendations for contacts that we had, that we've been discussing, were in Florida, and there were a few in Texas, but they were not willing to share, but I can try California Coastal Commission.

MR. KATHEY: I could possibly get some contacts for you out there as well, because I was working at the Monterey Bay National Marine Sanctuary for twenty-six years.

MS. CROWE: Scott, that would be great, if you could dig up contacts, or even links of where some of those could be found, because, even though they are public record, sometimes they're buried pretty deep, and a little tough to find.

MR. KATHEY: Right. Okay. I'll see what I can do.

MS. CROWE: Thank you. Paula has her hand up. Go ahead.

MS. KEENER: Thank you. When we discussed this at our last meeting, and I believe that's when we brought up Point Nemo in the in the Pacific, and I'm looking at some information on that, and here is what it says on why it's used. It is a massive, quote, oceanic desert, unquote, with very few marine life forms and zero human population, which ensures space debris crashes safely without endangering people or busy shipping lanes. To me, that is an acknowledgment that there are major issues to be considered here, and I am a million percent for minimizing the impact of outer space exploration on our inner space here. Thank you.

MS. CROWE: Thank you, Paula. Brendan, go ahead.

DR. RUNDE: Thank you, Madam Chair. A quick follow-up to what Scott was saying. At the California Coastal Commission, that's the person I spoke with, and his name is Chris Voss, and I had a one-hour-ish conversation with him about this issue, and he said he was more than happy to provide more information, and so, yes, he would be the resource that I would go to. Thank you.

MS. CROWE: Thank you, Brendan. That’s great. Shannon.

MS. MCASKILL: I just have a comment on the topic of citizen science, because a big kind of hurdle to get around is, if you're starting up a project, you know, how do you start this, and how do you contact people, and so I don't know if the Marine Resource Council in New Smyrna Beach is one of the agencies that you talked to, but they do currently have a citizen science program for water quality monitoring. It's been going on for about thirty years, and they have around thirty-

plus stations across the Indian River Lagoon, and so this might be a group where you could talk to them and see if they would be interested in collecting extra data, or maybe reporting if they see debris, or any kind of, you know, before and after water quality monitoring events.

This is also another topic, and, Kathleen, I can check with you, but I was chatting with my co-workers, and I've been told there is a contractor for NASA that collects water quality data before and after launches, and I don't know if you talked to them, but I'll chat with you and see if it's someone that you've contacted.

MS. HOWINGTON: Are they willing to share?

AP MEMBER: Just a quick question. Well, certainly space launches have become more frequent recently, with kind of the public-private approach, and we've been launching space shuttles for fifty or sixty years, and so I would be surprised if nobody has ever thought about the impact of shuttle launches in what are effectively the same areas, but for Texas recently. In your research, did you look for anything from maybe like the 1980s or 1990s, just to see if there was a baseline in terms of how people are thinking about this that would inform our approach moving forward, rather than just trying to invent the wheel?

MS. HOWINGTON: I was looking more recent, of any kind of studies that have been occurring specifically for the Indian River Lagoon and Cape Canaveral. I did -- One of the papers is actually from a Mexico space program. That's the one that identified heavy metals in predators. Then I believe one of them was a comparison of Indian River Lagoon health, but it wouldn't necessarily get to what you're trying to say of like a historical perspective of the space launch impacts, but I also think there's just a huge difference between like one or two, back to this graph.

AP MEMBER: Yes, and, I mean, the graph demonstrates the magnitude of difference. All I'm saying is, if we can find a baseline that we can extrapolate, based on volume, it might provide a better starting point than just beginning anew. Just a thought.

MS. CROWE: Wilson.

DR. LANEY: I appreciate what everyone has said. Obviously, this is a an issue that is rather narrow in scope with respect to the council's entire geographic jurisdiction, and maybe you were we're heading there, Kathleen, based on the last slide you had up before this one, but I think it would be good if we could come up with specific questions that we would like to answer, and are you headed there already?

I figured you were, and so I will just wait until you share those with us, because I think, the more specific we can make it, then the better we would be able to design any sort of citizen science program, or, as the ASMFC does, put out some research needs to the academic folks in the area who might be able to secure funding to do some of the studies to answer specific questions that we might have.

MS. CROWE: Cameron, go ahead, and then Kathleen.

MR. LUCK: I might have missed this, but my brain still screaming EISs, and I know you dug into some of them, and I was curious, and so the EISs wouldn't necessarily provide locations for

material touchdown, but it would give perspective on the impacts anticipated, and, sort of adjacent to that, I was curious if any of the, you know, NMFS reviewers, or other federal resource agencies that would have reviewed those EISs provided input from their perspective, which we would probably have a better chance of accessing that information, the consultation reports, and I didn't know if you explored that, or what that looks like.

MS. HOWINGTON: Yes, I did try to explore that. Unfortunately, a lot of EISs, EAs and all that -- One of the main things that I commented on was a lot of the pollutants, a lot of the fuel pollutants, that kind of thing, in our EISs and EAs, basically say, yes, they get in the water, but it's fine, and the oceans big, and, yes, it goes in the atmosphere, but it's fine, and our atmosphere is big, and that water mixing takes care of it.

Those are not direct quotes, but that's what the sentence meant, and it was -- It's very frustrating. I can send you the letters that I have written of you're not getting a -- One, you're not getting a table, and you're not getting a graph of this is what we're tracking, and you're getting a photograph of this is what it could potentially do, but it's probably fine. At least those are the ones that I've commented on, and I've only had this job for -- I think I'm almost at three years now, but, the majority of the ones that I'm reading in response to this, that's how they're writing it, and it's disappointing. Then the follow-up comments are very similar to what mine are, of I understand water mixing is important, but, at the minimum, there's a short-term impact, and so that's where we're at with those.

MS. CROWE: Laura, go ahead.

MS. BUSCH: Are they not submitting EFH assessments to get -- You know, to go through that consultation, because it seems like it definitely impacts EFH.

MS. HOWINGTON: So EFH is a part of the EA and an EIS, and that's a subset, is that they have to go into impacts of EFH.

MS. BUSCH: Yes, but, I mean, there's the opportunity to comment back to them in the EFH -- You know, in the EFH consultation, and the conservation recommendations that NMFS gives back to them. They should need to provide more information, if it's not available in the EIS or EFH assessment.

MS. CROWE: So I was wondering, and is it because they don't give a specific location, that then they're not doing an EFH consultation on a specific area, and so it's just such a broad --

MS. HOWINGTON: That would just be for space debris, is that they can't give that information in, but I think she's more talking about like for the development. For the new Falcon X Large, they have to do a new development, and that doesn't flag an EFH consultation. They basically say, yes, it could potentially impact these like areas, and like, for us, SAV is all around that area. Yes, it could potentially impact the EFH in that area, and then the NMFS recommendations is, okay, well, do more research, and try to minimize that.

MS. BUSCH: I guess I was getting at that might be a good process to try to get more information out of them, because, you know, when I've submitted EFH assessments for the Navy, they've

come back and asked additional questions for more information, and so, through that process, we might be able to force them to provide the information that we're looking for.

MS. HOWINGTON: I have not once gotten a response to any of my letters, and, when I was talking with Pace, he has also not gotten a response, and so maybe, in the next letter we write, we can ask to please respond and try to start that conversation, and I can talk with Pace about that.

MS. CROWE: I believe it's part of the administrative record. It's a big project, and they should respond to comments. Okay. They're just ignoring the comments. Paula.

MS. KEENER: You might want to go back and revisit the Point Nemo location, because it just seems like a lot of the questions that we're pondering here, or suggestions that are being made, could be answered by really digging deep into whatever information is available at Point Nemo, and it seems like there's a good bit of information.

MS. HOWINGTON: The Point Nemo location is an international UN location.

MS. KEENER: Right. Exactly. Law of the sea.

MS. HOWINGTON: Right.

MS. KEENER: I was just looking through some of that and trying to -- I mean, it all feeds up, right? I mean, we've got to be able to find some baseline information somewhere at Point Nemo. I don't -- I mean, I don't know if going to the UN is -- You know, to a contact there is a --

MS. HOWINGTON: I can go review the documents that -- So, in the January presentation, I reviewed Point Nemo, and why it was decided, and I can go and review some of their old documents, and figure out their logic behind it, but I think the hurdle you're going to run into is, again, that was a UN decision, and so they took into account the entire globe, and so they were thinking ecosystem, and they're thinking big picture, and they decided that this area is the furthest from any manmade area.

We're thinking United States, and so this is -- Historically, Cape Canaveral has been in this area. It has a really great launching area, and that's the reason why those chose it, is because of where it is orbiting-wise, and it's on the coast, and, back in the day, it was not as highly developed, and now it's way more, and so I don't -- I understand -- Like, when the logic when into deciding Point Nemo, they took different logic into account than where Cape Canaveral is right now, and they're deciding they're going to build here, because that's where the current infrastructure is, and that's where it has always been.

Telling them can you please take the logic of Point Nemo and move the facility is -- I mean, that's not going to happen, and so you're saying the logic behind where they decided where Point Nemo was? Okay. I'm misinterpreting then.

MS. KEENER: No, and I'm just saying that that there should be some baseline information available from the Point Nemo site. I think forty-seven -- Let's see. It says at least 264 spacecraft were disposed in this area between 1971 and 2016. You know, I mean, there's a lot of information, it seems, that could come from digging a little deeper.

MS. HOWINGTON: Okay.

MS. CROWE: Laurent, go ahead with your comment.

DR. CHERUBIN: Yes, and I wanted to say that maybe we need to think of it in terms of the relative effect of those launches, which, compared to, you know, the long-term changes that we're changing, it could be that the significance of the disturbances is very small compared to what we see associated with climate change and other factors, which would explain maybe the lack of really, you know, deep research conducted there, and so I think that that's something we maybe want to consider in this, when we look at this sort of vacuum of information, and maybe that's what the paper that you mentioned earlier, Kathleen, was trying to show us, is like, you know, the impact of those launches so far is minimal compared to what climate change and other factors is doing to the system.

Now as we start increasing those launches, which, you know, will probably happen, maybe the compounded effect of those launches will start making marked differences, and so I guess maybe that's to be taken into account, as well as, you know, maybe there's not that many impacts so far that are really making a difference, or being visible, and so, yes, that's the comment I wanted to make.

MS. HOWINGTON: I just want to highlight something that -- What Laurent just said, but then also something else someone else just said, and one of the reasons why we got into this is that, yes, currently, in the Southeast, this is a minimal -- Like a minimized section, and it's just Cape Canaveral. Yes, the fishermen in there are going to be impacted, but it's not, you know, a statewide problem.

One of the things that we first discussed was that there is potential for development of other space launch locations in the Southeast, and there's potential for growth, especially if they're going to be launching 338 times in Cape Canaveral. They're going to develop a different launch area somewhere else.

Specifically, I believe the rumblings were North Carolina, but then it got poo-pooed, right? Wilson is nodding his head. That is one of the reasons why we are paying attention to this now, is because, so many times, these developments occur, and we're looking at them, and we're like, okay, well, it's not going to be a huge thing, and like, right now, wind farms are coming slowly down, and so we're paying attention as they're coming down, and we're getting ahead of it by doing the energy development policy, which we did two years ago.

This, I think I see this as we're trying to get ahead. We're trying to develop this data, and we're trying to get create the baseline that you guys are all saying, because I'm having a hard time finding it. That way, when this becomes something that is then going to impact other states, when it's going to impact the Mid-Atlantic, when it's going to -- It already is impacting the Gulf, and we can put our heads together and say this is the data we have, because, right now, the data that exists is not easily accessible, and so I'm just defending myself for this last year of data.

Like that is one of the things that we have discussed, is that this is not just Cape Canaveral, and this has a potential to impact all of us in other states, and go further up north. They're going to

share the wind farms with us, and we're going to start sharing space launches with them, and it will be great. Kylie is ignoring me, I think. Okay, and so -- Never mind.

MS. CROWE: Cameron, go ahead.

MR. LUCK: I was just digging on the Florida data collection effort for mapping that Brendan Runde brought up earlier, and it's fascinating. It's petabytes of data, a hundred million dollars set aside for it, and they have -- The various contractors that they've used, if we want to go that route to, you know, potentially look at that data, or have somebody look at that data, to identify where material exists on the ocean floor, if any of you all end up at ICAST in July, they're going to be presenting there, and so you could just be like, hey, let's have a conversation, but, anyway, there's a lot of data. They're currently going through the process of data collection, and then processing, and maybe you could plant a bug. Just a thought.

MS. CROWE: Thanks, Cameron. Any other comments? Okay. Kathleen why don't you go ahead with the --

MS. HOWINGTON: So, again, if this is something we decide to recommend to the council, that we need to start being a support, or, again, a matchmaker between groups, these are things we need to start thinking of. Now, I know my people, and we are not going to be able to answer all of these questions. I need everyone to come to terms with that right now.

There are going to be some of these questions where you're like I have no idea, and that's okay. That's an answer, and we're going to move on, and that's fine, but the first thing is what data fields are needed, and so I kind of split these into sections. We're thinking debris, where is it and what is it, because a lot of the debris might be older, and so then I'm thinking there might be lead, and there might be asbestos, and there might be heavy metals that we didn't know about, and whatever else happened in the 1960s that you guys all thought was great, but then ended up giving everyone cancer. Then what is it is also important in my mind, because that's going to then refer to water quality, and is it dissolving, especially with plastics, and so we're getting lots of microplastics out there.

Fishery impacts, that's a separate section. The number of closures, which we can track, and that one is pretty easy to track, but then the economic loss on fishermen, and so did you have something scheduled for that day that then you had to cancel? Did you have to go out of your way to be able to get fuel? Maybe a piece of this is danger, and did you choose to just be in the hazard zone, and like that could be something we could ask for fishermen, but then, also, another thing we've discussed is water quality information, and so pre and post-launch data. I would love to be able to talk -- If the NASA guy is actually collecting that, and is willing to share, I would love that.

Number of failed launches, and so this means on-site detonation, and this doesn't mean the rocket didn't go up because somebody got sick and got a stomach bug and couldn't make it. This means that the rocket catastrophically went wrong, and the reason why that's important is because they do have like water side tanks for any other cooling water, that they technically have these like areas of water that can sit, and then filter into the water system, and that's supposed to be cleaner and safer, but, if you're exploding a rocket on-site, on that launch pad, the pollutants, and the fuel, are going into the water system. They are going to become runoff, and so how often is that occurring?

Then the after-effects on the number of freshwater flushes, and back to they have these tanks of stock water that they are sharing, and how often are they putting that into the Indian River Lagoon, at what quantity, and what's causing -- Then, you know, is that freshwater? Are they making it saline, and like, I mean, yes, it's estuarine, but that's going to be a huge impact, and so those are kind of the questions that I thought about. They're very varied, but these are all the things that we've been discussing, and so thoughts, or do we need anything else? Did I forget anything?

MS. CROWE: Okay. I'm going to start with Paula.

MS. KEENER: Yes, and, particularly if this is going to be a citizen science project, I think the timing, you know, the proposed timeline of launches, so they can like be on the lookout.

MS. CROWE: Thanks, Paula. Wilson.

DR. LANEY: Kathleen has it captured, I think, in terms of -- Generally in terms of water quality information, but are there specific contaminants that we could mention?

MS. HOWINGTON: Yes.

DR. LANEY: Like a list of the heavy metals, or the fuel contaminants.

MS. HOWINGTON: Until they develop a new type of fuel, which they're working on right now, but yes.

DR. LANEY: I mean, that would be information that would be interesting I think to us, because we would want to know if the kinds of things being put into the water are going to affect the council-managed species, or their life stages, and so forth and so on.

MS. CROWE: Thanks, Wilson. Matthew.

DR. JOHNSON: Do we -- You know, we're talking about launches, and do we care about rocket re-entry and landings on floating platforms? Are we considering that part of the launch?

MS. HOWINGTON: We should. The majority of the ones -- Well, the ones that I have been reading, they are going to be doing that in the Bahamas, and I've been talking with the Caribbean Council on that. There are some that do occur in Cape Canaveral, but, right now, they're developing a new re-entry pad over in the Bahamas, but, yes, I should add that in.

DR. JOHNSON: Just that's the future, and so it's just a consideration, and everybody is going to be doing that eventually.

MS. CROWE: That's a good point. Thank you. Anyone else in the room, before I move online? Go ahead, Cameron.

MR. LUCK: Thank you. Thinking about historical perspective, the number of failures that they experienced in the early development of the rocket program in the 1960s and 1970s was much greater, and is there a avenue, or a productive way, that we could tap into local knowledge of

people that have been in the area for that period in a survey, to any noticeable effects that they saw during that period when the direct impact would have been much greater proportionally? Right now, most of the launches are largely successful, and so you end up with just the nonpoint source pollution from that, as opposed to the direct impact from a failure.

MS. HOWINGTON: Like creating like a historical baseline.

MS. CROWE: Kevin, go ahead.

MR. SPANIK: Thank you. I think you probably want to try and get as much information as you could on what species are interacting with the debris fields, and what's there, and, that same point, if there happen to be desirable fishery species, from a citizen science perspective, you might have a tough time getting good reporting on that.

MS. CROWE: Scott, go ahead, online.

MR. KATHEY: I noted, on the slide there, you had on-site detonation on the launch pad, but they'll also conduct a self-destruct if the vehicle is in flight and starts becoming erratic, because they don't want it doubling back, you know, and coming to shore kind of thing, and so, if they detonated over the ocean, then you're going to have solid rocket fuel, chunks of this stuff, scattered, and my understanding is it's highly toxic within close proximity of it, and less toxic over time, due to the dilution, but I think that's one thing you would want to look into as well.

Also, looking at that slide that you had with launch history from 1957 to 2025, you clearly see, as someone mentioned this earlier, that the failure rate -- You know, they've dialed it in over time, and those failure rates have gone down, and I don't see any for 2024 or 2025 on that chart, but still, in the event that they do have, and, with this very large increase in launches just between 2025 and the planned launches in 2026, I would think that would increase your chances of having those failure rates, and having those types of materials going in, and so I echo Laney's suggestion that, you know, we determine what kinds of toxic materials, in the event of a detonation, would be going into the ocean, and what do we know about their potential fates and effects.

MS. CROWE: Thanks, Scott. That's -- I was just saying that I would think that is something that we could find in some of the EIS documents and stuff that we were discussing before, if we can find them. Cameron, in the room, go ahead.

MR. LUCK: This is more to recent for me, or maybe everyone else, but say we get the what, when, where, and how information. Draw a map for me for where that goes, and what action we take with that information.

MS. HOWINGTON: So, again, the council cannot gather this info. However, the person that I have been in contact with, that is willing to be a point person, that is willing to send out and start asking around questions and gather stuff, with some feedback and support from us, one of his -- One of his organization's logic behind why they want to start gathering this information goes back to what Kellie was saying of the Florida budget, and that tax that's going towards these things, being able to argue fishermen are losing their business because of all these closures.

If we are able to show without a doubt that, yes, you are having impacts on not just like the Indian River Lagoon, but on the baseline health of the surrounding EFH, I think that is going to be helpful in the long run of being able to say you need to have mitigation, and you need to be able to take care of kind of what are the overall effects are.

Additionally, one of the things that we as a group have discussed, and one of the things that I've brought to the council, and this is going to be a big thing for us to bite off, is adding this to potentially maybe our development policy, or even creating a space program policy, but, unless we're able to show that these do have impacts on EFH, there's really no reason for us to do that.

Now, I can say these definitely have an impact on the surrounding habitat, but being able to say -- It goes back to like talking with the fishermen. All the fishermen are saying, yes, they're failing launches, and, yes, we're running in debris, and, yes, we're, you know, tearing up our nets, but, until somebody is able to say this is how many times it's happening in a year, we're not going to be able to get any kind of like traction behind it, and so that's the reason why I've been in the data gathering stage for a year, is because we were hoping that somebody else was gathering this, and then we could just move on to the next one, but, unfortunately, I don't think that's occurring. Well, publicly occurring. We thought we were going to end early.

MS. CROWE: Brendan, online, please.

DR. RUNDE: Thank you, Madam Chair. Looking at your list here, Kathleen, when we're talking about the impacts of offshore wind construction to marine life, the single most feared, I guess, most impactful disturbance, is the noise and vibrations created from the pile driving activities for monopile wind turbines, and I would imagine that there may be some acute, or perhaps chronic impacts, of the noise and vibrations due to launching as well, and so I would like to see that added to the list of the number of studies that could be done on that. Also, a question. Has the Snapper Grouper AP talked about this at all? Thank you.

MS. HOWINGTON: The council received a space presentation in 2023, but I don't know if it ever went to the Snapper Grouper AP. I'm looking over at Myra and Tom right now. All right. I am seeing heads saying -- Mackerel has mentioned it, and so the Mackerel AP has.

MS. CROWE: Okay. Kellie, you're up next, online.

MS. RALSTON: Thank you, and I completely agree with Brendan's suggestion about the noise and vibration impacts. I would also add, kind of looking -- Since we're talking about like ontogenetic habitat use in our EFH conversation earlier, you know, I would anticipate that, not only with the launch activities, but the imminent expansions that are going to be happening in the Cape Canaveral area, that we will see extensive inshore habitat impacts, and so I think addressing those, and understanding what the plan is, what the impacts are, and what the potential changes will be, will be dramatically important, not only for, you know, our inshore species, but also for our offshore species that utilize some of those inshore habitats for nursery space.

Then I guess, kind of along with that, looking at prey availability, if there are any such studies, either pre or post-activities, or having that baseline data on the front-end, before expansions happen, could be really key in understanding kind of the impacts that we're seeing in time and space on our fisheries there as well, and so I would add those as well to the conversation.

MS. CROWE: Thank you. Scott next.

MR. KATHEY: Yes, and I'm just following up on Brendan's comment about noise and vibration. My superintendent actually worked for the Air Force, doing environmental analyses for Air Force operations for several years, and part of that work was at Vandenberg Air Force Base, and I know that there have been extensive studies there of noise and vibration impacts on marine mammals there, specifically California sea lions, harbor seals, and California sea otters.

There should be a whole lot of information in the record for that launch site, quantifying decibel levels, duration, responses from these marine mammals, and they may have actually done some studies on birds as well out there, like brown pelicans, and so I think, if the information is not forthcoming here, although, you know, it's a different location, but, again, the sources of impact are the same types of vehicles, and in some cases may even be identical, and there may be some helpful information there to at least kind of identify issues of concern that can be further investigated.

MS. HOWINGTON: The current information that I remember, from the most recent EA that I read on noise and vibration, basically said it could impact marine mammals if they're at the surface, but generally they're not, and so it's okay, and they don't mention fishermen at all.

MR. KATHEY: Not surprising. Kathleen, what you're saying is that you have anecdotal impacts to fisheries and fishermen, but no quantitative data, and that's really what you're lacking, and that the council would not really be able to weigh-in on this unless they have that, right?

MS. HOWINGTON: I mean, they could weigh-in on it, but, ultimately, there's not a lot of weight behind them saying, okay, we need to write a policy, and so we need to do something about this, if it's just fishermen coming in and saying it as anecdotal information, but, yes, that's all I've been able to really gather.

The fishermen are willing to share. They're willing to tell me what they're finding out on the water, and they're willing to say this is impacting us, but they're -- No one is tracking it, and so, until you show that there is a significant impact over time, we're not going to be able to say, okay, so then something needs to occur.

MR. KATHEY: The EISs that you've looked at, and EAs, none of them have monitoring programs, or at least recommended monitoring programs, for the activity to get post-launch information, or data?

MS. HOWINGTON: I'm trying to say this as nicely as I can. A lot of the EAs and EISs, and not necessarily all of them, because I am not omniscient, say that there's little to no effect, and they -- No.

MR. KATHEY: But there's no scientific basis for making that determination, and this is just a gut call, is what it sounds like.

MS. HOWINGTON: I mean, they might recommend that, hey, this should be monitored, but they don't name a person in charge, and, I mean, they don't say this is a specific research question that

it should go out, and they don't put aside any funding for it, and so then you can say something should be monitored, and nothing is going to happen until any of those things occur.

MR. KATHEY: Right, and so that's my question, is you haven't run into any instance, for any of these projects, where monitoring was part of a permit requirement, or it was just something that the organization that's sponsoring these launches is doing due diligence on, and there's no evidence that any of that has been done, it sounds like.

MS. HOWINGTON: If they are, they're not sharing, and they're not mentioning it.

MR. KATHEY: Okay. Thank you.

MS. HOWINGTON: That doesn't mean it's not occurring, but just it's not in their EAs or EISs.

MS. CROWE: So I don't think Kathleen has seen an issued permit though, and so that -- You know, if we could --

MS. HOWINGTON: Not for the most recent development, no, but, if there's monitoring programs that have been happening in the past from previous developments, they're not sharing.

MR. KATHEY: So do we know what permits are required, or do we know of any permits that are required for this activity?

MS. HOWINGTON: Not off the top of my head, but, yes, I could get you that information.

MR. KATHEY: Because that's most likely where we would find, you know, a term or condition of the permit requiring that a study be done, and that, you know, that information be fed back to the permit permitting agency, but I think it seems like that would probably be something like the FAA, maybe, unless the Florida Coastal Zone Management Program would require it as a part of federal consistency consultation. That's the only thing that would hold their feet to the fire to have to do that kind of a study, as far as I can think of.

MS. HOWINGTON: In all of my letters, I am -- If there is some kind of monitoring, I am supporting it, and I am recommending more, but, again, I have not received a response to any of the letters I've sent.

MR. KATHEY: Okay.

MS. CROWE: We have Wilson, in the room, with his hand.

DR. LANEY: So two thoughts. One is has anybody reported any fish kills, you know, associated with any of the launches? It would seem to me that would be something that we would be interested in, if there were actually any observations for those, and then the second thing is, and somebody already mentioned the word "mitigation".

It's probably not too early for us to start thinking about, you know, and so, presuming that we are able to generate some information, and we are able to begin to document, or at least substantiate that certain impacts are likely to occur, then we can start talking about mitigation, and especially

where it would come into play, I would think, is what we've already discussed, closures that affect commercial or recreational fishing, and how you would mitigate that from an economic perspective.

MS. CROWE: Kellie, online, go ahead.

MS. RALSTON: Thank you. To the permit/monitoring question, I don't know specifically like what permits NASA needs from the State of Florida, but we did just go through a similar issue related to Blue Origin wanting a renewal of their wastewater discharge permits around their cooling tower activities on the Space Coast, and that could be an interesting case study for us.

They do have water quality monitoring requirements as part of their state permits, and so, Kathleen, those -- You know, while I think FOIA requests at the federal level can be a little challenging, a lot of information is already available on the state database website called Protecting Florida Together, which is Florida DEP's website, and, in addition, they're usually very responsive on any Sunshine Law requests, and so I would be happy to help facilitate those conversations between you and the agency, to see what they might have already available as far as water quality monitoring information and frameworks and networks and the state permitting requirements that go alongside any of these federal activities occurring in state waters.

Then, also, responding to Wilson's comment about fishing closures, which I think is a great one, I would also look at reductions in fisheries abundance, localized depletions if you will, and so I know we definitely manage, you know, by stock, large-scale stock analysis, but I think too you might find some pretty significant fisheries impacts at the local level that could have broader stock impacts up and down the coast, kind of given the proximity to a lot of larval transport and those types of things right off the coast of Florida, and so I would put those out there.

MS. HOWINGTON: Thank you so much. Where is -- Can you repeat that website for me, that information?

MS. RALSTON: It's Protecting Florida Together, and it's the Florida Department of Environmental Protection, and it's where they have -- All of their water quality information for the entire state gets plugged in to that website, but they can also pull it specifically by permit, and so that would require a contact at DEP, which I'm happy to help connect you to.

MS. HOWINGTON: Yes, and I'm definitely going to reach out to you with that, because one of my concerns, while we're looking at just data fields, and we haven't even gotten past that point --

MR. RALSTON: Right.

MS. HOWINGTON: Is fishermen are not going to have water quality information, but they're going to have fishery impacts, debris impacts, that kind of thing, which is, again, why I specify -- When I'm calling people, I'm specifying like what we're looking at, because, ultimately, I think we are looking at two branches, the fishery impact and the debris and the impacts, and then we're looking at the water quality and the impacts on the surrounding EFH, and those are two separate things.

If you actually have a way for me to get that, especially by permit, then that removes one-third of this list of questions, and then it does help narrow down where, if we do send something out to fishermen, they're not looking at this like this doesn't matter, or this doesn't apply to me, and I don't know, and so that's extremely helpful, Kellie. Thank you.

MS. RALSTON: Yes, and I'm happy to do that.

MS. HOWINGTON: All right. Are we done with data fields? All right, and so the next question -- So we have the questions that we want to ask. We have those data fields, and, again, it might end up that we're going in a two-pronged approach, which is fine, and the second thing is what tool would we support, or would we recommend, or would somebody do?

I did go out, and I tried to kind of figure stuff out. SciFish is the council's tool that is an app that can help build an app. You need an ACCSP partner to help support it, and so you need somebody on ACCSP to be your like main contact, and all the available data fields focus on more fishery-dependent data, and so -- The data fields are kind of limited in their ability, and so we're not going to really be able to use that, but I wanted to put it on here, of, if you all are interested, go look at SciFish. It's a fantastic app, but, ultimately, it's not -- I don't think it's appropriate for what we're aiming at now.

Then there's citsci.org, and so citsci.org can create an app that gathers all of our questions. It can collect pictures, and it can work offline, which is great. The one app or more is because, again, I feel like this is a two-pronged approach, and so I don't think that sending out a water quality app to fishermen is going to be appropriate, but maybe we could send out a water quality app to people who are, you know, the Indian River Lagoon monitors, and send out fishing debris and impacts to fishermen.

Then we could potentially support a Google form, and maybe this is a little bit more user-friendly. You're not going to have an app, but it does have an offline printable option. One thing that I did learn, back in my outreach days, is that fishermen don't necessarily take their tech out on the water, which makes sense, because it can break, and they don't want to, and so having -- One of the things I developed was a laminated card that fishermen could fill stuff out, and then they would come online, and they would -- Or they would come back offshore and type it in.

Then maybe trying to partner with an already existing app, and so one of the apps that the fishermen have mentioned to me is called Launch On Demand, and it tracks closures. It already tracks a lot of this information, and so, if they would be willing to also start gathering data, that would be great. I tried to contact them. Unfortunately, their phone number is a fax machine, and their email -- They have not responded to my email, and so, if anyone knows the Launch On Demand guys, this is my plea for please give me their contact info, and also let them know that their phone number on their website is out-of-date.

This, again, is not necessarily something that we're going to be able to answer. I feel like going to the council with recommendations of the data fields that we're interested in, we would recommend that the council support some kind of data gathering tool. If I were going to recommend anything, based on my research, citsci.org would probably be the best one. Again, no offline printable option, but that's -- Anyway, and so, for the tool, does anyone else have any other ideas, or any preferences, or any thoughts?

MS. CROWE: Let's go to Matthew, and then Paula.

DR. JOHNSON: Are we ready to even talk about this?

MS. HOWINGTON: I don't really think so. If anyone wants to give me something to start kind of exploring, and coming up pros and cons, that's more what I'm looking for right now, and not necessarily -- Again, I don't think we're at this point yet, but it is something you have to think about. If you're going to start supporting any kind of citizen science, you need to think questions, tools, audience, and so we're going to go through each of those. I don't think we're here yet, but, if anyone has one that they want me to look at, let me know.

DR. JOHNSON: Okay.

MS. CROWE: Paula, did you have a comment?

MS. KEENER: Yes, and that was my question as well.

MS. HOWINGTON: Back to we're not going to be able to answer every question, and that's fine.

MS. CROWE: Cameron, go ahead.

MR. LUCK: I was just going to say one thing to think about, if you ever get to that point, is if there's existing reporting apps that people are using, and trying to piggyback off those, and I was thinking about red snapper, but that -- You know, nothing is happening right now, and so, if there's other reporting requirements the states already have, you could just try and plug some information in there, and you're more likely to get more responses than building something else and then selling it.

MS. HOWINGTON: I like that idea. The only issue is I don't know if Florida is going to be interested in helping us in this endeavor, but I'll reach out.

MS. CROWE: Erin, did you have a comment?

MS. SPENCER: Yes, and I just wanted to second that. When we did a survey of anglers about the snapper grouper reporting apps, having too many apps came up, and building in the -- Also, you know, already building on some hesitancy to do it in the first place, and so I would vote for that over like a Google form, from a usability standpoint as well.

MS. CROWE: Brendan, go ahead.

DR. RUNDE: Thank you, Madam Chair. To piggyback on the last two comments, I agree, and I don't think a separate standalone app is the move here. We have seen -- In some research that TNC has been conducting, we've seen significant hesitancy from anglers to have to install a new app for every little thing, and I think we can all commiserate with that.

One idea, because, in in my head, this will be voluntary, of course, completely voluntary on the part of the data provider, and one idea is to work with existing apps, and I'm thinking of iAngler,

and I know that the council has had a lot of success with SciFish, but a lot of people, I think especially in Florida, are using iAngler. Bret Fitzgerald is the head of the Angler Action Foundation, and TNC has been working with him to tweak, or add a module to that app for a project that we're doing, and I'm guessing he's aware of this problem, and I'm guessing that adding a module to allow people to report space-related activities, and preclusions, would be within the scope of what he would be willing to do, and so just throwing that out there, and I think iAngler is the most common reporting app, or logbook app, among recreational anglers overall. Thank you.

MS. CROWE: Eric, go ahead.

MR. WEATHER: I might just recommend, you know, for an initial approach, like a hotline-type opportunity might be more effective for people reporting these sort of rare occurrences of debris in their nets or something like that.

MS. HOWINGTON: Back to fishermen just randomly texting me in the morning. All right. Good on tool? All right, and so, again, the further we go away from data fields, the less likely we are going to be able to answer these, but it's something that we have to think about if we're going to be supporting them, and so go ahead and get these questions in your head.

Who should be involved? Again, council staff, and I am limited because of the Paperwork Reduction Act, and council workload generally, but I can receive data, and I can provide analysis, and so, if we decide to support this, that is going to be my role. If you are an AP member, and you're willing to try and be a scientific support person, let me know. Shoot me an email. Whenever we're playing matchmaker, you know, sometimes it can be, hey, let's just get a group of people together and see if maybe we can make this work.

Then would a fishing organization be willing to be a collector of data, and I have already got some feelers out. I have two groups, one commercial and one rec, that might be willing to work together, possibly, and I might have to create a friendship circle, and make them all get along, but we can make it work, and so those are things that we have to think about.

Again, really the only one that I want answered for today, or in the future, is, if you're an AP member, and you're willing to try and help and be scientific support on whatever this ends up being, shoot me an email. This is the open floor. Let me know, and then I'll keep you in the loop of anything that happens in between now and their next meeting.

Then additional thoughts that you have to think about when you're creating, you know, any kind of citizen science tool, is how do fishermen find out about the tool? I like the idea of using an already existing app. I like the idea of piggybacking on something. That is going to help a lot. How will fishermen involvement be retained? The biggest thing that you have to think about is how to keep the fishermen continually reporting this, because this is an extra burden on them, and, again, it is fully volunteer.

The way that you can do that pretty easily is by making certain that this data is public, and that it is shared. Since this is space data, that's hard, but making certain that you're in constant contact with any fishermen that are reporting, that you're letting them know what the impact will be, while still trying to maintain confidentiality, is a balancing act, and so those are some additional thoughts that -- Just keep it in your head as we continue through this process.

MS. CROWE: Matthew, go ahead.

DR. JOHNSON: Sorry, and you keep mentioning confidentiality, and what specifically are we concerned about?

MS. HOWINGTON: When I was having a lot of the conversations with NASA and the Coast Guard, anywhere that space launch debris is at the bottom, they're considering it a national safety issue, and like they would just get behind that curtain of this is a national security concern, and we're not able to share that information with you, and then that was the end of it.

DR. JOHNSON: Okay. I would --

MS. HOWINGTON: Your face and my face are about the same when --

DR. JOHNSON: No, and it's fine. I mean, it's just trying to work through it. If we're asking citizens to share geolocational data of debris fields that they stumble upon, and they fall into a trap with the federal government, that's just something that we're going to have to --

MS. HOWINGTON: We don't want them to get in trouble.

DR. JOHNSON: Correct. I don't understand why -- I don't quite -- I can't quite get there, and maybe that's just because I'm new.

MS. HOWINGTON: No, no, no, and there's a lack in logic here.

DR. JOHNSON: Then, just in terms of tools -- I know it's been recently sold, and I like Fish Rules when I'm offshore, because it combines geolocational data for state and federal regulations for harvesting, and then the methods, and they've got a fishing log there, as well as mapping, and, if we can plug in with them -- It's the one I like to use the most, and it might be helpful.

MS. HOWINGTON: We have a connection with Fish Rules too, and so that might be an avenue that we go. The question is would they be willing to add in additional data, and like an additional module, but we're in the exploration stage, and so there is no wrong answer here.

DR. JOHSON: Okay.

MS. HOWINGTON: If we are gathering data on space debris, we would not be able to share exact location of it publicly. From my conversations that I've been having, it would have to be either generic, or it would just have to be meeting confidentiality standards for like there's more than three space debris locations in a specific grid, and that's just going to be mapping, and I've done that before.

DR. JOHNSON: We would confirm that it's space debris how?

MS. HOWINGTON: Right, and that's the other question, is are we just running into random debris, or is it space debris, and so like that looks spacey to me.

DR. JOHNSON: It does. It looks very spacey.

MS. HOWINGTON: Or are we just calling it debris fields, and then it's not a national safety thing, because it's just there's something on the bottom that you're going to get your rigs caught on, and don't go here.

MS. CROWE: Laura, go ahead.

MS. BUSCH: It sounds like the national security thing is a bit of a cop-out, to try to not have to provide information, because, if they were really concerned about something, they would go pick it up, as someone that's been involved in something along those lines of having to go pick up something because it was a true national security, and so I think, once it's been left, if they -- If someone comes across it, that's no longer national security.

MS. HOWINGTON: So then, wrapping up right around noon, recommendations from the HEAP, how can the council further its goal of protecting EFH, and so, again, this goes into the new policy, or integrate into an existing policy, and I don't think we're quite there yet, but it is something that we have discussed in the past, and so I'm keeping it on. We have discussed this.

Then how can the HEAP support any data gathering that needs to occur? It sounds like we have a good idea on what data is available, and it sounds like there are some apps that I could go explore, and would you guys recommend me bringing the data questions, and support for a data gathering tool of some kind, to the council come September? Hopefully then they would approve of that, and I can then come back and start saying, hey, I reached out to iAngler, and I reached out to Fish Rules, and I reached out to some existing reporting apps, and here's the interest that's going on, and would you guys be -- Is that acceptable?

MS. CROWE: Wilson.

DR. LANEY: The short answer is yes, but I'll go back to what Laurent already pointed out to us, and, again, in the big scope of things, you know, the anticipated changes from climate alteration are going to be far greater, and cover the entire geographic scope of the council's jurisdiction, whereas this one is very small and localized.

However, the more I've thought about it,, the more I think this falls into the realm of not charismatic megafauna, which is a common term we use, but this is kind of a charismatic issue that, you know, even though it's very local, and localized, and doesn't affect presumably much of the council's jurisdiction, it's a high-profile issue, and so I think the council definitely needs to have the discussion, and I'll be interested to hear what they have to say about it.

MS. CROWE: Thanks, Wilson. Anyone else have any comments? Matthew, go ahead.

DR. JOHNSON: Just in terms of thinking about this, and just to echo something Kathleen said, it's localized now, but I think at least my expectation is it's going to go from localized to regional to national, and I think your chart of projected launches would support that, and I'm not sure I would -- I wouldn't characterize the effort as trying to explore a localized issue. I would characterize it as just getting ahead of the ball, because I think we blink one day, and, in fifteen years, you know, you're seeing launches from multiple states on the east coast, the Gulf coast, the

west coast, and it's just -- It's the next big industry, and I think, if we approach it like that, it would be beneficial.

MS. CROWE: Thank you for that. Cameron, did you have a comment?

MR. LUCK: I just wanted to follow up on Wilson's comment earlier on fish kills. I found a report from 1961 to 1975 from the EPA. If there were any fish kills associated with those failures, during that period when they were having the most failures, it fell under the radar for this report. They were not reported, and so either they did not happen or was not collected in by the EPA during this report.

MS. CROWE: Okay. Thank you. Kathleen, go ahead.

MS. HOWINGTON: Well, last thing. We support the Kennedy Space Center space activities and space exploration. We just want to make certain that negative impacts to the habitat and fisheries are mitigated while maintaining a successful space program, and so, anyone who just heard all of us complain for the last hour-and-a-half about space stuff, please take that into account. Space stuff is cool. My kid wants to be an astronaut. He's only six, and so we'll see how that goes, but I have to reiterate that, because I don't want anyone to take the -- To make this a thing, and so a pretty picture.

MS. CROWE: I like your space theme. You did a great job on your space theme presentation. Okay. It time to break for lunch. What time would you like everyone back?

MS. HOWINGTON: I think we can do an hour-and-a-half, because we're ahead.

MS. CROWE: Okay, and so an hour-and-a-half is about 1:40, and so, if everyone would be back and online at 1:40, we'll start again with our afternoon session. Thank you.

(Whereupon, a recess was taken.)

MS. CROWE: Welcome back, everyone. We are going to start our afternoon session with a presentation from Lara Klibansky on the Resilient Fisheries Initiative updates, and so, Lara, if you want to go ahead.

MS. KLIBANSKY: Thank you, and, Kathleen, can I share my presentation?

MS. HOWINGTON: Request incoming.

MS. KLIBANSKY: Thank you. I will say, before I get started, I -- I have to think for a second. I have made some tweaks to this, that I just noticed things while I was going through, and so I'll send Kathleen an updated version, but you may notice a few small differences from what I sent to you. Okay, and let's get started.

As you said, I'm Lara Klibansky, and I am the South Atlantic's Resilient Fisheries Program Manager. I'm a contractor, working through these IRA projects with council staff to oversee kind of the from the beginning to the end, the full life cycle of these projects, including implementation, which we're going to talk on a little bit today.

Before I get started, I just want to remind everyone that we have a resilient fisheries webpage, and I've included that here, with the link below, and so I'm going to be touching on kind of high-level points for these projects, but, if you want to get more in depth with them, you can go to this website, and you can review the quarterly updates that I provide for the council.

MS. HOWINGTON: One second.

MS. KLIBANSKY: Okay.

MS. HOWINGTON: One of our screens is malfunctioning, and so everyone online is good. We are not though.

MS. KLIBANSKY: Okay.

MS. HOWINGTON: Okay. I think we're good. Thank you.

MS. KLIBANSKY: Okay. Absolutely. Okay, and so here on the screen I have the overview of the resilient fisheries initiatives, and I'm going to go through four of our projects. These are all being undertaken by contractors, and then I'm going to touch on -- I'm going to give you an overview of the outcome for the ecosystem data workshop, and we talked about that during my last presentation in January a little bit.

I am not going to touch on the governance workshops, except to say that these are a collaborative effort. We're working through the East Coast Coordination Group, and with our partners at the Mid Atlantic, the New England, and also ASMFC and NOAA, to work together on implementation of our governance project outcomes.

All right, and so cross-regional coordination, and collaboration, are a really high priority across these initiatives. I've shown this figure before, but I just want to emphasize this. These three boxes represent each of the groups where coordination is happening with the South Atlantic, and so the East Coast Coordination Group is the most formal collaboration, and it involves all three east coast councils, the Atlantic States Commission, and also NOAA Science Centers, both the Northeast and Southeast, and the Regional Offices and Headquarters.

At the council level, we're using project oversight teams as a means of collaborating and bringing in regional perspectives for each of our resilient fisheries initiatives, and then, finally, we have the Southeast Coordination Group, and this is the least formal collaboration group of the IRA project coordinators. Excuse me. It's a collaborative group of the IRA project coordinators from the three Southeast councils and the NOAA Regional Office.

I'm going to jump into our projects, and so, as I go through each project, I'll be briefly reviewing the objectives, which I covered during my presentation in January, but I'm mostly going to be focusing on the project deliverables, and the timelines for those, and that's in prep for a brief discussion on implementation planning, and so, if you want to look, again, at a more complete review, you can go on to the resilient fisheries webpage, as I mentioned before, and get those quarterly updates.

All right, and so we'll begin with Project 1a, the Management Process Review, which is one of -- A part of our South Atlantic governance project, and so, as a quick recap of what we covered last time, this work is being carried out by Aaron Kornbluth, Steve Poland, and Purcie Bennett-Nickerson, and the project objectives were to assess the current South Atlantic management processes, analyze the committee structure against other regional councils, explore integrating risk policies to manage growing uncertainty, and also to recommend improvements based on these reviews and assessments.

This project is well underway, with an expected completion date of March 2027, at which time the project deliverables are going to be presented to the council, and so the deliverables for this project include an FMP dashboard, which the team has been developing as an efficiency tool for the South Atlantic staff, and the second is the final report, which will include reviews and recommendations for the council's consideration.

The final report is kind of the meat of this project, and it digs into a few specific areas. It looks at South Atlantic processes, including how the South Atlantic committee structure is set up, for example, and it also broadly examines management processes, like the full span of FMP amendment development, and identifying bottlenecks in those processes, benchmarking the process against how other councils operate, and then also reviewing council-level, and this is a specific one, NEPA efficiencies.

This one is interesting, because of the recent changes in the NEPA policy at NOAA, and so it actually, I think initially, wasn't intended to coincide with that, because it wasn't expected, but it has worked out well that it has, and so we can explore council-level efficiencies that could be achieved under that new policy. Finally, it takes a cross-council look at risk policy frameworks, to see how each approach compares with the other regions.

All right, and so, staying with the council's governance work, this second project is the companion to that management process review that I just walked you through, and so this work is being carried out by Sarah Gaichas, who you will hear from next, and Sarah will give you a more full review of this work, and so I'm going to keep it short.

This project will be wrapping up later this year, with the presentation of the final report on the schedule for the council's September meeting. The deliverable is a final report with implementation recommendations, and it digs into two main areas. The first is a review of the data products and approaches that are used across all of the U.S. fishery management councils, so we can learn from what is already working elsewhere, and the second, which lays out pathways for actually integrating ecosystem information into council processes, including a set of prototype ocean indicators.

You'll hear from Sarah next, with much more detail about that project, but the last thing I'll add is that Sarah's work will be provided directly to the council, but will also be reviewed by the management process team, especially as they explore and develop recommendations around risk policy frameworks.

All right, and so that wraps up our two governance pieces of our governance project, and so let's shift to the management strategies for the wreckfish fishery, which is one of the more data-limited stocks that is managed by the South Atlantic Council. This work is being carried out by a team

from Lenker, and it includes Josh Nowlis, Thomas Remington, Jeremy Colie, Mateja Nenadovic, and Brian Snouffer, and just as a quick reminder that the objectives here were to complete a data-limited stock assessment and develop stakeholder driven recommendations for wreckfish management strategies.

The team are planning for their second stakeholder workshop. This is a very stakeholder, as it says, driven process, and so they're holding that second workshop -- They're planning that for October. Timeline-wise, this project will also be completed in early 2027, when its deliverables will be presented to the council, and the deliverable is a final report including a short list of alternative harvest control rules and management measures that stakeholders themselves have helped select, which is really, as I said, the core of the adaptable stakeholder-driven approach that they're taking.

All right, and so our next project turns the focus to habitat, updating the spatial distributions and essential fish habitat for the Snapper Grouper, Coastal Migratory Pelagic, and Dolphin Wahoo Management Units, and so this work has been carried out by the contractors Jie Cao, Janet Nye, and Jade Hong, who are -- Jie is NC State, and Janet is UNC Chapel Hill, and Jade Hong is a student with Janet, and Kevin Craig is also collaborating on this project as well.

The objectives were to update our information on species and fishery distributions, compare that against the existing EFH designations, and then develop recommendations for potential future EFH changes, and also to improve how that EFH information is displayed on the council website, and so these are directly important for you guys. They're making really good progress on this project, and we'll be seeing the spatial models that they've been developing reviewed during the October SSC meeting.

This project is going to be wrapping up, again, in early 2027, at which point, again, its deliverables will be presented to the council, and the deliverables here include updated spatial distributions for a number of the species in those management units that I just mentioned, an analysis of the relative importance of the habitat and environmental conditions driving distribution changes, predicted habitat areas for the species, and also estimated abundance indices that show how the distributions are shifting over time.

All right, and so that brings us to the last of our four projects, and this is the communities project, and so, as a quick reminder, the objectives are to characterize the South Atlantic fishing communities, including their economic dependencies and their vulnerabilities to environmental change, to develop a strategic outreach and communication plan that promotes the use of community perspectives and council decisions, and to use ecosystem modeling to better understand the impacts on those communities.

This is a multi-phase project and there's been good movement across all three phases since I presented to you in January, and so Phase I and II are both underway now, and I'll dig into those in a second. Phase III, since my previous presentation, that request for proposals went out, and we're now in the review process, and so with that phase expected to get underway this month, and so still coming soon, but much closer.

All right, and so here is Phase I and Phase II. The two phases are running concurrently, with a large collaborative team that's led by Ed Camp from the University of Florida. The projects share

a single oversight team, to keep them coordinated, and we kicked off on May 28th with our initial oversight team meeting.

That oversight team is going to be meeting monthly, to try to keep pace with what we're anticipating is going to be a pretty accelerated timeline, running through probably close to the end of 2027, and so, in terms of timing and deliverables, Phase I is the foundational kind of data gathering piece, and its deliverables are a report on the place-based fishing communities that are affected by South Atlantic management decisions. That will provide the resolution at -- So that we can basically have a better understanding, or a higher-resolution understanding, of how those fishing communities are impacted by those management decisions.

It will also describe how these communities interact with council-managed species over time and describe where their vulnerabilities lie with respect to ecosystem change, and so, alongside that report, Phase I will also produce outreach products like maps, story maps, infographics, and an assessment of how the council currently uses social data, and, finally, it will identify kind of new on-ramps for that information.

Phase II then builds on that foundation, and it's more kind of forward-looking, and so it delivers an assessment of the council's communication and outreach activities, which will inform the development of a comprehensive communication plan, an outline -- Or an online communication hub for staff, and also guidance materials and training for council and SERO staff, and that's the plan currently. Those are all aimed at sustaining kind of that connection between the council and fishing communities. This will be wrapping up in a final report and presentation in later -- Or in late 2027, like I said, and let's see.

I am now going to switch to talking about implementation, and so I just quickly ran through what are the deliverables for these projects, and I want to talk about implementation planning, and so here are the initiatives that we just went over, and, now that we have most of the projects up and running, and in fact we're going to be receiving deliverables later this year from our first project to wrap up, I've begun to work with staff on implementation planning.

Our first step has been to connect the deliverables that I just reviewed with their intended use, but also to identify other council decisions or processes that may benefit from those. In addition to that, I'm beginning to consider the recommendations in how they're starting to take shape alongside existing council priorities, and so, again, looking for opportunities to align those better, and, as I said, we're beginning that process, but I wanted to give you kind of an example of what this might look like.

We discussed this implementation during your previous meetings, and so hopefully this will seem a little bit familiar, but I wanted to describe how we anticipate some of the project deliverables -- How those will be used by you during your upcoming EFH five-year review, and so, here on the left, we have the initiatives that are expected to produce deliverables that will be useful during your review, and so some of them are really straightforward. We have updated spatial distributions, and we have comparisons between existing EFH designations and updates, and we have the improved EFH maps on the council website, and then some of them -- That's all from the Project 3 here, the updating distribution and essential fish habitat.

The other two, the governance project, and also the communities project, we think may support that in different ways, and kind of in unexpected ways. It wasn't the intended use, but we see value there, and so, the EwE modeling that's going to be taking place as part of the communities project, that's a way to potentially explore indicators that could be useful in your five-year review.

We also have potential future EFH changes, and so this is related to the governance discussion, and so how processes are done over time, and how could they be done more efficiently, how could they be better supported by ecosystem information, and so that's what touches on this potential future EFH changes, and then, finally, improved use of ecosystem data in council processes. This is directly related to what you'll hear from Sarah today.

This is kind of where we're at, and we're just identifying the outcomes of the projects, with their intended uses, and where do we think they could benefit the council in other ways, and we're going to continue to make progress on this, with a full plan being presented to the council in December.

All right, and so I'm going to switch completely to the ecosystem data workshop, and so, when I spoke to you in January, we were in the middle of this workshop, and so today I'm going to share kind of a high-level overview of those outcomes from the workshop, and I'm going to focus especially on two things that came through pretty strongly across the workshop. The first are system-level observations about how ecosystem information is currently being used, or not used, in management, and then second is the guidance themes that were developed to help improve that over time. The purpose of the briefing today is to really distill the workshop down to a few of its most important takeaways, and the report is under review now, and that's going to be provided to the council in September, and so that will be done pretty soon, probably.

All right, and so, just briefly, as a reminder, and I kind of covered this from before, but I know it's been a couple of months, and so this was a NOAA-funded and South Atlantic-led five-session workshop series that focused on ecosystem data and decision-making. It focused on addressing recommendations from previous regional efforts, and that included the Atlantic Coast Science Coordination Workshop and the East Coast Scenario Planning Initiative.

As that suggests, collaboration across regions was a priority, and, as I mentioned before, the workshop brought together South Atlantic, NOAA, and other regional partners, as well as technical experts from within the South Atlantic, and also from adjacent regions, including the Mid-Atlantic and Gulf Council regions.

The workshop produced guidance for how the council and others might implement more effective use of ecosystem information into their management decisions, and so one of the really useful things about the workshop is that it helped really surface some broader observations about how the overall system is functioning in the Southeast right now and what that means for future efforts to integrate ecosystem information more effectively.

All right, and so I'm going to begin by going over these system-level observations. The first observation is about awareness and access, and so one of the clearest points from the workshop that many participants was that participants were only familiar with a small subset of the ecosystem information tools that already exist, and so that suggests that we may already have more information available than people are actually using.

It also suggests that some tools may be hard to find, and they're not well explained, or not visible to people who could really use them, and so, in some cases, it may even mean there's duplication happening, because new tools are being developed without full awareness of what already exists., and so one big takeaway here is that there's an opportunity not just to build new things, but to make existing tools easier to find, and so easier to understand and easier to use.

All right. The second major observation is that capacity and funding constraints are likely to remain a reality for the near future, and so that came up repeatedly. Participants were pretty clear that there's limited room for entirely new systems, or new major layers of processes, and, because of that, the workshop really leaned toward a more strategic approach that builds from what already exists, rather than starting from scratch. In practice, I think that means prioritizing, sequencing, and working through existing structures wherever possible, and the message here was not do more, but really be more deliberate about where effort goes.

A third observation was that many ecosystem tools do not yet have a clearly defined audience, or a clearly defined decision purpose, and so, in other words, useful information may exist, but it is not always obvious for who it's for, or what decision it's supposed to support, or how it should actually be applied, and so this came through as one of the central issues across the workshop again, and participants kept coming back to the idea that ecosystem information becomes much more useful when it's built around a specific decision and a specific end user. One of the strongest messages from the workshop was that the issue is not just data availability, but it's alignment between the information, the audience, and the decision needs.

All right, and so the fourth observation is that familiarity and trust matter a lot. Participants noted that the tools that decision makers trust most often are the tools they already know, and so, even when a newer tool may have a lot of potential, it still takes time to become familiar, and that familiarity is part of what builds its credibility, and so the workshop highlighted that ecosystem information is often noted, or acknowledged in discussions, but not necessarily integrated in a meaningful way into the decisions themselves, and that suggests that trust, usability, and repeated exposure are not small things. They're really central to whether ecosystem information actually gets used.

All right, and so the next observation is about timing and practicality. Participants emphasized that compiling and updating ecosystem tools often takes a long time, and a lot of effort, and that those timelines do not always line up well with management timelines, and so, even when the information is useful, it may not arrive in the right format, or at the right time, to support an actual decision.

This led to two related ideas, first that there's a need to make existing tools more efficient, and easier to update over time, and, second, that there may also be value in lighter, more nimble approaches that can convey relevant ecosystem changes more quickly, when they're needed, and the final observation is about integration into decisions, which participants felt is still pretty limited.

The ecosystem information is frequently documented, and discussed, but usually not meaningfully incorporated into management decisions, and so, in many cases, the data gap is not necessarily a lack of information. It's the absence of clear pathways for applying what we already have, and so this idea of pathways also applies to kind of clarity about the appropriate format for how

information is presented, and the takeaway here is that improving integration may matter more than producing additional data, and we need better mechanisms to carry the ecosystem information into those moments where decisions are actually being made.

All right, and so, building on these observations, the workshop discussions led to the idea of a collaborative strategic cycle for integrating ecosystem data into management decisions, and so one point participants were clear about is that the steps in the cycle not be numbered, and that's because it's possible to enter the cycle at almost any step, and where you start really depends on the specific issue at-hand.

The council and its partners may benefit from defining a clear process for entering this type of cycle to address certain types of needs, or decisions, but, even with that flexibility, you know, for where to enter the process, participants kept returning to kind of the foundational step, which was collaboratively defining goals, objectives and decisions, and so that's the thing that makes the other steps successful.

A key conclusion from the workshop was that a shared understanding of what decisions are being made, and how those link clearly to defined management goals and objectives, is central to effective management and to meaningfully integrating ecosystem data, and so, at whatever step managers enter, they need to look back at those goals and objectives and decisions to orient and align their work with the overall strategy.

This cycle also reinforces much of what we heard throughout the workshop, which is collaboration across managers, scientists, and partners early in the process, information linked directly to action, a process that stays repeatable yet flexible, and a foundation of transparency, trust and shared learning, and it was this cycle that, in the course of the workshop, directly informed the development of the guidance themes that I'm going to run over next.

All right, and so here are the guidance themes. The first two guidance themes respond directly to many of the system-level observations, and so the first theme is to clearly define goals, objectives, decisions, and roles, and so this was treated as a foundational step like throughout the workshop. I can't emphasize that enough. We came back to it over and over and over again during discussions, and so participants repeatedly came back to the idea that ecosystem information should begin with the management purpose. What are we trying to accomplish, and what decision is at-hand, and who is responsible for what?

The second theme is to build on existing processes, and so, because capacity is limited, and because familiar processes tend to be more trusted, the workshop participants emphasized working through existing council SSC committee and advisory structures wherever possible, rather than creating, you know, some kind of new system.

The third theme is collaboration. This is a theme that comes up across all of the IRA work, and specifically here. The workshop participants emphasized the importance of collaboration within the council region, across council regions, and across all of the groups who might be involved in science, management, and implementation that are relevant to a topic, and so they stressed that collaboration should happen early, and often, and not just after tools are developed, and so that specifically means they should start with that goal process, and that, from that point, those tools can be developed, so that everybody understands what the goal and purpose of it is.

The fourth theme is to strategically design indicators and tools so that they are genuinely useful for decision-making. That means thinking carefully about the intended audience, the timing of decisions, data availability, legal and practical constraints, and also the resilience of the tool over time, and so, together, these themes reflect kind of a shift away from producing information for its own sake, and really toward designing this specific information with management needs in mind from the outset.

The fifth theme focuses explicitly on trust, and so participants emphasized that trust is built through transparency, participation, and clear feedback loops, and so people need to understand how indicators are developed, how uncertainty is handled, and how stakeholder input is incorporated.

The sixth theme is to enhance the use of promising tools, and so this was language that we used during the workshop to describe the ecosystem status reports. That was kind of the primary example of a tool that exists that has tons of promise that we could begin to work with, and so the workshop identified many of these tools that already show promise, but participants noted that many of them could be used more effectively if awareness were improved, and if formats were refined to be more effective, and communication between tool developers and tool users were stronger. These final themes are really about making existing efforts more credible, and more accessible, and also more actionable.

I'm going to wrap up with that, but I would like to highlight three main takeaways, and so, first, the workshop suggests that the main challenge is not simply a lack of ecosystem data. When I came into this process, there was really a sense that we were lacking data, and I think, through this workshop, and through Sarah's work, what we've seen is that there's quite a bit of data. There are absolutely data gaps but there's a lot of data that we can use better that could improve our work in the Southeast. In many cases, the bigger issue was alignment, usability, timing, trust, and process.

Second, the system-level observations help explain why ecosystem information has not always been fully integrated into decisions, and so even when there's useful information available, and then, third, the guidance themes provide a practical framework for moving forward in a more strategic and decision-focused way over time, and so these initiatives are broadly relevant across council issues and challenges.

In fact, there are a number of topics on your agenda for this meeting where they may benefit you in your decision making, and so, for example, there's the direct connection between the guidance provided during the ecosystem workshop and how that may support the implementation of the recommendations that are being developed by Sarah through her project.

Some others include like how the workshop guidance could support the development of an integrated ecosystem assessment in the South Atlantic. I know that's something that you have been working towards for a long time, and so maybe that's something that this framework could kind of help you work towards being successful in getting that, and then, also, knowing that resources are limited, and understanding how existing processes can be used would -- Finally, like collaboratively defining goals and objectives are all part of that workshop guidance.

You'll also be discussing the habitat communication strategy tomorrow, which could benefit from the outcomes, potentially, of the communities project, where they're looking at communication

with fishing communities, and how to improve that, and so I encourage you to keep these initiatives in mind as you work through these topics, and, if you ever have any questions, or you want to discuss, you know, potential implementation pathways for this work, please feel free to reach out to me. My email address is on the title slide, and I'm happy to speak to anyone about those at any time, and, with that, I'm happy to take any questions.

MS. CROWE: Thank you, Lara. Does anyone in the room, or online, have any questions, or comments? Wilson.

DR. LANEY: Thank you, Madam Chair. Lara, you referred to Ecosystem with Ecosim model, I think in association with the study of fishing communities. Is that the same model that the council already has, or is this is this going to be a new one?

MS. KLIBANSKY: So that is going to be working with the existing model, and it's going to be looking for kind of potential relationships between ecosystem changes and fishery changes, and how they might be affecting communities, and so it's kind of the relationship between those ecosystem changes that can be modeled and then the communities, where that Phase I and Phase II work will be exploring that kind of more -- A higher-resolution detail about how those communities are interacting with specific fisheries.

MS. CROWE: Erin, go ahead.

MS. SPENCER: Not a question, but just, first, thank you for this presentation. I think the takeaways that you gave are very tangible, and this is very helpful. One of the things that stood out to me is you talked about the timing of the data not always aligning, where just because -- That the data releases and things like that don't always align with when that data needs to be used, and it's something that we've been talking about with some different work in the Gulf, of how we can break these releases down into more bite-sized things to roll out, as things become available, or put different qualifiers on some of it, to say that, you know, there's more QA/QC that needs to happen, and also try and -- The accessibility part, of people not knowing where to go, and it's not a data availability problem, and it's people finding it.

The other thing we've been talking about a lot is really strategically cross-posting in different areas, and cross-linking and things like that to different types of data sources, and so looking forward to the communication conversation about that tomorrow, and maybe some of those practical kind of web strategies that can tie into that.

MS. CROWE: Okay. I don't think we have any more hands up in the room. and it looks like nothing online, and so if we want to go ahead with Sarah's presentation.

MS. HOWINGTON: All right, and so, Sarah, do you want me to make you a presenter, or do you want me to present and you just say next screen?

DR. GAICHAS: If I can present, that would be great.

MS. HOWINGTON: One moment.

DR. GAICHAS: Thank you.

MS. HOWINGTON: All right. You should be getting the prompt now.

DR. GAICHAS: Okay. I think -- Are you guys getting it? If you're not, then I'll go on.

MS. HOWINGTON: We can hear you, and we can see your screen.

DR. GAICHAS: Okay. Perfect. All right. Well, thank you for having me here at this meeting, and I think Lara gave you a really excellent overview of a lot of the points I'm going to hit again, and so I will try not to belabor it, but I think that that workshop was actually really helpful, in terms of some of the broader messages that I think you're going to see repeated here.

First, I want to give you, for this specific project, what the objectives are, which you may have heard already, and so I won't read all of these, but there are basically three objectives. One is to review what other councils do, and also what the South Atlantic Council currently does, in terms of the data that's available and how they use it, in terms of ecosystem information, and what sort of processes they have.

Then probably the meat of the project is identifying opportunities for the South Atlantic Council to use ecosystem information, and so I'll talk a bit about that today as well, and then, finally, to identify opportunities to expand cooperative science, basically citizen science, which is really well developed in the South Atlantic region, as you know, and so I'll be hitting each of these in this presentation, but not everything that was done in the project. I've been trying to really focus on some feedback that I would love to get from you all, given your expertise and the work that you've been doing, and so I'm going to start with this slide and then end with this slide.

In particular, I'm really interested in your thoughts on the opportunities for incorporating ecosystem information, and the alignment of sort of your EFH policies that you already have with current ecosystem indicators, and so I'll be going through several tables here, that were also in the report that was linked in Kathleen's email, and I'm just -- I would love to know, overall, if you think that I've appropriately aligned the indicators, what challenges you see with using that information, and whether potential indicators seem appropriate, and I would love to also know if you can think of different indicators to monitor progress, because my report is not done yet, and I would love to include your thoughts in it.

As far as the prototype ecosystem indicators, whether or not they make sense, and if they're explained clearly, and what uses the prototype I'll be showing might have, and then, finally, on the opportunities to expand cooperative research.

One of the suggestions is that citizen science, or cooperative research, could actually validate some of the prototype indicators that I'll show, but there's probably other information that could be useful as well, and thinking specifically of your processes, and your decisions, and so I would love any feedback that you have on this, and so now I'll go into the project.

Phase I of this project, for Objective 1, the review of the ecosystem data and information used across the country by the different councils, is basically done. Let's see if you can see my -- I don't know if you can actually see my cursor, and maybe you can. It says "posted online" down here in

red, and so you'll have access to these slides, and that is a link to the full report, if you wanted to see it.

Also here in red is the tool and use summary that was presented at the ecosystem data workshop that Lara just talked to, but, basically, the methods here were a literature search and semi-structured interviews, to come up with this report, and the details of when all that was done is here on the slide, but, basically, I looked across all eight councils, asked what their current documents are, what their data products are that they have available, and also looking in peer-reviewed literature.

Then I think the interviews were really useful, because they followed-up on that literature search, to ask council staff basically, A, whether the information is correct, and then, B, really getting their perspectives on the successes and challenges with current ecosystem information, and ecosystem processes, and what might be done better to meet council objectives, and so I was able to interview fifteen people, and five more contributed by correspondence, and we got almost all the councils with interviews, and included all the councils in the literature search, and so I'm going to give you a very brief overview of what we found.

Basically, as you might guess, and as I'm sure you know, the councils have very diverse ecosystem approaches, and this comes from their diverse areas that they work in, their diverse fisheries, their diverse social and economic structures in place in their areas, down to the different species, whether they're commercial or recreational-dominated, you know, and there's a lot of differences across the councils, and so it should be no surprise that they have different ecosystem approaches, but they all have one, and they break into kind of three different categories.

The first I'm calling sort of fishery management plan, FMP, or indicator based. We see that in the North Pacific, Pacific, Mid-Atlantic and New England Councils, and so basically across the northern tier of the country. They're characterized by these kind of high-value data-rich stocks with complex assessments. They tend to be dominated by commercial fisheries. There are annual ecosystem reports in these regions, and some of the indicators in those reports, or in other types of ecosystem reports, are currently informing assessments.

There are risk tables and uncertainty frameworks that can integrate ecosystem considerations in basically all of these areas, and they all have a non-regulatory fishery ecosystem plan, either in place or that's been looked at, that can provide an actionable pathway for using ecosystem information, and a little more on that later.

The second category I'm calling FEP, or fishery ecosystem plan, or geography-based, and it is the Western Pacific and Caribbean Councils, and this is where I think that you have really strong connections between human communities and complex, but data-limited, fisheries. They are both using place-based ecosystem plans or fishery management plans as operational management documents, and so that's really different from a non-regulatory FEP that we see in Category 1. All of these plans were co-developed with stakeholders, and they are really thinking about their distinct regional conditions, both ecologically and socially and economically, and, therefore, their ecosystem considerations are basically embedded in their management structure directly.

Then the third category is what I'm calling developing approaches, and that's the South Atlantic and the Gulf. They're both recreational-fishery-dominated areas, and both have fewer assessments relative to managed species compared with Category 1 councils there. The species-based FMPs

do have expanding ecosystem integration in them though, and there's some examples in there of language related to objectives, for in particular the South Atlantic, that explicitly say there's, you know, an interest in including ecosystem information in the management.

The South Atlantic also directly links, as you know, EFH with ecosystem efforts, and so this committee being a prime example of a vehicle for doing that, and, in the Gulf, fishery ecosystem issues are being developed within their fishery ecosystem plan, as basically a way to take action on ecosystem issues, and so those are sort of the three categories from that review, and that summarizes an awful lot of information, but there were some really common concerns, I think, in all the councils.

There's been a look at forage fish, and thinking about ways to deal with forage fish, and so the ecosystem services that forage fish provide, both in terms of feeding other fish and in terms of direct fishing, and climate change is something that all of the regions are dealing with, and I'll point out that even some of the very data-rich systems, that have had ecosystem reporting for decades, have experienced unexpected stock collapses, and so climate-ready management is important everywhere, basically.

There were some really interesting common challenges that came out, and this was mostly from the interviews with council staff across the country, and so, first, the complexity of ecosystem information was identified as a challenge. It's really important to provide information in digestible packets. I just love that phrase, and, as Lara said, clearly linking to management processes and decisions, and so like the sort of blast of huge amounts of data, which, as scientists, sometimes we like to do, is not always the most useful way for a council to absorb this information.

Resource constraints were also identified all across the country, even in data-rich regions, and capacity limitations are a serious problem for integrating ecosystem information into management everywhere, and then, finally, stakeholder perceptions were brought up in many regions, where I think folks are seeing ecosystem information as a one-way trip that is only going to increase restrictions on fishing opportunities, rather than expanding those opportunities, and so this perception came through in a lot of places, and that can be a serious impediment to getting more ecosystem information used, if people see it as only limiting.

Based on this, there were some successful practices identified, and I think this also came up in Lara's presentation just now, and so iterative co-development is something that has worked in multiple places. Ecosystem reporting has been evolving across all the councils, and usually that restructuring is coming with council feedback, and has always resulted in reports that are more useful to the councils, when that's done iteratively and together.

Most of the FEPs out there are emphasizing collaborative development of basically every phase of a decision, from problem statements all the way through to models and indicators, and this is done basically with managers, scientists, fishers, you know, everyone at the table. This is this is a recipe for success.

Also, risk-based frameworks are used all across the country in different ways, and that can be a really effective way of considering ecosystem information, even if you don't necessarily have quantitative information, or all the way up-to-date information on everything, and it can be very helpful in decisions ranging from very tactical decisions on catch advice adjustments, or strategic

decisions on sort of what research to do next, or what kind of say terms of reference to ask for in a management strategy evaluation, and so this type of framework can be very helpful.

Actionable FEPs is another thing, and so a fishery ecosystem plan -- Some of the earliest ones are very descriptive, including that of the South Atlantic, and so I think there's two parts of it, and it runs to several thousand pages, I think, and that is incredibly useful information. I mean, it's just a treasure trove of information, but it is difficult to take action based on sort of that type of descriptive information, and so a lot of councils have what they call -- They're named different things in different councils, but they all basically do the same thing. They're a structured decision process.

The North Pacific calls them action modules. The Pacific calls them initiatives. They're fishery ecosystem issues in the Gulf. The Mid-Atlantic has its EAFM approach, and that doesn't necessarily have a name, but they have been through a structured decision process already once, all the way through a loop, and so it basically allows an ecosystem issue to go from an idea, or a problem, through action, and to something that a council can use in the decision process. It struck me, as Lara was presenting her presentation, that the loop that she showed there coming out of the ecosystem workshop is exactly that, and something like that could form the basis for an actionable FEP in the South Atlantic, for instance.

Finally, having multi-scale ecosystem information is very useful, and so I think, as Lara mentioned, like familiarity with a product is really helpful for getting it to be trusted, and so it came across, again and again, that regularly reporting ecosystem information is very important to the councils, just so they can get familiar with the information, and the ideas there, but ecosystem scale is very important for the big picture, but then, also, people make decisions on stocks, and so having stock-specific ecosystem information can also be very helpful to link environmental drivers to individual stock productivity, potentially to use in stock assessments, but could also just be used for specifying catch without going into a stock assessment directly.

There's a lot of different ways of using this information being explored around the country. Some of them involve very labor-intensive report writing, which may not be a great fit under resource-limited conditions, but there's other ways to do it, and so, for instance, in the Pacific, they're developing a structured process for having a dialogue between ecosystem and stock assessment scientists, and that takes basically a couple of hours, and a bit of homework ahead of time, to produce similar information, so that it can go into a risk framework that's used in catch decisions, and so there's a lot of ways to do these things.

I think the report also identified the unique strengths of the South Atlantic, which I don't have to tell you anything about. The first is that EFH policies already exist, and are linked with ecosystem approaches. The citizen science program is extremely strong. There are existing products, as Lara mentioned. There's an ecosystem status report, and a fish climate vulnerability assessment. There's also a fishing community climate vulnerability assessment that are already there, and can be used at any time, and the South Atlantic Council has invested in its ecosystem model, which you've also already heard about.

I think there's a lot of room here to basically use what already exists, and think about the current processes in order to expand these. Again just like Lara said, this is not -- None of my reports are

going to suggest you go out and do something brand new. It's going to suggest that we make good use of what is already there, and so these are the preliminary recommendations.

You know, you don't have to take something verbatim that another council is doing, and probably combining them is going to be important, and so a hybrid approach across other council practices could be helpful. Leveraging those existing products, and I'll show you a couple of examples of that. Considering this formal process to develop ecosystem initiatives could be really helpful, and it could even be based on that framework that came out of the data workshop earlier this year.

Updating the reporting frequency for ecosystem information is a recommendation here, but it's not that the entire ESR would need to be updated. It's that I think that council, and the folks producing the reports, could work together to think about a subset of indicators that people would really like to see every year, and combine that with streamlined, automated processes for building the reports, like are currently done for the Caribbean, and I think that is part of the plan for the Southeast Fisheries Science Center.

Expanding the use of the climate vulnerability assessment, there are some examples where it could be used right now in SSC ABC decisions, that I talked with the SSC about a couple of months ago, and then, also, thinking about some novel management approaches. I think, given that there is already a food web model, one could look at multi-species management strategies, and that could be a path forward as well for some of the FMPs with lots and lots of species that have fewer individual species assessments.

The second phase of the project is what I'm sort of wrapping up right now, but this is where I would love to get some feedback, although feedback on any stage would be excellent, and so the methods here for identifying opportunities for using ecosystem information in the South Atlantic, and I came up with five ideas, and the project oversight team didn't cross any of them out, and so I tried to do a little bit of each in the report, but, for your presentation, I'm only going to talk about the ones that are in blue in the slide, and, again, the full report is posted online here, which I would welcome feedback on any part of it.

For the ones that are not in blue, that I'm not going into in detail, just briefly, I did review over three years of council actions, basically looking at the motions and the minutes of all the council meetings for about the past three years, and classified those management decisions into sort of strategic and tactical and short-term and long-term and things like that. I also identified the ones that are already linked to ecosystem information, or could be linked to ecosystem information, and then to recommend other fairly simple things that council could do to get more information, or further use the information.

I also looked at catch specification, and that process, specifically the SSC's decisions, and some other groups decisions. There's already a risk-based framework and risk tables that are used for three of the FMPs in the South Atlantic, and so one could probably integrate more indicators from the climate vulnerability assessment, or even the ESR, into these decisions already, and there may be some refinement that could be done to get more stock-specific information, and so I did talk to the SSC a little bit about this in April, and then incorporated their feedback into the report as well.

Then this novel approach of maybe using the food web model to do multi-species management strategy evaluation in the report, and I sort of outlined what the council's decision points would

be, and highlighted how existing resources could be done to start this, and so there's already a lot of tools in place. We don't need to reinvent anything, but we could start with a few questions about, you know, would it be more efficient to say consider species as a group with the reference points, instead of individually.

Those are three of the ideas I won't be talking about anymore, and the two that I will are alignment of the EFH policies and indicators, as well as prototype indicators from global information sources, and so, for aligning the policies and indicators, I just went through the policies that you all have posted, and that I think this group has worked through very extensively. The idea here was to say, you know, where do some of these policy objectives line up with current indicators and how easy would it be, if they don't line up with current indicators, to come up with an indicator for them.

I looked at the food web policy, the climate and fisheries policy, and the submerged aquatic vegetation policy. I know there's several others, but I thought these sort of spanned the range of different types of policies, from things that are, you know, more connected to the food web versus more connected to the environment, to things that would require external partners, and the summary is that I think -- I will caveat this by saying your food web policy has already changed in this very meeting, and so it's a little bit different from the one that I reviewed, but I welcome comments on this anyway, and I will do my best to update where I can.

Basically, five of the nine policies already have potential indicators with high feasibility, and two are moderate, and only two are low, or unknown, feasibility, and I think I also -- I looked at the research information needs that are outlined in the policy statements as well, and I think some of these are already partially addressed by existing indicators and current MSE efforts.

Similarly, for the climate and fisheries policy, there's a lot of indicators in the ecosystem status report that are already addressing the policy statements. There are some gaps that are identified, but I think there's also existing information on those, and I think the next step here is collaborative review of the current indicators, to try to get a subset for refinement, and that could be possibly updated annually, and then, finally, for the SAV, I think it's -- There are already indicators for this as well, but this one requires multiple partners, and so it's a little bit more complicated, and actually getting you into the ecosystem-based management realm, rather than ecosystem-based fisheries management, but that's -- I mean, the policy is there, and I think the indicators are also potentially there as well.

To give you an idea, the available indicators, for those who are unfamiliar, and you already have an ecosystem status report, as I mentioned, and there's a little picture of it right here, and this links to the ESR. That's, I think, from 2021, and so it's relatively recent, and it has a lot of indicators in it, and, in the report, there's a huge table with the indicators and their categories, just so you can see the range, but they do go all the way from physical, biological, to economic and social information in this report. It is really a lot of great information.

The climate vulnerability assessment was published in 2025, and what this does is it uses a method that's being used around the country to kind of ask -- To use a standardized method, basically, to ask how exposed are the different species in the region to different climate drivers, and how sensitive are they to those drivers, and what you wind up with is like this little picture in the bottom here, where you can rank the combined exposure and sensitivity, and it gives you the vulnerability, and so this like red square up here in the upper-right-hand corner.

Those are the species that have the highest vulnerability to climate in the region, and everything is highly exposed. That's actually a result shared with the Northeast U.S., but not everything is equally sensitive, and so this kind of helps prioritize which species you might want to look at first, in terms of risk, or it helps you group species that you could treat together, for instance, and then this extends into some of the community -- Fishing community assessments that have been done.

The other thing you get is distribution change potential, and also positive and negative potential impacts of climate out of these assessments, and so this already exists for this region, and it covers a lot of the managed species here for the South Atlantic, and so those are the indicators.

Then these tables are aligning the current indicators with the policies, and so, of course, your food webs and connectivity policy has nine different policies, and I can't fit them all on the slide, and so these are the first five. Basically, each of these tables just has the policy, briefly describes the policy, what indicators, if any, are outlined in the policy already, and do they match the available indicators, and what potential indicators could be added, and how feasible is it to add the potential indicator, and so this is the analysis in the report.

I'm not going to drag you through all of these, but I am going to point out that, of the five listed here, we've got at least three that have high feasible potential indicators, and they all come from the food web model, and so I think there's quite a bit of work that could be done with just the food web model as it is that could give you some of this information, to start sort of either classifying different species, or just understand how to rank what maybe some of the sort of the higher-priority issues are, and maybe some of the lower priority issues.

Also, there are available indicators on forage fish, and then Appendix A already lists indicators of diet, and so I think there's a lot of potential here, but it's all tied to that food web model that the South Atlantic is already invested in, and, then again here, we've got two of the four policies that don't have any available indicators, but have very high feasibility for potential indicators, once again from the food web model, and, also, there are probably aggregated indicators available for prey importance that can, again, fall right out of that food web model, and so that's just an example of trying to align things.

Again, not everything is high feasibility, and some things are moderate to low, but I'm hoping what this does is sort of map out where the easier things might be, and which things might be harder, but I'm very, very interested in your thoughts on whether I've aligned these properly, or, again, missed some things, or am not understanding the policy in the first place, and that would be very helpful, and so that was food web and connectivity.

The others are -- Sorry. Then, also, the research needs are outlined in these policies, and so what I did here was to say what is the research, and what available indicators do we already have, and are there actions the council could take, and how feasible is the action on the research, and, once again, I'm not going to go through all of these, but I will note there's a couple of really high-feasibility things here, and so overarching risks, and there's a lot of climate vulnerability analysis and indicators from the ESR that could apply directly here.

You could look at risks at the FMP level, to decide how to refine or align existing indicators, and, again, this is high feasibility because we already have the information to do this, and we would

just think about it at the FMP level maybe, instead of the species level or the full ecosystem level, and so that's the kind of refinement that could happen.

Similarly, with MSEs, Cassidy Peterson has already published a paper looking at kind of different performance under different climate scenarios, and so I think there's possibly a way to start aggregating this information, so that people can look through it, and use it, and build on it, maybe with a central repository, and so this could really help research in the region, to avoid duplication and build off of each other.

Some of these other things I've tried to point out where it would really require a council conversation, and so, for instance, on ecosystem reference points, there aren't available indicators mentioned right now, and there are some in the literature, but I think the council really needs to have a discussion about objectives before you can match those up with reference points, and so hopefully this helps identify like where those ideas have to be developed further, and maybe that's in something like one of those actionable fishery ecosystem issue loops or something.

Okay, and so that was food webs and connectivity. The climate variability and fisheries policy has fewer policies in it, but there's really a lot of alignment with some of the available indicators in the current ecosystem status report, and so, for instance, climate indicators is one of the things that was identified as a policy, which was to develop and present them annually. There's a lot of indicators in the policy right now that are identified, and they match a lot of the current indicators in the ESR.

This is a case, as Lara already said, where reviewing and refining the existing indicators would be a very important step before coming up with new indicators, because the information people need to make decisions is probably already there, and could be prioritized to refine it if it's not quite exactly the thing that would be useful for decision making, and so that's one of the higher feasibility things that council could do.

The other one is for the species distribution shifts, and so we don't have an indicator of that in the ESR right now, but there's quite a few available on a national website from NOAA that could potentially be used, and so there are information sources, even if they're not currently in the ecosystem status report.

When you look at the research needs, again, I think there's several high feasibility actions that the council could take. One of them -- So let's just look at socioeconomic impacts and fishery responses, down here, and so, again, there's a lot of information that already exists in the climate vulnerability analysis at the community level, and in the ESR, and, again, the idea is to prioritize and tailor the existing indicators. I think that the council could get a lot of bang for its buck out of just taking some of these existing policies and asking -- You know, we have some information, and what is the most important thing we want to do with this, right?

The other thing, and so 3D estuary and coastal ocean observations was listed as a research priority, and it suggested that you could use ocean model reanalysis products to develop some of these, and I'm going to call this a high-feasibility action, because I actually did it, and I'm going to show you some of the results next, and so I think there's a lot of potential there to do some of these things, if they are considered priorities, without a huge amount of additional work, I think.

For the SAV, I think the story is a little bit different, and that's because a lot of these things really require the interaction with other partners, but still there are existing indicators that go with some of the policies, and so, for instance, monitoring is a policy, and it's needed for assessment and management.

The indicators outlined in the policy are distribution and shifts in SAV and water quality, and so SAV extent and percent change is actually reported in the ecosystem status report, and so it's possible that this could be more comprehensive in space and time, and so that's where you would have to figure out how important this is, and who would have to contribute, and this could actually be a bigger job, even though there are existing indicators. That's the sort of thing I think would have to be looked at in a bit more detail, but hopefully this gives a framework for deciding maybe what the entry points are, where should we start.

For the research associated with marine submerged aquatic vegetation, I think there's a couple of really -- There's one high-feasibility action, and that would be looking at some of the drivers of SAV loss. Again, there are a lot of available indicators right now in the ecosystem status report, and so the first action would be prioritizing which ones to look at to potentially refine them further, and so I think there's a lot of potential there.

A lot of the other ones are more moderate and, again, would require information across partners, but I think this just -- It's great that the South Atlantic already has these EFH policies, because it makes a really nice way to align the existing information, and ask what we want to do next, and so it kind of shows the possibilities.

All right, and so the other thing I wanted to show you were the prototype ocean indicators, and, basically, I proposed to do this just because it's been done in other regions, and I thought it might be fairly transferable, because there are both regional and global ocean model datasets that can look at both hindcasts and forecasts of ocean temperature and salinity and other variables that could be applied in the South Atlantic.

The picture I'm showing on the right-hand side of the screen here, this is a temperature indicator, and so I know we're used to seeing them as time series, but I think there's a lot of other ways to look at them, the same data, that could provide maybe more management-relevant information, and so what you're looking at is the number of days that the bottom temperature in 2023 was at or above the temperature that scallops find stressful, Atlantic sea scallops, one of the most economically-important commercial fisheries in the region. You can see that, in this little box down here, it's green, and green is more than a month. It's more than thirty days that the bottom temperature was stressful.

This box is a scallop rotational management area, and sometimes it's closed to let them grow, and then sometimes it's open, so that people can fish it, and this -- When I showed this indicator a couple of years ago to a stakeholder group, it was the first time I've ever showed temperature data and gotten a management question, and so, as soon as you tell that story, someone raises their hand and says, if the scallops in that black box are going to die, should we go in and fish them first before that happens, and I can't answer that question.

That's a council question to answer, but it is a management question, and so it really suggests that we can present temperature information in sort of a different way to help with management

decisions, and so the reason we don't always present temperature data this way is we're not out there measuring temperature every second of the day, and this is bottom temperature, which is a lot harder to get than surface temperature, which is easier to get from things like satellites.

That's where these global datasets come in, and the Northeast Fisheries Science Center already has code to develop these indicators, and so the question was can we modify the code for the South Atlantic?

The South Atlantic already has temperature indicators. They are already in the ecosystem status report, and so here's a couple of them. The one on the left-hand side of the screen shows both surface and bottom temperature, sort of by decade comparing them, and so they're in space, and you can make it a time series, and this is from an ocean database that already exists, and it's kind of showing that things have been warming, as you might have guessed, at both the surface and the bottom, and then there is also a bottom temperature indicator in the South Atlantic. That's, again, this time series, again showing things have been warmer more recently, and this is from observations from ships, and so it's between April and September that this is measured.

The idea would not be to replace these, but to complement them, right? The idea would be to produce these maps indicating where and when bottom temperature is stressful for particular species, and it might be stressful in a time when we don't have shipboard measurements. It might be that we need it in a small area that the ships don't get to, for instance, and so this is where maybe we can supplement the information.

In order to do this, you need to know what that stressful temperature is for the species, and I think that is known for some species in the South Atlantic, and it’s just that I may not know it, but, right now, I'm not trying to say this is relevant to a particular species, but I think that's a step that could be pretty easily pulled from literature.

Here's what the source information looks like. This is a single day's bottom temperature information from the Global Ocean Physics Reanalysis, or GLORYS, dataset, which is freely available in the report, and I go through step-by-step how anyone could get this code, if you have a computer and can run some R code, and so it's all out there.

It is a model reanalysis, meaning it's a global ocean physics model, but it is incorporating data that is available, and so it moves the model closer to the data, wherever there is data, and so that's why it's called a reanalysis product. You can get things like throughout the depth layers in that eight-kilometer grid, pretty much, and so that's fairly high resolution, and so December 31, 2025 looked like this for temperature in the South Atlantic, but a single day isn't always so useful. We need to sort of aggregate that a bit, and so it's possible to get the average seasonal bottom temperature each year on a map, and so that's what these are.

This is 2025 over here, compared with 2020, and, you know, you can see some differences, but this is harder to look at and say that's really different. You would still want to analyze it in other ways, but it just shows that this can be done, and that you can get these seasonal averages, even in times where you don't have shipboard surveys, and then, finally, you can calculate that indicator, like I was showing for the scallops, and so this is 2025 number of days above a set of temperatures, and so it goes from five to ten to fifteen to twenty, twenty, twenty-five, and thirty degrees Celsius,

and so you would probably expect that just about the entire South Atlantic shelf is above five degrees Celsius for the entire year, which is what this is showing.

It gets more interesting as you get to higher temperatures, and so you can start to see, in 2025, you know, some portion of the shelf was over twenty degrees for almost the whole year, but not further north, and you can also sort of summarize that and say -- Like, for any given temperature threshold here on the X-axis, I can ask what proportion of the area in a certain depth range was above that threshold, and so you can see, in the shallower water, the current year, 2025, there's -- Actually, it's cooler. There's actually less -- You're not getting as much of the area above the threshold as you were in some other years, including 2020, which was, I think, a bit warmer, and you can see that at every depth range, and at all depths.

This alone, again, maybe isn't that useful, but, if you can start to zoom in on which of your species are sensitive to what temperatures, and where they live, you can start to get an idea of whether conditions are stressful or not, and so that's just one application of this.

Then, finally, for Objective 3, and we're almost done. I promise. The idea here is just to kind of review the existing citizen science efforts and ask, you know, are there ways that there could be more information brought in from some of them, and I think there's been amazing work done in the South Atlantic already, for instance the dolphin wahoo participatory workshops, and showing the conceptual model that was built from that, that really helps you link between things that are sort of fishery relevant to things that are in the physical environment, the social and economic environment, the regulatory system.

This type of map can be really helpful for identifying indicators, or key interactions that we want to focus on, and then also to ask is there a way to get data for that, right, and I think one of the things that could be done is, and so just thinking of that model-based bottom temperature indicator, is you could collect some temperature from fishing vessels, and from different seasons of the year in different areas, and ask how well it compares to that model-based temperature. That would help validate, if you were going to use that for a decision, whether -- How good it was, and when and where it is good, and when and where it isn't, because indicators just work like that. You want to know where they're optimal.

Here is an example in the Northeast of the vessel collected bottom temperature data from eMOLT, which is Environmental Monitors on Lobster Traps and Large Trawlers Program. It's been running for many years now, and so you can compare. Up here in the Gulf of Maine, there's a lot of gray dots, and so, basically, the bottom temperature from the model and what is collected from the vessels is agreeing really well, whereas, out here on the shelf break, you can see that it's actually off by about eight degrees, and so this is really helpful to know kind of where your model-based indicators might be reliable, and this is information collected directly by the fishermen.

Extending that, and so there's already a lot of cooperative research programs in the Southeast. There is -- Something like a study fleet could be initiated, where they could actually collect some of these ecosystem indicator data while they're out fishing, right, and so this happens right now in the Northeast Fisheries Science Center study fleet program.

They're using some of the information collected aboard the vessels in species distribution modeling and biological studies. They're collecting sort of samples from the fish, looking at a whole bunch

of different information on potential ocean use conflicts, and also supporting data for some of the stock assessments, and, the oceanographic indicators collected here, the bonus is that, if it's collected along with the fish, you know exactly what the temperature was where the fish came from, and so you can start really understanding some of the habitat associations at a scale where we might not be able to do that, and in seasons where we may not have the information from scientific surveys alone, and so just a couple of thoughts there.

Again, this project is almost done, and I think you probably gathered that from Lara's presentation, and so I am due to give a final report at the end of July, and so in the month, and present the results at a council meeting, and so I would greatly appreciate any feedback you have on this information that I presented here, or anything else in the reports, and I'll just leave up this question slide, and that's all I've got. Thank you.

MS. CROWE: Thank you, Sarah. I think what we are going to do is just take a quick five-minute break. Sorry for you all online, but there are cookies in the room. We'll get everybody's blood flowing, and then come back and hopefully have some good discussion on the slide that Sarah has up, and her key questions that were on slide 3, and so we're just going to take five minutes, and so, at roughly 3:06-ish, we'll start back up again.

(Whereas, a recess was taken.)

MS. HOWINGTON: All right, everyone, grab your cookie and come on back. All right. Sarah, are you there?

DR. GAICHAS: Yes.

MS. HOWINGTON: Hooray. All right, and so we have one person online with a hand raised, and I'm sure we're going to have a few people's hand raised in here. I've also been informed that, Matt, you have some questions, and so feel free. I've asked Madam Chair, and she has given you permission to ask some questions, since you were on the AP not two-and-a-half weeks ago.

MS. CROWE: We are going to go to Brendan first, online.

DR. RUNDE: Thank you, Madam Chair, and thank you, Sarah, for the presentation. Brendan Runde with The Nature Conservancy. I really like the idea of the model-derived bottom temperature as an indicator in this region. Just a couple quick thoughts for you.

It probably hasn't escaped your notice that we have far fewer, I think, stationary gear sets in the South Atlantic as compared to the Northeast, and it might be difficult to convince bottom anglers with hook-and-line gear to attach temperature probes and things like that, but what I did want to point out is, if you're not aware, the Southeast Reef Fish Survey, which is the trap-video survey in this region, conducts full CTD casts with every group of their trap sets, and so it's roughly 250, or 300, CTD casts annually. Of course, those could be paired with fish observations on the videos, as well as information about animals that actually did go in the traps, and so that might be a way to get at what you're talking about.

That brings me to my next point, which is that, in addition to a bottom temperature indicator, I've been interested in the potential for developing something more like an upwelling index, or an

indicator of stratification that could include something like mixing layer depth. I've thought for a while that the relative abundance of reef fish observed on those videos, and in traps, may depend, at least partially, on whether there is upwelling going on in that area, and so I'm curious for any thoughts that you have on the potential for that, the development of something like that as an indicator. Thank you.

DR. GAICHAS: Great. Thank you so much for the info on the reef fish trap-video survey. Yes, and I think that sounds like it would be an excellent way to potentially validate some of these model-based indicators. For the other information, I need to look it up, but the GLORYS dataset does have information throughout the depth of the water column, and so I don't know if there's a direct upwelling index, but I think the mixed layer depth may be a thing that you can get out of it.

Again, these are -- It's an oceanographic model, and so the information is only going to be as good as the sort of how nearby the observed data is, to keep it behaving, but it seems like that would be worth looking at, because -- Yes, and I think, lots of places, the buoy data that you have is a single area, and so you need to be able to fill in, right, and so I think we'll all be looking at this.

I'm also wondering, and there's the -- What I didn't mention is there are forecasts, or projections, coming from the MOM6 models that were developed for the whole east coast, basically. I think there's a model that does all the way from the Gulf to the South Atlantic and up into the Northeast, which the plan was, up until last year, to have products coming from those as well, but then a whole lot of capacity to actually analyze that was lost in the agency, and so there's possibilities there as well, I think, for some of these types of indicators that would be not just sort of hindcast, but possibly a nowcast, or a forecast, so thank you for that. I think that's really good, and I'll follow up by looking up exactly what GLORYS has in it, and I can add that to the report. Thank you.

MS. CROWE: Wilson, go ahead.

DR. LANEY: Sarah, thank you for the presentation. There's an old expression that goes something like drinking from a fire hose, and I feel like you aimed a fire hose at us for the last couple of minutes there, and so it's going to take me a while to digest everything that you have presented to us, and thank you for that.

I did want to just mention that, if we're looking for data on temperature limitations for organisms, some of us -- Well, I may be the only one around the table who did critical thermal maximum work back in the 1970s. Heated discharges, from nuclear power plants in particular, were a big issue back then, and so I actually developed the critical thermal maximum limits for penaeid shrimp, and so that information is out there in the literature, and not just for penaeid shrimp, but for other organisms as well.

At the time, I never envisioned that we would be getting to the point where bottom temperatures would be approaching some of those critical thermal maximum limits, but, you know, it seems like that's the case today, but that would be a good source of literature, possibly, for, you know, beginning to talk about whether or not we're approaching temperature limits that provide stress for some of these organisms.

DR. GAICHAS: Yes, and thank you. That's an excellent point, and I think, in the Northeast, I know some colleagues were trying to assemble a database of exactly those types of studies, right,

trying to find the sort of tolerance limits, as well as, you know, stressful limits, so did any of your work -- Was it looking at mostly like when they died, or was it looking at sort of sublethal temperatures, because I think both could be of interest.

DR. LANEY: When I did the work, it was done in the lab, of course, and I looked at two different endpoints. One was when they first lost equilibrium, and then the second was when they croaked, and so both of those endpoints were part of my work anyway.

DR. GAICHAS: Yes, and that's excellent, because I think that can really help with the sort of management to having the kind of stressful, but they haven't died yet, and then they're definitely going to die endpoints can be really helpful for identifying areas that, you know, you may want to open or close, depending on your objective.

DR. LANEY: My research collaborator at the time, Dr. Edward Pendleton, who was my roommate, also did the same work for spot and for croaker.

DR. GAICHAS: Okay. Cool. Thank you.

MS. CROWE: Thanks, Wilson. Kathleen is going to ask a question next.

MS. HOWINGTON: Then Matt Kenworthy is next. All right, and so, on slide 22, Stacie and I hit a snag. Do you mind going back to that for us, please? Thank you. I believe, if I'm reading this correctly, it's eighty-six degrees in the deeper -- In Fahrenheit, in the deeper water, and it's colder in the shallower water.

DR. GAICHAS: This little strip through here?

MS. HOWINGTON: In December.

DR. GAICHAS: It is December, and it is -- Yes, and so I'm -- I'll admit my ignorance here. I'm not familiar with what's deeper and what's shallower here. I was sort of assuming this was like a deep channel, and that's why we're seeing this, and so the nearshore stuff is, yes, very warm, even at the end of December, especially down here, according to the model.

MS. HOWINGTON: Well, no, and it's the -- According to legend, the nearshore stuff is colder.

DR. GAICHAS: It's the darker colors.

MS. HOWINGTON: Is it?

MS. CROWE: Darker is warmer.

MS. HOWINGTON: Darker is warmer, yes.

MS. CROWE: It's really warm for December.

MS. HOWINGTON: It's further -- It's darker further off.

MS. CROWE: Right. Yes.

MS. HOWINGTON: Right. It's darker further offshore than it is inshore.

DR. GAICHAS: Like here? Sorry, and I don't know if you can see my pointer, but basically the bottom of the frame, like around the islands here?

MS. HOWINGTON: Yes.

DR. GAICHAS: Yes, and I -- This is why we need to validate it, because some of it could be -- It's not -- I don't know what sort of temperature grid GLORYS has to validate the bottom temperatures in this region, and so that's why you would want to validate it.

MS. HOWINGTON: Okay. All right, and so Matt is next. Matt.

MR. KENWORTHY: Thanks, Kathleen. Can we hop back to that slide with the questions, slide 29?

MS. GAICHAS Yes.

MR. KENWORTHY: While you're getting there, Wilson stole my thunder on the drinking from a fire hose. This was lot of information, but I thought it was a great presentation, and, you know, we don't always get the opportunity to think collectively about these things, and this is a great, although information overload, good summary of, you know, a full comprehensive analysis of how information is getting used, and I think it can resonate with a lot of us in our daily jobs, too.

To the do you see challenges with using the current information, I missed a few parts of the conversation, but, kind of thinking about this, and, you know, it referenced the ecosystem status report multiple times, and I think that's a good report, but I think in, you know, providing guidance, or long-term visioning here, we've got to recommend, or I guess think about regular updates for these things, because, just looking at the submerged aquatic vegetation, and that was one I immediately went to in this ecosystem status report, which published in 2021, and I understand they had to put cut-off dates on, you know, data collection, but, you know, this report misrepresents seagrass trends in the Indian River Lagoon of Florida.

It talks about increases, and it mentions the 2010 big die-offs, but, in 2015, there was an even bigger die-off of seagrass in that system, and so that ecosystem indicator is worse than what this report portrays, and so I think it just emphasizes, you know, in this grand analysis and evaluation, a need for continual updates of these things, and continued data gathering, and, you know, kind of digging in further.

I guess, in kind of addressing the do you see challenges with using current information for some of these resources, I think it's good, and we don't want to reinvent the wheel, and utilize these things, but somehow we've got to figure out how to capture -- We can't use them in a standalone nature, and we've got to kind of incorporate updating them, continuing to gather new information, and so it's just kind of something I was reflecting on that I wanted to share in this conversation.

DR. GAICHAS: Thank you. That's an excellent point, and, yes, I wasn't trying to say that the current report, without ever being updated again, was necessarily what we would want, right? It was more what information is there, and so I'll make sure to clarify that.

I do think though that you bring up an excellent point, which is like do you see a role for the committee, or the AP, to try to help prioritize which of the indicators in the ESR should be updated, because I think the struggle would be, at least my understanding is, an annual update of the entire ESR, and there just isn't capacity for that, and that's why it hasn't been updated since 2021, but, if it were a smaller subset of priority indicators, I think the feasibility for annual information, and maybe not for SAV, but for other things could go up, and so do you see like any sort of like process for identifying what would be maybe that smaller subset?

MR. KENWORTHY: Immediately, off the top of my head, a process -- I mean, my experience with kind of working with data-driven trends like this, versus knowing what's going on on the ground -- You know, when I was in Florida, we relied a lot on, you know, subject matter experts for identifying I think what you're kind of getting at here, and, you know, could various APs, or various working groups, get at that? I think so.

Structurally, how does it look within the council, or within the HEAP, or other aspects of management I think would be to be determined, but I mean, yes, I think it should be conversations that are ongoing, and I agree that we can't update this whole ecosystem status report as frequently as we would want to. Capacity and resources just don't exist, I don't think, but I think there should be avenues for groups to be continuously kind of keeping an eye on things, and providing input and subject matter expertise, where appropriate, on where information does need to be updated. I think that would be a good recommendation, from my perspective.

DR. GAICHAS: Excellent. Thank you.

MS. HOWINGTON: I actually just received an email from Lauren Gentry, and so while we're on the, you know, let's get people who are not on the AP to talk, permission to unmute Lauren Gentry?

MS. CROWE: Yes.

MS. HOWINGTON: All right. Lauren, I got your email about data that you guys are using in the EwE model. Do you mind letting Sarah know about that?

MS. GENTRY: Sure. Can you guys hear me?

MS. HOWINGTON: We can.

MS. GENTRY: Excellent. Well, Sarah, A, excellent presentation, and I loved it very much. I also wanted to just let you guys know that that GLORYS data that you are showing is what the food web modeling group is already using for our Ecospace analysis. We actually went through a whole couple of months of pulling that data, analyzing that data, getting it at the monthly time step. We validated it against a couple of known upwellings . We were working with the SERFS folks to look through that and just say, you know, does this look right to your eyes, you know, and can you give us a couple of times when you know that there was a real cold water upwelling, to

see if we could capture -- If that was being captured in the data, and every one of them was in fact captured in the GLORYS data, and so we already have the code for pulling all of that data.

Ours is probably not going to be directly applicable to your spatial indicator of bottom temperature, since we had to modify it for the model, but, whoever wants to take that on, our code would probably get them, you know, 80 or 90 percent of the way there for pulling that bottom temperature, surface temperature, and then average.

We also used the SERFS data that Brendan was talking about, where he said that you can look at the temperature and the depth and what fish were identified in those traps. We have actually done that and come up with -- We ran some models against that data, and we got some curves of temperature preference curves for a ton of different species that is in that data, and so you can see sort of at what temperature they're least likely to be found, and what temperature they're more likely to be found, and you get a little curve.

It might not line up directly with the they are dead at this temperature, and they are not feeling well at this temperature, but it would at least be a place to start, for anybody that wanted to look at that data, to sort of align with like what Wilson was talking about.

Then, after we did that, we do also have code available for looking at what -- Not really percentage, but sort of like how much of the South Atlantic area is a particular temperature in a particular month, and how that has changed from the 1990s through to today, so you can kind of look at everything shifting right towards the warm, and then overlay it with the temperature preference curve for a particular species, or a particular age group of species, and say like, oh, look, more of the area is moving into their preference, versus actually we're kind of moving away from the temperature that they might prefer, and so I just wanted to jump in and say that the Ecospace team has done a lot of this, and we would be very happy to help out or share code with anybody that the council decides they want to move forward with.

DR. GAICHAS: That's super cool, Lauren. I love that. I mean, you do all this stuff for modeling, but it has other potential uses, and so especially I think the temperature curves, temperature preference curves, could be probably pretty valuable to some of the discussions we were having with the SSC on how to sort of think about how climate might be affecting a species, combined with some indicators of current conditions, or projected conditions.

Maybe a thing to think about, for the council in general, is just how to make this information accessible across sort of different decision processes, because that's great, and it also demonstrates, once again, the really good investment the council made in the ecosystem modeling, because it sounds like it could provide multiple benefits. Thanks so much for that.

MS. GENTRY: Thank you.

MS. CROWE: Thank you, Lauren. We have Scott with his hand up online.

MR. KATHEY: I wanted to follow-up on the discussion about the static nature of the ecosystem data reports. Within the National Marine Sanctuaries Program, we have to revise our management plans for each site every ten years, but, before we begin that process, we prepare a condition report, and it's about a two to three-year process to put this together.

We're looking at ecological and socioeconomic conditions within the sanctuary, and it's basically a report card on status and trends within the sanctuary, within a given sanctuary, over the previous ten years, up to as close to present as we can get it, so that that will aid us when we go into our management plan development for the next ten years.

In many respects, it's similar to an ESR, but we've recognized too, that, well, these condition reports, if we're only doing them every ten years, they're out-of-date, you know, almost as soon as they hit the street, and so our program has decided that we really want to have this information on a rolling basis, the kind of indicator information that we're trying to capture in each one of these reports, and wouldn't it be great if we could update this information on a regular basis?

Now, some of the indicators you could update almost daily, for instance information coming off a NOAA data buoy. Other information you may have to -- You know, you may only be able to update it annually, or six months or, you know, it's going to vary from indicator to indicator, but I think that, you know, it may be relevant to this conversation, just looking forward.

If anybody wanted to look at these products and tools that we've developed, just go to sanctuarywatch.ioos.us, a very short URL, and you can pick any one of these sanctuaries around the country, and out in the Pacific and see how they've structured this, but it's a very -- It's designed so that the public can access it, and get this real-time information, but so can scientists, the government, and other interests as well.

Ideally, for each indicator that's going to be represented on each site, we'll set up data flows, and it's not just information we're collecting. Actually, if we can get that data packaged from a ready source, where it automatically updates, for instance like the information from the National Data Buoy Center, and it's constantly updating, and, once we set it up in our window, or in our viewer, then you can go there and get regular updates, and it's automatic.

We really don't have to feed it. We don't have to process the data. We just link to that data from these disparate sources, and work it that way, and so I just kind of wanted to mention that, and let people take a look at it, and maybe get some ideas about how we can have this information more current, build these types of systems that are also accessible to the public, as well as academics, government personnel, that type of thing.

DR. GAICHAS: Thank you for that. That is excellent, and I think that sort of automated data pull from an existing source is along the lines of what was done for the Caribbean ESR that was recently produced by South Atlantic, or the Southeast Fisheries Science Center, and so I think, yes, that is a way to make these really accessible. I wanted to ask you, and so, when you've got the indicators, and you're doing the next management plan, how does that information feed in?

MR. KATHEY: Through the old process or through this new dashboard system?

DR. GAICHAS: I think either way, and like what --

MR. KATHEY: How do we transfer that to policy development.

DR. GAICHAS: Exactly. Exactly.

MR. KATHEY: Well, one of the things that was revealed in our three-year process here at Gray's Reef was the amount of gaps of information we had, and the lack of consistent data, and so that drives us, going forward, of well, okay, we need to close those gaps, and so we either need to find another entity where that information is there, and I've really enjoyed this presentation overall today, because I think, you know, the issue of --

It's not that we lack information, but we may lack information about what information is out there, and we keep reinventing the wheel, because we've got all these different organizations, that have the same kind of need but are unaware that these resources are out there, or they're just hard to find, hard to access. You know, you have to call professor so-and-so in order to get access to that dataset, and, you know, it's just -- It's very convoluted.

That's where we're -- Well, when we did this assessment too, when we do these condition reports, we get a status and a trend, and, basically the way we develop that is we have a set of kind of standard questions that are asked at each sanctuary each time we do these, so that we've got apples and apples, rather than apples and oranges, and we essentially assemble all of our local expertise.

I think we drew in about sixty experts across-the-board, some in fisheries, some in, you know, invertebrate biology, some in physical oceanography, and so, for each question, we would get all the expertise we could regionally to come to a workshop, and they would help pull, you know, all the data that they were aware of, and that's how we would not only identify gaps, but also identify information sources we weren't previously aware of, and so they basically answered that question, and assessed the condition, you know, fair, good, excellent, and then the trend. Is it steady state? Is it increasing, or decreasing, but then a confidence level at the end of that.

We also found that, that they could come up with a condition and a trend, but then the confidence level was quite often not that great, because of a lack of data. They were saying, well, with what we've got, this is our conclusion, but we want to give you the caveat that we're not saying this is 100 percent spot on.

DR. GAICHAS: Right. Yes, and that's very cool, and I did -- I had some of those sanctuary condition reports, I think, that I had started to look at for the first phase of this project.

MR. KATHEY: Okay.

DR. GAICHAS: So, I can -- But I didn't go into great depth in them, because it seemed like a different set of questions than fishery management council's, but I think sounds like it's worth another look, and so thank you for that.

MR. KATHEY: Yes, and they're very -- Those questions are very specific to what we need to know to put that management plan together, and so it was encouraging to see -- You know, make sure you've got your goals and objectives clearly stated before you start collecting the data, and that's kind of how these condition reports are designed, to do exactly that, so that, when we get the information on the backside, it's immediately ready to be fitted into a decision process, you know, in a management process.

DR. GAICHAS: Excellent. Thank you so much.

MS. CROWE: Thank you, Scott. Paula, did you have a question?

MS. KEENER: Yes, and I have a question for Todd. Todd, it's Paula Keener, and I'm wondering if you have any thoughts on, other than the work that you all have done with co-ops, co-ops data, and working with management council, the use of co-ops data.

MS. HOWINGTON: Scott.

MR. KATHEY: Sorry. Was that for me?

MS. KEENER: Yes, and that was for you. I'm sorry.

MR. KATHEY: Could you repeat the question?

MS. KEENER: Sure. Okay. I'm sure that you all, the sanctuaries office, worked with co-ops in some of the information that you were just discussing. I'm interested in your thoughts overall about co-ops data, and that broadly being used to inform the councils, or this council, with this question.

MR. KATHEY: Well, we drew from a lot of different data sources. NCCOS, NOAA NCCOS, was very, very engaged with us on this, and they have a lot of expertise in ecosystem analysis and datasets, and so that was a primary source, but, to be honest, I can't -- We had such a broad team working on this, and drawing data from different sources, and I can't remember specifically what -- You know, what data we may have drawn from co-ops on that.

MS. KEENER: Okay. Thank you.

MS. CROWE: We don't have any more hands raised in the room, or online, and so, Sarah, did you get what you need? Do you have any follow-up questions for the group?

DR. GAICHAS: No, I think that was great. I really appreciate your time, and your attention, and apologies for the fire hose. I think I disobeyed the digestible packets suggestion from the council staff that I got, but I know it is a lot, and so I really do appreciate you allowing me to kind of go through some of this in all the gory details, and, yes, and that was a lot of great feedback, and so I appreciate it.

If folks still think of something, like later on, or if you, you know, think of -- Come up with an idea later, my email address is down here in this slide, and I would be happy to take any feedback on other parts of the reports, if you happen to look at them, and so, yes, and I'll be wrapping up within about a month here, and so, any feedback I get soon, I would be happy to incorporate, and thanks again. Appreciate it.

MS. CROWE: Well, it looks like we have Laurent online that has a comment.

MS. HOWINGTON: Sorry, Sarah, and we let you end too early. Laurent has a question.

DR. GAICHAS: I'm still here.

DR. CHERUBIN: Sorry. Amazing presentation, and I'm sorry I'm a little late to the game. A lot of things happened today at the Institute. I got internet blackout for like a few hours, but, anyways, I'm a little bit familiar with indicator analysis, and the relationship to the Gulfstream, changes that are happening in the Gulfstream that is affecting the recruitment of some of the snapper grouper species.

From some of the work that NOAA actually presented a few years back at the council, it seems to be that chlorophyll plays an important part as an indicator of this ecosystem. In particular, there seems to be a decrease in primary productivity in our region, which is associated with a decline in some of the fisheries that we've seen, and so I wonder if -- You know, bottom temperature I know is important, but I think chlorophyll, and maybe some of the primary productivity indicators, could also be very important, because that affects basically recruitment in some of the fisheries, in particular the groupers and the snapper population. I just wanted to mention that. I don't know if you're aware of that work, and I'm holding you up, but I think that would be an important indicator as well. Thanks.

DR. GAICHAS: Yes, I fully agree, and, by focusing on bottom temperature, I did not intend to imply that other things weren't as or more important. It was more of a, you know, can we do this in the South Atlantic, and I think we can.

I think some of the models coming online with the MOM6 regional ocean model do include forecasts of some of the low trophic levels, including primary productivity in some of the zooplankton groups, I believe, and so that is -- That's a potential there, and that will be available for the South Atlantic as well as the Gulf and Northeast, and so there is more information out there. I think it's a matter of the council sort of thinking about what they would like to see the resources focused on, and, obviously that's very important, and so thank you.

DR. CHERUBIN: Thanks to you.

MS. CROWE: Okay, and so no one else has their hand up at this point, and so I think that is all we have for you. Thank you again, Sarah. Okay. Next, we are going to move on to Kylie, and she is going to talk about the Mid-Atlantic Inflation Reduction Act projects.

MS. HOWINGTON: All right. Wait. Can everyone hear us now?

DR. RUNDE: Yes.

MS. HOWINGTON: All right. Sorry about that. We lost internet on the main computer for a second there.

MS. DANCY: All right. Hello, everybody. My name is Kylie Dancy. I'm here from the Mid-Atlantic Council staff, and I'm happy to be here to talk about our IRA projects. I'm going to go through a presentation that is similar to what Lara presented for the South Atlantic IRA projects. Let's see if I can match this up here.

Okay, and so we have many more of them though. For some reason, we decided to undertake eight IRA projects, and so this is kind of an overview of our list. We were asked to present an

overview of these projects, and you'll see certainly some overlap with some of the issues that are being addressed by the South Atlantic projects.

We have seven of eight of our projects that are underway and making good progress. Our last project, Number 8, we haven't started yet, and we're still sort of reconsidering what we may or may not do with that on a reduced scope, and, for all of our projects, we are relying on contract support, and so we are -- We have staff leads, and we have project oversight teams for each of these, but we are contracting out the majority of the work for each of these projects.

Myself and Brandon Muffley, on staff, are kind of the general IRA leads, and then we have -- We're leading a couple of these, and then we have some other staff leading some of these as well, and so hopefully, between the two of us, and I think Brandon is on the call, we should be able to answer any questions, hopefully.

The first project is an operational forecast to reduce bycatch of river herring in midwater trawl fisheries, and so river herring bycatch in the midwater trawl fisheries for Atlantic herring and Atlantic mackerel continues to be a management issue of high concern for both the Mid-Atlantic Council and the New England Council. These challenges have been ongoing for a while, but they are likely being complicated by climate-related changes in fisheries and the environment.

There's been a lot of progress on species distribution modeling, and longer-term forecasting, but, for this project, we were interested in exploring whether more refined sub-seasonal forecasts could be developed to inform management and fishing industry decisions on a much shorter timescale, and so this project was designed to develop short-term forecasts to identify areas of high river herring bycatch risk on a weekly basis for the midwater trawl fleet based on sea surface temperatures. These maps would be provided to the industry as a voluntary avoidance tool to minimize impacts to both river herring and shad and the directed fisheries for mackerel and herring.

The objectives of the project are to examine patterns of river herring bycatch in these fisheries, develop an advanced joint species distribution model to predict areas of overlap, produce weekly forecast maps of areas of high bycatch risk, and then work with the midwater trawl fleet to determine the utility of these risk maps and opportunities to reduce river herring and shad bycatch.

The contractor on this project is Dr. Janet Nye at UNC Chapel Hill, and we have a project oversight team consisting of Mid-Atlantic, New England, and Atlantic States Commission staff. The project started in mid-2024, starting with some fishing industry interviews and model development, and the current phase consists of some additional industry outreach to help refine the model and development of those short-term bycatch forecasts, and we expect the project to be completed in early 2027.

The project team has developed a web-based mapping portal to display these forecasts, available at the link on this slide, and so, again, this provides weekly forecast maps identifying hotspots of river herring and shad in relation to mackerel and herring. This was developed using historical presence and absence data from the NMFS bottom trawl surveys, historical environmental data, and then forecasted sea surface temperature data. Currently, the group is gathering feedback on the accuracy and the utility of these forecast maps to drive improvements for the 2027 fishing season.

For Project 2, this is collaborative strategies to adapt scup gear-restricted areas to changing ocean conditions. The Mid-Atlantic Council has two scup gear-restricted areas that were implemented in 2000, and that was intended to reduce juvenile scup discards in small-mesh fisheries during certain times of the year when those juvenile scup were present. These are seasonal area closures, and so we have a southern GRA in effect from January through mid-March, and the northern GRA is in effect in November and December.

Things have changed a lot since they were first put in place, and so they were initially implemented when scup was under a rebuilding plan. Now the biomass is over twice its target. We have also had a couple recent years of very high commercial scup discards, and recent analyses are suggesting a shift in where and when those discards are occurring, and the council was interested in further evaluating ways that changing ocean conditions might be impacting sort of the effectiveness of the scup GRAs.

The objectives of this project are to identify scup bycatch and discard hotspots and spatial patterns, and then identify areas and times where changes in fishing effort could reduce impacts on juvenile scup, improve our understanding of what is driving scup discards, especially in those years where we've had a couple years of large scup commercial discards, and how the GRAs or other management strategies might be influencing that, and then identify potential biological and socioeconomic tradeoffs between management strategies to reduce scup bycatch and impacts on fishermen.

The contractors for this project are a group out of Cornell, Scott Curatolo-Wagemann and Emerson Hasbrook from Cornell Cooperative Extension, and Dr. Pat Sullivan from Cornell University, and so this project was initiated in the spring of 2024, with a sort of initial scoping phase involving data analysis, and then an industry workshop was held in November 2024 to inform this project. Then, starting in 2025, the group developed a spatial model and bioeconomic tradeoff analysis and had a second industry workshop.

This project is currently wrapping up. This is our first IRA project to reach completion. We did receive a report from the contractors very recently. We're still sort of reviewing that amongst staff. That's going to go to the SSC for review in July, with terms of reference to provide guidance to the council on potential action, and then, in August, the council will review and determine whether an action may be needed in response to their findings.

Okay, and this is a fun one. Project 3 is improving Mid-Atlantic Council governance structures and processes. You'll note that this says 3a. We do have a smaller component to Project 3 that I'll get to in a minute, but the bulk of Project 3 is this governance-related project, and this one has some components that are joint efforts between all three of the east coast councils, and so we have been collaborating a lot with New England and the South Atlantic Councils on these.

Changing species distributions are posing some challenges for our fisheries governance and management structures, and the complexity of our governance structures also can make it pretty difficult to adapt to change in a nimble and efficient manner, and this came up a lot.

This was one of the main points of focus of the East Coast Scenario Planning Initiative that was conducted a couple of years ago, and the resulting scenario planning action menu, which sort of identified some high-priority actions to improve our governance and decision-making structures

to identify ways to increase transparency and efficiency, responsiveness, and effective representation.

I'll touch on some of the kind of overlap and coordination between the councils later, but, for the Mid-Atlantic Project, our specific objectives include reviewing and documenting the Mid-Atlantic Council's existing representation, our procedures, the use of its committees and other advisory bodies, and then working with stakeholders, staff, and management partners to develop recommendations to improve that structure and use and representation among these groups.

Also, there's an objective to review and recommend improvements to joint and cooperative management agreements with the New England Council, South Atlantic Council, and Atlantic States Marine Fisheries Commission, to increase transparency and efficiency, and that last one applies to kind of a range of agreements and arrangements, ranging from formal joint management to less formal cooperative management agreements.

The contractors for this project include Deirdre Boelke and Sean Lucey from Fisheries Insight Network and Kimberly Gordon of Resource Logic, and, for the oversight team on this one, we have staff from the Mid and New England and the commission and GARFO, and then Lara Klibansky is on that for the South Atlantic.

We started this project last summer, with the first phase being to document existing structures and use of advisory bodies. That phase is wrapping up now, and we're moving into the next phase of sort of additional stakeholder input, and a process of developing recommendations, and part of that will involve that coordinated governance workshop in early 2027 that Lara mentioned earlier, and I'll touch on in the next slide. This project was originally supposed to go through mid-2027, but we did extend that through the end of next year, and so this will be ongoing for a while.

I mentioned for this project, and Lara mentioned as well, that there's some overlap and coordination occurring between all three east coast councils when it comes to their governance-related projects, and I just want to touch on that in a little bit more detail.

Each of the three councils has some project, or priority, focusing on things like joint management agreements, and committee and advisory body structure representation and use, as well as general process efficiency and coordination improvements, and so, for these projects, we have been regularly communicating between staff, and we do have some cross-group representation through our project oversight team membership as well.

There are a couple of elements that we are working to plan in a coordinated manner, primarily with the east coast core team, which is a staff-level group that supports these leadership-level East Coast Coordination Group, and these groups have developed sort of a general outline of a plan shown on this slide, where, in 2025 and early 2026, each council is sort of undertaking independent work to review current representation and processes.

Then, back in February of this year, the South Atlantic Council hosted a staff-to-staff governance workshop here in Charleston, including staff from each of the three councils and the Atlantic States Commission, and so the goal of that was to brainstorm some thoughts and ideas for future discussion on governance improvements, talk about how things have been working, and areas for improvement when it comes to governance coordination issues.

Then, in February 2027, we'll expand on that conversation with a bigger workshop with both staff and managers from the councils, and from the Atlantic States Commission, and also include NOAA Fisheries staff in those discussions, and that will be hosted by the New England Council, and facilitated by the Mid-Atlantic's project contractors.

What we hope to get from this process is a set of recommended improvements to governance structures and processes that could be considered at various levels, and so we expect some of the things could be undertaken by individual bodies. Some would require combinations of different groups working together, and then some would be more of a coast-wide coordinated effort through the East Coast Coordination Group or something like that.

Just for an example of something that will probably come up, one of the big topics of conversation has been blueline tilefish, as we have dealt with emerging governance questions with the adoption of the Mid-Atlantic FMP for blueline tilefish a few years back, and so coordination with the South Atlantic Council has been ongoing since that occurred, but it has taken some different forms, and it's been a sort of trial-and-error, and an evolving process, working toward trying to figure out how the groups should work together in the absence of sort of a joint management framework for that species, and so things like that will certainly be a topic for further exploration of that workshop.

3a, again, is the majority of the work that we're doing on this project, but I mentioned we have a smaller component that we haven't started. This is a portion of -- Or it specifically responds to some of the outcomes of our Mid-Atlantic Council program review, which we contracted and was completed in 2024 by the Parnin Group.

The program review identified a lot of different potential process improvements for our council, and, among that kind of wide range of recommendations, we focused, or are focusing, on several related to communication and transparency that we intend to be the focus of a smaller contract that hopefully we'll put out a request for proposals in late 2026, and so this will be a shorter-term project that would develop some internal and external communication products to increase transparency and consistency and improve stakeholder understanding of our processes.

Project 4 is climate-ready updates to our EFH source documents, and so the Northeast Fisheries Science Center has historically put together EFH source documents for the council, to support the council's work on habitat and analysis pertaining to EFH. These are documents that compile information on the distribution and habitat requirements for each species managed by the New England and the Mid-Atlantic Councils.

These are published as NOAA tech memos, and they provide some foundational information to support EFH reviews and designations, and sort of created a comprehensive baseline for what was known about our managed species and their habitat requirements. They describe habitat requirements, information on aspects of life history, food habits, predator-prey dynamics, movement and migration and stock structure and that kind of information.

They've been used in a variety of different ways over time. They're often referenced in affected environment sections of our FMP documents, and in stock assessment documents, and they've also been popular among researchers, as sort of a one-stop shop for information on habitat for our species, but they haven't been updated.

Most of them have not been updated since the early 2000s, and so now they're -- Some of them are pretty out-of-date. They don't reflect twenty-plus years of recent research, or anything about climate impacts, and we also don't have them for a couple species that we've added to our list of managed species, and so the objectives of this project are really to update those documents, or create new ones where they don't exist, and so that involves developing and updating all the baseline foundational life history and ecology information for forty-two species, and so it's a fairly straightforward concept, but it's a big undertaking. Then the third objective is to create an efficient update process to simplify future updates to these documents, so hopefully they don't go twenty years without being updated.

This project team is led by Dr. Gavin Fay at UMass Dartmouth, and has support from an oversight team, including Mid-Atlantic and New England staff, Science Center staff, and subcontract support from Dave Stevenson, who worked on habitat for many years at GARFO, and this project started in late 2024.

They've conducted extensive literature reviews, and document prototyping, and are currently working on developing documents for the remaining species that they have to update these documents for, and the expected project completion is in early 2027. I believe that Jessica Coakley, on our staff, who is our habitat lead, is going to present about these EFH source documents to the CCC Habitat Workgroup in July, to kind of share with the other councils to see if they might find this sort of document useful.

All right. Project 5 is operationalizing ecosystem and habitat indicators to support climate-ready fisheries management in the Mid-Atlantic, and so you all talked a lot about indicators today, and we have a lot of information, you know, that we've been receiving through our State of the Ecosystem reports that we receive from the Science Center, that we've received since 2017.

We get a lot of that ecosystem-level ecological, oceanographic, socioeconomic indicators for components of the Mid-Atlantic ecosystem. These indicators inform our risk assessment, which helps us identify and prioritize ecosystem interactions that are in need of particular management attention, and so, you know, as was discussed earlier, we have a lot of information, but we have had trouble kind of incorporating it into our management in a more tactical way, and so this project was designed to develop and test indicators to improve integration of ecosystem and habitat indicators into council management processes in a more tactical manner.

The objectives of this process are to review and assess existing ecosystem and habitat indicators, and evaluate their utility to support management objectives, to identify priority indicators, including targets and thresholds, and specific on-ramps for use in council decisions, and then create workflow and communication tools to support regular updates of indicators. Our contractor on this project is Dr. Sarah Gaichas and Dr. Gavin Fay. This project was initiated in mid-2025, and I'll talk about a couple of the milestones actually on the next slide, but this project is expected to wrap up in mid-2027.

The project team determined early on that developing operational -- To develop operational indicators, they wanted to start with certain management objectives, and management decisions, and then find information to support those decisions, rather than starting with the information and finding a pathway to management decision, and so we've been working with, you know, council

members, AP members, the Science Center, SSC members, and staff, and we've held two workshops so far for this project.

The first was held in December 2025, to start identifying those priority management decisions that could be supported or improved by operational use of ecosystem indicators, and so the two areas that the group determined that the focus should be on are our catch and quota setting process and our risk policies, and so those were identified as the two priority management decisions that could be improved with the use of ecosystem and habitat indicators.

A second workshop was held in March that kind of talked more about the desirable and undesirable states, and potential targets and thresholds, and so a suite of indicators will be simulation-tested, using these metrics to evaluate how well they perform and support decisions, and so that analysis and simulation testing will occur throughout 2026, and then there's a potential in-person workshop in December to review the preliminary results.

Okay. Projects, and so it's a lot of different projects. Project 6 is evaluating data needs and management strategies to support climate-ready management. With changes in species distribution, abundance, productivity, we know that historical data is not going to necessarily accurately predict future conditions, but, in order to understand the changes that we're facing, we're relying heavily on these critical long-running data collection programs, but we've observed that they're, you know, facing significant challenges, fewer samples, fewer resources invested, time series interruptions, leading to increased uncertainty.

This project seeks to use a management strategy evaluation framework to quantify the levels of data collection needed under different climate scenarios to both support robust stock assessments and also to identify management tools and risk policies that minimize risks to the fisheries.

The first objective was we wanted to sort of synthesize some of the challenges that have been faced in federal east coast fishery-independent and fishery-dependent data collection programs from 2010 to the present, and so we've generally had lots of discussions about some of those challenges, mostly at the species level in some assessment conversations, but there hadn't been really a comprehensive documentation of the changes and losses to these core survey and sampling programs along the east coast, and so that's Objective 1.

Then use management strategy evaluation to evaluate the performance of fishery management strategies, like harvest control rules and risk policies in the context of climate change and data uncertainty, and so then, using those MSE outcomes, develop sampling, assessment, and management recommendations to improve management under changing conditions. The project team for this one is Dr. Lisa Kerr and Dr. Roger Brothers of the University of Maine, and that was initiated in mid-2024.

There's been a synthesis of data collection challenges to complete Phase I, and ongoing now is the MSE development and simulation testing portion of the project, with completion expected in spring 2027, and I will just note that the oversight team does -- The South Atlantic Council and the Southeast Center are involved in the oversight team, and South Atlantic data streams were evaluated and characterized as part of Phase I of the project, specifically the Southeast Reef Fish Survey.

Then there's some case studies that are being further developed for this project that include Gulf of Maine cod, which is identified as a climate loser, which is overfished, and overfishing is occurring, and they're looking at changes in bottom trawl survey and biological port sampling program data, and then the other case study is black sea bass, the northern stock, which is not overfished, and overfishing is not occurring, and is doing well under climate change currently. They're looking at changes in the bottom trawl survey, biological port samples, and MRIP estimates.

All right. Project 7 is developing a framework and indicators to evaluate stock distribution changes and governance issues, and so this is a project related to documenting species distribution changes that are creating some uncertainties in our management process and impacting behavior and trends in the fisheries.

In recent years, there's been a ton of work to look at species distribution changes, but it's been kind of difficult for us to track a bunch of different sources of that information, and sort of reconcile different trends in different datasets, and figure out how to interpret that, and so this project was also really largely driven by the NOAA Fisheries procedural directive that was finalized a couple years back related to council management authority and when it may be necessary to reconsider management authority in response to changing distributions.

In light of this, we wanted to better understand how Mid-Atlantic managed species are changing in distribution and set up a kind of robust monitoring framework for identifying when we may have a potential problem for governance.

This project has some intersection with Project 3 that I mentioned earlier with governance, but that one is a little bit more about our processes and structures and representation, and this one is more about characterizing what's happening with the distributions of our managed species and how we want to monitor those kind of on an ongoing basis.

The objectives are reviewing relevant data sources, developing a comprehensive characterization of stock and fishery distribution changes and visualization tools associated with that, developing potential stock and fishery indicators and metrics, and so similar to kind of what was described as examples in that NOAA procedural directive, but kind of expanding on that, and identifying what we think is most informative for continued monitoring, and then developing a policy framework for monitoring, and sort of flagging for the council when we may need to take a closer look at any potential governance issues resulting from distribution changes.

The project team for this is a group from the Gulf of Maine Research Institute, Dr. Kathy Mills, Dr. Andrew Allyn, and Jonathan Labaree, and the oversight team has representation from each of the three east coast councils, including Kathleen at the South Atlantic, and we have others involved who have experience with species distribution modeling and data.

It was initiated in late 2024. They're wrapping up Phase I, which is sort of the documentation and data visualizations of stock distribution changes, and working on Phase II, and so developing and testing indicators, and developing a framework for monitoring changes for potential governance responses, and we expect the project to wrap up in mid-2027.

Just a quick snapshot of some of the work that they've done so far, they developed a data catalog and some visualizations, using a variety of different sources of both fishery-independent and fishery-dependent data sources. They're developing a bunch of different types of indicators for distribution changes, like center of gravity metrics, leading and trailing edge indicators, presence-absence, persistence, and then looking at a bunch of factors, looking at proportional splits across council management boundaries, and they're also developing some case studies to evaluate indicator performance over time, and then trying to integrate that information into a framework to help us monitor multiple indicators and determine when we want to flag problems for the council.

All right, Finally, to the last project, and this is the one we haven't started. Earlier, I mentioned the East Coast Scenario Planning Initiative, which was completed in 2023. Originally, we had planned a bunch of work related to follow-ups on that scenario planning process, including another stakeholder engagement process for that and a follow-up scenario planning summit, which we had done during the first process, bringing a bunch of folks together to come up with our final recommendations.

That's a pretty big undertaking. We've been finding that some of the work that we originally planned is sort of being addressed through other projects, and then we are, you know, rapidly running out of kind of time and capacity for this, and so we're kind of narrowing the scope of the project, and kind of still figuring out what we're going to do with this.

One thing we may do is focus on the new groups that were created, and the new processes that were created at the conclusion of the scenario planning process, which are the East Coast Core Team and the East Coast Coordination Group, and their sort of processes to think about coordinated coast-wide priorities, and so we're thinking about some contract support to help clarify roles, refine their processes, and documents to streamline the process, so it's successful into the future.

Okay, and so that concludes the summary of our projects. We have a lot, and so there's a lot I didn't cover. We do have a webpage with one-page briefs, very similar to the ones that are for the South Atlantic project briefs, because we modeled them after the South Atlantic project briefs, and then status updates that we provide at each council meeting, and it shows the staff contacts for each of the projects. If you would like to get in touch with any of us, we would be happy to chat about any of them. That's all I have. Thanks.

MS. HOWINGTON: That's it? That's all?

MS. CROWE: That's what I was going to say, is that's all? Thank you, Kylie. That was great, and a lot of information. Another fire hose for Wilson to comment on. Go ahead, Wilson.

DR. LANEY: Thank you, Madam Chairman. Yes, and you beat me to it. A second fire hose has struck us this afternoon. Thank you, Kylie, for that extremely informative presentation. Of course, those of you who know me well might guess that the one of most interest to me is Project Number 1, which deals with diadromous species, or anadromous species in this case, and so, first of all, thank you, and the Mid-Atlantic Council, and the New England Council, for addressing bycatch of those species in offshore fisheries. I think it's a significantly important thing that you all are doing.

I wanted to ask, and you didn't say anything about genetics, but it seems, to me almost, that that project might provide a good opportunity for somebody to be collecting fin clips, and doing genetic analysis, because one of the issues has always been, you know, what source populations are those fish coming from, and so do you know if anybody is attempting to do that, and I haven't said anything to Janet about it, and so I don't know. I know people in the past have collected fin clips, and run the DNA on them, to try and figure out the source populations, and so is that still something of interest to people?

MS. DANCY: I don't think that's part of this project at all. I think that would be interesting too, but I believe this kind of relies on trawl survey data for some sort of presence-absence, and then it kind of uses like the projected sea surface temperature to predict areas of interaction, and so I don't think that's part of it, but that would be great if it were.

MS. CROWE: Eric, go ahead.

MR. WEATHER: Thanks for the great presentation. If it's any indicator of our attention span, I'm also going to ask about Project Number 1, but I'm really interested in these outside of the traditional management framework ideas, like providing maps to fishermen for voluntary bycatch avoidance. Is that something that's stakeholder driven, or was it -- Are you hoping for voluntary participation?

MS. DANCY: This may be one of the projects that I know the least about, or have been involved in the least, and so I'm not sure. I don't know, you know, what the stakeholder engagement so far has been like on this. Maybe Brandon knows, if he's online, but I'm not sure.

MS. HOWINGTON: I'll give him the opportunity to unmute. There. All right.

MR. MUFFLEY: Can you hear me?

MS. HOWINGTON: We can.

MR. MUFFLEY: All right. I don't know if I can definitively answer either. We have presented this work to both the Atlantic Herring AP and to our Atlantic Mackerel AP, and the project team has held workshops with industry, to get their feedback on the maps, and so I do know we distribute these weekly maps to industry.

Every Monday morning, the maps go out to industry and those folks that have expressed interest in at least reviewing the maps as part of their fishing activities, and so we are collecting information from them this year, in terms of how well the maps are working, and whether or not they're a useful tool, and sort of to groundtruth some of those hotspots and interactions between the fisheries and shad and river herring, and so it's been challenging with some industries.

Some industries have not been supportive, and don't want to participate in it, and have certainly expressed that, but we have others that have been really supportive of the program so far, and have offered a lot of feedback to the project team, and so I think it's a mixed bag, and, like I said, we're testing it out this year, to see how it goes, and we're going to refine the models and produce updated maps.

As Kylie indicated, the maps so far are based off of presence and absence from the trawl survey over the years. We're going to switch that into actual abundance, so that you can, you know, get a better sense of the hotspots of the different stocks that we're looking at here, and so we've had mixed feedback so far from industry, in terms of their utilization of the maps and, you know, trying to avoid those hotspots.

MR. WEATHER: Thank you.

MS. CROWE: Kathleen, go ahead with your comment.

MS. HOWINGTON: All right, and so thank you, Kylie, so much for giving your presentation. As you all saw, this is eight different projects, that are very interesting, but, ultimately, the AP actions that we need to discuss are this. Are any of these projects something that we think we would recommend that the council get a presentation on, that we think that the council needs to be keeping an eye on that's going to influence them, and are there any of these presentations that may have a potential impact on the South Atlantic EFH definitions?

For instance, I'm actually on the stock distribution changes one, and so, that one, for me, I would recommend the Habitat AP should be keeping an eye on it, and we should, at the end of the presentation, or at the end of the project, request another presentation, to see if it's going to influence our outputs for our EFH definitions, and so those are two questions I have, and one of the reasons why I asked Kylie to give a kind of a summary on all of those. Does the Habitat AP have any like strong feelings, one way or the other, about Projects 1 through 8?

MS. CROWE: Thank you. Wilson, go ahead.

DR. LANEY: So, looking at the -- Well, trying to remember all the ones that Kylie covered, I think the ones that clearly -- There are some that are, obviously, more applicable to, you know, council processes than others are, and so definitely I think the South Atlantic Council would be interested in those, and it sounds like there's already a good bit of collaboration, and cooperation, going on for some of those.

Jumping back to Number 1 again, I don't know that we know -- Well, first of all, there's -- As far as I know, there isn't any significant bycatch of river herring or American shad going on in the South Atlantic, simply because there aren't any fisheries out there that are equivalent to the ones in the North Atlantic and Mid-Atlantic that are encountering those species, and so that's probably a good thing, but I think maybe we just don't know that much about whether or not there are, you know, schools of American shad or river herring from the South Atlantic stocks that are, you know, occupying Atlantic ocean waters off the South Atlantic.

I don't know, Kevin, who has left the room, I guess, and Kevin might want to speak to that, or maybe Stacie can, from the SEAMAP data. You know, I haven't looked at the SEAMAP database, to see what sort of river herring and American shad encounters there are in that database, and so there may be some there, but I would certainly be interested in anything that would provide us any more insight into what river herring and American shad are doing, and especially what the southern -- You know, the South Atlantic stocks of river herring and shad are doing.

It seems to me, Kylie, and I can't remember, and maybe Jason knows, or maybe Brandon can remember, that some of the genetic work that was done suggested that maybe some of the bycatch was differentially encountering South Atlantic stocks, and perhaps that's why their recovery rates were sort of lagging behind some of the New England Atlantic river herring stocks, and so I don't know. That's my comment on Number 1, but, for the others, I think that are most relevant, it seems pretty obvious, and so that's something that the South Atlantic Council would be interested in hearing about.

MS. CROWE: Thank you, Wilson. I can't speak to the SEAMAP data, but you may want to ask Kevin about that when he comes back. Online, we have Matt with a comment.

MR. KENWORTHY: Well, I've got a question, but I'll -- In thinking about the question that you just posed to us, Kathleen, about importance for full council, or continue to monitor, and maybe this is my just personal interest, personal preference, but, I mean, Projects 5 and 6, you know, the development of, you know, the habitat indicators, and, you know, as was outlined in the presentation, identifying the -- Now I've lost the location of it, but identifying the thresholds, and targets and how this group is going about doing that, and I know there was mention of, you know, simulation modeling being done, and I think learning more about that.

I mean, it's the billion-dollar question. How do we incorporate this information, and this data, into the decision-making? We don't have a -- There's no silver bullet way to do it, and I think continuing to expose people to that, to expose the council to that, to understand the challenges, the limitations, the capabilities, you know, the positives and negatives, will continue to advance the conversation in a meaningful way. I think it would be good information to continue to expose as many people as we can, to continue those conversations at all levels, the advisory panel and the council.

Then the question was -- Let me see if I can get back to that slide, and so, on Project 5, it looks like there's a group in the process of modeling those targets, and those thresholds, and it looks like they'll review results in December of this year, but I guess can you speak to -- Can you elaborate on that a little bit more? Can you speak to any known insight, or kind of how the group is approaching that? What indicators are being evaluated in that process, and sorry if that was, you know, shot right by me with the fire hose, but I was hoping you could elaborate on that a little bit more.

MS. DANCY: I think Brandon may be better to speak to this one, or Sarah Gaichas, if you're still on, Sarah.

DR. GAICHAS: I can try if Brandon doesn't want to.

MR. MUFFLEY: I don't have any problems trying, but certainly I can speak to some of it, and then maybe Sarah can speak to how she's going to go about doing it, and the specific indicators, because I don't think we've really -- So far in the process, we've -- Even though this is a very indicator-specific project, so far, our discussions have not really focused on indicators yet, because we really wanted to focus in on what's the key management questions and issues that we think indicators could help support. Like it's up on the screen, it's the council's risk policy, and the catch and quota setting.

At our last workshop, that workshop in March, that's where we sort of -- We didn't define specific targets and thresholds, but we talked about what would be desirable or undesirable, and like the one of the benefits of our council risk policy is that it's not very complicated. It's pretty simple. It applies across all of our council stocks the same way, and so how can we keep that, with utilizing indicators to help support those decisions, but without making it too complicated, or what are some of like the current baselines that we have, and, you know, are we seeing a shift from what we've seen recently, and so are the conditions that we have been seeing over the last fifteen or twenty years -- Are we seeing something different? Are we moving outside?

Those are sort of the desirable and undesirable states that the workgroup sort of talked about, and sort of defining those, and so I think Sarah and Gavin's analysis are going to look to different indicators that we might utilize within the catch and quota setting, and the council risk policy, and evaluate -- You know, by adding indicators, you know, can we pick up some of those changes to baselines? Can we -- Does the process become complicated or not if you utilize indicator information, you know, and so that's kind of where we are at, but, you know, Sarah can certainly speak much better to how they are actually going to go about doing that within their simulation framework and the types of indicators that they may use.

DR. GAICHAS: Yes, and I think -- So, just for example, and thank you, Brandon, and that sets it up really nicely, and so, for the risk policy, the idea is not to add a whole bunch of indicators to the risk policy. It currently asks, you know, what is your stock status, and is it -- In relation to the biomass of MSY or the proxy, right, and so the idea is not to add a whole bunch of other indicators, but to really focus on what would make the council not only look at that.

The council has, in the past couple of years, suspended the risk policy for other reasons, usually having to do with the economic viability of the fishery, and so what we're exploring right now is kind of, and Brandon and the project oversight team will get to see this in a couple of weeks, is sort of a framework for deciding when to stay with the current risk policy and when to depart from it, based on some other indicators, and then so that's one way of having a threshold, is to say we're going to keep doing what we always do or we need to do something else.

Then, after deciding you have to do something else, then there are indicators to help you decide, you know, what to do. If you're just suspending the risk policy altogether, then maybe you're allowing catch to go all the way up to the maximum permissible, or maybe there's still some buffering from that, and so that's the sort of thought process for that one, is to keep it simple, to focus on social and economic indicators as reasons why we might want to do something other than the current risk policy.

For catch and quota setting, there's so many steps in that process, and the focus is going to be -- Not all of them are under the full control of the council, and so we're going to be focusing on those that are, which are the ABC setting process, and so this is very equivalent to what the South Atlantic council does. The SSC goes through a process of asking, you know, about several indicators having to do with the assessment to determine the uncertainty in the outcome of the assessment, the overfishing limit, in order to use the council's risk policy, which defines the risk tolerance for overfishing, and then combine that with the uncertainty in the assessment to come up with the ABC.

It's sort of a risk-based framework, similar to what the South Atlantic Council does, where the SSC goes through and says, you know, I have a series of risk factors here that will determine how much risk I'm willing to tolerate with setting the catch, and so the SSC set of questions is one thing, and one option is to use indicators more explicitly, and more consistently, in that.

Instead of having a sort of discussion about them, to have a set of indicators that we would look at and decide, you know, if this indicator of habitat says habitat is better than normal, then maybe we push it into one of our boxes. If it's worse than normal, maybe we push it into the other box, in terms of determining the ABC, and so there's a set of indicator possibilities there that we'll be looking at.

The next step in that process is not the SSC. It's the council, and the sort of monitoring committee, estimating discards, in order to take those off of the total catch, to get the target catch for the different fishery sectors, and so estimating discards, you can imagine, could potentially be improved with different indicators, and so the idea, again, would be do we have indicators of changes in distribution, which might change overlap with fisheries, and so some of the indicators actually being developed in the other product projects might be helpful to us there, and we are coordinating with them.

Others might be, you know, changes to the social or economic status of the fishery that might change discards, et cetera, and so those are just some of the examples of trying to make the -- We have the existing processes already, and asking where in that process would it help to have more information on something, and then develop an indicator for that something, and we'll be testing it, and so I've just been spending some time basically building the council's risk policy and ABC harvest control rule into a couple of different modeling frameworks, so that we can start testing the different pieces of this.

Another ask was to please not double count things between the risk policy and the catch and quota setting, and so we want to be able to look at all the steps of the process, and so we're trying to set it up to do that, but, obviously, a work in progress, and so we're still kind of at the beginning, and I think, by the December workshop, we should have enough information to put a little meat on the bones, and let people really think about it, and refine it further from there, and so I hope that helps.

MR. KENWORTHY: Yes, and that was extremely helpful in, you know, outlining the different ways you guys are thinking about this, the different applications within the framework of your council, and just how it's complicated, and there's not an easy path to this, and, you know, my experience with this ism at different levels of, you know, fisheries and habitat management, people are thinking about this, and there's no clear cut way to do it.

There's a lot of thinking outside of the box and my guess is there would be some similarities and some differences with the South Atlantic Council to what other people are doing, different fisheries, different indicators, different characteristics, et cetera, and so, in my opinion, something valuable to continue to get exposed to, from a South Atlantic perspective, Kathleen, but I think you've got some others there in the room that could speak to the direct value to the full council, and looking at Tom, but I'll stop there. I appreciate the feedback, and that answer, and elaborating on that a little bit more.

MS. CROWE: Thank you, Matt. We don't have anybody else online. Anyone else in the room have any comments or questions or feedback? Go ahead, Eric.

MR. WEATHER: Thanks. Perfect. This may have already been discussed, and this is my first AP meeting here, but I think it would be worthwhile for this group to be keyed into Project Number 4, the EFH updates, particularly an approach to incorporating climate impacts, how that's done, and, in regard to Objective Number 3, creating efficient update processes to simplify future source document updates, that one is so important.

There seems to be such a problem for getting the right information, emerging information, into the right hands, whether that's, you know, NOAA consultations, or whoever it is, but, yes, and lots of work going on, and how do we get that quickly into these EFH updates would be interesting to see.

MS. CROWE: Thank you, Eric. Paula.

MS. KEENER: Thank you. In regards to the question of which of these projects we should keep an eye on, or have a presentation on, I would say 4 and 5 and 6, that were mentioned previously. Thank you.

MS. HOWINGTON: For the record, we do not manage an anadromous or diadromous species.

DR. LANEY: Okay. You opened that can of worms, and so that means I can get on my soapbox again and point out that it is in the MSA. It's just that catch-22 that says you have to have an FMP in order to address them, and the council -- Well, the South Atlantic Council anyway doesn't have an FMP, but I will note that that didn't stop the Mid-Atlantic and New England Councils from going ahead and trying to address a management issue associated with those species, and Magnuson clearly says the councils can address them when they're in the ocean, which is where they spend most of their life, and so I'll just point that out once again for the record.

MS. HOWINGTON: I know. Okay.

MS. CROWE: Thank you, Wilson, for that clarification.

MS. HOWINGTON: I'm going to lock you and Chip Collier in a room and see which one of you comes out winning.

MS. CROWE: Okay. Anything else on this presentation, for the good of the cause?

MS. HOWINGTON: I think we're good.

MS. CROWE: I think we are good. Thank you very much.

MS. HOWINGTON: Can I request a five-minute we think about it, and everyone can go get stuff of what we want to keep doing, or do we want to just call it early?

MS. CROWE: Let's take the five-minutes. Kathleen needs a think about it minute, and so if you just want a quick break, and come back in five minutes.

(Whereupon, a recess was taken.)

MS. CROWE: So, we are going to round out today with Wilson's request for Other Business, and so we're going to let Wilson go ahead and speak, and then Kathleen is going to finish up with some election information, and so, Wilson, if you want to go ahead.

DR. LANEY: Okay. Thank you, Madam Chairman, and so, since we have so many new folks on the AP, I'll just give you a brief bit of background. Gosh, it's been probably four years ago, at least now, that there was a team that was interested in looking at the management implications of changes in river discharge caused by projected future climate scenarios.

Knowing what's going to happen in rivers is kind of important for downstream managers below the dams on the Roanoke River in particular, but also on any other regulated river, in terms of not only the fish and fisheries that could be affected, but also agricultural interests, who are having their cropland flooded, or timber interests, who have their timber tracks flooded as well, and so a team was assembled, and the two principal investigators for this particular project are Dr. Simeon Urick, who is with the U.S. Geological Survey in Gainesville, Florida, and then Dr. Julie DeMeester, who is with the Nature Conservancy in North Carolina.

Julie and Simeon put together a team that has a bunch of individuals on it from North Carolina State University, from TNC, from USGS, and other places that are looking into what happens to the discharge on the Roanoke River and how that affects migratory fishes, the anadromous species in particular, but also the floodplain forest as well, and so what I will do is to send out to the AP the latest progress report that we produced, which was toward the end of last year, I think, and, just in the interest of brevity, tell you that we're working on a bunch of papers.

Dr. Aaron Bunch, who was at Clemson University, joined the team. Aaron has got considerable expertise in modeling temperature and discharges, and looking at how that affects the trees and the fish as well, and so we have a bunch of papers in preparation. A lot of them have to do with hydrological modeling using existing models like HEC-RAS and reservoir routing models and things like that on the Roanoke River.

I'm less knowledgeable about that part of it than I am about the fish part. That's the reason I'm on the team, is because of the fish work I've done in the past on the Roanoke River, and so hopefully this is going to provide a model for other folks, other teams that are interested in other rivers, to consider as well, and so hopefully you will begin to see papers start to emerge from the pipeline for this, maybe sometime toward the end of this particular calendar year, and so that's my update, Madam Chair, and, again, I'll send out the progress report, just so everybody can see what's coming along the pipeline.

MS. CROWE: Great. Thank you, Wilson. You have a question online. Matt, you can go ahead with your question.

MR. KENWORTHY: Thanks, Wilson, for sharing that. When you brought it up earlier, I immediately triggered the thought of a similar initiative, or project, that a group with the University of Florida is working on, but have completed a lot of it. It's still an ongoing effort to try and expand it and apply it, but they built hydrological models for the Suwannee River to look at the same thing,

climate change and land use change patterns and how that impacts water flow, nutrient input, water characteristics flowing down the Suwannee River.

The neat part of that is a group of ecologists developed a Ecopath with Ecosim model that, doing their creative stuff that modelers do, they linked it to that outflow model for the Suwannee River and basically translated all that information down to food web impact within the Suwannee River kind of outflow footprint, and so they were able to take that information about, you know, water quality changes coming down river under different scenarios, how that would impact habitats, and therefore fisheries, using a lot of fisheries data and habitat data from the region.

I can provide a link to that, and, Wilson, maybe we can chat separately offline too about these initiatives, but I don't think, in my current status, I have the ability to share within the chat function, and so I'll send it to Cam, or send it to you, Kathleen, and you can distribute it, and it's got links to full reports, but highly relevant, and very interesting, and something to probably consider with that project, and for others just to be aware of.

MS. HOWINGTON: If you send it in the questions box, I can send it in the chat to everyone.

MR. KENWORTHY: All right. I'll do that.

MS. CROWE: Wilson, go ahead.

DR. LANEY: Thank you for that, Matt. I was not aware of that. Aaron may be aware of it, or Julie may be aware of it, and I don't know, but that sounds very interesting, and I'll just note that, a number of years ago, when Bill Pine was a grad student at NC State, Bill did look into a model, an Ecopath model, for the Neuse River, I think it was, because we were interested, at the time, in the impact of flathead and blue catfish on the community within the Neuse River.

Then Samantha Binion-Rock, I believe, developed an Ecopath with Ecosim model for the Pamlico Sound, and I'm wondering if there might be an opportunity there since the -- Well, the Roanoke dumps into the Albemarle, and so never mind, and that wouldn't be necessarily relevant, but thanks for that information. I'll certainly look forward to seeing it and passing it along to the rest of the team for the Roanoke.

MS. HOWINGTON: Matt, is your hand still up?

MR. KENWORTHY: Always, but not intentionally.

MS. CROWE: Okay. Thank you, and so I don't see anything else in the room. Okay, and so we're going to move on to Kathleen.

MS. HOWINGTON: All right, and so, everyone, this is actually Stacie's last meeting as our chair. She has been doing it for three years. Her final responsibility is going to be presenting to the council in September, and then, as of December, she is no longer our chair. Normally, that would mean that Paul Medders would step up, because he was our vice chair. However, he retired, and is no longer with the agency, and it was an agency seat, and so he has now moved on. Tomorrow, we are going to be nominating not just a vice chair, but also a new chair. We're going to be doing both. Congratulations to whoever the chair is that's going to be jumping in feet first.

Because of the habitat blueprint, which, if you're not aware, that was the restructuring of the Habitat and Ecosystem Advisory Panel that happened three years ago, and this is actually the first chair and vice chair election since that occurred. Because of that, I had a talk with Tom Roller and Trish, and discussed how they wanted the chair elections to go, since they are our committee chair and vice chair. Stacie was there as well, and I didn't leave her out.

They wanted to continue with the state rotation that was occurring, but not have it limited to agency seats, and so the next -- The chair and vice chair will be from either North Carolina or Florida, since Paul was from Georgia and Stacie is from South Carolina, and then, after that, we'll start rotating states, where it will be, you know, North Carolina, Florida, Georgia, South Carolina, and we'll just keep going, where that way we're sharing the workload of each state taking on chair and vice chair position, but then it's not limited to agency, and so any of the open seats that belong to those states, or anyone from those states, can decide to throw their hand in the ring, which means we now need a list of names of people who are interested in campaigning.

You've got twenty-four hours, you know, and running for president gives you two years, and you've only got twenty-four hours to become chair the Habitat AP. Of people from North Carolina or Florida that are willing to throw their hat in the ring, and you don't -- If you don't volunteer right now, that's okay, and you can throw your hat in the ring tonight during happy hour, after a few drinks, and that's also acceptable.

If you are from Florida or North Carolina, and you're interested, even if you're new, and so throw your hands up. Brendan Runde almost became our chair during the last election, and he had been here for a day, and so raise your hand, please, if you're from North Carolina or Florida and you would like to throw your name in the ring for chair or vice chair, or, yes, other people can nominate even if you don't volunteer. We can volun-tell people. Myra came, and I might have said something wrong.

MS. BROUWER: No. Not at all, but just adding to entice people, and to make them feel maybe less uncomfortable at taking on a chair position, we are working on putting together like a little bit of a crash course on what is expected from a chair, and kind of just give you an overview of how to do this. I mean, you know, everybody kind of has the gist of it, but we want to make sure that everybody has the opportunity to do that sort of thing, and we want to make it as easy as possible for those of you who want to participate.

MS. HOWINGTON: All right, and so Brendan has his hand up. Are you throwing your name in the ring?

DR. RUNDE: I guess. Yes, I guess.

MS. HOWINGTON: All right. Well, we'll take that, and so we have one person in there, and anyone else, just think about it.

DR. RUNDE: Wait. Really? Nobody else? Cam will do it.

MS. HOWINGTON: Just you, and so we need at least one person from Florida to be thinking about throwing their hat in the ring, but we will discuss this tomorrow, and so, again, you have

twenty-four hours. Discuss it during happy hour today. Now, happy hour is at Holy City Brewing. It's fifteen or twenty minutes away from here. It has a nice big outdoor area. It's walk-up ordering, and so, you know, kind of show up when you will. I'll officially give everyone a 5:30 time, but, if you show up at six o'clock, that's fine. If you show up at 5:15, my kids will probably be there by then, and so that will be great too, and so I look forward to seeing you all at happy hour. Think about elections, and, Brendan, congratulations on being the only volunteer. You might just be the chair de facto.

DR. RUNDE: We've got to have a democracy, guys. Come on.

MS. CROWE: Yes. Cameron, go ahead.

MR. LUCK: (Mr. Luck's comment is not audible on the recording.)

MS. HOWINGTON: Vice chair, you get cc'd on everything with the chair, and, if the chair is unable to do any of the responsibilities, like sitting next to me, or presenting to the council, I would then tag you in, and then, at the end of three years, you would then move into the chair position, and so you kind of take a back seat and learn how a chair goes. Normally, again, the vice chair would just become the chair, and we would only have one election, but, unfortunately, that's not how it worked.

MS. BROUWER: Again, I'm just going to add a few more things, and so the chair gets invited to council meetings. Like the council meeting after the group, the AP, comes together, the chair gets invited to wherever the council is meeting to give the AP's report. Sometimes schedules get in the way, or whatever else, and the vice chair then is the person that represents the AP, but, other than that, you know, like reviewing reports and presentations, that sort of thing. I can't think of the main duties, and that's why we're going to do this little training, so that everybody is on the same page.

MS. CROWE: Paula, go ahead.

MS. KEENER: On behalf of this AP, I would like to thank Stacie for her work over the last few years. *(Applause)*

MS. CROWE: Thank you, Paula.

MS. KEENER: Well done.

MS. CROWE: Thank you. That's it for today, and so we'll adjourn, and we will meet back again tomorrow, same time and same place, for another full day. Thank you.

MS. HOWINGTON: We're going to be talking about IEAs, and so think about integrated ecosystem assessment goals and objectives. We're going to come up with those.

(Whereupon, the meeting recessed on June 30, 2026.)

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JULY 1, 2026

WEDNESDAY MORNING SESSION

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The Habitat and Ecosystem Advisory Panel of the South Atlantic Fishery Management Council reconvened at the Town and Country Inn and Suites in Charleston, South Carolina on July 1, 2026, and was called to order by Chairman Stacie Crowe.

MS. CROWE: Welcome everyone to day two of our Habitat and Ecosystem Advisory Panel meeting. We are going to go ahead and get started this morning, and I don't think Kathleen has any announcements. Well, do you want to talk about that? Never mind. I'm going to let Kathleen make an announcement for a second.

MS. HOWINGTON: Okay, and so, for context for the next two presentations, two years ago, we as a Habitat and Ecosystem Advisory Panel requested that the Science Center provide the South Atlantic with an integrated ecosystem assessment. An integrated ecosystem assessment is a tool that almost every other council has that kind of can fit however the council wants to be able to answer specific questions. It's similar to an MSE, where it's very flexible in how you want to be able to create it, and it's very council-specific.

The Science Center came back with okay, fine, and what would your goals and objectives of this IEA be, and so we have two presentations coming up, one from Brendan Turley from the Gulf on the Gulf's integrated ecosystem assessment and the one from Kiley Dancy from the Mid-Atlantic on theirs.

While you are receiving these two presentations, please be thinking selfishly. What did they do that we like, and what did they do that we don't, and what would work in our council's context to meet our goals and objectives, and what are our goals and objectives for this IEA?

At the end -- Initially, it was we want to try and get ecosystem information into management decisions. I think that is still the overarching umbrella goal. What would else would we need, and we need to start being specific. This conversation I'm hoping will take the majority of the morning. In fact, we only have one other talk scheduled for this morning.

The other thing that everyone needs to keep in mind is that Talk Number 9 from Lexi Watson at South Carolina Sea Grant needs to start at 1:00, and so we are probably going to break for lunch early, because there's -- You know, walking to different places can be difficult here. Then we have to be back at 1:00, and so, if we need to take a pause in a conversation, or if we need to reorganize the schedule, to make certain that we can leave for lunch at 11:30 and come back at 1:00, or 11:45 and come back at 1:00, that's going to be what we have to do, and I need everyone to be flexible with that. Cool? All right So then, Stacie, are we good? All right. Brendan, are you there?

DR. TURLEY: I Hope so. Can you hear me?

MS. HOWINGTON: All right. I'm going to be presenting for Brendan, and so just say “next slide” whenever you need me to switch, okay?

DR. TURLEY: Great. Thank you so much for inviting me to speak. I am Brendan Turley. I'm an Assistant Scientist for the Cooperative Institute for Marine and Atmospheric Studies at the University of Miami, and I am a cooperative employee that works closely with the Southeast Fisheries Science Center on a variety of things. This presentation was originally supposed to be given by Mandy Karnauskas, who I'm sure you're all familiar with, but she's taking a much-needed vacation, and so I hope she's not listening, but, if she is, great.

I'm going to be talking a little bit about the Gulf Integrated Ecosystem Assessment Program, which has done a lot of things over the past decade or so, and I'll give you a little taste of it. To give you some background perspective, the IEA program is housed by NOAA Fisheries. It is a NOAA Fisheries program specifically.

It has a history that goes back starting in 2005, when it was first proposed. Funding really began in earnest in 2010. The first steering committee convened in 2012 ,and there's a tenth anniversary in 2019, and, if you want to read more, there's a special issue of *Coastal Management*. It's linked here, and there's also some papers at the end of the presentation to give you a little taste of it.

Then, just this year, we're undergoing a merger with the Changing Ecosystems and Fisheries Initiative under the NEAP program, the National Ecosystem Assessment Program, and, yes, I work with the feds, and so you're going to get an alphabet of soup, but what you'll notice, on this map, is that there are regional programs throughout the United States.

You are probably keen on seeing that there's a gap right now, specifically where you guys have jurisdiction, and also the U.S. Caribbean. I don't have the exact answer, because, one, I wasn't around when the program formed, and, two, looking at the documentation, I really don't have an answer as to why the Southeast does not have a program, but the Gulf IEA program has kind of been filling that niche where we can, and I'll talk more about that.

To give a little bit more details, NOAA's IEA, or Integrated Ecosystem Assessment Program, it's a decision support process, and it really tries to synthesize, and analyze, the diverse set of data and outputs from various models, and it's meant to be a modular, iterative, and scalable approach to approaching ecosystem issues, not just in fisheries, but more broadly EBM, and so ecosystem-based management in all of its form, specifically within it in the ocean.

You've probably seen this wheel before. It tries to define how the process works, where it's really an iterative approach, looking at what are the goals and targets, and we develop like indicators to help us kind of measure, and then we use those metrics to assess the ecosystem, and then we go through all sorts of like analysis and uncertainty and risk, and evaluating strategies, and then the loop can go all back over again and reiterate where needed.

The beauty of this this is a regional kind of -- A framework that all the regions share, but, because all the regions are different, it's not prescriptive, and so each of the national programs kind of approach the issues within their region however they see fit, using this sort of modular and flexible framework, and it really provides assessment of the ecosystem across and within multiple ocean use sectors. It's really been quite useful over the years.

Specifically, I work in the Gulf, as part of the Gulf ecosystem assessment program, and our mission statement is -- It has worked nicely, and it is balancing the needs of nature and society through integrated science for current and future generations in the Gulf of America.

I think what's really important is that, you know, maybe the misconception is that the ecosystem includes everything but us, but that's not the reality, and I'm sure you guys are painfully aware of that, and, when we really start to take this holistic view of people and society and culture as part of the ecosystem, that really starts to get at what it means to be looking at ecosystem-based management, and so this little figure, or graphic, shows us trying to conceptualize all the different aspects in a very simple way of things that affect the Gulf region.

With that, there is some national money from the NOAA Office of Science and Technology that goes into the IEA program, and so just to kind of emphasize that it's both a process and a program, and so IEA is a process that many groups have undertaken, which is great. It's meant to be shared widely, and used and modified as needed, but it is also a program that has specific funding within NOAA. The Gulf region has received $300,000 per year for the past fifteen years, and it's split among line offices, and so we share that money not only with NMFS, but also with AOML in Miami, but also NCCOS receives some of that funding, and so it's not a lot of money, and that kind of gets spread thin pretty quickly.

Specifically within our region, it's never been sufficiently funded to support our broad mission, and so I'll harken back to what I mentioned before with the glaring gap in our map earlier, and there's no consistent funding for the U.S. South Atlantic or the U.S. Caribbean. We've received some partial funding to kind of fill that gap as needed, but there's no sustained support for that, and so that's been a challenge, as you kind of becoming aware of as I'm telling you these things, if you weren't before.

The funding supports synthesis, and we're not a data collection program, and so we tend to ask data providers, or collaborators, to provide us with certain data, that we can then use in some sort of synthesis, or analysis, that can be then used to assist decision-making, in whatever level that that occurs and we're trying to support.

The last point is important. Funding to the Southeast Fisheries Science Center has always been intended to support the Gulf IEA, as I mentioned, and not the South Atlantic in the Caribbean. If they would give us more money, we would do more things, basically, but we have leveraged some resources.

For example, I'll talk a little bit more about the ecosystem status reports. If you're not familiar with them, there is a South Atlantic one, and that's been a while, and that needs to be updated, but also there is the Shrimp Futures Initiative, that many of you may be aware of too, that the Southeast Fisheries Science Center has been undertaking, and that's been funded partially by the IEA program, and so we have tried to leverage what we can, where we can, to support things that we think are important, and, unfortunately, we can't do everything.

The program itself, the IEA program, on a national level, we work through a three-year workplans. Currently, we're in the middle of our 2025 to 2027 workplan, three-year workplan, and we have four main goals. One is to inform fishery ecosystem planning and ecosystem-based fishery management in the Gulf, specifically for the Gulf Council, and so we are informing marine spatial

planning in the Gulf of America. Think offshore oil and gas, and what used to be called offshore wind, which no longer exists.

Number 3 is informed National Marine Sanctuary resource assessment, management, and decision-making, and so this is basically marine sanctuaries, trying to help them do ecosystem-based management, and then the last one is examining the patterns of change and resilience in fishing communities in the Gulf of America, and I'll go through those in a little bit more detail.

For the first goal, there's lots of parts to the first goal, and it's probably one of our more heavily-based goals of our workplan, is to inform the Gulf Fishery Ecosystem Plan, the FEP, in the EBFM. Like I said, alphabet soup.

The Gulf Council is currently under taking the drafting of their Fishery Ecosystem Plan, which includes a fishery ecosystem issue loop, which is a modular system to address certain ecosystem issues, and that bubbly thing on the left-hand side is the FEI Loop process that they are currently working through and their draft -- The pilot project for them is the red tide and fisheries management, and the conceptual model on the right-hand side is from a paper that I led that looks at the history of red tide and fishery management in the Gulf and uses it as a case study for EBFM.

If you want to learn more, there's a DOI, and there's also a reference at the end of the presentation, but, truth be told, a lot of work has gone into this, and we're really trying to support the Gulf as best we can to move this forward beyond what has kind of transpired into the next level, to kind of really hammer in the FEP/FEI loop process, which is in technically a draft state.

Continuing on our support for EBFM, which you may be aware of, there's the Shrimp Futures scenario planning, and this has been a big effort by the Southeast Fisheries Science Center, with some IEA folks involved, trying to understand what's going on in the shrimp fishery, not only in the Gulf, but in the South Atlantic, by going out into the field and engaging with stakeholders.

There's some modeling work involved. There's some future projections for potential biomass changes, and it’s really trying to understand where the shrimp fishery is going and, you know, what potential pathways there are in the future, given what we know and some of the uncertainties that are kind of apparent.

Continuing with the EBFM, we're also working heavily on coastal migratory pelagics, and specifically king mackerel is a big push right now, because it's undergoing a stock assessment, and so we -- I actually am a co-chair of the internal coastal migratory pelagic technical team at the Southeast Fisheries Science Center, and so it's kind of an overlapping duty, but we were tasked with trying to integrate all the information we had available on coastal migratory pelagics, specifically king mackerel, to understand what's going on with the fishery, because it's an important fishery, and there seems to be warning signs that something is going on, and what it is we're not entirely certain.

We've put in a couple of working papers for the SEDAR process, and we're also working on what's called an environmental and socioeconomic profile, or ESP, and that's also technically a flagship product of the IEA program, the national program, and so, if you want to learn more, you’re welcome to reach out to me.

More on EBFM, and this might be the last slide on EBFM, but it's definitely the bulk of what we're doing. This last bit, there's an ecosystem model for the whole of Gulf of Mexico, EWE if you're familiar. trying to identify mechanisms driving key fish populations, whether that be, you know, fishing pressure or some sort of environmental signal, and it's capable of exploring these alternative hypotheses for use in assessments. The primary researcher on this, Matt Woodstock, also produced a working paper for the king mackerel stock assessment looking at potential different drivers of what's going on in the king mackerel fishery.

I lied. I still have one more slide on EBFM, and so another aspect of this is the ESRs, or ecosystem status reports, and the Southeast Fisheries Science Center -- We do produce ESRs for the Gulf, the South Atlantic, and the Caribbean, and, if you're familiar with other regions, like the Northeast, or the California Current, or the Alaska, they get ecosystem status reports I think on an annual basis.

That's because they have a lot more staff and capacity. We just don't have the same sort of staff and capacity to do that, but I will say that we are currently working on an automated pipeline to try and get these out on an annual basis. We're currently slated to produce a Gulf ESR. The hope is that -- Sorry. Before that, we just produced the Caribbean ESR, and we're hoping to do the South Atlantic ESR, and we're hoping to have these on a regular clip.

It might be a challenge to have them done every single year for all three regions, but we are working towards getting them automated, and having them on a much more regular basis, but the key point here beyond that is that they're objective focused, and so looking at what are the objectives of the fishery management in question, whether it be the Gulf, the South Atlantic, or the Caribbean, and focusing in the analysis, and the synthesis, on those objectives, given the data that we have.

The second goal is about informing marine spatial planning, and this has been kind of a moving target, to be quite honest. The Gulf is no stranger to infrastructure, since we've had offshore oil rigs since the 1940s. However, there's been a lot of interest, and it waxes and wanes over the years, one being offshore wind, that we spent a lot of time working on, which turned out to not really produce -- Well, I wouldn't say -- We did produce things. However, they weren't really used, and the next shiny object is offshore critical minerals, and so there is a lot of movement on this, and a lot of good work being done, and not by me, and so I don't have a whole lot to say about that, but it is one thing that we do, and there's a lot behind it.

The third goal within our current three-year plan is the National Marine Sanctuary management, and so this supports National Marine Sanctuaries by selecting proposed indicators to produce condition reports that help the management needs of the marine sanctuaries, and so it supports in response to science needs, and it relates back to specific management plans, and so it's really objective focused, similar to the ESRs.

It also supports regulatory and policy development, sanctuary expansions, and zoning changes, and so, within our region, we have the Flower Garden Banks off Texas, and there is, obviously, the Florida Keys National Marine Sanctuary. I believe there is some support for Gray's Reef Marine Sanctuary, but -- I believe there is, and, actually, if you want to learn more about this specifically, you can either reach out to me, or there's something called Sanctuary Watch, which is part of the IOOS program website, and it probably be easier, because I actually didn't put the link in here, and I apologize, but, if you want to learn more, I recommend you reach out to me.

The cool thing about Sanctuary Watch, and, actually, there's a little infographic on the left-hand side, on the bottom, and these are -- They're clickable infographics, to where someone can go if they're interested about -- This one is the Keys, for example. You can click on an icon, and it will show you like an indicator, and a time series over -- You know, a time series to show you what's going on with the indicator, and so they're really cool ways to interact with these status reports for the marine sanctuaries.

The last goal for our current four-year plan, or, sorry, three-year plan, and that would be nice, is understanding fishing community resilience, and this has been a very interesting, but complex, problem. It's trying to investigate the factors that predict vulnerability and resilience, with the hope of boosting the ability of fisheries to adapt to environmental change.

In the Gulf, we have multiple events that could potentially happen a year. You know, we have hurricanes, and we have red tides, and then these combining interacting factors with other like economic shocks can really affect the fishing communities, and so we're trying to better understand the interaction between these, with the hope of potentially providing some support for decision-making on how, you know, fishery management, or other management bodies, could support these communities, so they don't just disappear.

I think there's a lot of intersection with some of the work that's being done in other regions on like working waterfronts, but that's not exactly how we frame it, and so I think there might be some potential for synergy. If anyone out there is working on those issues, I encourage you to reach out.

Some of our past hits was work on the Barataria Bay sediment diversions in coastal Louisiana, in the bayou just south of Louisiana. It applied the IEA framework to sediment diversion planning and tried to -- It did complete some spatiotemporal distribution modeling for use in EFH consultations.

Ultimately, the Barataria Bay sediment diversions were not actually approved by the state. I think they're officially canceled this past year, and so a lot of work was put into producing the Barataria Bay ESR, and, much to the chagrin of people who worked on it, it doesn't look like it's really going to be used. However, while it may not be useful for that project, which is now defunct, we have found, over the years, that our ESRs are quite useful to other researchers, including academics and students, and so it's not time wasted. It's just one of those things that happens, I guess.

The near-future prospects, unfortunately, as you're probably aware of the shrinking budgets and recent staff losses, NMFS HQ combined the IEA with the CEFI program into the National Ecosystem Assessment Program, and so it's not a name change. It's just a bigger umbrella to hold both the IEA program and the CEFI program into a coherent program. However, the full evolution of this change is not clear, but there is a large focus on ecosystem status reports, and also the ecosystem and socioeconomic profiles that I had mentioned. There's also a focus on short-term ecological forecasts, which are upcoming, and in the works, and definitely support for fishery ecosystem plans in all the regions.

The last bullet point is important, and so, with the shrinking budgets, it has led to challenges to meet the needs of all of our ocean user groups that we try and service. However, it has kind of forced us to focus more on the fishery management councils themselves, given the mandate that

the IEA exists within the fisheries, NOAA Fisheries specifically, and so, that said, there's a lot of concern that the IEA program traditionally was very multi-talented, and broad-based, and more EBM, and not EBFM, but, given the constraints we have, it seems like our focus is going to be more on EBFM, and maybe I'll just kind of emphasize that we're still trying to understand what that means.

This last bit is a little bit of a teaser, if you're not familiar with the Changing Ecosystems and Fisheries Initiative, CEFI. If you are, great. If you're not, welcome. The whole point of the program is to produce seasonal, decadal, and long-term forecasts for many physical and ecological indicators, and it's through a NOAA-led regional model. The plot right there is one of the outputs from the model itself, and so it covers the western portion of the North Atlantic, up and down the coast, and many of these forecasts are available to the public right now at this link.

We just had a meeting in May, a national meeting for the NEAP program to talk, and there is discussions for increased east-coast-wide collaboration, and so folks at the Northeast Fisheries Science Center, and folks at the Southeast Fisheries Science Center, and folks like me, who are affiliates, we had a discussion to try and increase collaboration, because we share a coastline, and It would be easier, and more efficient, given, you know, budget shortages, and staffing shortages, to try and be as efficient as possible and provide the best science we can to all the regions involved.

I'm not -- I don't want to give you guys hope, because we don't have specific funding for the South Atlantic. However, I do think that this will be a benefit to the South Atlantic in in general, because of this increased collaboration between the Southeast and the Northeast.

With that, I appreciate your time, and here is Mandy and myself's contact information, and I want to thank you for your time, again, and there's one last slide, just because I always want to make sure everyone who -- Not everyone, but most the people who are involved get some sort of acknowledgement. There's lots of people who are involved in these projects, and all of them aren't even on this slide, but I appreciate your time, again, and I appreciate all the folks who are involved in this time too, and, with that, I'm happy to take any questions, or comments, and so thank you again.

MS. CROWE: Thank you, Brendan, for that great presentation. Does anyone have any questions or comments? No one in the room, and so we'll go online to Brendan Runde.

DR. RUNDE: Thank you to the Chair, and thank you to the other Brendan for the presentation. A question. You were talking about the ecosystem status reports, and how there's a vision to automate those, to perhaps have them on a yearly cycle going forward, and I'm wondering if you can get a little more into what that automation is like, what parts of the ecosystem status reports would be automated, and is it some writing component, or is an analysis component, and I imagine that, when you say automation, you mean the use of an AI assistant, like Google Gemini, which I think NOAA is actually encouraged to use, and so thanks for any further detail on that.

DR. TURLEY: Thanks, Brendan. Brendan here. Yes, and so, specifically about the automation, we really took a hard look at what an ESR is, what goes into it, and how we get from, you know, the ingredients to the finished product, essentially, and what we've come to realize is that the data that we intake kind of falls into several categories.

There's some automated data that can be pulled from like APIs, and there's a non-automated data, where we basically have to email someone, or we download it, and that's kind of awkwardly not API-like, and then there's also confidential data that has to be categorized separately to, you know, keep it that way, and, in doing it that way, we really split our workflow up, and the automation comes down to everything is done as much as we can in R, or Python.

All the code is hosted on GitHub. We're using Quarto to stitch together to create the document, and it's really, as much as we can possibly have it, be a process where all the steps are laid out, and so, if we want to onboard someone, because, you know, sometimes people get fired, and sometimes people get hired, and it's easier for someone to come on and help us then take up the reins to produce these reports.

The AI automation portion of it has been talked about, but it's kind of in the assist where we think is necessary, and not let's just hand this over to AI and see what it does type of automation, if that makes sense, and so, really, it's more of a pipeline process, with humans in the loop, and reproducible code from A to B, and then stitched together to produce a report that's a lot easier than it used to be, when you have twenty Word files and have to reconcile conflicts.

MS. CROWE: Thanks, Brendan. We have a question in the room from Eric.

MR. WEATHER: Hi, Brendan. Eric Weather, FWC. Thanks so much for the presentation. A question for you about the FEI loop you presented, and the red tide pilot study. Obviously, accounting for episodic mortality is an important thing to incorporate into management considerations. Do you feel like that conceptual approach was helpful, and it created some efficiencies, and is that something you would recommend for the South Atlantic to consider?

DR. TURLEY: I assume you mean the FEI loop specifically, right?

MR. WEATHER: Yes, the loop specifically.

MR. TURLEY: Yes. Absolutely, and so I'll give you a little -- It actually really fits in nicely here, because the LGL contractor was contracted by the Gulf to produce the FEP draft, and they came up with this FEI loop, which is based upon previous work, and that part doesn't really matter, but, while we were watching, like Mandy and myself were watching the presentation for the Gulf Council, and other people who have been working on red tide with us, we all kind of like had the same ideas, like this is a great way to kind of formalize what we've already done into a process, and to actually think about this systematically.

What we did is we took the FEI loop, and consolidated everything we had done, and produced that paper that's referenced here, and so, yes, it was extremely useful to organize what had already been done, for like the past fourteen-plus years or whatever on red tide fishery management, and so we found it incredibly useful.

MR. WEATHER: Thanks, Brendan.

MS. CROWE: Kathleen, go ahead.

MS. HOWINGTON: Laurent.

MS. CROWE: Sorry. We have Laurent online.

DR. CHERUBIN: Hi, Brendan. This is Laurent Cherubin with FAU Harbor Branch. I have a question for you. It's more on the physical models that you guys are using, and so for why NOAA has this CoastWatch model, with the HYCOM, and I've seen now that you guys have switched with the MOM6 model, and I was wondering why the change was made, and also, you know, what was the reason for that, and why HYCOM was dropped. My other question is like are you running this model in-house, or is there a group that is, you know, at the university, or one of the Navy centers, that is running the MOM6?

DR. TURLEY: Thanks for the question. I'm not as familiar with the nitty-gritty details, but I'll answer it as best as I can, and so my understanding is that HYCOM is still being produced by the folks who do the HYCOM work. My understanding is that the move towards the MOM6 is that it includes like the biogeochemical properties, and also some food web, and it has a longer history of that integration, and so they weren't trying to like shoehorn in a new model on top of an existing model. It's a framework that already was already under -- Has been used, and so there's that, which I hope makes sense, and hopefully I haven't grossly oversimplified or misrepresented something.

The other aspect of it is the MOM6 model itself Is being run by GFDL in Princeton, and they're producing the output for the Northwest Atlantic, and so that's the output you see there, but they're also producing Output for the Pacific, and they also produce an output for the Arctic, and so, at this point, they have all the regions of the United States covered, and they feel pretty confident in what they're producing at this point, and so I hope that answers your question.

I would recommend that you go to that website, if you haven't, and it would probably answer your questions way more than I have, and, if you have other questions, I highly recommend you reach out to Charlie Stock or Andrew Ross at GFDL, because they're the folks that are running these models.

DR. CHERUBIN: That answered my questions, and that's a very interesting I would say twist, because HYCOM has been, you know, at the start of integrating physical information into ecosystem, you know, studies, and assessment, and then now that switch to MOM6 is interesting, because it's also the model that is used in a climate simulation, you know, that is run by NCCOS.

DR. TURLEY: If you guys can hear me, I can't hear you.

DR. CHERUBIN: Yes, and I can hear you. Do you hear me?

MS. HOWINGTON: We can hear you, Laurent. Brendan, are you there?

DR. TURLEY: I can hear you now.

MS. HOWINGTON: There you go. All right, Laurent. Keep talking.

DR. CHERUBIN: Yes, and so what I was saying is that this these sort of conversions between the climate prediction group, which I'm using right now to look at sea level rise in ecosystem and

fisheries, and that NOAA is using, which I think is good, because we're working with the same tool, the same model, so we can compare apples to apples when we look at those long-term predictions and kind of things, but I was just not aware of that move from HYCOM to MOM6, which makes sense to me, because it's a more holistic model in terms of resolving some of the biogeochemical processes, and other things like that, and so thanks for the clarification.

DR. TURLEY: Yes, of course.

MS. CROWE: Okay. I don't think we see any more hands up in the room or online, and so thank you, Brendan, for that presentation, and a good conversation, and are we going to go right into our next one?

MS. HOWINGTON: Give me five.

MS. CROWE: Who was that?

DR. TURLEY: I was just saying thank you for your time, and have a good day.

MS. CROWE: All right. We're going to take a quick five-minute break, so Kathleen can get the next presentation ready.

(Whereupon, a recess was taken.)

MS. CROWE: Okay, everyone. We are going to move on to our next presentation, and we have Kylie back with us again, and she is going to talk about the Mid-Atlantic Fishery Management Council perspective.

MS. DANCY: Thank you. Good morning, everyone, and so I'm going to talk about how the Mid-Atlantic Council has developed an ecosystem approach to fisheries management, a decision framework that sort of roughly follows, or is modeled after, the NOAA IEA loop, and kind of get a little compare and contrast, and talk about how we developed it, and how we use it within the context of our broader EBFM guidance document.

I want to first thank Brandon Muffley, who is online. He has put these slides together, and he is really the lead, and the expert on these issues for the council, and is online to help answer any questions, and so thanks, Brandon. You'll see some similar concepts and approaches that have been discussed over the last couple presentations for the last couple days, and I'll get into it.

The Mid-Atlantic Council has been thinking about processes and approaches to incorporate ecosystem information into its decision-making framework for a long time, and so, around 2004, the three east coast councils were earmarked some funds by Congress as a pilot to incorporate ecosystem considerations into fisheries management, and the purpose of that funding was to sort of engage the councils and their constituents in a public debate on goal setting and the types of issues and considerations to be included in ecosystem management.

That report was completed in 2006, and outlined our council's early positions and approaches to potentially moving toward an ecosystem approach to fisheries management, and one of the themes in our council's approach to this is, even early on, they wanted to be very systematic in their

approach, and be evolutionary, and not revolutionary, meaning working within the council's current system, and the way it currently does business, and not develop something completely new and radical.

The stock assessment processes and approaches that were used twenty years ago, you know, single species stock assessments, and setting management measures on a single species level, is still in place today, and we don't see that changing for the foreseeable future, and so how do we incorporate ecosystem information within that management framework?

That 2006 effort got the council to begin thinking about ecosystem considerations, and approaches, but nothing really happened after that for a few years, until the council's visioning project took place in 2011 and 2012, and, also around that time, the national SSC meeting, that was hosted by the Mid-Atlantic in 2011, had a focus on ecosystem considerations.

At that time, the council undertook the visioning project, because it had successfully rebuilt most of the Mid-Atlantic stocks, but not everyone was happy, or kind of knew where to go from there with management, and so the visioning project engaged stakeholders to get feedback on sort of longer-term objectives for the council, and, by this time, fishermen were starting to see changes on the water, with different timing and distribution and abundance, and so one of the common themes and areas of feedback from user groups during the visioning process was the need for the council to consider ecosystem information in management.

Following the visioning process, the council developed its first strategic plan, and within that agreed to develop an ecosystem approach to fisheries management guidance document. That is a non-regulatory document to guide council policy with respect to ecosystem considerations across the existing FMPs.

The council took a modular stepwise approach to develop its EAFM guidance document. There was a strong focus in that process on bringing together all relevant participants when developing that EAFM process and documents, and so council members, staff, scientists from both the center and the SSC, and then a diverse range of stakeholders.

In developing the guidance document, the council started by holding four workshops. Those topic areas were areas that were identified during the visioning project, and so forage, habitat, climate science and fisheries, and species interactions, and those workshops talked about the state of the science associated with each topic and what might be the policy and management approaches associated with the topics, given the state of that science.

Those workshops served as the foundation for a series of white papers that had recommendations and best practices contained within them, and then those white papers ended up forming the basis for the discrete primary chapters in the EAFM guidance document that synthesizes all of that information.

The EAFM guidance document was initially approved in 2016, and revised in 2019. It's a non-regulatory policy document that's intended to help support and inform, but not dictate the council's planning and FMP documents. It identifies an EAFM goal to manage for ecologically-sustainable utilization of living marine resources, while maintaining ecosystem productivity, structure, and

function, and it specifies a variety of ecosystem-level policy statements, priorities, and research and science needs.

The four workshops, and subsequent white papers developed after the visioning process, formed the foundation of that document, again focusing on forage fish, habitat, climate change, and ecosystem-level interactions, and then socioeconomics is not a discrete chapter, or section, but it really permeates and touches on all of these areas, and so the council has done quite a bit, and continues to work on all of these different themes, but, for this talk, the rest of it will focus on the interactions theme, as this is the area of the guidance document that utilizes the IEA approach.

Looking at the NOAA IEA loop, and sort of looking at the Mid-Atlantic decision framework, I'm going to go through some slides that that sort of compare them, and the Mid-Atlantic built this decision framework sort of modeled on that IEA loop, and also on approaches that were being taken in in other parts of the country, and so the Pacific and the North Pacific for example, and identified this potential approach for the council to utilize.

This was developed collaboratively with staff from the Northeast Science Center, council staff, the SSC, and covering a wide range of expertise, and they established this framework and process for the council to incorporate ecosystem considerations and interactions into the management process.

Coincidentally, there was also, fortunately, an ICES workgroup that was comprised of scientists from the U.S. and Canada at that time that were working on implementing IEA approaches, and council staff were invited to join that workgroup, and collectively were able to kind of work together to refine that process and develop ideas for potential pathways and approaches to consider at each step of the council's decision framework, and then it allowed for kind of a smaller group of Science Center and council staff to get feedback from a broader range of people involved in IEA activities, and so that helped accelerate the development of our framework, and sort of informed that.

I'll step through the connections and similarities between the IEA loop and the council's structured decision framework, and note the differences, which are mostly based on the sequence of events, and not necessarily the overall concept.

Just a little bit more on our decision framework, getting back to kind of the council wanting to develop a strategic and deliberative and structured approach. This is certainly another example. It allowed the council to take incremental steps of moving to a more comprehensive way of integrating species and fleet and habitat and climate information into the council's process. It is not explicitly tied to any management action, and the council isn't bound to any specific decision or outcome, but it has been a key planning and prioritization tool across the council's different documents and FMPs.

There are, you know, so many different climate and ecosystem factors and drivers and implications that the council and stakeholders are interested in, and, given limited resources, we can't address them all, and so this decision framework has really allowed the council to step through the process and identify high-priority issues to further dig into and analyze.

I won't get into too much of the specifics of each step, but just to demonstrate how the Mid-Atlantic process is similar to or different than the IEA process, starting with the first step in the IEA loop,

which is to identify the ecosystem-related management goals and objectives in order to help focus effort and define success.

Part of this step under the IEA loop would be to define the ecosystem of interest and the associated relationships, using conceptual models to help scope out and define the ecosystem. On the council side, we didn't have kind of -- We don't have an explicit first step in our EAFM decision framework, but this part was really done through the visioning and strategic planning process and the development of the EAFM guidance document, and so the visioning sort of served as the scoping, to define some of the stakeholder experiences and recommendations.

The strategic plan identified some of the council's more cross-cutting management goals and objectives, and then set up the goals for the EAFM guidance document, which articulates the council's EAFM goals and priorities. The council didn't do any formal conceptual modeling at this stage, although conceptual modeling is part of a later step in our framework that I'll cover in a few slides.

The next steps in the IEA loop are to identify, select, and develop indicators to capture the status and trends of key ecosystem components and to assess the status of the ecosystem using ecosystem status reports. The Mid-Atlantic has -- I mentioned yesterday has been fortunate enough to receive state of the ecosystem reports since 2017, and that's -- We just we don't call it ecosystem status reports, but it's analogous to that.

As the first state of the ecosystem report was being developed, that was around the same time the EAFM guidance document was being finalized, and so those processes informed each other. Indicators and information from the state of the ecosystem helped inform the guidance document, and then the management objectives from the guidance document helped inform some of the content and structure of the state of the ecosystem report.

The council receives our state of the ecosystem report every spring, and that provides information on performance of different ecosystem indicators relative to management objectives and the potential risks to meeting management objectives. This report has been really critical in helping the council and stakeholders better understand ecosystem concepts, and how to potentially apply indicators, and how to think about some of the bigger drivers that that might be influencing council stocks and fisheries. The state of the ecosystem report also supports and is directly linked to our EAFM risk assessment, which I'll get into in the next couple of slides.

The fourth step in the IEA loop is to assess uncertainty and risk. This step aligns with Steps 1 and 2 of the council's EAFM decision framework. Step 1 in our framework is to conduct a risk assessment to prioritize and identify the highest risk interactions, and then Step 2 is to refine the priority, and the highest risks, through conceptual model development, to build-out critical ecosystem linkages and relationships, and identify the key management questions to be further explored.

With our EAFM framework, both the risk assessment and conceptual model also allow us to consider and evaluate uncertainty, so we can look at quantitative estimates of uncertainty within our indicators, and help think about how robust various indicators may be, and then, qualitatively, those tools also help us kind of identify data gaps and where we have unknown or uncertain ecosystem linkages or drivers.

Just to spend a little bit more time on the risk assessment, because this is one area of our EAFM process we've spent a lot of time on, and where we've made the most progress, in terms of integrating information, ecosystem information, into the council's process, there are a lot of issues and topics that the council might be facing, and the risk assessment just allows us to look across species and sectors to identify the areas of highest risk and prioritize a particular issue for further evaluation.

Our risk assessment includes twenty-eight risk elements that track any aspect that might threaten achieving our ecological, social, economic, and management objectives that the council might have for a fishery, and so they're applied at various time scales, or different scales, either at the species level, or the species and sector level, or at the full ecosystem level.

The risk assessment also includes risk definitions, and so that clearly states why we are measuring it, and what is at risk, which often comes back to risk to achieving optimum yield risk indicators, and so that's how we measure risk, and that's the observation, or a time series, that gives information about the risk element. Then risk ranking criteria specifies the amount of risk, using the information from the indicators, and so we kind of lump things into low, low-moderate, moderate-high, or high risk.

The risk assessment is updated and refined annually, and presented to the council with the state of the ecosystem presentation, and the risk assessment provides also these summary tables across all twenty-eight risk elements that council members have noted that they find a really useful reference, or a cheat sheet of current risks to council management objectives.

I won't spend too much time here, but just to kind of highlight the process for how this risk assessment was initially developed and revised over time. The council, again, took a very deliberative process, with engagement of council members, scientists, and stakeholders throughout the process, in order to kind of get a product that everyone could support, and I think this echoes one of the concepts that was mentioned yesterday regarding iterative code development.

When developing the initial risk assessment in 2016 and 2017, and also during a comprehensive review we did in 2023, there was a more involved process, where center and council staff really spent a ton of time identifying and building-out indicators to provide to the council's Ecosystem and Ocean Planning Committee and Advisory Panel with ideas, and then the committee and the AP provided feedback, and raised concerns, suggested alternative indicators or other feedback to refine those risk elements, and then center and council staff would go back and refine and update, and then back to the committee to make recommendations to the full council.

You know, there was a lot of iteration on that, and a lot of work from particularly council and center staff. It did take some time, but it was beneficial to move the process forward, and ensure everyone kind of understood the information that was being included, and how it might be used, and so the risk assessment is updated annually, as I mentioned, and that process is a lot quicker, and that more intensive process was really only done initially and for our comprehensive review

Back to the loop, and the next step after assessing uncertainty and risk is the management strategy evaluation, and so, as you can see, the two approaches align here, and so, once you've prioritized your high-risk stock, or fishery, and identified a critical question or issue to be considered, the next

step would be to dig into that with a management strategy evaluation, and I won't really dwell on kind of the MSE step, and I think you're familiar with that in the South Atlantic, and the benefits that it can provide, particularly when it comes to evaluating tradeoffs associated with different management decisions.

I will note that our council, when we have done this step, didn't -- They chose not to tie it to any specific management action, and so, while we did have kind of a deadline to complete it, it was not tied to a specific action, which sort of allowed space for It to play out with exploration of a lot of different scenarios that might not have been considered if it were under the constraints of a specific action, and so I think this --

We've have found this to be beneficial, having that be a little bit more open-ended for the council to consider, and some of the outcomes in the work from the MSE that we did did end up being used in sort of future management actions, and I'll touch on that in the next slide, but, you know, it has a potential downside. Without that existing vehicle for outcomes to be considered, it might also mean that the results don't go maybe as far, but I think it overall was beneficial for us.

I won't go into all of the details here, but this is sort of our overview of the one time that the council has gone through this entire decision framework, and so the initial risk assessment in 2017 identified summer flounder as the highest-risk fishery, and from there we built out a conceptual model looking at a ton of different ecosystem linkages and relationships, which helped the council identify a priority management question to evaluate through an MSE, and that was focused on reducing recreational summer flounder discards and increasing recreational opportunities.

At the end of that MSE process in 2022, the council did not really kind of directly initiate a management action in direct response to those management procedures that were considered in the MSE, but, through the development of the MSE, work was done. A big part of the MSE was a recreational demand model, which is an economic angler behavior model that helps us understand how recreational behavior, angler behavior, responds to changing regulations and stock availability.

We now use that for setting our recreational measures for summer flounder, scup, and black sea bass, and then the MSE modeling framework for this project was also used in to help us evaluate the impacts of a future action, which was our recreational measures setting process that was approved last year, and so this process we did find had a lot of value for us, and some practical application, and operated as intended in the EAFM guidance document.

The final step in the loop, and then the decision framework, and maybe a part that gets overlooked a bit, is to implement the outcomes and then evaluate and monitor their effectiveness, and if they're achieving their intended goals, and so evaluating and monitoring effectiveness, I guess, you know, should be, probably be, kind of considered on an ongoing basis, at various steps in the process, and so we should periodically evaluate to ensure the different aspects of the process reflect current conditions and issues and priorities of the council.

I noted a couple of different ways that we've sort of implemented the results of the summer flounder MSE, using it to evaluate a management action, using that recreational demand model, and we're also now kind of developing a contract to further evaluate some of the technical components of that model and the catch estimates it develops.

In conclusion are some of our lessons learned. We recognize that we haven't been doing this that long. We're still in a in a transitional state, and we're still understanding kind of the data and science that we have to work with in a complex management system, which all takes time. We would certainly recommend a process that's strategic, and systematic, rather than a super radical change.

Our entire process took a deliberative and stepwise approach to ensure better outcomes, and this also takes some time, but we felt it was really worthwhile in our process. It is a significant investment of resources, and so council resources, scientists, stakeholder time, and we would say particularly on the council staff and Science Center staff, who really served as the core group that developed this.

It was super critical for us to get people with different perspectives in the same room and listen, and we found that was absolutely needed at various steps in the process for support and buy-in, and, finally, you know, although we've made progress on many fronts, at the end of the day, the council reacts to things, and determines its priorities, and there still may be reluctance in some instances, depending on the issue, to fully address or implement the outcomes of the process, which we partially saw with the outcomes of the summer flounder MSE, and so that's all I have and Brandon and I are happy to take any questions. Thanks.

MS. CROWE: Great. Thank you, Kylie, and so, if anyone has any specific questions for Kylie or Brandon, or thoughts on Kathleen's request for goals and objectives for an IEA, we would love to hear those. Brendan, online, go ahead. Brendan, if you're talking, we can't hear you. Scott, go ahead.

MR. KATHEY: I would suggest gaining a better understanding of the connectivity between live bottom habitats throughout the South Atlantic Bight. You know, we know very little of what the kinds of connections are from reef to reef, you know how species move across these habitats, and we also don't really understand the ecological relationships between the sand bottom that surrounds them, and separates them, you know, and just understanding the basic trophic relationships there, and how one relies on the other, how the animals move between them, and, you know, that that's information we need to better understand.

MS. CROWE: Eric.

MR. WEATHER: Kylie, thanks so much for the presentation. Could you or Brandon kind of dive in a little more on setting thresholds for the risk assessment? Was that like an iterative process, or something you did with stakeholders? How exactly did that work?

MS. DANCY: I think Brandon is better to answer that that one.

MR. MUFFLEY: Can you hear me okay?

MS. CROWE: Yes. We can hear you.

MR. MUFFLEY: Perfect, and so, in our risk assessment -- I think this is one of our challenges that that we do have with sort of integrating our risk assessment more wholly into the management

process, and I think we talked about it yesterday with Sarah's presentation, and it's one of our IEA projects, or our IRA projects, is to really dig into those, identifying targets and thresholds.

We don't have them with any of our risk elements. We have these twenty-eight risk elements, and I think we have forty-five different indicators that we use to inform all of those different risk elements, and so we don't have any like targets and thresholds specifically, but, now that I'm thinking about your question, maybe you're asking our targets and thresholds, and how we -- In terms of how we define low, low-moderate, moderate-high, and high risk, is that is that the indicators, like the thresholds you're talking about, or are you just talking about like overall like thresholds and targets associated with our indicators themselves, before I keep going on, and I just want to make sure I'm answering your question right.

MR. WEATHER: Yes, and that's what -- I'm specifically interested in like the low, medium, high criteria, and if those are static or, you know, moving targets.

MR. MUFFLEY: Yes, and took some time, and those were really developed by the council and the AP, you know, that sort of formulated this. We wanted to make sure that they were defining what they thought is low risk, and what they -- You know, how they identify what high risk might be, and then going in between, and so it really depends on the indicator themselves.

For example, if we have a time series that we're using as an indicator, commercial revenue or profits or something like that, a lot of times it will look at trends, and so low risk will be no trend in the information, you know, and then as -- You know, a long-term trend could mean, you know, some sort of moderate risk, and a short-term trend, like what's happening over the last ten years, could mean some high level risk.

Now that trend could be positive, or it could be negative. It doesn't necessarily have to be bad, and like, you know, maybe revenues are substantially increasing over the last ten years, and that doesn't necessarily mean bad, but we did -- We would assign that as higher risk. There's something going on with within the dynamics that are causing like those trends to be significantly increasing or decreasing over time, and so we spent a lot of time trying to evaluate how we were going to define risk for each of those.

Staff and Science Center staff would sort of lay out a framework on how we might apply that, and then we sort of iterated back and forth, to make sure we are capturing risk appropriately, and so we have like categories, in terms of how you would explicitly define what's low risk using these indicators that we have available and then how you would define high risk with the indicators that we have available.

MR. WEATHER: Thanks, Brandon. Yes, and that's really helpful. I can see that being a really time consuming and challenging exercise, and so, if that's the direction the South Atlantic wanted to go, we would definitely lean on your experience to help guide us.

MS. CROWE: Okay. Brendan Runde online.

DR. RUNDE: Can you guys hear me now?

MS. CROWE: Yes. Thank you.

DR. RUNDE: Great. I appreciate that. Sorry about the technical difficulties, and thanks, Kyle, for the presentation. I was just wondering, and, you know, this this AP spends a lot of time on EFH, and we spent some time, and I think you were probably in the room yesterday, talking about different life stages, and defining EFH thereof, and I'm wondering if you can get into a little more detail about at what phases of this process EFH for a given species comes into play. Is that at the risk phase? Is that an indicator? Thank you.

MS. DANCY: Brandon, do you want to take that one as well?

MR. MUFFLEY: Yes, and all good questions. Within the risk assessment itself, we have -- We have specific habitat risk elements, and so we have estuarine habitat, and lots of our species in the Mid-Atlantic are estuarine dependent at certain life stages, and we also have offshore habitat, and we have a number of indicators that we use for both of them.

We have a -- There's been a lot of habitat work that's been done recently within our region and New England. We have a habitat climate vulnerability analysis that was done by NOAA Fisheries that we integrated, and we utilize the commission's -- What is it? The coastal habitat partnership that that is there, and so we use a lot of information, and we utilize that at different life stages too to inform different indicators for those very specific risk elements, and so habitat, particularly within our risk assessment, is a really critical piece.

You've heard the offshore risk element, offshore habitat risk element, is -- We don't have that completely filled out. There were some presentations talking about the ecosystem and socioeconomic profiles that are being developed by NOAA Fisheries, and we have a few of them in the Northeast, where they really get into a number of different aspects of critical offshore habitat considerations at different life stages, but we only have that for a handful of stocks, and so we're developing those out over time, but habitat work has played a really critical role in in our risk assessment.

MS. CROWE: Thank you. We have Anne Deaton online with a question or comment.

MS. DEATON: Thanks. Can you hear me?

MS. CROWE: Yes.

MS. DEATON: Okay. This is very interesting, and I wanted to mention that I'm with NMFS Habitat Conservation Division, and we've been working on a process, and it's a little similar, in developing priority species, low, medium, high risk, but based on dredging impacts, and I wondered -- I would love to talk to you all more, and just see how consistent the definitions and their thought process are.

Also, I'm just wondering -- Although you've incorporated habitat elements to the overall risk determination, how will that -- Has it been used yet by the Mid-Atlantic Council for management actions, or is it more fishery-based actions that would come out of this?

MR. MUFFLEY: Excellent question. The risk assessment itself, and the risk elements that we use for habitat specifically, have not directly linked to something within a management action, you

know, and so we have these twenty-eight risk elements. They are currently -- We've had some discussions, particularly with NOAA and the ICES group that we've been working with, about potentially weighting the different risk elements, right, and so maybe we think one risk element, habitat for example, is much more critical, or much more important, than some other risk element that we are considering, some socioeconomic risk element for example, and so maybe you want to weight those differently.

We have not done that, and so we take all of the different risk elements, habitat ones included, and look sort of across all of them to evaluate, you know, what do we want to prioritize, and what are the issues that might be going on, and where is the risk we want to be focusing it on, and so we haven't directly taken anything from the habitat risk elements here and applied it from a management perspective, at least not yet.

MS. DEATON: Okay. Thank you. That is the hard part.

MR. MUFFLEY: Yes.

MS. DEATON: Thank you.

MS. CROWE: Shannon.

MS. MCASKILL: Hi, Kyle. I just wanted to say thanks for the great talk. I wanted to just point out that I really appreciate, for Step 4, that monitoring is included after the implementation. Coming from a restoration science perspective, a kind of hot topic is, a lot of the time when you do restoration projects, you don't have a lot of funds left to implement monitoring, and so I was kind of curious. In terms of doing some of these management actions, what kind of timeline, and what sort of data, were you hoping to get with monitoring programs? Are you thinking long-term or short-term? Are you wanting to leverage existing data sets, or new monitoring programs? I was just curious.

MS. DANCY: Sorry, and I just keep deferring all these questions to Brandon, but, again, he's really the expert on this, you know, when it comes to this stage of the process. I guess I'll just let -- I'll see if Brandon has something to add to speak to that.

MR. MUFFLEY: Yes, and that's a great question, too. I mean, I think we are sort of monitoring by -- Not by default, I guess, you know, and so it's not like we have a defined monitoring program themselves, and it's kind of -- The outcomes that we had from going through the loop for the first time, we just automatically have some monitoring going on.

As Kylie mentioned, one of the outcomes from the management strategy evaluation was the development of this recreational demand model and its use in setting recreational management measures, and so we do that every two years. We're constantly updating that recreational demand model, making sure it's reflective of angler of -- You know, angler preferences, and it's reflective of current stock conditions, and so we get to evaluate how well that tool is working every two years, because it's sort of forced within the management system itself.

The same thing with the risk assessment, and so we develop that every year, and so we are kind of forced -- You know, the council wants to look at how risk is changing over time, and so we're

updating all of those indicators, which means the data to support those indicators needs to be updated every year, as much as it can, and so we can track risk and see how things are changing.

You know, that's kind of like the council has said we want to look at this ecosystem information every year, and, as Kylie mentioned, we have like an ecosystem session with our council, where we start with the state of the ecosystem report, and then we go into the risk assessment, and so the council has a flavor of what's going on in the ecosystem in a broader context, and then specifically within our species, through the risk assessment, and so they're able to monitor things that way, and how things are changing over time. I don't know if that really helps.

We didn't like set up anything new, per se, other than just to say we want to be tracking these ecosystem changes, and so we do that. You know, we do this on an annual basis through the risk assessment. We also have -- It's not specific to this, but it's part of our EAFM guidance document, where we track unmanaged landings to see if there are new fisheries taking place within our region, you know, and so should we be tracking, and, you know, should council take some sort of management action to control landings for stocks that are all of a sudden showing up that aren't managed, and so that's also done on an annual basis. We have like these monitoring programs sort of in place within our council system.

MS. MCASKILL: Thanks, Brandon. Yes, and that sounds like a great way to implement monitoring, and kind of judge how effective some of these management actions are, without having to collect new data.

MS. CROWE: We have Wilson in the room with a question.

DR. LANEY: Well, it's -- Yes, it is a question, I guess, and so Kathleen had asked us to think about, you know, what our overall goal or objective should be, and so I tried to capture that in one sentence, and so here it is. The question is can we define or determine and/or track those indicators which contribute most to optimizing the productivity of the resources and habitats which the council is charged to manage, and so I'll just throw that out there as a possible overarching sort of goal or objective, and it -- Obviously, it's pretty complicated. The question for Kylie and Brandon would be, I guess, is there a smaller suite of indicators that you all feel are really, really key, in terms of completing the council's mission?

MS. DANCY: I mean, I think that's one of the things that we're looking at with our IRA project pertaining to indicators. Brandon, do you have thoughts on kind of our existing, you know, suite of indicators, if there's things that that are really more of a focus?

MR. MUFFLEY: Yes, and that's a good, and hard, question, Wilson. I would agree with Kylie that I think part of it may come out with our IRA project, to really identify some indicators that are really critical for those council decisions, right, and one of the areas we're going to explore is the catch and quota setting process. That's fundamental to what the council does, and are there indicators to support that work, and I think those certainly could rise up to see where -- You know, what kind of indicators are most critical.

The same thing with our risk policy. Where can we find indicators to support them? Otherwise, I don't think there is something explicit. You know, we have these twenty-eight indicators, and the list has actually grown. The council also has a bunch of risk elements that they want to -- That

they have in the parking lot, that they're interested in further developing, and so we've actually added risk elements, and we've added more indicators over time, because they just want to see a suite of elements across not just biological, but how does the biological connect to the socioeconomic, and we have specific management risk elements, and so does the biological impact the socioeconomic, and how does that impact our management goals and objectives.

We haven't really been able to -- I think that gets to that weighting issue that I talked about earlier, too, Wilson, is identifying which do we think, out of those twenty-eight risk elements are most important, and we haven't gone through that process yet to do that.

DR. LANEY: Thanks, Brandon.

MS. CROWE: Cameron, go ahead.

MR. BRINTON: Thank you, and so you say you're doing the risk assessments every year. How nimble is this framework to unanticipated risks, and so new invasive species, or a new industry, or whatever the case may be?

MR. MUFFLEY: Yes, and it's fairly nimble, and that's -- You know, Kylie touched upon it. We did a -- It wasn't so nimble when we initially set it up, and, when we did the comprehensive review in 2023, we really wanted to make sure that, if new risks surface, we can get them integrated into the risk assessment, and so we didn't want the risk assessment just to sit, which is the way it did from 2017 until 2023.

We had the same indicators, the same risk elements, and we just continued to update those. We didn't include sort of any anything new, but now we've set up a process, with our Ecosystem and Ocean Planning Committee. If there were new risks that surface, or new indicators become available, we work with them and see if they want to integrate that into the upcoming risk assessment, and we would work with them to identify the indicators, and then the risk score that would go along with it, and get it integrated.

We now have a system where we can modify the risk assessment every year, depending on what's going on in the environment, what's going on with the information that we have available, and get it incorporated within that cycle if we wanted to.

MR. BRINTON: Thank you.

MS. CROWE: Scott, go ahead

MR. KATHEY: Hi, Brandon. When you annually update your risk assessment, who is involved in developing the scoring?

MR. MUFFLEY: The initial framework to identify how we're going to characterize low risk, all the way up to high risk, that is done collectively with, you know, our Ecosystem and Ocean Planning Committee and AP, and then ultimately approved by the council, and so they've set up the framework.

Then, when we update all of the indicators within a year, then I am then assigning it to the risk category, but it's based off of the categories that have already been defined by the council, if that makes sense, and so I'm actually putting it into the bins, but those bins were set by the council themselves, and so we're just taking the new information and updating those risks tables and seeing how risk has changed just utilizing the updated information.

MR. KATHEY: Okay. Thank you.

MS. CROWE: Okay. Kathleen has a question.

MS. HOWINGTON: I'm thinking this from like a logistical standpoint, because, if I could, I would just copy and paste all your stuff, slap "South Atlantic on it", and move on with my life, but I don't think that's going to be fully applicable to our region. What was your budget? Do you all like have a number of meetings that you had to put together, or a number of participants that you've -- Kind of estimated, I mean, because you've been working on this since 2006, but really 2016 to 2018, and so how many times have you had to get people in-person to meet, and how many people are involved?

MS. DANCY: That's a great question. I don't know if we've ever kind of quantified that. I think it's been a -- You know, particularly with setting up the initial -- The EAFM guidance document and the risk assessment, and it's certainly quite a bit of investment of time and time and effort and getting -- Having a lot of meetings getting folks together. I don't know how to quantify that, but a lot.

MR. MUFFLEY: I would just add that we've never sat down and computated that. Like Kylie said, it's just -- It's part of my portfolio of work, is to do EAFM, and to implement and work through that EAFM, that loop that we have, and so the council was willing to support my time and effort to do that, and so I'm sort of left to run with it, and, when I ask the our executive director that we need to get a meeting together, particularly in-person, and we were doing a fair number of in-person meetings to get it started up.

We would -- Even back pre-COVID, we were doing some webinars, you know, for things that were less technical, but a lot of this you need to sit in a room together to figure some of this out, and go back and forth, and we would work overnight and come back and present something else to the committee and AP for their for their feedback, and so it definitely takes time.

The group is fairly big. Our Ecosystem and Ocean Planning Committee and AP are some of our largest groups, because they are a really diverse group. They're sort of similar to -- They deal with habitat issues, and they deal with forage issues, and they deal with our EAFM work, and they sort of cut across, and so it's academics, and it's fishermen, and it's NGOs. We really try to like make sure we're covering lots of perspectives in that group, and so it is larger, and it can be, I guess, more on the costlier side of things, but we've never sat down and tried to quantify that.

MS. DANCY: We've also had quite a bit of investment of time and resources from the Science Center on a lot of this too, and so that has helped a lot.

MS. CROWE: Okay. I don't see any other hands raised in the room, and there doesn't appear to be any other questions or comments online, and so thank you again, Kylie and Brando, and it's

time to start brainstorming what are our goals and objectives, and so, if anyone has any thoughts or feedback on that, we would love to hear it.

AP MEMBER: Are we the equivalent AP in our council to the group that is doing the majority of the risk assessment stuff? Okay. Perfect.

MS. HOWINGTON: We are the Habitat and Ecosystem Advisory Panel. Now, we generally talk more habitat, more EFH, but, yes, ecosystem is under our purview. We do have Wilson's overarching goal of define, determine, or track indicators which indicate the most -- I tried, and I typed as fast as I could, man, but you talk quick. Indicate the best optimization of resources and habitat that the council is charged to manage, and I believe I'm close. Sweet.

We also have the recommendation, and I believe it was from Scott, of, as a sub-bullet point underneath that, is gain a better -- Through that, one of the goals can be gaining a better understanding of bottom activity through the South Atlantic Bight and the ecological relationships between sand bottom and reef relationships. Kellie just raised her hand.

MS. CROWE: Okay. Kellie, online, go ahead.

MS. RALSTON: Thank you, Madam Chair. I also -- So, between the two presentations, I really appreciated the specificity of the Gulf Council's goals and objectives. However, kind of given where the South Atlantic fits in that process, I really appreciated the Mid-Atlantic's more general goal, which I think both of the statements, the one from Wilson and the one from Scott that you just read through, I think fit very nicely within, which is kind of this more general thought of, and I'm reading directly off the slide, goal of incorporating species, fleet, habitat, and climate interactions into management. I think the headline is the council's EAFM decisions. Right there.

I really like that one, because I feel like it kind of gets that why would why would the South Atlantic Council want to go down this road, and I feel like that's it, and I think Wilson's and Scott's statements are very much integrated into that, but, in my mind, I mean, the whole point of it is that we want to take this information, and we want to integrate it into management decisions, fisheries management, whether that is habitat management for some of the, you know, sargassum species and that sort of thing that we manage, and, to me, that kind of really encapsulates it.

MS. CROWE: Thanks, Kellie.

MS. HOWINGTON: All right, and so now what I think I would like from the group -- So I agree, again back to just copying and pasting and stealing some of their work, and I have absolutely no pride. I'll do that. I think what I would like is then for the group to talk about kind of this slide of sub-goals. Does that make sense?

Yes, the Gulf had those four goals, and that was great. I think that we're aiming for more closer to what the Mid-Atlantic is doing, and maybe looking at this decision framework, and that's kind of what I'm going at, of like, okay, and so we're going to go to the Science Center, and I'm going to go the council in September and say, hey, we discussed IEAs, and we discussed the Gulf, and we discussed the Mid-Atlantic, and this is kind of what we think we should be trying to get out of this.

We have the overarching umbrella, but then what are some like smaller bites that we can try and give the Science Center of here are some sub-goals to try and meet that Mid-Atlantic goal, and I think better understanding about activity is underneath there, and I think better defining, determining, or tracking indicators is underneath there, especially since remember we have Sarah's report.

Sarah Gaichas' report identifies indicators, and it actually recommends an IEA, which all of this just seems to be working perfectly timed, where we're going to be going in and getting multiple recommendations for an IEA. I think those are two good sub-bullet points, but does anyone have any other like smaller goals that we could give, to make it a little bit more easily attainable, and we do have one hand raised from Kellie.

MS. CROWE: Kellie, online, go ahead.

MS. RALSTON: Thanks again. Well, I guess, along those lines, Kathleen, I'm wondering too if there might be some specific immediate issues that need to be addressed, and I guess -- I haven't done a deep dive into the court's decision on the South Atlantic red snapper EFPs, but I know that there were some habitat questions around that, and so maybe even looking at some immediate needs might be a good way to jumpstart this process.

MS. HOWINGTON: All right. Well, if we're thinking immediate needs, I'm thinking habitat characterization and identification instantly, but that's then -- You get into mapping, and you get into budget, and that's always been a problem with us. Any other immediate needs that just jump in the top of anyone's head?

MS. RALTON: Well, and, yes, I would agree that mapping is at the top of the list. In fact, I think that was actually part of the rationale there, and so understanding kind of what the habitat is is really the baseline, for sure, and we don't necessarily have a great concept of that yet.

MS. CROWE: Okay. Scott, online, go ahead.

MR. KATHEY: So NOAA has now committed to mapping the shelf out to the break throughout the South Atlantic Bight, and so I think that's a tremendous benefit here moving forward. At Gray's Reef, we've been doing exactly that outside of -- We've mapped the sanctuary several times. We're only talking about twenty-two square miles, but we've started mapping hardbottom reef habitat outside of that twenty-two square miles, to also better characterize what's there.

I mean, we've got -- So you can do the mapping, and that tells you -- It gives you an idea of where the hard bottoms and soft bottoms are, but then, of course, you need to go down and groundtruth some of that, and so we've been systematically doing that. As a matter of a fact, we have the NOAA ship Nancy Foster out there right now, today, doing that very thing.

We had about two weeks' worth of time on the ship, and that's been our focus, because we -- You know, we really need to understand that basic information about what's there, and not just the substrate, but to characterize what's on it, and so the fact that NOAA is now committed to doing that across the shelf is tremendous, and we don't have to keep kind of nitpicking away at this every year in these small smaller bites, but I was just wondering if --

You know, you're looking for a specific type of bite-sized things to look at, and, I mean, one of the things we're interested in, and I don't think anybody has a good sense of this, is the, you know invasive species like lionfish within the South Atlantic Bight. I don't think there's been any kind of systematic assessment of are they displacing either forage species or, you know, managed species, and just understanding the relationship, and not just lionfish but invertebrate invasives as well, because there's just so much change going on out there, and, unless we really understand -- Get a good baseline, it's hard to tell is this really an invasive, or is it simply a range expansion, because we don't have enough information on where these species are across the region, and so that would be my one potential suggestion for a specific issue to address through the IEA.

MS. CROWE: Thanks, Scott. We have Wilson in the room.

DR. LANEY: Thanks, Scott, and thanks, Madam Chair. Yes, and so, picking up along the lines of Scott's idea, what -- I don't have a specific suggestion in mind, but what I would suggest is we think about questions that we might be able to answer with analyses that haven't yet been done using existing databases, and I would particularly ask Matt Johnson to, you know, consider what the Southeast Fisheries Science Center might do.

Also, looking to my colleague Kevin over here with, you know, a long time series of SEAMAP data, and we know we have associated temperature data for example to go to go with that, and I was wondering if maybe we could ask the SSC, you know, is there some analysis that could be done, that hasn't been done, using these data, either if the Science Center has the capacity to do it or if the council might want to try and contract it out, that would shed some light on how these different indicators play into production, which is I think, after all, what most everybody is interested in.

You know, we would like to optimize habitat quality, and the goal for optimizing habitat quality is to try and maximize the productive capacity of those habitats, to ensure healthy and sustainable fisheries, I guess, to put it concisely, and so, again, I don't have anything specific in mind, but, you know, the SSC may have something in mind that they would say, if we did this particular analysis, it might shed a lot of light on, you know, things we could do from a management perspective to help to push production up.

MS. HOWINGTON: So I actually have a response to that, and so I'm going to cut in line. Again, Sarah Gaichas' report identifies the indicators that we've already approved and identified. She is bringing that to the SSC, and I'm staring at Chip, even though he's not -- He's avoiding my eye contact. When is Sarah bringing that to the SSC? It's sometime this fall, right?

Okay, and so hopefully in the October meeting, and so we should be getting their feedback on that, and I think I might be putting on my to-do list, and I think Judd is here, of discussing those indicators, and how we could potentially get something similar to what the Mid-Atlantic has of this risk assessment with those indicators, and trying to start trying to chase this, because it's such a pretty table, and I just want it. That actually is kind of already in a pipeline, and not officially to this point, but her bringing the report to the SSC is. At least Sarah's plan is to bring it there. Judd is on. Judd, go ahead.

DR. CURTIS: Thanks. Kathleen. Sarah presented the ecosystem information product to the SSC in April, and then she'll be presenting it to the council I believe in September, correct? At this

point, I don't think there is intent for the SSC to see it again, and it was near a final product, but potentially -- At least in October, but potentially later on down, as we're talking about how to further integrate and develop some of these risk assessments with the South Atlantic, then we might have another presentation and discussion on that topic. Thanks.

MS. HOWINGTON: Thank you. Sorry, and I misremembered, Judd.

MS. CROWE: Okay. Next, we had Kevin.

MR. SPANIK: Thank you. I just wanted to encourage that the other APs in the South Atlantic receive this as well, because there's some really unique risks in this region, especially with the fleet, and so I'm thinking of things like aging vessel fleets and loss of working waterfront that are really important just relative to this area, and so I just encourage that those folks get some chance to interact with this as well, and then I'm also thinking like the Coral AP, because they're going to have a lot of good information on risks to that particular habitat.

MS. CROWE: Okay. Thanks. Kevin. We're going to go next to Brendan Runde.

DR. RUNDE: Thank you to the Chair. Just a couple of thoughts that I wanted to contribute to the discussion. On the lionfish topic that Scott was touching on, I think the best data on abundance and distribution on lionfish in the Southeast is probably from the Southeast Reef Fish Survey, and so part of this whole process could be to ask for a sort of turn of the crank annually on the distribution of that species and its relative abundance. It's something that they I think are basically doing anyway, as far as relative abundance, and, if we wanted to incorporate that into this whole process, I don't think it would be a huge lift.

Also, I wanted to bring up that something we might want to look at, and it reminded me, the discussion of mapping the seafloor reminded me of this, and characterization of, or identification of, additional important areas for spawning of key species is something that we might consider as even a research recommendation of something that would really I think improve this assessment.

We have the few special spawning management zones already, but there could be a request to fishermen to identify additional areas, or perhaps some primary research to figure out where some of these important areas are offshore, or just movement ecology in general for some of the species that don't stay put all year. I'm thinking of black sea bass, the cryptic biomass hypothesis, things like that that could come into play here. Thank you.

MS. CROWE: Thanks, Brendan. We have Laurent online with a comment, or a question.

DR. CHERUBIN: Thanks, Madam. Just to follow up a little bit on Wilson's question, you know, I just want to ask a simple question. Do we have, you know management goals? I mean, you know, if we're going to look into those risk indicators, you know, I mean, before we do that, we maybe need to think about what exactly we're trying to do here.

I think that we're shooting in every direction, but I don't see a focused, you know, goal, and so I'm just asking, you know to the group, what are the management goals that we're trying to achieve here, and that would be maybe a good start, and from there we can sort of define what is needed, you know, if we can answer that question, and just to put it out there.

MS. HOWINGTON: The initial thought process behind our first IEA was we want to get ecosystem information into management decisions, and it was that simple, and like we didn't go into a lot of detail on that. I like how the Mid-Atlantic has written it here of incorporate species, fleet, habitat, and climate interactions into management. I think that is a pretty good overarching goal.

Then, for the like sub-goals of how we get there, that's what we're discussing right now. We're trying to come up with those goals and objectives, and so overarching, and it's just let's go from the single-species management that the South Atlantic Council generally does and try and move towards ecosystem-based fisheries management, where we're not just integrating habitat information, but also, you know, social interactions and economic information as well.

I think, overarching, that's the goal. That's the big umbrella on, but right now we need to come up with sub-goals to come to the Science Center with, because, if we just come with, hey, we want to integrate ecosystem stuff into management decisions, they're going to just be like, okay, good for you, and so, if we can come up with some sub-goals that help us get there, that's what I want from you guys right now.

MS. CROWE: Scott, online, go ahead.

MR. KATHEY: Yes, and I had a couple of additional suggestions, and one would be threats and pressures, a better understanding of threats and pressures from natural and human-caused stressors. Also, comprehensive population assessments, for not only commercially-important species, but ecologically-important species as well.

Just to clarify what I was speaking about initially, about the connectivity between hardbottom habitats, we really want to understand the movement of species between those reefs, those live-bottom reefs, and the predator prey interactions, and not simply on a single reef, but, you know, how that system, and that mechanism, works, because we really don't have a good handle on that. You know, we've got some very pinpoint studies on very specific species on live bottom, but we really don't understand the full trophic relationship at those sites and between those sites.

MS. HOWINGTON: Can you repeat the second one? Again, I'm typing as fast as I can.

MR. KATHEY: Sure, and I'm sorry. So I think the first one was threats and pressures from natural and human-caused stressors, and so you've got that one?

MS. HOWINGTON: Yes.

MR. KATHEY: Then comprehensive population assessments for not only commercially-important species, but ecologically-important species as well, which they may depend on, but, you know, the IEA is supposed to be a little bit broader than simply fisheries management planning. It's -- You know, it's more comprehensive than that, and so we would need those population assessments for the ecologically-important species, beyond simply the commercially-important species.

Gray's Reef is probably the most studied live bottom reef in the South Atlantic Bight, and I would argue that it simply is, and not probably, and so we have, you know, data that's been collected on -- You know, they're very focused studies on narrow parameters of the ecology there, and I think that what we need to understand is kind of how this whole system of live-bottom reefs across the South Atlantic Bight operates as a as a network, and how species move between them, because that's going to -- Understanding those mechanisms is going to help us understand range expansions better, and, you know, what do -- Are we looking at a range expansion, or are we looking at an invasive?

We don't even have the basic building blocks to be able to make those assessments, and we don't even really -- We don't even have a good comprehensive, you know, species list, and so, when we when we started our condition report three years ago, and we pulled all these experts into the room, and we asked them for keystone species within Gray's Reef National Marine Sanctuary, no one could speak with any confidence to identify that.

Well, that was a an eye-opener, and so then we moved to focal species, and even then the group kind of struggled, because there's just such a lack of general understanding of the broader system, and how it functions, and how these species move through these habitats, and so, I mean, that, to me, is just a core fundamental understanding that we have to have if we're going to manage this this area on a comprehensive, holistic basis.

MS. CROWE: Thank you, Scott. Did we have someone online?

MS. HOWINGTON: Matt, in the room, go ahead.

DR. JOHNSON: So, just to comment on a little bit of that stuff, we at the Science Center are actively looking into this range expansion issue across -- I think we have several smaller projects that sort of are churning away. I can dig up some of the details if needed for the next meeting, but one of the bigger developments that we've had recently is we've recently got approval to expand our reef trap survey all the way down to Florida. You know, currently it's kind of just in the -- It would be the northern part of our region, but it's expanding all the way south, and so we should -- Those data, when they start coming in, should start being able to elucidate some of these issues a little bit better.

MS. HOWINGTON: All right, and so, from your perspective for the Science Center, is this goal, with some of the sub-goals that we've mentioned, like is that enough goals and objectives to help try and get this process started, or at least we could start like getting a workgroup together and try and tackle this?

DR. JOHNSON: Yes, I think, because the best way to make this move forward is to hear outside voices coming into the Science Center.

MS. HOWINGTON: I'm going to quote you on that in September at the council, and you know that right? It's Dr. Matt Johnson, right, and he says we're good.

MS. CROWE: People online, we're discussing the timeline. Christian, you are online, correct?

DR. COMMANDER: Yes, I am.

MS. HOWINGTON: Are you good to present?

DR. COMMANDER: I am, yes.

MS. HOWINGTON: Give me one second. Do you want to do a five-minute break, or do you want to just go straight into it?

MS. CROWE: Do people want a break?

MS. HOWINGTON: All right. We've got a vote for a five-minute break in the room, and so a five-minute break. Everyone coffees, and bathrooms, and then, Christian, I will -- I'll set up your screen while they're doing that.

DR. COMMANDER: Sounds good.

(Whereupon, a recess was taken.)

MS. HOWINGTON: For people online, this is the presentation that was late. I received it last night, and so it's been posted since then, but it is Attachment 8, and so it was not in the initial briefing book downloads, but it is there, and so I think everyone is back, or maybe one person, but I think we're good.

MS. CROWE: Okay. We're going to go ahead with our next presentation, and this will be Dr. Christian Commander, and he is going to give us a review of offshore development.

MS. HOWINGTON: Which is one of the cooler names ever.

DR. COMMANDER: Thanks. All right. I just want to confirm everyone can see the slides and hear me.

MS. CROWE: Yes, and we can hear you, but Kathleen is going to adjust your volume.

DR. COMMANDER: I just wanted to make sure.

MS. CROWE: Just give her one second.

DR. COMMANDER: Sure.

MS. HOWINGTON: All the way up. There we go.

MS. CROWE: Okay. You can go ahead. Thank you.

DR. COMMANDER: All right. Awesome. Well, I'm happy to be here. Good morning, everyone. I was introduced, and I'm Christian Commander. I'm a marine ecologist at BOEM, working in the Office of Renewable Energy Programs, and I'm going to give a brief review of offshore development, with most of the focus on the South and Mid-Atlantic regions.

In this presentation, I will provide recent updates and discuss some current research for marine minerals, oil and gas, and offshore wind, and so the figure that you see here is of BOEM's dashboard that provides the latest information on negotiated agreements for marine minerals at local state and national levels.

These agreements support coastal restoration, beach nourishment, and other public benefit uses, and this dashboard is publicly available, and, as you can see here, it highlights different key metrics for marine minerals, such as total agreements, total sand allocated, miles of coastline restored, agreement status, and a breakdown of project sand allocated and shoreline restored by state, and so, for example, you can see that Florida has thirty-six projects ongoing, or pending, and about 62,000,000 cubic yards of sand allocated and 268 miles of shoreline restored.

On the BOEM website, and the same site as this dashboard, you can see different active projects and recent requests, and so just a few that I wanted to highlight here that are relevant to the South Atlantic region the City of Virginia Beach, in collaboration with the U.S. Army Corps of Engineers, have a request for a beach erosion control and hurricane protection projects. Additionally the town of Oak Island and St. Johns County both have active projects for beach nourishment.

Then, this graphic here, one of my colleagues wanted me to share. It was developed by BOEM in cooperation with the U.S. Army Corps of Engineers and other partners that helps communicate the shared vision for a systems-based approach for offshore sediment management. The ideal state of sediment management has less conflicts, more equity, optimized use, and less constrained movement of sediment.

Shown here on the graphic are the seven major management categories that can be changed to support a more holistic approach to sediment and resource management within a region. There is a real need to find more solutions that consider co-use of space, or resources, and that conduct tradeoff analyses to consider multiple uses over relevant time scales. By implementing this vision, we can facilitate a transition to an ideal management framework by prioritizing research that informs action.

Now, there's quite a few ongoing and recently developed research studies for marine minerals. I'm going to highlight two of them. The first one I want to highlight here, BOEM has engaged the National Academy of Sciences, who will recruit and manage expert researchers and scientists to develop a critical minerals environmental assessment framework for critical minerals activities.

The primary goals of this study are to, one, identify information needs to determine which baseline environmental parameters should be gathered and collect and collate existing information, and, two, identify, describe, and prioritize information gaps that can be addressed by future critical minerals environmental studies.

This study is important and will provide essential information for environmental analysts and resource managers when evaluating and permitting exploratory prospecting requests, lease sale requests, lease sales, and monitoring of extractive activities, and the final report for this desktop study is expected in January of next year.

The second study I wanted to highlight is an analysis of an historic deep sea mining test site on the Blake Plateau off the coast of the southeastern United States, which has a history of polymetallic nodule harvesting. This study provides a unique opportunity to assess long-term recovery of a seabed mining operation, which will broadly be applicable to other BOEM planning areas.

Additionally, the study will improve our understanding of the potential long-term environmental impacts of deep-sea-mining-related disturbances, and it will inform future assessment and management decision making. The expedition and the sampling for the study are expected this year or next year.

Turning now to recent updates on oil and gas, last year the Department of Interior announced the 11th National Oil and Gas Leasing Program. Under Section 18 of the Outer Continental Shelf Lands Act, the Secretary of Interior is responsible for approving a schedule of oil and gas lease sales for a five-year period. The approved schedule is called the National Oil and Gas Leasing Program. In June of 2025, last year, the request for information public comment period ended, and then earlier this year, in January, the public comment period for the first analysis and proposal, the first of three, ended, and the next step in the process, the second analysis, is now pending.

In terms of research for oil and gas, I want to mention that BOEM recently released the 2026 National Assessment of Undiscovered Oil and Gas Resources on the Outer Continental Shelf. Every five years, BOEM provides a comprehensive assessment of undiscovered oil and gas resources on the OCS, and the Department of Interior has released these assessments regularly since 1975.

The 2026 assessment represents BOEM's current understanding of the distribution of undiscovered oil and gas resources, and it replaces the previous assessment, which was released in March 2021, as the official BOEM accounting of undiscovered resources and will provide an updated technical reference for ongoing outer continental shelf planning activities.

Now turning to offshore wind for some recent updates and current research relevant to the South Atlantic, and then, for one of them, somewhat Mid-Atlantic, first, the Carolina Long Bay project, which was planned off the coast of the Carolinas, has been canceled via settlement agreement between the U.S. and Total Energies. Next, for Kitty Hawk Wind off the coast of North Carolina, the Kitty Hawk North project has been canceled and the lease sold to Dominion Energy. I believe it's going to be referred to as CVOW South now, but I think that's on the website, and the environmental review and permitting status for the Kitty Hawk South project is currently paused.

Lastly, the Coastal Virginia Offshore Wind project, referred to as CVOW, has finished installation of its wind turbine foundations, and, on the next slide, I'm going to discuss a few more updates for CVOW.

In September of 2025, CVOW finished installing the last of its wind turbine foundations, and, when completed, CVOW will be the largest offshore wind farm in the United States, with 176 wind turbines and a capacity of 2.6 gigawatts. Additionally, CVOW began delivering power to the grid on March 23rd of this year, and the project is expected to be fully completed early next year, in 2027.

To wrap up, I want to highlight one ongoing research project that is relevant to offshore wind. There are currently ongoing efforts to advance environmental DNA, also referred to as eDNA, as one of the primary technologies for monitoring offshore energy activities.

The goal of the study is to work towards developing near real-time species detection systems and scalable at-sea collections, as well as build an eDNA database and produce pipelines for targeted species identification, and then also to assess ecological community structure within these offshore energy development areas. The project will primarily focus on the Gulf, but with sample collection and calibrations also being conducted in the Atlantic and Pacific regions, and then eventually this project may expand in to include the Alaska region as well.

With that, I want to thank my colleagues at BOEM for helping me prepare this presentation, and I want to thank you all for the opportunity to give this presentation, and for your attention, and, with that, I will take any questions.

MS. CROWE: Great. Thank you. We already have a hand up with a question, or comment, for you, and that is Brendan online.

DR. RUNDE: Thank you, Madam Chair, and thank you, Christian, for the presentation. This is Brendan Runde with The Nature Conservancy. I wanted to ask about the National Academy's study that you mentioned, and I also, in the context of that study, wanted to bring up something that you didn't mention, that I was a little surprised to not hear on here, which is the recent BOEM request for information pertaining to a heavy mineral sands lease off of the eastern shore of Virginia.

Obviously, the eastern shore of Virginia is outside the South Atlantic, but you did, of course, mention a couple of other things off of Virginia. The timing of that National Academy study, with a final report expected in the spring of 2027 I think you said, can you rectify the timing of that versus the leasing process for heavy mineral sands extraction on the Atlantic coast and whether BOEM considered waiting for the results of that National Academy report before initiating the leasing process? Thank you.

DR. COMMANDER: Yes, and that's a great question. So actually, funny enough, I prepared a slide yesterday, because I actually just found out about this iteration, and so it was on June 23rd, I believe, is when the RFI opened up for the Virginia request, or for the Virginia minerals potential lease, and I just found out about it yesterday, and so I don't have too much information on that.

Then, also, I want to say -- You'll have to forgive me, and I'm an ecologist, and I focus on looking at environmental permitting for offshore wind, and so marine minerals is more of my colleague's area, but I don't know, honestly, if the two are linked or if there's any kind of cross discussion between them.

If I recall correctly from the study profile for the study, I think that was first proposed I believe a couple of years ago, or maybe a year ago, and it is on the website, and I can find out what the years are for the study profile, but, honestly, I'm not too sure. This is something that I would have to contact one of my colleagues about, and refer you to one of my colleagues in Marine Minerals, where I'm sure they'll have more information about that.

MS. CROWE: Thanks, Christian. Next, we're going to go to Scott.

MR. KATHEY: Hi, and thank you for that presentation. Could you provide any more information about this deep-sea mining test site at Blake Plateau? You mentioned that it's a historic deep sea mining test site, and do you have any more information on the history of that?

DR. COMMANDER: Yes, and so a little bit. You'll have to forgive me, and I don't have the study profile in front of me, but I believe the mining occurred in the 1970s. I think it ceased, I believe, in the mid to late 1970s, and so there was, I believe, kind of a test run of -- If I recall, the purpose behind it was a test run of technologies to extract polymetallic nodules, and so I'm sure as to the expanse of it.

That's one of the things actually I tried to find out, was to find more information on the sites. I'm not sure if that was something that was run by USGS, and I think it might have predated BOEM for a bit, a few years, and so -- But I would be happy to, if you wanted to exchange contact information, or I can direct you to where you can find information on the study, that has a little more about that, but I believe, if I recall correctly, it was about kind of testing mining equipment, or approaches, to extract polymetallic nodules.

MR. KATHEY: So what is being proposed for this expedition in 2026 and 2027 is not to actually conduct any mining, and it's basically to look at -- To study the long-term environmental impacts of the work that was done there in the 1970s, and is that is that correct?

DR. COMMANDER: Exactly. That is correct. Sorry if I didn't explain that well. It's also one of those things too that I wasn't sure how much information to put on the slide, but it's basically -- It's going to be kind of, you know, control sites adjacent to the area, and so I think within, you know, reasonable expectation of similar ecology within the area, but also comparing it to impact sites within the actual historical mining area, to basically get an assessment of, you know, what are what are the impacts that we can see, you know, now, I believe, what, close to fifty years later, and what are the impacts that we can see in areas that were not disturbed by the mining activity versus areas that were. I think it's kind of a bit of a hindsight analysis of what kind of information we can glean between the disturbed sites versus the undisturbed sites.

MR. KATHEY: Will that be through the National Academy of Sciences as well?

DR. COMMANDER: No, I don't think so. I believe that's going to be a partnership between us and NOAA, I believe, and would have to double-check the study profile.

MR. KATHEY: Okay, and so you wouldn't know specifically what part of NOAA you would be working with on that?

DR. COMMANDER: No, I don't, and I believe the study profile just mentioned NOAA, but I could find out, and so I apologize again for not --

MR. KATHEY: No, and that's fine. I'll just tag up with you later on and get some more details. Thank you.

DR. COMMANDER: For sure.

MS. CROWE: Brendan, online, go ahead.

DR. RUNDE: Thank you to the chair once again. Christian, is BOEM aware, or does BOEM expect any applications for commercial leasing of minerals in the South Atlantic, whether at the Blake Plateau or something similar to what's on the screen right now for heavy mineral sands? Thank you.

DR. COMMANDER: That's a great question. Honestly, to my knowledge, I'm not sure. You know, I spent quite a bit of time preparing for this presentation and looking for, you know, everything that's been -- Public information, because that's pretty much what I'm privy to, since I'm not in the Marine Minerals program, but, to my knowledge, I believe the RFI that we have had recently was in the Pacific region, and so, to my knowledge, I don't believe so. I don't want to speak for Marine Minerals, but I have not been able to see, and I have not heard anything, about things happening in the South Atlantic.

As I mentioned I literally just yesterday -- Even though this came out on the 23rd, the slide you see before you, I just found out about the information for the RFI for Virginia for minerals, and, even for that, I must be honest that I'm not sure what all is being considered. If I recall correctly, it's just minerals, and not for anything else, like for oil, for example.

MS. HOWINGTON: So can I go ahead and request that the study that you all are conducting in 2026 and 2027, that we add that to the workplan, and you just go ahead and present that, whenever that report is done, and can I add that to the workplan this afternoon?

DR. COMMANDER: For sure, and are you talking about the Blake Plateau?

MS. HOWINGTON: Yes.

DR. COMMANDER: Yes, and I will contact my colleagues and try to get more information, to see if we have any updates on that, because I could not find any more information, but I will find the point of contact, and I will try to get more information, and you can just let me know how you want that kind of -- If you want me to submit a report, or however you want to do that, and I would be happy to follow up.

MS. HOWINGTON: Thank you.

DR. COMMANDER: Yes. Of course.

MS. CROWE: I don't see any other hands in the room or online, and so --

MS. HOWINGTON: So it's almost 11:00. The next presentation has to start at 1:00, and so do you want everyone to come back at like 12:45, and give them extra time?

MS. CROWE: Sounds good to me.

MS. HOWINGTON: Long lunch. Brendan Runde has his hand up.

MS. CROWE: Brendan, go ahead.

DR. RUNDE: Thank you to the chair. I'm sorry. If Christian is still there, I was just going to slide in one more question, especially since we're spinning our tires on timing.

DR. COMMANDER: I'm still here.

DR. RUNDE: Thank you. Christina, can you comment -- At one time, the BOEM Environmental Studies program was regularly releasing requests for proposals for empirical science having to do with, of course, offshore wind at one time, and so the question is do you anticipate the release of RFPs under that program, or a similar program, having to do with conducting science for mineral extraction, whether it's deep sea nodule mining or whether it's heavy mineral sands? Thank you.

DR. COMMANDER: That's a great question. I do know that there have been -- Keep in mind this is just based off of me kind of understanding the conversations of my colleagues, and so interest in research for a critical minerals area.

As for a call for proposals, I am not sure, but I would be happy to put you in contact with one of my colleagues in the Environmental Studies program, to see what information is there. I also am trying to be cognizant of the fact that maybe some information is not public yet, because of budgetary constraints and things like that, but I would be happy to put you in contact with my colleague, to try to find out more information about upcoming studies, or upcoming RFPs.

DR. RUNDE: Thank you, Christian. If that colleague is Brian Hooker, I'll just shoot him an email. He used to be on this AP. Thank you.

DR. COMMANDER: Brian is my direct supervisor, and that's not who I was thinking of, but Brian might have some more information on that, and so, yes, if you want to shoot Brian an email, then that works, too.

MS. HOWINGTON: All right, and so the Sea Grant talk has to start at 1:00, and so we're going to come back at 12:30 with the habitat communications strategy, and hopefully be able to finish that in those thirty minutes. You all have already received the FAQs, and I've already been getting people's edits, and so I don't think that's going to be a very long talk, but, at 1:00, we might have to interrupt that one, and I apologize, but then, that way, we can try and knock this out, have the Sea Grant talk, and then review the workplan, and we've already finished Other Business, and so we hopefully will be able to end a little early today, and so everyone back at 12:30.

(Whereupon, a recess was taken.)

MS. CROWE: Okay. Welcome back, everybody. We are going to go ahead and get moving, just because, like Kathleen said, we have a hard stop for the 1:00 presentation, and so we're going to skip ahead on the agenda and go to outreach and communications strategy, and that is Kathleen.

MS. HOWINGTON: All right, and so, for those of you who are not aware, the habitat blueprint, which is kind of like our SOP, identifies the Habitat and Ecosystem Advisory Panel needs to be able to communicate habitat ideas, and have kind of an outreach strategy, and that is what we're going to review right now.

The first thing that -- Initially, when we received the blueprint, I went to the Outreach and Communication Advisory Panel and asked them for some ideas. They recommended an FAQ. There has been some bouncing back and forth since then. Ultimately, that has been decided is you all wanted an FAQ that goes into like the what EFH is, and what you guys run into as habitat people, as kind of an EFH from start to finish walkthrough.

What the Outreach and Communications Advisory Panel wanted was a little bit more like generic, and so we have developed a document that is pretty long and detailed, and this is going to live on the habitat webpage, and it's going to be more detailed, because the assumption is that, if you have made it to the South Atlantic Council's webpage, and then you made it to the habitat webpage, you're already in the weeds, and come join us.

Then a few of these questions are going to be pulled out and actually developed into an infographic that will be released in the next year for the council's 50th anniversary, and so, with that, I'm going to then bring up the FAQs, and so on the left-hand side is the FAQ that you guys have received. This is what you guys are seeing on the webinar, and this is in the briefing book. On the right screen is actually the FAQs with edits added in. The only edit I have received that I have not added in is from Anne Deaton, and I was not given permission for editing and edits, but that's okay. I will integrate them in later.

With that, you guys have seen these, and do you all have any strong opinions about the acronyms? Do you want me to go over edits, or are you comfortable with the edits? I mean, a lot of them were more -- Like this one was clearly they took a PDF and they turned it into a Word document when the edits were in there, and so like the link will be fixed.

A lot of them were more like instead of saying "Magnuson-Stevens Act", we've now put in "Magnuson-Stevens Fishery Management and Conservation Act", to define and identify, and so pretty -- Smaller edits, which is good, and a few periods that I've missed here and there, which is a weakness of mine that I need to work on. Just I know I know my weakness, and I can admit it. Any thoughts, takeaways, strong opinions?

MR. KATHEY: Kathleen, for those of us online, we can't see the edited version with the recommended edits.

MS. HOWINGTON: You cannot, and I apologize for that. That's -- I had to integrate edits in this morning, and so they're currently on my computer, and I didn't have time to move it to the briefing book. I forgot to move it to the briefing book folder, and then get the server to sync, and then open it up on the webinar. I can do that right now, but it's going to take me like five minutes.

MS. CROWE: Let's go ahead and do the comments in the room while you do that. Is that okay?

MS. HOWINGTON: Yes. Go for it.

MS. CROWE: Okay, and so Erin. I saw your hand first.

MS. SPENCER: This is just a quick one. The only ones that I had were kind of copy editing, which it looks like some of them have been incorporated, and would it be possible to send around that edited version, and I'll just see if they're all -- See if it's all incorporated. Thank you.

MS. HOWINGTON: I'll just email it to everyone. That's very smart. Thank you for --

MS. KEENER: Who do we see as being the main audience for the FAQs?

MS. HOWINGTON: So, for these specifically, and, again, this is for somebody who is on the council website and has decided that they want to learn more about what EFH and the habitat program is, and so they should already be in the weeds. If they're making it to -- This is going to live on our habitat page.

This is going to live on the habitat page, and so, if they're already making it there, then they're already in the weeds with us, and this will be helpful for them. A few of these questions are going to be taken out and put into a more generic infographic for the council's 50th anniversary, and so there will still be some habitat questions on there, but this is specifically for people who are interested in habitat, who want to know about the details.

MS. KEENER: Okay, and so, having said that, do you believe that they will be in the weeds with the Magnuson Act, and this is directly related to the comment that I made on here regarding fish, referring to fish broadly to include shrimp and whatever, and so I'm wondering if someone looking at the FAQs -- Well, "fish" is broadly defined to include those other tax in the act. I'm wondering if someone looking at this FAQ would know that, and, if not, then we should consider not just limiting the wording to "fish", and so thank you.

MS. HOWINGTON: I'm trying to get the email out. One moment.

MS. SPENCER: You know, following up on that, because there is part of the Q&A that talks about fish and shrimp and invertebrates, and is it only for fish, and maybe, to address your concern -- Because I think that the answer is probably maybe not everyone is also going to be that knee-deep, and so maybe an extra line or two in that section about EFH might cover that concern, and the other thing that I was going to add, as part of my edits, is there are some additional links we can probably add to resources that have -- I know there's a bunch of links in here, but there's also some good FAQs around Magnuson-Stevens that we can make sure are incorporated.

MS. HOWINGTON: If you send me those links, I can put them in. That's not a problem, and I'm relying heavily on drop-downs on links. Like I'm trying to make it where -- Because this is pretty wordy for an FAQ, but I felt like, when we were going through it, and when I went through with the outreach staff, they started asking questions like the fish with the Magnuson-Stevens Act question of, okay, well, does this apply to fish, and what about others, and does this apply to -- You know, and so it ended up becoming so much bigger, which is why we made the decision of they're going to be separate.

There's going to be a generic one, and, if you're interested, you get linked to this one, and this is for more in the details, and o to answer your question about Magnuson-Stevens, I don't think so. I think, by the time you get here, you should have a basic understanding of what you're doing, because we're not going to put this in like the homepage, you know, and so the assumption is

you've made it a few links in, and you've made a few clicks in, and you should have a kind of understanding where you're going.

MS. SPENCER: The other thing is there we can actually call out, within the drop-downs, to not make it wordier, and to make it really specific, and like a bullet at the end of that couple sentences, and being like see the full description, see more FAQs on Magnuson-Stevens, and like call out those specific links, instead of just embedding them, because then you're going the extra step to kind of point people in the right direction, instead of assuming they're just going to open all those links without adding a bunch of text.

MS. HOWINGTON: I like that, and so which page would that go on, and I can just add it in right now.

MS. SPENCER: I don't know. The other -- Sorry, and I'm thinking in draft, because the other option is you have one additional drop-down that's like further resources, and just have a bulleted list of those specific links. That way, people -- No one can get mad at you for not including every single detail, because you're like I told you where to find it.

MS. HOWINGTON: All right, and so, everyone online, you should have received the draft with all the comments integrated in. Do not comment on formatting. Some of the formatting got lost when I sent out the PDF, and then people converted to Word, and so I'm going to go back and make it look pretty, and don't worry about that. We also lost some links in there, and I will also go fix those. All right, and so adding in other relevant resources at the end, with like NMFS EFH FAQ links, and I like that. Any other thoughts?

MS. CROWE: Wilson.

DR. LANEY: So Kathleen had already gotten all of my suggestions and questions and so forth, but I did have one question, which is, when we get to the part about seasonal designations, and whether or not there were any in the South Atlantic that we could think about, I couldn't think of any right off the top of my head, but I know some of the other councils have some seasonal EFH designations, and so I just throw it out there and see if anybody else could think of anything that was possible for a seasonal designation, just as a question.

MS. HOWINGTON: I think eventually we're hoping to have seasonal designations, once we get life stage information, and we get some abundance information. That would be nice, but no. Currently in the South Atlantic, we do not have any seasonal designations. It is, however, allowed, which is why that's a question, because, again, Alaska and the Pacific both have seasonally-changing EFH.

AP MEMBER: This is kind of similar to what Erin was saying, but I'm wondering if it's worthwhile, in this document, to lead off with maybe a section describing the Magnuson-Stevens Act, to build context for how EFH fits into that act.

MS. HOWINGTON: I don't know if it should be the first question we have, but it can be right after this one of what is the EFH user guide, because then it says the requirements of the Magnuson-Stevens Act, and the next question can be what is the Magnuson-Stevens Act.

MS. CROWE: Cameron.

MR. LUCK: (Mr. Luck's comment is not audible on the recording.)

MS. HOWINGTON: Yes.

MS. SPENCER: Well, redundancy isn't the worst.

MR. LUCK: No, and I'm definitely not worried about redundancy. It's, if it exists somewhere else, we could point back to it, or provide an abridged version of that, and, if you want to learn more, you could point them back to where that is on the website.

AP MEMBER: Is it possible, or appropriate, to flesh out more how EFH designations impact commercial and recreational fishing opportunities, and just tie it to an FMP, or point them to an FMP?

MS. HOWINGTON: Because this more focuses on the assessment than it does on fishing impacts, but, yes, we can do that.

AP MEMBER: I mean a lot of the people who go to the SAFMC website want to know is it open, and, if not, why not, and when will it be.

MS. HOWINGTON: So EFH designations themselves are not going to have a huge impact on the fishermen, but the HAPC designations do, and so, yes, I can do that.

AP MEMBER: Thank you.

MS. HOWINGTON: I think I'm going to move that down, and put that after this, and add in more details here. I can do that. Now you see why this is such a long FAQ.

MS. SPENCER: I do. I mean, thank you for putting this together. I do think that the length is kind of a necessity. It's just kind of a complicated thing, and so I think, because it's broken out, especially with drop-downs, I imagine it's going to feel a lot easier to navigate on the page.

MS. CROWE: Okay. No hands online, and so any other comments for Kathleen in the room? Cameron.

MR. LUCK: This is not a formatting question, but is there some consideration being made for the order of the questions?

MS. HOWINGTON: If you disagree with the order of questions, go nuts.

MR. LUCK: I do not necessarily disagree at this time. I just was wanting to confirm whether or not that had been thought through.

MS. HOWINGTON: Yes, and that's why I'm scrolling up and down, but yes. Again, I went to the outreach staff, and got them to review it, and Myra and Chip both reviewed it, and they all suggested moving questions around, and we tried to come up with kind of a -- Like starting at the

top with habitat and ecosystem, and then EFH, and then getting more -- The further you go down, the more in the weed you go. Like, if you're going to keep scrolling, you're going to keep learning, and you're going to keep going deep, deep, deep,and so it kind of gets a little bit more --

Then like the management section is all together, of like what the impacts are, and who is impacted, and then at the end is more of like the random cursory questions of like the seasonal EFH, and is it only designated for fish, and then why are there FMPs for habitats, like coral and sargassum, and so like those are kind of the random ones that support the others, but don't necessarily belong in any other like kind of groups of questions.

If you have any text edits, go ahead and email them to me. I am going to take the text edits that you see on the right-hand side, that I have emailed out to everyone, and I'll integrate them in, and I'll answer the two questions we just added in, and add in some helpful links. Erin, I'm probably going to tag you and be like send me links, and then I'll send this out to the group via email for review maybe one more time, or more, depending on how many edits I get, but I think we can do this via email.

I don't think we need the AP to review it in-person again, and then, hopefully by the time the next January meeting hits, we've -- We're okay with it, and we can put it on the website.

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

MS. HOWINGTON: So I put it right after "EFH-identified regulations are enacted, and who does it impact", because then we talk about private homeowners, and so then I we should also add in fishermen to that section, as a thought.

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

MS. HOWINGTON: Yes.

MS. CROWE: Are you going to send this out again?

MS. HOWINGTON: Yes, I'm going to send this out again in a cleaned-up version. I don't like sending out documents that have this many edits on them.

MR. KATHEY: Kathleen, under are there seasonal EFH designations, down there where you've got the added text, and you've just got a redundant "such as" at the end of that.

MS. HOWINGTON: Yes. We have caught that, and we have removed it.

MR. KATHEY: Okay. Thanks.

MS. HOWINGTON: I thought I removed it. Now I've removed it.

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

MS. HOWINGTON: Got it. All right. We're going to add a capitalization, and so let's do the capitalization of stuff via email. Let's do that there, and hopefully finish this before 1:00, and so

where is Oculina? At the very top? Okay. I am going to capitalize it now just for you, Cameron. All right. Any other questions or comments?

MS. CROWE: We have Matthew in the room.

DR. JOHNSON: Just a quick comment. If you need somebody to review a red line for grammatical corrections, I can do it, rather than try to aggregate thoughts from twenty-five --

MS. HOWINGTON: I don't know if you want to offer that to my ADD person.

DR. JOHNSON: Too late. I already did.

MS. HOWINGTON: Okay. Good. Benjamin is online with a comment.

MS. CROWE: Benjamin go ahead.

MR. THEPAUT: Hi everyone from the virtual world. Something I thought of, as a nice addition to the FAQ is, you know, how to get involved, and that could be, you know, how can fishermen get involved, or how can the public be involved, and maybe have one or both of those, you know, and maybe links to the public comment, you know, and links to upcoming meetings, you know, just as a nice, well-rounded FAQ, you know, and how can the public get involved.

MS. HOWINGTON: Sounds good. I can add that. Scott.

MR. KATHEY: Kathleen, the last one, why are there FMPs for habitats like coral and sargassum, and so what would be a couple of examples of the regulatory mechanisms applied to protect coral and sargassum, and, you know, how would they apply? If there's --

MS. HOWINGTON: For sargassum, it is limiting of harvest, and so, in this in the Sargassum FMP, we limit harvest. There's a very, very small area that you can do that, and it's limited in the mass that you can do. For the Coral FMP, it's via coral HAPCs, limited use of bottom gear, or bottom-damaging gear specifically.

MR. KATHEY: Because neither one of these is really -- Well, I don't know, and coral is not harvested, right?

MS. HOWINGTON: It used to be.

MR. KATHEY: Okay.

MS. HOWINGTON: It isn't any more.

AP MEMBER: Soft corals can still be harvested.

MR. KATHEY: Okay, and so it is counted as a commercial fishery?

MS. HOWINGTON: Yes.

MR. KATHEY: Okay.

AP MEMBER: I have policies on that, if anybody --

MS. HOWINGTON: All right. Anything else?

MS. CROWE: Cameron, let it rip.

MR. LUCK: This is my last question, and so the question says does EFH extend beyond federal waters, and that goes into details about the Magnuson-Stevens Act allowing a federal entity, essentially us, to designate EFH in any area necessary for a fish life cycle, including state waters, and so if I was, you know, Public Joe, I would be wondering, well, how can they do that, and so do you want to add a sentence in there about the CZM process, the federal consistency, that whole communication, because that's somewhere that the public can get involved in as well.

MS. HOWINGTON: I can add that in. No problem.

MS. CROWE: Okay. We have about eight minutes, and so we don't see any other hands in the room, and so -- Wait. Never mind. See. As soon as we say that -- Paula do you have something?

AP MEMBER: Sorry, and just going back to the question of is EFH designated, only designated, for fish, and so then, that last statement, "fish" is broadly defined, and this is -- It sounds like it's the formal definition, and you could read that to mean that it's turtles, right, because it says all other forms of marine animals. I know that up above it it says -

MS. HOWINGTON: I believe that that is the official definition of "fish" in the Magnuson-Stevens Act, but we do not do turtles, and so I will double-check that, and I will add in a clarification if it is needed.

AP MEMBER: Well, up above, it does say it's for federally-managed fish and invertebrate species, and so that should cut out turtles, but then that statement at the bottom then kind of leaves the question open for turtles.

MS. HOWINGTON: Yes. Okay, and so, any other edits, please send them to me via email, and, again, I will integrate them in, and I will send them out as soon as I have time to do that in my life. All right, and so we're going to try and slam this out, and I don't know if we're going to be able to do it in six minutes, but we are going to make an effort. Okay, and so, everyone online, thank you very much. Again, send it via email.

Now, for the rest of the outreach and communication plans, we have a plan to do a social media push, now that the flow policy has been approved to send to the council. We're going to send it to them in September, and then we're actually going to do, using the council's social media, and using the outreach team we have, a, hey, we added in this water quality information, and this is now new and updated, and come check it out, and so we think that will be good.

We are also working on developing an ecosystem webpage. That's going to have our EwE stuff, and it's going to be connected to our resilient fisheries. Both of those are in the works. On top of

that, next March, we're going to release a habitat article for the CCC's 50th anniversary, and so those are in the works. I'm excited about it.

Then the second thing that we're working on is the habitat-focused informational webinars, and so this has been something we've been trying to do for a year, and initially it was supposed to be the Port Everglades deepening project. Now, these webinars are supposed to be ad hoc, and they're supposed to be only for things that we are not necessarily going to be taking action on, and so these are just informational webinars.

We don't want to come in here in-person and spend an entire day on stuff that's like that's interesting, and then we don't make any action items, and so that's what these are supposed to be. It was supposed to be Port Everglades, but then the permit was withdrawn, and so then that got -- That's not going to be one of the plans anymore.

Then, currently, I have been talking with a group that does subsea transmission cables and what their habitat impacts are. If you remember, we got -- Two years, or a year ago, we got a talk about that that did not meet the what we wanted to learn about the habitat impacts, and Sea Risk Solutions happened to be listening in, and had very strong opinions about the presentation that they saw, and let me know, and volunteered to give us a talk.

They were actually supposed to give a talk during this, but then the scheduling ended up not working out so, and they have volunteered to give a talk in late July. The guy who is going to give a talk actually just had a baby, and so congratulations. I just got the email today. Hence why he's not here.

Are there any like specific weeks? Do you all just want me to send out a, you know, GoToMeet for this, and then is there any specific times? Do you want it to be like over lunch? This should be just a thirty-minute talk, Q&A, and we're not making decisions. It doesn't need to be an FRN, and so it's up to us how we want to kind of like handle these. Any thoughts?

AP MEMBER: I think lunch is typically a pretty good time. I would prefer that to like late in the day, or a when is good, and that we can all just block it off?

MS. HOWINGTON: We can do like 9:00 a.m., early in the morning, and let's get started. All right. Early afternoon, at 1:00, is what Stacie is suggesting. Sound good? Then I can send out a GoToMeet for like the last two weeks in July for that time.

MS. CROWE: Paula.

MS. KEENER: Sorry to get into the details here, but lunch typically is 12:00. Many of us, including me, have meetings scheduled at 1:00 regularly throughout the day.

MS. HOWINGTON: Okay.

MS. KEENER: So I don't know, and just please rethink that strategy. Thank you.

MS. HOWINGTON: Okay, and so what I'm hearing is I need to send out a WhenToMeet for like the last week in July, and I'll just give you guys between 9:00 and 4:00, and we'll figure out the

best time for the whole AP and the presenter to be able to make it, and then we'll -- Again, it's supposed to be ad hoc, and so it's only whenever we have an idea for a talk, and so it can -- We don't have to have an assigned time, or an assigned day, and we can just change it up.

MS. CROWE: I'm seeing hands.

AP MEMBER: Would it be recorded, so folks could see it if they couldn't make that time?

MS. HOWINGTON: Yes.

AP MEMBER: Do we know what their availability is, the people doing the presenting?

MS. HOWINGTON: No, and, like I said, I got the -- He was supposed to be presenting today, and then he's not here, but I did let him know that we were looking at end of July, and he said, yes, I'm pretty open, and so that's where we're at with that. I was going to ask you guys if you all had a preference, or if we're going to be flexible with this. We've never done one before, and we're setting up the how to do it now.

AP MEMBER: I understand. I would just confirm their availability first, and then only offer us what is available.

MS. HOWINGTON: Okay.

MS. CROWE: Okay. You've got one minute.

MS. HOWINGTON: Okay. I've got one minute. So then any other recommendations for habitat informational?

MS. KEENER: Okay, and so I'm going to open this can of worms. What about space debris?

MS. HOWINGTON: I will work on field tripping. We'll see. All right. I am not seeing -- There is Lexi. Okay, and so we're going to have a hard stop, and then we'll finish this presentation, which I think -- Well, that's it. I only have that, and so space debris is a potential habitat informational. There you go, and I'll send out the FAQs. Thank you very much. I don't like being that rushed but that's okay. Lexi, I see you're online. Welcome. I am going to allow you to unmute.

MS. WATSON: Hi.

MS. HOWINGTON: All right, and so do you want me to present, and you just say, "next screen", or do you want me to allow you to share your screen?

MS. WATSON: I would be fine with sharing, if that works.

MS. HOWINGTON: Not a problem. You should be getting a prompt right now.

MS. WATSON: Yes.

MS. HOWINGTON: Give me one second to make certain all my screens -- There you go.

MS. WATSON: Can you all see this?

MS. HOWINGTON: We can see it. It is not full screen yet. It's thinking very hard. Now it's full screen.

MS. WATSON: Okay. Perfect. Can you all see it okay?

MS. HOWINGTON: It looks like it's in your Chrome webpage. Does that makes sense?

MS. WATSON: Yes.

MS. HOWINGTON: Now we see a picture of you. Hi.

MS. WATSON: I don't know how to make it not in my Chrome webpage. Are you okay seeing it like this? Is that fine?

MS. HOWINGTON: Yes, it's fine. It's just windowed, but, if you're good with it, we're good with it.

MS. WATSON: Cool. Awesome. Then I'll use that, because I don't know how to do that quickly, and I don't want to take up more of your time. Hi, all. Once again, my name is Lexi Watson. It's a pleasure to be here today. I am a project coordinator working with Sea Grant on this exploring the feasibility of marsh elevation enhancement in South Carolina.

Some other names that you may know marsh elevation enhancement as is thin layer placement, marsh restoration, and marsh enhancement. This technique is a beneficial use of material technique, and it is where dredge material is placed back on the marsh, and it has currently not been done in South Carolina, but there is -- It has been done in other states along the coast and the Gulf.

I do want to take a moment and acknowledge some of the other members of our team, including my fellow Sea Grant colleagues, Matt Gorstein and Matt Slagel, who are here today, as well as Shu-Mei Huang and other partners from the College of Charleston, Louisiana State University, and the South Carolina Department of Natural Resources.

This graphic helps explain how we have been accomplishing our project goals over the last four years. This is the four lenses that have helped us narrow in our opportunities of where we wanted to model to predict how MEE, which is what I'll be referring to as marsh elevation enhancement through most of this talk, can perform in our South Carolina marshes.

All of these things have helped us develop our decision sport tool and framework to make decisions on how these projects could possibly be successful in the future. In the bigger blue box that you see, it encompasses everything, and you can see some of our members of our project advisory council who have helped provide us input and feedback throughout this whole project.

I would like to share next our three modeling locations, or not three, but nine modeling locations for this project, starting from north to south, which is Murrells Inlet, Cape Romain, Molasses Creek, Shem Creek, Citadel Boat Basin, Plum Island, Folly Island, Fenwick Cut, and MCAS Beaufort and Brickyard Creek.

To support our decision tool, we have been collecting GIS layers, including some that you see shown here, which is an example of the Army Corps common shoaling areas that are typically dredged along the intercoastal waterway, and then the disposal areas that they typically place this material in.

We will -- What we want our tool to do is to help identify nearby marshes that could be suitable for placement, and so we want to consider other GIS layers, such as oysters, shellfish management areas, marsh vegetation type, LIDAR, marsh lifespans, and social values within this tool.

For deciding on which of the nine areas we modeled for our project, we followed the management outline that they created for their project with the Army Corps and tweaked it some to reflect our goals for this project. We used a one to three-point rating system to rank each of these six categories, which led to an overall average score.

These categories include resilience urgency, community benefits, navigation benefit, ecosystem goods and services, wildlife habitat, and ecosystem urgencies. These categories each had supporting sources to be able to determine their score, with specific definitions for each of the one to three score that that certain category should be getting. We had fifteen locations in total that we ended up scoring, and the final nine are a mixture of the highest scored with a high resiliency and possible high interest from our advisory board members.

As you can see here, these are the outlines of each of those locations with the specific spot that we are modeling within them. These specific areas were chosen by using GIS layers to determine the lower elevation areas, closeness to dredging, and where the marsh was losing land, as one of the big factors is showing the need for this location to have this technique be used.

Some key considerations are, throughout our work in South Carolina, we've identified a few of them for a successful MEE project. First, there must be a clear resilience need, and the project should avoid impacts to shellfish habitat. Location matters. Since the site should be close to existing dredging operations for cost efficiency whenever possible, sediment quality is going to be critical, and so the material must be tested to ensure it is suitable and not contaminated.

We've also found that vegetation planting can help with a speedier recovery, while natural containment methods for the sediment can be used, like coral logs or hay bales, which will help retain that sediment.

Because this is still a relatively new approach in South Carolina, monitoring is going to be essential for evaluating project success and improved future designs. Finally, placement thickness, which involves tradeoffs, and a thicker application can provide greater long-term resilience benefits ,possibly, but marsh vegetation may take longer to recover. The right thickness is ultimately going to depend on the site-specific conditions for each project.

Next, I'm going to walk through a methodology we used to estimate the ecosystem service benefits with marsh elevation enhancement. The goal of this analysis was to better understand the economic value of preserving salt marshes through beneficial use of dredge material and how these benefits can incorporate into project planning and cost-benefit evaluations.

Before discussing the analysis, it's important to define what ecosystem services in our project is. Ecosystem services are the benefits that people receive directly or indirectly from natural ecosystems. South Carolina salt marshes provide many valuable services, including storm protection, water quality improvement, fishery habitat, carbon sequestration, recreation, and cultural values. However though, the marshes are vulnerable to sea level rise, erosion, and development pressure.

As marshes degrade, or convert to open water, these ecosystem services decline. MEE could help maintain marsh elevation and resilience by placing dredge material on that vulnerable marsh. By preserving marsh habitat, MEE has the potential to sustain the ecosystem services that communities really depend on.

To evaluate these ecosystem service benefits, we utilize the EPA's National Ecosystem Service Classification System, or NESCS. NESCS helps identify relationships between habitats, ecological end products, and the people who benefit from them.

The process begins by selecting the habitat types and ecological end products, such as water, soil, fauna, flora, or atmospheric functions. The tool that identifies which beneficiary groups receive benefits from these ecosystem characteristics. After defining habitat characteristics, NESCS allows us to identify beneficiary group classes. These include groups such as recreational users, waterfront property owners, municipal drinking water operators, aquaculturists, researchers, military installations, cultural participants, and the general public. This step is important because ecosystem services only have societal value when people receive benefits from them.

Next, we developed two different scenarios. The first scenario represents existing or preserved marsh conditions using the habitat categories of wetlands or near coastal marine/estuarine. The second scenario represents marsh lost where that landscape has converted to open water. We kept the ecological end products and beneficiary classes consistent between both of these scenario, which allowed us to isolate how the number of ecosystem service relationships changes when the marshes are lost.

In the preserved marsh scenario, as you see here, NESCS identified sixty-two unique ecosystem services beneficiary connections, the wide variety of relationships between marsh ecosystem functions, and the people who benefit from them. The large number of connections highlights the diverse benefits that healthy salt marsh ecosystems provide to our society.

When marshes are converted to open water, the number of ecosystem service beneficiaries connections decreases substantially. The open water scenario produced only twenty-six ecosystem service relationships. Comparing these two diagrams demonstrates how many ecosystem service pathways are diminished or lost when marsh habitat disappears.

After establishing which ecosystem services are associated with these marshes, we needed to estimate their economic value. To do this, we used bluevalue.org, a literature-based database

containing ecosystem service valuation studies from around the world. Bluevalue allows users to filter studies by ecosystem type and ecosystem service category, making it a useful resource for developing regional value estimates.

We started with 595 ecosystem service valuation studies from Bluevalue. To improve applicability to South Carolina marshes, we remove studies conducted outside the United States, excluded locations outside the Virginia to Texas region, removed high-value outliers, and excluded estimates that were not reported on a per hectare per year basis.

After screening, fifty-nine valuation estimates remained. This gave us a South-Carolina-specific look for estimates. These represented ecosystem services including habitat support, recreation, food production, nutrient processing, pollution abatement, primary production, storm protection, cultural services, and carbon sequestration.

For each ecosystem service category, we calculated mean values and associated a 95 percent confident interval. Two services, storm surge protection and gas sequestration, were supplemented with estimates from the South Carolina Ocean Economy Report. Carbon related values were also informed by EPA's Social Coast of Carbon guidance. These steps allowed us to develop more robust and regionally-relevant value estimates.

All economic values were adjusted to the 2024 dollars using the Consumer Price Index. The largest contributor to the total marsh value was storm surge protection, with an average value of approximately $8,185 per hectare per year. Recreation, pollution abatement, primary production, and nutrient processing also provided substantial value. When all ecosystem service categories are combined, South Carolina marshes generate an estimated average value of approximately $24,000 per hectare per year, with a range from roughly $6,300 to nearly $50,000 per hectare per year.

Next, we linked these ecosystem service categories from Bluevalue to beneficiary groups identified in the NESCS. For example, habitat benefits were assigned to beneficiaries such as military and Coast Guard operations. Storm surge protection was linked to private and public property owners. Recreation values were assigned to anglers, boaters, hunters, swimmers, and wildlife viewers, and food-related services were connected to aquaculturists and subsistence users. This crosswalk allowed us to estimate how economic values change as beneficiaries groups gain or lose ecosystem services.

The central assumption of this analysis is that marsh preserved through MEE would otherwise be vulnerable to degradation or conversion to open water. Importantly, ecosystem services are not necessarily eliminated when marshes are lost, but instead they're often reduced. To capture this conservatively, we use the proportional reduction and beneficiary relationships between the marsh and open water scenarios to estimate the amount of ecosystem service value that would be lost without MEE.

This analysis estimates the ecosystem service benefits that are preserved when marshes remain intact. Across all beneficiary groups, the average avoided loss is approximately $13,000 per hectare per year. The estimates range spans roughly $3,500 to $26,800 per hectare per year. These values represent the annual ecosystem service that society continues to receive because marsh habitat is maintained rather than converted to open water.

Finally, we converted these annual ecosystem service benefits into a ten-year net presented value. We assumed that ecosystem service benefits began acquiring two years after the project completion and continued for ten years. Using the Office of Management and Budget's ten-year discount rate of 4.1 percent, we estimated a ten-year net present value of ecosystem services preserved through a MEE project.

The average value is approximately $32,718 per acre, with a lower bound of $8,748 per acre and an upper bound of $67,180 per acre. These values can be incorporated into cost-benefit analysis, alongside dredging and disposal costs, to help decision-makers evaluate whether marsh elevation enhancement provides a sufficient societal benefits to justifying its additional costs, if there are any.

While uncertainty exists, and results should be used with caution, these estimates do demonstrate that preserving marshes can generate substantially long-term economic value for communities and the environment where they are done.

Lastly, I'm going to walk through the decision support tool for this project and show how this economic analysis is incorporated, and so, firstly, it starts with our model, which the model being used to predict the marsh elevation results is the Marsh Morpho 2D model. This Marsh Morpho 2D model was created by our partner Giulio at Louisiana State University.

The model simulates marsh elevation, including the channeling network development, over time taking into account erosion, accretion, tidal ranges, and sea level rise. It couples hydrodynamics, such as tidal flow, wind, and waves, with sediment transport to predict how marshes may respond to sea level rise and sediment supply changes.

Model assumptions include the tidal flow is friction dominated and is tidally averaged, that sediment transport occurs through tidal dispersion, and it uses a smoothed-fetch wind wave model. This model is numerically efficient, and runs fast, with results obtained in minutes. It takes into consideration plant organic accretion, bank slumping as a soil diffusion, and marsh edge erosion as a probabilistic algorithm and ponding as a biochemical erosion.

We created parameters that the user can change based off of what we can manipulate in the model and what factors play a role in the success of a MEE project. These are the application thickness, sea level rise scenarios, which the data for this was taken from the NOAA sea level rise calculator for each of the locations specifically, application frequency, the timeframe, and the total suspended sentiment concentration in that area. The options inside of each category was decided through current information that is available, feedback from our advisory board, and how many projects have occurred in other areas.

One set of the results you will get once you have chosen your drop-down options you would like to model, and the location is the elevation results. These happen in two parts on our project page. This includes the present-day elevation and the change in elevation comparison for the timeframe you chose, with the sediment addition that you picked and without that addition. The user will also be able to see a histogram of that present-day elevation for the site as well as that change in elevation with or without that sediment addition for the site chosen.

Next, the user will also be able to see the same types of result, but for vegetation comparison for that area. During this time, the user is also able to change any criteria on that left sidebar to see how it may affect that modeling location. From here, the user is guided to go to the MEE economic GIS tool. This tool was developed as an explanatory planning resource to help users evaluate potential ME opportunities in coastal South Carolina.

Using the tool involves four simple steps. First, you explore the available map layers to become familiar with the site and surrounding conditions of your interest. Second, you can draw a polygon over a saltmarsh area you would like to evaluate. The tool will calculate the acreage of the proposed project area. Then you will select a point within that polygon, and the tool will measure the distance to the nearest dredging location and share those with you.

Finally, you'll enter the acreage and the target sediment thickness you desire. The tool calculates the volume of sediment required and determines whether enough dredge material is available in those nearby locations. If sufficient sediment exists, the project is categorized as a small, medium, or large, based off of a range we've created, and an estimated cost is generated.

Results are presented in two ways, first considering only the additional cost of marsh elevation enhancement compared to the traditional disposal, and a second one incorporating ecosystem service benefits, such as storm protection, recreational habitat value, and that water quality improvements. If you get a positive result, it indicates that it costs more to do a MEE project than a traditional disposal, but, if you get a negative, this suggests that those ecosystem service benefits may provide a greater overall value than that traditional disposal over time.

Here is a picture of what that map looks like, with the layers identified on that right side. The tool combines historic dredge information with environmental and social link data layers. Users can view dredging locations and sediment volumes, identify vulnerable marsh habitats, and explore areas that may be suitable for beneficial use of dredge material. Several supporting layers are available, including social values identified by coastal residents as part of our project, shellfish habitat and leases, marsh migration protections, saltmarsh distributions, and areas that the Army Corps of Engineers have identified as priorities for coastal habitat resilience.

This orange buffer that you see existing here is a five-mile buffer around each of those dredging locations, as that has been considered cost effective with the Army Corps for doing a beneficial use project if that your project falls within that range.

The tool is intended to support screening and planning decisions, rather than provide a detailed engineered cost estimate, but it does offer a valuable framework for comparing that potential restoration opportunities across South Carolina's coast.

Thank you all so much for having us today, and, if there's any time left, I'll happily answer some questions, as well as my two counterparts that are here, Matt Slagle and Matt Gorstein, if they can help in their specific areas to our project .

MS. CROWE: Thank you, Lexi. That was really an informative presentation. I have a question for you. Who is the tool intended for?

MS. WATSON: So our tool is really intended for end users who would be part of either the permitting or the actual project of a thin layer placement, or sorry, a marsh elevation enhancement. I'm still getting used to the name change. Sorry. So such as people as like our state DNR, who may have comments on those projects, or contractors who would be doing the project.

MS. CROWE: Okay. Thanks. Kathleen has a question.

MS. HOWINGTON: Hi, Lexi, and so is this tool going to be publicly available?

MS. WATSON: Yes, and so, once we are finished, it will be publicly available. Anybody can get on it. It's just of those that would actually have use in it, which we also assume some of those end users will be people who want to do this project, or this type of project, whether that's the Army Corps themselves or possible organizations or groups that have the ability to do a project like this.

MS. HOWINGTON: Would it be possible for -- Like I own property, and it is on a saltmarsh that -- Sorry, and our screen just minimized for some reason. I'm not sure why. Did you stop sharing?

MS. WATSON: No, and I'm not sure what exactly just happened.

MS. HOWINGTON: Okay. I will figure it out. But aren't you concerned about like random people being able to come find this and say, hey, I want to build up this specific area for myself for -- I want to build a dock, and going on here and then being able to go and try to apply for a permit and saying, hey, I used this tool, and it says it's good, and it says I could build up marsh area in this area?

MS. WATSON: So that has been some things that have been brought to our attention, and so, anywhere on this tool that somebody would try to take information from, or use it as a source, has a lot of disclaimers on it for that exact reason, to not be able to hold the tool completely accountable for it, and so if they say quoted our tool, and the reviewer went and looked at the tool, they would see that that's not exactly how this is represented, but that this is more for a use of them to help brainstorm, and I don't know if, Matt, you have a better answer for that, Matt Gorstein.

MS. HOWINGTON: Matt Gorstein, you've been unmuted.

MR. GORSTEIN: Hi. Matt here, with Sea Grant. Can you all hear me?

MS. HOWINGTON: We can.

MR. GORSTEIN: Okay. Cool. Yes, and I got -- For the question about someone who is trying to build a dock, I don't think that this tool would necessarily be super useful for that purpose, because there's nothing in the tool that says like, hey, create a scenario of building a dock, and does this harm a wetland or not, and so that's like -- That's not an output of the tool. It's really like about exploring habitat restoration, whereas a dock would be like an impact, if that makes sense

MS. HOWINGTON: I was just using a dock as like an example of somebody looks out on swampland and says I want to build this up, and could they go into this tool and use it as an argument for that?

MR. GORSTEIN: I really don't think so. Maybe I'm not thinking of every angle that someone could come to this from, but I don't know that people would use this to say we're going to develop a wetland, or something like that, because the ecosystem service analysis shows like, hey, loss of wetlands is loss of value, and so I don't -- I don't know that the argument would come out in their favor as evidence to develop a wetland or build a dock.

MS. CROWE: Cameron.

MR. LUCK: Thanks for the presentation. It was -- It's interesting to see what South Carolina is doing, especially at Sea Grant on this, and so I am from the North Carolina area, and I work for DCM, and we're doing quite a lot of work, alongside other resource agencies, to get in front of and better understand marsh elevation enhancement, or what we're still calling TLP, but will eventually be called beneficial use of dredge material, and so it's interesting to see all this.

We were, and I was, pretty heavily involved in the MANOMET effort with the Corps to identify sites, and I know that they went up and down the east coast to work with subject matter experts, to sort of find and place these boundaries, and so I guess my question is it appears you guys sort of piggybacked off that, and expanded that tool, and I'm sort of curious about the impetus behind that. You know, what was the motivation behind that, and where do you plan on taking this tool from there, and that question is in the context of what kind of pressure are you guys getting for the replacement projects in South Carolina.

MS. WATSON: We actually have Mike from MANOMET, and he was a --He helped our project a lot with -- The reason that we kind of didn't follow them directly was because a lot of their purpose is working with Army Corps in South Carolina.

That's who they were partnered with down here, and the Army Corps, besides wanting to help the marsh, also has a lot of sediment that they need to go somewhere, and so we wanted to take what their measures were and expand them to be -- To include things like cultural and social areas, include some more of the ecosystem services and different things like that that were not fully included in their project, and then wanted to expand it from just looking at the dredge material, and where it can move, and more so look at the coast as a whole, and what really needs it, and then put in the dredge material part, and so we kind of looked at it in an opposite way.

However though, because we did work closely with them, we did find out -- I think it's something like six or seven of our sites directly overlap the interests of the Corps that came from locations from that project, and so it is very similar, but we wanted to expand it to have more users be able to see this project, and those areas, and also be able to then take locations they're interested in that are outside of our modeling, and possibly bring projects from, and bring some more just insight to this, since it was so specific as an end-user for the Corps for that project.

I think that answers that part, and then, the pressure, I don't -- I wouldn't say, and maybe Matt would correct me on this, but I wouldn't say that there's necessarily pressure to do thin layer placement as much as there is pressure to find a beneficial option for the dredge material, and that comes more so on the Army Corps side than this side of things, and so more so I think we see this as a tool for people like Army Corps to be able to use to find ways to place that material back in the system, instead of taking it, and there's definitely interest in how to help restore and enhance the marshes on our coast, for sure, but it's not so much a pressure to use this technique exactly.

Something I should mention is we were originally thin layer placement, but we've had a lot of feedback from our state that “thin” is up for discussion, and so they're more moving towards this marsh elevation enhancement, and that is a beneficial use option of the material, and so we did that changing of our project name to align with what other state groups are doing.

MS. CROWE: Matthew, go ahead.

DR. JOHNSON: Hi. Thank you for the presentation. Just a few questions on the valuation, the cost-benefit valuation. Starting on slide 19, the valuation estimates, is that -- Is the unit per hectare per year? Is that what that is?

MS. WATSON: Yes.

DR. JOHNSON: Later on, when you do your MPV analysis, you switched the unit to per acre, and is there a reason for that?

MR. GORSTEIN: I can jump in and answer that. This is Matt. Yes, and we just changed it to be more reflective of like the typical areas that the end-users are thinking in, and so it was just like, when we looked at different like past or previous TLP, or marsh elevation enhancement projects, the restoration area was often quoted in acres, and so we just did a simple conversion from hectares to acres right at the end there.

DR. JOHNSON Okay, and that was going to be my next question, which is that everything was converted to -- It should be for the difference, presumably?

MR. GORSTEIN: Yes, and so everything was inflation adjusted, and then --

DR. JOHNSON: Well, adjusted for the difference in unit.

MR. GORSTEIN: Then adjusted for the difference in unit from hectares to acres. I think there's like 0.4 -- Whatever the conversion is, and I think it's like 0.4.

DR. JOHNSON: Yes, and it’s like a little over two acres per --

MR. GORSTEIN: Yes.

DR. JOHNSON: Then back to 19. A significant portion of the difference between the upper and lower bounds of the inflation-adjusted value estimate is driven by storm surge protection, and then, earlier, you had said that, when you were going through Bluevalue, you took out outliers, both low and high, and what -- I’m hoping for a little bit of color as to what's driving in the analysis, or in the estimates anyway, or assumptions, the significant difference in the storage storm surge line item on 19.

MR. GORSTEIN: Lexi, can you go back to the slide where it shows the range of -- Yes, and so what that is, it’s the storm surge protection estimates were taken from a study that was done in 2020 by Sun and Carson, where they looked at tropical cyclone damages and impacts over a

twenty-year period across the whole east coast, and they derived county-specific estimates for the coastal protection value of wetlands.

Then this range that's quoted here represents the low and high estimates that were derived at the county level, and so sort of looking at a coastwide perspective, taking those county-specific estimates and applying that range to this to this assessment. We know that there's a lot of uncertainty in ecosystem service valuation, and so we wanted to try to take that into account as best we could by providing these confidence intervals and this large range of potential estimates.

DR. JOHNSON: Okay, but you found -- You found the range -- Because it's so wide comparatively, you found it to be defensible?

MR. GORSTEIN: Yes, and, I mean the -- Like I think if I were -- If we were just to provide the mean and say, you know $24,000 per hectare per year, well, gosh, I think there's a lot to unpack with that, and so I think the range here, although wide, is much more defensible than providing like a singular point estimate.

DR. JOHNSON: All right, and then just one last question, or perhaps not last, but one question on the selection of the OMB discount rate for your NPV analysis. Are we assuming that -- Why do you select the federal rate, I guess is my question, in lieu of like state ratings?

MR. GORSTEIN: Because like I guess I was thinking along the lines of federal navigation projects, and how these cost-benefit analyses are typically done with federal agencies, and thinking Army Corps is a large mover of sediment in the area, and would likely be heavily involved in any potential project.

DR. JOHNSON: Okay. Thank you.

MS. CROWE: Okay. We have a couple of hands up online, and so first we'll go to Benjamin.

MR. THEPAUT: Good afternoon. Thanks for the presentation. This is certainly something that's coming up here in the state, and there's only been one pilot project for thin layer placement, aka beneficial reuse, and now another fun acronym, and so I was wanting to ask what is the status of, in your model, the regulatory framework?

MS. WATSON: The status that is we -- There is -- We've done a -- The South Carolina Law Center worked with us and did a review of what that regulatory process could look like, and then we worked with our counterparts from DNR and South Carolina DES to see -- To make sure that was factual, and so, more than anything of a direct permitting process, a lot of the feedback we're getting is that we don't necessarily know a direct pathway, because one hasn't been done yet, but more so the groups to reach out to, who would have a say on this project, any project submitted, and would give review advice, and to reach out to them to work with you in designing it, as well as the biggest thing that you're going to have to show is the need over the last five years for restoration work to that marsh area, and that degradation that has occurred at that specific site, and less of it being a preemptive method measure at first.

Those are all just thought processes from our counterparts, and not as much as set in stone, because they really want to see one of these projects come across the desk before they commit to what that

is going to look like. I Hope that answers. I know it's very broad, but we don't have great direct answers for some of that.

MS. CROWE: Okay. Next up, online, we have Laurent.

DR. CHERUBIN: Thanks, Madam Chair. I have a question about, and thank you for the presentation, by the way, on the modeling part, and so, you know, like any model you use, you want to -- You know, there's always a step of validation, and so, if we have to trust your estimation, in particular, you know, the accretion level, or the build-up of the marsh, I was wondering if the model that you used, or the Marsh Morpho 2D, has been validated in any way, or, you know, if you have an example of how the system that you developed has been evaluated with real actual marsh.

MS. WATSON: Yes, and so I didn't -- I didn't mention this in the presentation, but we have a modeling site inside of a ACE Basin, where we got direct data from, working through our modeler and our DNR representative, who went out there and got direct -- Put instruments out in the in the marsh and got direct data that made -- Then they -- I can't think of the words, but they worked on the model to make it representative of South Carolina, as well as they are using -- When it comes to any information they have to input in ranges or stuff, they're using tide gauges from South Carolina. They're getting direct South Carolina information that will go straight into the model to make it representative of our coast, versus Louisiana, where they're at, per se.

DR. CHERUBIN: Okay, and that's great, but is there any -- So, you know, this model is about prediction, right, and so are there any sort of validation of those predictions, test beds somewhere, where people have been doing that for a year or two, where you can see the alignment between model observations, because it's -- I mean, this is not a black box, but it's -- You know, it could be -- It's talking about sediments, and, you know, for instance, there's no -- Yes, there's the smoothed fetch wind wave model, and I'm just wondering like if there's a way to quantify uncertainties in your model, and that's what I'm asking.

MS. WATSON: There's currently no like pilot projects, or direct projects, that are showing how the models predictions are directly aligning, one because the predictions -- We haven't gotten to those timeframes, but, also, there just hasn't been an approved project that could confirm what those estimates are.

We do have one pilot project in South Carolina that's happening for thin layer placement, but they haven't even placed the material yet, and so there's no real check for this model at this moment in time on the coast, to know if it's directly, or correctly, predicting, besides what we were able to get in those how the systems work in South Carolina, to know that it is predicting to its best knowledge based on physical data that was gathered for our project, but, when it comes to thin layer placement, or marsh elevation enhancement, there's not a project to confirm this, no.

DR. CHERUBIN: Okay, and so is there a plan to do so in the future, because, you know, if anyone comes, and you have no way to know the accuracy of your model, then it's hard to trust, right?

MS. WATSON: Through our project directly there is not, because that was not included in our original grant that we wrote, but there is -- One of the projects that we modeled, there is currently a public notice out of interest of doing a marsh elevation enhancement project there, and they plan

on doing monitoring for that pre and post, and so, theoretically, when that project -- If that project happens, that could be a check source in the future, to see how the model did for predicting it, but it would have to be outside projects that happen to use the direct location of our modeling sites to do that direct one-to-one that you're talking about for the future. It just won't be included in our direct grant for this project.

DR. CHERUBIN: I understand. Thank you for the clarification.

MS. CROWE: Kathleen has her hand up.

MS. HOWINGTON: So are you taking into account when you're recommending that, yes, this would be a good place for thin layer placement, and then, hey, here's some dredging material over here that could be used for that, and are you taking into account like nutrient level, or grain size, or the type of sediment that the dredging project is going to occur when you're making that recommendation?

Just thinking about impacting EFH, thinking of, you know, impacting SAV, if you're going to take an area that has generally fine sediment, with high levels of, you know, decay and nutrients, and then you're going to put stuff in there that has no nutrients, and it's all coarse, that's going to drastically change the type of habitat that's out there, but I didn't see -- Maybe I missed it in your model, but I didn't see that being taken into account.

MS. WATSON: When we're looking at sediment size, the information we have is that -- When it comes to nutrients ,we didn't necessarily take that into account as much as a recommendation that, yes, we are modeling this, but whatever sediment goes there needs to be tested, to see how it matches, but we don't have direct information on how they match, because that testing hasn't been done, and so it is not directly taken into account into the model when it comes to nutrient levels, as you mentioned, but, the grain size, that is included in any of the material that would be used for this.

That grain size is something that is taken into account, that they do match in those areas, and has been explained to us through the Corps, which is where that data came from, is that which material and areas would be useful, versus ones that have more of a sandy mixture, and a lot of our -- I shouldn't say a lot, and I think all of our modeling sites are from areas where sand is not typically in the dredge material that is taken up, and so it's more of that mud-silt ratio, which -- Something that's we didn't include in this slideshow, but we did do an analysis at our study site to see what that ratio is for the clay and silt, and how that compares to the material that would be being placed, and what those comparisons need to be for our modeling locations, and so that is included in what those ratios are. It's just on the back end, I should say. I hope that answers.

AP MEMBER: Thank you for the presentation, Lexi. I know your modeling, and analysis, mostly focused on the ecosystem services and economic benefits of marsh elevation enhancement. I was curious if you considered, or looked into, or if there's a way to incorporate habitat tradeoffs associated with thin layer placement, or marsh elevation enhancement, and I'm thinking of potential impacts associated with converting potentially subtidal habitat to intertidal habitat, and intertidal habitat to upland habitat, and potential impacts on invertebrate communities, fish access and habitat, potential introduction of invasive species, and so is there a way to kind of incorporate that into site selection?

MS. WATSON: We don't directly have it included right now. We did have a wildlife habitat as a criteria in our site like grading, and that was specifically to look at what animals use that area currently, which is done through a system with DNR, that you show them --

You give their your location that you're looking at, and they send you a report of all the different users, and where they fall on any endangered or critical different type of species, and so we worked with them on that to have that and understand what threatened and endangered species use it, as well as just species in general, to make sure that we're not affecting for our modeling choices, and not necessarily all projects in general, but, for our modeling choices, that we weren't taking away habitat that's needed for certain ones, and more so that we were picking ones that could possibly expand those habitats to keep those species around.

When it comes to cutting off access, something that you can slightly see in this model, and the elevation is actually up, but you can see this really dense green area on the left side picture. On the right-side elevation change comparison, it gets really dark green, and so we were very -- That is an area within our site that has sediment added, and so our modeler is very careful about, where they're adding sediment, to not necessarily take away or change those water systems that bring in and out water, so we're not affecting that.

That part is taken into account, but the transitional of type of ecosystem, whether you were talking about an intertidal or upland, we -- There's not necessarily a direct how that changes that affects how our project is modeling it, but the thicknesses that are being picked for the locations were within thought of making sure -- Or trying to avoid a direct change to an upland, and keeping that within the marsh range of elevation, so that it continues to be that marsh.

Something that's unique in South Carolina is we have pondings, and I shouldn't say unique, but something that happens within our marshes is that there's pondings within our marshes, and so, during the modeling, that is also taken into account, to try to keep those ponds as ponds and raise it as not necessarily evenly, so it's all going to be one flat level, but that it keeps the characteristics that naturally exist in that marsh.

AP MEMBER: Great. Thank you.

MS. CROWE: Go ahead, Cameron.

MR. LUCK: I was wondering if you -- When you were doing your model sites, you had, you know, various negative selectors that you're -- We'll do it here, and we know it's safe, and we don't have endangered species or whatever, because you were doing that consultation. Is there similar guidance built in for the end user, or directions on how they would go about making those assessments themselves, or consulting to get those assessments when they are looking at this tool, or in conjunction with looking at this tool?

MS. WATSON: Yes, and so, in our tool guidance that we have available on every part of the tool, whether it's when you first enter the tool or you're in the economic assessment portion, we have our tool guidance available in all those portions, and, inside of that, it does go into in depth of how we pick the locations, what those criteria were, what the resources were that we used to pick that criteria.

Some of it a public facing can use, and some of them you have to be a certain organization to be able to use that tool. Specifically thinking about that wildlife habitat one, you have to get approved to get an account with them to use it, and so not necessarily all public users will be able to do all of it, but I think it's -- Other than that, all the other five criteria -- The wildlife is the only one that you would need that account for.

The other five, they could follow along and do it, and, for the wildlife habitat, most people who would need -- Who would be wanting to use this tool would be able to get that account. It's just more of a request, and then they reach back out to you and give you your account information to log in for them, and so there is going to be like a step-by-step guidance of how somebody could go about recreating this for deciding of like which sites would be best for them to pick, yes.

MR. LUCK: I'll just add also that, in the GIS tool that -- In the GIS tool that Lexi discussed with the five-mile buffer and the economic estimates, we also have layers in there for oyster reef habitat, as well as shellfish culture leases, sort of as a way for a user to be able to pull up and toggle on and off those layers as like we probably need to avoid this area if I'm considering a project, because we know that there is shellfish habitat, or commercial harvest, or recreational harvest, use going on there.

MS. CROWE: Thank you. Okay. It doesn't look like we have any other questions in the room or online, and so thank you again for your presentation, and we will move on.

MS. WATSON: Thank you so much for having us today. We really appreciate this opportunity to share our work.

MS. CROWE: Okay. We're going to do -- It's 1:54, and so let's start the next topic at 2:00.

(Whereupon, a recess was taken.)

MS. CROWE: Okay. Let's carry on. We are going to move on to reviewing the HEAP workplan, and Kathleen is going to take over for that.

MS. HOWINGTON: All right, and so everyone knows we are assigned -- We were told that we need to come up with a workplan for the next couple of years, and so I'm going to walk through the new people what our workplan looks like. I do not update the workplan unless it is in front of you guys, or it is by direction of the council, and so there are some things on here that I already know I'm going to delete, but I like to always make certain it's on the record.

For instance, things I'm going to delete are the Port Everglades habitat seminar. That's not happening, but there you go, and so, summer, we are here. We got most of what we wanted to get done today. Again, the Sea Risk Solutions became a habitat informational, and so that will be fine. We'll try and get that scheduled for late July.

Now, this coming winter, here's what we have for our to-do list. Now, blue is we're going to decide what the outcome of this is during this meeting. White is it's continual, and this is just something we're always going to keep going. Green is this is a one-and-done, and so, for instance, we have the deep-sea mining presentation, and that's going to be from the University of Hawaii. We're

going to talk about that this coming January. I've already been in touch. Thank you, Brendan, for that contact, but then we're not going to, you know, keep asking the University of Hawaii to keep coming back. We can still talk about deep sea mining, but that's a -- We're going to have that talk, and then we're going to be finished with that talk.

This is what we have coming up in winter. We, of course, have our communication strategy. That's every time. That's reoccurring. We always have our workplan update, where we're going to make decisions, and then we have our annual report, as usual, during the winter. If you want to not have to talk about that too much during the winter, you have to get that to me before the webinar, and so, guys, I'm going to start emailing you and asking you to help me fill out the annual report. The more work you do ahead of time, the less we talk about it on a webinar, and so let's get that going.

That's also when we get our EFH consultation updates. We're also -- We're going to be getting resilient fisheries, and I always have this programmed in, or just set aside for right now, until Lara asks me not to, and this is an as needed, and so there's a chance that we don't actually meet up with this, and then here's the big one, expanding deepwater coral habitat area particular areas of concern.

The reason why this is on our workplan is that the council wants to discuss it during March of next year -- Sorry, and I just saw Myra's face. It's on the workplan, I promise. March of 2027, you all are talking about this, and so we need to talk about it before then, so we can make some recommendations.

The impetus of this is that, a couple of years ago, I gave a presentation on some new deepwater coral modeling, on some new mapping, and Chip has also given presentations on this as well, and the council is interested in potentially expanding our Stetson-Miami Terrace HAPC, but they want to be able to get a presentation on kind of what that would look like, and so that's going to be coming to you guys in January.

One of the things that I would love it is if potentially we could maybe do this joint with the Coral AP. I am also the staff lead on that, but I cannot convene an AP without the council's approval, and so I am now, as the Coral AP person, requesting that the Habitat AP person, me, asks the council if I can convene the Coral AP as a joint AP on our webinar in January, and do you guys think that's a good idea? Say yes. Thank you.

MS. CROWE: I see a lot of head nodding.

MS. HOWINGTON: No hands raised for that, and so that's going to be via webinar. I will bring as much information as I can, and I've already sent out some feelers to some deep coral people, and then we can try and come up with some recommendations to bring to the council in March, and so that's good.

Then we also have -- Brendan, I have you for mapping off of Florida as well, and I thought, between the deep-sea mining, the mapping off of Florida, and then the discussion of deepwater C-HAPCs, those three would be pretty good for the joint Coral and Habitat AP, and what do you think?

DR. RUNDE: Yes, and I think that's fine, Kathleen. I'm not sure who the best contact would be to give a presentation on the mapping exercise off of Florida, and someone in the room may know better, and I see Kellie has her hand up, and, if nobody knows for sure, then we can certainly track that down before January.

MS. CROWE: Kellie, online, do you have a comment?

MS. RALSTON: Yes, and I'm happy to track down that person, because that will be at the Florida Department of Environmental Protection. The only complicating challenge is do you know what date we usually shoot for in January? I'm just thinking we're also going to have gubernatorial and secretarial transitions happening in January here in the State of Florida.

MS. HOWINGTON: We'll discuss the dates in a little bit. I have four potential weeks. I have two preferred weeks, but it would be later in January.

MS. RALSTON: Okay. That should work. I just want to make sure I know what administration we're under, just because this could be potentially political from their view, and so --

MS. HOWINGTON: That, honestly, is a very good thing to keep in mind, and so yes.

MS. RALSTON: But I'm happy to make the ask.

MS. HOWINGTON: Thank you.

MS. RALSTON: You're welcome.

MS. HOWINGTON: Then, as for the rest, we then also have identifying higher abundance locations for EFH tier structure, and that's if we get to that after the life history updates, and a few of the updates. I have it on there right now, but we will see, and then we also have the food web working group.

I actually think we're almost finished with that. We need to get the predator-prey information in there, but, hopefully in January, we're able to come and give you guys an update, and then, the life stage information, you all got an update on that yesterday, and so we'll bring you some new standardized forms of those, and see what you guys think of that, and so that's ten things.

Again, I've already identified three that I think would be good for a joint Coral and Habitat AP webinar, and so I'm thinking that we could do those three, and then the Habitat AP webinar the next day would be on the rest, and so we would try to aim for the four-hour and four-hour, like we did last January, and just do half a day and half a day. That's the goal, and I think we can with all of that.

Now, we also have, on this workplan, long-term goals and short-term goals, and so, the short-term goals, for instance, we have this how to handle decommissioned wind farms and artificial reef EFH. I don't -- I think this is from two years ago. I don't think that that's something that we want to discuss, as I don't think that there are going to be wind farms coming into the South Atlantic, but what do you guys think on that, because I can add it to the workplan. We have it technically

for next January. This was -- We put this on here when there were more wind farms coming further south.

MR. KATHEY: It seems like you could probably safely table that for now.

MS. HOWINGTON: Brendan has his hand up.

MS. CROWE: Brendan, go ahead.

DR. RUNDE: Thank you. I agree with tabling it for the moment. I think maybe -- Do we have like a like a parking lot section of this? It would be good to remember down the line, and I do think sometime we will see, off North Carolina, some wind farms, and that there may be relevant presentations to get about the value of these structures, as far as fish habitat, and I'm thinking black sea bass and other council-managed species, and so, sometime down the line, I think we should return to it.

MS. HOWINGTON: So the parking lot is the long-term goals, and so the long-term goals don't really have a year associated with them, as you can see here. The short-term goals, generally we were typically assigning those to a project, and that's going to be something that's in the next two years, or the next three years, and so our long-term goals are talking about habitat protection, the relationship of Ecopath and Ecosim, modeling species habitat use with SEFIS and AI, habitat data for a CVA, requesting a habitat assessment from NMFS, and like these are these are big goals that we're pretty certain we're not going to have time or funding or support for, but these are things that we want to try and get done eventually, and so that's the long -- That's the parking lot.

Short-term goals, does anyone have anything that they would like to add, any projects that they want to present on in the next two to three years that they know are coming up? This is where deep sea mining was on here, because we knew that that project was going to be coming up, and the report was going to be available, and so does anyone have anything that they would like to add?

MS. CROWE: Paula.

MS. KEENER: It seems like I'm focused on space, and is that in here? I did see it. Okay.

MS. HOWINGTON: So space was in here, and where is it? Space program? We have now made recommendations to the council, and we need their approval before we can start moving forward with supporting a space, and so that's why the green is like we've made recommendations, and now we're going to cut the wall, and we're not doing any kind of data searching anymore, and now we're going to start supporting a data collection program of some kind.

MS. KEENER: Got it. Thank you.

MS. HOWINGTON: Yes, and then I'll add that back in. Don't worry. It will come back, because we're not done.

MS. CROWE: Two hands. Scott, go ahead.

MR. KATHEY: So, Kathleen, or Stacie I guess, you'll be making some kind of a recommendation to the council at their next meeting about IEA, and did I understand that correctly?

MS. CROWE: Yes.

MR. KATHEY: Does that then track back to us for any long-term or short-term goals?

MS. CROWE: Yes.

MS. HOWINGTON: Good point though. Thank you for pointing that out.

MS. CROWE: Anne, I think you are unmuted now.

MS. DEATON: Thank you. You can hear me, right?

MS. CROWE: Yes.

MS. DEATON: I was just going to suggest possibly would you want to have somebody, or some people, come in and talk about the ecosystem effects of dredging on the capes, and so, in North Carolina, there is increasing pressure to do that at Frying Pan Shoals and Diamond Shoals and Cape Lookout Shoals, and I know that some work has been done at Cape Canaveral as well.

Right now, UNCW has a contract that's been collecting a lot of data like at Frying Pan Shoals, and so I thought that might be of interest to people, what they find out, and it sounds like, at Frying Pan, there's it's a lot of -- It's very much ecosystem-based, and it's not one species, but how the whole hydrodynamics just drives everything. Anyhow, that would be a suggestion, and I'm not sure if the UNCW work will be done, and ready to talk about for the next meeting, but it could be later. I can find out when it will be done.

MS. HOWINGTON: I just put winter/summer 2027, and I put you as the contact, and so I'll reach out, and we can talk more about that.

MS. DEATON: Perfect. Thanks.

MS. CROWE: Scott, go ahead.

MR. KATHEY: I was just wondering if it would be helpful to have a presentation from NOAA about its plans to map and characterize the shelf within the South Atlantic Bight at some point, if that's of interest to the panel.

MS. HOWINGTON: While we're at it, we need to remember to add in Christian's talk. I need to merge those. Why aren't you letting me merge? There you go. About the long-term impacts of deep-sea mining out on the Blake Plateau.

MR. KATHEY: Good catch.

MS. HOWINGTON: I like both of those suggestions. Okay. Anything else that we need to add into short-term goals? Anne, you still have your hand raised.

MS. CROWE: There we go.

MS. HOWINGTON: Okay, and so the process for this is I will go and delete this summer, because, you know, clearly we don't need this anymore. I will get this, you know the winter, up-to-date, and start talking with people about these short-term goals, and get it integrated in, and then, as soon as I do, I'll send it out to everyone, so that we have an updated workplan, and it will also be presented at the September council meeting for their approval as well, and there will be two ways for you to be able to see it, and so I will get that up-to-date. That was the first step.

All right. Then we need to talk next meeting dates, and so, right now, the current pattern is we do summer in-person, and that's our longer meeting. It's two to two-and-a-half days, depending on how much we need to talk about, and then winter is our shorter meeting. It's via webinar. It's typically two, or it's -- As of right now, it's been two four-hour webinars like two days in a row.

Before we discuss what weeks you all would want to pick, or you would prefer, are you all still comfortable with the summer and winter schedule? We started that out -- I think three years ago we went from spring and fall, and we went to summer and winter, because it was just becoming so difficult to be able to schedule anything in that May to October - Like, you know, May and April and September and October time, and are we still good with summer and winter? Are we feeling happy about that? I'm seeing we're nodding. Okay.

So then, with that, personally for me -- I have a hand raised. Sorry.

AP MEMBER: No, and I'm totally comfortable with summer and winter. Just thinking about the out-of-town folks, if we're doing one in-person and one virtual, does everybody love coming to Charleston in summer, as opposed to the winter?

MS. CROWE: Cameron, go ahead.

MR. LUCK: We did bring this up, thinking that Charleston in winter seemed better than Charleston in summer, but I don't know if that's where you're coming from.

AP MEMBER: I don't care either way. I live twenty minutes from here. I'm just for the benefit of others.

MS. CROWE: The only thing I'll pipe in and say is that we typically stack our summer meeting a lot more so than winter, and so we would probably have to switch that, and I don't know how that works for Kathleen.

MS. HOWINGTON: I made it work for when we went to from spring and fall to summer and winter. I would make it work, if that's the group. What I was just saying is I would make it work if that was the decision. The reason why we do webinar in the winter is because of holidays, and then the closeness to the March council meeting, and so, if you see on here for the pros and cons, if we have a February --

The two weeks that I would prefer personally, January 25th or February 1st, those two, but that still creates -- It's difficult to post the briefing book two weeks ahead of time, because our staff are all

out of the office over Christmas and the holidays, and then it's difficult to get the report out in a two-week turnaround for then the March council meeting briefing book timeline, and so that's the reason why we chose the webinar for that, because the webinars are shorter, and the reports are shorter. The briefing books are typically smaller, and then I could pretty quickly turn them around.

Then people are not in back in the office that first couple of weeks in January anyway, and so that's where we're -- The things I have to think about, and so, for instance, last year, I didn't think about this is two weeks after our June council meeting, and so I had people get appointed that I then sent an email out on Friday saying, let's go, and your briefing book is going to be posted on Monday, and your cutoff date for the hotel is today,and go nuts, and so I'm never doing that again. I learned that lesson the hard way.

There will at least be three weeks in between a council meeting and our HEAP meeting from now on, but it's a little bit more flexible in the summer, which is why it's the longer meeting in the summer, because there's no holidays backing everything up, and you have the June council meeting, but then you have until September for the next meeting.

AP MEMBER: That works for me. I just wanted to ask.

MS. HOWINGTON: I would also rather have all of you guys come here in the winter. It's cheaper.

AP MEMBER: Yes, and it's cheaper, and holidays for sure, and vacations in the summer also for sure.

MS. HOWINGTON: Right.

AP MEMBER: Especially if you've got kids, and just a thought.

MS. HOWINGTON: There's no good time. We all have too many meetings and too many webinars. All right, and so it seems like we're still good for summer and winter. I apologize that we can't be in-person in the winter. We have one hand up. Brendan.

DR. RUNDE: Well, I was just about to take it down, because we were going to move on, and I was just going to advocate for stability. Summer and winter, let's stick with it. There in the summer, and virtual in the winter, and let's stick with it.

MS. HOWINGTON: I like that, and so we'll do that, and then the two weeks that I'm looking at are -- Again, I would prefer, please, either January 25th or February 1st. That then gives me a little bit of time after the holidays to get that briefing book done, and then two weeks to be able to -- If you do January 25th, three weeks to be able to get the report edited and sent out to you guys and then posted for the briefing book in March.

Traditionally -- If you all want to pick one of those two weeks, great. If you all are cool with the penciling in those two weeks, I will send out the WhenToMeet for that tomorrow, and then we will get that on the books in a week, like -- Not next Monday, but the following Monday, and we'll just get that scheduled and pick one of those, and pick two days with a four-hour section that we're all available. Sound good? Does anyone have a preference for one or the other?

AP MEMBER: Whichever is easiest for you.

MS. HOWINGTON: Okay. Kellie just raised her hand.

MS. RALSTON: Yes, and I've got a National Fish Habitat Partnership board meeting that last week of January, and so the first week of February, if possible, would be lovely.

MS. HOWINGTON: All right. Kellie, you raised your hand again. Now you put it down. Okay.

MS. RALSTON: Sorry.

MS. HOWINGTON: No, and you're good, and so I will send out the WhenToMeet tomorrow, and we will get that on the books as soon as we can. I know that it's -- That's a big chunk of time, and so I like to make certain that it is scheduled way ahead of time, if we can. Scott.

MR. KATHEY: So the options will be from January 25th to February 5 for us to choose from and give our preference?

MS. HOWINGTON: Yes.

MR. KATHEY: Okay. Thank you.

MS. HOWINGTON: All right. To be sent out tomorrow. Sorry, and I'm taking my notes. Okay, and so there you go. Then the next meeting format is going to be webinar, and again back to we typically make our summer a little bit heavier, and so it needs to be in-person, but the webinar should be pretty light.

Then this is something that Stacie, our chair, her final meeting as chair, wanted to bring up, and is we have now just completed two new policies. Do we want to potentially recommend looking at any of these four? These are our oldest policies. They were created in 2014. The marine aquaculture one specifically, we have actually received emails about, hey, I'm using this policy, and what does this mean, questions about that.

Are we interested? There were no issues with the policy, but are we interested in maybe looking at these and seeing if there's just something that we want to update? Then the flow one we just finished, and so remove that. Sorry. I should have deleted that, and so this is between invasive species, SAV, and aquaculture, and not flow. We just did that one.

AP MEMBER: Yes, and I think that it makes sense to kind of rotate through some of the older things. I think especially the invasive species, and a lot has changed in twelve years. Well, some has changed.

AP MEMBER: I would be curious to hear from maybe Anne Deaton, or others who are utilizing it from a consultation standpoint, and SAV jumps out to me, but I am not familiar with the policy as it stands, and I'm curious if it needs an update, and so I would be curious to hear what that crowd thinks.

MS. CROWE: Anne.

MS. DEATON: I would feel more comfortable giving it a look over before I said, but probably SAV. It's very dynamic, and there's a lot going on with climate change and range change, and there's an invasive species that's now been found, and it's in the caribbean, and I can't remember the name now, and somebody there might know, and it's been found particularly in the Miami area, and so that's something to talk about. Aquaculture, we don't have -- We haven't had much going on with aquaculture to review, and non-native and invasives are always popping up, and so we could look at it again, but, again, I would say, of consultation types, the SAV and the --

MS. HOWINGTON: All right, and so I have HEAP supports potentially supports looking at the invasive species and the SAV and seeing if they need to be updated. Brendan.

DR. RUNDE: Thank you. A similar suggestion just to look and just ask staff for guidance on the current state of these polices. I'm not familiar with the contents really, and so, if staff thinks that they're outdated, or if we want to have, you know, a review session offline of these, then maybe that would help guide us, as far as deciding which ones to update.

MS. HOWINGTON: I saw some nods around the table, and so maybe I send these around via email, and we see if the group, after just doing a quick desk review, thinks that they need to be updated, if something is glaringly bad, or if it's not, and is that acceptable to the group?

MS. CROWE: Paula.

MS. KEENER: Thank you, and so, under marine aquaculture, staff have received emails, and what is the nature of those emails, and is it more than one or two? Is it twenty?

MS. HOWINGTON: I blame Stacie. She forwarded the emails to me.

MS. CROWE: I know, and now I can't remember exactly what they were asking. It was someone who had looked at that policy to utilize it, and made the comment that they wondered if we had a more updated policy on aquaculture.

DR. RUNDE: Is it possible that was related to the red snapper aquaculture EFP, and not to be confused with the other EFPs?

MS. HOWINGTON: I'm looking up the email right now. It was for a workgroup from the Commission of Habitat Committee evaluating offshore striped bass aquaculture questions and considerations for the ISFMP Board, and they're looking at the following documents, and they were confused why it was a 2014 one, and Amy Dukes was actually cc'd on all of these, and so she is currently on the council, and has actually followed-up with me asking if it would be something we would be interested in, and so there you go.

MS. CROWE: Go ahead, Paula.

MS. KEENER: Given the focus in NOAA on aquaculture, I'm just wondering if that should take priority. I mean, it's been twelve years. There's been a lot of changes in the industry.

MS. HOWINGTON: All right, and so how about this for a suggestion? I send out these three, along with the WhenToMeet, for tomorrow, and then give you guys a month to just do a cursory glance, and then, for the September meeting, Stacie and I can come to the council with the Habitat AP did a desk review, and we think that these are generally accurate, or we think this is glaringly inaccurate, and we would recommend that we update one of these three, or two of these three, or all three. Sound good? Okay.

MR. KATHEY: So, Kathleen, you'll specify, when you send that email, how you want us to submit our comments to you? Are going to like work off a Google Do, or just give you bullets, or how do you prefer?

MS. HOWINGTON: It wouldn't be a Google Doc, because that would require -- Google is weird when it comes to emails. I might do a One Drive Doc, which I think I can share publicly, and then, that way, you can just throw your comments on there. I will explore but, yes, I will give detailed information on how to submit your comments to me in my email. I'm coming up with this plan right now.

MR. KATHEY: Sounds good. Thanks.

MS. CROWE: Wilson.

DR. LANEY: So, Madam Chairman, respect to the aquaculture one, in the email Kathleen just referenced, the ASMFC Habitat Committee assigned some of us the task of looking at the NOAA striped bass offshore aquaculture proposal from a habitat perspective, and we haven't done it yet. I just talked to Eric Schneider about that last week, from Rhoe Island, and he and I are both on that group, and I can't remember, and somebody else was on it too, but we haven't done it yet, but we would be happy to share any thoughts we have with the South Atlantic Council once we do that.

MS. CROWE: Thanks, Wilson.

MS. HOWINGTON: Okay, and so we've got a plan for those. Now, next, we get into reappointments. Now, again, because the habitat blueprint re-jiggered the Habitat and Ecosystem Advisory Panel, all of you guys were appointed at once, which means all of you guys get to be reappointed at once after your three-year term. All of your three-year -- Not all of your three-year terms, but, the people whose names are on here, your three-year terms are coming up in December.

Now, these our agency representatives, and so that means that your agency appoints you, and then you submit your CV to John Hadley, and then the council goes through the process of appointing you during December. Please discuss with your supervisor if you still would like to continue as your Habitat and Ecosystem Advisory Panel representative for your agency.

If you do, then just submit your CV to John Hadley by November 3rd, and plenty of time to get that updated, and then we will get you reappointed in December. If you do not, please make certain to find a replacement for you as a representative of your agency and get them to submit your CV to John Hadley, along with the supervisor cc'd, and then we will get them appointed in that seat. That is these names right here. Please note whether you are on this list or not. I'm assuming you could find your name, and so I'm going to move on. Yes, there will be a reminder email about this, probably in October, where I inform people that, hey, you're going to lose your seat.

Then there are the open seats, and so there is one North Carolina open seat, one South Carolina open seat, two Georgia open seats, and then three with no state limitations, and so you guys have to go through the full appointment process. Again, please apply by November 3rd.

The application link is already live, and so you all can go in and put your CV on right now and apply, and then, come December, the council will make a decision. I do know of three people that are going to be applying for these open seats, and so I have no control over that, but just to let you know there is -- There's competition, and so make your CVs pretty, but letting you know that's going to occur. Again, I will be sending out a reminder to remind you guys that you need to apply, and these will be announced publicly, via the council's appointment process, as well, and so there might be more than three people. I mean, a competition will be interesting.

Now for the fun conversation. Sharon, vice chair, and I already gave this talk yesterday, but I'm going to reiterate. Paul Medders was our vice chair. However, he retired, and so he is no longer in that position. Stacie, wonderful Stacie, this is her final meeting, and she gets to go present to the council one more time, and then she is finished.

This is the first time that we have done chair and vice chair voting since the blueprint, and so we have a little bit of flexibility. We have gotten feedback from our committee chairs that they do want a state rotation to occur, and so since Stacie was South Carolina, and Paul was Georgia, we're now going to do North Carolina and Florida.

During conversations yesterday, and then a few times today, I've had a few people say, oh, I may be of interest, and, when I say a few, I mean four names, and, once you say I may be of interest, I refuse to remove you from the list, and so that's your fault. We had two volunteers for North Carolina, whether they like it or not, Brendan and Cameron Luck, who has already tried to pull his name out of the running, but he's still in there, because you can't do that. That's not allowed. Then Shannon and Eric, who have both tried to pull their name out of the running, and you also cannot do that, and you all have not informed me if you want to be going for vice chair or chair. You all have just thrown your name in the hat.

As a group, would anybody like to nominate and take this first motion that I have very pleasantly drafted for you, for chair, somebody who is a North Carolina or a Florida representative of those four names, and I don't care which.

MR. WEATHER: I move to nominate Brendan for chair and Shannon for vice chair.

MS. HOWINGTON: That was Eric Weather, who is also running for one of these seats, by the way. We've got to do a second. We got we got to do full Roberts Rules on this one. We normally don't, and normally it's consensus, but for chairs, yes.

MS. CROWE: Cameron.

MR. LUCK: I second the motion.

MS. HOWINGTON: Poor Shannon. This is your first meeting.

MS. MCASKILL: I'm going to get back to my office, and my boss is never going to let me come to one of these again.

MS. HOWINGTON: Yes, and so can somebody reword it, where it is exactly what I have up there, with dates and separate for chair and vice chair, please. Cameron, who is also in the running.

MR. LUCK: **I make it a motion that I nominate Brendan Runde for the position of chair from December 2026 to December 2029.**

MS. CROWE: We need a second for that motion.

MS. KEENER: I second that motion.

MS. HOWINGTON: Now we've got to vote on the motion, and so all for Brendan being our new chair come December 2026 to December 2029.

MS. CROWE: Those online can just give a thumbs-up or something.

MS. HOWINGTON: Yes. Use your emojis. We've got a laughing face for Brendan. Okay. We've got two thumbs-up.

MS. CROWE: We have a consensus.

MS. HOWINGTON: All right. A consensus, and so the motion passes. So then please can somebody make a second motion?

MS. CROWE: Are you changing your mind?

MR. LUCK: Since the recently nominated individual's position is up for reappointment soon, would we --

MS. HOWINGTON: I am aware that, because we are all up for reappointment, and we are nominating this, but I am going to, when we go to the December council meeting, make certain to highlight that we voted people for chair and vice chair, and that it would be really neat if we could not lose them. Thankfully, Shannon just got appointed and so she has just started her three-year term, and so, worst case, she just becomes chair automatically.

MS. CROWE: She'll be giving up her seat here.

MS. HOWINGTON: Can I please have a second motion?

MR. WEATHER: I move to nominate Shannon McAskill for the position of vice chair from December 2026 through December 2029.

AP MEMBER: I second that motion.

MS. CROWE: Thank you, Eric.

MS. HOWINGTON: Open the motion to a vote, please. Again, if you're online, either raise your hand or use a thumbs-up emoji. If you're in-person, please raise your hand. Shannon, you should vote for yourself. I mean -- All right. **The motion passes.** This was about as ridiculous as the last time we did this.

All right. So, with that. Madam Chair, we have Other Business and public comment.

MS. CROWE: Okay. Okay. We took care of the other business earlier in the meeting, unless there is any other Other Business that has come up since then. If so, if someone can make me aware of that.

MS. HOWINGTON: No other business.

MS. CROWE: Okay. Then, as I stated at the beginning, we do open the floor for public comment at the end of the meeting, and so, if anyone -- I don't think it would be in the room, but online has any public comment to offer right now.

MS. HOWINGTON: There are no hands raised online, and I do not see any public in the room.

MS. CROWE: I don't either. Okay, and so, with that, then we will adjourn our summer Habitat and Ecosystem Advisory Panel meeting. Thank you all for your participation, and your comments and your feedback.

MS. HOWINGTON: Thank you, Stacie, for being chair

(Whereupon, the meeting adjourned on July 1, 2026.)

- - -

Certified By: _____ Date: _____

Transcribed By
Amanda Thomas
September 3, 2026

HE AP 7/1/2026

Kiley Daney

Brendan Turley

Habitat & Ecosystem Advisory Panel

	Stacie	Crowe
	Cameron	Brinton
	Simen	Kaalstad
Dr.	Wilson	Laney
	Gregg	Bodnar
	Walter "Trip"	Boltin
	Laura	Busch
Dr.	Laurent	Cherubin
Dr.	Derek	Detwieler
	Anne	Deaton
Dr.	Christian	Commander
Dr.	Matt	Johnson
	Thomas	Jones
	Scott	Kathey
	Paula	Kenner
	Eric	Weather
	Cameron	Luck
	Shannon	McAskill
	Rua	Mordecai
	Stephen	Morrison
Dr.	Brendan	Runde
	Kevin	Spanik
	Erin	Spencer
	Benjamin	Thepaut
	Kellie	Ralston
	Matthew	Troy

HEAP 7/1/2026

Habitat & Ecosystem Committee

Name	State	Affiliation	Seat
web ✓ Irish Murphey (Chair)	NC	NC Division of Marine Fisheries	State Agency
✓ Tom Roller (Vice-Chair)	NC		At-Large
Robert Beal	VA	Atlantic States Marine Fisheries Commission	ASMFC
Dr. Carolyn Belcher	GA	GA DNR Coastal Resources Division	State Agency
Gary Borland	SC		Obligatory
Amy Dukes	SC	SC DNR Marine Resources Division	State Agency
Judy Helmey	GA		Obligatory
Francis (Dewey) Hemilright	NC		Obligatory
James Hull Jr.	FL		Obligatory
Kerry Marhefka	SC		At-Large
Jessica McCawley	FL	Florida Fish and Wildlife Conservation Commission	State Agency
Lt. Tom Pease	FL	Seventh Coast Guard District	USCG
Charlie Phillips	GA		At-Large
Robert Spottswood Jr.	FL		At-Large
Andy Strelcheck	FL	NOAA Fisheries Southeast Region	NOAA Fisheries

HE AP 7/1/2026

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL STAFF

Julia Byrd
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Myra Brouwer
Deputy Director - Management

John Carmichael
Executive Director

Dr. Chip Collier
Deputy Director – Science

Christina Curtis
Fishery Social Scientist

Dr. Judd Curtis
Quantitative Fishery Scientist

John Hadley
Fishery Economist & FMP Coordinator

Kathleen Howington
Habitat and Ecosystem Scientist

Allie Iberle
Fishery Scientist I

Kelly Klasnick
Administrative Officer

Dr. Julie Neer
SEDAR Program Manager

Ashley Oliver
Outreach Coordinator

Emily Ott
SEDAR Coordinator

Dr. Mike Schmidtke
Fishery Scientist II

Nicholas Smillie
Digital Media and Communication Specialist

Rachael Silvas
Travel Coordinator

Suzanna Thomas
Staff Accountant

Meg Withers
Citizen Science Project Manager

HE AP 6/30/2026

Habitat & Ecosystem Advisory Panel

✓	Stacie	Crowe
✓	Cameron	Brinton
web ✓	Simen	Kaalstad
Dr. ✓	Wilson	Laney
	Gregg	Bodnar
	Walter "Trip"	Boltin
✓	Laura	Busch
web Dr. ✓	Laurent	Cherubin
Dr. ✓	Derek	Detwieler
web ✓	Anne	Deaton
web Dr. ✓	Christian	Commander
Dr. ✓	Matt	Johnson
✓	Thomas	Jones
✓	Scott	Kathey
✓	Paula	Kenner
✓	Eric	Weather
✓	Cameron	Luck
✓	Shannon	McAskill
	Rua	Mordecai
web ✓	Stephen	Morrison
web Dr. ✓	Brendan	Runde
✓	Kevin	Spanik
✓	Erin	Spencer
✓	Benjamin	Thepaut
web ✓	Kellie	Ralston
✓	Matthew	Troy

Lava Kilbansky - web

Matt Kenworthy

Kiley Dancy

HE AP 6/30/2024

Habitat & Ecosystem Committee

Name	State	Affiliation	Seat
Trish Murphey (Chair)	NC	NC Division of Marine Fisheries	State Agency
Tom Roller (Vice-Chair)	NC		At-Large
Robert Beal	VA	Atlantic States Marine Fisheries Commission	ASMFC
Dr. Carolyn Belcher	GA	GA DNR Coastal Resources Division	State Agency
Gary Borland	SC		Obligatory
Amy Dukes	SC	SC DNR Marine Resources Division	State Agency
Judy Helmey	GA		Obligatory
Francis (Dewey) Hemilright	NC		Obligatory
James Hull Jr.	FL		Obligatory
Kerry Marhefka	SC		At-Large
Jessica McCawley	FL	Florida Fish and Wildlife Conservation Commission	State Agency
Lt. Tom Pease	FL	Seventh Coast Guard District	USCG
Charlie Phillips	GA		At-Large
Robert Spottswood Jr.	FL		At-Large
Andy Strelcheck	FL	NOAA Fisheries Southeast Region	NOAA Fisheries

HEAP 6/30/2024

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL STAFF

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Nicholas Smillie
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Attendee Report: Habitat and Ecosystem Advisory Panel Meeting June/July 2026

Report Generated:

07/01/2026 07:35 AM EDT

Webinar ID	Actual Start Date/Time
502-649-923	06/30/2026 07:42 AM EDT

Staff Details

Attended	Interest Rating
Yes	Not applicable for staff

Attendee Details

Last Name	First Name
Beasley	Michelle
Bianchi	Alan
Brouwer	Myra
Cherubin	Laurent
Curtis	Judd
Dancy	Kiley
Deaton	Anne
Gaichas	Sarah
Gentry	Lauren
Grossmann	Jenny
Hadley	John
Howington	Kathleen
Kaalstad	Simen
Kathey	Scott
Kenworthy	Matt
Klibansky	Lara
Laney	Reid Wilson
Latanich	Katie
Mahoney	Richard
Malinowski	Richard
McMullen	Ryan
Mehta	Nikhil
Morrison	Stephen
Muffley	Brandon
Murphey	00Trish
Ralston	Kellie
Roller	Tom
Runde	Brendan
Schmidtke	Michael

Sedberry	George
Silvas	Rachael
Spanik	Kevin
Starling	Savannah
Turley	Brendan
Walsh	Mick
Whitmer	Morgan
Beachman	Kelsey
Carswell	Ben
Commander	Christian
Gorstein	Matt
Lucas	Jonathan
Slagel	Matt
Todd	Mackenzie
Walker	Bill
Watson	Lexi
thomas	suz

Attendee Report: Habitat and Ecosystem Advisory Panel Meeting June/July 2026

Report Generated:

07/01/2026 02:49 PM EDT

Webinar ID	Actual Start Date/Time
502-649-923	07/01/2026 07:50 AM EDT

Staff Details

Attended	Interest Rating
Yes	Not applicable for staff

Attendee Details

Bates	Sydney
Beachman	Kelsey
Bianchi	Alan
Brouwer	Myra
Byrd	Julia
Cherubin	Laurent
Commander	Christian
Curtis	Judd
Deaton	Anne
Gentry	Lauren
Gorstein	Matt
Hadley	John
Kaalstad	Simen
Kathey	Scott
Kenworthy	Matt
Laney	Reid Wilson
Latanich	Katie
Lucas	Jonathan
Mahoney	Richard
Malinowski	Richard
Mehta	Nikhil
Muffley	Brandon
Murphey	00Trish
Ralston	Kellie
Roller	Tom
Runde	Brendan
SCDES-BCM-CZC	Benjamin
SEWARD	MCLEAN
Schmidtke	Michael

Silvas	Rachael
Slagel	Matt
Spanik	Kevin
Starling	Savannah
Turley	Brendan
Walsh	Mick
Watson	Lexi
Whitmer	Morgan
collier	chip
thomas	suz
Beasley	Michelle
Carswell	Ben
Dancy	Kiley
Gaichas	Sarah
Grossmann	Jenny
Howington	Kathleen
Klibansky	Lara
McMullen	Ryan
Morrison	Stephen
Sedberry	George
Todd	Mackenzie
Walker	Bill