

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

HABITAT PROTECTION AND ECOSYSTEM-BASED MANAGEMENT COMMITTEE

**Hilton Garden Inn/Outer Banks
Kitty Hawk, North Carolina**

December 4, 2018

SUMMARY MINUTES

COMMITTEE MEMBERS

Dr. Wilson Laney, Chair
Mel Bell
Chris Conklin
Steve Poland

Doug Haymans, Vice-Chair
Tim Griner
Jessica McCawley
Art Sapp

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OBSERVERS/PARTICIPANTS

Shep Grimes
Monica Smit-Brunello
Dr. George Sedberry
Anne Deaton
Will Waskes
Dr. Marcel Reichert
Dr. Erik Williams
Other observers and participants attached.

Dr. Jack McGovern
Dr. Clay Porch
Dale Diaz
Erika Burgess
Nik Mehta
Rick DeVactor
Craig Poff

The Habitat Protection and Ecosystem-Based Management Committee of the South Atlantic Fishery Management Council convened at the Hilton Garden Inn/Outer Banks, Kitty Hawk, North Carolina, Tuesday morning, December 4, 2018, and was called to order by Chairman Wilson Laney.

DR. LANEY: I will call to the Habitat Protection and Ecosystem-Based Management Committee to order, and, just to remind everyone who is on that committee, it is myself, Doug Haymans as Vice Chair, Bob Beal, Mell Bell, Chris Conklin, Tim Griner, Jessica McCawley, Steve Poland, and Art Sapp. Welcome, Art.

The first item is the Approval of the Agenda, and I have a suggestion for one item to add under Other Business, which would be a brief discussion of the issuance of the MMPA permits for the seismic exploration off the east coast of the U.S. The council has been very engaged in that issue in the past, and I think it would merit a little bit of discussion, for our new members especially, and so, with no objection from the council, we will add that under Other Business. Does anybody else have any other items they want to add under Other Business? Hearing none, if there is no objection then, the agenda will stand as approved, with the addition of that one item.

The next item is the Approval of our October 2018 Committee Minutes. Do I hear any need for any corrections to those minutes? Hearing none, is there any objection to the approval of the minutes? Hearing none, the minutes will stand approved as published, and so that gets us to our first topic, which is Atlantic Coast-Wide Discussion and How to Address Species Moving Northwards, which is a topic of interest to everybody, I think, and so we'll start with Roger, I believe.

MR. PUGLIESE: I am going to go ahead and run through an updated presentation. You saw part of this presentation previously, but I want to touch on the highlights for new members as well as some of the updates, which are specific to some of the landings material. This is an ongoing discussion the council has initiated with our partners to the north in the Mid-Atlantic and New England areas on how to address the issue of species movement northward, and some of this originally started with discussions over blueline tilefish and other snapper grouper species that were apparently being caught north of the South Atlantic's jurisdiction, the expansion of the cobia fisheries, as well as initial discussions at the council level on how we address this under say specifically snapper grouper.

With regard to that, some of the first steps the council initiated were discussions through the Northeast Regional Coordination Council, where they had talked about the different councils and what some of the responses were and how we could begin to address this. This resulted in creation of the group where you had the chairs and vice chairs and executive directors involved directly in the ongoing discussions between the three councils, which directed consideration and exploration of different avenues that have been addressed in the past, or potentially could be addressed in the future, to look at movement of the species.

That included looking at how the coastal migratory pelagics plan was originally extended to the Mid-Atlantic region, begin discussions on priority species, as well as looking at an actual sit-down between the three councils' hierarchy at the September meeting, and, as everybody knows, with the hurricane, we ran into issues on that initial sit-down discussion, and we'll get into that timing a little bit later.

One of the other avenues that was discussed is there had been additional coordination between our three councils, and one was development of a memorandum of understanding on deep-sea corals. This is something that we had worked together and collaborated on and established a framework for coordination and identified responsibilities by the councils and allowed some continuity in data-sharing and coordination, and so this is also another avenue that had been considered and discussed and implemented between the three councils in the past.

This is essentially the existing South Atlantic Council base jurisdictional area. The areas under the Atlantic coastal migratory pelagic plan included the Atlantic group southern zone and northern zones, and the northern zone is the area that was specifically extended up through the Mid-Atlantic jurisdiction. Under one of the other plans, and it's a coordination between all of the councils, the South Atlantic being the lead, is the Dolphin Wahoo Fishery Management Plan, and this shows the three jurisdictions, but the South Atlantic Council is the lead to provide development and regulation, and so that is another example of coordination between the Atlantic coast councils on management of a shared resource.

Under the other discussions on priorities, I think the key ones were on coastal migratory pelagics as well as under snapper grouper species, and there are some very species highlighting those. Advancing discussions on specific species, but one of the things that I mentioned earlier was this discussion on what the mechanism was before, and the South Atlantic Council, under Amendment 5 to Coastal Migratory Pelagics, provided that extension of the management unit for the Atlantic groups up through the Mid-Atlantic jurisdiction, and that essentially extended those boundaries up through the New England/Mid-Atlantic border.

Now, that was a quick touch on what had been brought forward and how we got to this point and the coordination between the three councils. One thing that was directed is we were unable to have that joint session at the last council meeting, and we weren't able to, because of schedule differences, plan it for this council meeting. One thing that was desired though was to begin discussions internally by the South Atlantic on some thoughts about priorities on where we stand and very specifically a directive on to include the 2017 landings in the northern area to see where we are with some of those, and so I'm just going to touch on that, and I worked with Mike Errigo to be able to provide these for you.

This is showing -- The bottom line is most of the trends that we were seeing in the previous efforts are continuing. Under the commercial areas, the predominant components are black sea bass, scup, and tilefishes in the Mid-Atlantic region, and the predominant states for the commercial are New York, New Jersey, and Virginia are the highest producers on the species under the Snapper Grouper FMP.

Under the recreational landings for snapper grouper, again, black sea bass and scup are driving it, but then you're bringing in species like tilefish, spadefish, blueline tile, and triggerfishes are species that are of higher landings in the region. Under the Mid-Atlantic for the recreational, the trend, as mentioned, is 2017 is a little step up from previous and total, and so it is continuing to be on a slight increase, as well as the commercial in the North Atlantic region. The North Atlantic recreational is staying stable, but there is pretty significant landings throughout on the snapper grouper species in the region, predominantly coming with Massachusetts, Rhode Island, and Connecticut.

In the Mid-Atlantic under the unmanaged species, 2017 did see another step up, in terms of continued increase in some of those unmanaged species occurrence in the Mid-Atlantic region in the recreational fishery, and that's with numbers and in pounds. In the North Atlantic commercial unmanaged, there is a tick-up, after a fairly significant earlier peak back in 2012, and I'm not sure if it's under-coverage or not, but you're not seeing quite as much in the 2017, and that may be a reporting issue on this for the recreational.

On the coastal migratory pelagic, which is the other major component, on the commercial, the historic, the 2003 through 2017, the largest component was Spanish, with a smaller of cobia and king, which pushed up to cobia having a greater predominance in the more recent times, between 2010 and 2017. On the commercial side, it's staying up high, higher than previous years, and it dropped back a little bit, but it's still up in the higher area. The composition is pretty similar between years, with cobia being a predominant component, whether it be the 2003 through 2009 or 2010 through 2017 timeframe.

On the recreational, there was somewhat of a drop-off in the Mid-Atlantic on some of the species in 2017. On the commercial landings, you are seeing a shift from king mackerel being predominant to Spanish, actually, in the more recent years, 2010 through 2017, and a larger component of cobia, also. Overall, New England commercial increased significantly between 2016 and 2017. Again, the trend being increasing. On the recreational, Spanish mackerel is on the larger timeframe, between 1996 and 2017, and that showed Spanish as the largest, with king mackerel being the second-largest.

There are spotty portions throughout the entire region, in terms of recreational landings, and those are the updates on all the species that were in the coastal migratory and snapper grouper species, to continue this discussion on advancements of our understanding and coordination on species moving north. Are there questions?

DR. LANEY: All right. Are there questions for Roger?

MR. BELL: Just a dumb general question. For the commercial landings, the location that we're looking at is georeferenced to where the commercial fishermen reported catching it, the box, as opposed to the port landed? Is that how they do that for commercial? Do you know?

MR. PUGLIESE: For their reporting, it's coming through the ACCSP, and so I would assume it would be standardized for the different --

MR. BELL: Well, they do report a specific sixty-mile or whatever it is box.

MR. PUGLIESE: Right, and so would be off of the state, and so, yes, I think you could actually get to the location in that box within those, but all this is doing is collapsing those in the area off that state, and so all those boxes that would occur off the State of Connecticut I would assume would be encompassed by the presentation that you're seeing.

MR. BELL: Then, for recreational, they don't report that, and so it's just wherever it's landed, the state in which it's landed.

MR. PUGLIESE: Right.

MR. HAYMANS: Roger, with snapper grouper species, whether it's commercial or recreational, and it doesn't matter, black sea bass is managed through the commission, and so there's already landings -- I mean, historically, there's lots of landings, lots more than there are in the South Atlantic, and I'm just curious as to why we would even include black sea bass in those charts. I mean, it's -- I think, if you removed it, because it's already a commission-managed species, and we've already got millions of pounds up there anyway, then scup would be the dominant fish in those charts, and I'm just kind of curious as to why we included black sea bass there.

MR. PUGLIESE: I think the intent was to include all the species that are in the snapper grouper complex, and that's one the reasons you had the unmanaged species versus that also included here, to show that that is a fairly significant -- Less numbers, in terms of that. The biggest predominant species under what the South Atlantic would consider snapper grouper species are black sea bass.

MR. HAYMANS: Right, but I guess where I'm going is, with the commission already managing them, and it's ten-fold more than we land anyway, and didn't we remove spadefish?

MR. PUGLIESE: No. It was sheepshead that we removed.

MR. DILERNIA: I'm not a member of the committee, but there are a number of Mid-Atlantic charts up there, and so, if you would indulge me, I would appreciate it. Thank you. Roger, the slides that you had that showed king mackerel, if you could just project one or two of those, and the reason I'm curious is because I'm pretty much in-tune with what's being landed and caught in the Mid-Atlantic region, New York and New Jersey, and I don't know of us catching king mackerel, and I was wondering how many pounds are represented by these pie charts, because these pie charts make it look like a significant number of king mackerel are caught in the Mid-Atlantic region, and, gee whiz, I don't think I know of any being caught, and I asked Dewey here, just to my right, if he knew of any north of North Carolina, and I don't think we have seen any catches of king mackerel, and I was wondering if you could tell us how many pounds those pie charts, or those graphs -- There you go, right there.

MR. PUGLIESE: Yes, and I went to this one, because this is the overall component that shows Virginia having the predominant amount of coastal migratory pelagics, of which my guess here is it's probably predominantly cobia, in this case, and, if you look at those other ones, historically, going back to 2003 through 2009, it was a small sliver under king mackerel anyway. In the more recent years, I think it validates what you just said, because it doesn't show -- I mean, the recreational fishery, if they're there, it's probably something that would be a confidential number that wouldn't be even shown, or not confidential, and this is the recreational side, but not significant enough to even show up under this.

MR. DILERNIA: All right. Thank you very much.

MR. SAPP: Something struck me as odd, and I'm curious for an answer. What happened to the commercial fishery in Maryland on snapper grouper in 2010, and then it vanished in 2011, and did anybody ask, or does anybody know how that happened? Not on migratory species, but on snapper grouper. There you go. That's the one.

MR. PUGLIESE: I am not sure. We would have to look at the actual numbers to see exactly what is represented in the tables. I'm not exactly sure what happened with the fisheries, if it was a reporting issue or if it just is not within the area, and I don't know if -- If there is additional discussion on getting to some of those details, I think we can provide those as we move further on these, and Gregg may have a comment on that.

MR. WAUGH: We would have to double-check the dates, but Maryland and Virginia put in some regulations dealing with snapper grouper species, and so that could have been responsible for reducing some of that harvest, but we'll look into that and bring back a report on what happened there.

MR. GRINER: Roger, for these unmanaged snapper grouper species, is there a breakdown by actual species, by actual fish, that we could look at?

MR. PUGLIESE: Yes, I think we have those broken down further. The concern I think we have is that there may be a number of confidential, and that's why we kind of kept it at this level now, and we could get further into it as we get into -- As we kind of sort some of those out, but I have the feeling that, when we get into some, it's going to be almost all confidential data, just because of how small some of those numbers are, but we have it broken down, and we could probably go further with at least identifying what those species are.

MR. GRINER: I think it's going to be important to see what species are there that we're talking about.

MS. MCCAWLEY: Tim kind of brought up what I'm struggling with, is I'm kind of unclear what our action today is, because I think we're preparing for what's going to happen in March when we bring everybody else in, and so, if I read the overview, it looks like we're supposed to be selecting species maybe within snapper grouper or within coastal migratory pelagics, and that's part of my confusion. Are we saying we want to take all those species or that entire FMP and extend it, or are we saying there appear to be some select species, and maybe we want to talk about those species, or maybe those are just considered indicators of what we want to do, and I'm a little confused about what we're doing today.

MR. PUGLIESE: I think this was to set the stage for that discussion, and so I think that it was really just opening the door on, from a South Atlantic perspective, what are species of concern that we may have as we move into those discussions with the Mid-Atlantic and New England, and I think it wasn't specifically to pin down core directives, but really open the discussion about what are going to be some of the bigger, more important species that may need to be considered as you get into those discussions and would have impacts, potentially, on entire components of the South-Atlantic-managed counterparts. It was just to begin that discussion of priorities and where that focus may be, because I'm sure the Mid-Atlantic and New England will have some very specific ones based, on some of the issues that are occurring within their region.

MS. MCCAWLEY: That was helpful, and so let me try to re-state that. So we're saying we're just kind of looking at some indicator species, and so, if we're trying to figure out what to do, that, in thinking about something like black sea bass or others, that this might give us an idea of how we want it to be managed as it's moved north, and I'm just a little confused, because we're talking about some of the unmanaged snapper grouper species and how that's going to get handled, and

so I guess that that gets handled depending on which tool we use, like if we're going to say we're going to extend the whole FMP north into these other jurisdictions, and can you talk about that a little bit more, about, as we use the different tools, what that means for species that are managed versus unmanaged?

MR. PUGLIESE: Yes, and I think that was what this was opening, is that door, because I think one of the things that was different from the past is that that actually was one of the avenues that was highlighted as an opportunity to consider, and, in the past, we've had pushback on really looking at that as an avenue, in terms of extension, but it was very specifically directed at how was it done with the coastal migratory pelagics and that that may be extended further on the snapper grouper, extension of the snapper grouper into the Mid-Atlantic or into New England, and that would very specifically --

I guess it gets to your point of that would very specifically address the issue of those unmanaged species, because those would be bundled under the management of the complex, and so those are avenues to beginning that discussion, and so it wasn't pinning down these, but kind of laying a number of the different trajectories that are on the table and preferences that this council may have, in terms of how to advance forward and where we go from here, and this is just the beginning of that process, and, once you have additional input -- But this was to get a little bit more of the ducks in a row from the South Atlantic perspective on preferences.

I mean, this is a longstanding fishery management plan, and both of those are longstanding fishery management plans with a lot of history, in terms of getting to where they are, and is there a benefit, and I think what you're seeing is the fact that that is in place and that those have the ability to -- Probably on a more rapid ability to address this, because they are in place, to be able to step forward, and, at least as a potential option that they may consider from the Mid-Atlantic or New England region.

MR. WAUGH: Just to get to Jessica's question, at the last meeting, you all asked us to update the landings and bring them back to you, and so I think, here, it's looking for input on exactly what you want us to present when we meet with the Mid-Atlantic and New England in March, and that's going to be set up for Tuesday of our March meeting.

Doug raised the issue of black sea bass and scup and whether we include them or not, and you have to take a broader view. This isn't just South Atlantic species moving into the Mid-Atlantic and New England, but it's also Mid-Atlantic species moving farther north into New England, and those two councils are dealing with this a lot too, and so that was sort of the idea for keeping black sea bass and scup in there, because those are issues that New England and the Mid-Atlantic are dealing with, the same as we are.

Any guidance you all have, in terms of are there some species you want us to remove, are there some you want us to add, and then, in terms of the approaches, what the council EDs and chairs have talked about thus far is exploring -- Rather than going to the Secretary and asking for some change in authority, it's to have whichever council manages that species extend the jurisdiction to the adjoining council and give them voting seats at the committee level, and that's what's been discussed thus far, and that's all for you guys to discuss when the three councils get together in March, but we're looking here, as Roger said, for any guidance you all can provide in terms of

what we present in March and any sort of strategizing you all want to do here ahead of going into that March meeting.

MR. BELL: Just kind of going back to thing that I asked about earlier, and I think something Art said, but you could see some dramatic shifts in this. Keep in mind that, yes, the fish themselves can move, but we're managing a fishery, and the fishery is the habitat, the fish, and the fishermen, and so some of it can, could, be related to behavior of the fishermen, in terms of particularly near those lines, and fishermen north of the line could be going south, and the fish are actually still south, and so you just need to make sure that the data -- How we're looking at the data, that we understand the difference between the fish actually moving and the fishermen's behavior. That's why I was just asking about that earlier.

Then it could give you some of these -- It could contribute to some of these wild shifts, if you get it, and it could actually be more of the fishermen changing their behavior, if you're not looking at it georeferenced to the actual region, if you're looking at landings, where the fish are landed, as opposed to where they're caught, and we've just got to be clear on that as we look at this stuff.

DR. LANEY: Good point, Mel, and so the ecosystem may be shifting, if you define ecosystem especially in terms of temperature, but also there is the shift in behavior of it, the sociocultural aspect of it.

MR. CONKLIN: What is going to help me be able to make a better decision with this is, kind of like Tim said, if we have a breakdown of the species and how many pounds, and it doesn't have to get into the detail of states, but how many pounds north of the demarcation line of each species are coming in over each year and whether it's managed and who manages it.

Like one of the slides says 3,000 pounds of Spanish mackerel, and that's not enough for me to want to start to give over some management jurisdiction to another council. Also, what Art was saying about Maryland and stuff like that, and sort of what Mel was saying, I do know that -- I don't know if it's in that particular year, but fishermen from South Carolina, and I'm sure many from North Carolina, they participate in fisheries in the Mid-Atlantic region as well, and some of it's tilefish and stuff like that, and, when there were closures or whatnot here, they were making their way up to go flounder fishing or something like that, and they would make a snapper grouper some sort of species trip and land them up there and put them in the marketplace, because I remember times when the market was flooded in the Northeast, due to the migration of the fishermen.

I am not prepared to make any decisions or anything on these charts with everything collectively, and I need to see the species broken down, and I feel like everybody can make a better decision before we move forward and bring stuff in March or February or whenever we're supposed to meet again with the other councils.

MR. HAYMANS: Gregg, back to black sea bass for just a second. My point was black sea bass is a commission-managed species north of Hatteras, right?

MR. WAUGH: No, it's joint between the councils and the commission. If you want to see an interesting management exercise, attend one of those meetings. Tony can fill you in over hospitality on some of the details.

MR. HAYMANS: But it's joint with the commission. The commission has a black sea bass and scup plan.

MR. WAUGH: Correct.

MR. HAYMANS: So my point is the commission and its partners are equipped to manage, at least for black sea bass, any changes between jurisdictions. Unless we can determine that a significant drop in our catch is due to migration north, I don't know that I would include black sea bass in any adaptive plan, or cooperative plan, with these other councils, unless there is some very strong reason to say that our recreational fishery is half of what it could be, because they have moved north, and so that was my point there, was they're already equipped to manage it.

MS. MCCAWLEY: I agree with everything that Chris said. It's difficult for me to pick out the species without seeing the information in a different way, but, also, I feel like I need more information about the different approaches that would be used, and so I get that it seems like, in the previous meeting, that they are leaning towards the council management and extending that jurisdiction and then giving the particular council in question voting seats on the committee on that other council, but I guess I just don't understand all the mechanics of that and how permits might be involved and then also how it is interfacing with the ASMFC management of those species, and so I just don't feel prepared to have an informed discussion with the others in March until I guess I understand some of the pros and cons, maybe in a table, of the different format for doing these different types of approaches, and I just don't feel informed enough to discuss it with them.

DR. LANEY: Tony, I have you next, and you may want to say a word or two about scup, summer flounder, and black sea bass management, to enlighten those of us council members who are not aware of that.

MR. DILERNIA: Thank you, Mr. Chairman. I think they say a giraffe is a critter built by committee. Well, that makes -- Black sea bass makes a giraffe look like a normal critter. The way we manage black sea bass currently in the Mid is we have federal management. The Mid-Atlantic Council manages black sea bass, and the federal management measures are from North Carolina up to and including Delaware, and then from New Jersey north, and north is continuing to expand, and we're starting to hear complaints from the fishermen in Maine that our black sea bass are eating all of their juvenile lobsters.

From New Jersey north, there is a state-by-state management system that the feds accept in lieu of the federal waters management system. That entire process is being reviewed and revamped, and so you may want to just say that we'll take care of black sea bass from Hatteras south and then let the rest of the world, from Hatteras north, do what they have to do, and I would say go along with that, because it's going to get messy.

Scup is managed -- The way we manage scup is we have three quota periods, what we call Winter 1, which is January up through April, and there are federal management measures. From May through October, I believe it is, we have state-water measures, and then in November and December, we have Winter 2, which are federal-water measures, and so that's a combination of the two, which, quite frankly, I think works well, because, when the fish are in federal waters, they

are managed under a general management scenario, and, when the fish are in state waters, they are managed by a state-or-state, or actually I much prefer what I call a regional measure, where it addresses the peculiarities of each particular state's fisheries, and so, what we call the scup model, the Winter 1, the Summer Period, and Winter 2, I personally like very much, and I hope that we'll be able to extend that into the black sea bass fishery as we review and come back to managing or adjusting the black sea bass fishery.

Two other things. Number one, regarding shifting of species, I was surprised to learn last week, or two weeks ago, or about last week, that Mid-Atlantic boats fishing for black sea bass offshore, and now they're in federal waters, and they were fishing about twenty or twenty-five fathoms on the hard bottom, are catching anywhere from 500 to 1,000 pinfish on each trip. I was shocked to hear that we were catching pinfish. That's what I use for my tarpon bait down south, but, yes, they brought them to the dock, and there is a ton of pinfish on hard bottom in the Mid-Atlantic area, and so talk about shifting species, and, yes, it's happening.

Finally, I bring to this council's attention draft legislation that is about to be introduced by Senator Blumenthal of Connecticut, and it's called the SHIFT Act, Supporting Healthy Interstate Fisheries in Transition. The SHIFT Act, and I'm going to read it from my email right here, is we in the Mid-Atlantic have been sent this draft legislation and asked to comment on it, and I suspect that -- I would suggest that the South Atlantic Council also look at this draft legislation.

The bill is called the SHIFT Act, and it looks to have ASMFC account for climate change impacts on fish population distribution and abundance when making final allocation decisions among its member states. The bill also requires the Secretary of Commerce, at the request of a council, make a determination of whether or not a fishery substantially extends into the jurisdiction of another council. If the Secretary makes a positive determination, the Secretary will designate one council to prepare a fishery management plan and/or amendment or require joint preparation of a fishery management plan and amendment. Finally, the last section of the bill requires that new fisheries in U.S. federal waters are sustainable.

This act, and I can tell you where it's coming from. It's coming from the southern New England states that are wanting to have greater management over black sea bass and scup, because we're seeing -- Well, black sea bass really didn't exist in southern New England waters up until about ten years ago, and now they're invading southern New England waters. Scup have always been there, but those southern New England states of Connecticut, Rhode Island, and Massachusetts are asking for greater management authority over those species, and we're going to see continued efforts by states to have management authority over shifting stocks, and I believe this act, if it's enacted, would also significantly affect the actions of this council, and so I would suggest that you look at it. That was a bit winded, but thank you very much, Mr. Chairman.

DR. LANEY: You're welcome. Thank you, Tony, for that good update.

MR. GRINER: I guess I was just going to reiterate about the black sea bass. I think the black sea bass needs to come out of this, totally out of this. It's already separately managed.

DR. LANEY: Yes, north of Hatteras. Anybody else want to weigh-in?

MS. MCCAWLEY: I guess I don't feel like we have adequately given direction to staff on what they should come back with as we come into the CCC meeting in February and then the meeting in March, our council meeting in March, where we're all going to come together. Like I said, I would like to see the species, like what Chris is asking for, listed out, and I would also like some kind of table or something, so that I could understand the different options and maybe the pros and cons relative to permits, et cetera, involved in those different options. I just don't feel educated enough on this topic to really be a good participant or a representative of the South Atlantic in these discussions at this time.

MR. WAUGH: The steps will be that we'll take from this, and we're getting your guidance that you want a table with pounds, and where we need a little more guidance is -- What I'm hearing the consensus seems to be is to remove black sea bass and scup. Now, at our March meeting, we'll get presentations from the New England and the Mid-Atlantic, and I'm sure black sea bass and scup will be one of the species that they point out, and so I don't see any downside to us removing them from our list, and so we'll put together a table with pounds, not including black sea bass and scup.

Then we'll construct a table looking at the different approaches to management and flesh out the pros and cons. When we visited this years ago, the impact on permits was one of the big issues that we did not extend jurisdiction, and so that's an important point to look at, but we'll have that material prepped.

Then the next step is, at the February CCC meeting, Jessica, Mel, and I will meet with our counterparts informally from New England and the Mid-Atlantic and talk a little more about prep for our March meeting and the approach, and so we'll have that table for you all to look at, and we'll copy council members, so they know what's going on, and so we'll have the opportunity, before our March meeting, to have some discussions, us ahead of time, in prepping for the CCC. Then, at the CCC, we'll have informal discussions with New England and the Mid-Atlantic, and so, when we come back to our March meeting with those two councils, we should be ready to go.

DR. LANEY: Thank you, Gregg.

MR. CONKLIN: Gregg, the table -- I want to get a recreational landings table and a commercial landings table with pounds caught of each species per year, for however long the time series you want it to be, and then, on top of that, I want to know who has management jurisdiction over the species and who has the FMP, if any, for each species. That's the level I want.

DR. LANEY: Chris, a point of clarification of that. Were you interested in seeing the non-managed species be broken out as well, to the extent that the data allow that to happen?

MR. CONKLIN: Yes, that's fine. The more the merrier. It doesn't mean that we have to include them, but, anything that is encompassed in Roger's graphs here, I would like to see it broken out, and that's just north of our jurisdiction.

DR. LANEY: Okay. Thank you.

MR. POLAND: If we're creating tables to just kind of put all the information together and help guide us in our decision-making, I would just request that we also include the ACL for the managed species in that table, so we can reference that to the actual landings north of North Carolina.

DR. LANEY: Okay. Thank you. Does everybody feel like that is sufficient guidance to staff? Gregg and Roger, do you guys feel good on that point? Anything else? All right. Seeing no other hands, then I think we are through with that agenda item, and we will move to Item 2, which is Attachment 2 in your briefing book, and that is Habitat and Ecosystem Tools and Model Development and Regional Partner Coordination Update from Roger.

MR. PUGLIESE: Actually, I am going to defer a real presentation. Anne Deaton is going to be reviewing -- The advisory panel for habitat and ecosystem just met, and a lot of those components are highlighted within that report, and so what I'm going to do is just weigh-in on a couple of highlights and additions as she goes through her presentation or a review of our activities.

DR. LANEY: Okay. Sounds great, and that's a more efficient way to do it. Anne, do you want to come on up to the front, and then we will be going to Item 3, the Habitat and Ecosystem Advisory Panel November 2018 Meeting Report.

MS. DEATON: Good morning, everyone. As Roger said, my name is Anne Deaton, and I'm with North Carolina Division of Marine Fisheries, and I serve on the Habitat Protection and Ecosystem-Based Management Advisory Panel, which is a really long name, but a very good panel. We had our last meeting in November in St. Petersburg, and the focus of all the agenda items was really information updates that are needed for the Fishery Ecosystem Plan Implementation Plan Roadmap, and so it was nice to see pieces of information that were requested in that roadmap come together. It was a very informative meeting. In your briefing book, you did receive the summary report, and Roger put that together with a lot of links, so you can see the presentations and some good information, if you would like more.

The first thing on the agenda was that NOAA was going to give an update on some of the ecosystem-based fishery management activities that they have ongoing. Unfortunately, the two people slated to be there had conflicts at the last moment, but Cindy Cooksey with NMFS gave an update on the South Atlantic Ecosystem Status Report, and so they are working to compile information using a lot of these long-term datasets that you have heard about quite a bit, I'm sure, MARMAP and SEAMAP and other ongoing research and information and using that to give us a status report, which is really what all of this information gathering is about, so that you can then make management decisions.

That is slated to be done in 2019, and they have also started working on the South Atlantic Climate Vulnerability Assessment, but they're not as far along on that, but, again, there is links to the presentations in the summary report. The advisory panel, one of their recommendations, or suggestions, after that discussion was they are interested in seeing like conclusions to a lot of these products, and so they really want to see an end report, so that those results can be used for management.

After that, we had Lisa Havel with Atlantic States Marine Fisheries Commission, and Jessica Graham was on the phone from SARP, and they gave an update on their national fish habitat

activities. The advisory panel was very supportive of what they're doing, and so ACFHP and SARP both are where the rubber hits the road when it comes to habitat protection.

They are doing restoration work, but on a small scale, because they have limited funding, and so one of the recommendations from the panel was that funding needed to be increased. Of course, that's not up to them, but so that they can increase these on-the-ground projects and that that is a perfect platform to have outreach to the public so they can see what's going wrong, how we can improve it, and see the connections between impacts and improvements and then subsequently improvements to our fisheries.

The next item that we discussed was the prey supporting the dolphin wahoo fisheries, and Steve Poland with North Carolina Division of Marine Fisheries, and here on our council, gave an excellent presentation on the ecological importance of the frigate and bullet mackerel to those species. After he finished that information, the panel discussed it quite a bit, and they agreed that the prey species are the dominant prey for dolphin and wahoo, and that's very important, but they also noted that there is no real data to say that they are overfished, and there was no real data to show an immediate threat to those species and their populations. There was also a comment about there are other species in the weed line that they also feed on heavily.

Their recommendation, which was requested, I think, for the council to discuss was to take a proactive approach by monitoring, right now, these prey species and that that approach would be warranted, potentially valuable, and may lead to the need for further management actions, and that would be supportive of the ecosystem-based management approach, but, at this time, they didn't think any designations were needed, just because of the lack of information really showing that there was a critical problem.

MR. PUGLIESE: Just one, I guess, additional connection. One of the things that was brought up was that, in looking at the dolphin wahoo plan and looking at this type of a first-time looking at prey-predator interactions, the dolphin wahoo plan was a proactive plan to begin with, in trying to get ahead of the curve and identifying -- I think the AP had some discussions specifically about taking an incremental approach of identifying some species to investigate exactly how you advance this, and I think that's one of the things that was supported.

While the state moves this way, there was some significant support that, yes, we need to begin to understand how you would, if you want to manage this way, how you would investigate and begin to connect prey and predator to support these species, because of the significance or the broader ecosystem perspective, and so advancing that was -- While some of the qualifiers are there, there was that support to advance and begin the discussions and advance this.

DR. LANEY: Steve, did you want to add anything on this particular topic, since you gave the presentation to the AP?

MR. POLAND: Wilson, I'm giving the same presentation in the next committee meeting, and so I just might save my comments until then.

DR. LANEY: Okay. Thank you. Go ahead, Anne.

MS. DEATON: All right. Another agenda item was we had a round-table discussion of natural events in 2018 in the various states, and it was really a hard year in 2018 for South Atlantic states. Florida has been -- They had a really hard time with blue-green algal blooms on the east coast, thought to be due to the canal discharge from Lake Okeechobee, and, on the west coast, they've had a red tide for over a year, and both of these blooms are causing fish kills, which we witnessed at our meeting on the beach, and I saw a dead sheepshead myself.

They have also had a terrible time with white plague disease that has caused an excessive amount of coral mortality. It's thought that it maybe began somewhere off of Governors Cut in Miami, and it has worked its way down, and the reason that it's worse than some of the other coral diseases in the past is that it affects multiple species, and it causes a greater extent of mortality very fast.

Georgia, they have had an increase in shellfish harvest closures due to *Vibrio*, which may be related to increasing water temperatures, which you were just discussing, and North Carolina and South Carolina were highly impacted by hurricanes this past year, due to the excessive flooding. The effect of fisheries is uncertain at this point, but huge volumes of failed wastewater from treatment plants and from agricultural animal operations went into our rivers and down into the ocean, and so we'll see. The legislature, I will note, has provided now \$11 million that is going to go to fishermen relief.

The next item is we had an update from the Navy. Laura Busch sits on the advisory panel, and she gave an update on the Atlantic Fleet Testing and Training Area. They just finished the final EIS for that, and there is a link on her presentation and what that will involve. It's, I don't believe, going to be too much different than what they have been doing.

Members raised concerns about how the Navy is determining new technology impacts on resources, and so Laura went into some of the research that they are doing, and they're doing work on acoustic impacts on fish, both those with and without bladders, and pile driving and impacts of underwater explosions, and so they have a pretty large research department going on.

MR. PUGLIESE: Let me jump in on one aspect here. One of the things that this entire advisory panel meeting had a little bit of overarching concept was the discussion on advancing ecosystem-based management and the roadmap and the implementation plan, but also better use of information and overall access to information. I think this is one of the situations where we wanted to get into where there was close coordination between NOAA Fisheries on really addressing very specific EFH -- Dictated by the council EFH designations and how those were integrated and closely coordinated with one of the regional partners, such as the Navy, in building of the environmental impact statements.

The idea of, the more information we can develop and have accessible through our ecosystem dashboard, the Fishery Ecosystem Plan dashboard, and connection to these web services and different things that can be used and more and better defined and present environmental impact statements and permit reviews, that is going to help advance the entire overall ecosystem-based management activities and the effectiveness of the EFH determinations. This was a good example of how close the coordination was and how they took it to heart and embraced it and addressed significant concerns based on council designations.

MS. DEATON: All right. Then, after that, we had an update from Marcel Reichert and Tracy Smart that are both from South Carolina DNR, but they work on the SEAMAP and MARMAP programs that are South Atlantic driven, and that was followed by a presentation by Tina Udouj, who does the GIS analysis of that data, and so it was a good example of how that long-term dataset is being used to look at species-specific distributions over time and change in distribution and abundance.

I could really see -- Because one of the examples she used was data from North Carolina, and so, in addition to the SEAMAP and MARMAP data, they use state long-term datasets, and so they're looking at the Pamlico Sound survey, and you could see where like weakfish distribution was and the croaker distribution over time and how that changed, and these are all prey for some of the federally-managed species that you guys deal with, and so all of this could be very helpful for that ecosystem-based management, and it was pretty interesting, and you can see that in your presentation, and that's one of these links.

MR. PUGLIESE: Again, a follow-up on this. This is really a very significant part, because these different programs are providing the foundational information for stock assessments and for the advancement into ecosystem modeling development as well as something that I was going to raise when we were talking about the species movement is other things beyond the fishery information, is getting into some of the fishery-independent information and environmental information to document some of this change, to see it actually visually, and I think that's exactly what Anne was trying to highlight, is that, in some of those drill-downs on some of applying that information to look at some individual species, you are seeing different shifts in various species and different movements within areas and concentrations, et cetera, and so other avenues of information are going to be critical to advance this.

This ties both to these programs and the support and expansion of these programs to do this, but also a connection with other partners and the observing capabilities, so that we get the oceanographic information and environmental information to back up how those are all connected, and so I think it was really critical to advance again to advance that idea of support for the ecosystem activities.

MS. DEATON: Actually, the members had -- One recommendation was that if the reef fish surveys or the coastal surveys could include water quality data collection, above what they already do. They are doing the basics, but chlorophyll or something, to get an indicator of pesticides, and nutrients, to help out with some of these ongoing issues, like the algal blooms that we are seeing in Florida, and that might be an efficient use of that ship time, and so that was one suggestion they had that could help to address those impacts.

We also spent time talking about the black sea bass that you were just talking about, because we noticed the big dip down, and one thing that was mentioned was to perhaps look at the link with beach nourishment, because black sea bass use the near-shore hardbottom as a nursery area, and there is evidence that that flat, rocky veneer gets covered with the beach nourishment that continually happens, and so we have lost a lot of that habitat. Now, it may just be that they're shifting north, but that could be a contributing factor, and it might be worth looking at.

Then we had a really nice presentation from the NOAA Office of Ocean Exploration and Deep-Sea Coral Research folks, and so Heather Coleman and Kasey Cantwell talked about the Okeanos

Explorer trips that they've done this year, and, as you know, one of those was where they discovered eighty-five miles of lophelia reef off of South Carolina. They have looked in trenches off of North Carolina, and you can see all the video footage of that, and there is links in the summary, and they have a really good website, where you can see what it really looks like.

They have documented a huge diversity of organisms that they didn't even know were out there before, and one interesting note is we discussed, well, what could impact this habitat, and is there bottom trawling that could occur out there that could damage it, like there has been damage in south Florida, I think, from trawling to the deep oculina, and they said that, although their trips only represented a very small percentage of the area, they never saw any fishing-related impacts to the coral, but, interestingly, on every dive, they did see at least some marine debris, and so, even way out there in the deep, marine debris is getting -- I just thought that was pretty interesting.

MR. PUGLIESE: This was really an important session, because habitat and ecosystem had a pretty significant role in the council's past deliberations on the development of the deepwater coral HAPCs, because, right now, not only are those areas designated as coral habitat areas of particular concern, but they were also co-designated under Amendment 8 as essential fish habitat habitat areas of particular concern, and that was very much intended -- Those, along with all the other managed areas, the deepwater MPAs, the spawning special management zones, and the Oculina Bank are also essential fish habitat.

What that does in the EFH consultation process is it elevates the idea that, when you look at these areas, you have to look at all the habitats, the pelagic habitats and the benthic habitats in combination, and so this was to re-emphasize the council's directive that this area really is being managed as a true deepwater ecosystem and that all those different connected habitats are significant, and there is multiple species, either managed or non-managed or prey, or even outside the jurisdiction, such as many of the highly-migratory species, that are using these deepwater systems.

I think one of the big key take-aways from the latest Okeanos -- A couple of take-aways. One was the most interesting thing is our first coordination with Okeanos was essentially an opportunistic one, in the 2014 cruise, where they found what they call the Million Mounds, and I remember getting that first image of just the distribution of these massive areas throughout the entire region in the northern part of the Stetson-Miami Terrace area.

This area, when they went in there, they were able to field verify that virtually all of those areas are all coral distributions, and so it was really good to see -- Stepping from, essentially, that was done as an add-on cruise when they were going to the Gulf of Mexico originally, and now they're saying that they're going to focus even more efforts in our region, and so it was really good to see that type of step forward on taking one of NOAA's high-end capabilities and being able to focus in on the council's managed components and species in our region, and so there is a real idea to advance that.

One of the things that we did do on the Digital Dashboard was actually add in a section that connects to the Okeanos activities, and so you can see that they're down into Puerto Rico right now and moving through the area, and so you can see some of the live connections, and we want to expand that capability. It gets, again, to that capability of advancing the information into our

region to be able to use it for even more effective consideration of these different habitats and the complexity of these different habitats in our region.

MS. DEATON: While it was quite interesting to know that all of this is there, what we don't know, or what I don't know, is what federally-managed fishery species are using that ecosystem or prey is using that that then, in turn, gets into the diet of the other species, and so I guess that information is also needed to make the management connection. Also, after that, we had an update on energy development in the South Atlantic from Brian Hooker, who is on the advisory panel, and is he presenting to you guys?

MR. PUGLIESE: Yes, and, actually, Will Waskes will be coming up today, and he's going to be presenting on behalf of Brian. Brian got pulled to the Northeast on additional BOEM responsibilities, and so Will actually is directly involved with the activity in the Kitty Hawk area.

MS. DEATON: So I won't go over that, because he is going to talk to that, and then --

MR. PUGLIESE: He will address that when we get to that next measure, and this was an introduction at the session, to be able to look at the bigger BOEM activities and then to look at specifically the Kitty Hawk activity, at the request of -- We will also have Craig Poff that will be presenting.

MS. DEATON: Right, because there's going to be a wind farm off of here one day pretty soon, right? The other topic on the agenda was just an update on the South Atlantic Landscape Conservation Cooperative, and that's the SA LCC that you've heard about, and I think that's one of these tools that has really advanced over time, and it's much more user friendly and informative on those landscape connections that are needed for fish, and terrestrial animals as well. Then Tom Okey, who is with the University of Victoria, and Howard Townsend, with NOAA, gave an update on the South Atlantic Ecopath model. I don't have much to say about that, and maybe Roger -- It was hard to hear him.

MR. PUGLIESE: We wanted to get the AP up-to-speed on how far the Ecopath model had been developed and with the intent, also, to clarify that the model will be completed in 2018, so it can move forward into simulation, and then set the stage for developing an Ecospace model, with the intent that this would be brought forward to the April SSC meeting, and so it's setting the stage to advance this even further, and so the consideration that the model will be there and simulations and begin to really investigate how this can be used as a tool for the SSC and the council into the future.

MS. DEATON: That concludes my summary report.

DR. LANEY: Okay. Are there questions for Anne?

MR. BELL: Nice report. I really like the way that's organized and the way you did that, and I love the links and the comments and recommendations. It just makes it very easy for us to digest and then dig as deep as we care to dig. Just a comment related to the natural events for 2018, and you all may have discussed this, but we also had an interesting winter start, and particularly Georgia and South Carolina, to our shrimp fishery and all, and so, in addition to all those other

things we had, the year started out literally the first week of January with that blizzard, for us anyway, but thank you. That was a very good report.

MR. HAYMANS: Just backing up to the South Atlantic state natural events of 2018 as well, I think that that's a bit of a strong statement to say that we've had impacts to our shellfish harvest due to vibrio-related closures. We haven't had any vibrio-related closures. We did extend our closed season because of warm water and the fear of vibrio, the potential, and so, just the way that reads, it sounds like we've had vibrio-related closures.

MS. DEATON: Good point. It was concerns for it, because the temperatures were still elevated.

MR. HAYMANS: Correct, and so just perhaps tweak that.

DR. LANEY: Okay. Are there other questions or comments for Anne? I will just comment, on the hurricane-related mortality, one of the local service clubs in the Raleigh area asked me to put together a presentation on that, and I told them, well, I'm largely ignorant, but I have a lot of people in the know that I'm in the networking mode with, and so I did put together a presentation on that, and suffice it to say that the hurricane-related mortalities result primarily of anoxic conditions, or hypoxic conditions, and it was fairly severe, and it affected rivers in North Carolina, at least, and Mel may want to weigh-in for South Carolina, but, in North Carolina, we had documented fish kills from the Chowan River in the north all the way through the Cape Fear and Waccamaw Rivers in the southeast.

At least twelve Atlantic sturgeon were part of that kill, including a six-foot-plus, 158-pound gravid female in the Cashie River, which is in the Roanoke River delta in the north, and then multiple sturgeon in the Cape Fear River or on the ocean beach on Oak Island, along with a fairly significant number of striped bass in the Cape Fear River. Many of you probably saw the footage of the Penderlea Fire Department hosing dead fish off of Interstate 40 as a result of flooding from one of the northeast Cape Fear River tributaries.

Some of the species that the service is particularly concerned about, or I should say the service and the State of North Carolina, because they're state-listed species, are the Carolina pigmy sunfish and the Waccamaw silverside, both of which have extremely limited ranges, and Hurricane Florence flooding included the entire range of Carolina pygmy sunfish.

Fortunately, we, and we being the service and the Wildlife Resources Commission, had done surveys for those species in the fairly recent past, and my understanding is the Wildlife Resource Commission staff have already been out and looked at some of those Carolina pygmy sunfish sites and found the species at about half of them, and that doesn't necessarily mean the fish are gone from those sites, because, as an impact of the storm, the vegetation that was there, which is associated with Carolina pygmy sunfish habitat, was eliminated by the flooding and the currents, and so a lot of potential impacts from those storms, and it's not unusual, if you go back and look at hurricane frequency for North and South Carolina since the 1800s, and USGS has produced a very nice graph that shows all the frequency and the intensity of those storms, and there have been a lot of them, and the impact that you get from any one particular storm just depends on how much rainfall it dumps and how long it sits in one spot, and Florence was notorious, of course, for not wanting to go away. Again, I have that presentation, and, if anybody is interested in it, we can look at it at some point.

Anybody else with any other questions? Anne, thank you very much. That was a great report, and if you will make that one tweak. Now, the AP did have two recommendations, at least, that I captured in Anne's report. One was to continue monitoring the dolphin prey species, and I presume that's something that is going to happen just as part of the routine monitoring program, and then the second was to try and take more water quality data during the fishery-independent surveys, and that's something that we can possibly explore.

I guess I would look to Madam Chair and Roger with a question as to whether or not we should convey that latter recommendation maybe to the Southeast Fisheries Science Center. I know there are programs out there that are collecting a lot of data by remote sensing, especially the chlorophyll that Anne mentioned, and some of that information may already be available through some of the ongoing programs, and it would just be a matter for the folks who are operating the fishery-independent surveys to maybe pull those data in and include them in their reports, and I don't know. Any thoughts on that?

MR. PUGLIESE: One aspect is -- I think there's a couple. One is of the ongoing collection, and I think the other one is the opportunity to have additional technology on the vessels to be able to collect more extensive -- I think that's maybe getting at what that was doing, and I think both myself and Marcel sit on the board for SECOORA, and they're going to try to advance, potentially, those discussions through our partners, to be able to get new technology to be able to bring on those vessels, and it's something that's an ongoing challenge, but I think not only on that, but also through NOAA Fisheries and the SEFIS program, et cetera. The entire fishery-dependent system should be collecting those information, because that also is feeding into the other aspects of the oceanographic changes, et cetera, too, and so I think it's all part of that package. I think just guidance to advance that is something that we'll be able to do, in combination, because it's going to be a pretty significant opportunity.

MR. BELL: Not speaking for any particular programs, but I know some of the ongoing fishery-independent data collection programs are already strapped for funding and have an issue, and so any additional work or any additional capabilities, like we talked about, would need to come with some money, but, yes, certainly, if you have platforms out there, you're kind of partway there, and it's just -- Regardless of what the program is, it's bringing in the appropriate funding to support the work, but I agree that, if you've got platforms of opportunity where you can collect these data, that would be great, and it makes sense, but just keep in mind that it's going to cost somebody.

MR. PUGLIESE: Yes, and you have to money to not only outfit the technology, but then to process the data and then also provide it in the data system, because I think that's one of the discussions we've had, is to be able to build those into the ongoing SEAMAP overall data system that presents not only the fisheries information, but, ultimately, those types of oceanographic parameters.

DR. LANEY: Okay, and so I will just say that I am big on, when APs give us recommendations, that we need to discuss them and do something with them, and so we've had the discussion, and I think I'm hearing, Madam Chair, that there is probably no need for any sort of a formal letter in this case, and it sounds like Roger and Anne are engaged enough with the other ongoing programs, and the fact that we've discussed these and put them on the record is sufficient, I think, in this particular case.

Okay, and so we'll move on to Will then and hear the update from BOEM on their renewable energy leasing and environmental studies, and I will just say, as a precursor to Will, and to Brian Hooker, who is not here, but, wow. I have been terribly impressed by how much work BOEM has put into thoroughly investigating the natural resources in these wind lease areas and making that available, that information available, to the public online through their website. I don't know -- I can't recall any other case where there has been that much available and that much effort put into gathering that information ahead of time, Will, and so that is really appreciated, I think, by a lot of us.

MR. WASKES: I guess, first off, I would like to say thank you for those words. I wish that I could take a lot of credit for it, but a lot of that is going to lie on Brian Hooker's shoulders as well as other folks that are within our environmental review branch, who do a lot of the heavy lifting with our studies, but I'll be sure to pass that along. I am Will Waskes, and I'm a Project Coordinator within BOEM. I deal primarily with the states of New Jersey and North Carolina and a little bit of Massachusetts, and so I'll try to do my best to do good service to Brian Hooker, who is in our office as well.

Really, I think what we were hoping to do today, and we try to do this at all meetings, is basically kind of give an update on where we are with the status of all of our projects, i.e., kind of our leases and our planning efforts, as well as what's been going with our studies program, particularly as it relates to fisheries and renewable energy.

I think, last time I was at a fisheries management council meeting, I don't think we really had -- This probably had to be about a half-a-dozen years ago, and there wasn't really much to report on, other than a lot of planning efforts. Since that time, there has been quite a bit of progress, and so we've issued thirteen commercial leases, and twelve of them are active. The Cape Wind lease, which was up in Massachusetts, has been relinquished, and we're about to have an upcoming lease sale in Massachusetts for three other areas, and we have seven approved site assessment plans. In most cases, those deal with, when we talk about site assessment plans, meteorological buoys or meteorological towers.

When we have two COPs, and, when I say COP, I'm implying a construction and operations plan, and that's basically a wind facility, and so we have two of those that we're currently processing, and I will talk a little bit about those.

We did, years ago, have some activity kicking up in Hawaii and California, and that kind of died off a little bit, but it has now kind of resurrected itself, and so we did have a call for information and nominations recently that went out for California for three separate areas. For nomenclature's sake, when I say a call for information, that's essentially a Federal Register notice that's looking for two components. One is companies to nominate whether they are interested in the areas that we're proposing as well out to NGOs and other agencies and the public looking for additional information about those areas, and those are underway.

The more pressing exact updates, I will probably try to start from the north and work our way down south. Vineyard Wind, which is a lease off of Massachusetts, we do have a construction and operation plan for that, for a roughly eighty-four to 106 turbine project. The actual EIS, Draft EIS,

for that project is now on our website, and they will be having public meetings for that, I believe the first and second week of January, in five different locations up in the Northeast.

Off of Rhode Island, Deepwater Wind has one of their leases that they're moving forward with, what they call the South Fork Wind Farm. They have approved the SAP for that area, where they have had two buoys that have been installed, as well as a COP that is now in with us, and so it's roughly for about fifteen different structures, and so there were scoping meetings related to the National Environmental Policy Act that happened earlier last month.

Next to that lease is another lease, and it's basically off of Massachusetts and Rhode Island, and it's held by Bay State Wind, which is essentially a subsidiary of Orsted. They're the people that - They're known as DONG Energy as well. They have a SAP that came into us that's been approved for two meteorological buoys, and there was an issue with one of the moorings for one of those that has since been rectified, and they are anticipating submitting a COP in the spring of 2019.

Back to that sale, there are three other lease areas off of Massachusetts that will be going up for auction, and that auction date is to occur on December 13th, and it's an online auction, and so you really don't see a whole lot. There will be updates as the auction occurs on our website. Then, once the auction concludes, there will be an announcement over who the winners were.

Moving a little further down south, off of New York, there is a very small area that was leased about two years to Statoil, and they have since changed over their name to Equinor. The project is basically called Empire Wind, and so they've been diligently working on surveys in that area, geophysical and geotechnical as well as some biological surveys. They submitted a SAT to our office for the installation of a meteorological buoy, and I believe that was just approved last week, and so chances are that they're probably deploying it sometime in the spring.

In terms of planning efforts in the Northeast, probably the biggest thing we have going on is what we basically refer to as kind of the New York Bight area. Essentially, we have been working with the States of Rhode Island and Massachusetts and New York and New Jersey in terms of trying to find areas that might be suitable to move forward with for leasing. A call did go out earlier this year, where we got quite a hefty number of nominations, as well as quite a bit of data that came in.

The primary concerns for this kind of large area were really -- The two biggest were shipping and fishing, and so there was just a task force meeting that was held last week to basically show the data analysis as well as some of the preliminary recommendations that we're thinking about moving forward with, and so the dark green areas you're seeing are kind of our primary recommendations, and they seem to be the most suitable, and, if you kind of had to fringe that out, it's what the lighter green areas are. The next step in that is we will make some sort of refinement to these, when we will designate them as wind energy areas, which will start the environmental compliance work that's needed in order for us to move forward with a sale.

Moving south, New Jersey is a little bit of a tale of two stories, and so we have two leases. The southern lease, off of New Jersey, is held by Ocean Wind. Again, that's a subsidiary of Orsted, or DONG Energy, if you're more familiar with that. They do have an approved SAP with us for two meteorological buoys, and one is the north lease portion of the area and one is in the southern

portion of their lease area, and they are diligently basically working on surveys to collect information in support of their COP, which they anticipate submitting sometime in the spring or summer of next year, and it will probably most likely be tied closely with New Jersey's OREC program, and so they've opened up a window to essentially have applications come in, in order to compete for essentially a subsidy for a power purchase agreement.

The other lease off there is held by US Wind, and they currently have an extension to their preliminary term, and so they're still engaging and doing survey work in the area, but we have nothing in to our office in terms of approving or reviewing any sort of structures, whether it be a meteorological tower or a meteorological buoy.

Moving a little further south, to Delaware, notice the Skipjack Wind Farm, and it's basically held by GSOE, which is a joint venture between PSEG and Deepwater Wind. They currently have a SAP in to us for a meteorological buoy, and we're currently reviewing that, but it has not been approved, and they are anticipating submitting a COP sometime in the second-half of next year.

US Wind, off of Maryland, they do have a PPA with the State of Maryland for their OREC that was awarded, and they do have an approved SAP for us. In this case, they have approval for a meteorological tower to be installed, and they would be the only lessee that we've had so far to do that, but it has not been installed. I would image the earliest time we would see would be when the weather is suitable, and so probably sometime next year, if that were to be installed.

A little further south, off of Virginia, we do have what we call a RAP, a research activities plan, and it's essentially a research lease, and so it's not for commercial purposes, and that is essentially being operated under essentially Orsted, or DONG Energy, and it's for two turbines that would essentially deliver power off to a local military base that is there. It's pretty far along in the process, and they're reviewing the final kind of engineering plans to be approved, and it's anticipated for actual construction in 2020.

Moving closer to literally off the coast here, we have what we call the Kitty Hawk Lease, and this essentially was executed in October of 2017, and so you'll be hearing a little bit more about it from Craig Poff after me, and so I won't go into too many more details, but, essentially, they're in the early phases, and they will begin starting kind of their survey activities to support submission of a SAP, and later on a COP.

On the study side, we have pretty robust study programs, and it covers all of our programs which are renewable, essentially marine minerals as well as oil and gas. It's a pretty hefty pot of money that gets dispersed amongst those programs. It's on the order of over \$30 million, and it's largely driven by a lot of the kind of statutory mandates that we have to meet, and so whether it's Endangered Species Act, the National Historic Preservation Act, essential fish habitat, but it really drives a lot of those, as well as the issues that come up as we're trying to identify planning areas as well as moving forward with our environmental compliance that's needed to support our plans that we get in. For the most part, if you were to look on our website, they're going to be binned into these kind of major categories, and so this is how I would say to try to get used to how they're framed, into these kind of general categories.

I thought it was a good time, at least now, to report out that, essentially, they try to do this every so often, but essentially have, in this case, an Atlantic Energy Forum, and so that's going to be

held in Sterling, and you do have to register for this, but it's open to the public, and so it's a free registration, but, essentially, they get all of our recently completed or ongoing studies. We get the PIs, investigators, that are working with it on BOEM all coming in to kind of present those results of how those are coming, and so it's a nice, easy place to kind of do a one-stop and really get a big download of everything that's going on.

The website here, you can see how you can register for that and what's going to be on there, but I would highly encourage folks that are really interested in getting kind of the latest and digging deeper into the results of the studies to attend that.

A few of the studies that were real key and we thought that we would bring up that are kind of directly off the coast here, one is we're moving forward with planning off of North Carolina and South Carolina, as well as having an active lease in upper North Carolina, and there's been a lot of need in order to collect kind of baseline information really regarding marine mammals, avians, sea turtles, sharks, some of the larger bony fish, and so there's an ongoing effort that's being done with Normandeau that essentially looks out from the coast out to the thirty-five-meter contour, doing high-definition video surveys.

The current effort basically is doing them every quarter for this past year, kind of in a sawtooth pattern. The planning areas that you can kind of see in the darker shades to the left, as well as the lease area, Kitty Hawk is just off the shore here, and those are being done in a grid pattern, in order to get -- I think it's close to 50 percent coverage. A portion of that will be analyzed, and the rest of it will be archived for future analysis. The data is, as we get it, coming up on the website you see here, and the final report for this will be due out in 2020, but here's just a flavor of what we got out of the February surveys. They are processing the June and September right now.

Things that are really kicking up on the fish and fisheries side, this is really being driven largely by heavy fishing issues that we're encountering up in the Northeast, and we see coming down in the Mid-Atlantic as well, as that's kind of gearing up. As you can see from the activity, the Northeast is really where the highest activity has happened, and it's further along, and that's kind of progressing that trend going as we go further down the coast.

One of the biggest things that we've seen a lot, that we didn't have a lot of information on, was electromagnetic fields. There's been a lot of work that we've chimed in to do that, do from that, and I think the first portions we did for that is -- We're lucky, at least in this case, that there is an HVDC cable that's already out there that basically tracks terrestrial power, and so there's been a lot of work in terms of looking at lobsters, essentially having them kind of in a netted area where that cable is, to see how they react to the electromagnetic field.

On our California side, where we have activity, more of the focus has been on crab, Dungeness crab and that sort of thing, and there is a new effort kicked off to look at eels, specifically the American eel, and they're doing a little bit more. They're basically using the same methodology we had used before, although now they're adding some tagging, in order to get some of those movements, to see actually how the -- What the exact movements are when they're coming in contact with that cable.

Baseline studies is something that always continues. There's been a lot of ventless trap surveys that have been done up in the Northeast as it relates to lobster, and most of the work being done

currently right now is getting a little bit more in the Mid-Atlantic. There's been a pretty strong focus on Maryland and Delaware, teaming up with a lot of the telemetry networks that are already in place, as well as other efforts that are using telemetry, and so it's been a lot in those Maryland and Delaware lease areas, with a real focus on the tagging of black sea bass, Atlantic sea bass, skates, Atlantic sturgeon, obviously, because of the ESA importance there, and they've been trying to correlate that with some of our habitat modeling as well as using our AUVs, in order to get some of the oceanographic parameters. Those all should be starting to close out, with final reports basically coming out next year, and so that's something to be on the lookout for.

Similarly, we've also taken a little twist from the biology to some of the economics, and so we've been taking a lot of the VTR data and the VMS data in the Northeast, as well as looking at the landings, in order to try to put an economic -- To be able to assess more of the economic impact or the revenues generated from those fisheries up in the Northeast, and so there's been a lot of work that's been coming out as we've partnered with the Northeast data center.

Another big one coming up that I think is going to help guide things as we're going forward is, I believe in April of 2018, we did an effort with the National Academies on a Fisheries Steering Committee Report, and a lot of that was really looking at, kind of as we move forward, what should we be looking at? Should we be looking at more of, as we're trying to assess impacts, in terms of methodology, should we be looking at kind of a gradient-type methodology, or should we be doing more of a before-and-after control? How do we -- Kind of what are the challenges and the questions we're trying to ask and how we can answer them. How can we make sure that we're engaging the fishing community in that process as well? That report, I do believe, is out. It happened in April of 2018, and I think a lot of the results of that are going to feed into kind of our studies program of how we continue to move forward with fisheries.

Another big one that just released, or I shouldn't say released, and it's been ongoing, but we call it RODEO, and it's Real-time Opportunity for Development and Environmental Observations. When Deepwater Wind installed the Block Island Wind Facility, it was the first one to go in federal waters, and so we thought it was a prime opportunity, and it's not very often that you can actually take measurements while something is being installed and get out there before it was installed and then be able to monitor it after it was installed.

There was a pretty large forum up in Rhode Island to go over all of the results that came out of that, and some of those efforts are still ongoing, but the results that are available, and so I can point folks in the direction of where that is. The real big three things that it focused on, and there were a lot, but pile driving was one, related to sound and the acoustics, and so what actual sounds were empirically measured, and sediment suspension from the foundations going in as well as from the cable that had to be buried below the surface, and then how are the foundations changing the area or the surface changing from those foundations we're putting in.

There's been some pretty interesting results coming out of that. The pile driving, I think, is very applicable, since it will be basically the same methodology in that same area with the same water depths as where future activity is planned, particularly with the cable laying as well and some of the scour on those foundations. We were able to kind of get some time series lapses of what the impacts are and how those infill rates were. Again, I think we're seeing now that there is kind of three distinct habitats that are now forming on the foundations, supporting three kind of distinct habitats, and so that will be continuing.

To stay informed for all of these, we do have a note to stakeholders, and so, if you weren't in that public engagement, you can see where you can sign up to be part of that kind of listserv, and so pretty much whenever anything relating to our studies goes out, whether it's a study has been completed, or we're soliciting input, that will at least get out to you.

One of the recent ones we have, and we do this as part of our studies program, is, obviously, not only are we looking for what we see coming from when we're looking at our environmental compliance, in terms of what our information needs are and what we're hearing through some of our task forces, but also just the general public, and so I do believe that went out about a month ago, basically soliciting any sort of ideas that we should consider for future studies.

Our studies are done kind of on a five-year -- Well, it's a little less. It's about a four-year planning process, and so that's where that information will go in as we're developing those, and so the 2019 to 2021 plan was finalized, and it has been published on our website. From that, there is a -- We have a committee, and it goes to a large internal review, looking at what we ultimately finalized for the upcoming year, which was 2019. My understanding is that's just finalized, and so that should be on our list, so you can actually see what we're proposing, what's the objective of that study, and, ultimately, those will go out for procurement, and some are done through interagency agreement and so on and so forth.

As always, we're trying to make the information easier and more condensed and palatable out to the public, and so there has been a giant revamping of our studies page, and so I would definitely encourage everyone to -- If you haven't seen it in a while, it does look a lot better than it did before, and so, with that, I will take any questions anyone has, if that's the route you want to go, and, again, you can always contact either me or Brian Hooker.

MR. BELL: Thanks. That was a nice report, and it's not necessarily a question, but there's an obvious connection with fisheries with this, with the creation of additional hardbottom habitat areas out there, and, of course, something similar would be oil rigs in the Gulf of Mexico and how that has affected fisheries down there, and it's the same sort of thing here, in terms of community development and the establishment of a slightly modified ecosystem out there than what you had. You can kind of look at what we know about work in the Gulf and all, in terms of the rigs and things, but there is some potential here for -- Our council has moved forward and taken an initiative to utilize a few artificial reefs in a capacity that we've not tended to use them for, which is actually a spawning special management zone.

As we move forward, and there is perhaps systems of these platforms that are developed, it's something to think about, is how we might regulate or use them to regulate fisheries around them or something, or use them for non-fishing or for additional spawning special management zone kind of things, but there is a natural partnership here, I think, with fisheries, and it's kind of -- The ability to have platforms out there, where you could perhaps even use it to -- You could have monitoring on the bottom, or you could uplink data or something, and you've got a solid platform to work from, and so that sort of partnership, I think, is really interesting as we kind of move forward with this, but somewhat similar to the presence of oil rigs in the Gulf, but these aren't oil rigs. It's a different critter, but it's still a hard structure out there, and so we need to stay in touch. Thank you.

DR. LANEY: To that point, there are so many fish of so many different species swimming around out there with acoustic transmitters in them these days, and I know the receivers need to have some sort of an attachment, and so that's another possibility, and probably somebody has already broached that idea, but I know the Coast Guard has been very good about letting researchers attach the VEMCO VR2s to their buoy systems for recording detections, and so that's certainly one arena for possible exploration.

MR. HAYMANS: Thank you for the presentation. Something that was not in there that I had a question about was proposed lease sales, this coming plan, and I understand this coming five-year plan has forty-seven proposed lease sales, three in the South Atlantic, and can you say anything as to where those three are and whether you speculate as to if they will actually go through or not?

MR. WASKES: Unfortunately, those lease sales that you're speaking of are oil and gas lease sales.

MR. HAYMANS: You are from BOEM, right?

MR. WASKES: I am from BOEM. Unfortunately, I work in the Office of Renewable Energy Programs, and so that's where kind of my detailed information lies, and, unfortunately, I don't have any specifics in that regard.

MR. WHITAKER: A quick question. For the wind farms that already exist offshore, are there security zones, where fishermen aren't allowed to get near them, or how does that work?

MR. WASKES: Well, I can only talk from a perspective of the Block Island Wind Facility, which was outside of our jurisdiction. It was in state waters, and, from what we know, kind of going forward for our planned construction operation plans that are in, and so, for the most part, in terms of -- We don't have anything within our regs or in our process that necessarily makes them kind of exclusion zones or them off limits.

They do, during a construction time period, for safety, from the Coast Guard, they will put a zone around them, where essentially you're not allowed within that while that construction is occurring, but that diminishes and that goes away once the construction and commercial operations has begun.

DR. LANEY: Thanks, David. Yes, that was one question that had been posed to me by someone, is to whether or not BOEM did have regulatory authority over fishing adjacent to the installations, and the answer is no, but, from what I understand from some of the European installations, because of their insurance coverage and the potential liability issues associated with an errant fishing vessel, they have imposed some restrictions in some of the European installations. Now, who did that and how those regulations work, I am not at all familiar with. Art, you were nodding, and do you know anything about any of those restrictions that have been imposed in some of those European installations?

MR. SAPP: I simply know that they exist, and my thought on it is that a moving structure like that, meaning the -- It kind of seems somewhat unsafe to be too close to, and I'm pretty sure they're going to restrict us from being anywhere near them.

DR. LANEY: Yes, I think that's an area of additional potential exploration for the council, and I know there's been some discussion at least about designing the installations to provide for fishing corridors through the installations and by setting the turbines far enough apart that that reduces the concerns about any potential impact, but I am certainly not an expert on that. I know probably Brian might be able to better address some of those questions. Any other questions for Will?

MR. PUGLIESE: As a follow-up on opportunity that Mel kind of raised, has there been discussions in the Northeast about the opportunities that these provide to be part, platforms, for connection into the observing systems? I mean, with all this type of material going in there, that's an obvious opportunity that you could expand the entire ocean observing network and capability, and so it would cover everything from acidification to currents and temperatures, surface to bottom, and it could really expand significantly that footprint in whatever area that this is going, and have they discussed that in any depth or proposed that?

MR. WASKES: I mean, there's been a lot of interest on that front kind of, as alluded to before, and we faced this during our time when we had interim policy leases, which were essentially just to be kind of fixed structures, and so I think everyone is kind of keen to that, whether it's universities or other federal agencies. If there is this fixed structure out there, can we kind of leverage, since that tends to be, in a lot of cases, high costs associated with doing that.

I mean, the feedback, there have been a lot of discussions for the Ocean Observing System, in terms of instrumentation, and I think what we've heard, and this is from previous experience as well, is most have been -- Lessees that we have seen have been willing, in terms of using their structures, and I think the only concerns we've normally heard back on that is sometimes there can be kind of power requirements, and so it really kind of comes back to as long as it kind of doesn't interfere with their existing instrumentation that they're putting on or puts kind of a -- In some cases, if additional power were needed, which could then result in additional permitting they would need in order to get that additional power supply on, and they have been fairly kind of open to the idea of having their fixed structures used as a station or to house -- Whether it's a university or some other equipment, but to assist in that process.

DR. LANEY: Other questions?

MR. DILERNIA: Regarding the question concerning the security zones around the wind turbines, since September 11, 2001, there has been -- The Coast Guard has been diligent in enforcing security zones around all of the major bridges in the New York area, areas that we used to fish right up alongside bridges, and that's no longer possible for us to fish. It affected my charter business quite a bit.

There is -- I have just sent a text out regarding the Block Island wind turbines, and it appears that there is also security zones. The Coast Guard currently has security zones around the Block Island wind turbines also, and so the benefits that the recreational fishermen hope to get, should these turbines go up, these towers go up, benefits similar to what occurs in the Gulf with the oil rigs, it's questionable whether or not the recreational fishermen will be able to access real close to these wind turbines and be able to catch fish that are right up alongside of them, much like what we do in the Gulf, and so it's a major point of concern in the Mid-Atlantic at this point.

As discussions continue regarding the wind farms and the turbines, the recreational community is hoping that they will be able to have access to those towers, to be able to fish alongside of them, but it's uncertain at this point if that's going to be able to -- If that's going to be allowed. If the Coast Guard follows its policies regarding what we have inshore around the bridges, then it won't be allowed, and so it's still uncertain, and it is a point of a discussion in the Mid-Atlantic. Thank you.

DR. LANEY: Okay. Thanks, Tony, very much.

MR. PUGLIESE: Just to comment and segue into our next presenter, I think we have a really unique opportunity in the Southeast to advance these discussions and opportunities for coordination with development. I think some of these things we've touched on, on capabilities and limitations, in the past have been very specific.

Brian Hooker, our BOEM representative on our advisory panel, has, many times, stated that, at least in BOEM's planning efforts in the Southeast, that they are not going to limit access within these areas, and so, until something else changes or we get some other directive, those are the directions that are coming from BOEM in the renewable energy. They've been pretty forthright on the development and the opportunities and building all the right types of information to understand not only the habitats, the fisheries, et cetera, but I think we have a real opportunity to advance and coordinate and to have capabilities that will not only help fishermen, but also advance our understanding of habitat and the ecosystem.

With that, I think that's kind of what I wanted to do, is we have had an opportunity, with Craig Poff actually reaching out to us early, as the lease sale has just been accumulated, before even survey activity, to look at potential for where we go with this and guidance on the opportunity there, and I think that sets the stage, and we can get into those discussions on what are the things into the future, and, truthfully, I think the situations in the Southeast are very different than the Northeast, in terms of operations and the fisheries capabilities, et cetera, and I think we really have everything, from monitoring to even if some of these are placed even close to some of our protected areas and the capabilities of, as new technology goes in -- I mean, you could actually have a situation where you have a dock-able AUV system that we go out and monitor a closed area.

I mean, there is just real potential to keep this collaboration and discussion ongoing, because I think you could see not only the capabilities that have happened in the Gulf, similar to the oil and gas, but far beyond that, in terms of placement, potential placement, and creating trolling corridors or identifying limitations on how those may impact the current systems, creation of additional structure, or even use of the structure to enhance capability for that, and, with that, I think I wanted to just open the door and provide Craig Poff the opportunity to highlight where things are going from an industry perspective.

DR. LANEY: Okay. Thanks, Will, for your presentation from BOEM. We really appreciate that, and welcome, Craig, and we'll hear the presentation on the Kitty Hawk offshore wind.

MR. POFF: Great. Thanks a million for having us, and we appreciated the opportunity to speak down at St. Pete last month, and I'm just going to give a very brief presentation about our company and some of our planned activities, and I would really like to have as many questions from you all or recommendations, because I think what we noted, whenever we spoke in St. Pete, was that we

are not -- We are barely pencil on paper with our plans right now, and it's much better to take input and adjust and kind of work together whenever we're at this stage, because, once ink dries, it's a little more difficult to deal with, and so I would really encourage any questions and input you all have about what we're going to chat about today.

Again, Avangrid Renewables obtained the lease to the Kitty Hawk wind energy area that is about just over twenty-five nautical miles from where we're sitting right now, due east. We'll get into some plans on that in a few minutes, but our company is in the business of renewable energy. We own about sixty wind energy projects that are operating across the U.S. in approximately thirty states.

All of these are kind of -- The fundamental part of doing renewable energy is producing energy with less impact on our environment, and we're really excited about what we do, both in terms of producing energy, but also about the communities we operate in and being a good neighbor and a beneficial member of a community, not only from the production of the energy, but also the existence of our facilities and the employment opportunities and the contracting opportunities, et cetera.

I will go back a bit, but one of the strengths that we have, as a U.S. company at Avangrid Renewables, is we're part of the Iberdrola Group. Iberdrola, you can maybe pick up on some of the language there, and it's based in Spain, and the Iberian Peninsula is where it started, and there's about a 150-year history of energy generation, and the Iberdrola Group has a mandate of transitioning towards the carbon-free generation, renewable specifically, and we're operating in about forty countries.

In that aspect, someone had mentioned or asked the question earlier about what's the experience with offshore wind in the U.S., and the experience with offshore wind in the U.S. is that there isn't any, really, to speak of, other than those five turbines that were recently commissioned off of Block Island. Really, there isn't anything that we can point to, that you can go out and look at today, in the U.S. environment.

That being said, the Iberdrola Group, and our affiliated companies, with Scottish Power and now with our presence here in the U.S., is we have experience in offshore wind and the deployment. Specifically, over in the U.K., we have a project that's been operating for about four years in the Irish Sea called West of Duddon Sands, and we're currently under construction on the East Anglia complex off the east coast of the U.K., and we recently commissioned the Wikinger project in the Baltic Sea, just north of Germany, and so we have some experience in not only planning and permitting projects with stakeholder input, but also deploying and now operating projects.

Here in the U.S., we do have an interest in the Vineyard project up south of Massachusetts that Will mentioned earlier, and I don't have any specific experience with that project. It falls out of my area, but I am solely focused on the Kitty Hawk wind energy area and where we're going with that, and so what I wanted to do, to start with, was just kind of give you an idea of how wind energy works.

I've got a slide here that kind of shows some of the basic widgets and gadgets inside a wind turbine, but, effectively, what occurs is a wind turbine, through sensors on top of the box at the top of the tower, and we call that the nacelle, the sensors sense the speed and direction of the wind, and that

nacelle turns, or rotates, to the wind, and then it adjusts the pitch of the blades to most efficiently convert the wind into rotational energy that drives that generator inside the nacelle.

The electricity is then converted inside that nacelle and taken to a cable that goes down the tower and goes out to substation that lets a -- In this case, it would be offshore, up in this area, and then it's transmitted to the electric grid, connected to shore, in the case of offshore, and then into homes and businesses.

The offshore environment is, of course, much more complex than the onshore environment, but the basic components are still there, the conversion of wind, and it goes into cables, and those cables are within the wind farm, and, in the offshore environment, are buried. We want to avoid any potential impacts with ground-fishing gear or anything like that, and we want to protect the cable and avoid any harm to anyone that may come in contact with them.

Then all of the system is monitored 24/7/365. We have a secure facility out in our headquarters in Portland, Oregon, our national control center, and the electric generation business is -- If we're doing our job, it's always on, right? We always want to make sure that, when one of us flips a light switch, the energy is there, and, in order for that to happen, we have to work very closely with grid operators, and, where we're sitting today, the grid operator, who probably most of you have never heard of, is called PJM. They balance that light switch going on with a corresponding amount of generation capacity somewhere at the speed of light. There is no real storage anywhere on this system to accommodate that, and so they are constantly balancing supply and demand.

Our NCC deals with that at all times by coordinating with the grid what our generation will be, but, really, the first and foremost important job the NCC does is the safe operation of the projects, and so you could imagine, and let me first start with an onshore environment, where you might have storms, and you might have lightning or any number of things occurring in the natural environment that you wouldn't want an operation and maintenance technician anywhere near a wind turbine, and that's what our NCC does, is they monitor the weather around the projects, and they will be doing the same in the offshore environment, to make sure that any operations and maintenance and anything that goes on with the project is properly accounted for with the weather that's coming.

With that, the Kitty Hawk OCS-A 0508 lease is approximately 122,000 acres of seafloor, approximately twenty-four nautical miles east of Corolla, and you can see it kind of has an odd shape, roughly triangular, and the way that was determined, just for a tiny bit of background, is, as Roger mentioned, BOEM has gone through a lot of work to determine what areas should be leased, and I think, back in the 2010 or the 2012 timeframe, BOEM started looking at what areas off of North Carolina should go, and possibly even before that, and, through stakeholder input from DOD, from the National Parks Service, from fishermen, from communities along the coast, and doing surveys and conducting studies, all of those stakeholders gave input into the process, and BOEM whittled all that down to this is the only area north of Hatteras that's been put up for auction at this point, and, as Will mentioned, back in March of 2017, our company was the highest bidder, a little north of \$9.4 million to purchase the right to develop this lease area.

All of the other areas in North Carolina that are presently being considered are down kind of near the Wilmington/Cape Fear area, and so we are specifically working on Kitty Hawk right now, and, really, we're in the very early process of evaluating -- Kind of doing our due diligence on the site

and what's out there and what isn't out there and what considerations need to be made for accessing and operating a project out there.

This maybe gives you a little better idea of kind of what it looks like from your perspective, as having an ocean interest. In speaking with fishermen, it appears that BOEM has done a good job of finding kind of a hole in the doughnut. This is a little bit of a look at what kind of is the relative fishing impact, in terms of revenue out in that area, and it seems like maybe we're far enough off the inshore fishery and far enough in from the Gulf Stream that maybe this is an area that has been considered fairly low impact for the community. That is something that we will be looking into further as we go ahead.

This year, we're really planning, assessing, and doing stakeholder outreach like this, kind of trying to understand what people perceive to be the impacts, potential impacts, the concerns, et cetera, for the potential development of this project. I would say, what Ms. Deaton said earlier about wind farm will be out there, I certainly hope it will be, but that's yet to be determined. We have to really make sure we understand all of the issues of what a wind farm out there really means, and so, in 2019, we will begin to conduct some aerial surveys.

We will be flying a high-resolution camera system, very similar to what BOEM has been doing with their project with Normandeau Associates, and looking at marine mammals and looking at avian and turtles and bony fishes, et cetera, and really conducting those biological assessments to, again, kind of characterize the site.

In the spring, in the neighborhood of probably April and May, we hope to begin marine geophysical and benthic survey activities, and that will give us a sight of what's on the bottom out there, live bottom, hard bottom, or not, and really, again, guide us on what we need to be considering as we look a little closer at what our plans might impact.

In probably the third quarter of next year, building on that information that we compile in the spring, we will submit to BOEM a Site Assessment Plan. The SAP is a plan for buoy deployment, more or less, and, if all goes well there, if BOEM feels that we have an adequate Site Assessment Plan, they will approve that, and, as early as the fall of next year, we could deploy a couple of buoy packages that will not only look at the meteorological conditions above the water, but also the current and wave forces that occur in and on the water.

Again, building on that, and each one of these is kind of an incremental assessment. If things look good, in 2020, we will probably do some more aerial surveys, and we'll do more geophysical and geotechnical, at that point, surveys, to really refine our understanding, and, again, if all that continues to look right, if we get all the right signals, that's when we will begin the process of really putting pen to paper and submitting that to BOEM, and that is the construction and operations plan.

The construction and operations plan is a -- I think it's not overstating it to say it's a truckload of information that evaluates the entire life cycle of a project, not only what the project is at installation, but what its impacts will be through construction, through operation, and decommissioning, the removal of a project.

All of that, I kind of put 2021 to 2022 in a very light font up there, because we just don't know yet. I think we have a pretty good understanding of -- We're about to put boats out there and start looking at what we have, next year and the following, but, if all goes well, if everything is thumbs-up every step of the way, we could potentially begin construction in about 2023 and have an operational project out there in 2024 or 2025.

Really, between now and then, that's where we want to answer your questions and get your concerns. A couple of specific asks that I would have for you, and I have spoken with a number of folks that are commercial fishermen out of Wanchese and recreational out of Virginia Beach, et cetera, is we're looking for a couple of people in particular, or more than a couple of people, but a couple of communities of people.

Fisheries representatives are people who are active in the commercial and recreational fishing business who we would like to engage with and have them speak with us on behalf of other fishermen and fisherwomen interests, from both the commercial and the recreational perspective. These representatives, kind of think of them as the mayors or the council people or someone that doesn't work for us, but gives us input on behalf of the fishing community.

We are also looking for what we call a fisheries liaison officer, and that is typically someone who is, or has been, I should say, in the fishing business, and we oftentimes look for somebody who is possibly retired from active commercial fishing, or perhaps from an academic perspective, but would work for our company, but speak the language of the fishing interests, and so we're really actively shaking the trees for those people that we think would be good fits for this project and this community, and, any suggestions that you all have for people that might fit in those roles, I would love to have that input from you, and so, with that, I would love to take any questions that you have.

DR. LANEY: Okay. Thank you, Craig, for that very good and thorough presentation.

LT. MONTES: Good morning. Thanks for the presentation. Not directly related to that, but kind of a follow-up and on the same topic of conversation, I did a little bit of research on this, and I will caveat this statement with I'm responsible for Coast Guard 7th District equities, which is the North Carolina/South Carolina border south, and so speaking about Block Island, though I've patrolled there for several years, and I patrolled there before 2016 and before the construction, and so I did some quick research, open source intel gathering. I Googled it, and I found that, in 2016, in fact, yes, we set up a 500-yard -- The Coast Guard, the captain of the port, ordered a 500-yard safety zone around the construction of the wind turbines.

Since the construction was completed, those safety zones were shut off, and so, as of right now, at least according to my quick run through the local notice to mariners for District 1, who is responsible for that area, and the briefings to mariners that are provided by Block Island Wind Farm, there are no safety zones around those turbines, and so, using that as a precedent for potentially how future wind farms would be in the offshore community, we can use that just to kind of inform ourselves.

I will, however, caveat that with, if -- Using New York as an example, if the federal government designates these wind farms as critical infrastructure or key resources, then those same policies come into play, and so I know, from personal experience patrolling New York Harbor and sitting

off of the Statue of Liberty patrolling all of the bridges, making sure -- Unfortunately, the primary job that we did was make sure that nobody was anchored or tied-off to the bridges and stopping the fishing in and around the bridges, which was frustrating for people, but those were designated as critical infrastructure and key resources, due to the national transportation system and being able to get people across the George Washington Bridge in a timely manner, and I will just go with that.

I don't know if offshore wind would ever be designated as critical infrastructure or a key resource, but, as of right now, Block Island has not been designated, and so there is no precedent, at this point, for us to enforce any safety or security zones around that. However, I will say that the potential for that to happen is still always there. We don't know how important these resources will become in years to come, and so the potential for that to happen is still there.

DR. LANEY: Thank you very much.

MR. POFF: I would just mention that thank you for speaking to that. I was certainly surprised by the mention of an exclusion zone of operation. Certainly, during construction, when there is considerable activity, traffic, safety concerns, we would expect those, and we'll work closely with the Coast Guard to develop those plans, but, during the operations, we don't anticipate that, and we haven't seen that.

Then I would just also note that, out of all of the projects that we have operating in the U.S., none of those have been designated critical infrastructure that would require such protections, and, while I can't speak with 100 percent certainty, I don't believe that any similar projects have been either, and so thank you for that.

MR. BELL: I just have something that I have always wondered about. In our region, we have hurricanes, and we've had a few lately. What are these platforms designed for, in terms of -- I mean, if we get a Category 3, 4, or 5 coming at you, I guess does it just free-wheel, and how much wind is it designed to withstand?

MR. POFF: Thank you for that question, because that's one that always pops up here in the Carolinas. I will speak to kind of two different perspectives here. I don't know if any of you have been over near Elizabeth City in the last three years, and I happened to be the developer of that project, and we had many questions about that as well, and wind turbines today, as I said, sense the speed and direction of the wind, and they adjust the pitch or their blades accordingly, and so a typical wind turbine will operate in the neighborhood of ten to twenty RPMs.

They don't go over twenty RPMs, no matter what the wind is, and so, when the wind gets to a certain level, and I will speak to Elizabeth City specifically, and it's around sixty-miles an hour at that 335-foot hub height, the turbines go into a stall configuration. They continue to yaw to the wind, but they just stop rotating, and offshore turbines will operate in much the same way.

Insofar as the design specification, that will be determined after the site assessment phase begins, when we better understand the wave and current conditions in concert with the meteorological conditions. All of those things kind of go into that economic and safety matrix that determine what is the extreme value that you design to. I don't know of too many that are designing to let's

say Category 5 or something like that, but it's one of those things that will certainly be evaluated and considered by our regulator and land owner as well as we present those plans.

MR. BREWER: I was curious what the underwater portion of the structure looks like. Is it a single pole, or is it something that would look like an oil rig, where you've got four or six different pylons that are going down to the seafloor? Just in general, and you may not know yet, because you're still in the very early stages, but, typically, what does one see for that design?

MR. POFF: As you mentioned, I don't know yet, but we do know that it will either be one or more interfaces with the seafloor. In this level of depth, and at this sort of seafloor condition that we anticipate, given the thin data we have thus far, we may be able to do what's called a monopile foundation, which is simply a tube driven into the seabed. It may be better to do a jacketed foundation, which is a number of legs that more or less sit on the seafloor and then are attached to the seafloor, or a third alternative would be a suction bucket foundation, which is kind of a combination of those, but with less pile driving.

Really, until we understand the underlying geology, as well as the wave and current and meteorological conditions, that will all kind of inform the way we design it, but suffice it to say that there will be a hard structure out there with scour protection and rubble to protect the interfaces between the seafloor and the structure and the cable transitions, but it kind of remains to be seen exactly what those will be.

MR. SAPP: Do you have a cost per nautical mile offshore, and is there a breakeven point, or a loss point, where you would say that it's too far and we're not doing it?

MR. POFF: The answer would be yes, but it would be solely site-dependent. Until we understand exactly what the resource is and the cost to develop that resource, it's kind of a fluid number.

MR. BELL: Are the cables that run ashore totally trenched in all the way and sub-surface the whole run?

MR. POFF: I would anticipate that in this geological environment, as I understand it. There are design fixes, for lack of a better word, where say maybe you had to go over a stony area of the seabed, and I don't anticipate that here, where you might put a mat over them to secure them and protect them, but, here, I would anticipate that it would be trenched the entire way from the project to the sub-station and from the sub-station to the onshore interface.

MR. POLAND: Have you made any decisions about where this transmission line will run and what type of surveys you're going to do along that corridor, just to mitigate potential impacts to fishing and shore erosion or anything like that?

MR. POFF: Yes, we've been considering all of that, and we have a number of consulting contracts out right now evaluating all of the potential points of interconnection, really between Oregon Inlet and the Chesapeake Bay Tunnel. We're looking at all of those, because each one of them has a series of compromises, if you will.

You know, you may be very close to the shore, but maybe in a highly-urbanized environment, or maybe a little further back from the shore, and you have to deal with less personalities to get from

Point A to Point B, but maybe it's a more intense environmentally-sensitive area, and so we're evaluating all of that, and that will be a component of our survey planning effort for next spring, is where do we want to focus our resources to characterize those potential cable routes to, again, bring into focus the exact positions where we think those cable landings would want to be. It's a work in process, and it's something that is fundamental to the project and very important at an early stage, and we're evaluating that very closely right now, but no decisions have been made is the short-winded way to back that up.

MR. POLAND: I would just emphasize that, when you do that survey, especially here along the coastal zone, try to get a good temporal range, because, up here in the Outer Banks, the fisheries change by season, and sometimes by weeks, and I would really hate for the survey to occur, if the striped bass ever do come back, occur at a time of the year where it would miss that and then, all of a sudden, you've got fifty boats trying to fish that area when you're out there trying to lay cable or anything like that.

MR. POFF: Yes, and that's part of, I guess, my ask of recommendations, and those of you that may have an interest in these roles, is we welcome that sort of input, because these activities, be they surveying or eventual potential construction operations, we want to make sure we understand what's going on and where, so we can consider those potential conflicts, impacts, et cetera, and so thank you for that question.

MR. WOODWARD: Thank you for the presentation. My question is, in existing facilities, what is the typical height of the terminal end of the blade above the sea surface?

MR. POFF: It varies, and I'm going to say maybe in the neighborhood of a hundred feet is the lowest point to the sea, but, again, that is going to vary quite a bit depending on the significant wave height of the site, and so, if we're looking at some place, for instance in the North Sea, that maybe has a design range of thirty or forty feet, it may be a hundred feet above that, and so we certainly want to consider the mast height and the significant wave height together and certainly do so in the planning of the equipment.

DR. LANEY: Any other questions or comments for Craig at this time? Seeing no hands, I will just say, those of you who have connections in the commercial industry, you have heard Craig basically announce that they are looking for collaborators there to be able to talk to folks in the commercial industry and know the language and the issues and the concerns, and so, if you have friends or colleagues out there who may be looking for such an opportunity, spread the word.

I think that that, unless there is some interest in doing anything in response to these presentations, which I don't anticipate that there is, then we are to Other Business, and the only thing on the Other Business agenda was to just mention the fact that the National Marine Fisheries Service, based on news reports that I have seen, and also an article this morning in the *Coastal Review* online, has given its go ahead for seismic surveys for oil and natural gas in the Atlantic, approving five companies for incidental harassment of marine mammals under the MMPA.

However, that doesn't mean that anything can proceed, because BOEM still has to issue its final permits, at least according to this article, and I will provide this article to Mike and Kelly, and they can circulate it to everyone. I thought, in the interest of kind of getting our new members up to speed, and noting, Roger, that we have eight minutes left of our allotted time, Roger might just

give a brief background, for the new council members, on the council's involvement and interest in this particular issue, and then we can discuss whether or not there is anything the council desires to do with respect to any further action.

MR. PUGLIESE: What I'm going to just do is highlight the last opportunity the council had in terms of responding to BOEM, and it really connected directly into the path forward on renewable energy. What it did is it set the stage for the council's position on -- It's clarifying the position on energy. There is an approved energy policy in 2015 that the council has been providing and provided in the last response on energy development in the South Atlantic.

As part of that discussion, there was also a direct response that the council provided on the OCS oil and gas leasing from 2019 to 2024 that was provided directly to BOEM and directly as a connection to comments that were provided to the Secretary of Interior Zinke. This, as I mentioned, is Attachment 18 of the Habitat Advisory Panel document, and it has all those packaged, and it really clarifies the council position.

What I was going to go to is, in the last statement on the oil and gas five-year plan, the conclusions that were stated within that document, or in that statement, is the council supported BOEM's past denial of geophysical and geological permit applications to conduct air gun seismic surveys off the Mid-Atlantic and South Atlantic planning areas of the Atlantic Ocean, and it reiterated its previous request to remove the Atlantic program area from the Atlantic outer continental shelf oil and gas leasing program. It restated what the BOEM Director at that time stated, that he believed that the value of obtaining geophysical and geological information from new air gun seismic surveys in the Atlantic does not outweigh the potential risks of those surveys' acoustic pulse impacts on marine life.

The council, in an attempt to avoid negative impacts of offshore oil and gas development, has worked closely with BOEM, NOAA Fisheries, and state partners to highlight regional research needs and avoid impacts on EFH and managed fisheries through cooperative development of alternative energy capacity, specifically offshore wind, in the region.

That just at least gives a snapshot of where we stand in terms of the South Atlantic's position on energy and on oil and gas, and I would refer to that one attachment, which is available online through the last Habitat Advisory Panel, and it gives all of those links to all of those documents and connections.

DR. LANEY: All right. Thank you for that update. Does anybody have any questions or comments with respect to seismic testing? Seeing none, Madam Chair, I will turn it back over to you with four minutes remaining in our allocated time, and, also, thanks to Chris for his willingness and the council's willingness to work late yesterday so that we could have the extra time today. Thank you.

(Whereupon, the meeting adjourned on December 4, 2018.)

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