

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

HABITAT PROTECTION AND ECOSYSTEM-BASED MANAGEMENT COMMITTEE

**Westin Jekyll Island
Jekyll Island, GA**

March 6, 2017

SUMMARY MINUTES

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Other Observers/Participants attached.

The Habitat Protection and Ecosystem-Based Management Committee of the South Atlantic Fishery Management Council convened at the Westin Jekyll Island, Jekyll Island, Georgia, Monday afternoon, March 6, 2017, and was called to order by Chairman Doug Haymans.

MR. HAYMANS: We will call to order the Habitat Protection and Ecosystem-Based Management Committee. You have in front of you the agenda. Are there any additions or changes to the agenda? Seeing none, the agenda is accepted. You have been provided a copy of the minutes. Hopefully you had a chance to look them over. Are there any changes or corrections to the minutes? Seeing none, the minutes are accepted.

We have two-and-a-half hours, a little better than two-and-a-half hours, but hopefully we'll be able to get through this a little quicker than that. I am going to turn it over to Roger and Brett Boston to lead us through the rest of our agenda.

MR. PUGLIESE: Today, we want to start with the overview of the FEP section development, and, in the briefing package, you all have been provided a number of attachments, which provide some of the core focal parts of the latest fishery ecosystem plan, those being the food web and connectivity section, the full section, and the full South Atlantic climate variability and fisheries and an introduction to the managed species section, which lays out how this is going to be a blend between the species summaries as well as a very detailed access to online information for species, habitat, and fishery information through Ecospecies.

In addition, a package of the South Atlantic habitats, as well as the latest artificial reef, and we set that aside mainly because there's an artificial reef policy that's being developed simultaneously that will be available to our Habitat and Ecosystem Advisory Panel and then also added into this package, and then one component, and that's the EFH and EFH policy statements, that have been compiled and approved to date. The EFH side is the user guide, and so these are all pieces and parts of the components of the fishery ecosystem plan, as development.

What I wanted to do is to pass this over to Brett to kind of give the bigger picture of the overall fishery ecosystem plan structure, so you kind of get a context of how all of these and other parts and linkages -- There is a little bit different creature than the original FEP, and the intent, ultimately, is to have this interactive online and available, with all the linkages to other aspects and other information.

MR. BOSTON: Thanks, Roger. This document is now in that folder set with all the other documents, and thanks to Mr. Collins for getting that in there for us. We worked on this during lunch, and we wanted to get something that shows you a little bit better graphically how all of these pieces are starting to come together.

If you think about the outline for FEP II, it's going to be a whole lot of links to already existing information, as well as a lot of new stuff that's coming out and some fabulous online portals and software that are already available to us, and so I thought that we would just briefly walk through a restructure of the document, and I can answer any questions.

Between Roger and I, we can probably answer any questions about any bullet item that you see here, and then I can give you some updates on any of the specific Section 3 habitat sections that

are being provided, and so I thought we would start at the top, and so we need that usual introductory piece. We haven't started on that. We usually save those until the end.

Section 2A, Food Webs and Connectivity, for that piece there, I think you have already had the policy recommendations come forward on that, and, in addition, there is a grant that we received a little over a year-plus ago to put together an Ecopath, Ecosim, and Ecospace model for that, and that is coming along. Lots of components of that are coming together, and so that will be as part of that food web piece, but we do have that section done, as well as the AP for that.

Similarly, Section 2B, the Climate Variability and Fisheries Section, is done, and we are working on -- Well, when I say done, they're near final draft stuff, and you will be able to see some of these as we go forward, but these two sections are brand new, and they were a tremendous amount of lift and energy went into putting these together. I think the caliber of the folks working on it was just extraordinary, and the teams came together, and so I think you're going to see some really fabulous documents as well as the ability then to have some interactive toolsets to go with those for decision support, et cetera, and so those are the two biggies.

The blue and the green, by the way, is -- The green, for me, represents where we're doing the heaviest lifting in FEP II. The blue are areas where we're going to have a lot more links, and there is already existing documents, et cetera, and so our team focus is very much on those green sections, with 2A, 2B, and I am going to jump to 4, being the really big-lift areas.

Section 4A, the managed species piece, FWRI has an Ecospecies database that we're leveraging for that, and Marcel is leading that team and loading each of the species in there. It will be really nice. It's got a very brief description of the species, and I mean we're talking a paragraph, a couple of key points on the species, and then a link. You can then go as deep as you want and look at the research database, and it's all there, but we've got a simple, easy-to-use online tool. A couple of team meetings to pull that together, and the FWRI team has done a fabulous job of getting all the background research linked to that, and so we have a lot of these online tools that are coming together and starting to link.

Then, with respect to the Section 3, the habitat sections, of FEP II, those teams are in various phases of completeness. Several of the sections are completely done, and have been done for a while, and others are coming in for a landing. We hope to have most of those sections completed for your June meeting, and so that's our goal right now, and I think we'll probably see 60 percent of those done by June.

It's a big lift. I mean, you're relying on a hundred-plus scientists to give you free time and energy to redo and write these sections, and they're doing it. It's fabulous, but they also have real jobs, and finding the time to jump into the writing thing has been a challenge, and every now and then we lose a leader for a team for a new assignment or whatever, and that sets us back, and so we are actively working with the teams to bring as many of those sections into update and revision as possible. That covers the green sections, and I will just pause there to see if there is any questions about up through Section 4A.

MR. HARTIG: Brett, in the food web document, most of the verbiage in there talks about how fishing impacts populations in a negative fashion. What we have experienced in the South Atlantic, throughout the entire range, in every area that I have talked to fishermen, is there's an

opposite thing going around, where sharks are underfished. They are coming back tremendously strong, and then they've having impacts on the fishermen and the fish they catch, and so, somehow, to mention that.

Ecosystem-based management I see as a balance, and we manage fisheries at some kind of SPR level, and so, to have one of them, your top predator, that is out-of-whack with the rest of the system, it causes problems throughout the system itself, for the humans and for the fish as well, and so somehow to bring that in, I would appreciate that.

MR. BOSTON: So that apex predator emphasis.

MR. PUGLIESE: I think that's really important, and the one hope that I really have is, as we continue on with the Ecopath modeling efforts, some of those types of things can be really highlighted, how those populations come up and how you actually potentially could affect the other species, especially those interactions, and we have had those discussions about top apex predators and what the implications are, as those populations build and how they are competing with other managed council species.

MR. BOSTON: We will get that in there.

MR. BREWER: I just would like to agree with Ben, from personal experience. It's anecdotal, but personal experience is, in our area, if you're cobia fishing, you might be able to get one out of every eight cobia to the boat, because the bull sharks are going to eat it.

MR. HAYMANS: Any other questions? Okay, guys.

MR. BOSTON: Great. Then I'm going to talk about the blue areas, which are areas where you've got some documents on Section 8, a bunch of documents. For 4B, the other managed species, we have gone through a lot of back-and-forth on that, and I think, Roger, let's just talk about where you think that -- That is probably going to be a links section. I mean, the work is done.

MR. PUGLIESE: Yes, and, to a great degree, what we're going to do is draw on a lot of the existing information, through ASMFC and through many of the species profiles, especially for where we had wholly separate anadromous and catadromous species sections and other managed species. Most of those things are online, as well as the source documents for those, and so this focus of the core of the FEP is to council-based species, and the linkages are going to be to the most updated information for other managed species, and so we will have those connected and make sure they're connected.

Also, the other avenues those link is under the Ecospecies species information system. It actually goes beyond the council species, and so that actually, as it evolves, will have, hopefully, virtually the entire suite of species in the South Atlantic region, and so that can evolve as we go down the road past the first step of FEP into the future.

MR. BOSTON: I think, as we thought through this, almost every team came to the same conclusion. It's no problem to write something, but it's impossible to keep it up-to-date, and so the idea of not trying to have a paper, quote paper, document and to link to people who are doing the work that already are dedicated to keeping certain species up-to-date was important, and so I

think what you see, with the blue areas particularly, is those are more linked to existing stuff in an organized manner, so that we're not sitting there having to rewrite it.

The anadromous/catadromous was 130 pages, and to think that folks needed to rewrite that, versus point at the work that was already done, seemed to me like too much to ask for something that we already had the information on. Then it was in a much more dynamic format. Section 5 is similar. Staff has worked on that human environment, and so you've got that socioeconomic piece, and you've already got that update underway, right?

MR. PUGLIESE: Yes, and what I have done is work with staff to combine the most recent amendments, either comprehensive amendments or individual species amendments, and we're pulling together all of those individual sub-sections, and we will have those either available in one component or actually linkages that you will jump from say Ecospecies to that section description. The intent there is that hopefully that could be a living component that, as that gets updated under amendments, that that would be updated in that section, so you would have a continuous update of that socioeconomic information.

MR. BOSTON: Every team wanted socioeconomic information, and we just didn't have enough to go around, and so it was one of those things that we just said to take that. If we have it, fine, but, if we don't, let's just take it out and make that a section that we can point at. We don't have nearly enough of that kind of information to attach species-by-species. It's just not there, and so I think this is a great way of handling that.

For Section 6, you've got the two documents that you have there, 6 and 7, for your tabs, and those are -- I think this area here is another one of those areas where the policy statements and recommendations and the EFH five-year review and the threats, policies, et cetera, that's really what this is, and taking that out of a static document and making it far more dynamic and growing, as we build those sections, I think is a much better way to go, and so anything to add to that?

MR. PUGLIESE: Yes, and it was really important. These are pieces and parts that we've been involved in. Of course, the statements have been being updated and added to and new ones and additional recommendations under individual sections being developed, as well as the user guide was a really important thing for both the council and the National Marine Fisheries Service, to have that available so that it really clarifies -- It not only includes the specific designation, but then it clarifies any of the interpretation, which really helps the application of EFH in the field when they're doing permit review, et cetera, and so it was really important to have that, and it was part of this process, and it really builds and provides. We essentially have addressed the core sections of the EFH recommendations, and we will reiterate those within the sub-section, as it gets presented or as it gets added to.

MR. BOSTON: Then, Section 7, as we think about the managed areas, you've got the habitat and ecosystem atlas is there and the digital dashboard and then the South Atlantic LCC blueprint. They are doing that onshore-offshore connectivity. In fact, actually, that grant is what is funding Ecopath/Ecosim/Ecospace connectivity, and so I think that offers us a really good piece.

Then the South Atlantic has worked with peninsular Florida, and so we hope to have connectivity all the way along the east coast of Florida, as far down as we have datasets, and so we are trying to model the entire South Atlantic and not just where the LCC boundary is, which is about

Jacksonville, and so we need to go below that, and so that connectivity is happening in that blueprint model. If you haven't seen that model, I think, Roger, if you can get, maybe in the minutes, the upcoming meetings for the LCC. There will be meetings in Tallahassee, and I know there's a meeting in Atlanta, Columbia, South Carolina; Richmond; Charleston; and there's one other, and my brain just went dead on it, but I think --

MR. PUGLIESE: It's Raleigh.

MR. BOSTON: Raleigh, yes. If you can make one of those, I highly recommend it. It's a neat workshop, but to look at the tools that are there that are connecting the terrestrial estuarine areas with the deep ocean, and this is pretty neat. None of the other regions of the country are doing that, and I think this could be a cool model for us, and so I wanted to mention that one. If you can get those, and maybe if we can add, Mr. Chairman, the calendar of the upcoming workshops, and try to make one, if you can. They are pretty neat.

MR. PUGLIESE: As related, I mean part of that is also building indicators of health within the region, and a lot of those are connected to the habitats that are designated as essential fish habitat, and I mean this is a real opportunity to really ramp up how those connections and the value of those areas inshore are really driving our fisheries, and so it's really -- This is an opportunity to -- We have put a lot into the workings of this previously, in providing some of the prioritization by the essential fish habitat designations and some of the spatial information.

As we continue to go further down the road, some of the capabilities they have will provide even better abilities to refine the values of those areas, the spatial footprints, and the connectivity of the system, and so this is a real -- Again, plus the linkage to those. They still have resources, and we can continue to tap in, hopefully, to expand our work on modeling and connectivity and other partners.

MR. BOSTON: The other thing is think about the impacts that are happening onshore, way up the riverine systems, that are coming down and dumping into your estuarine areas, and I mean that's the connectivity that this blueprint offers. Then, with Section 8, research recommendations, we have asked each of the section groups under Section 3, those habitat sections, to provide us some research priorities and recommendations.

You are also getting those as you develop your policy statements inside of those as well, those research recommendations, and then building those links to both the system management plans, your research and monitoring priorities, and we've got the section-based research recommendations, the SEAMAP five-year plan, SERFS and state needs, the South Atlantic mapping strategy, the climate action plan.

Rather than trying to rewrite all of that stuff, let's build the links, with some explanation of here's where those priorities are, and I think, ultimately, having a set of research priorities will serve us well. You see there, with the 8, 9, and 10 handouts, that some of that information has already been generated for you, and so that gets us through kind of the document itself.

I think what we're building then is kind of a scaffolding to follow up on that. Once a lot of these pieces are in place, I think then that's the time where you can sit and have that discussion about what does this final product look like and then how can you guys actually take advantage and use

it. We are a bit away from there yet, until all the pieces are there, but I think that's a discussion that needs to happen.

I know you had a presentation on Lenfest, where they talked about, on the frontend, trying to gather that information, but I think it's still too early to do that, until we get all of the scaffolding together, and I think we'll create something. Then we will have the ability to say, okay, here is the thing itself, this FEP II, and here is the links and how it all fits together. Now, what is the decision support dashboard that you guys would like to see, and that's when we can ask and answer that question.

MR. BREWER: To that point, it sounds like you're getting pretty close to having that, quote, scaffold put together, and there is a lot of stuff here that I would truly love to see get moved forward. In your opinion, is it too early at this point to maybe set up some sort of an action group that might be -- Say you might take somebody like the head of the Habitat Protection and Ecosystem-Based Management AP and then put together maybe a smaller group of people from that AP and some high-level, good technical folks, so that they can then have your good work and try to give us advice as a council on an action plan.

MR. PUGLIESE: I will respond directly to that, because I think -- I didn't want to get too far ahead, but I think you're absolutely right. We are getting to the point of the frame of we need to get the core of what this FEP is, and it's a baseline. The springboard then is really into an action plan or implementation, and I would say the Habitat and Ecosystem Advisory Panel and the expertise -- The reason to keep a lot of the expertise in there is that they can provide some of that guidance, in terms of what are the different types of tools that you can use for this and what are the different capabilities that can enhance information going to assessments.

I mean, there can be kind of a tasking of where do we go from here and what are the tools available and how can we do it, and some of that is the next step, because the modeling isn't done yet, and so we can't -- Some of the tools actually are coming from that.

There is a full, whole management strategy evaluation component of Ecopath/Ecosim/Ecospace. Ecospace evaluation of multiple areas is in there, and we really almost don't even know some of the capabilities, because it's been designed at an international level, and we're pulling them in right now to be able to get to that level, and so I think we have the technical expertise from there, but then the other regional partners in the Ocean Observing Groups, in the LCC, ones that we can reach out to say, okay, how do you use these, and even our other regional partners and other councils, et cetera, and so I think we have the vehicle to take those next steps. We have the momentum started to take those next steps, and we have some people that are probably pretty motivated to help provide guidance into the future.

MR. BOSTON: My thinking on that is, right now, until you can actually touch some of these things, you probably -- They are so conceptual that you go, well, how is this going to help me? Until they are actually somewhat workable, to where you can see it, and then you'll be able to -- Everybody will be able to go, okay, now I know what I want, and I don't think we have enough to show you, other than to talk about it, and you can go, well, what does that look like? Well, it's not there yet.

MR. BREWER: Any idea of what the timeline might be? Because I would like for the council to get a little bit ahead on this and be proactive and maybe start when you think that you're getting close to the point and putting a sub-committee like this together, which would be sort of a lean, mean group, so that you're not having to have a lot of conversations about it. You still want to obviously have conversations, but it just seems to me that, if it was a smaller working group, that it might be more efficient.

MR. PUGLIESE: One other aspect, real quick, is that I think there is even more commitment from on high down to help, and so I've got a conference call directly with Jason Link and Howard Townsend next week, more on the modeling side, but on the bigger-picture things, and so there is even more willingness to be able to engage National Marine Fisheries Service at the highest level, but also getting directed at the Science Center side, because we are collaborating directly with the ecosystem head, Todd Kellison, out of the Beaufort Lab.

I think there is a number of different other partners that can really kind of move this forward in a quicker way, and to have those kind of beginning discussions and guidance to whatever the group is, whether it be the Habitat and Ecosystem or some sub-group, we can start that at the June meeting, even once you get the frame done, at least those discussions on tasking into the future and where you go. Some of that came out of the kind of line items of the implementation plan subset of the Lenfest, as well as some of the material that we've been getting directly from Jason Link and from the roadmap.

MR. BREWER: Madam Chair, can we get that on the June agenda, do you think?

DR. DUVAL: I understand where Chester is going with this, and this is something that I've been thinking about as well, some type of short and sweet implementation plan that really gets to the recommendations of the Lenfest Task Force to operationalize EBFM, and so where do we go from here, and having something that the council could start working through, understanding that the Habitat and Environmental Protection AP would want to review that and be a part of it, and so I am thinking along similar lines as Chester, in terms of the person who would lead that effort, to me, logically, would be your Habitat AP Chair and pulling like from the leads of those technical teams that have been participating, I think particularly in those chapters that have policy statements associated with them.

You just have, for each one of those sections, like seven of them or something like that, and then you have just a half-page or a page of the bulleted -- It's almost like action items, and so this is an umbrella that should inform how we move forward with ecosystem considerations and all of our fishery management plans, but that has to be small.

I mean, I still would like to dig into some of the attachments that we have here in our briefing book, in terms of the individual sections, and have a little bit of discussion on that, but absolutely I think that starting to build that vehicle for how we operationalize this and actually move it forward through our fishery management plans is something that I would like to see some time spent on.

MR. HAYMANS: Any other questions or observations? Michelle.

DR. DUVAL: Thank you, Mr. Chairman, and I am not on your committee, but I was just wondering if -- I didn't know if this is an appropriate time to just talk a little bit maybe about some of the draft working sections that we saw.

MR. HAYMANS: Sure. In particular?

DR. DUVAL: Yes, and, I mean, Ben had already noted and brought up the -- You have some other hands down this way, and so I would just direct your thoughts that way, but I think the food web connectivity section, and I know that last time, in December, we just reviewed, I think, the introductions or the executive summaries of these pieces, and there was a sentence in there that was right at the beginning that I think we had asked that that be edited, having to deal with the high likelihood that fishing leads to unintended and unforeseen consequences on the ecosystem.

I mean, it seems to be very -- My impression, when I read through this, was that this was still sort like biased, a little fishing negative, and I think we need to acknowledge that, yes, fishing is one impact, but there are many other impacts that can also have negative and unintended consequences upon the ecosystem, and so I just wanted to highlight that, but thank you.

MS. MCCAWLEY: A couple of points, if we're going to start with this food web ecosystem, but I would like to note that I feel like we spent a lot of time on those executive summaries at the last meeting, and I don't feel that the comments of where we ended up on those executive summaries are in these documents, and that is disappointing to me, because I feel like we're going to approve this in June, and I don't see these comments in these documents. Just like this sentence that Michelle is bringing up, this is one of the sentences that we were hung up on and talked about in great detail the last time, and it's front and center, the second sentence, of this document.

MR. HAYMANS: Roger, do you want to address that?

MR. PUGLIESE: Yes, and the bottom line is we need to make sure what was in the executive summary translates directly into here, because they were working on a lot of the other sections. The executive summary was reviewed and done separately, and we need to make sure, because there is that one last iteration they're doing right now, and we can make sure that those translate into that and ensure that, because we had a lot -- You're right that there was a lot of discussion that was very specific direction that that be modified, but it just needs to be relayed directly into the section itself and not just in the executive summary.

MR. BOSTON: These were the working drafts that you have copies of, and we made copies of these a month-and-a-half ago, and so a lot of the edits that happened to the executive summaries have yet to be put into these, and part of that is just lead time. There have actually been changes to these documents since we had to put them in your booklet, and these teams are working pretty quickly, and so that six weeks kind of posting has caught up with this a little bit too, and so it's not excuse making, but it's just letting you know that some of that is just lag from when we get the teams to make the changes from when we get the direction, and so I'm just saying that those will be in there the next time you see them.

MS. MCCAWLEY: If you would like me to move on to some other documents in here, I can, other attachments. That was the first one. Do you want me to move on to another one?

MR. HAYMANS: Is there anything else within the food web and connectivity section?

MS. MCCAWLEY: I mean, I would like to see that entire document updated, per the direction, and some of these value statements about likelihood of fishing leading to unintended consequences and things like that removed from the document.

MR. HAYMANS: Okay. What's your next one?

MS. MCCAWLEY: Apparently, on page 32 of the document, there was a section that should be removed. That was part of what we discussed last time.

MR. HAYMANS: Which paragraph was that, the second or the third paragraph?

MS. MCCAWLEY: The last paragraph.

MR. HAYMANS: Okay.

MS. MCCAWLEY: The next one, which is Attachment 2, and so, on page 1, there are some more up-to-date numbers than this. If they need help getting that information -- This is 2009, and we have up-to-date information, if they need help updating those numbers. This is the second paragraph on page 1.

There is some discussion about black sea bass, and this was part of the discussion from the executive summary, and some of that is on page 23, and so I think that that's another spot that we noted needed to be updated. Also, in this document, and it's 23 and 24, we had significant discussion about how that sea cucumber example is not a good example, and it's not doing what this document is saying that it's doing. That is not the type of regulation that it was, and we talked about how it should be removed and shouldn't be referenced, and I see it in here.

It's on Attachment 5, which is the extensive document that's about the habitat, and so this was difficult to get through, because it was a number of pages, but there are some references in here to talking about the OFR process, the Our Florida Reefs, relative the Southeast Fisheries Coral Reef Initiative that are just wrong. We can help you update those sections. We have people on my staff that are on those groups, and this is information is -- Some of it is outdated, but some of it is just incorrect.

They have changed some of their recommendations, and so the wrong recommendations are in here. Also, our staff reviewed it, and I think that maybe the way that they're talking about coral reefs in here -- I think that maybe we would like to submit some more detailed comments about how it's listed in here, if that's okay.

DR. DUVAL: This was a difficult -- Again, this is Attachment 5, the FEP habitat section, and this was a tough one for me to get through as well, and maybe it was just long enough that I was not able to see it, but I think a consistent organization throughout that document would be helpful.

It seemed like it jumped around a little bit between habitat types and detailing where those habitats exist and their distributions in different geographic areas and talking about threats very specifically to some geographic areas. It seemed like there wasn't necessarily a consistent format where you

would go from distribution to threats to recommendations throughout that chapter, and I think that would make it much more -- It would be helpful to me, and I think it would make it easier for me to get through.

MS. MCCAWLEY: I agree with those changes, and, also, we would like to provide coral comments after the meeting to Roger. On Attachment 6, there is an appendix in there that says "state-designated nursery areas for Florida" and that is not what those areas are. Those are aquatic preserves that are designated per Florida statute, but they are not state-designated nursery habitats, and so this a mis-definition of what these areas are, and this needs to be removed or clarified about that these areas are.

DR. DUVAL: I had exactly the same questions, because, when I looked up the state regulations for those areas -- Like, for South Carolina, those are outstanding resource waters, or national outstanding resource waters, and they are not designated as nursery areas, and so I think, if the committee is considering those as nursery area surrogates, I think that needs to be very clearly stated, because, as far as I know, North Carolina is the only state that actually has a nursery area designation system in the Southeast, and I think actually along the Atlantic coast.

MR. BELL: I was just going to say, in terms of designated -- How they function, that's another matter, but it's about designation, you're right.

DR. DUVAL: That's what I think needs to be clarified. If we're considering those or if the team is considering those to function as nursery areas, I don't necessarily have a problem with that. What I have a problem with is saying that they are state-designated nursery areas when they're not actually state-designated nursery areas, and so I think I would just hope that I guess maybe the state sub-panels of the Habitat AP would provide some input on that, that's all.

MR. PUGLIESE: Yes, and some of this got pulled in specifically working with National Marine Fisheries Service in the interpretation of state-designated areas, that idea that if a state designates some areas as special designation that they would serve as essential habitat areas of particular concern, and this got rolled under the interpretation of areas that may be significant in nursery grounds for managed species, and that was how it kind of got crafted under this designated, but they're not formally designated.

You are correct. The way the terminology in the front -- They're not formally designated by the state with that term, but they are special resources, and what was picking up was that idea of looking at special resources that are in the nursery zone, and I think it may be a terminology issue, because this is something that we've been working with National Marine Fisheries Service to be able to pull in.

DR. DUVAL: I just think that if that is something that has been a conversation with the Fisheries Service, then I think there needs to be some communication with the state agencies that are actually doing the designations of those resource areas, so that there is not misinterpretation of what those areas actually are, because I can see this causing a lot of stakeholder confusion that they are actually nursery areas, state-designated nursery areas, within particular states when that is not actually the case.

I mean, North Carolina has outstanding resource waters as well, which is noted in that chart of the designated nursery areas, but I just think that we need to be very, very clear about what is state-designated and what is not and how, maybe under the EFH mandate, the Fisheries Service is considering these resource use areas and those designations, because some of those are really coming more from EPA.

MR. HAYMANS: Go ahead, Jessica.

MS. MCCAWLEY: I'm done. That's all I have, based on everything we have edited so far and reviewed, but we will come up with the coral ones. We have a specific list that Lisa Gregg is working on, and so we will provide that after the meeting, and we are just cleaning it up right now. Thanks.

MR. HAYMANS: Anybody else? Michelle.

DR. DUVAL: Thank you, Mr. Chairman. I did really want to commend folks on the -- This is Attachment 3, but the managed species example summaries. I think keeping those to the half-page, if possible, is great, and I really liked the ones that I saw, and so kudos to the group, and I know that Marcel is involved with that, that are doing the editing on those. I mean, it seems like that's going to be a great tool for folks to use, in terms of getting a very easily-accessible and easily-digestible chunk of information about our managed species, and so I really like that. Thank you.

MR. BOSTON: That piece, by having that short, but behind that -- Recognizing that there is a volume of great information behind those summaries that are inside of that system is it's all there, and so that team did work extremely hard to come up with that very tight format, and we are cranking away on that. We're bringing that in for a landing, if we can, for the June meeting, right, Marcel? Okay.

DR. DUVAL: I have a lot of notes. Attachment 4, the artificial reef habitat section, I had a question. This is actually the bottom of page 1, the last paragraph on the bottom of page 1, that first paragraph, where it says the total area of South Atlantic states ocean and estuarine bottoms permitted for manmade reef development, at present, is 210,000 acres, and it says this small percent area of shelf and natural hard bottom is managed by the South Atlantic Fishery Management Council.

It was unclear to me -- It sounded like what this was saying is that those offshore artificial reefs are managed by the South Atlantic Fishery Management Council, when that is not the case, and I just want to make sure that there is no confusion there, because I think all the states have artificial reefs that are in federal waters, and so I just want to make sure that the phrase is clear that the council is managing the bottom and not any constructed reefs.

MR. PUGLIESE: Yes, and I think there may be just a word in there wrong, because a small percentage of the shelf and natural hard bottom managed by the South Atlantic Council is -- I mean, that would be the whole area is managed and those constitute footprints that lie within that bottom habitat, and so I think just dropping the "is" out of it, because this was our artificial reef people that put this together, and so I don't think they intended it to mean that, and so I think that

it's just that it's a small portion of what is managed under our Coral, Coral Reef, and Live Hard Bottom Habitat FMP.

MR. BELL: Just for clarification, and Michelle is right that the council has authority, management authority, and jurisdiction in that area, but the reef programs are individually managed by the states who hold the permits, and so that just needs to be -- I think she's right to just kind of clear up the wording there.

MR. PUGLIESE: Okay. What I just wanted to do is just touch on a couple of things beyond where I started with in the description of the different sub-sections and connections to other activities, the first being the model development activities, and I kind of highlighted already one of the key things that I wanted to mention, and that is that we are coordinating directly with and are bringing in Howard Townsend into the modeling group, and hopefully we can get some resources to help enhance that whole ecosystem, Ecopath and Ecosim, with the latest Ecopath/Ecospace capabilities that have really been developed and applied through the Ecopath international organization.

That technical capability is not available through the base system, but, with their input, we can craft this so it's going to better meet the council needs and a lot of what we really see, right from the beginning, as some of the spatial connections and capabilities that will enhance that, and so that's something that is ongoing.

We have ramped back up the development of the frontend of the Ecopath/Ecosim, so that we can get the oceanographic modeling capabilities through some of the other partners, such as Ruoying He's shop out of North Carolina State, to be able to align with those, and so this is kicking back up into a higher gear, and hopefully, with some of the additional support and input from our partners with National Marine Fisheries Service, it will actually move faster and be able to enhance and be able to provide some of these things we're talking about into the future and what are some of the tools we need and what are the capabilities. The sooner we get some of those things further down the road, the sooner we can get some of those answers I think we need.

One of the other aspects that I think Brett already mentioned is our partnership with the Landscape Conservation Cooperative and our refining the blueprint and some of the indicator capabilities. Specifically, what I'm hoping is that, under some of these discussions, the marine indicators get even further refined. Again, some of that is going to get specifically informed by the model capabilities, and so, again, it's tied somewhat to our next generation of the ecosystem modeling activities. It will be informed, expanded, and enhanced, but it is moving, and so we are advancing.

A couple other aspects that I think I mentioned before is ongoing collaboration with partners in the region. There are a number of different proposals that have been submitted to NASA and S-K that are intending to build some specific ecosystem reports on individual species, and hopefully, if some of those get funded, we will actually have -- Again, one of the tools that was identified is providing guidance or input on where we are in some fairly active tools, and one of those, specifically the NASA proposal, is pretty extensive, in terms of what the capabilities would be into the future for being a collaborator, being able to integrate a lot of our key managed species into that, if they actually are able to fund and provide those capabilities.

Some of those things are directed through National Marine Fisheries Service for creation, but the resources, in our region at least, have not been applied, and so hopefully some of this partner capability or opportunities for collaboration into building that actually gets funded and we can see some of those move into and provide some more capability in our region.

Those are a couple of the key things that I really wanted to touch on. The other one, I've already gone into enough, and I think, if you read the frontend of the managed species, it talks not only about the nice, succinct components for the species, but then that ecosystem species, online species habitat, life history, and fishery information system that really is going to provide immediate access, where you can query by species and query by groups, to get everything from the EFH to the allowable catch limits to life history and even, in the next generation, tolerances by species. They are pulling together some of that information. Some of our partners at FWRI are actually doing the queries of the system.

That is a tool that is going to be -- Ecospecies has stepped up a lot more of our capability for FEP II than originally identified, and it really will provide a lot as we go, and the limitation on that really is going to be wherever we want to think, because it has the capability to expand to provide a lot more species-specific and habitat-specific information.

Those were the major ones that I wanted to say. We are advancing, and it's going to support everything we're talking about, about moving us forward, moving the system further down the road, and those are some of the things that I think we can get into even more detail as we get to the next step of looking at the FEP and then the connections to these systems. That is the main things that I wanted to highlight on the modeling tool development at this stage.

DR. DUVAL: I am not on the committee, but, Roger, how far along do you think these modeling components will be in June? When can we start like pushing buttons?

MR. PUGLIESE: We'll be further along. I think what we can do is -- I would like to at least plan on being able to highlight kind of the structure of where the system is, on what constitutes the forage-based and the whole system that we're looking at, but it's going to take -- The dedication right now is I would like to say that we're going to be closer to actually seeing that by the end of year. Then I think we're actually going to have a fully-functional model, is what I'm looking at.

I think we will have the structure, and we will have enough guidance that then the other components, such as the oceanographic models, can be tailored to align with that, because that's kind of what we're doing, is being able to -- Once we have the structure laid out, then those can be designed, and some of it is unknown.

That's why we're trying to engage the international group, because that connection of other model capabilities is something that comes with that next generation that isn't available publicly right now, but they have done it already. By just this little nominal amount that we're trying to get them to participate, we will actually be able to merge those in a better way, both the spatial information and being able to load a lot of the information fairly quickly. Things could happen a lot faster once we get to these next steps, and so there is some decisions being made in the next couple of months that will really advance us, and so then we'll know how far we go beyond there.

DR. DUVAL: Just to follow up, one of the things that I noticed in I think the climate variability working chapter was recommendations for scenario planning as opposed to MSE, just given the level of information that we have here in the region, and so will this model allow us to do scenario planning? I mean, I think that's one of the things that would probably help the council tremendously in some of the decisions that we have to make in regards to tradeoffs, and so in terms of making decisions about even stock assessments or where you're setting catch limits and the type of management approaches that you're taking.

MR. PUGLIESE: Yes, and that is exactly what the intent of this -- That's why we're trying to get the latest capabilities, because I think if we get this functioning at the level that they have that capability now, more realistic scenario development, and Ecosim is something that -- Our SSC has already seen some of that capability, with what they've done in the Gulf of Mexico on grouper, and so they already have at least gotten a teaser, in some of those kind of -- That is even before this next generation.

Yes, the intent is that the scenario planning is part and parcel of this and climate-informed capability is intended also to be part of this, and so, yes. The answer is that's exactly where we're going. We need to pin down this first structural section and get the commitment to get the newer capabilities on Ecospace integrated, and the idea of doing scenarios is exactly what the intent of this -- Beginning to do that exactly, the idea of different scenarios and where you could go and really understand the connectivity. So much new information has been done since they did the forage modeling capability that we're going to take leaps and bounds beyond what that last forage model is, because of the assessments that have been completed and the information that is available.

DR. DUVAL: Because I would certainly like to see some scenarios where what is happening if we have rebuilding of shark populations that are then eating up groupers and king mackerels off of people's lines, and we have lionfish that are eating up all of the little baby groupers and other important species that form the basis of our recreational and commercial fisheries, and so I would like to be able to have that capability sooner rather than later.

MR. PUGLIESE: Yes, and I think what we may be able to do is to begin to lay out, and this is part of that discussion about the needs and the tools and the capabilities, lay out things that are not necessarily on the final product of this model, but at least lay out how you can do that, so then you can understand, as this gets finalized, the kind of capability you would really be able to have. That may be something that will move us forward.

We talked about already getting that kind of before the SSC and to be able to understand that, and they could give guidance on how do we use those, but this may be something that really we need to get at least, if nothing else, a strawman while the final one is advancing, so we understand where you can go with this, because that's exactly what -- That's why I responded back to Ben when he was talking about sharks. These are the things that will provide us that kind of understanding, because you crank this thing down.

Under the forage model, that is what we were doing, because it was supposed to look at big climate shifts. If you reduced the population by 50 percent, where did you see things start to go haywire, and that's exactly the kind of stuff that this type of capability is supposed to provide.

DR. DUVAL: Because I think that would be a great way to take the anecdotal information that we're getting from fishermen on the water and plug it into something that would show us how the conditions that folks are seeing on the water have -- How those impacts spread out throughout the system. Thanks.

MR. HAYMANS: Any other comments? Okay, Roger.

MR. PUGLIESE: Okay. That's all I had on the ecosystem models, and I think what we were going to move into was we've been provided the Draft South Atlantic Regional Action Plan, and the presentation has been provided to everyone by Bonnie, and I guess we can go forward with that presentation on the -- You have been provided both the regional action plan for the Gulf, the final version, and also the South Atlantic draft.

DR. PONWITH: Thank you. In the briefing book, the actual draft document has been made available, and we are seeking input from the council on that. The target date that we set for receiving input is the 25th of March. If the council needs a little bit more time than that, that can work too, but we're really eager to have good solid input from your folks, to make sure that, number one, did we get everything in there that we really think needs to be in there, are there things in there that you think are superfluous, that is biting off too much.

We really broke the document down into two categories, things that we think, by adjusting our workload, we can do under existing funding levels. We also have a category of activities that we think we need to be attentive to, but would require an increase in resources to be able to do, and those are two core bins to put that information in.

If you had views, within those two bins, of areas that you think are particularly important, that would be valuable, and so what I've done is to -- I won't go through the entire document, obviously. It's fairly extensive, and I think there are sixty-seven actions that we included in that document, but what I have done is just put together a quick overview, to give you the context for this document and kind of help us walk through some of the key findings in it.

Again, the thing that's inspiring this regional action plan was the generation of the NOAA Fisheries Climate Science Strategy that was released in the fall of 2015, and one of the things that that national-scale plan called for was for each of the regions to pull together a regional action plan of how we would carry out the goals and objectives of the national science strategy at a more regional ecosystem scale.

Our very first step was, again, to start by holding a regional workshop, where we pulled together people from the fishing industry, academic scientists, people from the state agencies, the federal agencies, to get together and kind of talk through what are some of the regional issues and what kind of information would the fishing industry or folks who are involved in management and policy decisions need to be better prepared to make climate-informed decision making. This is a rough sketch of the regional action plans. These are sort of the council jurisdictions and EEZs where this similar work is being carried out.

The regional action plan for the Southeast, what we were after is to seek input on this draft plan. Again, to take a look at the list of the actions, binned up by can afford now or need more money, to give us input of are we missing things from that action list or are there things in that action list

that you think should be scrapped and why, and then any input you have on the staging, scheduling, or your sense of priorities, based on information you think that would make your job easier. Ultimately, the other thing is we have a list of partners, and this is very heavy towards the federal side. If you think there are other partners that we should take into consideration for those actions, we would be eager to hear your input on that.

To recap, the NOAA Fisheries Science Climate Strategy basically broke down this problem into seven interdependent sort of scales of work, starting from the bottom and dealing with science infrastructure, to deliver the type of information, and going up from there and looking for status, trends, and early warnings that we're seeing, based on the data that we collect.

The next category is information on mechanism of change. The next category, going up again, is robust projections into the future, and that gets back to that conversation that you were just having about being able to generate scenarios. Then the next category up from that is focusing on adaptive management processes, given that these will be projections, and then Number 2 is the robust management strategies. Then, ultimately, sort of the icing on that cake, is to be able to do climate-informed reference points for the species for which we are responsible.

If we go to the next slide, starting from that bottom and working our way up, these are just some examples, in shorthand, of some of the actions that we felt were particularly important in the South Atlantic Council region, starting with things like strategic planning for climate science, building and strengthening the capacity, the modeling capacity and the data collection capacity, the infrastructure, including the capabilities and the days at sea we have for at-sea data collection, strengthening the partnerships, and certainly I am happy to say that citizen science made its way into this plan in multiple places. Again, these are kind of shorthand examples of the types of issues that came up as actions.

Under the status, trends, and early warnings, again, we are getting at making sure that we have the baseline data that we need to be able to do the modeling it would take to do the early warning work, generation of an ecosystem status report. We have an ecosystem status report for the Gulf of Mexico, and we expect the first update of that ecosystem status report will be rolled out probably within two months, and it will give us a feel for, once that baseline version came out, where we're going from there. We have found it to be an enlightening process, and we think that it would be good for this region as well. Then things like an early warning toolbox.

If we go to the next slide, these are some of the examples of the activities that we had under the information on mechanisms of change. One of the most important priorities that we see in the Gulf of Mexico, as well as the South Atlantic, is the need for the vulnerability assessments for priority species, and so this is the climate vulnerability analysis, and it's looking at a combination of the exposure of a species to the impacts of climate change and then the susceptibility of the species to that exposure and using some sort of a matrix analysis for that species of what kind of reaction could that species experience, due to the combination of those two things.

Another thing that was brought up on this was looking at research and monitoring on sea level rise, ocean acidification, looking at coral reefs as one example system, but I think the system in here that they also raised was the very important estuarine systems that are the nursery habitat for so many of our species.

If we go to the next slide, that fourth category is robust projections into the future, and, again this gets back at some of the conversations that Roger was talking about moments ago, and that's the predictive modeling, setting those models up to be able to run scenarios and help us understand what kind of impacts we might be faced in a dynamic marine ecosystem, the application of existing models and maybe the amendment of existing models to answer some of these questions, and then building a standardized modeling toolbox, to make it easier to run these scenarios, going into the future.

If we go to the next slide, the adaptive management process is really helping us to quantify management tradeoffs under climate change scenarios, again being able to do that scenario work and look at the implications, in terms of tradeoffs, and continuing to include environmental covariates in stock assessments. We're doing it to some degree, and we really should be doing it to a greater degree, because it has explanatory power in some of the cycles and trends that we're seeing in these assessments.

Then also to strengthen the dialogue, and that gets back, again, to citizen science, and it gets back to the anecdotal information, what are you seeing on the water, as a leading indicator of what we'll be looking for in trends in the data, when we finally get to a point where we can process those data.

The robust management strategies is that second-to-last category, and we are interested in being able to apply management strategy evaluations to do quantitative simulation analyses of some of these vulnerabilities, as well as the scenario planning that we have generated, to be able to define management objectives collaboratively in the face of a changing environment and awareness of what impacts that has on the species. Then, ultimately, ecosystem considerations, to be able to look at that across the system, as we look at changes within that system.

Then, finally, the last category is the climate-informed reference points, to be able to consider climate and sort of the direction that some of these forcing functions are going as we develop reference points for our species or species complexes, to improve our ability to include climate consideration in the designation of EFH and HAPCs, and then also to be able to look across regions and do lessons learned from among those other regions, because recall that these are all being done at an ecosystem level. We think that there is going to be a great opportunity to leverage by looking across these systems.

Really, the next steps is for us to be able to obtain input from the South Atlantic Council and other folks who are reviewing this document and be able to incorporate that into the draft and be able to release that draft as a final product sometime around the summer of 2017.

Then I will just close, in the next slide, by putting up the acknowledgements. The work on this plan was really the lift of many hands within the Science Center, within the Region, within the council. It all got its start at that climate change workshop, and we were really grateful for the representation we had there of council staff and council members and people from the fishing community, and so it was really invaluable. That's a summary of where we are, and we do look forward to hearing from you, and I would be able to answer any questions if you have them.

MR. HAYMANS: Are there questions? Roger.

MR. PUGLIESE: I really appreciate it, Bonnie. I do appreciate it building from previous work. I think that was really important. To me, those were some things, I think, that were excellent, that it did build from the previous activities. It also integrated our connections with the LCC and some of the activities that we are moving forward.

I think there is some concern about timelines and moving forward. I had a couple of questions that I was going to ask. We had talked about moving forward with the climate vulnerability assessments, and I understand we have the opportunity to build on the previous ones. Is there a timeline for actually accomplishing that? I think Jason had said that it is in process, and so I was just curious if we have any kind of a gauge of how soon that may move forward.

DR. PONWITH: We have some folks going through and looking at regions that have already completed theirs, and kind of going to school on that. Of course, the first question was are we smarter to try and merge the Gulf and the South Atlantic and tackle these climate vulnerability assessments in the collective, with input from the respective regions, or are we better off doing them sequentially, and the sense that I'm getting from the folks who have gone before is, for heaven's sake, do them sequentially, that they're complicated and they take a lot of input. That was their advice.

At this point, I think we're going to heed that advice. Right now, because the Gulf regional action plan was completed just half a year ahead, and it's out in its final format already, it's likely that will go first. What I would say is that's kind of a blessing and a curse. I would like to see the South Atlantic forging on.

Because of all the things we're going to do, I think that product is going to be one of the things that matters the most to the council and to the fishing community, because it helps them understand which of these species should we really be worried about and keeping an eye on, and I think it's going to be invaluable, not only identifying those species, but why? What signals should we be watching within these populations?

That is the curse side of it, and the blessing part of it is that we can go to school on the Gulf of Mexico. I would love to have South Atlantic participants or observers to be able to watch how that process goes, so that, when we do start the South Atlantic, it's a tighter, better -- It's just a more refined process because of that.

DR. DUVAL: Thanks for the presentation, Bonnie. I definitely appreciate everything that went into that, I was appreciative, I guess, of the honest accounting of the capabilities that you guys have and the information that we have in the region.

Obviously that's a great thing, and I'm glad you guys are honest about what your ability might be, in terms of moving forward on some of these things, but it also -- Obviously it also causes some concerns, in terms of how you are reprogramming staff or trying to maybe realign existing responsibilities, I think, to incorporate some of these priorities that you have indicated that you could do with level funding. I don't know, and maybe -- I have a couple of questions. I think my question in there is over what timeframe do you see going through that exercise of staff realignment, maybe, for lack of a better phrase, or I don't know.

DR. PONWITH: I think that's a legitimate question, and the thing that I want to be careful about is that we are a finite resource, just as each of the state agencies are, just as each of the NGOs are, just as the fishing community is, and you just can't squeeze blood from a turnip. We want to be really careful that we are doing a good job of meeting our obligations for providing science advice and science products and not end up spreading ourselves so thin that we are actually missing deadlines on stuff that got there first, and so we will be attentive to that.

That attentiveness will measure what we can get done with this. I think the answer to your question will be more clear when we finish the climate vulnerability analysis, because I think what that will do is tell us that these are species that we could be seeing, potentially, changes in the population density and population distribution now, based on our new understanding of their vulnerability to perturbations or long-term trends or shorter-term cycles in the system, and that kind of information, I think, will be enormously informative in helping us to set correct priorities and scale them according to the resources we have available.

Understanding what needs to be done, based on the long list of what is in the plan, versus what we can do right now, pretty much showed a pretty clear gap, and that is an opportunity to look for innovation as a solution, leveraging partnerships as a solution, but I don't think there should be a strong worry about robbing Peter to pay Paul, because we do need to remain attentive to the basics, to those core responsibilities. Does that answer your question?

DR. DUVAL: Yes, and I think one of the -- I had a couple of specific questions. First, I appreciate the shout-out for citizen science, and I think that we can certainly accomplish some of these objectives through that vehicle, and I think one of the things that I was going to draw some attention to was actually under Objective 3, the adaptive management processes, Number 13, fishermen observations, citizen science, and establishing more formal methods for scientists and managers to learn about ecosystem and climate-related changes by senior fishermen and other stakeholders who are on the water frequently.

I think that certainly that's something the council take a role in. I mean, we had a little bit of conversation about that earlier this morning, and we have talked about how we could try to wrap our heads around that, and we have some examples for how we could move forward with that, via similar things that the Mid-Atlantic Council has done with their fishery performance evaluations, and so I guess I might just say that would be one of my comments, that I don't think that it would take a huge increase in funding to move forward on something like that, and I think it's probably incumbent upon the council to play a significant role in that regard.

Then I would also say that it also follows directly on Number 14, which is increased dialogue between scientists and managers to enhance that collaborative process, and so I think having a dialogue between scientists and managers, in terms of what types of observations do the scientists need that they feel are most important to their work to provide science in support of management, I guess I would say. That's just one thing.

Then the other question was I saw that coordination of coast-wide fishery-independent surveys, I guess, had been initiated, and so this was under Objective 6, Number 40, baseline data tracking change, discuss options for coordinating fishery-independent survey approaches, and so I am assuming that this is building on some of the work that we have tried to do already.

Your staff, in conjunction with council staff, hosted the deepwater survey design workshop. Myself and the Chair of the Mid-Atlantic Council sent a letter in August of last year, I think to you and Dr. Karp, recommending that, given these different policy directives that the Fisheries Service had come out with, the climate science, the climate adaptation, the climate policy, and the ecosystem policies, that now is an ideal time to look at these things, and so I was just curious if I guess maybe the level of conversations that you all have had with your counterparts at the Northeast Fisheries Science Center and how we could start moving forward on that.

DR. PONWITH: I think that that's a particularly important one. The emphasis on fishery-independent data isn't going to diminish. It really is crucial, particularly to help us tease out the difference in patterns in landings relative to the abundance and distribution of these animals in their natural habitat, to be able to take market-driven patterns out of the picture and tease that out.

More and more, I think we're learning the lesson, abundantly clearly, that stopping a survey at a geopolitical boundary is not necessarily the smartest thing, and the other thing is that I view the pressure for days at sea for fishery-independent data collections to be growing more competitive and not less, and it is with every beat of our hearts, the stroke of the engines, of the NOAA fleet of research vessels, and those ships are getting older. It takes a lot of lift to recapitalize a fleet that is aging, and recognizing that that's a core tool. It's not the only tool for long-term data collection, but it certainly is sort of a backbone for the suite of tools we have for those data collections.

I anticipate the demand for days at sea, whether it be done on a NOAA ship, a state partner ship, on fishing industry vessels, will grow, and we're going to have to be really smart about how we construct those data collections so they are leveraging work that serves not just this council, but the Atlantic seaboard, really.

MR. HAYMANS: Anyone else? Mississippi.

MS. BOSARGE: Thanks. I was just going to say that you did ask about whether to keep them separate, the Gulf and the South Atlantic, the two plans, and I have read the Gulf one in detail, and I have skimmed the South Atlantic one here. I would say, especially now that I have read both of them, they are pretty different, really, what is predicted to happen in the Gulf versus the South Atlantic, and I was actually surprised at that, and so I say, yes, let's definitely keep them separate.

I think one thing that maybe we do work very closely on is there are certain species that we do manage jointly, that we have mixing zones that kind of flow back and forth, and so maybe, in both plans, if we could have some information on what is predicted there, what changes might we expect in that area, I think that could be helpful to both councils.

The regional assessment section, I found that extremely helpful. I encourage everybody to read that. That's only just a couple of pages of the forty-three, and I think that's helpful even in the most basic sense, like just for those of us that are out on the water all the time. As we are starting to see certain things change, it kind of explains why we're seeing what we're seeing and that, I would think, everybody around this table is thinking ahead and always wondering what's going to change in the future. That will help us to anticipate what is coming our way.

One thing that did kind of worry me, and it touches a little bit on what Michelle said, and you mentioned it a couple of times, is it almost seems like -- I hate to say science is working in a bubble

here, but I only saw that one objective in both the Gulf and South Atlantic plan that mentions the fishermen and interactions with the fishermen, to see what's happening. I mean, I think that is an asset that you don't want to pass up. That is a man that's on the water, day-in-and-day-out, whereas, on the science side, it takes a lot of money and resources to get out on the water.

I hope that, maybe even through ideas like what Tim had earlier, with the portal, and I thought that was a great idea. You probably would have to flesh through it and see what's usable for science and what is not, but maybe that could feed directly into a data stream that goes into the assessment process to at least read through, to understand first-hand from the guys on the ground maybe some long-term changes that they're seeing.

The only thing that really concerned me, Bonnie, was that, as they describe the different changes that they expect to see, I feel like they only told us the negative impacts from them. For example, when they start talking about coral, they say, oh my gosh, we're going to have bleaching and coral is very sensitive to changes in temperature, but the flip side of that is even a study that they referenced in the South Atlantic one, and it was off of North Carolina, and, granted, it was back in the late 1990s, but where they were starting to see tropical sponges that they had never seen in that area before, due to these changes in temperature.

I don't feel like that is portrayed in the document that, okay, yes, we may see a loss of some habitat down here, due to it, but hopefully we're starting to see a responsive change in the other direction as well, and the same thing with the mangroves. They say the mangroves are going to expand farther northward, and that you're already seeing that somewhat in Florida, and that's extremely productive.

I guess my only concern is, if we have that kind of negative drive behind this whole climate change, I don't want that to transfer over into the assessment side and we only have negative impacts and we're not taking into account maybe some of the more productive and positive impacts that could come as we see these changes, and so that was my spiel. Thanks.

DR. PONWITH: That was a really astute observation, and, in fact, to that very point, which is a very astute point, is part of the reason we want to do these climate vulnerability analyses, and part of the reason that the collection of fishery-independent data is emphasized is those are the things that will help us be able to differentiate between a stock getting thinner and thinner versus the distribution of that stock drifting longitudinally and us mistaking what we think is a thinner stock for the fact that, instead of measuring at really the center of the highest density, we are now measuring at the trailing edge of the distribution of that stock.

Those are the kinds of the -- They are very, very simple things, but they're easy to miss if you don't have a good, comprehensive plan for trying to interpret, and I also appreciated the comment about the web portal, and I had some further discussions on that, and one idea is, if we don't -- If it's too much to expect every member of the fleet to dump their data into the public domain, which is an awful lot, we could create something just as simple as a website for commercial and for for-hire and for private recreational and then, going down the different columns, the different species that are harvested, and something as simple as a three-level code of what direction are you seeing the abundance of fishes that are at the very borderline of being legal. Are you seeing more of them this year, about the same as normal, or fewer of them?

Doing that longitudinally across the length of the South Atlantic's jurisdiction, so you don't just get this isolated -- Someone said, well, anecdotal information is you're seeing one little piece of a giant quilt here, but we get the big picture. Something that simple could be absolutely invaluable, and that's an example of something that would be really valuable to give us leading indicators of the directions that these stocks are going.

My answer to that question is that, if you look through that list and you see things that you don't think should be there, cross them out and send that to us and explain why you think that we should ditch them, but, really, the tougher thing is, if you see a gap, where it's a missed opportunity, I am really eager to see those, and if you can think of concrete ways that the industry or the council can be contributing to what is a way bigger problem than I can tackle myself, we are certainly willing to entertain that, and so thank you.

MR. HAYMANS: Thank you. For the record, Mississippi equates to the Chair of the Gulf Council, Leann Bosarge. Sorry to be too familiar. Ben, go ahead.

MR. HARTIG: One of the things that, in the limited reading I've done about corals, and certainly going back in the geologic record is going to give you some information on what happened when sea level rose before, and so one of the striking things that I saw was that you would have expected the corals to march right up the coast, and they did not do that.

Now, why did they not do that? Right now, we're seeing the increase in cold-water eddies in the areas where you would have thought that these corals could have gone, and maybe these current patterns changed, to the point where there is so much cold water that these corals can't move north, because they are pinned by the number of eddies that they hit, and so some of this, going back in geologic time -- I was amazed at the amount of work that had been done on south Florida and the ancient reefs that are there, and so some of that could help in this regard as well.

MR. HAYMANS: Are there comments or questions or suggestions? Roger.

MR. PUGLIESE: Just one of the timing -- The request was made that I think that we have to have any of our comments in by March 25, and so, for council members, if we're going to provide an overall comment. We have also distributed to this our climate writing team, and it was a short timeframe.

I was hoping to get maybe something on the table here, but not quite enough time, but we want to be able to fold some of that, as well as our Habitat and Ecosystem Advisory Panel, and so to fold that into something that we can provide directly to you. Now, we do have our Habitat and Ecosystem Advisory Panel meeting, but it's not until May, which is going to kind of miss this timeframe, but we may be able to still provide some additional follow-up information at that point.

MR. HAYMANS: Anything else on Item 3? Okay. Roger, do you want to move on?

MR. PUGLIESE: That just brings us into Other Business or into Other Habitat Issues. Just a couple of things that I think we're looking for is some direction to staff and to our partners -- An issue came up on a potential international conservation of the sargassum, and there had been a request, and actually a formal letter has been sent to the council, requesting that our Habitat and

Ecosystem Advisory Panel be briefed on some of the activities of the Sargassum Sea Commission, I guess is the new organization.

We had a preliminary briefing by George Sedberry at not the last, but I think the one before, advisory panel on the development of potentially some positions or advancements, and we had a number of people, such as Pat Halpin and others, that may have some information on that, and another aspect is that, with a lot of the explosion of sargassum in the Caribbean, there has been movement and discussion of use in biofuels and biofuel technology in many of the islands.

I think most of that is focused toward moving it from the beaches and processing that material, but I think it was putting it in that loop of discussion, and so I think, with that request, that our advisory panel will look at it, and that's kind of the normal process for an issue like this. I think we're looking to have a recommendation that the AP be briefed and provide input to the council on this issue.

MR. HARTIG: Just to follow up just a little bit on that Caribbean experience, it went into some of the bays and actually killed the seagrasses that they had. There was so much of it that it stopped the light from penetrating and created anoxic conditions, and so be a little careful about how you go forward with that.

MR. PUGLIESE: Yes, and it's a real interesting position, because you've got this event there, but then you also have a paucity of sargassum on the Atlantic coast, and a lot may be, again, back to this understanding of really some of the current shifts in our region and what those really mean, and that may be what is driving the pushing of some of that habitat toward the Caribbean and to the islands, versus it making it up the normal route up through the Atlantic, and so, yes, I think that potentially could be an issue, especially with it killing some of those systems in those island areas.

Also, I guess I had noted it, but I guess I would assume that there is a desire to have a council position provided on this drafting a letter? If there is just direction to staff, that's probably good enough to move forward and make sure that we combine a lot of the information we've got from some of our partners, as well as the council members, and then work with our Chair to provide that.

DR. DUVAL: Yes.

MR. HAYMANS: Okay. Anything else to come before this committee? I think we've walked through pretty much each of the items. We had no Other Business. Seeing none, we adjourn.

(Whereupon, the meeting adjourned on March 6, 2017.)

Certified By: _____ Date: _____

Transcribed By:
Amanda Thomas
April 6, 2017

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