SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SCIENTIFIC AND STATISTICAL COMMITTEE

Town and Country Inn
Charleston, SC

October 24-26, 2017

SUMMARY MINUTES

Committee Members

Dr. Marcel Reichert
Dr. Robert Ahrens
Dr. Carolyn Belcher
Dr. Jeffrey Buckel
Dr. Churchill Grimes
Anne Lange
Dr. Genny Nesslage
Dr. Frederick Scharf
Dr. Alexei Sharov
Dr. George Seedberry
Dr. Luiz Barbieri
Dr. John Boreman Jr.
Dr. Scott Crosson
Dr. Eric Johnson
Laura Lee
Dr. Amy Schueller
Dr. Fred Serchuk
Dr. Tracy Yandle

Council Members

Charlie Phillips
Zack Bowen
Ben Hartig
Mark Brown
Dr. Michelle Duval

Council Staff

Gregg Waugh
Dr. Brian Cheuvront
Kimberly Cole
Dr. Mike Errigo
Roger Pugliese
Christina Wiegand
Julia Byrd
John Carmichael
Myra Brouwer
Dr. Chip Collier
John Hadley
Cameron Rhodes
Dr. Julie Neer

Observers/Participants

Dr. Erik Williams
Dr. Tom Okey
Rusty Hudson
Dr. Joey Ballenger
Jason Diddion
Dr. Howard Townsend
Dr. Jessica Stephen
Shep Grimes
Lora Clarke
Mike Schmidtke
Dr. Kyle Shertzer

Other Observers and Participants attached.

The Scientific and Statistical Committee of the South Atlantic Fishery Management Council convened at the Town and Country Inn, Charleston, South Carolina, October 24, 2017, and was called to order at 1:30 o'clock p.m. by Chairman Marcel Reichert.

DR. REICHERT: Welcome, everyone, to the SSC meeting, the October meeting. I want to especially welcome Fred Scharf, our new SSC member. He joined us for the webinar, but this is his first in-person meeting with us. Alexei is going to join us later, and Laura is going to join us, or is joining us, via webinar. I would like to start with the introductions, for the record. I also want to remind everyone that this meeting is being recorded and broadcasted, and, with that, Anne, would you start the introductions?

INTRODUCTION

MS. LANGE: Certainly, Marcel. Anne Lange, South Atlantic SSC.

DR. SERCHUK: Fred Serchuk, SSC.

DR. AHRENS: Robert Ahrens, SSC.

DR. BOREMAN: John Boreman, ditto.

DR. YANDLE: Tracy Yandle, same.

DR. BELCHER: Carolyn Belcher, Georgia Department of Natural Resources.

DR. CROSSON: Scott Crosson, NOAA Southeast Fisheries Science Center and SSC.

DR. SEDBERRY: George Sedberry, NOAA's Office of National Marine Sanctuaries and Vice Chair.

DR. REICHERT: Marcel Reichert, South Carolina Department of Natural Resources.

DR. ERRIGO: Mike Errigo, South Atlantic Council staff.

DR. BUCKEL: Jeff Buckel, North Carolina State University.

DR. SCHARF: Fred Scharf, University of North Carolina Wilmington.

DR. GRIMES: Churchill Grimes, SSC.

DR. SCHUELLER: Amy Schueller, Southeast Fisheries Science Center.

DR. NESSLAGE: Genny Nesslage, University of Maryland, Chesapeake Biological Lab.

DR. JOHNSON: Eric Johnson, University of North Florida.

DR. BARBIERI: Luiz Barbieri, Florida Fish and Wildlife.

DR. REICHERT: Thank you, and, before we move on, Laura, can you hear us?

MS. LEE: Yes.

DR. REICHERT: Okay. Thanks. I also want to acknowledge a couple of people. Charlie Phillips, welcome. Charlie is the new Council Chair, and Ben Hartig, the council's liaison to the SSC, and Shep Grimes, who has joined us once again from the NOAA Office of General Counsel. Before we review and approve the agenda, I just want to give you guys a heads-up that, under Other Business, I would like to bring up the potential of an additional SSC meeting.

We talked about this at our webinar and in the past, and I think there was some discussion at the council meeting also about that. I don't want to have the discussion right now, but I just want to put that bug in your ear, so you guys can think a little bit about that, so we can have that discussion on Thursday. With that, I am asking if anyone has any changes, additions, or comments to the agenda. Seeing none, that means that we have approved the agenda.

We also need to approve the minutes of the previous meeting, the April meeting, and also the webinar. I don't believe we approved the April minutes during our webinar, and so any additions, comments, or corrections to the minutes from the previous meeting and the webinar in September? Seeing none, that means that we approve both minutes. Before we go to public comments, Cameron Rhodes is going to give us a brief presentation on access to the council's public comment process, and so, Cameron.

MS. RHODES: Hello, everyone. I am Cameron Rhodes, and I'm council staff. I'm the Fishery Outreach Specialist with the South Atlantic Council, and so I was asked to just give you a very brief overview of how you can navigate to our public comment form. It's used at the council level. For starters, I am not sure if you all have noticed, but we have a new button over here on our website. When we have an upcoming meeting, we post a link here, so that it's easier for folks to navigate, and that's for both our council members and for the public. We've found that this makes it a lot easier for folks to get the materials that they need.

Right here, we have the SSC meeting. If you click through, this will direct you to the SSC page, which will then direct you to the necessary briefing book for October 24. Just to take a quick step back here, whenever we have a council meeting that's upcoming, there will be a link here for people to go to, but, right now, I'm going to refer back to the previous council meeting, because that has the public comment forms that I'm going to use, just to show you what's available to you, if ever you're curious as to what folks are saying to the council members.

If you navigate to the site menu, which is where I recommend that most of you go to, and it's an easy way to see all of the pages that are available on our website. If you go to Meetings, and then to Council Meetings, and scroll on down to the most recent council meeting, September 25 through 29, and then come over here, and there you have the public comment form.

Now, this public comment form would traditionally be closed at this point. We no longer accept public comments after the Thursday following the public comment session during the council meeting, but I have made this one open temporarily, so you guys can see exactly what the public will see when they fill out these public comment forms.

We ask them some very general questions. They provide their name, email, location, and we ask them to tell us a little bit about which sector they represent, are they an NGO, are they a private recreational fisherman, and then the council members recently asked us to find out information about whether or not these folks are federal permit holders. We ask them to check all of these that apply, and then they let us know a little bit about whether or not they're going to be speaking on a particular issue that's relevant to the council meeting or if they're going to speak to something that's a little outside of the agenda items that we'll be discussing during that particular council meeting.

Now, for your purpose, if you go back to that original council meeting page, you can also see where it says, "read public comments", and this is a report, and so Wufoo, which is the platform we use in order to generate these public comments, also allows us to generate a report which showcases all of the comments that were submitted.

It's very user-friendly. If you go in, it can seem a little daunting. It seems like you have to scroll through a lot of material in order to get access to all of the data fields that people have filled out, but, if you go to this green plus-sign here, you can check which fields you would like to see. On my backend, I make all of that information available to you, and you can manipulate the spreadsheet as you please and export data. You can choose which Excel format you would like to use. I don't know if any of you have any questions for me.

We use this for our council meetings, and we have also recently used it just to do a very brief report, just to see what some of the effects of Hurricane Irma were, to report to our council members. It was not an official survey by any means, but it was just anecdotal information that we were able to collect through this online platform, and so, if you have any questions for me, I would open the floor.

PUBLIC COMMENT

DR. REICHERT: Thank you, Cameron. Any questions by any of the SSC members? Thank you for this overview. We appreciate it. Our next agenda item is Number 2, Public Comment. We received one written comment by the Southeastern Fisheries Association that was, I believe, sent last week. Mike, have we been contacted by anyone else?

DR. ERRIGO: No, we haven't had any other public comment submitted.

DR. REICHERT: Okay. Is there anyone from the public who would like to make a comment? Rusty. Just as a reminder, if you come to the table, please state your name for the record. Thank you. Go ahead, Rusty.

MR. HUDSON: Thank you, Mr. Chairman and SSC. I'm Rusty Hudson, on behalf of the East Coast Fisheries Section. We did submit a written comment, as you noted, with the wreckfish ITQ program review. We have been involved with that, and we'll see how the future works for the ITQ system.

As I said, with the wreckfish ITQ system, we've been involved with trying to get through the review, and we have submitted a request to be able to try to update the projections for wreckfish, and we'll see what the Science Center has to say about possible ways of working on that idea, but maybe that will be part of the discussion for the SSC, on trying to get past 2020.

With golden tilefish, I am not sure how heavily the Socioeconomic Panel has weighed in on this very devastating economic impact that's occurring, or going to occur early next year. It's very significantly, financially, and, technically, we never thought updates behind closed doors were supposed to go this route. That's probably one of the reasons why we're going standard, is to keep the fisheries involved, but, unfortunately, the recent, two recent, updates have not been able to replicate what was done with SEDAR 25, the full benchmark that we were involved in.

That being said, we feel that the fishery hasn't changed. We feel that the stock is very good, and there's a lot of reasons it's not fished, and so, somehow, it would be nice to see this economic impact downplayed, so it's not as significant coming right out of the gates. I don't know, if National Standard 1 changes, if that could somehow be applied. I know Shepherd is here this time, and that was discussed before. It's just that the impact, when we're seeing good fishing going on between both sectors, the longline, and they're mostly confined to a certain region, if they actually spread up and down the coast, the twenty-two endorsement holders, but they've got a lot of skin in this game since they got the endorsements.

The open category that we -- Instead of using the historical 10 percent, we went with the 25 percent, and that's being caught. It's actually working out really well for the bandits and the rod-and-reel Electramate fishermen, and yet we still had a CRP that we did with National Marine Fisheries Service recently that actually shows that there is areas that we could be and should be fishing, and so it just really hurts a lot of these stakeholders to feel like they're going to take such a big impact. I don't know what we can do about it at this moment, but I know it's coming, unless somebody can modify it.

Red snapper, thank you, staff at the South Atlantic Council, and thank you, National Marine Fisheries Service. Thank you with regards to the SERFS data and everything for giving us an alternative, and especially since we've had so much issue with MRIP and any kind of stuff involved with discards, et cetera, because the biggest user is the hardest one to monitor in-season and the hardest one to really know what's going on, and so, with these emergency actions for this year, Amendment 43 for next year, we like where that's going.

Amendment 46, one thing we would like to add to see in that, and I don't know if the discussion can go that route now or we have to wait until after the December meeting, but I've had a lot of people from both sectors talking about why do you want to fish on the peak of the spawn, let's say June and July.

A lot of people like the idea of splitting, so that we have a late winter and early spring and splitting where have late summer and fall, and I don't know what the recreational allocation would be to be able to make that happen. At the small numbers right now, it's not an easy thing, but it wouldn't even occur until 2019, and so 46 would probably be the vehicle to look at that and having that spawning season closure for June and July. That is historically, between the period of late April and September, and that's usually the peak. With that, the descending devices, we like, and I still

know that the venting tools have efficacy if somebody uses them, but they also have some problems.

The ABC control rule, we've been watching this as it has unfolded, and we have expressed our support in our written comment that we submitted to you all with regards to Action 6 dealing with the phase-in of catch changes based on the revised ABCs, which is probably a golden tile scenario that I am almost referring to. The Action 8, allowing carryover of unused underharvest of ABC, and usually that is applied to animals that aren't overfished and overfishing is not occurring. We've done that in shark and stuff like that, and so that could be an encouraging development.

Action 9 clarified that the SSC may deviate from the SSC control rule, and, as we say, we've had concerns about over-penalized fisheries catch limits, and a lot of us joke, but it's not a joke, about buffers on buffers on buffers, both on the science and management levels. We have been doing a great deal, I think, to protect our stocks.

The last thing was a new action in ABC, was the AMs, the accountability measurements, mostly looking at the recreational. Again, that's a tough thing to do. We have real-time monitoring that goes on with our commercial fleets, with our professional recreational, both the headboat and the charter boats. You know, it looks like we're going to have better accountability for those sectors.

The last thought, on the thought back to the golden tile, that the CRP that we included in our comment, thirty-nine pages, and I don't know if anybody dug through it, but, Marcel, thank you for having participated with helping to make that happen, and I think that it showed that there is a lot better situation that is going on than most people realize for golden tile up and down the coast. There's a lot of areas that aren't fished, and just maybe, like what we did with red snapper, we could do something with golden tile, in lieu of this massive economic impact we're about to take, and so thank you very much.

DR. REICHERT: Thank you, Rusty. Is there anyone else who would like to make a public comment? Seeing none, I also want to remind everyone that there will be an opportunity for public comment at each of the agenda items. That is generally after the presentation and before we start our discussions. There are a couple of agenda items that I expect that we'll have a lot of discussion during the presentation, and I may ask for public comment prior to that presentation. If I forget, please remind me of the public comment periods.

Also, before we start with the next agenda item, I want to remind everyone of the list of assignments that I sent out. We did that last time, and I will remind everyone of their specific assignments at the beginning of the specific agenda items. In particular, I want to remind you guys to help us with writing the report.

We have about two weeks after the SSC meeting to get the report together for the briefing book, and we'll talk a little bit more about that at the end of the SSC meeting, but I would like to get away on Thursday with a first draft, so we all have about a week to look at that draft of the report, and so we're going to ask you guys to help us with that.

The next agenda item is Agenda Item 3 SSC/Council Review Process. These are Attachments 1 and 2. Attachment 1 was sent to the SSC, I believe, yesterday, and the presentation is by our Executive Director of the Council, Gregg Waugh.

SSC/COUNCIL REVIEW PROCESS

MR. WAUGH: Thank you, Mr. Chairman, and welcome to the SSC, particularly our new SSC member, Fred. I look forward to meeting you and talking to you. I wanted to go through just a little bit of background about the review process and address some of your concerns.

Right off the bat, I want to reiterate that the council values the advice from the SSC, and we generally send all technical analyses to the SSC for review, and we've gotten to the point now where anything of a technical nature we run by the SSC first. Some amendments and analyses are more general in nature, and we don't routinely send these to the SSC. I will mention that the vast majority of this comes directly out of your overview, and so there's not a lot of new material in this presentation.

You all did express some concern at your September 5 webinar about the red snapper emergency action and Snapper Grouper Amendment 43, and so we wanted to clarify what the council did on those two items. Definitely, the council is the peer review body. You all serve as the primary council peer review body, and that role is defined in the Magnuson-Stevens Act and in the council guidance documents. Broadly, it's defined to include any aspects of the council program.

In the past, you all have requested to be asked to comment on specific technical items in FMPs and not on all FMPs in general, and we have tried to do that. Currently, you all are going to be talking about revisions to the ABC control rule, to separate uncertainty and risk tolerance, and the reason is because the current ABC control rule mixes the uncertainty evaluation, which is an SSC responsibility, with risk tolerance, which is a council responsibility, and it puts the pressure on you all to make both recommendations with regards to both of those components. Both the council and the SSC have recommending establishing the risk tolerance for overfishing as a council responsibility and support modifying the ABC control rule to separate uncertainty and risk determinations.

I am not going to through all of this, but the charge in the MSA is that the SSC assists in the development, collection, evaluation, and peer review of data in general. It provides the council ongoing scientific advice for fishery management decisions. It provides fishing level recommendations for use by the council in developing ACLs, and the SSC provides the ABC recommendations. Thus far, the council has been setting the ACL levels. Then it assists the council in developing multiyear research priorities.

National Standard 2 addresses some of the scientific information, and it points out that, in information-limited fisheries, commonly referred to as data-poor fisheries, we may need to be using simpler assessment methods and greater use of proxies for quantities that can't be directly estimated when you compare that to data-rich fisheries.

In timeliness, it points out that mandatory management actions should not be delayed due to limitations in the scientific information or the promise of future data collection or analyses. That is basically pulled out of the more detailed timeliness here, and I'm not going to go through all of this, but certainly, in terms of how the MARMAP index is used -- You all have reviewed that, and that's not complete. That's an ongoing assessment, and you all receive updates on that annually, and that information is used in stock assessments.

In terms of SSC training or, better, calling it orientation, we used to do more formal sessions, years ago, and we've gotten away from that. What we thought is it would be helpful to have a review or orientation session as a short part of your April SSC meeting, just to review some of these procedures, and I want to reiterate that the council is open to any suggestions for modifying how the council and SSC review is conducted. If you all have suggestions here today, we can incorporate those for our discussions at your next meeting.

First, to talk about the red snapper emergency request, and obviously this was on a tight time constraint. We don't provide emergency action requests to the SSC for review. Primarily, this is due to the short time period. Usually, the council, when they discuss an emergency action, they may have one short background document to look at, but not a lot of detail or analyses. In the case of red snapper, this was quite different, because, in order to preserve the ability of the council to request emergency action if they wanted to, and to have a chance of that being implemented, we had to work with the Regional Office staff to prepare a document that, if they decided to go forward, could get in and reviewed and have a chance of being implemented.

The council still had full flexibility not to request the emergency or to request a different approach. The document that they saw even had a preferred alternative, which is way beyond what we normally do, and, again, this is because of the timing, and so the council did go with the Preferred Alternative 4 and requested that it be implemented via emergency action. Part of that justification relied on some of the MARMAP -- The increases in the population as indicated by the MARMAP data, and you all have seen that and reviewed that information.

This red snapper is not the first emergency action that the council has approved without going to the SSC. In June of 2017, they requested an interim rule to set the golden tilefish ACL at the projected yield at 75 percent of FMSY. That is expected to be implemented by January 1 of 2018. May 6, 2015, they requested an emergency rule to extend the blueline tilefish measures implemented in Snapper Grouper Amendment 32 through the Mid-Atlantic and New England Councils.

Another one I pulled out was the December 10, 2013 letter requesting an emergency rule to set the blueline tilefish ACL at the yield at 75 percent of FMSY, and so certainly, this red snapper emergency action, it wasn't -- It didn't come to you all, and we don't bring emergency actions to you all. Again, if this is something that you all feel that you would like the council to consider doing in the future, feel free to make that recommendation.

Again, the council set Preferred Alternative 4, which sets the ACL equal to the landings in 2014, which was the last time the fishery was open under a mini-season, and their rationale was that the population has continued to rebuild from that level of landings and whatever level of discards has occurred during 2014 and since 2014.

The council used the trap index, recent data from research projects in Florida that Luiz presented at the council's last meeting, and observations shared through public testimony to support their conclusion that the population has continued to rebuild and that the risk that limited harvest will result in overfishing or jeopardize stock rebuilding is minimal, and, again, relaying on the MARMAP data. From the council's perspective, this risk is a council determination. The council

views this as an interim ACL that will only be in effect for the 2017 season with that emergency action.

Moving on to Amendment 43, at your April meeting, we included a number of items under Amendment 43 to review, one of which was Attachment 23, an index-based ABC options paper, and Chip had an index-based presentation, and our hope was that you all would use that information to give us an updated ABC. What the council requested in its guidance there, Actions 9 and 10 and 12, and I'm not going to go into those, and those were specific to 43 as well, but we wanted you to review and provide comments on approaches for obtaining a red snapper ABC. Again, the methodology we felt was there that could be used, could have been used, to provide an updated ABC estimate.

What was the outcome from that meeting? I pulled this, and I apologize for the small size, but it comes right out of your SSC report from your April meeting. The SSC acknowledged that, at this point, it is unable to provide an ABC recommendation for red snapper.

You also made several other recommendations. One was, if a short season is allowed, a permit should be required to place some of the data collection burden on anglers. You talked also about if estimates of discards, even though they are highly uncertain, are on a continuing upward trend in the fishery-independent index, it has a high probability of reflecting increases in population size. That was a factor that gave the council some reassurance in taking the action that they did. The other, just to call your attention to it, is that using a short season to obtain a representative age sample will require a scientific design that takes samples from predetermined areas using a predetermined methodology.

Now, should this emergency season, going back to that for just one second, take effect, we have a web-based reporting system that we are going to work with private recreational anglers to encourage them to use, and that's going to be a pilot of our pilot private recreational logbook program, if you will, and so we are trying to put some reporting responsibility on the private recreational anglers, and, should Amendment 43 be implemented, there will be a reporting app available for private recreational anglers to use.

Based on the guidance from the SSC, the council decided, at their June 2017 meeting, to pursue an interim ACL through Amendment 43 for the 2018 season, and that would remain in place until its modified, and they moved all the other actions on red snapper into Amendment 46, and we plan on picking that up at our December meeting. You all are going to talk about that some here as well.

The council's intent was to address the updated ABC recommendations from the SSC in Amendment 46, if one was provided in time, and so, at your April meeting, Erik talked with you all about the Center developing an index-based methodology that they could bring back to you that you all could use to come up with an updated ABC. If we get that in time, the council will include that in Amendment 46. If it's not ready in time, then we'll include it in the next appropriate amendment, and so the council's intent was to address the ABC recommendations in Amendment 46, as I mentioned.

The council provided guidance to staff at the June 2017 meeting that Amendment 43 did not need to be reviewed by the SSC, given the review of the index-based ABC options paper at your April

meeting and the only action in the amendment was to set an interim ACL, and that's a council action, and, again, given that the SSC could not provide an updated ABC, the council decided to set an interim ACL equal to the 2014 landings, and they concluded that the risk of overfishing was minimal, given that the stock has continued to rebuild after that level of harvest and the intervening discards, and you all's conclusions certainly supported that.

The preferred alternative, as I mentioned, sets the ACL equal to the landings in 2014. The council used the trap index, recent data from the research projects in Florida, and observations shared to support their conclusions that the risk is minimal. Again, you all have reviewed the MARMAP data that was a part of their decision process.

In conclusion, the council did not bypass the SSC review for emergency action. We don't provide those to you all for review, and the council doesn't feel like we bypassed you all on Amendment 43, given that you had the opportunity to review parts of 43 in April and the ABC index methodology. The council is waiting on ABC recommendations from the SSC, and they will incorporate them into Amendment 46 or a later amendment, once we receive them.

If, now or in the future, you all have any issues or concerns, please feel free to contact me, John, or Mike, and Ben is your council liaison, or your Council Chair. We want to hear from you all if you feel that something the council has done is causing you concern, and, as I said at the outset, the council is open to suggestions from the SSC for improving the SSC review and role. The council really values you all's input, and so, with that, I would be glad to answer any questions.

DR. REICHERT: Thank you, Gregg. Before that, I am going to ask if there are any public comments. We have generally done that after the presentation and before our discussions, so we can take the public comments into account in our discussions.

MS. CLARKE: Good afternoon. My name is Lora Clarke, with the Pew Charitable Trusts. Thank you for the opportunity to provide comments today. We don't typically provide testimony during SSC meetings, but we were recently advised that this would be the most appropriate venue for our comments to the SSC, and so we hope they will be helpful.

We have been following the red snapper issue since the 2008 start of our Southeast work, and we care a lot about the healthy red snapper population and the integrity of the council process. You are getting ready to discuss a very important topic, the role of the SSC in providing scientific advice and fishing level recommendations to the council. We were pleased to see this topic on the agenda, and we hope it brings clarity for everyone moving forward.

In addition to what was presented, National Standard 2 Guidelines also state that each Scientific and Statistical Committee shall provide its council ongoing scientific advice for fishery management decisions, including recommendations for acceptable biological catch, preventing overfishing, maximum sustainable yield, and achieving rebuilding targets. We are concerned that the council's decision at its September meeting to establish an ACL for red snapper before the SSC was given adequate time to develop an ABC recommendation ignores this guideline, sets a dangerous precedent, and threatens to undermine the scientific integrity of the council process.

We are especially concerned that the SSC was told during its April meeting that it takes time to develop a meaningful catch level recommendation and not to rush to do so at the meeting and that

the fishery would likely remain closed until you had time to do so. These points appear on page 173 of the SSC meeting transcript.

Finally, we are also concerned that, despite the lack of a new ABC or clarity on whether the 2016 ABC recommendation still stands, the SSC isn't being asked to develop or discuss a pathway to develop a future ABC recommendation for either Amendment 43 or Amendment 46 during this meeting. This is a critical initial step from which management measures should flow. Based on discussion at its September council meeting, it seems that many council members believe the SSC is unable to determine an ABC, and, thus, the only course of action was to move forward in setting an ACL for the 2018 season by approving Amendment 43 without fishing level recommendations.

This decision was made despite the fact that NOAA's Office of General Counsel advised the council that neither the SSC nor the council's advisory panels have provided input on the current version of Amendment 43, the amendment that now only contains one action and has changed significantly since the April SSC and AP meetings.

Additionally, Amendment 43 was approved despite the Regional Administrator's statement on the record that delaying its approval until December of 2017, in order to give time for the SSC to review it, would still allow enough time for NOAA to finalize the rule and have a 2018 fishing season next year, which was the council's goal when it changed the amendment so significantly at its June meeting.

With this perspective in mind, we encourage you to discuss ways to improve communication with the council and ensure that SSC meeting reports fully reflect the meeting discussion and decisions. Thank you for the opportunity to provide these comments, and thank you for your service and commitment to providing the necessary scientific advice to permit sustainable fisheries in the South Atlantic region. Thank you.

DR. REICHERT: Thank you, Lora. Anyone else? Any other public comment? Before we start the discussion, I want to remind the committee of the action items. Provide clarification on the desired role of the SSC in reviewing methods for setting ACLs and provide any other suggested modifications to the SSC and council review process. With that, I would like to open the floor for questions and discussion.

DR. CROSSON: I have a question for Gregg. I am looking at the conclusions you have up there on the screen, and you say the council is waiting on ABC recommendations from the SSC. I admit that I have not dived deeply into Amendment 46, and I know that's later on our agenda, and I look forward to that discussion, but at which point, or at what point, is the council going to be asking us for an ABC recommendation?

I guess that's also related to the question that came up in public testimony. Right now, is the understanding between the council, and I guess the committee, that there is not a standing ABC recommendation, since we did not give one at our last meeting? I guess those are two separate questions. When does the council intend to ask the SSC for an ABC recommendation on red snapper, because I understand that that's certainly not something that we can put on our agenda on our own. This is something that the council has to request from us.

MR. WAUGH: Well, our understanding was that, at the April meeting, when you all discussed this, the determination was that Erik and the Beaufort Lab was going to do some further work on the index-based methodology and bring that back to you all at a future date, yet to be determined, and then you all would work with that and produce an ABC, and so, from the council's view, the ball is in you all's court, and we're waiting to get an ABC recommendation from you all. Obviously you all's work is hinged on receiving the updated work from the Beaufort Lab, and so that's where we stand as far as asking for an ABC. As to whether there is an ABC in place now, the last ABC that the council acted on and put in place was in Amendment 28 from the previous stock assessment.

DR. SERCHUK: One of the things that I think could be helpful is if the council took note of our webinar that was held in September. Many of us were surprised -- Should I continue, Mr. Chair?

DR. REICHERT: Yes, and I was just waiting for the noise behind us to go away. Maybe you can move a little bit closer to the microphone, so we can hear.

DR. SERCHUK: Sorry, Mr. Chair. When we had our webinar in September, many of us were surprised to hear that progress on the development of the index had been halted, and partly because of staff were directed to work on other things for SEDAR, and this was the words that Erik used, and partly because it appears that management was moving forward irrespective of that index topic.

I don't know what the current status is, and we can perhaps ask Erik or someone who can respond to it, but, if that's certainly the case, that it's not progressing as we all had hoped, I would hope the council could express their desire to support the SSC in seeing that work continue as expeditiously as possible, because, as I understand your intervention, you understand that we're waiting for it. We were surprised that we were not going to get it in the time that we had hoped for, and so we have two customers here that are looking for that particular advancement, the SSC, and the council is waiting on the SSC to evaluate that product. At the very least, if the situation is still as it was in September, we would hope that the council could support a recommendation to the Center to move quickly on that, if at all possible. Thank you.

MR. WAUGH: Thanks, Fred. That's when we found out that work was delayed as well. We made a request to do some additional, and I think it was golden tile work, and we were told that that would have an impact on their work products, but we didn't know which, and we heard when you heard that that was delayed. I don't know if Erik can provide an update on what the status is, but, yes, the council would certainly support that as a high priority.

DR. REICHERT: Erik, would you mind? I know we have an update on Science Center activities later in the meeting, but would you mind addressing that real quick? Thanks, Erik.

DR. WILLIAMS: I planned to provide an update on that during my Agenda Item 8, but, just to be clear, at that last SSC meeting, I think I made it fairly clear that that method that we had been discussing at that point in time was never intended to provide an ABC. It was a monitoring tool. We were proposing a method that would allow us to determine whether the stock was on the trajectory for rebuilding or not, based on the index information, and so I just wanted to make sure that that's clear on the record as well.

MR. WAUGH: To that point, to Fred and to you guys, with that clarification now, if getting that as a monitoring tool, is that going to help you all in developing an ABC recommendation, or, at some point, are you all going to need to ask for something else?

DR. BUCKEL: On your Slide 12, Gregg, from our notes in April, the other item there that we talked about was the committee supports attempts to apply the DLM toolkit as well as newer data-limited methods, and so what is the status of -- Has anyone in the Southeast Center been pursing that for red snapper, using some data-poor approaches, because, if the index is for monitoring and not for developing an ABC, then the data-poor approaches can be used to help develop an ABC, and I don't know if anybody could provide information if someone is pursuing that approach.

DR. REICHERT: We can ask the question, but perhaps we can discuss this a little more when Erik provides his update, this specific issue, and is that okay with you?

DR. BUCKEL: Yes.

DR. SERCHUK: I want to support Erik. It was very clear, when we had our webinar, that it was never intended to provide an ABC, but that doesn't mean that it couldn't. There are other places where an index-based method has been used, and so we want to separate the intent of what they were doing to its application, and, while the application was not one that they had in mind, my feeling is that we shouldn't dismiss the index method as a possibility for providing an ABC, and those are two different thoughts. Thank you.

DR. REICHERT: Thanks, Fred.

DR. AHRENS: I guess, to build off of what Fred said and what Erik said, I think it would be reasonable to at least run some sort of management strategy evaluation to look at kind of what the utility of having that sort of an index method would be in creating an ABC control rule. That would then seem like the next logical step, if there is an interest in bringing in that sort of information.

DR. REICHERT: Anyone to that point? I am struggling a little bit with the question of who does what, and I don't think it's the SSC's job to develop methods or to come up with methods or combine methods to come up with an ABC. With the current plans at the Science Center to delay, due to other responsibilities, and, although, as Fred mentioned, we shouldn't dismiss using an index-based method to produce an ABC, there are other approaches, but I am struggling a little bit whether that's our job or not.

I would say it's not the job of the SSC, but rather our job is to review methods that are being brought to the SSC, and so I would like a little bit of discussion there, because we discussed earlier that perhaps the SSC should work with council staff and the Science Center to potentially develop methods to come up with an ABC, and so I would like a little more discussion as an SSC, to see where our role and our tasks are, in that respect.

DR. BOREMAN: The SSC can develop methods, and I don't see why not. The problem is that we cannot do it in one fell swoop and then deliver it to the council. There needs to be some peer review involved, too. What we do in the Mid is we set up a working group that will go out, a sub-group that will go, and develop a method. We've done that on a couple of species.

Then they come back and the full SSC body serves as a peer review body for that method before we use it, and so, just to say across the board that the SSC should not be developing methods, I think it depends on the circumstances, but, in some cases, it may be the most efficient way to handle and the most timely way to handle an issue. Thank you.

DR. REICHERT: Thank you, John, and I don't disagree with that, but I would like a little bit more discussion, in terms of how as an SSC we can best set this up. Also, obviously, there is a little bit of a time pressure there, in terms of us ultimately providing an ABC to the council.

DR. CROSSON: This is also a question for Gregg, or just a clarification. Those of us who have been on this committee for a long time, and, Gregg, of course, has been involved in that process along with us, early on, when we starting giving ABC recommendations to the council, and I think it was with speckled hind and warsaw grouper, we came to the discussion point about whether our ABC recommendations should be including estimates of discard mortality, because those were two fisheries that had no catch allowed, but there was a bycatch, and, since the barotrauma kills every fish, they were allowed to retain it.

Our guidance, I think, or our discussion point or our conclusion, along with the council staff and with the council itself, was that our ABC recommendations should include estimates of discard mortality. Is that still the case? If that is the case, how does that apply to this fishery, given that one of the problems that we had with giving an ABC recommendation were that the estimates of discard mortality from the recreational fishery were quite unknown, especially given the revisions that are coming down the pike with MRIP.

MR. WAUGH: We ask, and you all provide, estimates of ABC for landings and discards. Then it's up to the council how they use those. Yes, that has continued, and it has continued with red snapper as well.

DR. CROSSON: So are we waiting also for the revised MRIP numbers to come out next year, in relation to giving an ABC recommendation for red snapper?

MR. WAUGH: Not just red snapper, but anything with a recreational component. The numbers we have now will be irrelevant once we get the new numbers, the new MRIP numbers. Every assessment will have to be redone, and then we'll see where we are. Yes, that's a factor, and what's being done is the assessments that are ongoing now will be updated with the new MRIP numbers, once they become available.

DR. BARBIERI: Gregg, a question for you. In terms of the -- I mean, if we look at the council's administrative process, we look at these regulatory amendments, and can you give us an update as far as catch level recommendations for red snapper? What is on the books now that has gone through the administrative process and is perhaps already reviewed by the Secretary? Where do we stand?

I do feel that there has been a bit of confusion over time, because the SSC, right after SEDAR 41, and I think that was April 2016 when we reviewed that assessment, and then we actually provided projections of OFL and ABC. Since then, there has been correspondence, letters, from the council to the Center and from the Center back to the council, and, in our briefing book for the SSC last

April, there was also a letter that provided some comments and perhaps some recommendations to the SSC on how to proceed.

I think all of this, because it involves some level of semantics and interpreting language, and it might have been not all clear to everybody, and so, if we look at the administrative process and what the council has on the books right now, as far as receiving an official catch level recommendation from the SSC that is moving forward for approval through a regulatory amendment, where do we stand, as far as that is concerned, because that might help define what we actually need to actually request of the Center, which we usually do, or develop ourselves through some other analytical process, but we need to know what is missing and why before we, I think, can take that step.

MR. WAUGH: Thanks, Luiz. The last ABC recommendations you all made were with the assessment with data through 2014. As the council was working on that, they have looked at how far removed we were from 2014 and asked for some updated projections, so that they could then move forward with your recommendations, and the reply we got was that there are issues with the level of confidence in the discard data and the recreational data, and the Center said they could not give us updated projections, and so the council is not moving forward right now with any new ABC recommendations.

What's on the books now, implemented, was implemented in Amendment 28, based on SEDAR 24, and those projections, to the extent that you can use those, for 2017, the landings that were projected, were 74,000 fish. If you look at the council's preferred alternative, the annual catch limit is 42,510 fish, and so it's actually under the landings level that was implemented through Amendment 28, based on you all's previous ABC recommendations from SEDAR 24. Where we are right now is updating that, and we're waiting on some new, updated ABC recommendation.

DR. BARBIERI: I think this clarifies a lot, to me, what is needed for the council to be able to proceed, and this is not like any of the other processes, where the SSC provides an ABC recommendation according to application of our control rule or some other process and then provide that to the council and the council proceeds with the ACL recommendation that follows that ABC from the SSC. I just wanted to bring this up, because that might put us in a situation where we might provide either guidance to the council to request that analysis or perhaps the council already has requested that analysis from the Center, and that is the update that we're going to get later today from Erik.

DR. REICHERT: Luiz, can you clarify what specific analysis you -- Maybe I have missed that. Sorry.

DR. BARBIERI: Let me just review. Back in April of last year, we had a stock assessment process that went through our regional stock assessment SEDAR, and we do this all the time. We had a review workshop, and then it came to the SSC, and the SSC evaluates the review recommendations and then uses those results from the assessment to develop projections of OFL and ABC and then make the formal ABC recommendations to the council. I think this is what is generating a little confusion, because we did this back then.

Since then, there has been some discussion that those projections could not be used as catch advice for managing the red snapper fishery in South Atlantic waters, and so, to me, it looks like we still

have to develop new ABC recommendations, or there should be an administrative record that keeps track of all those procedural steps that are codified in the way that we're supposed to function, according to council procedure, our SOPPs, and National Standard 2. I think first is understanding that the previously-provided ABC recommendations that came in terms of projections could not be used as catch advice and we need to have new ABC recommendations, and is that your understanding as well?

MR. WAUGH: Yes, it is, and, again, there is a nuance with the methodology, the index methodologies, that Beaufort is developing is used for monitoring. As Fred pointed out, you can use that to come up with an ABC, and, at your April meeting, Chip had another methodology that could be used, using that index to come up with an ABC, and so, yes, we are waiting for an updated ABC recommendation to act on.

DR. REICHERT: I've got a quick question for clarification. We have the SEDAR 41, and then the Science Center indicated that the projections -- Correct me if I use the wrong terminology, but that the projections couldn't be completed, because of the uncertainty in the recreational catches, the bycatch mortality, et cetera, correct? But now you mentioned SEDAR 24 and that the current ACL is under the projections that came out of SEDAR 24. Isn't the same argument true for those projections, in terms of uncertainty? I am a little confused there.

MR. WAUGH: Yes, those issues are still there, but the question was what's on the books now, and those numbers were implemented through Amendment 28, and those are on the books, so to speak. That's what the council took at that time and implemented via Amendment 28, and that stays in place until we change it.

DR. REICHERT: Thank you for that clarification.

DR. SERCHUK: I can't recall whether the ABCs that came out were for landings or for catch, and so that would be helpful, because I still think we have this uncertainty about the discard mortality. Coupled on that, we have the uncertainty about the numbers themselves, the catch numbers themselves.

What I am hearing is the last assessment indicated, well, wait a second, we can't go forward with the projections now. We realize that they're not firm enough, and we don't have enough reliance in them, which, to me, suggests, and now I'm looking for people that were familiar with the process before that, and saying, well, wait a second, that also means that the scientific basis for things before that are now questioned, because we now have more insight about the uncertainties that we now believe exist also existed prior to that, and so I understand they're on the books, but you understand that part of the scientific enterprise is trying to bring greater understanding of the uncertainties or the certainties in the evaluation.

If I understood Luiz correctly, and he has much more experience with this than I do, we couldn't go forward with projections, because we didn't believe that they were reliable enough for the things that I pointed out, which suggests to me that the previous evaluation also had those same uncertainties with it, and I understand the council is between a rock and a hard place now, because they are the foundation on which the regulatory process was put forward, but I don't think we should fool ourselves, at least from a scientific point of view, and maybe from a legal point of view we have a different argument here, that those have any more weight because they have been

codified, in terms of their scientific basis, then what we found out the last time we did the assessment, and I guess I am looking for people that are familiar with the process to either corroborate that or to negate that. Thank you.

DR. REICHERT: Anyone to that point?

DR. BARBIERI: Fred, just to simplify it for us, because this is complicated enough without us getting too much -- I get your point, and I agree that, philosophically, we look at the amount of discards and we look at our ability to determine some catch level that can be appropriately monitored with some level of confidence that we are not going to be overfishing, and that's going to be difficult, but I think this is like thinking retroactively to a recommendation that has been already adopted, and it's now on the books.

I think, as a matter of us looking forward, whatever future recommendation that we're going to be getting, this committee will reevaluate it for its technical qualifications and characteristics, and we're going to decide whether they represent enough -- Whether they have enough confidence there to provide catch advice to the council, but I think that we need to separate, in my view, those two processes.

One is finding where the council is in needing catch advice from the SSC, and it was not the SSC, by the way, in my recollection, based on our report from April 2016, it was not the SSC that deemed those projections to be inappropriate for catch advice. That was a letter that we received from the agency, and so it's something that, if we don't follow that paper trail and all of the decision-making and the process, it gets complicated, and so I would ask that we focus on identifying a process.

We need an ABC recommendation, and then we can discuss, I think, whether it is the SSC or the council who makes that formal request, which is standard procedure. The council usually makes requests to the Science Center for analytical products that will be reviewed by the SSC. If that request has already been made, and this is the update that we're going to receive from Erik, and then we'll go from there. Otherwise, we need to advise the council, I think, to make a formal request for that quantity, so the SSC can review it and proceed with a new recommendation.

DR. REICHERT: Thank you. Gregg, I have a point of clarification. You're talking about the request, and I see there is two things here. One is of process, and the other one is that of how do we get to an ABC, and I think you're kind of addressing both of them. In terms of the request, can you clarify what specifically you are referring to? Is that the request to develop a method to come up with an ABC, because, earlier, we were talking to potentially the SSC can play a role in there, by a working group, and work with the Science Center, or is that part of a potential request, recommendation of a request, to the council?

DR. BARBIERI: Are you asking me?

DR. REICHERT: Yes, I'm asking you, Luiz, and then, Gregg, I will give you an opportunity to respond.

DR. BARBIERI: Whatever way we get there, that's to be decided. It can be either done by the Science Center, which is the standard procedure that we -- I mean, we see this -- I have been with

it for over a decade, and we see this regularly. The council makes requests for analytical progress from the Center, and they come here and are reviewed by this committee, and we provide a recommendation after the review. That's how it works.

If that can be done, that's the normal operating procedure, and that's the way it should go. Now, if the Center, given the high volume of other tasks that are making it impossible for the Center to produce those quantities in a timely manner, then we can see if this committee would have people capable and able to and having the time to develop those analytical products that would come here and be reviewed, a sub-committee or whatever, but, to me, if we don't have -- If we have not provided a formal ABC recommendation that was accepted by the agency that can be used in a formal process for approval of a regulatory amendment that would be reviewed by the Secretary of Commerce, I think that that step is still missing, and so, when I talk about a request, it's basically to understand where the council is in requesting.

Usually, there is a letter that is sent, and it's signed usually by the Council Chair or the Executive Director, that is directed to the Center Director and requests those products, and so that's what I am talking about now, if the Center is going to be able to do it or not. I mean, that has to be discussed and decided, and, if not, what other process can we put in place to arrive at that, but I am trying to keep that separate from the process of what we need to provide that catch advice.

DR. REICHERT: Thanks for that clarification. I will give Gregg a chance to reply, and then I will come back to you, Fred.

MR. WAUGH: From the council's perspective, Beaufort is working on a methodology, index-based methodology. When that's provided to the SSC, our understanding right now is that you all will use that. Maybe not for its intended purpose, but use that and provide updated ABC recommendations. That is our understanding now, and so, if you all disagree with that or need something different or want the DLM toolkit run, it would be helpful for you all to make that case known to us.

Now, some of the items that have been mentioned will come up in 46. We are pursuing improvements to private recreational reporting, and we'll be talking about that there. We recognize that there is a discard issue, and we've got lots of efforts ongoing to try and address reducing discard mortality, and so we'll be talking about those in Amendment 46.

DR. SERCHUK: We have another responsibility that hasn't been mentioned, and that is the council and the Service have now agreed, through emergency action, to have landings equal to 2014 in 2017. The rationale that they used, whether we agree with it or not, is that, since that time, the available indices and the report from the fishing industry suggest that the stock is increasing, and the implication there is that level of landings, and I'm not going to say mortality, but that level of landings has not impeded stock recovery and doesn't jeopardize the stock.

I think we then have a responsibility to see, okay, let's look at the same indices next year and see whether that indeed is the case, because, if the index goes down, or if the report from the fishery indicates that things are not as they were, then we have to do something about it. The council would have to do something about it, and I think we have a responsibility as an SSC to say, look, this was implemented by emergency action, and they don't need the SSC's input into it, but I think

we have the responsibility to the SSC to say, look, we still have a responsibility to evaluate the impact of that management regulation, whether we were consulted or not.

They don't have to consult us in this case. It's an emergency action, but I still think we have something that we need to evaluate, irrespective of what the Center does or does not, with respect to the efficacy of the regulatory process in relationship to either jeopardizing the stock or impeding stock development. Thank you.

DR. REICHERT: Thank you, Fred. To that point, I have a question about Amendment 43. Please remind me. If we were to have an opportunity to, for instance, to evaluate what's happening to the stock based on the emergency action, is there flexibility in Amendment 43, for instance, to take that into account?

MR. WAUGH: No, and 43 was approved by the council, and we are finalizing it. It will be sent to the Secretary. Anyone has the opportunity to comment to the Secretary, and so the Secretary could perhaps not implement that, based on those comments, but, the way it's set up now, the emergency deals with 2017. Amendment 43 deals with 2018. Amendment 46 could affect 2019. If there is anything that you all see that you think should be changed, it would go into Amendment 46, and we could implement that in time to affect the 2019 season.

DR. REICHERT: But the 2019 season is based on Amendment 46, or, if there is a delay in 46, that means that Amendment 43 will stay in place, that ACL will stay in place, until it is modified by Amendment 46.

MR. WAUGH: That's correct. The values from 43 will remain in place until modified.

DR. REICHERT: Thank you. Anyone else have questions or discussion at this point?

DR. SCHARF: I was just wondering if Gregg could provide some broad context, especially for me, since I am new. Over the last decade or so, how often are these emergency action requests made, and how often do they include ACL recommendations, just broadly, if you have a general idea.

MR. WAUGH: Well, that list I gave you covered the last three or four years for snapper grouper. We had one in 2017, one in 2015, and one in 2013. I would be glad to go back and review that and see if we made more requests for snapper grouper, but that gives you a rough idea. Of those, two of them implemented ACL recommendations, and we have certainly done, prior to this, ACL recommendations for red snapper via emergency as well.

DR. BUCKEL: I guess this is to what Luiz was talking about before, the process. The list of items that the council is going to need for their next meeting, and, if we knew -- I guess I had the impression in April that this ABC, that there was no -- That it wasn't a high importance for the June meeting, so we could wait a little while and wait for the Center to come forward with the index or data-poor approaches.

Maybe if that's part of the process, is the council can say, as part of our meeting, that these are high priority and we need them for our next council meeting, because I think if we -- If the SSC knew that the ABC was going to be -- That a landings determination was going to be made in June,

we probably would have put together a committee. John mentioned the Mid-Atlantic. Under the blueline tilefish, they developed a data-poor sub-committee, and they came up with an ABC, and we probably would have had something similar done here, and so I guess that's to the council. If there is a high priority, and it's known in advance, to let us know, and then we can work to potentially get a sub-committee together, and so just for future guidance.

DR. REICHERT: Thank you, Jeff, and I agree. Unfortunately, if we look at the timeline, which I also think is very important, and I think we sometimes forget that, especially in this case, because a lot has happened since the April SSC meeting, where I think part of what was included in our discussions was the fact that at that point we all assumed that there would not be any opening, and so the urgency of setting an ABC at that point, and we discussed that at length, was maybe not as high as we later realized, or the council later realized, because, at that point, we said, well, we have some time to develop this index-based method, and we can discuss that, and maybe we can decide on a working group and provide the council with some recommendations and we can come back to this in our October meeting.

Then a lot of stuff happened, and so there were a lot of changes in that timeline relative to our meeting, the emergency rule, the changes in the language of Amendment 43, et cetera, and so I think that's also for us, I think, important to keep in the back of our minds, because that may explain -- Several of you and several others have said there is some confusion, and I have read the minutes, and, yes, I think we as a committee perhaps could have been more clear in some of our discussions, but, on the other hand, I think that timeline is very important to keep in the back of our minds also.

MR. WAUGH: Just to remind folks that, as of your last meeting, the council didn't have any intent to open it in 2017. There are several extraordinary events that have taken place since that. The Gulf was open for an extended period of time, and the summer flounder issue up in the Northeast, and so what the council was presented with, the question posed, was would the council want to weigh in on whether there might be a 2017 season or not.

We certainly felt that, yes, that was something that the council would want to weigh in on, and so it isn't like there was a change of course from where we were in April. Those events changed, and we were responding to them, and I think, if you compare the catch levels that are being allowed in the Gulf versus what is being proposed in our emergency request, you will see that ours are much more conservative, and so I think that the system, the fishery, benefitted from the council entering that process. We have been dealing with a tremendous amount of pressure from our fishery constituents seeing more and more red snapper and wanting to have some access to it, and so this is a dynamic situation.

DR. YANDLE: Just a basic process question. What happens next with this? Does this or 43 go to the Science Center for review or does it just move forward or what happens?

MR. WAUGH: The emergency request is up in Headquarters now being reviewed, and we expect to hear virtually any day now what the fate of that is. 43 will be sent to the Regional Office for review within the next several weeks, and then that will go through, and, for 43, there will be opportunities for public comment.

DR. SERCHUK: I have a minor point, but I am going to raise it anyway, because we were -- Earlier on in your presentation, you talked about risk tolerance was something that was in the council's domain, although we deal with, when given direction, the risk of overfishing, for example, and how to take into account the uncertainty into account between the OFL and the ABC.

The slide that you presented has these words in it: "The risk that limited harvest would result in overfishing or jeopardize stock rebuilding is minimal." I presume that's a qualitative statement of risk, that there was no risk tolerance that the council came up with to say, well, that's a 10 percent risk or a 20 percent risk, because have this disparity between how the SSC looks at these things with relationship to OFL and ABCs, in terms of uncertainty, and I just wanted to get that clarified, because you said it's minimal. Is that zero or 10 percent or could you explain what that "minimal" really represents?

MR. WAUGH: Yes, and I think this is why we're working with that ABC control rule to separate those two issues. From the council's perspective, they looked at that harvest level that occurred in 2014, and, whatever the discard mortality was in 2014 and since then, the population has continued to increase, via looking at the index, and you all, at your last meeting, agreed that that had, and I forget the exact point, a high likelihood or a high probability of showing that the stock is increasing.

I don't think the council had any numeric value associated with that, but, just based on that, it stands to reason that, if you allow that same level of landings, and we're doing everything we can to help publicize the need to minimize the discard mortality, that then the risk of that population not continuing to increase is minimal.

DR. SERCHUK: Just as a further clarification, would that also mean that the population would attain its rebuilt status in the timeframe that was envisioned in the previous amendments?

MR. WAUGH: Well, we would need the updated projections to know that. That's what is missing. We don't know, and the council did not venture into that area. What the council was looking at was what would happen in the short term with that catch level, and we certainly intend to monitor it. That index can't continue to increase. At some point, it's going to level out, or else we'll be walking on red snapper, although some of the fishermen say we're almost doing that now. That index can't continue going up. It's going to have to taper off at some point, but we intend to monitor that as well, and the council can, at any point, take action to change the measures that are in place.

MR. HARTIG: One of the things, in the context of the conversation that I have listened to talking about the emergency action and 43, is the SSC thought that there might be some oversight between the two, looking at catch levels, and there is in the amendment. I mean, we're going to look at the catch levels that occurred in the emergency season, and, if those levels are over, we're going to subtract from the season, or, if they're high enough, we won't have any season, if it's double, and so there are safeguards, to some degree, in this amendment to make sure that -- I mean, it just doesn't go emergency action and 43. There are processes between the two that look at the catch levels.

DR. SCHUELLER: First, I have a question, and then I have a comment. I will start with the question. The question is, given that there was no documentation provided for Snapper Grouper

Amendment 46, what is the timeline on that, and when is an ABC recommendation required in order for that to be included in the documentation?

MR. WAUGH: Chip may be able to give a more specific answer, but, if we were to get a recommendation from you all at your April meeting, that could easily make it into 46. I think waiting until your October meeting would likely miss Amendment 46, but Chip may have a more specific answer.

DR. REICHERT: Just as a reminder, we will be discussing this in more detail under Agenda Item 13, but, Chip, go ahead.

DR. COLLIER: In December, we are going to present the council with an options paper for Amendment 46. There's a lot of things that are in there, some potential impacts to the recreational fishery, and so it's going to take a lot to develop it, especially if there is recreational reporting in there, and so it's not going to be a fast-moving amendment. It could be a potentially slow-moving amendment, which would give us time to develop an ABC. If the recreational reporting gets pulled out, it could be a faster-moving amendment. It just depends on how much is in there. Recreational reporting is -- It's difficult to analyze how much that will cost, and some of those analyses will take a long time to develop.

DR. REICHERT: Chip, can you give us any indication what that means, a slow-moving amendment, or -- The reason I'm asking is I'm not asking you to tell us that, well, this is when this is -- I am not asking you to come up with a timeline, but I would like to bring it back to Amendment 43, because, if this is a slow-moving amendment, it means that what is in Amendment 43 will stay in place until Amendment 46. That's why I am asking. Do you know what I am trying to say?

DR. COLLIER: If parts get moved out, it could be done in a year, especially if that recreational part gets moved out, the recreational reporting part. If that stays in, it could probably take two years or three years, and hopefully not as long as some of the bycatch reporting stuff that's still going on, and that's five years, I think, now. It depends on your definition of "slow" and "fast".

DR. REICHERT: Thank you, and I think relevant to -- I will come back to you, Amy, but I've got a question. Remind me when is red snapper on the current SEDAR schedule for an assessment. Is it on there? Is it 2020, if I remember correctly? We can look that up.

UNIDENTIFIED: 2020 is a benchmark.

DR. REICHERT: 2020 is a benchmark, and so that's another timeline that kind of runs through this, because I assume that, if that's a successful stock assessment, we will get -- That will lead to an ABC recommendation when that is completed.

DR. SCHUELLER: I will provide my comment. So, obviously, I think that every single person sitting at this table has a different viewpoint on how all of this has transpired, based on their frame of reference from where they're sitting. At this point, I don't care about any of that anymore. What I care about is what the heck are we going to do now, and so there's two topics. One is how is this SSC operating and how is it serving the council, and is it doing so adequately?

I have basic questions. Who sets the SSC's agenda? When can items be added? Can we create sub-groups to make these methods? All of those things, we should already know that, and so, if that's something that is going to be covered in this SSC training, then we should have that, because I have been on the SSC for three years, and I should know who sets the SSC agenda. That is one thing, is what are we doing? I think that we need to make very specific statements in our notes from this meeting about action items that must be done in order to move forward on that topic, because there should not be confusion around this table about what our charge is.

Two, red snapper. I think that we have plenty of information to set an ABC. Yes, it would be nice to have index stuff and any other things that could be provided, so that we have a full picture of available options. However, we set ABCs on all kinds of information that are less informative than what we have available now, and so the question for me on that is what are our action items?

We must provide specific action items in order to provide an ABC recommendations. If the council is waiting for us and that is our task, we need to do it. If it requires us completing and putting together a sub-group that works in conjunction with the Center or works independently, however that transpires, we need to make action items in this report that need to be followed more.

I get a little frustrated, because sometimes I feel like we have action items and then nothing happens, and I'm not really sure where the onus or the responsibility lies for those things to happen, and so perhaps that could be clarified in this informational session on the SSC's role as well, and I will stop there.

DR. REICHERT: Do you want that clarification and do you want some discussion now, or do you want to have some of that discussion in April?

DR. SCHUELLER: We don't leave here today without an action plan, is my vote. I mean, I don't want anybody to step outside the doors without an action plan, to be perfectly honest.

DR. REICHERT: Good, because I was just about to go back, and then I will come to you, Scott, to go back to our action items. That will address that. Before I go back to you, Scott, is it to that point, or do you have another point to make?

DR. CROSSON: My point was going to be exactly to that point, and so you kind of nicely have these minds all meld. I guess what I was wondering is that, looking at what is up there on our plan about providing suggested modifications to the SSC and council review process, I would have suggested that we would -- I don't know if it has to be today or wait until Chip's presentation, but that this committee have a sub-committee, and obviously this SSC needs more sub-committees, because most of the SSCs operate with lots of sub-committees, and we almost never do, and, of course, the one we do have, with the social and economic one, is highly effective, and so you all know how useful this is.

Again, I believe that it should be a sub-committee of this SSC that works in conjunction with the Science Center and the council staff and gives guidance on providing an ABC recommendation at our April meeting. Again, given whatever information is available, that there is some guidance on the methodology that would then be provided to this SSC, so that we could make an ABC recommendation at our April meeting. Not today and not tomorrow, but in April.

That's my recommendation, and whether that's part of the action items for this item that we're on the agenda, Number 3, or whether it's part of Amendment 46, when we discuss that, when Chip gives his presentation, is irrelevant, but I think that should definitely be something that comes out of this meeting.

DR. REICHERT: Okay. Does anyone disagree with that?

DR. BARBIERI: Mr. Chairman, I do not disagree with that. I agree with both Amy's points and Scott's. Just as a matter of procedure, procedural steps, I would like to know -- Because, if the Center is already working on something, was there formal correspondence between the council and the Science Center? Was there a formal request for an ABC to be provided to the council according to some deadline, because we see those correspondence for a whole number of species, several times a year, and those things are part of the administrative record, both with the council and with the Center. I agree with both Amy and Scott, but it's just so that we don't trample the process that is already in place if that is being developed.

DR. REICHERT: Amy, to that point?

DR. SCHUELLER: I can't speak to whether or not the formal process has occurred, but that doesn't mean that we can't -- If we decide that the action item is to put together a sub-committee that then liaisons with the Science Center, I don't think that impedes anything that has already been done, and so I'm not sure that it matters, to be honest.

DR. REICHERT: Gregg, to that point?

MR. WAUGH: To answer Luiz's question, no, we haven't made any formal specific requests for an ABC. Generally, that comes out of putting together a stock assessment and where it is in the priority. Now, we did have some discussion, I think on a SEDAR Steering Committee call, where, when we made -- At the last SSC meeting, Erik made the offer that Beaufort was going to work on this CPUE index, and then we were told, when we added another task, and I think it was with golden tilefish, that that would impact other work products. That's the extent of the discussion.

DR. REICHERT: Thank you. I am not closing this -- Amy.

DR. SCHUELLER: I am going to say one more thing. I think that, if we do have a sub-group of SSC members that is working with the Science Center, that that offers intangible things that are going to be useful moving forward, such as buy-in from folks in this committee, input from folks within this committee, and it just seems beneficial all around. It's good, and I would hope the Science Center would think this, too. Of course, they want scientific ideas to be brainstormed and discussed from folks from as broad of a spectrum of background as possible.

DR. REICHERT: Thank you. At this point, I am going to suggest that we've been meeting for an hour-and-forty-five minutes. Let's take a fifteen-minute break, and then we'll come back to this and wrap it up and take a look at the notes that Mike made. Then we'll think about the sub-group and take a look at the action items, so we address those action items. We'll come back in about fifteen minutes, at 3:25.

(Whereupon, a recess was taken.)

DR. REICHERT: All right. Welcome back. I want to remind everyone of the action items. They are to provide clarification on the desired role of the SSC in reviewing methods for setting ACLs and provide any other suggested modifications to the SSC and council review process. Amy mentioned, before we went on the break, a couple of things that I would like to come back to.

One is the working group, and I think there is definitely support within the committee for this working group to work with the Science Center and others to come up with a method or an ABC, and I want to -- I asked, just before the break, if there's anyone who has any objections to that and if the committee would like to move forward with that, and maybe we can identify some folks in the committee who are willing to participate in this effort, and I absolutely agree that the goal should be to come up with some tangible products that we can then review and use for very specific recommendations to the council, and so I open the floor, if anyone has any questions or suggestions or if anyone is willing to participate in this effort.

DR. AHRENS: I will happily participate in the effort.

DR. REICHERT: Thank you.

DR. CROSSON: Marcel, I would as well.

DR. REICHERT: Thank you, Scott.

DR. SCHUELLER: I will participate as well, since I'm the one that tossed it out on the table.

DR. REICHERT: We can discuss potential specific roles, and does anyone have any suggestions, in terms of how to move forward, in terms of coming up with a plan? Should we perhaps have a conference call? Are there any other people who are willing to participate? Would we like to discuss specific products?

DR. BARBIERI: I was going to just suggest that perhaps -- Unfortunately, I'm not going to be able to participate, and so I'm not volunteering, but, like we did for other sub-committees before, I think it would be good if the members of the sub-committee, at some future date, perhaps bring this to the April meeting or before then, so that we could decide what the charge of the sub-committee actually is and develop some draft terms of reference for what's going to be produced.

DR. REICHERT: I think that's a good idea. However, in terms of the timeline, I think we should be a lot further at our next meeting, and so what I would like to suggest is that perhaps we use the next day-and-a-half to kind of mull this over a little bit. Then, maybe on Thursday, under Other Business, we can come back to this and maybe come back with some additional ideas or plans. It may give us an opportunity to discuss this a little further with others.

DR. SCHUELLER: I envision a plan of action in my head, and I would be willing to put that to paper or electrons before the end of this meeting, so that we can hash that through, because it can't wait. We have to know what that charge is for that group now, and I would also hope we can peer pressure somebody else to join this committee, because at least one more non-NOAA person, please.

DR. REICHERT: I agree with both items there, and that's why I said let's give ourselves a little time to mull this over. Amy, I would really appreciate it if you would like to do that. I am more than happy to participate in some exchange of thoughts, in terms of getting that on paper.

DR. SERCHUK: Two points, Chair. One, I think we shouldn't leave this meeting without having terms of reference for this working group, and I think it ought to come from the committee. One term of reference that I think that we should consider as a charge to the group is to evaluate the existing information and assess whether it's possible to come up with an ABC recommendation for this stock, given the information that already exists. If not, develop a plan of action that could come up with an ABC.

DR. REICHERT: Thank you. I also want to remind the committee that we discussed these working groups, and I think, and correct me if I'm wrong, that a part of that is that we can involve others outside of the committee to provide information, and so just keep that in the back of your mind. I forgot, and I need to look at how we've set this up, whether those people are part of the group or basically consultants. I am looking at John, to see if he remembers how this was set up, but I can certainly take a look at that and make that part of the conversation on Friday.

That was one of the items. The other one that you mentioned, Amy, was that of procedure, and there is one of two ways that we can address this. One is to make this part of that proposed April review of responsibilities and task the SSC, or we can discuss that during this meeting, or at least make a start of that discussion this meeting. I am open for either of the two. Any comments or questions or suggestions? Amy, you brought it up. Are you willing to wait?

DR. SCHUELLER: I'm sorry. I was writing. Can you say the two options again?

DR. REICHERT: One was you asked questions of who set the agenda and can the committee have input in the agenda, and you made some other suggestions. There is one of two ways to address this. One is wait until April and fold this into that review for SSC members, in terms of responsibilities, tasks, et cetera, or we can start that discussion now. I am open to either of the two. We have a full agenda at this meeting, but --

DR. SCHUELLER: Personally, I am fine if -- During break, there was a discussion about how there used to be a training for SSC members and that it could be done before the SSC starts. I never had that training. I think that it would be useful. I think it can wait until then. However, I do believe we should say who is responsible for it and what will be included in that training, specifically what we're looking for. It would be nice to know what had been included in the past. Perhaps it's adequate. I have no clue, because I don't know what it looks like.

DR. REICHERT: I can talk with John and with Gregg about that during this SSC meeting and report back to the committee on Friday and make some suggestions. I believe I was part of the last group that actually got that formal training when we became SSC members, and I don't believe that was done after we joined. Luiz, I think you and I were part of that group, but I don't believe that -- You were, John, too. I will report back to the committee on Friday, and, if you have any ideas of what you think, as committee members, what should be included in that overview, let me know, and I will bring that to John and Gregg.

DR. BOREMAN: A couple of comments. One is I would like to get out of the mindset like if we don't get it done in October that we've got to wait all the way until April to do something. We should seriously think about webinars or other ways of communicating, especially if there is things that need to get done on time, like this working group product.

Second is the orientation training was fine, but I think the more specific question right now is who puts together the agenda for this meeting, who is involved with that, and, if I could find that out, that would be very useful, and I think we maybe should have a little discussion of that. Hopefully the Chair of the SSC is involved in putting the agenda together and it's not totally council driven.

DR. REICHERT: Yes, I am. I would say that it is largely council driven, but I am involved in setting the agenda, as the Chair, and so is George. We work with Mike and John and others to set the agenda. I have suggested agenda items based on discussions we had at previous SSC meetings or if issues or topics during council meetings come up. I have requested to add those.

Once that agenda is set, generally George, Mike, and I discuss the order, in terms of length, expected length, of the discussions and how everything fits. Then the -- Mike, correct me if I'm wrong, but you are largely responsible for putting the overview together, although that is something that I generally only see after it's sent out to the committee, and so sometimes I get parts of the overview and then provide feedback, but, in general, I see that when the committee sees that. That is also true for the attachments, although some of the attachments, obviously, were also included in the previous meetings. Does that clarify what is currently occurring? Any questions relative to that process or comments or recommendations that the committee would like me to bring to council staff and the council in terms of this process? Okay. You guys can think a little bit about it, and we can talk about it on Friday.

DR. SERCHUK: One general comment, Chair. I think it would be useful for me, and perhaps others, to be forwarded materials that we know we're going to have to deal with long before we get the briefing book, because we get a briefing book now, and it's maybe a week or two before the meeting, and it contains items in it that came out months ago, and my feeling is that I would rather have that earlier than later, and I wonder whether that's possible.

DR. REICHERT: Mike, would you like to address that, or John?

DR. ERRIGO: There are sometimes briefing materials that are available earlier. We try to get everything together so that we -- The hope is to send everything out all at once, and that doesn't always happen, but there are -- The problem with sending things out too early is there has been occasions where people have changed things in their attachments. Things like papers and things that are set don't change, but I think, in terms of keeping everything organized and together, we try to get it all sent together at a specific time, and maybe John can help clarify that.

MR. CARMICHAEL: I would assume, by that, that Fred is kind of referring to the big, complex things like assessments, and we usually know, based on the SEDAR schedule, when that's going to come before you. The final report may not be ready, in some cases, until about the time the briefing book is done, but, of course, all the data workshop information and assessment workshop and review workshop, all of that is available on the SEDAR website.

I think, in one regard, one way to handle this may be just to say, hey, here's a reminder, and maybe we could do it when we send out the travel notice or something, just say here is some of the big-ticket items that are coming up, and you're going to be asked to review this assessment, and the information is here on the SEDAR website, and we could tell you which one it is and help you get to it easily, or maybe it's the FMP. A lot of times, the information for that is in the council briefing book and such, and you could go to look at it there. We could tell you about that, that the council looked at this FMP at their last meeting, and here's a link to those meeting materials that you could go review it there, to just get yourself up to speed.

DR. SERCHUK: As an example, if the SEDAR Committee meets, and they meet two months ago, you know that we're going to be interested in it. You know that, historically, that comes in our briefing book. Can we get it when it becomes available? I am just saying, to have this much material come in, and we get changes to it last night on some of the presentations, and so I'm not worried about that, but I would like to have material as early as possible.

Send it again when you put it in the briefing book, but, if we can get it earlier, particularly when it's going to be a report of a meeting that we know we're going to be looking at, it would be helpful to get it as early as possible. I am not saying that it's to obviate putting it in the briefing book, but sometimes getting things in batches gives us more time to digest it, and that's all. Thank you.

MR. CARMICHAEL: I think some of this just comes down to people's personal preferences and how they operate. Some folks don't want to get inundated with emails of us sending attachments, and that can cause a lot of overhead. If people would like us to say, hey, the SSC is going to look at this, and here is this report, and know that it's going to come out sometime with an attachment number and things of that nature, if you want us to just email all of that stuff to you, we certainly can.

I think one of the reasons of going through the stuff with Cameron earlier was to try and show you where some of this stuff is available on the website now, to avoid some of that email traffic back and forth, but, if the majority would prefer that, to send those, it's certainly not a difficult thing for us to do.

DR. REICHERT: Especially when we get closer to setting the agenda, because that obviously happens some time ahead of completing the briefing book, and so one way of approaching this is, even if we have a draft agenda, is to distribute that to the committee, so the committee has an idea of what topics may come up, and that means that a lot of that material -- I mean, if you look at the briefing book, a lot of that material either was distributed in previous briefing books, over and over, and I think I did a search for one of the documents that we get, and I think I had like six copies on my computer, in the different briefing books, and so that would help. That is something that I can certainly help with.

The other thing, and I disagree with you about the late availability of briefing book materials, and I know it's a little bit of a pet peeve of mine, and we have talked about this in the past. I think it's important that we get the material in time to evaluate it, whether it's presentations, although they sometimes are less critical than the actual documentation, that we get them on time.

Now, this was a little bit of an awkward situation, because some of the delays were storm related, and so sometimes we don't have full control of what's happening, but, for me, that's always a big

issue, that you don't have enough time to actually go through the materials. In some instances, actually, it was detrimental to our discussions.

Then, after the fact, you say, well, perhaps if we had a little more time, and so that may be something else that we want to discuss at some point, is what's the desire of the committee, in terms of how we handle late materials or late documentations, and, of course, that's a little bit of a gray area too, but sometimes there are essential documents that are really important for us in our discussions that become available, I would say, sometimes a little too late, and so let's keep that in the back of our minds also.

MR. HARTIG: I think you all are getting resolution to this. Thanks, Fred, for that. At the council, we have done the same thing. We have asked for materials, when they become available, to be emailed to us, and we are doing that, especially with the minutes, as they come out and things of that nature, and so we'll do that. I think you've got a good -- With a draft agenda, I think you've got a good way to move forward and get those out as soon as possible and give you the necessarily links to get you to where you need to go.

DR. REICHERT: Thank you, Ben. All right. We have the working group, and we have the clarification of some of our procedures, and is there anything else relative to the action items that we need to address? Mike will send out his notes, but I would like to briefly go over some of the important points before we move on.

DR. BELCHER: I am just wanting to bring it up, only because trying to reconstruct a lot of our discussions over what happened in red snapper just happens to be the example, but I'm talking more of the procedure. I think, for those of us who go back to reports to help reconstruct conversations and how we've reached our decisions, especially going back through the last three reports, where we talked about red snapper, we have a table that provides estimates of OFL and ABC.

By the time you get to the report from April of 2017, where our discussions kind of went off, we never took those tables out. We never discussed rescinding those values. We just said that the ABCs -- That we couldn't come up with an ABC value. It's just the clarity of what happens to these numbers as we put them out, because obviously we said that we can't do ABC, but what about those OFLs that we provided?

DR. REICHERT: Correct me if I'm wrong, but, now that I think of it, part of it is that the current format that we use for our report is that we merged that with our overview, and so we have, in our report, both the report and our true report, and so some of it, strictly speaking, may not be part of a report. Could that be part of the --

DR. BELCHER: No, because, as it stands, when you go back through the October of 2016 and the May 2016 reports, we provided estimates of OFL and ABC for red snapper. We revisited it in April, and we were discussing it because of ABC projections that were supposed to be done under a discards-only scenario, and that was what was discussed that they couldn't produce, because of uncertainties in estimators and all of that, which I understood, but, when you come down and you look at our responses to our action items, it's not really clear, other than the ABCs we can't do. It says nothing about what we provided in that probabilistic table of all the results from the stock assessment, 41, which we said was BSIA, and that's actually documented in the April 2017 report.

It says that, under our recommendations, clarification was provided by NMFS to the SSC. The assessment is still considered BSIA. However, the data available to monitor the landings and discards is too uncertain to track any projected ABC, and so it's talking more about the process of tracking the ABC, but not saying it's a problem specifically with the estimation of the ABC. Do you see what I am saying there?

Then you come to the current projected yield streams are still considered BSIA, but are not useful for management and monitoring, because of the uncertainty in the catch data, as most of the catch are discarded, but that's back to, again, how are you estimating the discards? It's going back to the MRIP and all of that kind of thing, and so I think there's an uncoupling of what exactly we did to say that we can't generate an ABC when, for two meetings before, we carried OFL and ABCs based on projections that were there, but the projections are still BSIA.

I'm just saying, from our standpoint, that record doesn't make it clear. We should have either rescinded the tables and said don't use anything in that table going forward, which would then kind of go against the fact that the stock assessment was endorsed as BSIA. I just think clarification in our record might help some of that.

MR. CARMICHAEL: Those are good points, and I think the other factor in there is you will recall there was a revised assessment, and so there weren't new ABCs provided based on the revised assessment, and so the ones from the earlier meeting are essentially no longer applicable, because that is based on an assessment that has since been revised. That's part of the whole situation we were talking about earlier, about the uncertainty in the ABC, and I agree that there are a lot of issues there that need to be resolved and a lot of lack of clarity in the record, and certainly that's something the council had talked about extensively leading up to the actions they have taken recently.

DR. BELCHER: To that point though, wouldn't that have been kind of a low-hanging fruit if it was just that they hadn't provided the ABCs? Couldn't that have been something we could have asked for off of the updated assessment? Would that have helped any of that?

MR. CARMICHAEL: I think the revised assessment had projections. As far as I can recall, it did, and you had projections in the original assessment. There was the issue that came up between those about the doing the discard-only projections that raised the questions that led to those projections not being done, and so what trumps what and how you feel about the original projections versus the discard only projections, it seemed like, at the April meeting, you decided that, well, there's just so much going on here that we really can't provide you that ABC. I think that became the kind of last word on the situation.

DR. BELCHER: To the other point, the two with the projections, the discard-only projections weren't at our request. They were at the council's request as well.

MR. CARMICHAEL: Correct.

DR. BELCHER: So that was kind of one of those things that, again, methodologies are what is leading to that problem. It's not necessarily that the science of what was in the stock assessment, the projections as they applied to the stock assessment as a whole were flawed, but it was just the

breakout at the end that led to the problem in the utility of those ABC values, because you couldn't generate them.

MR. CARMICHAEL: That and I think the question of saying that, even if you had an ABC, they weren't sure that they could adequately monitor that ABC, which was another key point that came up in the memo that the council was dealing with, and I think the Science Center highlighted it as well.

DR. REICHERT: Yes, and you may remember that I put in front of the committee whether or not we should correct our ABC recommendations at our April meeting, and we ultimately did not do that.

DR. SERCHUK: I totally agree with Carolyn. This is very difficult to get an understanding of how the processes have worked over meetings. I think that, as another term of reference for this working group that is dealing with red snapper, I think it would be useful if they could document sort of the historical events that have transpired with the assessments and how the SSC has handled those, so that they can bring clarity to Fred, who is just coming into this first meeting, so he is not completely bewildered by things. I am still completely bewildered by things, and I've been here for a few meetings, and I know that there are others that have been here a long time and still have the same bewilderment.

We don't really have a good -- It's more than going back to SEDARs, much more than that, and so, because this situation has been so convoluted, and because it's so important, I think, if the sub-group could perhaps characterize events, assessments and how they've been evaluated, how the SSC has treated them and what decisions were made, that would be a good historical context for moving forward, and it would certainly be enlightening to anyone that was coming into the situation relatively new.

DR. REICHERT: Do you suggest that as part of what process?

DR. SERCHUK: The sub-group process, Chairman. I am suggesting it as another term of reference for the sub-group to deal with. Thank you.

DR. REICHERT: Anyone else? Okay. There is a couple of things that we will come back to on Thursday. With that, anything else before we move on? No? Good. Then I suggest that we move on to Agenda Item 4, Landings and ACLs. There is two attachments. One is Attachment 3, Landings Updates, and Attachment 4 is Landings Trends. Mike sent an update out earlier, and I think the only correction was in the tab for snapper grouper. The total was shifted two years, and so you corrected that, Mike?

2016-2017 LANDINGS AND ACLS

DR. ERRIGO: Yes, and so the landings trend, the Excel spreadsheet, the very first tab, the second graph with the lines, the total landings, that line was just shifted to the left by two data points, by accident. The last two were left off, and so I sent out a revised one to everybody. I think Jessica is going to give a revised presentation, which I will get out to everybody right now.

DR. REICHERT: Thanks, Mike, and just a reminder of the action items. It is review and comment, with attention toward any ABC recommendation, in particular Level 4, which was the ORCS, and Level 5, the decision tree stocks, and consider assessment schedule and research plan implications. We will be discussing this during the SEDAR agenda item, and so I suggest that perhaps we will postpone that discussion until we discuss the schedule and research plan under the SEDAR agenda item. With that, I would like to hand it over to Dr. Jessica Stephen, who is going to give the presentation. Jessica, thanks.

DR. STEPHEN: I am here to give you guys the update on the landings for final 2016 and preliminary 2017. I am going to start with the commercial landings first, and I just want to mention that these landings are summarized up to October 3, 2017. The website that we have currently might be up to October 23, but, due to briefing book deadlines, we've got up to October 3. The 2017 landings come from in-season monitoring of the dealer-reported catches, and we do assign those landings by the fisher-reported catch area rather than the dealer location.

First of all, for final 2016 landings, I want to point out that the species highlighted are ones that went over the ACL, and so we have blueline tilefish. That was 112 percent of the ACL, and we shut them down on September 30. We also have cobia, the New York to Georgia stock, which is at 175 percent. We shut that down on December 6. Golden tilefish hook-and-line was at 104 percent.

Some of the other stocks were closed in-season, and that would be the golden tilefish longline. It closed on March 15, and we were at 95 percent. Then the gray triggerfish was closed on April 2, and that was at 86 percent. I just want to mention that that was reopened then on June 13, when we realized we weren't high enough with the ACL, based on the projections, when the actual landings came in. Then, again, the gray triggerfish, July to December, was closed December 16.

Continuing on, we have the jacks, which were at 107 percent, and we closed them down on August 9. Snowy grouper was at 121 percent, and that shut down on June 14. The vermilion stock was shut down for the January to June on March 29, at 91 percent, and, from July to December 31, on October 11, at 91 percent. Greater amberjack was not shut down, and it reached 92 percent, and king mackerel and Spanish mackerel were at 33 and 80 percent, respectively.

Now, I want to move into the preliminary 2017 commercial landings. At this point, we have shut down blueline tilefish, on July 18, and they are at 94 percent, currently. The cobia stock was shut down on September 5, at 42 percent, and I just want to do a little explanation there of the cobia and why it looks like it was shut down at such a low percentage. Typically, we get Virginia and North Carolina commercial landings late in the next year, and so, this time, the Science Center accounted for what those landings were and, using that information, projected that we would need to be shut down on September 5. Then golden tilefish was also shut down on May 9, at 99 percent.

Hogfish was another one that was a little bit unusual this year, and so you can see that we split hogfish into two stocks from one stock, and when that was implemented played into the fact of why you're seeing the overages. The hogfish in the Florida Keys is at 260 percent, and we shut them down on August 24. August 24 is when the ACL changed, and so we changed the ACL, and, as soon as it was implemented, we shut down the fishery. Prior to that change in the ACL, they would have been under the entire hogfish ACL. Then snowy grouper is the other one, right at 100 percent on June 22.

Here is vermilion snapper. To date so far, 95 percent in the first season and 104 percent the next. Greater amberjack and yellowtail snapper, yellowtail snapper was at 110 percent, and I do want to note that Regulatory Amendment 25 did change the fishing year for yellowtail snapper. King and Spanish mackerel are at 41 and 94 percent.

Now I'm going to move on to the recreational landings. Recreational landings were summarized through October of 2017. They contain 2016 final landings as well as 2017 preliminary landings from January through June. That's Waves 1 through 3. Again, we summarize them based on whether they're using MRIP or MRFSS, depending on how the ACL was set, and I want to remind you that the MRIP/MRFSS are available forty-five days after the end of the two-month wave. They then go to the Science Center before coming up to the Regional Office, and so we get them roughly more about sixty days afterwards, almost. Landings also include the headboat survey data, and they were updated to be consistent with our ACL monitoring, which included post-stratification.

Again, the highlighted fields show the stocks that went over the ACL, and so we have blueline tilefish, cobia, golden tilefish, and hogfish. Moving on, there was also porgies at 131 percent and snowy grouper exceeded the ACL at 217 percent. I will mention that snowy grouper has fixed closure dates, and the numbers that we got in were in the wave just previous to that, and that's why it jumped so far over. Greater amberjack was at 103 percent, and black sea bass was at 36 percent. King mackerel and Spanish mackerel were at 16 and 30 percent.

Moving into our preliminary data, blueline tilefish is at 275 percent, and they have the fixed closure date of September 1. Hogfish was at 117 percent, and, again, that had to do with the change in the ACL that happened, and so they were similar to commercial. When that new ACL was implemented, we immediately shut down the stock for the Florida Keys. The remaining stocks here, there were no overages at this point. Greater amberjack had 107 percent. King mackerel and Spanish mackerel had 30 and 35 percent.

The last thing I want to go over is the stocks where either the ABC or OFL was exceeded, and so we had five stocks where the entire ABC was exceeded, and those were blueline tilefish, snowy grouper, Atlantic cobia, hogfish, and porgies, and two stocks where the OFL was exceeded, which was blueline tilefish and Atlantic cobia. I can take any questions you have at this time.

DR. BARBIERI: Thank you, Jessica. Before we do that, I am going to look around and see if anyone wants to make public comments. Rusty.

MR. HUDSON: Thank you, Mr. Chairman. I'm Rusty Hudson. With regards to the recreational blueline tile landings for 2017, a couple of months ago, when we saw that giant spike in the Wave 2, that was caused by twenty-one fish, if I understand correctly what I was told, and these are, quote, deepwater, rare-event kind of animals, compared to the normal stuff monitored by MRIP. The problem is that where they were caught, in Wave 1, a one-fish intercept, and Wave 2, the twenty-fish intercept -- Anyway, it was a couple of boats, and now there's a Wave 3, but that Wave 3 is the first two months of the open season that starts on May 1 and ends on August 31.

The problem was that those twenty-one fish expanded to 194,539 pounds being caught off of Miami in state waters within three miles of the beach, and that is absolutely something that doesn't

happen, and so, somehow, MRIP, in the calculations of these numbers, needs to come up with a different methodology to deal with an animal like that, especially when it's a closed season in federal waters from North Carolina to the Florida Keys as it was, and they're open until May 1.

At that point, we added an additional 38,313 pounds, using the conversion, and so you've got 275 percent, and we've still got one more wave for the open season to go, and so we're two weeks behind on that, if I remember my calculations, but Irma messed us up on that, and I understand. In contrast, of course, real-time, with commercial, like was indicated, 94 percent was landed by the time they did the numbers for the commercial blueline tilefish. The 18th of July, it was closed.

We just opened back up today for eight more days to fish on blueline tile, although snowy is closed, which coexists with it, which is a little bit of a problem, except for up north off of Hatteras, and so it will close after the end of the day on the 31st, and, on November 1, it will be closed for the rest of the year, until January 1, but real-time monitoring for us, for commercial, is why we can keep involved, but when we have like where you added the two together, with the commercial and the recreational, that sure puts the bad onus on us when an OFL is exceeded because of an estimate from recreational, and so, somehow, and I don't know who decides this, but maybe the SSC can put a good word in to be able to try to modify that, for things like blueline tile and golden tile and snowy and other types of rare-event animals, because we can't keep doing this. Somehow, we've got to separate the commercial, and maybe even the professional recreational, from that private segment, until you can get a handle on it, and so thank you very much.

DR. REICHERT: Thanks, Rusty. Any questions from the committee? I have a couple, just real quick. Do you know if there is any indications that the black sea bass, which is about like 30 percent of the ACL, whether that is -- Is that effort related? Are there reports of low abundances? Have you seen the fishery-index go down? Can you comment on that?

DR. STEPHEN: I don't really have any additional information on that at this point.

DR. CROSSON: Marcel, was that the recreational black sea bass fishery?

DR. REICHERT: Yes, and I think the commercial was lower, considerably lower, than the ABC too, but I may be wrong. I was just wondering if there was any indication.

DR. STEPHEN: It's kind of been that way for I think two years now.

DR. CROSSON: Didn't we have some discussion on black sea bass, with minimum size limit and people being unable to retain? That was something that -- Have they changed the size limit yet on black sea bass?

DR. ERRIGO: Black sea bass, those landings, those very low landings not being able to reach the ACL, the sector ACLs, on the recreational side, it has been that way since the thirteen-inch size limit went into effect. The analyses show that there is a lot of discards, a huge amount of discards, since the thirteen-inch size limit.

DR. REICHERT: Any other questions for Jessica?

DR. SCHUELLER: I am just curious, but what are the accountability measures for blueline and cobia, since they've been over the OFL?

DR. STEPHEN: I can't remember offhand what cobia is right now, but I know, when we were predicting for the federal season how much it had gone over, we've just almost stopped having a federal season at this point, because of how much is landed in state waters, on the recreational side. Even on the commercial side, we get the landings so late, and we're trying to incorporate that in. What was the other one? Was it blueline? I can't quite remember blueline. I think we might have an in-season measure, and we have the post-season measure.

DR. SERCHUK: I have a question, Chairman. In the cases where the OFL is exceeded, and we have two cases here, how is that taken into account, particularly if we have multiyear specifications or multiyear projections? I am just wondering, is there a feedback loop someplace?

DR. STEPHEN: Not that I'm aware of at this point. I just did get confirmation on blueline. It's an in-season closure, and cobia was post-season.

DR. SERCHUK: We'll come back to this issue later, because we're talking about multiyear specifications later on, and I'm thinking about multiyear specifications are fine if the process works the way it's intended, but, if you're exceeding OFL, particularly if you're exceeding OFL, you need to have some sort of feedback loop, it seems to me, and maybe I'm out to lunch here, but the fact is that I know that there are other management plans in other regions where they deal with overages, and particularly we're dealing with issues that we're talking about, well, if you have an underage, you have carryover. That's one of the issues before us. On the other hand, if you're exceeding the OFL, I think there should be some sort of feedback mechanism to correct that situation. That's not a good situation. It seems like a bad situation. Thank you.

DR. REICHERT: Thank you, Fred.

DR. STEPHEN: I just want to also mention with cobia, which highly exceeded the OFL there, it's a lot of times a difference between state regulations and federal regulations that are driving some of the numbers that are going over, which makes that feedback loop a little bit more difficult if we were to implement it, because we could do it on the federal side, but we can't do anything, per se, on the state side.

DR. SERCHUK: Just a tongue-in-cheek response, Chairman. You remember the line from "Man of La Mancha". Whether the stone hits the pitcher or the pitcher hits the stone, it's bad for the pitcher. The stock takes it on the head one way or the other. Thank you.

DR. REICHERT: Thank you, Fred.

MR. HARTIG: Well, I mean, you all faced this in red snapper, with the discard estimates, and it certainly reflects on whether or not you can actually manage some of these species with the numbers you're actually getting, Fred. I don't think you can. It's clear to me, looking at assessments of golden tilefish, when we've had spikes before, those have been smoothed through the assessment process, and we deal with these numbers on these rare-event species, and, in fact, we can't manage them that way. It's impossible. The numbers are meaningless. That is something the SSC has to face, and I don't have the solutions for it, but, some way in reauthorization,

hopefully the recreational fisheries, at least in regards to the species that we cannot manage, based on the uncertainty of the data, will be dealt with.

DR. REICHERT: Thank you, Ben. Anyone else? Thank you, Jessica. We appreciate that. It's 4:30. Let's take no more than -- Go ahead.

DR. ERRIGO: Just about this agenda item in particular, the reason why this agenda item is here and worded this way, just for clarification for everyone, is, back when we first started setting ABCs for stocks that had no other information besides landings trends, the SSC wanted the ability to come back and say, well how long -- We'll set these ABCs, and then what? We have to come back and look at these again at some point, and so that's what this agenda item is meant to do, just so everyone is clear. If we were to go back and look at the trends in the landings that have happened since those ABC recommendations went into place, and if you feel the need to address the changes in any of those, they can be done here, and at any SSC meeting, under this agenda item. I just wanted to make it clear that that's what this here for.

DR. REICHERT: One suggestion I had is, to help us with that, that it may be more useful for us to see those trends, rather than where the landings are at a particular point in time, because that's what is important for us. Perhaps highlight -- We talked about this before, to highlight where the landings are projected or are well over, but also well under, because that gives an equally important signal to us, and then look at some of those trends, and I think maybe that's more relevant for the committee to come up with recommendations or perhaps say, well, this is a species where we may want to do something.

DR. SCHUELLER: Maybe I should know this, but I will admit that I don't, and I assume those that are new on the committee won't know, but, under the action items, it says that emphasis should be placed on Level 4 and 5 stocks, and I wrote on my paper here that which stocks are those? I don't know which stocks are the 4 and 5 Level stocks.

DR. REICHERT: You mean the specific species?

DR. SCHUELLER: Yes.

DR. REICHERT: Yes, that's a good point.

DR. SCHUELLER: I mean, it's hard -- It would be good if, when there are specific action items that have statements that are that specific, it would be nice if the documentation laid out that, okay, here is the Level 5 stocks, here is what they look like, here is how much they're going over, here's the figure, and do those in priority order, because, if we don't care about a certain species that's way below their ACL, because it's an ecosystem component species and it's just not really caught that much, fine, but it's sort of just, right now, in the mix of everything, and so I think restructuring the entire presentation would be useful, for my benefit anyway.

DR. REICHERT: I agree. Mike, you mentioned earlier that you could do that.

DR. ERRIGO: Yes, I can definitely provide a document that -- It will just be a reference document that you guys always have of all the stocks and broken out by what level they are in the ABC

control rule. Level 4 is ORCS, and Level 5 is the decision tree, and it's basically landings only, and I can list out all the stocks that fall into the categories.

DR. REICHERT: I think we have a list. I know there's a list.

DR. ERRIGO: There have been attachments before where they've been broken out that way, but I can have something.

DR. SCHUELLER: Yes, but there is a new person on the committee, and so it would be good if that came out, and I know it's --

DR. ERRIGO: I can incorporate that into the trends sheet that I provided.

DR. NESSLAGE: Just to be specific, if you're going to provide landings trends with the ABC, having, as a horizontal line or a vertical line when that ABC was set would be good, and so like a cross-section of --

DR. ERRIGO: Yes, and, just to explain how the trends sheet works now, you will see that the ABC is on there, and it appears when the ABC was first put into place.

DR. REICHERT: That is that Attachment 6 that Mike was referring to. That has all that information there. The trends actually are all in there. My list of attachments is out of order, and so keep that in the back of your mind when I mention attachments. Okay. Anything else? If not, let's take a no more than five-minute break, and I will talk with Mike and George a little bit about the agenda, and then we'll move on to SEDAR activities. Five minutes, and no more. Thanks.

(Whereupon, a recess was taken.)

DR. REICHERT: Welcome back. Our next agenda item is SEDAR Activities, and I am going to ask if there is any public comment before we start, because we have a number of sub-items, and I think we're going to have discussion on each of those, and so I'm going to ask, if anyone has any public comment, to please come to the table now. I also want to remind everyone that there is a public comment period at the end of the SSC meeting on Thursday. Seeing none, then I am handing it over to Julia.

SEDAR ACTIVITIES

MS. BYRD: Thanks, Marcel. I'm Julia Byrd, one of the SEDAR Coordinators, and so I'm going to cover a few of these items, and then I will turn things over to John, and he will cover a few of the SEDAR update items as well. The first thing we wanted to go over is just a note that the SEDAR Steering Committee met on September 26, and the draft committee report is provided to you guys as Attachment 7.

The one thing we did want to highlight within this report is that, at this meeting, the SEDAR Steering Committee supported conducting the scamp as a research track assessment, and it would be a pilot, and so the kind of next steps in this process will be the Science Center has been tasked with developing a work plan, which would include draft terms of reference, and a project schedule.

We are hoping to have this near or around November 1, and then there will be a team put together that will review that work plan, prior to the consideration and approval by the different councils that would be involved, which are the Gulf and the South Atlantic Councils, and so that plan review team will be composed of Science Center staff, representatives from both the Gulf and South Atlantic SSCs, as well as council staff and SEDAR staff.

Kind of the first thing we want to ask you guys is if anyone is interested. We're looking for two SSC representatives to serve on that kind of review plan panel. The idea would be that there would be a webinar held before the end of the year. Thank you, Luiz. Anybody else willing to do that? Rob, thank you. Okay.

The next thing is we wanted to just mention -- This is a little bit of a reminder. At your April 2017 SSC meeting, you were updated on the Southeastern black grouper assessment, and there were a variety of issues identified during the data stage of that assessment, and the assessment was halted, and so we just wanted to make you guys aware that the data workshop report is available online, where you can read a little bit more about some of those issues, and so that's more of just kind of an FYI, and there is no action item there.

The next thing that I wanted to talk about was the cobia assessment, and I am going to -- I made a couple of slides to kind of walk through this, just to make sure that I covered all the issues. They are basically kind of highlighting points that are in that overview document, and then I made a table to help kind of characterize what SSC representation we want during different steps and then ask for volunteers.

After the last SSC meeting, cobia was originally scheduled as a research track assessment. At the May 2017 SEDAR Steering Committee meeting, this was changed to a benchmark assessment, with a stock ID evaluation happening prior to the data workshop. The cobia stock ID process is a multistep process that the SEDAR Steering Committee laid out in September of 2016. There are multiple kind of review stages.

First off, there is a stock ID workshop, where recommendations are developed. Then there will be an independent peer review workshop, and that will include CIE as well as SSC and other technical reviewers, and then there will be a third review stage, and that is going to be a joint kind of sub-panel cooperator technical review, and so SSC representatives from multiple councils and the commission will kind of review that, via webinar, similar to what was done for blueline tilefish.

Then the fourth kind of stage, if necessary, is there would be a science and management leadership call to address any issues, if the boundary changes a lot, and the councils may want to request that certain things be included in the TORs, as far as what kind of management parameters they would like to see come out of the assessment.

An organizing committee was put together, and I guess I will take a step back for a second. The stock ID process is going to involve the Gulf, the South Atlantic Council, ASMFC, as well as the Mid-Atlantic Council, and so there are multiple kind of cooperators involved in this process. We wanted to make sure that anyone who could be affected by the outcome of this stock ID workshop is involved in the process from the beginning.

An organizing committee was put together with representatives from those different groups, and they provided -- They developed draft terms of reference and a schedule. The draft terms of reference were sent out to you guys for review via email. ASMFC also reviewed those via email, and there were only minor kind of editorial changes. The Gulf SSC will be reviewing the terms of reference and providing feedback at their October 31 webinar meeting, and then the SEDAR Steering Committee will be the group that will end up approving those terms of reference and schedule, and I believe that it is Attachment 8. If you guys want to see those draft terms of reference again and the schedule, those are provided for you guys.

As far as action items for this meeting, we're looking for SSC participation at the multiple stages for this stock ID process, and so I just wanted to kind of go over what kind of representation we're looking for and then ask to see if there are any kind of volunteers that may be interested in participating in any of these stages. The first stage is the cobia stock ID workshop. Go ahead, Marcel.

DR. REICHERT: Can you also mention, in case you already know, where those meetings are held? That may be useful for SSC members, in terms of, if they're at that place, that may be easier for people to attend.

MS. BYRD: Sure. I will note that there are no contracts in place, and so I will tell you where we're planning to hold the meetings at this point. For the cobia stock ID workshop, it's an in-person meeting. We are hoping to hold this workshop in Raleigh, North Carolina. It's April 10 through 12 of next year, and we're looking for one to two SSC panel representatives.

\We're also interested in potentially getting a workshop chair. One thing I will note is that this workshop chair would serve as kind of the facilitator for the meeting. They would be responsible for kind of compiling the report that would come out of the meeting, and then they would also be responsible for helping present the result of that report, along with workgroup leaders, at the subsequent review stages, and so anyone who is interested in the workshop chair position would need to be available kind of for these other additional meetings.

Also, when we did stock ID for blueline tilefish, we got some feedback that it would be helpful to have some kind of additional experts that were kind of typically outside of the SEDAR process, and so, if you guys have any thoughts on additional experts that we should be asking to attend these meetings, we are definitely all ears for your feedback. Again, for stock ID in April, one to two SSC panel representatives. Then, if you are interested in potentially serving in this chair role or have a suggestion of someone who might be good in that sort of role, that's what we're looking for.

The second workshop will be a cobia stock ID review workshop. This will be an independent kind of peer review workshop. It's an in-person meeting, and this meeting is either going to be in Raleigh, North Carolina, or Charleston, South Carolina. It's going to be June 5 through 7, 2018.

We're looking for one SSC reviewer as well as potentially a review workshop chair, and this chair would operate similar to review workshops for normal kinds of SEDAR assessment workshops. Again, they wouldn't be a reviewer. They would be a facilitator, and they would help compile the final report. Then, again, we got some feedback during blueline tilefish. If you guys think that any kind of outside experts need to be involved in this process, you can let us know. One thing I

will mention too is that we're going to ask for three CIE reviewers to be involved in this process as well.

Then the final stage is this cobia stock ID cooperator technical review, and so this is similar to what was done for blueline tilefish, and so we're going to ask for a couple of representatives from the Gulf SSC, the South Atlantic SSC, the Atlantic Commission, and the Mid-Atlantic Council, and this would be held via webinar, one webinar. The webinar would either be in late July or early August of 2018, and we're asking for two SSC reviewers.

One thing I will note is that the Steering Committee wanted to ensure kind of the independence of the review, and so, if you're going to be a reviewer, either at the kind of cooperator technical review level or at the stock ID review workshop level, you shouldn't have participated as a participant in the cobia stock ID workshop.

DR. REICHERT: Julia, as a clarification, can the reviewer of the review workshop be one of the two of the cooperator technical review?

MS. BYRD: The Steering Committee said no, that they would like that last level of technical review to be two people who weren't involved in the process at all. That was something that came up during blueline tilefish.

DR. REICHERT: Thank you. We're asking one to two people to be part of the stock ID workshop. Who is interested in participating?

DR. CROSSON: I am not volunteering, but --

DR. REICHERT: Your name is already there.

DR. CROSSON: I know. Thank you. I have a question. If you could refresh my memory on cobia, and did it fail the last review to be useful for management advice? What happened to cobia the last time it went through a SEDAR? Did it go through a SEDAR?

MS. BYRD: It went through a SEDAR, and it passed. The stock boundary is at the Georgia/Florida line, and so both of those assessments are being used to manage.

DR. CROSSON: That was its first assessment?

MS. BYRD: SEDAR 28.

DR. REICHERT: The data were very sparse, especially in determining what exactly the line is between the stock delineations.

DR. SERCHUK: I have another question, Chair. I know, in the past, there have been cases where, if you served as an SSC reviewer on any of the stock ID work, you could no longer serve as a reviewer on the assessment end of things, and so I think we really need to be very circumspect about this, because they're asking for maybe five reviewers here, and then there will be SSC reviewers that would be asked as it goes through the stock assessment benchmark review process, and is that correct?

MS. BYRD: I had the same concern that you did, Fred, when we were talking about this, and so, for blueline tilefish, there wasn't this separate kind of peer review, independent peer review, workshop level, and so how we're going to handle it is, if you participate in any of these stages for cobia stock ID, afterwards the book is kind of closed, and you can participate in any stage of the SEDAR 58 assessment workshop, and so they're going to be handled separately, and so it's different than with blueline tilefish.

DR. REICHERT: Thanks, Fred. I had that similar question, and so back to we had -- For the stock ID, any volunteers? George.

DR. SEDBERRY: That is for the in-person meeting?

DR. REICHERT: In Raleigh. Okay. So we've got two, Jeff and George. Is anyone interested in -- Well, you guys can talk with Julia if you're interested in becoming a chair of that workshop.

MS. BYRD: Or if anybody has suggestions of someone not necessarily on the SSC who may be appropriate in that role, I would love to hear that, too. You don't have to tell me right now, but please find me.

DR. GRIMES: I will do the review workshop.

DR. REICHERT: Okay. Church, and then you can discuss with Julia whether you are interested in the role as chair.

DR. GRIMES: No.

MS. BYRD: Or if there is someone else who may be interested in the role as chair. I would be all ears as well.

DR. REICHERT: The last one is stock ID cooperator technical review. Are there two SSC members willing to participate in that one webinar in July or August? Anyone? It's just one webinar.

DR. BOREMAN: I am willing to participate, but I might also wind up representing the Mid-Atlantic on the SSC. Can I wear two hats on this? It would save us a space.

DR. REICHERT: Julia, I have no problem with that.

MS. BYRD: We can check with the cooperators, to see if they have a problem with that, but, if they don't, then that would work for us.

DR. REICHERT: Eric, I saw your hand up? Thank you so much. I really appreciate it. Thank you, guys. Anything else that you need from us?

MS. BYRD: Not on cobia, but moving on. Let me pull the overview back up. Next is SEDAR 59, and so this is the South Atlantic greater amberjack standard assessment. Just to give a quick reminder of what a standard assessment is, a standard assessment approach is used to incorporate

recent data into existing assessments. There is limited flexibility for consideration of new datasets or changes in model configuration. Those are generally laid out in the terms of reference, and you guys, as the SSC, are the review body, the only review body, for this assessment. Just as an FYI, the last greater amberjack assessment was SEDAR 15, and it was a benchmark, and I think the terminal year was 2006, and so it's a pretty old assessment.

What you're being asked to do, as far as action items go at this meeting, is to review the terms of reference and the schedule, and so I'll pull those up in just a second, and then also to identify SSC representation.

This is part of Attachment 9, and it's PDF page 1, and these are the draft terms of reference for SEDAR 59. I am not planning to walk through them, unless you want me to, but the thing that I did want to highlight is Term of Reference Number 2 here. It goes over the specific changes to be considered, and those include consideration of potentially two new indices, the SERFS video index and the headboat at-sea observer index. Then the second bullet says to incorporate the latest BAM model configurations and updates to data calculation methodologies, and then this third bullet is to reconsider the use of age and length composition data.

DR. SERCHUK: I have a series of questions, and, if I may, I want to just back to cobia for a second. What's not clear -- We talked about it as a benchmark, but it wasn't clear what the terminal year in that benchmark would be. Do you know that?

MS. BYRD: In some ways, that will depend on the outcome of the stock ID workshop and what that stock is going to be. If they're separate Atlantic and Gulf stocks, the data workshop for cobia will be late November of 2017, and so 2016 would be the terminal year. It's 2018, and so 2017 would be the terminal year. Sorry.

DR. SERCHUK: The reason I raise that issue is that, by that time, presumably we'll have the revised MRIP numbers, and so that will certainly be important in the benchmark. You wouldn't want to do it with only the 2016, because the MRIP will be finalized based on the information of the comparison between 2015 and 2017. That's one issue.

The other issue that I wanted to raise is I sent out an email this morning on the two assessments that are coming up now, in terms of the amberjack and the next one, and I think we lose sight of recommendations that have come out in previous assessments of research recommendations, and so I sent out, this morning, an email to the committee saying that I would like to propose, for all future standard and benchmark assessments, the following term of reference, and it is to review, evaluate, and report on the status and progress of all research recommendations listed in the last assessment and peer review reports of the stock.

The reason is, and I think we all are a little bit taken aback when we've gone through black grouper and we've gone through other assessments and we find out that the information that we thought was going to be available to do the next assessment is not available or there is some other issue, and, in most cases, the assessment reviewers and the peer reviewers are very explicit in, next time you do the assessment, here's what you ought to think about. Maybe it's a different methodology, or maybe it's a different data collection system. Maybe you ought to look at ageing, or maybe you ought to do this and do that.

It's not clear, when you start looking at these terms of reference -- That's the first thing they should be looking at, is how much progress have we made on the recommendations that were tendered the last time the assessment was done, and so I offered that, in my email to the committee, as saying that I think we need to look back and see if we have made any progress on those recommendations.

The reason I do that is I'm not clear whether considering new data and considering model configuration changes qualify for a standard update. Maybe they qualify for a benchmark. I don't know, and I asked to get the SEDAR protocols for this. They talk about these sort of things, but I don't know who evaluates it beforehand, to say this should be a standard assessment and this should be a benchmark assessment. Do we allow the group to do it, or is that done beforehand? That's a question I have, Chairman. Thank you.

DR. REICHERT: Thank you, and I agree with the email that you sent out earlier, and I would actually like to add "listed in the last assessment, in the peer review report, and the SSC report", because we make recommendations, in terms of what we feel should be addressed in a next assessment also, and we actually sometimes suggest whether the next assessment should be a benchmark or an update or a standard, and I foresee that, if that the research track is something that's going to be in place, to be that too, whether we take that into consideration. Does anyone disagree with recommending that to the terms of reference? I think that is important.

DR. SERCHUK: My recommendation is it should be a generic term of reference to all of these. For example, SEDAR 15 was done in 2008. Here we are nine years later, and I would hope that some of the research recommendations that were tendered from that assessment, or from our review, have been completed or acted upon, but I have no idea.

DR. YANDLE: I just wanted to support this. It's good, fundamental public management practice.

DR. REICHERT: I would say, if anyone disagrees or would like to add to it, please -- We will make that as a recommendation to the council and to SEDAR. That kind of gets to your other remark, Fred. Does the committee feel that perhaps -- Or is it possible to spell out some of the expected changes in the model, because the latest configurations in the BAM model may be known, and I think it would be good to include them.

I am thinking about the Dirichlet change and some of the other issues that we had with golden tilefish and some of the other stock assessments, and so I think it's kind of important, because sometimes we go back and forth that, okay, this is a change, and so this is the best available scientific information, and then that changes into yet another method or the method reverts to the old method, because this new method wasn't as good as we thought. I recommend to get some clarification in that particular terms of reference, in terms of what are the expected changes, and I would like input from the other committee members. Does anyone disagree with that?

DR. SCHUELLER: You're not recommending that we state specifics on that, are you? I mean, I am against saying use the Dirichlet multinomial specifically, because I don't -- Given what happened with tilefish and what's in that report, that's not some fail-safe movement in the right direction, and so, to me, I view these as allowing for appropriate scientific flexibility with respect to the data that are available, which I don't have a good handle on what data are available for this, but I would hate for us to be specific.

DR. REICHERT: Let me clarify. If there are decisions that need to be made on the type of data that are included in the model, then that will be difficult. However, if you look -- This was, for instance, an assessment that was completed in 2008. There is now methods in the -- I can imagine there are now methods in the model that are used pretty much in every single assessment that are not directly related to the data that you input, and I think it would be good, in terms of those changes, to specify those changes, but that's a recommendation that I have, and I would like to hear from other committee members whether or not the committee as a whole feels that it would be good to get a little more specific in that particular term of reference, and, again, that goes back to a more generic way of approaching this.

DR. BARBIERI: Well, looking at that second bullet there, that might be already captured by what's in there, because there was a model configuration of the BAM for SEDAR 15, and now there will be a proposed one for SEDAR 59, and that term of reference there talks about the changes between the two. This is one side, and another side is -- I honestly, Amy, don't know how you guys handle this, in terms of the process within Beaufort, but I would imagine that you have some documentation, and not necessarily a formal manual, but you have some documentation on how you handle the Beaufort Assessment Model.

If there is changes of the nature that Marcel was talking about, those would be updated. I mean, if those are changes to procedures that are used within that configuration, or within that framework, to conduct all assessments, I would guess that -- I mean, I look at the Stock Synthesis, and all the different versions have different updates and documentation. Not of everything, and it has been very poorly documented, but they tried to add some stuff in there to -- They just can't keep up with it, but I think that, at this stage, it would be difficult to include this for every single species, or are you talking about this one in particular, for greater amberjack?

DR. REICHERT: The reason that I am bringing this up is because, if stock assessments are relatively old, there has been some improvements made in the modeling approaches, and we've seen in the past that sometimes that makes a huge difference in the outcome of a stock assessment, and so the method that's used now may be different from the method that was used ten years ago, and, if at all possible, I would like to see a little more specificity.

DR. BARBIERI: Just quickly to that point, I think that is captured in that second bullet.

MS. LANGE: Are you suggesting, Marcel, that the actual Number 2, the second bullet, be expanded with specific descriptions or the report that comes out of the assessment as this term of reference, to detail it?

DR. REICHERT: No, I was thinking about the terms of reference. I would hope that the report would be very detailed in specifying the differences.

MS. LANGE: Right, and that's exactly what it says, is evaluate and describe, and I don't know that we can -- That sort of hamstrings, I would think, the assessment people to have it in the term of reference that specific, as opposed to allowing the analysis to proceed. I think that might have been your point, Amy.

DR. REICHERT: Fred, to that point?

DR. SERCHUK: It's to the point about the terms of reference, Chair, and it gets back to this issue of who decides whether it's a standard assessment or a benchmark assessment, and that's the reason that I queried the staff about what constitutes a standard assessment. According to the operating procedure, the SEDAR standard approach is used to refresh the data sources with the most recent information available. There is also limited flexibility to modify the assessment configuration.

I get concerned when I see something that's eight years old, or nine years old, when the fact is that things should change over that amount of time. It may be a different approach that was done before, and I'm just wondering how much insight into this was thought about before designating this as a standard assessment, and that's all. I want to make sure that we followed the protocols that were laid out here.

DR. REICHERT: Rob, I have you, but I think John came to the table to address that issue specifically, and, Genny, I have you on the list, too.

MR. CARMICHAEL: I will try. The idea with the terms of reference in the SEDAR is that there is a gray area, and when you cross the line that a standard is doing more than is appropriate and should be a benchmark is -- It's intended that the SSCs are the ones who decide that, who evaluate that gray area and decide that, okay, that seems like more changes than we're comfortable with handling in peer reviewing ourselves and with a standard process and we think it's better to go through the full benchmark, the three steps, the independent peer review and all of that.

That is certainly the vision, and, in terms of who decides sort of in the planning stages, the Steering Committee does that, and so there is consideration by the councils, as well as by the Science Center, when they're looking ahead to an assessment, as to what type is appropriate. There is often recommendations, as Marcel mentioned, and, certainly in recent years, when you guys review an assessment, we ask you to tell us when to do the next one and what kind it should be, and so that factors into it.

It can also factor into things raised by the Science Center, because they're the ones, in most cases, that are actually doing the assessments, and so what they say, in terms of the type that should be done, that always carries a lot of weight, and then they're also the ones who take the terms of reference and look at them first and do the first cut of issues that they think need to be listed there, particularly in that Item Number 2 of what the specific changes are. Procedurally, that's sort of how it plays out, and so it does fall then -- We try to lay out, as best we can, what it looks like the standard will consider and then expect that the SSC can then give some feedback. If you think it's too much, then you could recommend that it be a benchmark.

DR. REICHERT: John, for a point of clarification, this is the first time that we've had a chance to discuss SEDAR 59, correct, at the SSC?

MR. CARMICHAEL: Yes, I think that's probably true.

DR. REICHERT: But this is also presented as a standard assessment, and so my question is, procedurally, if the SSC -- The first time we get this on our agenda, is this the time where we decide that, well, given what's happening, maybe we should make this an update or a benchmark

and then based on what information, and that's why I mean, if we have more information about what changes we're considering and why those changes were considered, then, as a committee, we can say we're comfortable with a standard or, given the information before us, maybe we should recommend the benchmark, but I also realize that that has pretty significant implications for the planning, both for SEDAR and for the Science Center, because those are different processes, and so --

MR. CARMICHAEL: This is the first time you're seeing specific terms of reference, but certainly it has been on the schedule and the planning schedule and the table that we have in the overview about what's coming up as the type of assessment that's planned, and so that's certainly been out there for a while, and you're right that that does affect the planning of the overall process. You will notice, on some of these other assessments coming up in future years, we're asking you for some feedback at this point. Do you think that some should be a standard versus an update?

DR. REICHERT: I think it's good for us to realize at what point in this agenda item that comes up every single meeting we have do we have an opportunity to say, okay, we feel that this should be a benchmark, an update, or a standard, which I understand now is before the moment where we are now, and so it would be good for us to get some guidance, in terms of when we discuss the schedule, at what point does SEDAR and the Science Center and the council need feedback from us in terms of whether or not specific assessments should be -- What category specific assessments should be in, but that also means, at that point, we perhaps would need that additional information to base that recommendation on.

MR. CARMICHAEL: If you want an example, for the real-time that we're looking at now, if you look at Table 1 on page 12, that shows what is laid out for the future. 2018 is set. That's the things that we're doing, and those work plans and deadlines and all of that stuff has been worked out for 2018. That has not been done for 2019, and so there's some more flexibility say for snowy grouper and golden tilefish, but really where we're having the most flexibility, in terms of if one of these were going to be expanded to say a benchmark, then you're really looking at 2020, and so think at least two years out. That's why we give this schedule that lays it out this much in advance, because it's kind of a two-year schedule that we try to work on at the Steering Committee, in terms of finalizing things and the type of assessment.

DR. REICHERT: I agree. Two quick remarks there, and then I will go to Genny and to Fred. One is, at that point, I think it would be good for the committee to have that information. Of course, we know our standard terms of reference that we can use as a reference, but there may be some specific information that's relevant for the species under consideration. The complicating factor there is, as you know, more often than not, if you're talking about two or three years out, in a lot of instances, that is not the schedule that eventually rolls out when we get to that specific year, and so there's a little bit of that, too.

DR. NESSLAGE: I have two comments. The first comment is that, based on our experience I think with golden tilefish, we need to be very careful in how we word these TORs. It has big implications, and so the first one says to provide a model consistent with SEDAR 15 and its configurations or parameterization approved during this assessment. Who is approving it and who is approving it when, because that is not consistent with jumping to incorporating the latest BAM model in SEDAR 59.

I can tell you that I took the gag model, which was only a year old, for a version of BAM used in the gag update, and put it into the golden tilefish update, and there were, as you saw, huge changes, and I can't even imagine what that BAM code looked like for SEDAR 15. There is no way that this is -- The analysts just can't provide a model consistent with SEDAR 15 in model configuration. I mean, it's unrealistic, and so perhaps we could consider revising that wording. Whether it means it jumps to a benchmark or not, I am still not sure that I understand the subtleties in the SEDAR system here, and so I would hope for some guidance on that.

The second suggestion I have, and maybe we would need to table this for later though, but something to keep in the back of our minds is that we need to be looking out into the future and trying to determine whether or not something should be a standard or a benchmark or an update, and perhaps we might want to move this committee more towards something like what the Mid-Atlantic does, where they have species assignments.

In that, people are assigned one or more species that they're supposed to be keeping track of, and so maybe I'm the greater amberjack person, and when I see it's coming up on the schedule and John says should this be an update or a benchmark, I would go back and -- It's my responsibility then to go back and review it and say, guys, there's no way this is a standard and this has to be a benchmark and there's no way, and so it might be more work for us individually, but I think somebody needs to be looking at this, and staff can't do everything. Thank you.

DR. REICHERT: I agree with both of your statements, and I think, with the assignments that we have started, I think that's a good starting point, and so I would say keep that in the back of your mind and that we'll come back to you in the future. If you're assigned to a species that you're extremely uncomfortable with, maybe this is the time to let us know, and the other thing -- But doesn't that also address the continuity, in terms of seeing -- There is no way that you can do that, and that's perfectly fine. Briefly, John, to that point.

MR. CARMICHAEL: Regarding the continuity, in practice, what they have done recently is get as close to that as they can, recognizing the model code is constantly in flux, and so they try to capture let's say the flavor of that and the intent of that, which is so that you can, obviously, identify what -- If the model has changed or the results have changed or the outcomes have changed, how much of that may be due to differences in the actual data versus differences in the model configuration, and so that's really the intent of that, just to capture that kind of basic type of sensitivity that is expected in an assessment.

DR. REICHERT: Thank you, John.

DR. AHRENS: Just a quick comment. I think, if you can't show that continuity, if you can't go from Point A to Point B, then I think you have to consider jumping to a benchmark, and I think sometimes the problem is you've had profound changes in the science, in terms of the assessment, that can cause those jumps to occur, but I agree that if you can get close enough to show that continuity, it's reasonable, but I think sometimes there is big jumps that means you're stuck going back to a benchmark.

DR. REICHERT: Yes, I agree, and the question that we will be asked, as a committee, is, if there is significant changes between the latest assessment and the previous one, is that a function of

changes in the methodology or is it a function of changes in the population, and I know we have struggled with that in the past.

DR. SERCHUK: Two issues. One issue is I think if something is more than five years old, quite frankly -- I mean, we can talk about things, but this is an assessment that is at least going to be eight years old. Come on. I mean, we don't expect things to be that static over that amount of time, either in terms of our methodological approaches or our acquisition of data.

Here we're talking about bringing in a new dataset. I think you ought to think about some guidelines in that sense. If you're doing assessments every three years, things shouldn't be very much different than they were three years ago, but this assessment is an old assessment already, and that's one issue.

The other issue is the discontinuity that's in the table on page 12 in the terminal year for this assessment and what's put in the terms of reference. The terms of reference talks about 2016 being the terminal year, and, on Table 1, it looks like it's 2017, and so that should be the same. The other thing that I am concerned about, and I don't know how we deal with this as a committee, is my understanding is about half of the catch is made up from the recreational fishery, and my feeling is, if you start off with an assessment that you know you're going to have big MRIP changes in it, you might want to wait until you get the whole MRIP data series standardized. Otherwise, you're going to have to come back to it quickly after that.

MS. BYRD: So I guess two things. One is the terminal year is 2016, and so I guess that just wasn't caught in the table. The council originally asked for 2017, but, due to the spacing out of data deadlines, 2016 ended up being the terminal year, and so that may be the reason for that change. 2016 is the correct terminal year.

Then the data deadline for this assessment is late May of 2018, and it's my understanding that the MRIP revised numbers will be coming out in July of 2018, is what we've been told, and so I don't -- There may be an issue there, or perhaps the new numbers will be out before this assessment is complete, which is at the end of 2018, and so perhaps they could be incorporated.

DR. REICHERT: John, a clarification of that point?

MR. CARMICHAEL: Well, yes, that's right. When this was set in, the plan has always been to have the revised MRIP numbers in this assessment. I talked with Dave Van Voorhees yesterday, and they're saying they still are on track to have them for July of next year. I guess, can we change the schedule enough to incorporate them? I think I would have to turn to Erik, to see what he thinks about that. He is probably pondering that as we speak, but I think we would like to get the revised numbers in there, rather than have to do this one through a revision assessment. If you guys feel strongly about that, I think that's certainly a point that you should make, and we'll work it out.

DR. SERCHUK: Just one issue that bears on this. As you know, I was designated as a participant from this SSC to serve on the peer review of the calibration model for MRIP. Unfortunately -- We did have the peer review, but the report is not finalized yet, and so I really can't speak to it

without having the report, but the revisions are going to be substantial for the recreational estimates, and there could be anywhere from four to six to ten times higher than that.

That will have huge implications, not only on the assessments, but it will obviously have huge impacts on allocations. if you have catches that have to be divided between user groups, and so this is the reason that I keep raising this point about do we want to do an assessment on an important recreational species before we have the MRIP numbers, because, once those MRIP numbers come out, there is going to be great political pressure on the councils and on the assessment themselves to update those numbers. I realize that you can't do everything at once, but the magnitude of the changes are likely to be significant, in terms of the standardized series of recreational catches.

DR. REICHERT: Thank you, Fred. Based on what you and what John just said, should we, as a committee, recommend that the schedule should, if at all possible, be such that those --

MR. CARMICHAEL: I think you should recommend that this assessment include the revised MRIP numbers and leave it at that.

DR. REICHERT: Okay.

MR. CARMICHAEL: Which may mean we still have a May data deadline for all the commercial data and indices data and everything else and then they may be able to get started and then just bring in that revised MRIP data and keep the thing generally on track, and so, again, give us some flexibility, but maybe make that in the terms of reference, to be sure that this includes the revised MRIP data, and end it at that.

DR. REICHERT: Okay. I like that much stronger text than what I had proposed. I have another unrelated question, and so let's put this one to bed first. Does anyone disagree with that recommendation? Seeing none, I have a question about the data. We have seen some complications with gray triggerfish and blueline tilefish, and amberjack is certainly not one of the most easy species to age.

I would recommend -- There is two questions that I have. The data deadline is coming up pretty quickly, if you're talking about ages. I am not sure how many ages in the fishery-dependent realm need to be aged. Our fishery-independent ages, and I will put on my MARMAP hat, there are not that many, but I would ask the committee if it would be a good idea to recommend an age workshop, to avoid the issues that we have had, perhaps, with blueline tilefish and gray triggerfish, and I just wanted to put that on the table. I don't believe -- I forgot to check, but I don't believe we have done that for this particular species. I would at least recommend perhaps an exchange of otoliths, so we at least have a handle on the potential ageing issues. I would recommend an age workshop and an exchange of the calibration set.

MS. LANGE: I will second that.

DR. REICHERT: So let's make that a recommendation, in particular, as I said, relative to what we went through with some of the other species. Anything else?

DR. BELCHER: Only because we're going to talk about it later, and just going through the ABC control rule, the projection criteria are pretty prescriptive, and so one of the things that we're

supposed to be talking about relative to the ABC is how the P*s are determined and all of that, and so I'm just putting it out there. I understand if we need it as a placeholder, but, if we're going to be basically dumping the whole basket out, it might be something worth talking about.

DR. REICHERT: Yes, and thank you for bringing that up, and I actually made a note here that do we -- John, is the council expecting that this is going to be completed after the new ABC control rule is in effect?

MR. CARMICHAEL: No, we think this assessment will be completed before the new ABC control rule is implemented.

DR. REICHERT: Okay.

DR. BELCHER: It's also in the one that follows for red porgy, at the end, and so, again, it's pretty prescriptive. I am just saying, again, as we've looked at the language, and everything is trying to get a little bit more or less specific, and this is --

DR. REICHERT: Anyone? What do you propose? Do you have any recommendation in terms of how to approach this?

DR. BELCHER: No, and, I mean, the thing is it's kind of like, as you try to -- I am comparing the two. There is language for one that you're looking at OFL at P* equals 50 percent and then at FMSY. ABC being determined for P* equals 40 percent, 75 percent, FMSY, but then, when you drop to red porgy, there is similarities, and then it goes to something about evaluating the existing rebuilding plan with a fixed exploitation of 75 percent FMSY, in addition to reporting yield and stock status. For this projection, also report the probability that SSB is greater than SSB MSY.

It's just different language that's in there, but specific thresholds. If we're going to specifically ask for projections repeatedly the same way, it would be good to know why we're repeatedly asking for those, but yet our risk assessment -- We're looking to be a little less specific. I just feel like we're pointing one way, but yet, as we review the ABC control rule, we're actually asking to kind of be a little more -- I don't want to say vague in our approach, but that's what it feels like. We're being more open-ended in our approach through the control rule, but yet these are very specific, and I just would like to have a little bit more understanding of the specificity here, that's all.

DR. REICHERT: I think John is willing to provide that.

MR. CARMICHAEL: The why is, because these are standards, they've been done before. We have an ABC recommendation, and we have a control rule evaluation, and so the standards attempt to get the MSY/OFL projections, the P* 50 percent, probability as being the essentially the same, and also whatever you have recommended the ABC on in the past, and so that's why there is different P*s between this stock and red porgy.

Red porgy is under a rebuilding plan, and so you have all the details for the council to evaluate the rebuilding plan. Is the stock rebuilt? Are we making adequate progress? All of the things of that nature, and so they're very specific, in this case, to the situation for each stock, and we know that, as is often the case, the status can change. Your evaluation of the control rule can change once

you look at this assessment, and so there is an expectation that, after the SSC's review, you may have to request specific projections that include the ABC control rule value that you select based on this assessment. These are intended just to give you something to work on, something to see how the results are, to be informative, but they may not end up being the ones we use for ABC, depending on how it all plays out.

DR. BELCHER: Maybe some language just to -- I am just thinking of a point of clarification for people who are looking at TORs and seeing two specific projections there, but there is not in addition to SSC ad-hoc-derived ones or however you want to put that, because it just -- For me, it felt like it was only running these two projection models and that was what we were going to be working on for our evaluation, and so that was why, to me, it seemed like we're going more in a flexible route, and this seems kind of inflexible for what we could potentially be looking at in the future.

MR. CARMICHAEL: I think part of that is because this is to deal with the SEDAR aspect of doing the standard. Once that is done, SEDAR is done. When you ask for additional projections and scenarios and all of that, you and the council, that plays out over a number of years, and that shifts over to the responsibility of the council for administrative record purposes and all the legalese of our lawyer sitting there in the back.

SEDAR's responsibility and administrative record-keeping and things of that nature extends through what's in here and giving us basic projections that provide some information, but when the SSC does whatever it's going to do and the council does whatever it's going to do, there are going to be four or five multiple projection scenarios that we ask of the Center, and then those fall over to the council for administrative record-keeping. It's kind of a convoluted answer to the bureaucratic nature as to why we get there.

DR. REICHERT: Thank you. Julia, we need representatives for this assessment, and how many? This is all done by webinar.

MS. BYRD: It's a series of five webinars that start in March. I think the last webinar is in October, and then the final report is done in December. We're looking for two to three SSC reps to serve on the panel.

MR. CARMICHAEL: Did you approve the terms of reference and schedule?

MS. BYRD: That's what I am -- I want to make sure that I understand what you all's changes are.

DR. REICHERT: Thank you. Do you, or is that a question?

MS. BYRD: I don't yet, and so I want to maybe run though what I think are the changes you guys are suggesting, and I'm still unclear whether you all are okay with this as a standard assessment or not, because that wasn't clear to me.

DR. REICHERT: It was my understanding that, whether or not we are comfortable with that or not, that ship had sailed, but maybe that's not correct.

MR. CARMICHAEL: The ship certainly is getting out of sight as we speak. It would be very difficult. However, the standard process is kind of flexible, and so, if you guys have some concerns, perhaps we consider that -- We can fold in more webinars and additional work on this without having to go to the full data workshop and independent CIE-level peer review.

I think there's ways of making it a little bit more robust, and that's always been our intention, to leave this flexible, so that we can be more timely and responsive and get more assessments done, because we all know the benchmark brings a huge amount of overhead and a very long, drawn-out process, and so, if we can maybe have a little bit more robust standard, to deal with the fact that this assessment is quite old, I think it would behoove us to do so and keep us on track.

DR. AHRENS: I guess my evaluation of that would be whether or not the assessment team thinks they can produce reasonable continuity runs. If they think they can, then I am probably okay with it.

DR. SERCHUK: I really think we need to, first and foremost, find out when the SSC can comment on what type of an assessment approach needs to be done. I am still confused about that. My feeling is this assessment is an old assessment and that the assessment would be best served by a benchmark. Maybe that ship has passed that line, but my feeling is, when you're having something that was last done in 2008, the world has changed a lot since then, in terms of assessment approaches and data and so on and so forth. We would be better served by a benchmark, and, if that can be accommodated, that would be my suggestion.

Then, if I may jump ahead to the next assessment, the red porgy assessment, although that had an update in 2012, the benchmark that was done was in SEDAR 1, and that was in 2002. That was fifteen years ago, and so my feeling is that come on. Let's be realistic about things. I don't know how well the update handled the benchmark configuration, but, my gosh. You can't let seventeen years go by, or sixteen years go by, and not have a benchmark redone. That's good housekeeping. Thank you.

MR. CARMICHAEL: I think if you said do this as a benchmark now, then it either gets pushed off into the future sometime, when it can be fit into the schedule, or something else that's on the list in the near future would have to be bumped from the schedule. I think, in terms of saying you want to change the stock for the type for amberjack today, that's a huge problem, in terms of scheduling.

Things that you can comment on now, as I said, in the table, really we're looking at 2019 and 2020. Actually, 2020, in terms of making something a benchmark, you need to be looking at 2020, and so, if you think that gag or Spanish mackerel should be a benchmark, we would like to know that now, certainly by the April meeting, and so, like I said, we're looking at like a two-year planning window, in terms of the types of assessments.

DR. SERCHUK: I am not being critical, John, but I'm just trying to think about -- Part of the responsibility of the committee is to provide the most appropriate analyses that will have the greatest scientific integrity, and that's why I am concerned about using old configurations. It's not that they're necessarily bad, but the fact is that it's been a long time since a benchmark was done, and so I just want to learn from the process. If we can't do it now, let's think about, the next time that we look at these assessments, that we have a logical way to provide input, and that's all.

DR. REICHERT: So, as a committee, let's keep that in the back of our mind, and let's make sure that we have the information to inform us whether or not or what category of assessments we would need, and so that's -- For the terms of reference, Mike put on the board some of the recommendations we have for the terms of reference, and so, in addition to the terms of reference that are on your left-hand screen, the right-hand screen shows some of the recommendations. With those recommendations, can we approve the terms of reference plus the recommended changes?

DR. NESSLAGE: I still don't know who is going to approve the parameterization in TOR 1, and that gives me heartburn.

MR. CARMICHAEL: I think the idea is that is the panel that's being convened is developing the parameterization.

DR. REICHERT: That is the entire panel, the assessment panel, or is it the assessment team?

DR. NESSLAGE: So not the SSC members?

MS. BYRD: The panel is generally made up of members of the analytical team and SSC representatives, and those would be the people who are serving on the panel who participate in the consensus decision-making about model configuration and what's happening with the data and that sort of thing.

DR. NESSLAGE: I totally understand that this is the eleventh hour and we're suggesting a benchmark and that creates major problems, and I'm sorry, John, but I'm wondering if there is some middle ground here. These seem to be a series of webinars, which I understand for budget and timing and staffing and whatever is necessary, but if there is any way that the SSC could get a mid-term update on this, and I'm not sure when you're planning on delivering it, and I would assume the October meeting of --

MS. BYRD: April of 2019, but the assessment is scheduled to be complete at the end of the calendar year, and so December of 2018, and so there could be an update provided in October, but that's kind of late in the game, maybe.

MR. CARMICHAEL: I think our hope is always that when we give these you updates, like we do every meeting of the assessments that are underway, the SSC members who are involved in those assessments would be doing just that, and we have some of that with black sea bass and vermilion and these others. I mean, certainly that's been our vision of this, and that's why the SSC members are there, and, when we have meetings, if there is an issue developing, certainly bring it up.

We have had workshops, in-person workshops, in the past for standard assessments. If you feel that there is a lot of issues with this assessment and you're concerned about the time -- As I mentioned, we can have a little more flexible, robust standard process. If you guys are still comfortable doing the peer review of that and bringing the data in in a little more abbreviated fashion than the full-on data workshop, I think we can certainly accommodate that. We could do an in-person workshop and maybe have some webinars based on -- Kind of as the issues develop, maybe from the first webinar, lay out a plan for things that you think need to be evaluated, to make sure the SSC has a good hand in this.

DR. REICHERT: I also think one of the reasons that we have multiple SSC members at that meeting is so that, if there is an issue, contact us or John or others and say perhaps this is something that we should treat in a webinar, so that we can, as a committee, provide some feedback to the panel and the assessment team, so that we don't do that when we are actually reviewing this, and I don't believe we have done that, but I think that would perhaps create that flexibility, and that mechanism is in place. Does that alleviate your concern a little bit? Okay. Do we have any other -- No one hand their hand up, and so I am going back to the terms of reference with the proposed changes, the recommendations. Can we approve the terms of reference? Read through them.

MS. BYRD: Do you guys -- I just want to make sure that I understand what you're asking to be changed, so that I get it correct. The first one is pretty straightforward. It's adding the review, evaluate, and report on the status, the one that Fred suggested of research recommendations, just kind of a progress report on that. Then there was concerns with some of the language in TOR Number 1 about parametrization, and did we cover that, based on the discussion just now? Does something need to change there, or are we okay with that?

DR. REICHERT: My question to you is do you need specific language in the terms of reference to specify that, to allow for a webinar, or we can do that outside of specifying that -- So we don't need that language in the terms of reference? Okay. Thank you.

MS. BYRD: Then you want to add something to make sure that the revised MRIP data is included.

DR. REICHERT: Yes.

MS. BYRD: Then, from Carolyn's discussion, the projections were good as they are now, and so are those the only changes? The ageing workshop doesn't necessarily need to be in the terms of reference, or it can, or that can just be a recommendation that the SSC provides in the report, perhaps?

MR. CARMICHAEL: I think the MRIP data, maybe, and the ageing workshop, you can just put as bullets under Number 2. That sort of lists the specific things. I think that would at least make it clear. Then, when this goes to the council for approval, they will understand the various things that you have requested.

DR. REICHERT: Okay, and some of these may come back to the red porgy and other terms of reference.

MR. CARMICHAEL: The question about the continuity, would it be better to put in there to put out a model consistent with the SEDAR 15, blah, blah, blah, or as close as possible? Would it help to just specifically say that, or are we okay with the clarification so far?

DR. REICHERT: As appropriate.

DR. NESSLAGE: Can we just drop the third sentence, and so TOR 1 would be to prepare a standard assessment and get the data together and evaluate, blah, blah, blah, is Number 2. In there, incorporate the latest BAM model. Then Number 3 is document all your changes, and we say that

actually twice, in both 2 and 3, and so we've really got to do that. If you don't do that, they're in big trouble, but I think we could drop the third sentence, because this gives me --

DR. REICHERT: Does anyone disagree with that? Seeing no one, then we adopt that change. Thank you, Genny. That was going back to I think my comment about specify model changes, and I think the committee as a whole did not feel that was important, and so that may still be in the notes, but I think the consensus of the committee, including myself, is that that may provide too much of a straightjacket for the assessment team.

The recommendation that Mike currently is working on is not part of -- There is not a change, or should that be in the -- No, that should not be in the terms, and so we can work a little bit more on the language of that later. I propose to drop the top bullet here. That's the remark that I made, and we discussed that, and I think we dropped that. Correct?

DR. ERRIGO: From the terms of reference?

DR. REICHERT: Yes.

DR. ERRIGO: Yes.

DR. REICHERT: Okay. Any other recommendations? Is this clear to you, Julia? Okay. Then let's move to the next one.

MR. CARMICHAEL: You still have the schedule.

DR. REICHERT: I am going way too fast. We still need to look at the schedule, and we need representation. I had a question with the schedule, a quick question. At least in the text, that -- The first year of management is 2019, and I think it's much more likely that that will be 2020, if the assessment goes to the council in June. Then the first year of management -- Anyway, that's a detail.

MR. CARMICHAEL: It depends on the type of changes. If all they're doing is changing the catch limits, then it can happen in that time.

DR. REICHERT: Okay, and that goes back to the time between implementation of management and the terminal year, because -- I think Fred and others have said that this is continuously something that we run into as an SSC, in terms of providing management advice, is the age of the assessment by the time we provide the information to the council, and that's why I'm bringing this up.

MS. BYRD: There was some discussion about, since the assessment is so old, wanting to add additional webinars or a workshop, something like that, into the schedule, and I have the schedule up on the screen now, and what is the committee's pleasure in regards to that?

DR. REICHERT: I would argue to see how things go, because I think it would be extremely difficult to now start adding webinars and dates, but that's just --

MR. CARMICHAEL: If you feel like you would like an in-person workshop in lieu of one of those webinars, perhaps Webinar 2 in the middle or 3 in the end, however it works out, I think stating that now would help us, in terms of budget planning for SEDAR for the coming year.

DR. BOREMAN: Just remember that a webinar or an in-person meeting needs advance notice of like three weeks or something, and so you can't just say let's have a webinar next week and talk about it.

DR. REICHERT: No, and I'm aware that it's just -- Whether or not we should decide now that it would be necessary, but I do believe it's probably important for Julia and others to know whether it's the pleasure of the group to add an in-person workshop, and, personally, I don't think that may be necessary for amberjack. However, and we'll talk about that in a little bit, for red porgy, I think that may be a different issue. Anyone disagree for amberjack? We see no disagreement, and so, right now, we don't have a recommendation to add an in-person workshop for amberjack.

I guess that gets us to participation. Who is willing to participate in the amberjack stock assessment? Anne, thank you. We can certainly have some more discussion over a cup of coffee or other beverage later, to see if we can find some volunteers for this assessment. We've got Anne right now. Okay.

DR. NESSLAGE: I don't want to overcommit, but I was considering -- If you think you still need someone on the red snapper group, I would be willing to work on that. If not, if you don't think there is room, then I would volunteer for this, but you only have room for one, and so I guess, Chair, whatever you want to --

DR. REICHERT: Thank you for that responsibility. We will circle back, because we are not done yet with the SEDAR assignments, and so we have Anne, and then we'll talk amongst ourselves, and we may see if we can get some other people. To be honest, really, this has been one of my concerns, is the workload for the SSC, with all of these assessments going on and all the other things now, with the working group, but we can, again, pick this up a little more on Thursday, the last day, Thursday. Do you have enough information for amberjack? If so, let's move to red porgy.

MS. BYRD: Again, red porgy is a standard assessment. The terms of reference are on the screen right now. I'm assuming some of the comments that you had regarding the greater amberjack terms of reference may go here as well, and so I guess it would be helpful to know if that is --

DR. REICHERT: Mike, can you copy and paste them here? Then we can see which ones we need to adopt and which ones we can let go, the amberjack and the red porgy terms of reference, because some of them were so generic, like the one that Fred put up. The other ones --

MS. BYRD: The MRIP revision one, I'm guessing it would be similar here.

DR. REICHERT: Yes, and, an age workshop, I will come back to that later. I don't think we need an age workshop, but we do need an update, and I asked Erik to see if he could provide an update on some developments there, and then what was the other one? This is an assessment that, since the original benchmark is rather old, I want to suggest that perhaps we should consider an in-

person workshop instead of one of the webinars, but I just want to propose that to the committee and see what you guys think about this, because this is, I think -- Actually, this is SEDAR 1, right?

DR. ERRIGO: Yes.

DR. REICHERT: I would like to open this up for discussion, how people would feel in proposing at least one in-person workshop, and, John, maybe you can comment on the practical feasibility at this point, but let's first hear from other people whether or not you guys would be in favor of that.

DR. BARBIERI: It makes sense to me.

DR. REICHERT: Does anyone disagree with recommending an in-person workshop? No? Then that's a recommendation that we can add as a committee.

MR. CARMICHAEL: Feasibility-wise, we will attempt to accommodate that, to the best extent of the budget that we receive for SEDAR next year.

DR. REICHERT: Okay. Sounds good.

MS. BYRD: Can I circle back to the terms? I am going back to the terms of reference, and so we're adding the one about research recommendations, we're adding the one about the MRIP revised data, and the other change was, in Term of Reference Number 1, that third sentence, and is that something that you all would want to remove from this as well?

DR. REICHERT: Yes, I think that's consistent with amberjack.

MS. BYRD: Then I will talk to Erik and others on the analytical team. If a workshop can fit into the schedule, to figure out where in the schedule may be best to place that and follow back up with you guys, because, again, we're going to be asking for participation in this assessment, and having those potential in-person workshop dates may be helpful for that.

DR. REICHERT: Okay, and then I have a remark. There was an age issue with red porgy, and so there was a validation study that was ongoing or has recently been completed, and I am looking at Erik. We can wait until Erik's update, but I just want to inform the committee that if the outcome of that study means that all red porgy otoliths need to re-aged for the fishery-independent ageing, that means up to 46,000 otoliths.

If that needs to be done, we need to -- Otherwise, there is no way we can -- There is ways to approach that, because we can sub-sample, et cetera, and we can put more people on it, but those are all decisions that we really need to start making now and not next year, and the data deadline, although that may seem a long way away, is not that long away, and so I am not sure, in terms of fishery-dependent data, whether we are talking about similar numbers, and so this goes back to the data availability, and I think that's an important issue for, in particular, this stock assessment, plus it may have implications for whether or not, and I can only speak for the fishery-independent data, whether or not we can provide age and other information for other species, because we obviously have to make choices, and so I just wanted to throw that out to the committee, and we can postpone that conversation until Erik gives his update, unless we need to know that now, in terms of the schedule. Anything else?

MS. BYRD: Once I have the tentative workshop dates, I will pass those around to you, so that people can consider whether they want to volunteer to participate in that assessment. Okay. Going back and pulling up the overview document, we wanted to update you on a few things regarding a couple of ongoing assessments.

DR. REICHERT: Do we have people for the red porgy?

MS. BYRD: We don't, but I'm guessing people may want to have the workshop week before they volunteer to participate in that, or the potential workshop week. Fred and Marcel? Great.

DR. REICHERT: Thanks, Fred. All right.

MS. BYRD: Okay. A couple of updates that we wanted to provide on a couple of ongoing assessments, and the first one is South Atlantic vermilion snapper. This is a standard assessment. It's underway now. I wanted to provide you guys kind of an update on two things. One is timing and one is kind of issues that are planning to be considered under this standard assessment framework for SEDAR 55.

First is timing of the assessment. The data deadline for this assessment was September 18, which was just after Hurricane Irma hit, and so that impacted data submission, and so a lot of the data was delayed in getting submitted, due to those impacts from the hurricane, and so a little bit of an update from what is provided in this overview. On Friday, last Friday, we had a SEDAR 55 webinar, and the analytical team gave us a status update on where things stood, and the SEDAR 55 panel discussed what that meant, what these data delays meant, for the overall assessment timing.

They are recommending that the assessment timeline be extended by about a month, to incorporate time for those data delays. The final data is not all available yet. It should be by the beginning of November, and so they are recommending extending that assessment by a month, which would mean that assessment would be complete mid-April, and April 16 is the date, and so a memo was sent out this morning to council and SEDAR Steering Committee leadership, to let them know of the SEDAR 55 panel's recommendation.

I mention that to you as an FYI, and I'm not sure if you want to discuss this now or later, Marcel, but that may have an impact on when that assessment is available for you guys to review. It's supposed to be reviewed at the April 2018 SSC meeting, which is tentatively scheduled for late April, and so this delay may impact the time you have for the review of that report.

DR. REICHERT: Yes, and I mentioned that I was going to talk with the committee to see if there was an opportunity or a willingness of us to postpone that meeting, maybe by a week. I had planned to bring that up, and so you can take a look at your agendas and see what your thoughts are, and maybe we can pick that up on Thursday and then let Julia and John know whether or not we feel that we can accommodate that. In the meantime, please check your calendars.

I think, if we move it up one week, that would give the -- Based on the conversations at the webinar, that would give people enough time to get that to us, provided there aren't any other glitches, and I also want to remind everyone that the SSC reps for this assessment were Luiz, George, and Anne.

MS. BYRD: The other thing I wanted to note is that there was a data scoping webinar for SEDAR 55 held in August, and, on this, the analytical team had identified some additional changes that they wanted to potentially consider under SEDAR 55 that weren't included in the terms of reference, and so the SEDAR 55 panel kind of discussed those, and so I just want to let you guys know what those are, so that, if you are uncomfortable with those being considered under the standard assessment framework, you can speak up.

If you think it's too big of a change to happen under the standard assessment, that's kind of the input that we would want to hear from you now. We're not asking you to evaluate the changes. The SEDAR panel will do that, but more of if you think a change is too big for a standard, and so those changes are they want to look an alternative method to estimate recreational historical catch, and they want to look at considering a method that's been used in the most recent assessments.

DR. REICHERT: Sorry to interrupt, but those are recreational catches.

MS. BYRD: Recreational historical catch, correct. They also would like to use all of the available ages for the last vermilion assessment. There was a sub-sampling method that was done to select the otoliths to age, and that was due to time constraints, and all the otoliths have been aged, and so they want to include all the ages. They would like to consider using the number of batches by size and age and reproductive analyses. That wasn't used in the last vermilion assessment, and then, also, I wanted to note that they're looking at a new method to combine the SERFS video and trap indices.

There is a term of reference that says consideration of this video trap indices, but I wanted to make you guys aware that they're looking at a new way to kind of put those indices together. Those indices have both been used in past assessments, and they've been combined using a Conn method. They're looking at a new kind of state-space model method, and so what was provided to you, and I believe it's Attachment 10, is the draft introduction and methods to the working paper for that new method. We figured, in order for you to better figure out whether that's amenable under a standard assessment or not, it may be helpful to provide a little information on the methodology and kind of the rationale for that methodology.

Again, what we're asking here is -- Please let us know if you're uncomfortable with any of those changes being considered under a standard assessment framework, and, if there is any kind of additional guidance you would want to provide the SEDAR 55 panel and analytical team regarding analysis you would like to see to evaluate those changes, you're welcome to do so now, too.

DR. SERCHUK: I am a little bit uncomfortable with some of the changes in a standard assessment. If you're going to be revising an entire time series of recreational catches, for example, that could have huge impacts, and I'm just wondering -- Those seem more like you would want to have in a benchmark, because it could completely change the landscape. These are not trivial changes, and so I'm wondering. We probably should have some discussion of this, because it can change the landscape completely.

DR. REICHERT: Anyone else? Do you, Fred -- Does that mostly relate to a -- Go ahead.

DR. NESSLAGE: I agree with Fred that these are major changes. I am struggling now with the concept of whether the SEDAR schedule has the time to be this flexible, to change everything to a benchmark, because it looks like, reviewing a bunch of these, looking ahead, these seem like they need to be made -- I reviewed the Gwinn paper, and I thought it was great, and I would love to see these changes made, and I just worry that we're putting up artificial definitions between standards and benchmarks that, if we can get the work done, we should get the work done, if we think this group can adequately review it, and that's -- It's not whether the work should be done. It obviously should be done.

These things need to be changed, in my opinion, but do we have the time at the next meeting, or whenever this is going to show up, to adequately review it, and so we have the expertise to review it on this panel? I think that's the real question of whether it should be a benchmark, and so maybe if you could just kind of -- I agree with you that the changes are big, but can we deal with them at this group?

DR. REICHERT: I agree, and I know that some of these methods will be reviewed within the assessment process. I also have a question of whether or not we as a committee feel that we should perhaps look at those methods and review them separately from what's happening within the SEDAR process. I just want to bring that to the committee, and I don't have a -- I am not sure yet how strongly I feel one over the other.

MR. CARMICHAEL: I think, Genny, those are the right questions to ask, is are you comfortable reviewing this, and it can be a big time demand, and certainly our meeting time gets pretty tight here as we sit around this table twice a year. I think, as John mentioned, we don't always have to wait. We have certainly said in the past that we can have webinar meetings, and we've had plenty of webinar meetings.

This might be the kind of thing that you want to say, hey, let's have a -- Before it goes to the full SSC, maybe you have a sub-group that does an in-depth webinar meeting and reviews these things in-depth, more of like you would do with kind of a peer review. It doesn't have to take multiple days, but maybe you spend the better part of a day getting an in-depth presentation and talking about it and bringing in some other SSC members, in addition to those who are serving on the panel, and you try to lay out some strawmen that then can pave the way for that being discussed here around the table in person.

I think, to me, that's the kind of flexibility that we're thinking. The reality is that, yes, we can't do everything as a benchmark, and, if I hear what's coming out of the discussions that we've had around the SEDAR Steering Committee table, certainly the impression I'm getting from the Science Center and others is moving to fewer benchmarks, as much as possible.

If you look at the flavor of the research track process, it's getting away from that. There has certainly been questions posed during the deliberations on that as to whether or not even these independent-type peer reviews are even necessary, once you have done the initial assessment or you've got the tool -- There are some thoughts that even, once you've built the general model, you could put multiple stocks through there without having the independent peer review, and so I think we're under a lot of pressure to do fewer of those, for sure, and, as much as we can do with this group, and if it means maybe an extra meeting to be able to have the time to dig into something in more depth, I think that would be a better way to go, because it is true that we're going to have a

hard time getting everything and more things as benchmarks, and time passing or not, it's just getting more and more challenging.

DR. REICHERT: To that point, real brief, John, you said review these things, and so I see two things. There is the review of some of these methods, in particularly the recalculating or calculating the historical catches and the new method to combine the trap and the video index, and that's a new method, and maybe the -- We have already used that in other stock assessments, and so the method is -- We actually have looked at that, and then ages is just we have more, and I would assume better, data, and so, in particular, those two, or are you talking about something that we talked about earlier, is, midway or before the assessment starts, have the SSC review some of these issues or some of the problems that the assessment team or the panel ran into, because that's what we talked about when we were talking about amberjack, and so can you clarify what you were envisioning there?

MR. CARMICHAEL: I was thinking of dealing with the issues raised in this assessment and the need that maybe it needs a little more time for peer review, and so just a way of getting you to deal with this assessment and what comes out of it. If you think you're okay and comfortable with making those changes, you're the group that can review those, and you just may need a little bit more time than the normal meeting time to get this adequately reviewed for this particular assessment.

DR. REICHERT: I agree, and I think we can possibly streamline that by giving us an opportunity to perhaps review some of the new methods that are used, so we don't have to do that after the fact. That what I was asking.

MS. LANGE: I agree with that approach. I mean, it seems foolish to go back in time. If we've got new methodologies that the Center is working on that have been used and that are appropriate, to not use them and to go back to basically an update, and that's basically what you're saying, is go to an update and just use the same methods and the same data that were used before, and I would much prefer to move forward.

If we can do that without doing a benchmark, by having an additional couple of webinars to bring everyone up to speed to feel comfortable with the new types of analyses, then I think that's the best approach, or certainly better than throwing the whole assessment out and going back to the old way that was done.

DR. AHRENS: I guess I think one thing to consider is, if you're moving away from benchmarks, are we providing sufficient ability for other stakeholders to comment and interject in that process? I know, as you go through the data workshop and the assessment workshop, you get a lot of really good feedback, particularly from the fishermen that are involved in it, and so, if you're kind of moving away from that process, are we ensuring that we're still able to gain that additional information and participation if we move to standards?

MS. BYRD: One thing to that point, for standard assessments, there are still panels, and there are still appointed fishermen, observers, who are asked to participate in the process, and they're not part of the consensus decision-making, but they are there to provide input on the fishery and ask questions and provide comments, and so, in the standard process, there are still kind of constituents who are involved in the process. One other thing I will note too is this alternative method to

estimate recreational historical catch, this FHWAR, is the acronym for it, has been used in previous assessments, and it's actually the SEDAR data best practice now.

DR. REICHERT: Thank you for that update. Yes, I forgot about that.

MR. CARMICHAEL: To Rob's point, I think that is one of the challenges, as SEDAR looks at different ways of doing the assessments, is maintaining that public involvement, and Rusty mentioned that earlier in his comments, about the importance of that, and so I hope that that stays at the forefront as we look at different changes in the process, that we maintain at least that transparency and that opportunity to have the interaction with the public.

DR. SERCHUK: Can you tell me when the last benchmark was done for vermilion?

MS. BYRD: It was SEDAR 17 in 2008.

DR. SERCHUK: 2008?

MS. BYRD: Yes, with a terminal year of 2007.

DR. SERCHUK: I guess are there any rules of thumb for the number of years that ought to be -- How often a benchmark ought to be done?

DR. REICHERT: No, I don't think we ever discussed that, did we?

MR. CARMICHAEL: No, and I think, early on, there were some rules of thumb. Lately, there's really not any rules of thumb regarding a benchmark. There's a little more discussion of how long it goes between doing an assessment, and certainly that's been one of the -- That's another topic grappled with around the Steering Committee table, that of is a standard versus an update an inferior product, and the idea has been trying to say that they're both assessments and they're done by slightly different processes, but it shouldn't always be viewed that it's an inferior product when you do a standard versus an update instead of a benchmark.

They should both be strong, robust, valid assessments. They're done by a slightly different process, and I think, based on that reasoning, it's probably one of the big reasons that we haven't gotten into saying, well, if it's been X number of years, then you have to do a benchmark, that coupled with the fact that, the number of stocks that we have and the number that we get done on an annual basis, that would become really prohibitive in a hurry.

DR. SERCHUK: My concern is the world can change a lot in ten years. The assessment could change a lot in ten years, and my feeling is -- My feeling is that, if you tried to do a standard assessment and subsume benchmark type of things in it, new datasets and a new way of looking at it, you're really going between categories, and the idea of a benchmark, quite frankly, is to bring that outside expertise in and to have something that will maintain itself for the next umpteen years.

You don't want to do a benchmark every three or five years, but you ought to be able to come back and say, wait, ten years have passed now, and is there any reason -- I am seeing some of the changes that are being discussed here are not small, incremental changes. You're talking about changing sort of the essence of the inputs to the assessment, and my feeling is that those really would require

a benchmark look at it. I realize the schedule is really tight, and I understand that a benchmark is a completely different activity than a standard assessment or an update, but we should not fool ourselves, quite frankly. The fact is, if you're going to be changing the input data to the assessments in a significant way, that's not an incremental change. That's a big difference.

DR. REICHERT: Fred, I see where you're coming from, and I don't disagree. My question is, for this assessment, is our request to have a workshop for this assessment -- Would that perhaps address some of these concerns of yours?

MR. CARMICHAEL: I don't know that we can have a workshop for this assessment. We were talking about having an SSC review, probably a webinar meeting, to give an in-depth review.

DR. REICHERT: Forget what I said. It's been a long day, and I mixed up red porgy and vermilion snapper, and so sorry. Sorry, Fred. I mixed those two species up.

DR. SERCHUK: I am going back to the information that I've gotten from the council staff. A standard approach is used to refresh the data sources with the most recent information available. That's the first line, but now we're talking about changing the databases completely.

MR. CARMICHAEL: Doesn't it also say that there is an allowance for other changes and bringing in new data and such? It's gray, and it's up to you all to decide, and I guess one of the problems we're running into is these issues are coming up very late in the process. This ship has sailed. It's about to arrive in its homeport where it was headed to.

I think, as we look to the stocks in 2020, I get a sense of maybe you guys want to see some more information about the potential changes that are going to be considered say for the 2020 stocks, in terms of the standard assessment. Maybe we need to get ahead of that a little bit more and give you some of that information, so that, in April, if you think some of those should be a benchmark, you can make that recommendation.

DR. BARBIERI: Mr. Chairman, to add to that, Fred, I think your comments are actually helpful. I mean, you are seeing these things, and you pointed them out, and I don't see why they cannot be included in our report to the council, and it can be made as a recommendation to the SEDAR Steering Committee. That's a concern that the SSC has identified that needs to be addressed.

DR. SERCHUK: I am not trying to be a gadfly here, believe me. I am just trying to think that a period of time goes by, and it's time to have -- If there are changes being done analytically or new data sources are coming in, we have categories here. If we can accommodate it, fine, but I just think -- I just think we need to keep our eyes open, that's all.

DR. REICHERT: To both of your points, recommend -- Mike just put that mark up there but I also would say -- I thought that you captured that last remark, in terms of recommending -- I thought you had already written it there, but a recommendation to -- Fred, please help me with the language, and I may ask you to help us with drafting that later, but a recommendation to look at the standard assessment and recommend clarifying what would be acceptable as a standard or when and when we should move to a benchmark. John, I think you had some language just a while ago.

MR. CARMICHAEL: You may just want to wait and see what happens with the whole research track movement and what goes on there. I am really -- Personally, wearing my SEDAR hat now, I don't know that it's going to be a wise use of time to get into a bunch of stuff like that if, a year and a half from now or two years from now, we're coming back and now we're doing a research track approach, but I think we take this under advisement and understand it, and, like I said, if there is additional information that we could provide you in April for 2020 stocks, to help head off some of this, then that would be helpful.

If you guys really think that, if it's been more than ten years since the last benchmark, that you need to do another benchmark, then put that on the table, and we can have it discussed at the Steering Committee level and see what sticks. If you really think a hard-and-fast timeline like that is going to mean something, then we can try.

We certainly have had that discussion in the past, and it's gone by the wayside, just because of the productivity needs, and we're under probably greater pressure than ever now to get more throughput, which is why there's a lot of discussions of, well, you know, maybe some of this transparency needs to soften, and this is obviously directly contradictory to the kind of direction I feel things are going, and so, if you guys feel strongly about this, by all means make that statement and make it clear, because it's going to be extremely important as the process potentially changes in the next few years.

MS. LANGE: Mike, is what you're putting up here, is this related to vermilion snapper, or is this general discussion?

DR. REICHERT: This is under the vermilion.

DR. ERRIGO: This is under the vermilion snapper bullet, but it can be generalized.

MS. LANGE: Okay. Then the last bullet -- I mean, I'm not sure that when John had suggested having -- Is that to perform an in-depth review of the assessment or the proposed changes, that last -- I thought it was just the proposed changes to the assessment.

MR. CARMICHAEL: No, what I was suggesting is that you could have a webinar to really devote greater time to providing a peer review of this assessment when it's done.

DR. REICHERT: Go ahead, Luiz.

DR. BARBIERI: No, thank you, Mr. Chairman, but I think the point has been made.

DR. REICHERT: Okay. It is 6:20. We were supposed to go through 5:30. I think the discussions and the conversation we had were very valuable, and I wanted to make sure that we got through at least a number of significant agenda items, and I also wanted to allow ample time for this discussions. What we have left is the black sea bass and then the schedule. I propose that we allow Julia to give us an update on the black sea bass and then perhaps start with the schedule tomorrow morning.

MS. BYRD: Okay. The update on black sea bass, it's a standard assessment. It's ongoing now. After your April 2017 meeting, we received a memo kind of requesting a delay in this assessment,

due to late data submissions, and that was discussed by the SEDAR Steering Committee. Originally, this black sea bass assessment was supposed to come to you to review at this meeting. Due to the requested delay, there was also an interest in adding an additional year to the assessment, and so the terminal year was advanced to 2016, and the assessment was delayed over a longer timeframe to allow for that, and so now it's supposed to come to you at your April 2018 meeting.

That is kind of a timing update, and then I also wanted to let folks know that there was another kind of issue identified that wasn't specifically laid out in the terms of reference that the panel would like to consider, and that's a new discard mortality paper has come out since the last assessment, and so the panel is interested in considering that under this assessment framework, and so the same question is asked to you that we just went through with vermilion. If you have concerns with that being considered under the standard assessment framework, please let us know.

DR. REICHERT: Thank you, Julia, and this was a paper that -- The Rudershausen paper was not included in the briefing book, but I contacted Jeff, and he's one of the co-authors, and so I asked Jeff to very briefly tell us what the key findings are, in terms of the effect, the potential effect, on the assessment.

DR. BUCKEL: Sure, Marcel. I believe, in SEDAR 25, they used Paul's early work, and this uses a relative risk approach, where there is a -- Black sea bass are tagged and released, and they are scored in different condition categories, and the early work had the best-condition fish. They were released at the surface, and then the return rates of those were compared to the return rates of fish that were in worse condition, and so signs of barotrauma, for example. From that, an estimate of survival was made, but it was predicated on the assumption that the fish in the best condition had 100 percent survival, and those were released at the surface.

We wanted to test that assumption, and so, in follow-up work, we used traps to catch black sea bass on the bottom, and then scuba divers pulled the fish out of the traps on the bottom and tagged the fish at depth. Then we looked at return rates of those fish relative to return rates of fish that were released at the surface, and we found that that assumption of 100 percent survival of the best-condition fish at the surface was not correct. It was around 85 to 90 percent survival, and so those survival rates that were used before have been brought down slightly.

I think that these are an improvement. It leads to lower survival, and this -- One caveat of the work is that this was at a discreet depth, and we did apply that to fish at different depths, and so, when you get to shallower water, all the fish are in really good condition, and so you end up with higher survival, but we were assuming that we were using these survival rates measured with this scuba experiment at that deeper depth, and it was around 120 feet, and so that is one caveat of the work.

I think, just to get it on the record, one of the things that we don't know, from black sea bass discards from MRIP, is the depth at release, and so that's a big unknown, and so, even if you knew -- If you had really good information on discard mortality at different depths, you don't have the information on where those discards are taking place, and so that's a research need for this type of work, but, to get back to the discard mortality paper, it's an improvement, in my mind, because we tested that assumption of the previous work.

DR. REICHERT: Thank you, and, just for the information of the committee, this paper, I assume, will be reviewed within the SEDAR process.

MS. BYRD: It's actually available. It's one of the SEDAR 56 reference documents, and so it's up on the website.

DR. REICHERT: Okay. The question is if anyone has any heartburn with including this new information in the assessment? That is the question for us. Seeing none, is that all you need from us today, Julia?

MS. BYRD: Yes, and the second action is just if you need to provide any additional guidance regarding that change, in order for you guys to evaluate it.

DR. REICHERT: Seeing none, John.

DR. BOREMAN: I forgot to mention this during the discussion on the last species, but I think -- I couldn't make the webinar in September, but I sent out a little note to the SSC prior to the webinar regarding how the Northeast handles operational versus benchmarks, and we did come up with a list of criteria, a checklist, that we used on the eighteen groundfish assessments this past summer, and so that could be a starting point for discussion at least, because I think that's what is needed, is a checklist. Basically, it gives the scientists an idea too of when they might be going a little too far, in the eyes of the SSC, and so I can resend that, if you want.

DR. REICHERT: Yes, I think that would be -- I have that, but it would be good to resend that to the committee, so we all have that, and we can take that into consideration. Thanks, John. With that, I think we should recess.

MR. HARTIG: Marcel, I had this question on vermilion, but it's been an overriding topic through the discussions on each of the assessments. You're between a rock and a hard place. John is saying you need to get your information to us two years prior about what improvements you see, but the analysts don't get their improvements until the year the assessment is being done, and so that needs to change if you all want to have any kind of meaningful input into when those need to be done, and so those two need to match up to be able to give your recommendations two years ahead of time.

DR. REICHERT: Thank you, Ben. That is a very valid point, because sometimes developments take place, and we don't know that, and then we still want to use the best available analysis or scientific information, and so that obviously creates a bit of a tension there. Okay. It is 6:30. We will recess until tomorrow, and I will talk with George and Mike and John a little bit about the agenda for tomorrow, and I will report back to the committee what we came up with, and we can take it from there. 8:30 is the current calendar, 8:30 tomorrow morning.

(Whereupon, the meeting recessed on October 24, 2017.)

- - -

OCTOBER 25, 2017

WEDNESDAY MORNING SESSION

- - -

The Scientific and Statistical Committee of the South Atlantic Fishery Management Council reconvened at the Town and Country Inn, Charleston, South Carolina, October 25, 2017, and was called to order at 8:30 o'clock a.m. by Chairman Marcel Reichert.

DR. REICHERT: Good morning, everyone. Thanks for sticking with it yesterday afternoon. George, Mike, and I, with some input from John and Erik, looked at the agenda, and so I wanted to give you guys a heads-up that what we are planning on doing is to have Erik come to the table and give us an update on the red porgy age validation study. Then I have asked Erik to brief us on the gray triggerfish, and then John will lead us through the SEDAR scheduling, and that's followed by the red grouper agenda item. Then we'll have a little break, and then we'll move to SEDAR 50 and Agenda Item 8, the update on the Science Center research efforts, we'll move that to later in the meeting, and so just as an FYI of how we think this would flow best.

The other thing is thanks, Mike, for sending out the notes. Please, if you have a moment, take a look at that and provide some feedback. I also am asking people to consider the assignments. If any of you, after a good night's sleep, decided that you wanted to volunteer for some of the SEDAR stock assessments, let us know, or the working group. I think we still need some members there. Let one of us know.

I was reminded that anyone who is not staff or an SSC member, please sign in. There is a sign-in sheet in the back of the room, and so please do that, and I believe that people need to do that every day. With that, Mike and George, have I forgotten anything?

DR. SEDBERRY: I don't think so.

DR. REICHERT: All right. With that, I am asking Erik to come to the table, or he is already there, and lead us through the red porgy and gray triggerfish. Erik, thanks.

SEFSC REPORT ON GRAY TRIGGERFISH

DR. WILLIAMS: Thank you. I have a few slides to update the age validation work that's going on in Beaufort. I don't have any slides for the triggerfish. I think the report that's in your briefing book should stand on its own and is fairly well-written, and so hopefully it's quite clear, but let me run through the age validation projects that are going on at the lab.

Right now, the current project we have going on, and actually is wrapping up, is red porgy and gray triggerfish. We basically wild-caught fish and marked them and have been rearing them in tanks for approximately two-and-a-half years. I am trying to remember, but I think we have sacrificed all of those fish at this point, and we are working up the samples. We do have a new project that we just got funded that's going to start working on vermilion snapper and black sea bass, and we expect to start catching fish probably in the next month or two, if the weather will cooperate.

The current project for red porgy and gray triggerfish, the otoliths have been imaged and the radius measured to the first annulus and transverse plane. For those that deal with otoliths, you will know what I'm talking about, because I don't even know what I am talking about. All otoliths, spines and vertebrae, just the spines and vertebrae, are being worked up for gray triggerfish, have been sectioned. They have the otoliths from most of the gray triggerfish, but they haven't been processed yet. They're a little tricky, because the otolith is quite oddly shaped, and so the processing for that takes a little more time and care.

Where we are right now with -- As I said, Jennifer has kind of worked up most of those samples, and we're just now sort of looking at them and starting to do the analysis, and where we are is that imaging and measuring of the otolith sections is occurring from the core to the first annulus. They are comparing the results of reared fish to wild-caught, and, so far, just the preliminary indications are that there is a strong checkmark inside the first annulus on a little less than 50 percent of the otoliths, and so that has some implications for how we determine that first annulus, which is really the big issue with red porgy.

For now, I think the answer is stay tuned. We're right literally in the midst of analyzing all these samples. I don't think we can come to any strong conclusions at this point, but probably, in the very near future, we will have some more concrete conclusions, and that was really all I had, and so if there are any questions on that.

DR. REICHERT: Anyone on the committee? I have a question. Do you guys have any idea of schedule, because I think that will be important for the scheduling of the assessment. As I mentioned yesterday, depending on how many otoliths need to be aged or re-aged, and we're talking about, fishery-independent only, 64,000 otoliths.

DR. WILLIAMS: I, unfortunately, didn't really think to talk to Jennifer about when she expected to wrap this up, and so I honestly can't answer that. I know that she's actively working on it right now, and that's about all I can say at this point.

DR. REICHERT: Thanks, Erik. I guess we'll just have to continue working with you guys and see how that eventually potentially affects the availability of the data, and we'll obviously talk with others about that.

DR. WILLIAMS: Yes, and we recognize -- I mean, this has very strong implications on the whole red porgy assessment schedule and whether we have to re-age a bunch of samples or not, and so yes.

DR. REICHERT: Thank you.

DR. BUCKEL: Erik, the strong checkmark on the red porgy, is that just for your lab-held fish, or did you see that in the wild red porgy as well?

DR. WILLIAMS: I think we see it in the wild as well, and I think there's even -- There is some latitudinal differences too in whether that shows up or not, if I recall.

DR. REICHERT: That's absolutely right, and I think that's one of the sources of the variability in the age determination, and I think, the further south, the more complex the structure is in red porgy, and a bunch of other otoliths, too. They are more difficult to read. Anyone else? Thank you, Erik.

DR. WILLIAMS: Okay. Then gray triggerfish, like I said, I didn't really have a presentation. Hopefully you guys read the report that was submitted and is in your briefing book, and I can help answer any questions that you might have about the response to that request.

DR. REICHERT: Thanks, Erik. That was Attachment 16, and the action items, and this was Agenda Item Number 7, were review gray triggerfish assessibility report and identify any differences between South Atlantic and Gulf stocks that could account for differences in the assessibility and identify any factors that may have caused the South Atlantic stock assessments to be rejected and discuss future alternatives and provide direction for assessing gray triggerfish in the South Atlantic. The last action item is suggest research topics that could improve the next gray triggerfish assessment.

There were some research recommendations in the report, and I think some of the issues are being addressed, like the ageing issue, with the study that Erik mentioned earlier, and I think looking at the 1990 data point may be good. That's not just relevant for -- Sorry. The 1990 fishery-independent data point for the trap survey, and that's a year after Hugo, and that was discussed not only for gray triggerfish, but for some other assessments also, and there were a number of other research recommendations, and so I'm opening the floor for questions, remarks, or suggestions.

DR. CROSSON: I guess this is not just asking Erik this, but one of the points in there about gray triggerfish that was mentioned is that it was assessed at the same time as red snapper, and, of course, red snapper is a much more politically-sensitive fishery. I see, on the schedule for our outline, that in 2021 for gray triggerfish that a benchmark assessment is tentatively scheduled for then. Is that going to be done in conjunction with the next Gulf of Mexico triggerfish assessment? Are you going to try and pair species at the same time, like was done with king mackerel, I think with SEDAR 38?

DR. REICHERT: That may be a question for John or -- Maybe we can talk about that when we talk about scheduling.

DR. CROSSON: I guess would it be useful to do so, to pair species, identical species, for both the South Atlantic and the Gulf at the same time, trying to get them in sync, especially for ones that had problems, like triggerfish.

DR. REICHERT: I think we've done that in the past, on occasion, have one species, but the two regions, and so let's hold on to that thought when we discuss schedules. Anyone else? Any additional thoughts or recommendations?

DR. SCHARF: Erik, in the report on gray triggerfish, it talked about the issues with weighting the trap index, and so is that still sort of unresolved at this point, in terms of how that trap index is going to contribute to the assessment?

DR. WILLIAMS: I think weighting of indices is an ongoing issue in almost all assessments, and so, yes, we -- We're starting to come up with some general rules of thumb on how to best weight

those, but, oftentimes, it's a case-by-case sort of basis, and it is sort of looking at the index, the properties of the survey, and trying to understand how well the gear is capturing that particular fish and comparing that to our other indices that are available, fishery-dependent, and which ones do we rely on the most.

DR. BUCKEL: Erik, when we talked about gray triggerfish before, we spent quite a bit of time talking about stock structure, because of the life history. The little juveniles are up in the water column, and they can travel long distances, and so we really don't have a good handle on where they might be coming from. I didn't see that in this document, in terms of research recommendation, in terms of stock structure, and I think that's an important one, because that may be the reason why there is no contrast. You don't fish this biomass down, because there is recruits coming in from far away, outside of the U.S. South Atlantic, and so I just wondered about your thoughts on that, if that's an area of research that we should recommend or if you have reasons not to recommend that.

DR. WILLIAMS: That's a good point, and I don't remember the document. I would be surprised if it wasn't at least somewhere in the data workshop or assessment workshop, but, anyway, it's a current topic of research that is definitely of interest to us at the Beaufort Lab, too. There is this whole general idea of how connected the Gulf might be to the South Atlantic and the movement of larvae and juveniles, and so, yes, it's an area that we frankly don't understand very well for many of our species, and we do need to understand it better to really link that whole population dynamic cycle.

DR. REICHERT: Mike added the recommendation to look into the stock structure of gray triggerfish in particular relative to their juvenile stages and the potential for movement between areas. Anyone else?

DR. GRIMES: This is just curiosity, and really a question for you, probably, more than anything else. That 1990 low catch per unit effort data related to Hugo in South Carolina, and there was something in the document about that, and I figured South Carolina must have been looking into that, and is that widespread?

DR. REICHERT: Yes, we have been, and are, looking into that. We see that -- That is, unfortunately, also the first year of the series that we are using, and so there's that also, but that was the first year that we consistently used the method that we are currently using, and so we've seen that, and so that is something that we are going to look into a little bit further, whether or not we should recommend to include or exclude that data point.

If I remember correctly, in some stock assessments, we actually have excluded that first year, but, if it's a signal of the population, then we need to be careful, because that may be an influential data point, if it reflects correctly the relative abundance of a population. Then we should include it in the data, and so that's the discussion, that we shouldn't automatically dismiss that, because it can provide important information, but we're looking into that, and what we are talking about a little bit is looking at multiple species and see and also look at coverage and other factors. Anyone else? Okay. Thank you, Erik.

We appreciate the update, and the next agenda item is red grouper. Sorry, but I failed to welcome Alexei. He was able to join us today, and so, welcome, Alexei, and the next agenda item was the

red grouper, which is Agenda Item Number 6. The attachments are Attachment 12, 13, 14, and 15. I forgot to ask for public comment on the SEDAR schedule, and I am jumping ahead of schedule, Erik. John, I forgot about the SEDAR schedule, and so we need to address that now, before we move into red grouper. Before we do that, I think I am going to ask if anyone in the public has any public comments they would like to make right now on the SEDAR and gray triggerfish agenda items that we haven't covered yet.

Seeing none, John. Sorry about that, Erik. I jumped the gun there. While John is getting situated, this is Attachment 11, and our action item is to provide guidance on the long-term assessment approach and candidate key stocks, and I want to remind you of the discussions that we had yesterday relative to the schedule.

SEDAR SCHEDULE

MR. CARMICHAEL: We're up to the future assessment priorities of SEDAR, and this is page 11 in your overview, and the table on the next page, on page 12, goes along with this and gives you a tabular view of what is coming up. There is some questions the council has and would like some feedback from the SSC on regarding some of the future assessments.

Just running down the list of what's in the overview, we have golden tilefish, and I hope most folks are pretty familiar with golden tilefish. The update was done recently, and you've had a number of discussions about that. The council is looking at an assessment of golden tilefish, and they would like some feedback of the type of assessment. In April of 2017, you all suggested doing it as a standard assessment and noted changes in selectivity, differences in modeling techniques, and perceived changes in recruitment to be considered in the standard. The question is are there any other justifications or comments that you have to provide on the proposal for doing a standard assessment for golden tilefish?

DR. REICHERT: Anyone?

MR. CARMICHAEL: If there are no other comments, I will move on to the next item.

DR. NESSLAGE: This would be for 2019? Is that correct?

MR. CARMICHAEL: Yes, in 2019. It would probably be delivered sometime in late 2019.

DR. NESSLAGE: There is a possibility that Church and Erik and Paul and I may have a funded proposal that would start next year to look at golden tilefish and the environmental effects on CPUE. I don't know how or if that would be -- If anyone would be interested in incorporating that into the next assessment or whether we would wait for the assessment after that, but it might be something to take into account, because there would be new information coming out that could inform the assessment, but we won't know about funding for that project until the budget is approved, the federal budget is approved.

DR. REICHERT: Can we think of any other information that may be available at that time that may make us consider making this a benchmark? That goes back to the conversation we had

yesterday, in terms of what new information is available and what potential new other modeling approaches may be available that may justify elevating this.

I can say, for the fishery-independent monitoring of golden tilefish, there is a couple of proposals that went into continue the monitoring, the longline survey. Unfortunately, due to funding, we were unable to conduct that survey this year, and I'm not sure if it's very likely that we can do that next year, and so it depends on the funding of those proposals, and so may or may not have a continuation of that fishery-independent index. That was used in the previous assessment, and so that may be something that we may not have available for this standard assessment.

MR. HARTIG: Marcel, I would just like to see how or know how that information from the cooperative research proposal that was done last year is going to be incorporated into an assessment.

DR. REICHERT: That is also information that became available after the completion of the last assessment, and so I would say there is a potential for significant new information that may justify moving this to a benchmark, and I see nodding around the room. If we formulate a recommendation to make the golden tilefish a benchmark assessment, does anyone have any objections against that and any more thoughts?

MR. CARMICHAEL: The SEDAR guidance is that things are intended to be a standard when there is a follow-up assessment, and you need to provide justification for why it needs to be a benchmark, and so I think it would certainly help making that happen if you guys can be explicit in what the new sources of information are and why they couldn't be rolled into a standard framework.

DR. REICHERT: Yes, and I would argue that there is some information currently available that was not included in the last assessment. The problem with that is that there are a number of studies that are either ongoing or likely to be ongoing that we don't know the results of those studies yet.

MR. CARMICHAEL: Is it potentially information that would require major changes in the model to incorporate it in the model, because that's usually the kind of things that we end up going to a benchmark, because it's bringing in a fishery-independent survey where none was used before in the model or something of that nature, or you're going to change fleet structures or some change that's going on that justifies more than just considering the new data. We have brought in new life history information and such, because it's updating similar information that you had, or we have expanded timelines of surveys and stuff and allowed that to go through a standard.

DR. REICHERT: Before I go to you, Genny, remind me, but wasn't there a selectivity, something with the selectivity, that we discussed as an SSC? Then the potential of not having a fishery-independent index available may have some implications.

DR. NESSLAGE: Are you speaking about the MARMAP index that's currently -- There is still data through last year, correct?

DR. REICHERT: Yes, but there were years where we had data gaps, and so it's very fragmented.

DR. NESSLAGE: It is. We've been doing some work on that index, through a project that Erik and I are working on, and it looks like it still may be useable and may be actually pretty informative. I shouldn't be throwing all of this out there, but there is the possibility that we could still use that index, with some modification, and it could be very informative. If our proposal is funded, it would probably include modeling changes for how we would incorporate CPUE, the fishery-dependent CPUE index, into the assessment.

We would be simulation testing different modeling approaches for how best to incorporate that information, if there is a relationship with the environment, and so I would feel uncomfortable, personally, calling that a standard, but I am -- I don't want to drive the boat on this, and so, if other folks feel that that's not a big enough change to jump to a benchmark, I am completely fine with that, and including the new data that Ben mentioned I think would be great, and I don't anticipate that that would be benchmark-worthy, perhaps, but, again, I would be open to whatever suggestions others have.

DR. SERCHUK: I am a little bit concerned that we're losing consistency in how we evaluate whether we need a standard or a benchmark, and I think that it's -- I am concerned about it, because, back in April, we made a recommendation for a standard, and presumably we had the information that we had here in the text is essentially the same information that we have now.

I think we are inconsistent from stock to stock, quite frankly, about this, and I think, until we become a little bit more rigorous in what are the differences between the criteria for going to a benchmark and to a standard assessment, I think we're going to get -- We're not going to be consistent, and I don't see any reason why we shouldn't be consistent. We have it very clearly specified in the operating procedures, and so the first question I ask is what's different to move to a benchmark than the information that we have presented here about changes in selectivity, differences in modeling techniques, or perceived changes in recruitment?

Does that mean that there is additional information or we didn't characterize it correctly in April, by saying, well, those things really are benchmark changes? I am really trying to be a little bit more consistent in how we approach every one of these determinations, particularly for a stock that was just assessed very recently, quite frankly, in the scheme of things. Is that too much to ask? Thank you.

DR. REICHERT: No, and so what do you recommend?

DR. SERCHUK: I am asking what has changed since April that would now say, well, we should have said benchmark in April, if that's what people are thinking, that we need to go to a benchmark assessment.

DR. BARBIERI: Fred, you may be right, and, I mean, we need to recognize that this is an issue. We are all here collectively trying to exercise our best judgment on these things one-by-one, and it's difficult, at times, to be perfectly objective, and so John Boreman brought up that suggestion yesterday, and we might want to really go with that into the future, something that perhaps we can add as a formal recommendation in our report, to go with that checklist. That might help us better decide whether a change in inputs or additional data series or whatever might be sufficient to warrant a change in assessment type.

DR. SERCHUK: But we have that. It's in the operating procedures. I mean, we have a thing called Standard Operating Procedures and Policy, and this is a document, and it goes and lists what constitutes the criteria for a benchmark and what constitutes the criteria for a standard assessment and what is an update, and I'm just saying I don't think we need a checklist. It's in here, but we haven't been applying these things with regard to these protocols. That's all.

DR. BARBIERI: Fred, yes, and I think different people on the committee will have different opinions about that, how structured, algorithmically, we want to become, versus giving ourselves some flexibility to, after checking the checkboxes and seeing this, use our combined judgment in making those recommendations, and I think it is what it is, and different people have different perceptions about that.

I personally prefer to have a little more flexible approach, because there are times when things are going to be very difficult for you to just check the boxes and have a really definite separation between the two, and we might want to give ourselves the opportunity to do something a bit different, but I will wait for more discussion from the committee.

DR. REICHERT: One of the things we can do is see if we can have a follow-up discussion at our next SSC meeting to look at those checklists. I am also looking at John, in terms of we are talking about research track, and so that may change that whole equation, and so we can talk a little bit more about how we can best approach that and have that discussion, have that list, and then see if there is a need to build in some flexibility or maybe even tightening that up, for us as a committee, and do that at our next meeting.

There is still a decision to make in terms of what the committee thinks about leaving this as a standard or recommending this as a benchmark, and I would like to get some more feedback from the committee, in terms of what our recommendation to the council is.

DR. NESSLAGE: I think my biggest concern, beyond science, about using a standard approach would be the level of integration of stakeholders into this assessment. Am I wrong in saying that a benchmark would include more interaction with industry and collaboration with industry than a standard, because I think we really need that for this golden tilefish assessment. I would welcome that, and I think it would be a really good move, and so I'm not sure the level to which a standard versus a benchmark incorporates that sort of information.

MR. CARMICHAEL: In terms of the actual assessment phase, they are very similar. Our benchmarks, quite often in the South Atlantic, are done with a series of webinars, as is the standard process, and there is a panel, a technical panel, that makes decisions, and there is appointed observers from the advisory group, and so people from the industry that are also on the panels, and so that applies for the standard as well as the benchmark.

The biggest difference, of course, being the other ends, which is the data workshop, where you have so many more people involved, and then the peer review. The peer review in the standard is done by you guys, and the general process of building the assessment is quite similar, and there is involvement by the industry. As we said yesterday, if you feel there is some aspects of this that require perhaps an extra step in there, we can certainly fold that in.

DR. REICHERT: Yes, and that was the remark that I was going to make. What we have discussed with red porgy is the possibility of adding a workshop there.

DR. SHAROV: I think I probably would want, like Fred, would want to hear from somebody a clear summary of what are the expected changes, so far as I heard new data that were not used before, but other -- Is there an expectation by people that are anticipated to complete the analysis in changing the modeling approach? I think that's important. If we were to know that, that would be much easier to make a decision.

MS. LANGE: I was just going to say basically what John and you, Marcel, have already said, that we discussed this yesterday with red porgy. We can add an extra step of review within the SSC for the new dataset that's coming in, and I think, as Fred mentioned, we have just recently done a golden tilefish, and so to do another benchmark on it seems like overkill. We have so many species that we really need to start doing benchmarks on, and I think a standard here would be appropriate, as long as we have the opportunity to do an additional review, if it's necessary.

DR. REICHERT: I was not talking about an additional review, but I was thinking about an in-person workshop as part of the assessment, and so, instead of a webinar, have a workshop that allowed a little more input from folks.

DR. BOREMAN: For what it's worth, in terms of timing, in the Northeast, we just did an updated assessment, which is sort of like what you're calling a standard here, on golden tilefish, and we will probably do another one in 2020, and so I don't know how that would affect your timing, but, if we could coordinate, that would be great, to do the whole Atlantic coast in one shot.

DR. REICHERT: I think that would be quite useful, actually. I've got a recommendation to keep it a standard and add an in-person workshop to allow input, a higher level of input, and so I would like some feedback from the committee on what's the pleasure of the group, because we have two recommendations now here. One is to elevate it to a benchmark, and the other one is to keep it a standard with an in-person workshop. John, you said earlier that that is something that we can consider, right?

MR. CARMICHAEL: Yes, absolutely, and you can take use of say the Snapper Grouper AP, if you would like, if you have some specific questions to run across a broader swath of constituent advisors. We have a lot of ways to facilitate you all reaching out to members of the fishing community to get some feedback on particular items.

DR. REICHERT: Of course, I should have asked this question earlier, and so what's your timeline, in terms of when do you need to know whether this is going to be a standard or a benchmark? Is that today, or is that --

MR. CARMICHAEL: Today.

DR. REICHERT: Okay. What's the pleasure of the group? I would like to hear whether the group feels more strongly about a benchmark or more strongly about a standard. I am hearing standard. Does anyone disagree with the standard, including a workshop? Then that's our recommendation, and we can strike the other one. Okay.

MR. CARMICHAEL: The next one is snowy grouper. This is scheduled in 2019 as a standard. It was last done in 2013 as a standard, with data through 2012, and you recommended, when you reviewed it, conducting the next one as an update within five years, and so do you still stand behind that recommendation, or is anyone aware of anything that would make that become a standard instead of an update? We are not aware or have been informed of any type of new information or research or any justification for making this assessment a standard.

DR. REICHERT: Anyone? I would agree with that. Does anyone disagree? Okay, John.

MR. CARMICHAEL: All right. The next one is Spanish mackerel, and this one will be in 2020. The last one was a benchmark in 2012, and the data was through 2011, and, when you guys reviewed it in 2013, you recommended it being conducted as an update in 2017. We're slipping a little bit on that timeline, obviously, but do you have any knowledge of anything that would justify doing this one as a standard, or do you still stand behind the recommendation for an update?

DR. REICHERT: I am not aware of any new information that would justify elevating this.

DR. BARBIERI: I am not either, but I am just trying to draw from memory here. I remember there were some issues that are complicated with that assessment regarding the indices, right, and, if I remember correctly, there was something about contrasting trends that made that assessment very uncertain at the end, and I am trying to remember if we were able to provide full stock status recommendations or whether --

DR. CROSSON: If I remember, because Marcel and I were the representatives for that one, I thought that was the one where they had difficulty establishing whether it was overfished, because they had difficulty -- Is that the right fishery I'm thinking of, where they had difficulty trying to establish whether the pre-MRFSS index was accurately reflecting the stock?

DR. REICHERT: I am trying to remember. I think we formulated management advice both -- Yes.

DR. BARBIERI: My recollection is that we did not provide an exploitation status. We did provide a biomass, but not exploitation, or maybe it was the other way around.

DR. CROSSON: It was the other way around.

DR. BARBIERI: Okay.

MR. CARMICHAEL: This is certainty a fishery with a large recreational component, and I don't know if knowing you're going to have the entire MRIP revised time series would affect your thoughts to maybe do this as a standard.

DR. CROSSON: The trends that we saw were that the biomass was increasing across all the different age classes. It was a healthy growth, but it was just a question of what level it was going to rebuild to, because a large portion of that fishery, a lot of the landings, were pre-MRFSS, and the historical data series was very unclear, and so I think the review panel was unable to determine to what level you would have to establish to get to BMSY, but, other than that, it seemed like a healthy fishery, and it just was one of those issues that's not going to get resolved. You're not

going to fix that old data series, unless you build a time machine, and you could find other things to do if you built a time machine, and so, other than that, I don't know of anything else with that fishery.

DR. REICHERT: Except for the recreational fishery data, the new estimates, and so that has a potential for some significant changes, and, again, that -- Anyway, that's what I would think could potentially make us recommend this as a standard rather than an update. It's not just extending the data, and I think that's one of the criteria for an update. There is a little bit of flexibility, but it's basically adding years, and this would not be adding years. This would be changing a time series, and so I would like to get some more feedback from the committee on that, whether we feel that that may justify a standard that gives a little more flexibility in exploring that.

MR. CARMICHAEL: It gives you that greater potential for constituent and SSC involvement during the development of the model.

DR. REICHERT: I am going to put a recommendation on the board to make Spanish mackerel a standard assessment, and I would like to see -- I am looking around the room, and I see nodding. Does anyone disagree with that? Seeing none, then the recommendation is to make this a standard assessment, based on the -- By and large, based on the availability of the adjusted recreational catches.

MS. LANGE: I was just going to ask if you all the species that have a significant recreational component -- If the MRIP data are being recalibrated for all those stocks, shouldn't all of those stocks for now be at least a standard? If the criteria is that this is a totally different data stream, even though it's recreational data, and we're making a decision that, because of that issue alone, we should go from an update to a standard, shouldn't that be what we do for any of the other stocks? I mean, basically eliminate updates until we get the new MRIP data folded into each assessment, and is that the recommendation that we're saying right now?

DR. REICHERT: That was going to be my next remark, in terms of, if we make this recommendation, and if we want to be consistent, then that would mean that, if there is a considerable recreational component in the fishery, then that would be indeed the case. Anyone else in the group disagree with that?

DR. CROSSON: Disagree with what?

DR. REICHERT: Disagree with the fact that that would mean that those assessments would be standard assessments and not updates.

DR. CROSSON: Right, and that's a concern of mine, and that's why I don't know that this justifies doing anything other than an update. I mean, it's been a rebuilding fishery since the 1980s, and biomass keeps increasing, or at least according to the last stock assessment. Obviously we don't know past that point, and so I'm trying to bring up the presentation from yesterday, just trying to see. Is that a fishery that is consistently getting anywhere near its ACL?

MR. CARMICHAEL: My recollection is it isn't one that's getting close recreationally, because the fish haven't seemed to have been as available to the recreational fishery. There has been discussions that standard make sense if the MRIP is having big changes. It looks like, now that

we know more than we did before the peer review and stuff, that the changes are across the entire time series and are going to be quite significant, and so I think that's reasonable.

It's not going to make a lot of change in a whole lot of stocks as we move forward, because of what we're doing now and what we're doing here, and there's not going to be that many species left that are primarily recreational that are going to come under this gun, and so I don't think that would be a burdensome recommendation at all, and it makes some sense.

DR. REICHERT: That goes back to what I said earlier, in terms of an update is adding years to the existing data streams, and we are no longer doing that.

DR. SERCHUK: I think there's another reason to support sort of standard assessments and to try to fold in the MRIP data as completely as possible when the new data are -- It's not only that the data will be more consistent and a consistent series of recreational data, but the assessment results will have possibly a huge impact in those cases where there is more than one sector that fishes. That is, there is a commercial sector and a recreational sector, because what is happening is the recreational data -- Apart from whatever the assessment results will show, it will elevate the quantity of recreational landings historically to the commercial landings.

To the extent that management decisions are made by sectors, and to the extent that the managers then say, wait a second, here is the stock status and here is the ABC -- Now, how you managers allocate that ABC will have huge impacts, when you have a revised dataset of one of the inputs, and, in this case, we know that the recreational data, in terms of the landings, are going to be significantly higher for some stocks than they are, and that will have a huge management impact, and so I think we need to sort of do a more rigorous assessment than an update for this. One, because the databases are changing, but, second of all, I think that there's going to be a big knock-on effect for management, in terms of interpreting that assessment and in terms of allocations. Thank you.

DR. AHRENS: To follow up to Scott's statement, the commercial landings, it looks like we're at 80 percent, and the recreational are at 94 percent. The catches were fairly equal, and so I suspect, in any sort of catch recommendation, there's going to be a pretty significant jump.

DR. REICHERT: Okay, and so I go back to the recommendation to make this a standard, and I ask if anyone disagrees, and what I have heard is more arguments in favor of that, and so that recommendation stands. Seeing no objections, that will be our recommendation.

MR. CARMICHAEL: Gag is the next one. It's planned for 2020. It was last done as an update through 2012 data. You all reviewed it in 2014, and you recommended at least a standard within the next three to four years. Your justifications were the addition of the video index data and exploring alternative approaches to index development as potentials for justifying a benchmark, and you also raised the concern of the fixed steepness value.

The original benchmark for gag was 2004, and it was updated then in 2012, and so there's been basically two assessments of that stock since 2004. You did raise a number of issues, and so the question here is do you still recommend a standard, or do you think this is one that should be considered for a benchmark?

DR. REICHERT: I would add to that the discussions we had relative to black grouper, in terms of species ID, and so that, I think, throws another issue in the mix here that may have some implications, and so I just want to remind the committee of the conversations we had in that area. I would like to open the floor for comments or recommendations, in terms of gag in 2020. Does the committee feel that a standard provides sufficient flexibility to address the issues that John brought up and then in addition to the ID, or does the committee feel that these are significant enough to elevate this to a benchmark? I realize the consistency here, or the potential for inconsistencies here, but each assessment has its own challenges, and so --

DR. SERCHUK: I can't answer your question, Chairman, but I have an observation. It seems to me what I'm lacking here is I'm lacking some insight from the assessors themselves of whether they think that the modeling approach that was used in the previous assessment is likely to be the most robust modeling approach that's going to be used the next time around. Typically, that's the expertise -- Those are the people that are going to be involved with it. They're tracking it.

They might say, well, five years ago, we used Model X, but, in the interim, I'm thinking there have been some model developments going on, and I think that Model X may no longer be appropriate. If that's the case, and you're bringing a new modeling approach, typically that calls for a benchmark, typically.

What I am not getting here is a feeling for, at the operational level, those people that are dealing with the datasets and dealing with the assessments, what their input is into the process. Maybe it's coming secondarily from people around the table, but I am not getting a sense that this is a recommendation that's coming up from the bench scientist that has to do the work, and, to me, that is the most important thing, because that person, or those people, are most knowledgeable about what techniques they're going to be using the next time the assessment comes around.

DR. REICHERT: We have several representatives of the Science Center here in the room, and so I'm asking if anyone is willing and able to address that question.

DR. SHERTZER: For gag grouper, Erik did the benchmark, and I did the update. I don't anticipate any major changes to the stock assessment model going forward. If we have the flexibility to update it and bring in some new data sources that we've brought in in previous assessments, such as the video survey, I think a standard assessment would do the trick.

DR. REICHERT: Thank you, Kyle.

DR. BARBIERI: I was going to say something similar to what Fred just said. In my shop, that's exactly what I do. I mean, it's not that I'm not listening to other people, but you have to rely on the main assessment team, because they are the ones who handled it last time, and they know the ins and outs of that model better than anybody else, and so, yes.

DR. CROSSON: Given the limited resources of the assessment team, I also think it's important that any time that -- I guess this fits into this last item. Any time that we're having this discussion in the future, I would prefer that we have the results of the stock prioritization tool that we worked our way through. I think it's very relevant to what we're discussing right now.

The prioritization of which stocks need to be assessed is one question, and the second question is whether everything needs to be a benchmark or not. From a scientific standpoint, it's nice that everything could be a benchmark, but I don't think that's feasible, and so I would like to have -- We have worked our way through this process before, and so I would like to have the results of that, basically in any meeting where we're being asked to give input on the SEDAR process.

DR. REICHERT: As a reminder, and correct me if I'm wrong, this is Attachment 11 in this current briefing book, and it's I think in previous briefing books also, if anyone wants to take a look at that.

DR. BUCKEL: The things that are brought up here for gag that are going to be new, as far as I know, and Kyle can correct me if I'm wrong, are the video index and alternative approaches to deal with steepness, and those have been incorporated into the BAM, and they have been reviewed by CIE reviewers and have passed, and so I don't see any reason to do a benchmark, given those likely changes have already been reviewed.

DR. REICHERT: They have been included in standard assessments for other species. Anyone else?

DR. SHAROV: My earlier comment on the golden tilefish was -- It was specific, but, actually, in general, it was exactly what Fred was asking for, and I very much agree with what he did say, that the input is needed from the assessment team, and thanks to Kyle. In this case, for example, it's just a few seconds, and it makes it very clear as to what is anticipated, but, in addition to that, what I would like to see, maybe, in the future that we have every time we look at things like that is we have clear information from the assessment team of what they expect to happen with this analysis.

Secondly, what is important also is what were the comments from the reviewers at the previous assessment review, be it a standard or a benchmark. What were the research recommendations, and what were the critical issues that they -- They passed the assessment, but they still had those recommendations, and so whether those were addressed or expected to be addressed, and then that would help to make a decision on the type of the assessment.

DR. REICHERT: Thank you, Alexei. Anyone else? Okay. Then back to the question at hand. Given the concerns and comments by the committee, should this be -- Is the recommendation from the committee to make this a standard or a benchmark? We currently have a standard as a recommendation. Anyone on the committee disagree with that or would like to elevate that to a benchmark? Seeing none, then the recommendation of the committee is to make gag a standard assessment, based on some of the issues that were raised earlier.

MR. CARMICHAEL: That takes care of those scheduling issues, and the next item is kind of appropriate, given the discussions we've had over the last twenty-four hours. This deals with long-term assessment planning and really trying to find a better way to deal with the underlying problem, which is that assessment needs far outstrip assessment capabilities. That's the reason we have all of the discussions we've been having, really, when you get right down to brass-tacks here,

Turn over to Attachment 11, and what this does is it summarizes an approach for kind of revamping how the South Atlantic approaches scheduling stock assessments, and it's built around the idea that there is likely a number of key stocks that really drive the fishery. The snapper grouper

complex is fifty-five species that are managed, and twelve or fifteen or so of those have been assessed, and we know that the stocks that have been assessed in that complex represent upwards of 80 percent of the overall landings in the complex.

The truth is those are likely the species that tend to make people fish or not fish, depending on stock abundance that they perceive or regulations that are in effect. We know that species that show up very rarely -- We have species in that complex that don't even show up in the recreational landings records every year, and so it's unlikely that those are really driving factors in the fishery. They're not what we would consider key stocks.

The idea here is to identify those key stocks and come up with a regular assessment plan for those stocks, so that we get information on those on an annual, ideally long-term, initially at least a biannual information, and a regular update, full assessment update, of those things on a regular basis, so that you have timely information. When we get changes in year classes, we can measure that. We can show it. We can let the council respond accordingly.

The long-term view of this is that, as we get a regular schedule, people settle into the work of that and keep up with these things, and the changes from assessment to assessment are much less, and the big data issues are less, the otolith work and the things of that nature are going to need to be kept up to speed for those groups of stocks, but hopefully that consistency leads to efficiency and we actually then get the opportunity to maybe devote some resources to these species which have not been assessed for many years.

Our poster-child for that is white grunt. It was prioritized by the SEDAR Steering Committee at their first or second meeting back in 2003, and they wanted it assessed in 2005, and we're still trying to find a way to get that stock assessed, and so that is kind of the core problem that we're facing, and I have worked with Erik at the Science Center to try and come up with a way to make this happen, how we can do a better job of scheduling that's better for everybody, because, as frustrating as it is for you guys, trust me that it's more frustrating at the council and Steering Committee levels.

That goes for all of the councils, HMS, the commissions, and the states that are involved in SEDAR, and so everyone is sharing this frustration, and we think, here in the South Atlantic, if we can identify these stocks and get some preliminary analyses going in the off years, we can get at this idea that we've talked about for a number of years, like rumble strips, as they've been called, or some types of indicators.

Some of the inspiration for this comes at looking at what has gone on in the Northeast, when we looked at tilefish, where they have their assessments, and then they have their updates in between, their data updates, or fishery updates, and I forget exactly what they call them, but it brings in what's going on with the fishery. They bring in stuff from their fishery performance reports, from the advisors, and the idea would be to bring all of that together and give you some pretty robust information for at least these key stocks, to get started.

Really, the questions here are just if you guys think this has some potential and any general guidance you have on how we could implement this. Our thought is to try and do maybe sort of a pilot rollout as soon as we can, get working on it next year, and try to identify a first group of stocks to start figuring out what type of analyses would be done and what would the interim

analyses look like and what kind of reporting would you get for that and then work out a schedule that fits into what we have, but comes up with the regular scheduling for all of these stocks, which obviously is going to take some balancing of the assessment analysts themselves and who does what and the timing of stocks, and so that will take a bit of a tight-rope act, probably, but I think, once we get it rolling, we can make that happen.

Then the other question is what are these priority stocks, and so what's included in this document is the NMFS prioritization tool, the stocks that have been assessed and when, and then the ranking of the stocks that the council has done, and I think all of those are viable things to look at to get started, and we would like to get feedback from the SSC, if not for particular stocks, perhaps criteria to consider, and we also intend to take this say to our APs and get feedback from those guys as to what they see as the key stocks. I think, at this point, we would like to focus our first group on stocks that have been assessed by the Science Center, but, ultimately, we would fold in say the stocks that are assessed by Luiz's team in Florida. I will pause there for any questions or comments.

DR. REICHERT: Any comments or questions? We have discussed related issues in the past, in terms of the prioritization and some of the other issues. One of the things that I thought of in this entire discussion is the role and responsibilities of the SSC, in terms of moving forward, and I will open the floor for comments or questions.

DR. NESSLAGE: I actually have two questions, and maybe I misheard you. The first is how do benchmarks fit into this work plan, and, with only four analysts, does this assume that we're moving to the operational versus an update? All the standards we just put on the schedule for the next two years, what happens to those? I am just confused.

MR. CARMICHAEL: The benchmarks and things that we would do in bringing in new assessments would be outside of this. This is for keeping up to speed on the things that have been assessed, and so that is, for example, as you look at the table that I show here, if you look at the one on the right with the open slots at the bottom, that's potentially times when shuffling of people -- It may not always be four analysts, for example, but there is open slots, which gives the opportunity to do benchmark assessments and other types of things and perhaps research track. This is really separate of the research track, whatever that becomes, in terms of benchmarks or research tracks or what have you, and so this is really looking at just keeping up to speed on those groups of things that we have assessed so far.

DR. REICHERT: To the point that you just made, John, that's one of the questions that I had. How does the research track fold into this whole equation? Because I remember, in the past, we've had some discussions about potentially using the research track to address like some data-poor species, and so that's a question that I had.

DR. CROSSON: I am just trying to understand these figures. What is SPP?

MR. CARMICHAEL: Species. It's set up for twelve species and with four analysts, and, of course, as these are kept up to date and they take less resources, there is the potential that, with four people, you're getting still the resources to do potentially a benchmark in there. The whole gist of this whole thing, going back years in the Steering Committee, was the idea that, if there

were more updates and fewer benchmarks, then there would be more than one assessment per person per year, and this is getting at that idea.

The reality is that, as I mentioned with the white grunt example, and certainly the experiences we've had in some other stocks, like scamp, that we would like to get assessed is keeping up to date on the stocks we have assessed is often enough of a challenge, and I think we have to come to grips with the simple resource reality that we face in this region. As much as we would like to try and get unassessed stocks moved up a notch, from the big picture of what's going to really affect management, are we actually doing ourselves more of a disservice by having important fisheries like greater amberjack, which are eight and ten-year-old assessments?

I think where the council is standing now, and certainly the issues we're getting from our advisors, is the frustration with our inability to prove, quantitatively, to document what they're seeing on the water, because of the huge passage of time between our assessments. When there is a good year class, recreational fisheries explode, and, a lot of times, we don't have any evidence that allows the council to adjust catch limits accordingly.

That's really where a lot of this is going. It's like we need to keep up with the stocks that we've assessed now, and, when this efficiency gets there, or the additional resources come online that we can then start bringing more of those stocks up a notch, then perhaps we do it, or maybe those are done through a research track which is to the side of this effort.

DR. REICHERT: Erik, I saw you come to the table to that point.

DR. WILLIAMS: As John said, he and I have been working on this, going back and forth with emails and discussions, and this is really an attempt to swing the pendulum in a kind of hard way towards throughput. I mean, what we're after here is getting more assessments and doing them more efficiently and getting more bang for the buck, so to speak.

This process would allow us to provide basically updated ABC information every two years for those twelve species, and so you would never have an outdated ABC advice in your hands under this process, and so there's a lot of things built in here that I just wanted to point out. It does put our assessment scientists on the treadmill, so to speak, which you can argue whether that's a good thing or not. I would argue that it is, because the other thing that it will build into this that may not be apparent in this table is we'll have species assigned to scientists, and they will become more familiar with those set of stock assessments that they are assigned. There will be efficiency gains then through that process.

On top of that, as these analyses become more routine and we're doing them every couple of years, there is going to be other efficiencies to be built into that process. Hopefully the data providers will become more efficient in knowing exactly what they need to provide for a particular assessment, and so I just see a lot of potential here, if we go down this road, to really start cranking out some output for management. Now, the tradeoff is what we're losing here, obviously, is transparency and input. Like I said, it's swinging that pendulum in a big way towards throughput, but this is an idea of how we could get there if folks desire to head in that direction.

DR. REICHERT: If you will allow me, and maybe you can address this, you or John can address this, before I go to Fred, but it does also potentially hamper some of the flexibility. All of a sudden

throwing in species has a much higher potential to completely throw off the entire system, and so that's -- As we all know, the reality is that stuff comes up, and we talked about that earlier. The schedule we're talking about now for 2021 is rarely the schedule that we actually discuss right now, and so that's another thing, and I think that's very important for people to realize, that there may be implications for adding species at the last moment, for whatever reason.

DR. SERCHUK: I think any activity that tries to promote efficiency, both in terms of the transmission of up-to-date information, is a worthy activity, but it's been my experience that the devil is in the details, and I am thinking, if the Center is willing to proceed on this -- I think we need a lot more detail than we have here, quite frankly, and maybe this is a springboard for that.

If so, I would encourage the Center to be much more specific, and I want to encourage us to think about how the products are going to be used. I actually don't know what "interim" means up there. My feeling is you do an update and specifications are set, and they could be set for three years or four years.

Typically, in the Mid-Atlantic Council, as I understand it, and John can speak to it, every time -- If they have updated information the next year, the assessment scientist comes and says, look, it's tracking well and we have no changes in the fishery and there is no danger signals here, and so you should stay with the specifications. They could come back the next year and say, wait a second, we see a major shift in the fishery, and we see a large change in the index, and that prompts the SSC to say, well, should we take some action here? Should we have a fuller assessment? Should we do something?

I think we have to differentiate between the provision of information from the assessment scientists in the years since they have done whatever assessment they have done as a tracking mechanism to see whether the specifications that are in place for those years in which their assessment is not being done is still valid, given whatever new information you have. It could be an index, or it could be a survey, or it could be a fishery performance, or it could be the size composition of the fishery, or it could be a whole bunch of other things that are helpful for the SSC to provide information to the management council saying -- The whole idea of the research track was to allow the assessment scientists to have the creativity, to have the time, to think outside the box from the previous approaches and to look afresh at whatever has been done, and that takes an enormous amount of time.

The assessment scientists are particularly the right people to do it. They are very familiar with the datasets, and they are very familiar with changes in modeling procedures, and they are very familiar with changes in the fishery performance. They are the people that you want to basically say, yes, we need a phase shift here. We need a change from what's been done. The research track allows that, but it takes so much time that you're not going to be able to stick to that schedule, and so I think you need to think about the whole thing in its entirety, because it's going to be personnel limited, and it's going to be time bound. Thank you.

DR. REICHERT: Thank you. Erik, to that point, and then I will go to Anne.

DR. WILLIAMS: Yes, to that point. Fred, you're exactly right that this is really just a springboard, and we're not expecting anybody to embrace it right away, because the details haven't been worked out, but I will say that what the interim analysis is meant to be is, and I will be presenting this later,

under my Agenda Item 8, talking about what we can do in between update assessments to basically provide ABC advice. It's essentially more or less a beefed-up projection analysis kind of calculation, and so that's what is meant there, and so that interim analysis would provide updated ABC advice. That is the main takeaway from this.

I think what would be nice -- I mean, I don't want to put words in John's mouth or what John thinks that we're hoping to get out of this, but I think the idea is really are we ready to start swinging the pendulum towards throughput, and this is one possible way of heading in that direction, I think. That's more or less what we're after from this discussion.

DR. REICHERT: Thank you, Erik. I want to give an Anne an opportunity to reply or make her remark, and then I would like to circle it back to John.

MS. LANGE: I guess the two comments you made a few minutes ago, and one was relative to whether an emergency comes up, and I think, if we have a consistent schedule, where all the stocks are being assessed, the major stocks are being assessed, we're less likely to have an emergency that's going to throw the schedule off, because everyone will know that, every other year, we'll get at least an interim update. Every four years, we'll get a full update on those major stocks. That doesn't address the non-twelve or fifteen stocks, but most of the emergencies occur on those major stocks.

The other comment you made was that it would reduce transparency, and I don't understand how that would be the case. Everyone would know that this is the schedule and you will be getting an assessment soon, and so I don't see how transparency is changed. The process would be the same, I'm assuming. We would still have the SEDAR program or system going, and so I'm not sure that transparency would be an issue.

DR. REICHERT: Anne, thank you for that. I think those are excellent points. Before I give it to John, the other thing is -- You know, that's kind of been my soapbox in the past. I think we should keep the data providers in the back of our minds, also. If there is a set schedule, it's a lot easier for the data providers to anticipate data to be high-quality data to be available at the time they need it to be available, and a more rigorous schedule will facilitate that, and so I think that's another added advantage of this approach.

DR. BARBIERI: I just want to say that I'm supportive of this. This makes sense, but I have a quick question. Has the SEDAR Steering Committee been presented this in any way, or has this discussion taken place with them?

MR. CARMICHAEL: No, this is really a South Atlantic idea. We're hoping that we can get this going and perhaps, as I mentioned, do a pilot of some stocks and flesh out what interim analyses look like and consider how we maintain appropriate levels of transparency in doing this, and then it might be something that the other councils wish to embrace as how they approach scheduling their own stocks.

One thing about SEDAR is it maintains that autonomy of each entity to decide what its priorities are and how it sets its priorities and what it brings to the Steering Committee, and so we wouldn't want, at this point -- This is a South Atlantic idea, and we wouldn't want to foist it on the other

councils until we see how it works. If they're interested, then we would be glad to share it with them, but it may not fit everyone's needs, but, then again, it may.

DR. REICHERT: Fred, before I go to you, one thing I want to propose is that we make this a specific agenda item at our next SSC meeting, so we can get some more information, get some more details, and then have a more detailed discussion, in terms of this approach and how we would benefit, and it may help us formulate some more specific recommendations. Fred, and then we'll go back to John, in terms of what John needs from the committee at this point to move on.

DR. SCHARF: I just had a question for Erik. I wondered if you had any initial thoughts in terms of how this approach would integrate with a potential research track approach and how, given the staff that you have, those two things could potentially work together to allow staff to meet this throughput idea, but also have time to engage in the research process.

DR. WILLIAMS: It's a good question, Fred. I think, in this outline, we leave an open slot, and so that's where we would plop in the research track, and I think, in the process of as we're cycling through a given species, if we get to a point where something has dramatically changed enough, we can kick it out of the cycle and into a research track, to evaluate whatever needs to be changed, and then hopefully kick it back into the cement mixer or whatever you want to call the cycle.

DR. SCHARF: I think one thing that would be useful to come from the SSC and the council is that real push for developing the data support that is required for this kind of a throughput and a much more clear direction, in terms of database development and making kind of it really more pushbutton for individuals to get that data, and I think that voice should come loud and clear from the council.

The other comment I have on this is I suspect that, over the next decade or so, there is going to be much more integration of phenomenological models, in terms of empirical data modeling and those sorts of things, into the predictions from deterministic assessment models, and I suspect there will start to be an integration and the desire to incorporate much more short-term predictions of changes in the stock and the effect that that has on ABCs or OFLs and to keep that in the back of the mind, as this is developed, that that's probably going to be the next big jump in assessments.

The reality is you should be able to, with those short-term models, be able to predict stock changes out one or two or three years with much more accuracy, and there will be, when any one of those shows fairly major changes, a desire to incorporate that into the catch, the ABC recommendations, and so how potentially those developments in stock assessment fit into this process. That also, I think, needs to be considered.

DR. REICHERT: Thank you. Jason Didden has asked to provide a comment. Jason is with the Mid-Atlantic Fishery Management Council.

MR. DIDDEN: Just one thought, from some of our experiences with this, is we're typically setting three-year specs and getting the assessment updates every three years to re-up them, and then our data updates in between, and I think John would echo that our SSC has struggled a lot with those data updates of what is that trigger level. I don't know -- There's been kind of a lot of discussion of, hey, there's something of concern here, but it always gets back to this isn't an assessment

update, and we don't really know what it means, and it's not enough to change our three-year specs, and so I think they've struggled a lot with what is the threshold to revisit.

From the assessment scientists, I get feedback saying, hey, we're doing these data updates, and it's a minimal cost savings of an assessment update. It's a little bit, but not much, and they're still saying the real cost savings would be if you set it and forget it, and so these data updates still chew up a good bit of analyst time. Thanks.

DR. REICHERT: Thank you for that.

MR. CARMICHAEL: I guess, to follow up on a number of things that have been said, I think Anne really made a good point, and it matches what we hope will come from this, is that less need to adjust the schedule based on the wheels that have fallen off. We're past the squeaky wheels. We change the schedule because things have completely fallen off and gone south and you have major, catastrophic issues.

We hope that this will do that. The council will be getting information every other year on a stock, and so they will not be as lacking of basic information of what's going on with those fisheries, and so we think that's going to be a really big payoff of this.

The question of whether or not the pendulum is ready to swing, I think I will speak for our council reps in the room and the discussions that we've had in the past, that, yes, indeed, the council is ready for the pendulum to swing. They are at their wits end with dealing with major issues coming up out of fisheries, and assessments are way behind the times, in terms of what fishermen are seeing on the water, and so they are ready for this, and it doesn't mean they're ready to throw transparency out and just close the door on assessments, but it does mean that they are willing to have somewhat less of that to have more timely information on the species that are really driving the fishery, especially since we know there is the opportunity.

As Erik mentioned, if something develops in a fishery, we can bump this thing out, and so I think, in answer to that, the council is definitely yes, and it's going to require constraint on the schedules, and I think everyone recognizes that, and the council recognizes that, but, as we saw earlier, the frustration is really severe with the current throughput, and that is at the core of all of this, and so I think they're at a point also of having that schedule constrained and saying, okay, there is an issue developing, but we're going to get an update on this stock next year. We're going to get an analysis on this stock next year, and that's going to put their minds at ease, to not feel like they can throw it into the schedule. In fact, they know themselves that they can't necessarily throw it into the schedule that quick, and this is interim work.

It's an idea. It's a nugget. We do want the feedback on what to do with it. Our hope is to start fleshing it out over the next year and bring some follow-up information at your next meeting. Most important is that, as we discussed, is what is the interim analyses? What will those look like? Another comment that I heard is maintaining transparency, and so make sure there is a way of ensuring some transparency as we go through the reviews of these. Then the last part, that I hope to get some feedback on, is what do you guys think are the criteria for identifying these key stocks?

MS. LANGE: John, you used the same word that Marcel did, and I don't understand. What is the difference in this proposed process compared to what we've been doing all along relative to

transparency? I don't see any lack of transparency just because there is a set schedule, and I think everything is very transparent, and both of you have used that term, and I am not sure why. Where is the decrease in transparency by doing this system compared to what we've been doing all along?

MR. CARMICHAEL: I don't think that there necessarily has to be one. I think where it's coming from is that people are aware that an update assessment has a different process than a standard assessment, and this looks at updates. I don't think that -- That doesn't rule out the fact that some of these yellow boxes that say "update" could not be conducted more as now we do a standard, but the discussion that we have had has been what is the difference in public involvement in a standard assessment versus an update assessment, and I think that's why the transparency issue has been coming up.

DR. REICHERT: I believe it was Erik that mentioned the transparency. I don't believe it was me, for the record, because I do believe that there is sufficient opportunity for transparency. I completely agree with you, and so that's -- Anne, to that point.

MS. LANGE: Yes, to that point. The stakeholders are involved whether it's an update or not. This was discussed the other day, where there are members of the public who are assigned or appointed to webinars.

MR. CARMICHAEL: Not for an update.

MS. LANGE: Not for an update? Okay.

DR. REICHERT: That's for standard.

DR. BOREMAN: Relative to your suggestion that this be on the agenda for the next meeting and we get more into criteria for selection of species, that's basically where we are now in the Northeast. We have an assessment working group that we put together, an assessment timing working group, looking at operational versus benchmarks and what criteria do we use to rank species and so on, and, starting with the suggestions coming out of NMFS for the national groups, we developed our own criteria.

We are, I would say, really close, about 90 percent of the way there. We're having a meeting in a couple of weeks with the NRCC, our Northeast Region Coordinating Council, and we're going to present to them our proposal on what criteria to use, and we separate out criteria for updates versus criteria for benchmarks, because what the drivers are for updates are management drivers, timing needs, importance of the fishery and so on, and what drives the benchmarks is are we going to come up with any information that's going to be significant. It could be modeling, or it could be the biology of the species or whatever, and so we had to separate those out with different emphasis. We have developed criteria, and we're going to present them in a couple of weeks, and hopefully we'll get the blessing of the NRCC and we'll be ready to share those with the group here.

DR. REICHERT: Thank you, John, and I think it would be good if you could provide us an update at our next meeting relative to that topic.

DR. SERCHUK: I guess I wanted to follow up on this transparency issue, because I think it's an important one, about engaging stakeholders in the process. As I understood it, you said that for

updates we don't, or we don't have a process, but we could implement one, if we feel that's important, and it could be as simple as, and this happened with these -- I wouldn't call them updates, but the operational assessments, and the Center went to six or seven ports before they actually did the assessments and said we're involved in updating the assessments and we would like your input on activities and so on and so forth.

That may not be the model we want to do here, but the fact is that we're not bound by saying, well, because currently we don't have a process, if we feel that a process should be added, particularly in terms of outreach or engagement, let's change it, particularly if it's going to improve the transparency of the process, and it actually may improve the information that's used in the assessments, and so I guess I'm a little bit flummoxed by saying, well, we don't have it. If it's important, let's encapsulate it within the process.

DR. REICHERT: Go ahead, Alexei.

DR. SHAROV: I think I will pass. Enough was said. Thank you.

DR. REICHERT: Thank you. John, do you have enough guidance from the SSC at this point? Were there questions that we still need to address or provide guidance for or this is sufficient to pick this up as a separate agenda item at our next meeting?

MR. CARMICHAEL: I think that, based on the reception here and at the council, Erik and I will continue to work on this and flesh this out further and start working on some of the particulars and putting names and faces and species into these boxes and defining what an interim analysis looks like and sort of what we do when things are unexpected and how we would recover from it, and then we would report back to you guys at the next meeting with that.

DR. REICHERT: Would it help to get a specific recommendation for you guys to continue to work on this that the SSC, in principle, supports this approach and would like to see some more detail at our next meeting and make that into a separate agenda item?

MR. CARMICHAEL: Yes, I think if Mike writes there, like he is, that supports this approach and you want to discuss it further, that is plenty for us to move ahead.

DR. REICHERT: I am going to ask any of the members of this committee, if there is any specific information that you would like to see or issues addressed at that next meeting, to please let John and others know, so we make sure that we can address that, or at least provide that information.

DR. SERCHUK: I just wonder whether it would be helpful, after what John Boreman said, to at least have this small group take cognizance of what's been going on, so that we don't have to reinvent the wheel. If there are things, innovations, that have been done, that have been talked about, at least you could consider that.

MR. CARMICHAEL: It would be my intent to follow up with John and make sure that we get a copy of that report and see what they're recommending as criteria and see how that maps with our issues.

DR. REICHERT: All right. John, that's it? Thank you. We will take a quick break before we move to red snapper, and then we need to get going on the blueline tilefish stock assessment, and so it is ten o'clock. Let's reconvene at 10:15.

(Whereupon, a recess was taken.)

DR. REICHERT: All right. Our next agenda item is Item 6, the Red Grouper Projections. These are Attachments 12, 13, 14, and 15, and Dr. Erik Williams is going to provide an overview for the red grouper.

RED GROUPER PROJECTIONS

DR. WILLIAMS: I don't have a presentation for this. I think the document is pretty clear. It outlines more or less the projection analyses that were requested of us, and they're in both table form and graphical form in the report, and I think it's really just a matter of you guys making a recommendation on which one to go with, I think.

DR. REICHERT: Thank you, Erik. I want to remind the committee of the action items. It's to review the projections and determine if they are best scientific information available and useful for management. Then apply the ABC control rule to provide fishing level recommendations. We have had an opportunity to review the documentation, and so let me ask the committee if anyone has any questions, either for Erik or for anyone else, relative to the documentation. I would remind you that this was -- We reviewed the red grouper assessment at our last meeting, and I also want to remind the committee that we were discussing some of the recruitment scenarios, and so, with that, I would like to open the floor for any questions or remarks.

DR. SHAROV: Erik, could you remind us as to how the discards, dead discards, are calculated in the projections, which somewhat surprised me, and that's probably because I don't know the full details. Even in the calculation options, the full time recruitment time series that we used to project recruitment into the future, there was a clear rising in the trend in population biomass and landings, et cetera, but the discards appeared to be flat, and so, with the recovery -- In other words, with the recovery of this stock, the increase in population abundance, I would expect to see a substantial increase in discards, and that's not what the projection results show, and so I'm just curious as to why is that.

DR. WILLIAMS: I don't know if I have an answer to that specific question. The analyst who did these projections stepped out of the room. I don't know if that was convenient or not, but, typically, and, when Kyle comes back, I will ask him, but, typically, we project just discards as an F of fishing mortality rate, and so you're right that we would expect to see that increase. I didn't notice that it didn't, but maybe Kyle can discuss that point. I will defer an answer until he comes back.

DR. REICHERT: In the meantime, anyone else?

DR. AHRENS: One possible reason for that is the recruitment time series is fairly flat. If the majority of the discards are recruits, then you wouldn't see much change in the discards, if those discards are all small individuals and it's being driven by the recruits, as opposed to the actual trajectory in the spawning stock biomass.

DR. REICHERT: Thank you. I want to remind the committee of the assignments. Rob, John, Eric, Fred, and Tracy were part of the assignment for this particular agenda item, and so please help us with the notes, et cetera. There also was a request to please speak into the microphone. Especially for those who are behind you, it's difficult sometimes to hear if people can't see faces, and so please speak clearly into the microphone, so everyone can follow our discussions.

DR. GRIMES: You mentioned recruitment scenario discussions that we had at the last meeting, and can you refresh me on that? Was this about whether they come from the Gulf of Mexico or to the extent to which they come from the Gulf into the South Atlantic?

DR. REICHERT: No, this was the whole discussion about what was behind the pattern that we were seeing. There was evidence of a relatively long time of low recruitment, and then we discussed -- There was a discussion about basing the projections on different levels of expected recruitment, average recruitment, low recruitment, and, Erik, fill me in. If I remember correctly, that's what the core of the discussion was.

DR. WILLIAMS: Yes, that's really the gist of this whole agenda item and the reason there are the four scenarios presented to you for projections, is what to do with -- The pattern in the assessment suggested that the stock has been declining, and the reason for that decline appears to be low recruitment. That low recruitment has been for basically the last ten years or more, and the question then is what do you do in a projection? Do you continue that trend of low recruitment, or do you assume that suddenly recruitment is going to jump up to the average condition, and so that's sort of the contrast between these two scenarios that are being presented in this report.

DR. REICHERT: Kyle just came back into the room. I'm not sure if anyone filled you in on the question we had for you.

DR. SHERTZER: No.

DR. WILLIAMS: I will fill him in.

DR. REICHERT: Okay. In the meantime, as I said, we had an opportunity to review the projections, and we are asked to determine if they are the best scientific information available. I would like to open the floor for discussion on that. I would propose that the information, as presented, is best scientific information available. I don't think there's anything in here that is essentially different than what we've seen in the past. The methods are not different than what was used in the past, and so, based on that, that's my recommendation, and I am looking around the room to see if anyone disagrees with that.

DR. SHAROV: I would like to use the opportunity to get an answer to my question that I posed earlier, because it's obvious, if you are going to try to reduce fishing mortality to F rebuild, you have to -- I mean, compared to the 75 percent of FMSY, that's only half, based on this document. How are you going to achieve that? Is there an increase in minimum size or reduced bag limit and shortened seasons? Each of them would -- If we are successful in preserving this stock, there will be an increase in abundance and the continuous increase in the discards. I mean, look at red snapper. It's obvious, or at least I think it's obvious, and so I don't want necessarily to say that

this is not the best available scientific information, but I would like to have a better understanding of how it has been calculated.

DR. REICHERT: Kyle, would you be willing to answer the question that was posed earlier?

DR. SHERTZER: If I understand the question, it was why are discards staying flat over time, and, if I understand the answer that Rob gave, I think his answer was correct. Recruitment is staying flat, and selectivity is constant, and so the discards are staying flat.

DR. AHRENS: I think, to get to Alexei's question, I think the concern is, in terms of is this the best possible science, if the stock is depleted and it is being recruitment overfished, we would expect more of a proportional response in the recruitment as the spawning stock biomass recovers, and therefore we would expect to see, instead of constant recruitment, a slight increase, in which case we would see an increase in the discards. I think the concern there is using a constant recruitment scenario for recovering depleted stocks, the best way to project that stock into the future, and is that the best scenario to run, as opposed to assuming that we're on that proportional part of the stock recruitment curve and therefore recruitment would be increased.

DR. REICHERT: To that point, Kyle?

DR. SHERTZER: Those projections weren't intended to be a recovery scenario. It's just, if recruitment stays -- In the near future, if it stays the same as it was in the recent past, what we expect to see in recruitment and what would the landings be if it -- If it does show some rebuilding, then presumably we would be doing new projection scenarios, and then the spawner-recruit curve may or may not kick in in the future. At this point, we don't really know why the recruitment has been low. We have some hypotheses, but that's all they are at this point.

DR. SERCHUK: I think one has to understand the difficulties that -- What the updated assessment showed. The updated assessment showed that the stock was not in a state where the previous assessment thought it would be, and that was because the previous assessment had done exactly what you said. It had drawn from a stock recruitment curve, and what happened is the empirical evidence said, wait a second, we didn't see that recruitment that you would get from a stock recruitment curve.

We saw a series of poor recruitments come in, and so the question then becomes, anytime you do a projection, what is the most appropriate scenario that you think for the near-term, and so, in the case of the previous assessment, it was proven incorrect. We subsequently had empirical information that recruitment was poor, and so it's always an issue of what is the best way to talk about the future, to think about the future.

Because the assessment was unsuccessful last time, we basically said, well, wait a second, let's do another evaluation with poor recruitment going forward, because that's the state we're in now, and I think all these updated projections are just doing a scenario analysis of that to continue forward. That's my understanding of being involved with this assessment group previously and then seeing, well, okay, now that we have a low recruitment and a long-term recruitment that could happen, but you still have to weigh what is likely to happen in the next few years relative to your management strategy. Thank you.

DR. REICHERT: Thank you, Fred. Anyone else? I'm looking at the committee, in terms of our action items. Do we consider these projections the best available scientific information and useful for management? I don't see anyone disagreeing with that and useful for management. Then the remaining question is, before we can apply the ABC control rule, although applying the ABC control rule is separate from which scenario the committee recommends for management, and so I would like to open the floor for that discussion, and we have four scenarios laid out in the documentation, low recruitment and long-term expected recruitment scenarios, FMSY, and F rebuilt, and so I would like to open the floor for comments or discussions on that.

DR. BUCKEL: It's been several years since the terminal year in the assessment, and I would be interested in on-the-water observations from either industry or folks involved with fishery-independent surveys on if there's been any change in the recruitment signal for red grouper.

DR. REICHERT: From what I remember, and refresh my memory, but I think there was one of the reports on this species, the -- Can you remind me?

DR. ERRIGO: The fishery performance reports?

DR. REICHERT: Yes, the performance reports.

DR. ERRIGO: That is one of the attachments.

DR. REICHERT: I believe, and we discussed it at our previous meeting, that -- It's Attachment 15. Right now, I don't believe there are indications from both the on-the-water reports or the fishery-independent index of a significant change in the pattern that we've seen in recent years. The fishery-independent index still indicates that the relative abundance is relatively low, and that's what we hear from the on-the-water reports too, if that answers your question. That is why I would lean towards the low-recruitment scenario, because I think, right now, at least for the next couple of years, that seems to be a more realistic approach than looking at long-term expected recruitment.

DR. SEDBERRY: Are there any labs still conducting grouper ingress studies that red grouper might be showing up in?

DR. REICHERT: I am unaware of that. We stopped our -- That was focused on gag, our ingress study, and I know there is some zooplankton studies that are still ongoing, and I'm not sure if they are yielding any information. Jeff also says no, and so I don't believe there are, and I want to remind the committee that there was some discussion about the influx of red grouper from the Gulf of Mexico, and those may be episodic events, and some have suggested that that may be linked to the changes in recruitment over the years. Some have said that there are some long-term indications that there may be recruitment, good recruitment, years every nine or ten years or something like that.

MR. HARTIG: Specific to that point, Marcel, Hurricane Irma went right over the heart of red grouper productivity in the Gulf, and it blew a lot of red groupers out onto the Atlantic side. I got in touch with Luiz fairly quickly after that event. Well, I initially asked the fishermen to look out, and they saw them, and so I called Luiz right away. They were nimble enough to actually convert

some of their tags into a tagging program, and, as we speak, some of those animals are being tagged, and so maybe this question will get a little bit of insight into that in the coming years.

DR. REICHERT: So we have an actual experiment there to test that hypothesis. Okay. Anyone else?

DR. NESSLAGE: I agree with you that the low-recruitment scenario seems likely, both from information from the fishery and in the data. Regarding the MSY versus rebuild options, are we not obligated to use F rebuild in some fashion? That's my first question. The second is wouldn't FMSY, given all of the literature that's out there about how you probably shouldn't be fishing at FMSY -- Maybe, for a rebuilding stock, we wouldn't want to go there. 75 percent of FMSY seems more reasonable, which is what F rebuild is, right, for this stock?

DR. ERRIGO: I think the FMSY is there as an OFL, as an estimate of OFL, the projections, and then also I do have the P* up there, the dimensions and tiers, if you want to go through and calculate a P rebuild as another alternative. Otherwise, you can just go with the F rebuild that's there, and the F rebuild is just the F that would get it to rebuild status or 75 percent FMSY by it's 2031, I think.

DR. REICHERT: Okay. Anyone else? The low-recruitment scenario, did you put that up there as a recommendation?

DR. ERRIGO: Yes.

DR. REICHERT: Seeing no objections, then I suggest that that's the recommendation of the committee, and let's run through our ABC control rule. This is a quantitative assessment. Then we -- I always keep confusing the dimensions and the tiers. Can you blow that up a little bit?

DR. SCHUELLER: Do we only need to do the ABC control rule if we determine we're not going to use the 75 percent, because wasn't -- I am just making sure that I'm clear. The 75 percent, or F rebuild, is what has been used before, and I thought that that's why it was being provided now, and so do we even need to go through the control rule, given that?

DR. REICHERT: Yes, you're right. I forgot about that.

DR. ERRIGO: No, that's fine. That's correct. If you want to just recommend -- Your ABC recommendation could be FMSY as projections as the OFL and then the F rebuild projections as the ABC under the low-recruitment scenario. That's fine.

DR. REICHERT: Thanks for bringing up that point.

DR. BARBIERI: What I was going to say is that, yes, it can be handled like that. That's basically what is prescribed in NS 1, but the committee can have -- Given the uncertainty associated with the situation, the committee can still -- There is nothing saying that it can't propose an additional buffer that would be to account for that high amount of uncertainty. Of course, we have to interpret all of this relative to the two recruitment scenarios that we are discussing and whether, by choosing the low recruitment as our recommendation to the council, we already are accounting for that uncertainty in saying this is the least-risky scenario, given the recent past, for us to encounter into

the near future. I can tell you that, in the Gulf, we have, at times, despite having projections at F rebuild, decided to still apply an ABC control rule, because the amount of uncertainty was considered just very high.

DR. REICHERT: Thank you, Luiz. I appreciate that.

DR. SHERTZER: This was just an updated projection analysis. You reviewed the assessment last spring, and so presumably you went through the control rule then, if you needed to.

DR. REICHERT: You're right. Thanks. Okay. On the screen, we have that the SSC recommends the projections at FMSY and the low recruitment for OFL, and the SSC recommends the projections for F rebuild under low recruitment for the ABC. I see nodding. Does anyone disagree with that?

DR. BOREMAN: I am still a little lost here. This stock is under a rebuilding schedule, right? That's why we're using the F rebuild with F 75 percent MSY, correct? If we're now saying that recruitment has shifted to a period of -- If our projections are going to be using low recruitment, shouldn't we be telling the council that you're not going to get the stock rebuilt on the original schedule? Looking at the projections, it's nowhere near being rebuilt in the next fifty to seventy-five years with this new low recruitment, and I'm just wondering if our recommendation would be to use something of an F lower than F 75 percent MSY if you want to maintain your original rebuilding schedule.

DR. ERRIGO: The projections for red grouper originally, if you recall, showed that, even at F equals zero, you couldn't meet the rebuilding timeframe. That's why we're going through all of these gyrations.

MR. CARMICHAEL: That was under the low-recruitment scenario, and I think the discussions -- That has happened somewhat at the council, and I thought somewhat at the SSC perhaps, but I could be wrong, and that was that the idea was to use the overall long-term rebuilding based on the average expected recruitment that's come from the model, but then, in the short term, because of the concerns about recruitment and not knowing if that is truly a change in the productivity of the stock or a short-term situation that will be resolved in the future, to base initial ABC recommendations on the low-recruitment scenarios.

Then, perhaps at the next assessment, or in a few years down the road, I think the SSC has the choice to maybe say, okay, does it look like this low recruitment is actually going to be the norm, and, at that point, do we need to revise the overall rebuilding strategy and respecify the rebuilding timeline, and so it would be viewed using the low recruitment as a short-term recommendation and not a change to the overall rebuilding strategy and endpoints.

DR. REICHERT: I think it would be useful to emphasize that here perhaps, John, in terms of our recommendations, that we recommend that this be revisited. I meant to look that up in our report, what our recommendation was for the next stock assessment, and I believe, if I remember correctly, that we felt that it shouldn't be a very long time before we should look at this again, but I can certainly look that up in our notes.

DR. SERCHUK: If one looks at the tables, one should be cognizant that the difference between the FMSY and the F rebuild, you're talking about tenths of a decimal point here between 0.09 and 0.12, and I am thinking, in terms of trying to differentiate those two, in terms of confidence limits, they are very close. We're not talking about taking 75 percent of 0.3 or 0.4, which might be very easily discernable, in most assessments. We are talking about very small changes in F, and I don't know whether the assessment is that precise.

What I'm suggesting is we may be arguing how many angels fit on the top of a pin here, and I think we do have a control rule that we ought to stick to, and, if it's F rebuild under a low-recruitment scenario, that's the way to go, but, in essence, quite frankly, the differences in the F values are very, very slight.

DR. REICHERT: Thanks, Fred, and I think Mike is trying to capture that remark. So, we have provided fishing level recommendations, and any other remarks or questions from the committee? I believe that completes this agenda item. Thank you.

Our next agenda item, and I want to remind the committee that we moved the agenda around just a little bit, is Agenda Item Number 9, and that's the SEDAR 50 Blueline Tilefish Assessment Review. I want to remind the committee that the SSC representatives for the data workshop were Anne Lange and myself. For the assessment workshop, it was Alexei, Luiz, and Rob. For the review workshop, it was Scott, who chaired the review, and Laura Lee and Church. The attachments are Attachments 17, 18, and 19.

Before I hand it over to Dr. Erik Williams, I want to remind you that the list of actions is pretty standard and long, and so I'm not going to read the entire list. We'll come back to it when we start discussing the assessment, and the assignments for this agenda item are Rob, Scott, Anne, Sherry Larkin, Alexei, and Laura Lee. With that, Erik, I will hand it over to you.

SEDAR 50 BLUELINE TILEFISH ASSESSMENT REVIEW

DR. WILLIAMS: Thank you, Marcel. Strap in. I will do my best to muddle through 228 slides.

DR. REICHERT: We will have a couple of breaks on the way, just so you know.

DR. WILLIAMS: Hopefully, yes. Hopefully, a bunch of them I will be able to breeze through. Mostly we put all of these slides in here to be complete, in terms of having all the diagnostics for all the potential models, and so, again, bear with me. If I breeze too quickly through, please stop me. Also, recognize that I was not the lead assessment person for this. The lead assessment person couldn't be here. They decided to have a second child on Saturday. That's a convenient excuse, but I did attend all the workshops, and so I am fairly familiar with this stock assessment.

DR. REICHERT: Sorry to interrupt you, but I forgot that we want to do one thing. Yan Jiao is joining us as an SSC member from the Mid-Atlantic SSC. Yan, welcome, and I just wanted to make sure that I didn't forget to acknowledge that you will be participating in the discussions of the blueline tilefish assessment, and so welcome.

DR. WILLIAMS: Thank you. All right. Without further ado, I think I'll go ahead and jump into the presentation, and so it's chopped up into many pieces, and, basically, I will go over the outline of how I plan to address presenting this to you, which is, and I will get to this in a minute, is not a typical assessment outcome from SEDAR for you guys, and I will explain that further in just a few minutes. This is sort of a quick overview, because it's important to sort of get the frame of mind around what happened with this one, so that, when I go through the more detailed presentations, you have this in the back of your mind of what the overarching issue is with this assessment.

Basically, I will be going into some details on four basic models, and that is an age-aggregated production model that came out of the assessment workshop, and that's often referred to as ASPIC, which is the software that it's conducted in, and then an age-structured production model that came of the assessment workshop as well, and that will be referred to as ASPM, or it is essentially a boiled-down version of BAM. Then there is also an alternate age-aggregated production model, ASPIC model, that came out of the review workshop as well as an alternate age-structured production model that came out of the review workshop.

Just a quick review of the timeline for this assessment. This all started with a stock ID workshop back in June of 2016. The conclusion from that was that the available data did not support the existence of separate biological populations at either the Mid-Atlantic/South Atlantic or South Atlantic/Gulf of Mexico jurisdictional boundaries.

In August of 2016, at a blueline tilefish age workshop, we hit a snag when they reached a consensus of the participants of the workshop that blueline tilefish could not be precisely aged at this time, and so lost our age data at that point. Then, in October of 2016, there was a webinar held, and the joint SSC sub-panel basically accepted the results of the stock ID workgroup. Then, in November of 2016, there was a conference call held, and there were members of the council, Science Center, and Regional Office leadership that recommended that using the boundary between the Gulf of Mexico and South Atlantic Council as the southwestern boundary for the SEDAR 50 stock assessment of blueline tilefish. That's sort of the basis upon which we started working on this assessment.

Here is the actual assessment schedule. We had a data workshop in January and then an assessment workshop in May, followed by the review workshop just recently in August. In fact, this is the closest you will probably ever come to having an assessment literally hot off the press and in your lap. In fact, we had a little trouble making sure we got everything even into this presentation.

Here is an important slide, and I apologize if the print is a little small, but these are some of the challenges, the important challenges, that we ran across during this process, and so one of the first issues is there is this potential for movement of eggs and larvae between the Gulf of Mexico and Atlantic, and so that poses some issues for understanding the production function and the population dynamics of the stock.

There is, obviously, the issue that the age data turned out to not be useful, and so we had no age composition data. We had no direct estimates of maximum age, which is usually used to determine natural mortality, and we also had no direct estimates of the von Bertalanffy growth parameters, all typical key inputs that we need for age-structured assessments.

The maturity data also was sparse, in the sense that it only contained immature fish. This posed some issues. There is no fishery-independent index of abundance for this stock, and abundance indices all ended between 2005 and 2007, because of changes in the fishery that precluded its use as an abundance index after those dates, and so, therefore, all of our indices were ending well before the end of the assessment period, which was 2015.

Here is a quick sort of description of the two main models that we ended up using. As I mentioned earlier, this will be a theme throughout this presentation, that we had an age-aggregated production model, which is basically a biomass dynamic model or surplus production model. The models have undifferentiated biomass. There is no age structure dynamics put in. It's very simple input, and it's a time series of removals and abundance indices.

Contrast that with an age-structured production model, which, as I said, is based on -- The code is based on a modified version of the BAM model. It models the population with age structure explicitly, and so there is age-structured dynamics involved. There is extensive input, which also means that you need extensive data to support it, and it includes things like the removals, abundance indices, length compositions, growth, length, weight, natural mortality, maturity, fecundity, et cetera.

Unfortunately, one of the big issues with that one is the growth, natural mortality, steepness, and estimate of maturity are based on only four -- The maturity is based on only four immature fish. As I mentioned earlier, growth and natural mortality, we didn't really have much data to support that, and so we used a lot of meta-analyses, which has its strengths and weaknesses sometimes.

The assessment workshop models were as follows. The assessment workshop panel recommended using the ASPIC model as the primary model, and they considered the age-structured production model as just supporting analysis. The assessment panel acknowledged that there was the simplistic nature of the ASPIC model. It was preferred over the age-structured production model, due to the large uncertainty in most of the life history information in the age-structured production model.

We ended up going with using the ASPIC model, and we had an average of two models, because we had two indices of abundance from the commercial handline and longline that were considered the best indices. We did have a third index from the headboat fishery, but that one was not deemed as reliable as these two. Unfortunately, there wasn't enough information to really make a clear distinction between these two indices, as to whether one was better than the other, and so we ended up just going forward with putting them each individually in an ASPIC run and then averaging the results in the end.

The reason for that is that, when we put the two indices in together, it tended towards just one of the indices, and so that really, in a sense -- Normally, you might want to do this and let the model sort of decide which index is better, but, in order for a model to really decide which index is better, it really needs to have good information on the error structure for those indices, and, in this case, I don't think we have that, and so it really wasn't appropriate to let the model decide which index was better. It was really better to just put those indices in and then average them afterwards. Rob Ahrens can speak to that more. He was quite vehement on that topic during the assessment workshop.

Then we thought we had everything ready to go, and we walk into the review workshop and things kind of got changed around a little bit, and so the review panel -- Here is a statement from the review panel report. The review workshop preferred the age-structured production model over the ASPIC model, because it was more appropriate population dynamics, and it allowed the consequences of uncertainties in the life history parameters to be explored through alternative sensitivity analysis, and, hence, it considered the age-structured production model the superior base model.

The review workshop also went on to modify the age-structured base model that came out of the assessment workshop in the following ways. They applied a constant CV of 0.2 to the indices, and they allowed us to estimate the growth parameters within the model. We sort of tested that, and it seemed like there was some information there to estimate the growth parameters, and then they assumed age at 100 percent maturity at age-six instead of the observed value of age-two, of course recognizing that was based on four immature fish.

The review panel also preferred a single ASPIC model, including both the commercial and longline indices, using a constant CV of 0.2. That last point gets to the issue that I was mentioning earlier that, the way they got around having the model decide which index to weight more was just to fit them with a constant CV of 0.2 on both indices, which is sort of a statistical slight of hand, in a sense.

That is the thumbnail sketch of sort of where we are, and so, just to reiterate, this is unique for what we normally provide you guys, because basically the SEDAR assessment panel came up with a different preferred base run from the review workshop, and so now you guys are in the quandary of deciding, well, which model do you want to use for your ABC advice. I frame everything so that you keep that in mind, that, in normal situations, you might get a base run and then a set of projections, and you can base your ABC on that, and now you actually have to go a step further and decide which model you want to use for that ABC advice.

DR. SERCHUK: It's clear that everybody tried to do their best here, but this is really a data-poor situation, and, quite frankly, both of these approaches have so much uncertainty embedded within them that I really think that we need to have some discussion about that, because I just think both approaches are just loaded with uncertainty, and I am reluctant to even go forward with it, quite frankly.

DR. REICHERT: I need some guidance from the committee, because there is two ways we can do this. We can continue the presentation and then have a discussion at the end, or we can start that discussion now, and the conundrum I have is there is an opportunity for public comment, and so I want to find the right place to do that, because I want to avoid having that way at the end, and so I want some feedback from the committee, in terms of should we allow Erik to go through some of the details, and I would like to get some input from Erik, too. Then we have the full picture and then we can come back and discuss the assessment, because I also have a bunch of questions, and I hesitated to interrupt Erik, and so I would like to do that, so we have the full picture, and then come back to that.

DR. AHRENS: I just wanted some clarification, Erik. The models coming out of the review workshop, were those just using the catches south of Hatteras still?

DR. WILLIAMS: Yes, and another good confusing point that I didn't address. Yes, and so what I am talking about here are the models that focused on the area south of Hatteras. The area north of Hatteras, I actually don't even have slides for that. That is pretty much laid out in the documentation. There is only about a couple of pages of text on that, because it's very simple methods, and so, yes, and good point. This is just south of Hatteras.

DR. REICHERT: Thank you for that, and that reminds me that -- I may need Mike or John to help me with that, but we are asked to provide catch level recommendations for the South Atlantic jurisdiction, and so the South Atlantic area, and so that goes through the North Carolina/Virginia border, correct?

MR. CARMICHAEL: Yes.

DR. REICHERT: So there is that critical area from Cape Hatteras to the South Carolina/North Carolina border that I want to alert the committee to that we need to address at some point, and so, anyway, thanks for reminding us of that, Rob.

DR. SEDBERRY: Just a comment. It seems to me that our standard procedure is to have the presentation and then public comment, and I would suggest that we just proceed with the presentation, with clarifying questions, but hold off the discussion until after public comment.

DR. REICHERT: Okay. Let's do that. Erik.

DR. WILLIAMS: I would say that's fine. I can do it either way, but I think there might be some benefit, in this case, of having a more in-depth discussion upfront about just the overall nature of how the assessment output is coming to you guys. More or less, this presentation is structured so that we can go into the detail of all those models, and I will be glad to do that, but it was structured in a way also that, if there was a particular run that the SSC wanted to focus on, we could go right into that, rather than go through all of them, and so, again, I just offer that, and I am willing to do whatever you prefer.

DR. REICHERT: Okay. In that respect, I think what I am going to do is ask for public comments right now, and then we can consider, potentially, if there is a burning desire to provide some additional public comments, I am going to allow that later, and so I'm going to look around and see if there is public comments relative to the blueline tilefish assessment right now. I've got Michelle and Rusty and Jason.

DR. DUVAL: Thank you, Mr. Chairman. Michelle Duval, Snapper Grouper Committee Chair of the Council. I was the council's appointed representative to the data workshop, and I did attend the assessment workshop and the review workshops, because they happened to be in my backyard.

This was an incredibly difficult assessment. I agree with Fred's comment that I think the assessment team did everything that they possibly could. I think it was certainly -- I think it was a surprise to myself as well, some of the input that came from the review workshop with regard to I think the preference of the age-structured production model rather than the ASPIC model, but I'm sure you all will discuss that.

I think probably some of my concerns are coming more from the management end of things, and Jason may touch on this in his comments as well, but I'm a little bit concerned about -- When I read through the review report, the word "stock" is used, the South Atlantic stock and then another stock north of Hatteras, and I think we need to be careful about how that word is used. Words have meaning and impact, and I am concerned that there is going to be assumption made that there are biological stocks, that there is a biological stock that exists south of Hatteras versus a biological stock north of Hatteras.

As Dr. Williams pointed out, the output coming from the stock ID workshop was that this was one continuous genetic stock from the Gulf of Mexico all the way through the Atlantic. There was a management decision to assess the stock from the Florida Keys Gulf/South Atlantic border through the Mid-Atlantic area of jurisdiction, and so I'm just a little bit concerned about creating an artificial stock, I guess.

I know there were multiple comments about how we determine what a stock is, and I think Church has made comments about that, and George has made comments about that, and Dr. Boreman has made comments about that, and so I ask you guys to just keep that in mind, because you're going to have to have some difficult discussions once you all dig into the data-limited approaches for determining ABC recommendations north of Cape Hatteras.

I think both the Mid-Atlantic Council and the South Atlantic Council are trying to achieve the most harmonious outcome as we possibly can for management purposes, and I am just concerned that there is an artificial stock concept that might be out there that might be perpetuated by some of the language that's contained in the report that has really nothing to do with biology and more to do with the limitations of the data, and I would also be interested in hearing some discussion or ideas that the SSC has for how we could make use of the data that we have in that area from Hatteras north to create an index of abundance down the road.

I know that some of the limitations have to do with the TIP sampling in the area. There was no TIP sampler until 2006, and so it's really only been in the last ten years that we've had commercial sampling of those catches. I know there is a lot of really smart people around this table, and there have been some creative approaches to index development in the past with other stocks, and I think I would love to hear a little bit of brainstorming about that.

I know the assessment team and the folks at the data workshop did -- They pretty much tried to wring blood from a stone, but, if there are any other new approaches that are hanging around out there, I would love to hear about that. Thank you, Mr. Chairman, and sorry for the extended comment.

DR. REICHERT: Thank you, Michelle. Next up is Rusty.

MR. HUDSON: Thank you, Mr. Chairman. Having participated in the blueline tile data, assessment, and review, the main thing I came away with, with regards to south of Hatteras, was the result that said not overfished and overfishing not occurring. That, we firmly believe. The similarity, or the genetic sameness, of all the blueline for the three regions was easy to comprehend, and the case is made about the larval flow up to the north, but, at the Hatteras line, the reason we deal with things south of Hatteras is the co-occurring species with the blueline tile in that strata, particularly between 200 and 400 foot, is the snowy grouper.

That is the fundamental difference, where, when you get north of Hatteras, those fellows are able to use longline and catch clean blueline tile with very little bycatch, and so that was an important feature, and so I'm not sure exactly what kind of quotas you will set, but I still feel the current quota is too small for the commercial and for the recreational component south of Hatteras, and that's what I am looking forward to hearing from the SSC, what you're going to deal with, but I felt like the review workshop participants, panelists, did a very good job on trying to flesh out where we were at, and it seemed like all three regions that we did not have overfished and overfishing not occurring. It's pretty much using the choices for each of those three regions that they preferred, and so let me just leave it at that, and we'll see what the SSC comes up with for the future. Thank you.

DR. REICHERT: Thank you, Rusty. Jason Didden.

MR. DIDDEN: Thank you. Again, Jason Didden, Mid-Atlantic Council staff. I would just echo Michelle's concerns that, to the degree that your decisions can kind of not further complicate management by the councils, it would be great. It was addressed in our letter to the South Atlantic Council, and I think it's A19 in the briefing materials. From the sound of things, that's kind of the way you're headed, with setting an ABC within the management unit, and so that's all. Thanks.

DR. REICHERT: Thank you for that. All right. With that, I will hand it back over to Erik, and I would say let's see if we can -- If we have any questions to ask him during his presentation, and then we can certainly delve into the discussions, and so, Erik.

DR. WILLIAMS: Okay. Back on the wild ride. Just a few slides to remind folks of the workshops that were held and who attended, and here is a list of all the participants in the data workshop and then the assessment workshop and, as Marcel noted, your SSC reps were Rob Ahrens, Anne Lange, and Alexei Sharov. At the review workshop, we had Scott Crosson and Churchill Grimes from your SSC as well as Yan Jiao from the Mid-Atlantic SSC and then the three reviewers.

As I said, we broke this up into chunks, and I will start with the ASPIC model that came out of the assessment workshop. Here is a quick table of contents of what I will go over for this one. I don't know if you guys need to know the -- Here is the basic and some of the details of a production model. It is a simple age-aggregated biomass model. There is no age structure involved. The inputs for this one included removals, a single series of removals, abundance indices with their annual CVs that came out of the GLM analysis --

DR. REICHERT: Erik, there were two, right, for --

DR. WILLIAMS: Yes.

DR. REICHERT: Okay. Thanks.

DR. WILLIAMS: Yes, two models.

DR. REICHERT: Sorry, but, no. Two abundance indices.

DR. WILLIAMS: Right, two indices, which then we broke into two models, yes. Here is just a quick map showing the whole area with presence/absence of blueline tilefish. The only thing to note on this is be cautious in interpreting any densities, because this is just presence/absence, and so it's not indicative of any abundance levels, necessarily, and the other thing to note is, although it looks like there is no blueline tilefish off the southeast coast of Florida, it's also in part because there is very little sampling off that area as well.

Here is an overall sketch of all of the landings in the Atlantic, and so this would include the landings all the way up through the Mid-Atlantic as well, and what you see in this -- It's broken down by area, in the colors, and you will note that, where we see a big increase or change in the landings pattern, more or less, is when we have sort of the North Carolina north of Cape Hatteras area and the Mid-Atlantic coming into the time series, and that's illustrated here with the red and the yellow, and so the removals take a jump there when those enter into the overall removals for the whole Atlantic coast.

Now we're looking at removals just south of Cape Hatteras, and this is just a breakdown of those landings by fleet, and the illustrative point here is that it's mostly commercial landings that are responsible for the majority of the removals, except for a few years, and, in recent years, more recreational landings coming in.

Here are our abundance indices that we considered during the assessment workshop. As I mentioned, we actually considered three indices. As you will see, we eventually ended up sort of dropping the headboat index and focused more on the handline and commercial indices. What you can also see is they are somewhat noisy with high CVs, and they are not always in perfect agreement, but that seems to be the answer that I would give for any set of indices in the South Atlantic.

We ran the models with all combination of indices, and we also ran them with combined, and so we did actually look at some methods where we combined some indices outside of the model using a method that was developed out of Beaufort by Paul Conn. We ended up excluding the headboat index from the base model, for the reasons pointed out here, and so the handline and longline indices ultimately were considered of equal quality, and, like I said, we couldn't distinguish really between the two.

There wasn't any silver bullet, so to speak, that indicated one would be better than the other, and so we ended up just treating them equally, and we ended up combining the indices in some runs, but ended up, in the end, of running the model with one of the indices and then averaging those results. Here is more details on sort of the specifications for the models. We ran it for the years 1958 to 2015, and here is the years for those indices, again noting that the terminal year for these indices is well before 2015, which was the end of the removals time series.

Let's just get into -- Here is details on the bootstrap procedures. Again, they are more or less a standard mechanism for running uncertainty analysis for ASPIC runs, is to use a bootstrap procedure. Projections, we did several sets of projections, five years at F equals FMSY, F set to F current, and then F set to an F target. In this case, it was 75 percent of FMSY, and then also F current was specified as the fishing mortality -- 2016 was set as F current, I guess was the point of that slide.

Here is some fits. These are the two primary models that came out of the assessment workshop that were then averaged, and so you can see, on the left is the model fit with the handline index, and on the right is the ASPIC fit with the longline index. There are very similar patterns in estimates in the end. Here is, again, those same two model runs, just showing sort of the output of F over FMSY and B over BMSY. There are very slight differences in the terminal years here, but not much, with the handline model wanting to put the stock status closer to the threshold compared to the longline.

This is the result when we combine the two runs, average them, and then this also includes the uncertainty, and so this is more or less sort of what would be the equivalent of the base run output that comes from the two models then averaged together, and, again, the same plot, but this time with the fishing mortality time series, and so, again, this is biomass and then fishing mortality. As Rusty pointed out, what you'll see in all of these runs is I don't -- None of them indicated overfishing or overfished conditions. They were all -- It just depends on how close they were to the line or how far above the line they were.

Here is more output. This is just more detail on the bootstrap output, showing the parameters and also specific output. Again, all of this is in the report, and that's why I'm sort of hopefully -- I am breezing through this, and please stop me if you have any detailed questions. This is more output, I think. This is just looking at the biomass relative to BMSY and relative to MSST. Here is looking at F relative to FMSY.

DR. NESSLAGE: If there are no indices in the last seven years of the assessment, the model is essentially -- Well, it's a logistic model minus catch then at that point without a fit to data at that point, and so did you run any -- Maybe you haven't gotten there yet, but did you run any options where you ended in the terminal year of the last index with a projection forward, which is essentially -- How would that differ from what you've got here?

DR. WILLIAMS: I am not sure that we did the very last step you just mentioned. We did -- If I recall, we ran the model ending it in the terminal year for the indices, but I don't know if we then took those models and projected them, but you are correct that when you run out of index data that essentially what you're doing is taking the production function parameters that have been estimated based on the years where you have index information and just taking removals away from that, yes.

DR. REICHERT: Okay. Anyone else? Erik, remind me. That dip in the fishing mortality in the late 1980s, I can't recall if there was some discussion about that. I am not sure how influential that is, and I was just wondering.

DR. WILLIAMS: There was actually considerable discussion about that, because there was a sort of spike in the landings, and we heard anecdotal reports that it's unlikely that that was all blueline tilefish. It was probably mixed with other tilefish, and, if you look at the review panel's report, you can see where they actually asked us to explore that by cutting that spike down or completely removing it and then looking at sensitivity runs based on adjusting that spike in landings.

DR. REICHERT: Okay. Thanks.

DR. WILLIAMS: Here is sort of the phase plot that comes out of the bootstrap analysis from the combined ASPIC runs from the assessment workshop, just so you get a sense of the overall uncertainty in stock status. Here is a table of the sort of benchmark or status indicator parameters, just so you can see the actual values.

Here is some of the sensitivity runs, in case you wanted to see some of these. Here is a run of the ASPIC model where we included all three indices, which includes the headboat index, and really what this indicates, if you look down here, is it's pretty -- I would say you can call this ignoring the headboat index. It's not really fitting it at all. It's mostly fitting this commercial handline.

DR. REICHERT: Erik, on the right-hand panel, those are just the runs, or is the so-called base run hidden under there?

DR. WILLIAMS: No, and so this is the output for a single run with all three indices put into one ASPIC model. This is a sensitivity run.

DR. REICHERT: Yes, but what -- There were no differences with the base run?

DR. WILLIAMS: I don't have the base run shown here.

DR. REICHERT: That's what I was asking, whether the base run was basically -- Whether this was so similar to the base run that it is under this one, but they're not both in here?

DR. WILLIAMS: No, they're not. I think probably the best way to show this is just to compare this plot, biomass and fishing mortality, to this plot on the right. It's a single run. It's a sensitivity running with all three indices.

DR. REICHERT: Thank you.

DR. WILLIAMS: I think there are several sensitivities in here, and I can't remember which ones Nikolai put in here. We ran a bunch of sensitivity analyses in the end, and I think those are all documented, but here is a closer look at some of these. This is another combination here, where we ran just the handline with the headboat. Again, it's a similar output to running all three indices, and then, if you go -- Here is the longline with the headboat. Again, it's similar output, but then, when you run the handline and the longline together, you get quite a different output.

Here's more sensitivities. Here's what you get when you just run the headboat index by itself, and so the interesting thing that was happening here is, if you look at this output for the headboat only, it tends to match these other runs that include the headboat. Even though the headboat index is being fit quite poorly, it's obviously having tremendous influence on the outcome, and so that is one of the reasons that led us to basically chuck that index and focus more on the commercial handline and commercial longline.

This was an attempt to do sort of a continuity run with SEDAR 32. You can see that then we start to get some rather dramatic results that just didn't seem believable. In this case, the stock is pretty much crashing and almost non-existent by the end of the time series, and so that just isn't considered realistic. Again, this was using all three indices and starting the model in 1974, and here we started the model in 1958. It didn't seem to help it. We still get a rather ridiculous result.

Here is sort of a summary of the main sensitivity runs. Certainly, during the exploration, we ran way more than just these sensitivity runs, but these are the primary sensitivity runs, just sort of in table format, if you want to compare them side-by-side.

Next, is projections, and so I just wanted to show the projections that we did based on the base model that came out of the assessment workshop. As I said, we basically looked at three scenarios of projections, looking at F set to FMSY, F equals F current, and F equal to 75 percent FMSY. Here is the projection at F equals FMSY and the table for that run. Again, I will remind you that I'm going through these quickly, because it's just, if we ever get into specifics, I will be able to pull up the figure and we can look at it quickly, but all of this is in the documentation as well. This is F current and at F target and the tables.

The conclusion that sort of came out of the assessment workshop from the ASPIC run was that blueline tilefish are not overfished and overfishing is not occurring. The bootstrap analysis suggests that the stock status is fairly certain. Only 5.8 percent of the runs found the stock to be overfished, and the bootstrap analysis suggests that the fishery stock status is a little less certain, with 28.8 percent of the runs found to be undergoing overfishing, and that's pretty much it that I have for the step one, which is the ASPIC results from the assessment workshop.

This was the run, this was the conclusions, that we ultimately recommended from the assessment workshop, but I also included what came out of sort of the age-structured production model from the assessment workshop as well, and that is shown here, and so now we can run through the --

DR. REICHERT: You mean you included that at the review, or do you mean that you included that here?

DR. WILLIAMS: I included it here. It's in the report as well, but, again, going back to the overarching way things fell out, recall that, at the assessment workshop, we ended up recommending that we go with the age-structured production model using the two runs averaged together, and that's what I just presented.

We had, as a supporting model, this age-structured production model. We can go through the details of this. If we're going to skip one, this would probably be one to skip, because we didn't necessarily recommend that management or anything be based on this. This was more or less just a supporting analysis, and so we could skip this one, or I could circle back to it. Probably the more pertinent one to get to next is what the review panel did with all of this, and so maybe I will go ahead and skip this one.

DR. REICHERT: That's why I was asking that question, but, if the committee has any questions, we can come back to this later.

DR. WILLIAMS: Exactly, yes.

DR. REICHERT: Okay. Let's do that.

DR. WILLIAMS: Here it is in a quick --

DR. REICHERT: Have you guys got that? Any questions?

DR. WILLIAMS: Okay. Now we move on to --

DR. AHRENS: Erik, were those all run with the age-two maturity?

DR. WILLIAMS: Yes, they were.

DR. REICHERT: I have a question for the committee. It's 11:40. I am trying to find a good place to break for lunch. We can do that now, or we can ask Erik to go through this. I believe that we probably have some extensive discussions, and so I would like to propose that we take an hour to break for lunch right now and then come back after lunch. I see nodding around the table. Does anyone disagree with that? Let's do that, and then, after lunch, we can come back to this. I know we generally take an hour-and-a-half, but, given the schedule and what we have to go through, I think let's come back here at -- Let's come back at 12:30 and we will reconvene. Thank you.

(Whereupon, a recess was taken.)

DR. REICHERT: Welcome back. We are discussing the blueline tilefish assessment, and I am going to hand it -- Actually, Scott has asked for a couple of minutes to lay out something that he came up with, and then I will give it back to Erik.

DR. CROSSON: Thanks, Marcel, because I was thinking about this issue. As was mentioned, I chaired the review panel, and there was a lot of difficulty in trying to -- Well, basically, both the review panel and the assessment panel agreed that it was impossible to separate out any difference in stock structure between the North Carolina/Virginia border, which, of course, is the Mid-Atlantic Council/South Atlantic Council jurisdiction border as well, and so my thought on approaching this, and I'm not saying we need to discuss this right now, but my thought about how we might handle the fact that we're going to be giving an ABC recommendation to the South Atlantic Council, but it's also sort of including the Mid-Atlantic region as well, even though they have an ABC and an ACL for blueline tilefish up in that area.

What I think we're going to have to do with this is that, if we -- In this order, I think we might be able to handle this scientific question and these jurisdictional questions. First, we look at the south of Hatteras model results, and, whether we use the ASPIC model or the age-structured production model, that's something the stock assessment scientists can debate, but we come up with some sort of result from that, and we run it through our ABC control rule, and we have some idea of an ABC generated by that south of Hatteras result.

We do the same thing for the north of Hatteras area, using the -- Obviously it was a DLM analysis, and so there is no estimate of BMSY, but you can sort of generate some idea of ABC, and it's in the review report that perhaps the stock up there is undergoing sort of overfishing, or at least that the current landings are not sustainable in the long run.

That was kind of the feeling of the review panel, and so, once we generate an ABC for that north of Hatteras area, we would then subtract the Mid-Atlantic Council's ABC, and we'll come back to that, but we would subtract whatever the Mid-Atlantic Council's ABC recommendation is, and now we would have an idea of an ABC for the South Atlantic region, and then we would provide

that ABC recommendation to our council and tell them to recognize the possibility of localized depletion in that region between Hatteras and the North Carolina/Virginia border.

They might need to adjust regulations to recognize that, because, as Rusty indicated, there are differences in how the fishery is prosecuted north and south of Hatteras, especially considering that snowy grouper is, I think, concurrently caught in the south of Hatteras region, but not the north of Hatteras region, and it's a question of just accepting the Mid-Atlantic Council's ABC recommendation and then subtracting it from ours, because whatever number is going to come out of these two assessments, the north of Hatteras model and the south of Hatteras model, is for the entire Atlantic seaboard, and so, if we subtract the Mid-Atlantic Council's ABC recommendation, we're still going to have to have some discussion with them.

That sort of puts them in the driver's seat, and I think we're going to have to send somebody up, not me, but send somebody from this SSC up to the next Mid-Atlantic Council SSC meeting and kind of hash that out, but, at least in terms of what we can get done today, that's my thoughts on how we can best proceed and still come up with some sort of ABC recommendation that we can give to our council for the time being, and, again, we should include some sort of caveat about the fact that there is the potential for localized depletion north of Hatteras, because that's certainly where a lot of the active fishery is right now, and so, at that point, I will just stop, and we can continue -- I don't know if we want to discuss this right now, but, at this point, we can continue, if you want, to go with Erik, and then we'll come back to this. Thank you.

DR. REICHERT: Thanks, Scott, and what I recommend is just take this into consideration and mull that over while we're having our discussions, and maybe we can circle back to that later, when we discuss the ABC, and so thanks for that thought, Scott. Erik.

DR. WILLIAMS: Okay. Thank you, Marcel. Again, recalling our overarching set of models, we have the ASPIC run coming from the assessment workshop, and then we move on to the review panel, and they did come up with a modified ASPIC run, but, in the end, they recommended the age-structured production model, and so I have a presentation on the ASPIC run that the review panel worked on, but I'm going to skip over that, unless we need to circle back to it. Again, for the sake of sort of keeping this a little short, I'm going to skip through this one, and we'll get to the next section, which is the more pertinent model, which would be this one, which is the age-structured production model that came out of the review workshop.

Here is more or less an outline of what I plan to present. The review workshop called this their reference run, and so that was the lingo they went with. The configuration of that reference run is sort of summarized here a little bit. It's basically the changes we made where we fixed the annual CVs for the indices of abundance, and they were fixed at 0.2. Again, that's for the commercial handline and the commercial longline, and then the age at female maturity, or 100 percent female maturity, was fixed at age-six.

DR. REICHERT: Erik, can you remind the committee why that was or where that six came from, or someone else who was at the --

DR. GRIMES: I believe that was a meta-analysis. That's where that came from, of similar species. Does that sound right to you, Scott?

DR. REICHERT: Okay. Thank you.

DR. WILLIAMS: Then the other change was the von Bertalanffy growth parameters were estimates in this model, because we did have length comp information going into this model. Here's just a quick review of the indices again. It's the same indices as in the ASPIC model. Here is just a quick glance showing this female maturity that was a function or a curve, and not even really a curve, but a dog-leg that was put in the age-structured production model. Now, when we used that maturity, we did have fecundity estimates, and so you end up with a sort of reproductive measure at age. In this case, it's scaled in millions of eggs, and it ends up looking like this.

Sensitivity runs, they sort of started with the assessment workshop base model and then worked from there. We have a version where we fit the growth parameters, a version where we just change the maturity age-six, and then a version that just had the CVs, and so we sort of did -- The three main changes that they made, we did them in isolation as sensitivity runs, and then we also looked at values around that age-six assumption of maturity and looked at age-four and all the way up to age-nine.

Also, of course, M is uncertain in this case as well, and so we had sensitivity runs around M of 0.1 and 0.25. Then we attempted to even see how far we could really go with this model and see if we could actually even estimate recruitment deviations, and we did it with various penalties, and those are still further sensitivity analyses. As you can see, we exhaustively explored this, to some degree, at the review workshop with many sensitivity runs.

Then, again, as I mentioned earlier, there was that spike in the landings in the early years, and so we did sensitivity to reducing that spike in the two sensitivity runs. One reduced it by 90 percent, and the other reduced it by 50 percent. Further sensitivities included reducing the weights on all the indices and then removed the last three years from the indices, and that was to test -- There was concern that the year we decided to cut the index off may not have been early enough, because of the potential effects of the regulations and changes in the fishery, and so they wanted to see what effect it would have to actually even cut the indices even further. Then we looked at a range of steepness values, which is more or less standard sensitivity analysis.

Then this is more or less kind of a summary table, to sort of illustrate how we did the uncertainty analysis. It's kind of the nitty-gritty details, and this is in the report, but these are sort of assumed error levels for various inputs into the age-structured production model that we assumed when we did the Monte Carlo bootstrap procedure. This is more details about the uncertainty analysis, just for completeness sake.

Here is how some of those uncertainty decisions manifested themselves, and so this is uncertainty that we had in the commercial handline. I don't know if it shows up very well, but there is a little bit of gray, and so we had ranges around this area, but then the rest of the data was assumed fairly certain for the commercial. That was commercial handline and then commercial longline. Again, this is sort of what results in the error distribution that was assumed for the MCB analysis.

We also then had uncertainty in the recreational data. Again, this is probably unnecessary details. Here is sort of the end result of that. You can see a little more uncertainty was included in the recreational removals relative to the commercial. Just one point of clarity about the uncertainty analysis. When we did sort of bootstrap the indices, we actually still used the CVs from the GLM

analysis to recreate new indices, but, in the fitting, we were still sticking with the CV fixed at 0.2 in the fitting process, as recommended by the review panel. Here is just a quick look at sort of how the uncertainty maps out for the indices. Here is the commercial handline and commercial longline and then the headboat.

Length compositions, again, uncertainty, we used the number of lengths that were observed in a given year and resampled those, basically under a multinomial sort of sampling regime. This is just showing a few samples of, if this was our original, here is sort of a few random samples from that same original distribution. Growth, the uncertainty in growth is shown here that was put into the model.

DR. REICHERT: Erik, relative to the growth, can you clarify how that was handled? Because you said the growth parameters were estimated within the model, but you have to have an age -- How did you get to that?

DR. WILLIAMS: Well, in theory, if you have good length comp information, you can estimate a growth curve. You don't need ages, necessarily, and the model will hopefully help you find the right K, because K is really the parameter that sort of links age to length. L infinity kind of falls out from maximum size, which you can kind of get.

DR. REICHERT: So it's the cohort information that you use to estimate the growth curve. I am trying to wrap my head around whether the true uncertainty is carried forward in the model, but we can discuss a little bit more about that later.

DR. WILLIAMS: Right.

DR. REICHERT: Okay. Thank you.

DR. WILLIAMS: Here is the range of variability that was used in natural mortality. We used an age-dependent natural mortality function. More about sort of uncertainty in the reproductive output, which, again, is sort of the result. It looks like of funny-shaped, but that's because we're varying both the age at 100 percent maturity as well as the variance in fecundity parameters, and so it kind of ends up with an odd-shaped sort of polygon there.

Steepness, we just used from our meta-analysis of Shertzer and Conn from 2012. This is pretty much the distribution that comes out of that paper was applied for the uncertainty analysis and steepness. Then we did projections. We did the following, down at the bottom here, of projections at FMSY, F current, F target, F 30 percent, and F 40 percent.

Now I will run through some results, sort of typical results, that you would have seen for most of our other assessment models, BAM-type output for the age-structured production model, and so this is the fit to the commercial handline, fit to the commercial longline, which of course they fit very closely, because the model is more or less configured for that to happen. Recreational removals. Then here is the fit to the indices, and so here is the fit to the commercial handline. It's pretty much just a straight line. Here's a fit to the commercial longline and then fit to the headboat. That jump in the fit is I think because we had changing selectivity. I think we had a change in selectivity.

Here is a fit to the length comp, and so that's the new piece of information we had in the age-structured production model relative to the ASPIC, and, really, one of the things to note here is, one, you can sort of get a sense of how noisy some of these are, and, if you -- I know you probably can't read this, but, on each of these, you can see the sample size is actually quite low, and so that's a number of trips, and it's only five trips, and so those are quite low sample sizes.

Here we're up to twenty-five, but you get a sense of how noisy these are and what low sample sizes we're kind of working with. I will run through those. This is commercial handline, commercial longline, and recreational. We did have quite a few years of length comp data, but it's just not necessarily great sampling in each of those years.

DR. REICHERT: A question. This was ultimately the input to come up with the growth curves also, the length compositions, and so, as you said, there is low N, and there's a lot of noise there, and so that goes back to my question in terms of how that uncertainty is carried forward in the model, and, again, we may want to discuss that a little bit more later.

DR. WILLIAMS: Okay. Here is the growth curve, and this is not the uncertainty in the growth curve. This is the CV that's being estimated with the growth curve, or maybe it was fixed. Yes, actually, it was fixed, and so we fixed the variance in size at age. This is just sort of a summary table of sort of the life history stuff that went into the age-structured production model, looking at the vectors of reproduction, natural mortality, fecundity, proportion female, et cetera, et cetera.

This is the estimated abundance that comes out of the model. There's not much change over time. Biomass. This is the age-structured production model, and this is the estimate of recruitment, and you will see there's not much year-to-year variation, because we're not estimating recruitment deviations. It's sort of fixed to the stock-recruit curve, and so you get this kind of pattern, and then here's total biomass.

Selectivity parameters, or selectivity functions that were estimated, we had one -- This confirms here that we had a time-varying function for the recreational, and that's why you saw that jump in the headboat index. Commercial handline and commercial longline, there are slight differences in sort of age at entry to the fisheries. Handline catches a slightly younger fish relative to the longline. This is sort of the weighted average selectivity that comes out of when you put all the fisheries together in their relative proportions.

This is the fishing mortality values by fleet, and so it's sort of the F time series, but broken out by fleet. This is landings in numbers. Here is our wonderful stock-recruit curve and yield per recruit, indicating where FMSY is. Total biomass relative to the MSY level, and here is SSB over SSB MSY.

One of the things you probably see is the big difference in stock status compared to the ASPIC run. This run suggests the stock never got below MSY and, in the terminal year, is well above MSY, at a rate of five times compared to the ASPIC run, and that indicated that it was, I think, around one-and-a-half times or something like that. Fishing mortality, and here is a table of final numbers, and we're very confident that this is right down to the single egg estimate. Obviously I am being facetious there.

DR. REICHERT: As is the number of fish, I see.

DR. WILLIAMS: Yes. Here is sort of a comparison plot, and these might be more useful to you to look at, looking at all the sensitivity changes relative to the base model and also compared to the assessment workshop base model, and so this is where we can kind of get a sense of -- Again, I apologize if this is too small to see on the screen.

Hopefully you can pull it out of the report as well, but the black line with the dots is the reference run, which that would be the review workshop run, and then the assessment workshop -- Again, this is the assessment workshop age-structured production model, and you can kind of see where we were with that and look at the one-off sort of fitting the growth curve, fixing the CVs at 0.2. Then the age at maturity at six. It doesn't change the pattern. It just sort of scales things up and down a little bit with these various sensitivities. Then here is looking at the age at maturity of four and nine, so you can kind of get a sense of how much change that creates, particularly in the SSB.

Here is different values of natural mortality. This is when we attempted to estimate recruitment deviations with different weights. A high weight means a high penalty, and so, when we penalize it, it doesn't differ too much from the reference run. Then, if you allow it to be free, it tends to show a little more pattern.

These are the sensitivities to reducing that spike in landings, and so the red-dashed line is if we knock that down to 10 percent of what it was, and the purple dots are if you knock it down to 50 percent. You can see they have quite a tremendous effect, and, in fact, the knocking it down to 10 percent actually changes the stock status.

This was looking at different -- Again, I mentioned removing the last three years of the indices. That's one of the sensitivities here, and the other is down-weighting the indices to 0.1. Here is the whole range of steepness values. Now, the reference run did not estimate steepness. We did actually get an estimate of steepness when we tried to estimate it, and, to be honest, I think the review panel ran out of time to possibly even explore whether that was an appropriate thing to do or not, and so I think they just stuck with their reference run, which was a fixed steepness value.

DR. REICHERT: Erik, the S20, that was the steepness estimated by the model, if I look at that Slide 70?

DR. WILLIAMS: Yes, I think that corresponds to -- I don't know if those are numbered exactly correctly, but I think that's right.

DR. REICHERT: Okay, and do you remember what that value was?

DR. WILLIAMS: When it was estimated? Yes, it was like 0.52 or something like that.

DR. REICHERT: Okay. Thanks.

DR. WILLIAMS: Here is all the sensitivity runs in a phase plot, so you can kind of compare stock status outcomes. Really, the ones that change stock status involve either really low steepness values or -- Yes, they're pretty much all the low steepness values. I think there is the one run -- I can't remember. These are piled on top of each other. Here is a table of all that output, if you want to see the details of each of the sensitivity runs.

Uncertainty analysis, again I will kind of breeze through that. There's a lot of uncertainty here, broad bands. Let me see if I can jump ahead. Here is sort of the MCB analysis output. As broad as those are, you still -- 90 percent of your runs end up in the not overfished and not overfishing sort of quadrant of the phase plot. Then here is projections, again, of all the scenarios that I listed before, and I won't go into detail on those.

Here is sort of a summary. I think this is good to go through and probably finish off with this, and then we can go back into any details that anybody might want to see. This is looking at all the sort of four scenarios. Again, recognize that probably the two base scenarios to consider is this one, which is the ASPIC assessment workshop model, versus the review workshop age-structured production model. These were more or less sort of spinoffs or supporting models for either of these two.

This is an attempt at -- We also discussed what can you compare from an age-structured production model versus an age-aggregated production model. The metrics aren't quite the same, and so, in this case, because the production model -- The biomass is pretty much exploited biomass, and so we thought the next thing closest to that to pull from the age-structured production model would have been spawning stock biomass, and so that's why we have spawning stock biomass presented here for the age-structured production model but biomass presented here for the ASPIC model. We thought those were the most comparable biomass metrics.

Here is F, and so although, qualitatively, all the models sort of suggested no overfishing and not overfished, the degree of that is quite different between the choices between the ASPIC model or the age-structured production model, and here is sort of the tables of output in one slide, if you wanted to compare numbers. Projections, again, if you want to compare projections, but I won't go through that, because that's sort of -- That's the end.

DR. REICHERT: The end.

DR. WILLIAMS: Now, let me say that what I don't have -- Real quickly, I would ask that we focus, with the presentation I have in hand, on the south of Hatteras model. North of Hatteras, I don't have a presentation put together for that. The documentation is quite short, and it's pretty simple, but maybe we should not enter that conversation until we're done with this.

DR. REICHERT: I agree with that. I've got a couple of quick questions, and then I will go to you, Rob, and we will continue the conversation. For the age-structured model, remind me of the -- Some of the estimates that were based on meta-analysis were the reproduction and mortality, but the von Bertalanffy came out of the model based on the age compositions.

DR. WILLIAMS: Yes, they were estimated within the model, yes.

DR. REICHERT: I should have looked it up, but I forgot to do that. Do you remember how -- At the data workshop, we came up with estimates of the von Bertalanffy growth curve based on the meta-analysis, and so I was wondering how they compared, and sorry that I didn't do that, and I was wondering if you or anyone else remembered how that compared.

DR. WILLIAMS: I want to say that it was surprisingly similar, but I don't have a comparison plot to show.

DR. REICHERT: Okay. Those are just some clarification questions that I have. I have always thought that either you have ages or not, and I know there is ways to look at age information or to come up with age information based on other information, but I still, and I mentioned that before, but I still have a -- I am not sure if that uncertainty is carried forward in the model, and so that's one of the questions that I personally had in terms of deciding which of these two approaches we as an SSC should recommend. There is a couple of other things, in terms of, if you look at the outcome, which we would feel is more plausible.

DR. AHRENS: One question on the model, Erik. Were all of these age-structured runs done with the headboat index in the model?

DR. WILLIAMS: Yes, they were.

DR. AHRENS: So the results we're seeing are very similar to the ASPIC run we had with the headboat.

DR. WILLIAMS: Correct.

DR. AHRENS: Okay. Second, and this is really a procedural question, in general, and it's my own naivety, but I was not aware that you could, in the review workshop, bring new assessments in, or can you?

DR. WILLIAMS: I don't think I'm the best one to answer that.

DR. REICHERT: I cannot answer that question either. Mike or John, do you care to address that?

MR. CARMICHAEL: That is a good question, and, like a lot of the good questions we've had, that's kind of a gray area as to what can be done. The expectation is the review panel is not there to create an entirely new model, but they do have some flexibility to deviate from what was originally presented, and, a lot of times, it's largely predicated on what the group there is able to accommodate and what the review panel thinks is the best way to go forward. We try to give them enough leeway that they can come up with something that they can stand behind, so that you don't just have a rejection situation, where they don't feel like going forward, and so it sounds like this is a pretty strong gray area.

DR. REICHERT: Of course, it also means that the assessment panel has not had an opportunity to weigh in or talk about that.

DR. JIAO: I compared the growth curve from those data workshop papers and in the original assessment model and then the output from the reference model, and they are actually quite different. For example, if you look at age-ten and age-twenty, the age-twenty, the estimated model from the reference age-structured model is around 600 millimeters, but, if you look at the observation data, all of them are around 800 millimeters, and then the estimated length at age around age-twenty, they are all about 800 millimeters, and so I think there are quite large differences there, but, if you look at age-two, again, there are differences, obviously. Actually, the

difference goes beyond the confidence interval. In other words, the confidence intervals don't even overlap. From that point, I think there are quite some differences.

DR. REICHERT: Thank you for that clarification. I appreciate that.

DR. SHAROV: Just for fairness, I would like to remind that the assessment team did put forward the ASPM model too initially, the age-structured production model, but it was just not selected as the base model, and so there was not like a dramatic turn at the review, as I understand it, and I was not present, and so they had some reasoning. They considered the fact that the assessment team had worked initially with the ASPM, but then they decided to abandon it in favor of the simpler model, and so that's sort of a correction.

Following this, and looking as to where our discussion goes, I do also have some sort of procedural questions, because it looks like we're going on the path of reviewing a review, and, I mean, if we want to make it thoroughly, that's going to take us more than a day, and I don't think that we have this. That presents a challenge here.

DR. REICHERT: Thanks for that clarification, and I should have been more careful. What I meant to say is that it's my understanding that the detail, in terms of the analyses of the age-structured model -- I am not sure if that amount of detail was present at the assessment workshop, and so thanks for that clarification. In terms of reviewing a review, I think we are always asked to take a look at the overall assessment report, including the review, and I think, in the past, there's been examples where the SSC has disagreed, to some extent, with the reviews or with the review workshop, and so I don't think this is a precedent, but your point is well taken, and so thanks for that. Anyone else?

DR. CROSSON: Just to that point, I just wanted to add, if you look in the terms of reference, when the review panel addressed the terms of reference, TOR 2, Number a, they said that the ASPIC model was scientifically -- What's the exact language? It was within the -- You said the ASPIC does come within accepted scientific practice, but they felt that -- The review workshop thought it was not the best choice, and so you have kind of an option here as well. They did not discount the ASPIC model, but it's just a question of which they thought was preferable for use in management, and so that's up to this committee to decide if they agree with that or not.

DR. REICHERT: Thanks, Scott. Would anyone else like to comment?

DR. BOREMAN: I would like to go into -- I think this is really important, in terms of whether we support the assessment workshop recommendation or the panel recommendation on the model to use. I don't think that a reasonable reason is because we can play more games with it is a criteria for selecting a model. I think the one that doesn't -- The more games you play, the more unknowns you put into the model, the more meta-analyses you have to use, the more uncertainty you're going to get, and I'm not sure that all that uncertainty is showing up, as was said previously, that all that uncertainty is showing up in any of these plots. I don't want to cast any dispersions on the review panel, but I would just like, again, to have either Scott or somebody walk through the reasons why the review panel thought that the alternative model choice is better suited for management.

DR. REICHERT: Thank you, John, and I fully agree with that. Anyone else relative to --

DR. AHRENS: I guess one of my big concerns is what the underlying thought process was for changing the CVs on the relative abundance indices in their age-structured model and why, when it was deemed during the assessment workshop that the headboat index was probably fairly unreliable and shouldn't be used, why that was included and then had the CV reduced on it, if anyone knows.

DR. REICHERT: Erik, or anyone who participated in the workshop, can you address that question?

DR. SHERTZER: It was because of the selectivities being included. In the ASPIC model, there is no such thing as selectivity. All biomass is equally vulnerable, and the indices themselves were indexing different parts of the population that they felt the age-structured model could capture that detail, because of having selectivities applied to different ages for the different fleets, and so that was the rationale for including it in the age-structured model.

DR. AHRENS: What is their rationale for the reduction in CV on the indices?

DR. SHERTZER: I think that the rationale was to counter what was done by the assessment workshop, which was to fit the indices separately and then combine the results using model averaging. They thought that, if you -- You could accomplish that same thing by setting the CVs equally, and I don't think they cared what it was set to, but they just said set them equal, and we chose 0.2, because there's been some precedent for that on commercial indices.

DR. AHRENS: Those indices were GLM standardized, and CVs came out of that standardization process, and so are we saying -- It would seem to me that it's considered kind of best practice to use those values coming out of the GLM standardization, and, effectively, then we were -- By changing those CVs, you're re-weighting, in terms of the relative importance of those datasets and the likelihood.

DR. SHERTZER: I guess I'm putting words in what I envision the review panel saying, but they brought up process error that wasn't accounted for by the GLMs, and so the GLM estimate of CVs is a minimum estimate of the error, and it needed to be inflated. What does it need to be inflated to? You could try to estimate a process error term, but, in this case, they suggested just fixing it at something higher than what the GLMs suggested.

MS. LANGE: To John's point, the assessment workgroup wrestled with the uncertainties and chose or recommended the non-age-structured model, because of all the uncertainties associated with it, and I guess I was a bit surprised that the review workshop went back on that and used a totally different model, again incorporating a lot more uncertainty and a lot more information that was -- A model that needed to have a lot more input that was less certain, or more uncertain.

DR. JIAO: I just want to add some extra explanation about the CV equal to 0.2. It was started because of the comment of ignoring process error in the ASPIC model, and one of the CIE reviewers suggested to add extra information on the uncertainty to the process error ignored in the ASPIC model, and, later, this comment carried forward to the age-structured model and fitting to the abundance indices. It's not like they're fitting all of the catch per unit effort after standardization at 0.2, but it's adding extra uncertainty at the 0.2 level. That's the original suggestion. Again, as Kyle explained, it tried to account for the extra uncertainty from ignoring

the process error in the age-aggregated model, and it later carried forward to the age-structured model.

DR. REICHERT: Thank you for that.

DR. SERCHUK: I am a little bit concerned that we have very little to pin down as truth of what we know. We have some modeling efforts that have come up with growth curves that are inconsistent with the growth curves that were done in the previous assessment and inconsistent with some of the size compositions, and I realize they're fitted. They're modeled, but I am really looking for something that says, well, here's what we know, either about growth or about the stock, to pin the modeling to it, and I don't see it with this age production. I really don't.

Then the other aspect of it, the other portion of it, is that the things that we think we have some reliance on, the indices, are not going to help us in the future, irrespective of which way we go. We will have no idea how robust our management program is in either case, because we have nothing to evaluate it against, and I think that's also a concern for me.

DR. REICHERT: Thank you, Fred.

DR. SHAROV: On the basic question from Fred, I would like to remind you that the principal conclusions on the status of this stock, from both outcomes, are the same, and that is the most important. With respect to the scale or the fact of the projections, it would be based on the estimated size of the stock, and that makes a difference, but, at least in terms of the status of the stocks, with all the uncertainties accounted for and not accounted for, the conclusions were the same.

DR. REICHERT: Yes, relative to stock status, but, in terms of our recommendations for fishing level, that's going to be a big difference, but thank you.

DR. SHAROV: That is our uncertainty that we are facing.

DR. REICHERT: Yes, and anyone else?

DR. BELCHER: One of the things that kind of hit me odd too was thinking back to what we went through with red snapper. In red snapper, we had an ASPIC model, and I am staying away from the outcomes of it, because then that's a whole different dynamic, but, when we talked about the validity of the ASPIC, it was put in there as part of the assessment workshop, but it was considered a diagnostic and not an alternative model.

This situation, you've got two models that are run that are both considered equally plausible, and there's a consideration that we've now gone from what came out of the assessment as a preferred model to being changed over to the other, and so at what point -- I guess I'm trying to go by Marcel's facial thing, as to how I'm explaining this, but, to me, the hard part is when are these things considered alternative models and when are they considered things of diagnostics?

An age-structured model, when you have age analysts telling you that the ages are not useful, to me, that seems like an exercise in futility, because it's back to the old adage of garbage in is garbage out. If the data for the age is no good, why would you consider using the age-structured model?

That's where I get stuck in the quandary of why is that plausible, as opposed to a diagnostic or some checking run? I don't understand how, in certain situations, we can allow for that and others we don't.

DR. REICHERT: I completely agree with you. The way I look at that is, in red snapper, we had all that additional information that allowed us to look at the age-structured model. In this case, we did not, and that's where you say that's where, in the model, those parameters had to be developed, whether within or outside the model, and so I agree with that, especially your last statement. I have Kyle to that point, and, Carolyn, you want to reply?

DR. BELCHER: I think, even back to red snapper, validity of ages is one thing, but I can guarantee that there was a lot of other people that felt sufficiency of the numbers of the samples that were characterizing those ages probably was not sufficient.

DR. REICHERT: Thank you. You're absolutely right in that respect.

DR. SHERTZER: I think that's the right distinction here between this and red snapper, and the way you characterized it is exactly what the assessment panel was thinking with recommending the ASPIC run. The counter to that that came up during the review is that it doesn't -- It's not that age structure disappears, but it's that you're making some underlying implicit assumptions about age structure that all fish are equal of all ages, that the maturity -- It's all one biomass, basically, and it's all lumped together, and so selectivity is the same across ages, and the maturity is the same across ages, and this is sort of an underlying assumption that's not made explicit in a production model. When you go to an age-structured model, that's all made explicit, but we just don't have information on it, and so it's -- Again, this is what they meant by there's a lot more things to play with. Those assumptions are made more explicit in an age-structured model, so you know what they are.

DR. REICHERT: Thanks.

DR. SHAROV: When we started the modeling workshop, or the assessment workshop, and I remember vividly how Erik characterized the usefulness or the advantages of the age-structured production model, and these are the arguments, essentially, that review panel put forward, that, because you are intrinsically accounting for all the biological processes that we know are in existence, but they are put inside, in the end, the production model as well, but they account for the structural complexity of the stock, as opposed to a very primitive, very simple model that Kyle just described, which is dealing with the biomass, although I disagree with him on the description that the maturity is the same there and that the selectivity is the same.

That model simply ignores all of this and just looks at the biomass as such, and we know pretty well that -- It's not the same biomass in the different conditions, and so we know that there is a significant -- We are ignoring all these complexities and using the simplified approach. Therefore, there is potentially significant bias or uncertainty in using the surplus production models, per se, unless it's proven, through the simulation exercises, that, for a particular species, in the case of small variability in the growth, small variability in the recruitment, that maybe in this case the surplus production model would be more or less suitable.

These are the reasons that were initially put forward in choosing the ASPM, but there is a significant uncertainty in there, because we don't have a lot of biological information. That's why the assessment workshop dropped it, but the review panel still said that they believed that you can investigate this uncertainty and sensitivities within the ASPM model and identify which are more likely, but, looking at the sensitivity analyses that were provided, I see that there is a lot of sensitivity, and there is little confidence in the final selection for the ASPM, and so, in my mind, the uncertainty still remains quite substantial in the model preferred by the peer review.

DR. REICHERT: Thank you.

DR. AHRENS: Just a clarification on the ASPIC model. The assumption that you're making when you're using those is that there is not significant changes in the composition of the population to affect the growth parameter that you're using, that intrinsic rate of increase. It is a weighted averaging of the proportions at age times those components of survival and reproduction that go into that, and so you're assuming that the composition of that population isn't changing sufficiently to alter that.

If the catch removals by the fleets aren't changing much, if you don't have large swings in catch between the fleets, then it's okay to put that catch in there as well, and so the only time you need to go to the age-structured model is if you are, one, trying to extract information out of length or age compositions, where you have selectivity that needs to be accounted for. If you feel you have profound changes in selectivity, then you also need to do it, and so, by sticking with the production model, in theory, you may be underrepresenting the full uncertainty that you have in all those components of life history, in terms of size at age, fecundity, and all those things.

By fitting the ASPIC model without recruitment deviations, and so an observation error only model, you are being conservative with that model, to some degree, and probably more certain in the results than you would be with an age-structured model, but, if we're talking about an asymmetric value function that is being held by the fishery, in terms of overharvesting or underharvesting that fishery, you are better off using the aggregated production model, in terms of the potential overall consequences to the fishery, as opposed to a highly uncertain age-structured model, as well. I mean, there's a number of things there.

Plus, a comment on including the 0.2 CV to account for not including process error, and that doesn't behave the same way. You just increase the uncertainty you have in an observation error only fitting model. If you had freed it up and allowed process error -- We know that there is a tradeoff, particularly when you have one-way trip data and CPUE moving from an observation error only model with stocks of a large, unproductive stock to when you add process error, and it shifts to a more productive, smaller stock in that certain tradeoff, and so changing the CV to 0.2 to account for not having process error in the model doesn't do the same thing.

DR. REICHERT: Thank you, Rob. I will give Alexei an opportunity to reply to that point.

DR. SHAROV: Just real quick, the production model assumes, or at least this production model assumes, a constant R, and so, with a population at low abundance being overfished, with the reduced age structure, et cetera, in the population at the high numbers and expanded age structure, the R, which encompasses the recruitment rates, the growth rates, and the mortality, is obviously very different, and, for that reason, there is a violation in the use of the simple biomass production

model when we have a -- Well, when we have a different level of the population biomass, and so that's something that the simple production model is not accounting for and just a simplistic.

DR. BARBIERI: Very interesting and edifying discussion, undoubtedly. Enjoyable, really, but, from a more practical perspective, I think we have to look at our terms of reference for the assessment and the review workshop, and we have to look at the structure of how this committee will function, will use the results of this assessment, and to generate catch advice.

We have a control rule that is structured in tiers that is approved by the council, and it's in the books, and so, although I can see both sides of the argument, really, that there is information lost in one case or another, but we have been following the principle of having model choice be somewhat kind of driven by the data availability and suitability for the model that we are to use, and, in this case, I just feel that -- Where do we stop?

How do we consider the credibility of the assessment results relative to the data and how do we justify using our control rule, where we have different methodologies, some that we know are really data-poor, but we have applied those methodologies to generate catch advice, recommending to the council to take into account that these are data-poor methodologies that we know have high degrees of uncertainty, and so the way I see this is it comes across to somebody from the outside looking into what took place and the interpretation, and I'm sure that the interpretation is wrong, but the interpretation might be that, when we don't have data to inform models, we make it up.

I mean, I can't justify, as a fisheries biologist for as long as I have been, having worked on life history and population dynamics, to concede that this exercise, besides just being an intellectual exercise, and, in that case, it is enjoyable, just to see what the outcome would be, but I think that we need to be bound by some principles here of using data to inform our models and then consider how we're going to apply the results of these assessments into our control rule and provide our catch advice.

That is the part that is troubling me the most with this, and I can't reconcile really this in any way that I could sit down with anybody and explain what took place as reasonable. Apologies for going that far, but I simply cannot, and so that's just a little opinionated there, but that's my two-cents worth.

DR. REICHERT: Thank you, Luiz.

DR. CROSSON: When the review panelists, especially the CIE reviewers, expressed this preference for one model over the other, there was quite a bit of surprise by the assessment team, by myself, by SEDAR staff, and then it was a discussion about whether we were veering off of the terms of reference, whether the review panel was going outside its charge, and I think the conclusion, after -- I mean, we had quite a bit of informal discussion about this, and formal discussion about this, and I think the conclusion we made was that the assessment team was judging the scientific validity of both models.

They were providing, as you have stated, the differences and disadvantages between using these two models and which ones have assumptions that can be questioned and which ones are pretty

much laying out there for everyone to see, and so I do -- Again, it was an interesting review panel, and it came up with results, I think, that are still of value to this committee.

I think sometimes, having been involved with the SEDAR process for a while, I see lots of things that happen that sometimes are of concern, and I think that one of the things that I have always worried about is that we try and shove too much onto the review panel, in terms of helping us with making our ABC recommendations.

I think what they're being tasked to do in this particular process is to judge the validity, the scientific validity, of these assessment models, and both of them were presented. Both the ASPIC and the production model were presented to them at the review workshop. They looked at both of them, and they expressed a preference that was different from what the assessment workshop and the assessment team preferred, and, again, I think it's good that this committee is going through this process and discussing these things, but I don't think -- Again, it wasn't necessarily what I had hoped for that would come out of the review workshop, but I don't think that they were doing anything outside the terms of reference.

I think they were providing us valuable information, and, again, both of these, in terms of what they looked at and in terms of the TORs, both of them pass the test, as far as they're concerned. Both of them are useful for us, and so it's up to us, at this point, to decide which one we want to use and run through our control rule and come up with an ABC recommendation, and so that's my thought on it.

Again, also another thought about the SEDAR process is that sometimes -- I have seen it before where the assessment workshop complains that the data workshop didn't finish the task and they have to make decisions, and the review workshop complains that the assessment workshop didn't finish its task and they had to make these decisions and why weren't these handled before.

In this case, they were -- Decisions were made, and then they questioned them, and so I don't know what you make of those results, but, again, I think this is something that we -- I'm glad that we're having this discussion, and I think this is really useful, but I understand your concern with the choices that were made, and I don't think that that's wrong, and so I think, if this committee doesn't agree with the review workshop, that's fine, and I think we can move accordingly.

DR. REICHERT: Thank you, Scott.

DR. AHRENS: I've just got one -- During the assessment workshop, we did run -- There were some runs of the age-structured production model, where they were fit to the two commercial indices with an assumed age of 50 percent maturity at age-five, and those results, in terms of the stock status, were very similar to the ASPIC runs. The results coming out of this age-structured that are fitting to the three indices are similar to the ASPIC run that was fit to the three indices, and so it's -- The headboat index seems to be driving some of the results that we're seeing out of this model run.

DR. REICHERT: Remind me. Was there a sensitivity run with -- There was, with all three, earlier?

DR. AHRENS: In the ASPIC, yes. It's similar to this, in terms of where you are in the stock status space, and so, if you run the ASPIC model with the three indices, you get a fairly similar biomass trajectory and a fairly similar F trajectory.

DR. REICHERT: But there was a reason why that was not used.

DR. AHRENS: There was concern about the utility of the headboat index, given the nature of the data that went into its generation.

DR. REICHERT: So, I have a hard time wrapping my head around, in comparing these different runs and looking at one that the assessment panel had legitimate reasons not to include, and so I am -- I need to think a little bit about that, but that's where I -- Anyway, but thanks for that. Anyone else?

We do have a choice to make here, and I still feel that, and maybe some of us can address that, is that carrying forward the uncertainty that you introduce by, for instance, the natural mortality estimate, although I know that there were sensitivity runs, and that was based on the meta-analysis and some of the other things, and I am not convinced that in the age-structured model that those uncertainties are fully accounted for, but, if someone can convince me to the contrary, then I am open for reconsidering that.

Looking at what I have seen and going through the documents and listening to what was discussed here today, I would be not uncomfortable recommending the ASPIC model, as was recommended by the assessment panel, to use for management advice, but I saw Alexei having his hand up.

DR. SHAROV: To counter your question, are those uncertainties that are related to age-structured population, are they accounted for appropriately in the biomass production model?

DR. REICHERT: Well, at least they are not borrowed from other species that may -- I am not sure if that's answering the question, but it's --

DR. SHAROV: I think it's an ultimate knowledge that what we're learning from this -- If we're allowing for an age structure and certain growth curves, et cetera, which we know that it is present, and so you are either trying to model it, even though the specific parameters are not known and you are either guesstimating or borrowing them, et cetera, versus just simply ignoring this and using a much simpler model, as we said, that would just simply describe the dynamics of the biomass, which one violates more the actual population dynamics of the stock?

I guess the answer, depending on the species, would be variable. In this case, in my mind, I think I respect the time that the assessment team had spent on producing these results as well as the efforts that the review team had put forward on reviewing those results and coming up with the alternative modeling approach, yet still within the framework that was provided by the assessment team, although that was not the preferred model.

In my mind, this is -- Sort of the two outcomes is some sort of portrayal of the uncertainty that we're facing, and that's primarily uncertainty related to the process error. That is, how we describe the dynamics of the stock, but the uncertainties related to the biology of the specific biological parameters are, to some extent, are included as well.

Both provided the same outcome, in terms of the status of the stock, and so the only difference is that the scale, because the scale defines what level of ABC should be set -- I don't think that we have any good scientific reasoning, unless somebody will say otherwise, to choose one over the other in that sense, and so maybe it should be evaluated with respect to the risk consequences to a resource, given the selection of the method that would be used to set the ABCs. That is, in my mind, the only way we could get out of this situation.

DR. REICHERT: Thank you, and I, by no means, dismiss the work that was done and that was put into this, but, on the other hand, I think we are tasked with coming up with a recommendation irrespective of the amount of work that goes into one method or another. I think that both were -- This is extremely valuable information.

DR. AHRENS: The point I was trying to make is I think, if you use the data in the same way in each model, you get the same result. It's just that we're doing a bit of an apples-to-oranges comparison here, because this one has the headboat survey left in it, and the ASPIC model doesn't. If you remove the headboat from this, you will probably get something more similar to what the ASPIC run produced.

DR. REICHERT: Rob, can you -- I was asking Erik to potentially pull that up, that run.

DR. AHRENS: But, for this age-structured model, you don't have a run without the headboat.

DR. REICHERT: We didn't do a sensitivity run on that one? Okay.

DR. AHRENS: So it's a bit of an apples-to-oranges comparison, simply because you have an additional data source that we know the impact that that additional data source has on the ASPIC model, but we don't know the effect that the inclusion or exclusion of that headboat survey has on the age-structured production model run.

DR. REICHERT: I am struggling with two questions now here. One is how close they are, because that may be relevant, in terms of the recommendations, and the other question is then does that mean that our consideration comes back to whether or not to include or exclude this one index?

DR. AHRENS: I think so, to some degree.

DR. BELCHER: Only because I'm not sure where to go look to find the differences, the image that Erik had been on before that showed the summary with the biomass status on it, and it's one of the red slides towards the end.

DR. REICHERT: That is 1/6 on Attachment 18, for those of you who are trying to find that.

DR. BELCHER: What was the key difference between the ASPIC assessment workshop base and the ASPIC review workshop reference, because we're talking about the ASPIC, but, by that, there's actually two ASPIC models that have been run, and, to me, the review workshop one looks like the uncertainty has been reduced, at least for biomass. I mean, I'm just kind of eyeballing that, and so I'm just trying to remember what is the key difference between those two ASPIC runs.

I was wondering if it was to Rob's issue of headboat in or headboat out. I couldn't remember the specifics of the difference between those two ASPIC runs.

DR. REICHERT: Erik is looking that up.

DR. WILLIAMS: Here is the slide for that. The review workshop included commercial and handline in the same model, and so that's one --

DR. AHRENS: I think it's the change in the CV.

DR. WILLIAMS: Yes, that's the main difference.

DR. JIAO: The two models, the ASPIC model from the assessment workshop, the base run is fitting the two indices separately and then averaging them from the bootstrap ones. Then, for the ASPIC of the review workshop, the ASPIC reference model is fitting those two indices simultaneously and adding an extra CV of equals 0.2 to account for the ignored process error, and so those are the two differences.

Because we are fitting two indices together, you sort of account for the uncertainty from those two indices inside of the model, and so that's why you get an uncertainty smaller than from fitting each index and with them equally, and so that's why the top panel, the ASPIC run from the assessment workshop, has relatively higher uncertainty.

DR. REICHERT: That goes back to that 1/6. Thank you. At this point, it's five to two, and we've been discussing this for an hour-and-a-half, and so I propose to take a ten-minute break. Then we'll come back to this, and then we need to be prepared to come up with some recommendations relative to this agenda item, and so we'll be back here at five minutes past two.

(Whereupon, a recess was taken.)

DR. REICHERT: Thank you. I would like to summarize, and I know this is an extremely crude summary, but I would like to summarize the fact that we have two models. Rob indicated that, if you use the same indices, the models are very similar, in terms of biomass trajectory and fishing mortality. There were legitimate reasons for the assessment panel, in later discussions, to not use the headboat index. That was the main reason, one of the primary reasons, that the outcome of the two models were so vastly different.

If that is the case, and the committee agrees with this summary, then perhaps we should consider what model would be most appropriate for the available data, and, again, I'm not dismissing all the hard work that's been done by many, and recommend the use of the ASPIC model. Another thing that I wanted to highlight is, if we are looking at the two models under consideration, and I am not talking about including the same indices in both models. That's a different story.

Correct me if I'm wrong, but, if we are looking at the age-aggregated model, and you look at the biomass and fishing for a long-lived, deepwater species, would it mean that you could fish it really, really hard and it would have minimal impact on the biomass? I'm sorry. For the age-structured model. Did I say for the age-aggregated? I meant for the age-structured model, for a long-lived, deepwater species, as blueline tilefish is supposed to be, you can fish it really, really hard, and it

makes a minimal impact on the population. Correct me if I'm wrong, but that may be something else. Well, that's something that I thought, and I find that difficult to believe, but let me know if I'm wrong with that.

That means, again, like what is the most appropriate model there, and so I want to put that on the table for the committee and open the floor. We need to come to a recommendation on what model to use, so we can move forward with our ABC, our fishing level recommendations. Sorry if I confused people with mixing aggregated and age-structured.

DR. BELCHER: I would like to recommend that we discuss using the ASPIC from the assessment workshop as the model for management.

DR. REICHERT: Does anyone disagree? I see nods around the table, and so thank you for that. Please help us in writing the report in further clarifying why we made that decision.

DR. SHAROV: I just wanted to say exactly what you just said. It would help to provide a very clear argumentation on why the choice is made that was made.

DR. REICHERT: Thank you. Yes, I agree, and so, again, we need assistance from the committee to justify that decision.

DR. NESSLAGE: If this helps, and if I understood Yan's comments earlier correctly, the age-structured production model can't reproduce the empirical growth curve, which bothers me greatly, and that would be one reason to go with the ASPIC above the age-structured production model.

DR. BOREMAN: I wouldn't worry about getting into nitty-gritty details on one versus the other, a CV of 0.2 versus a CV of 0.3 and if we do this and do that. The issue is much broader than that, and I think it comes down to Occam's razor too, and I keep thinking of the term "lipstick on a pig" for some reason, but we got to -- There is just too much fiddling around, I think, with the age-structured model and with the matching up and finding meta-analyses. Well, then the species that you use in the meta-analysis that you choose, there is uncertainty associated with that, why those species and not other species. There is a choice of model you choose for the natural mortality and why that method and not another method, and there is uncertainty associated with that, and you can go on and on and on.

I appreciate what Alexei said about some of that uncertainty is kind of lost when you're doing the ASPIC model, but it's in there. It's just noise. You're not pulling it out. It's all incorporated kind of in a big glob in the ASPIC model, but, still, I think just some general statements about why one is preferable over the other, in terms of providing as solid management advice as we can provide at this point, is the way to go.

DR. REICHERT: Thank you.

DR. BELCHER: I think it's even in the report record itself. I mean, you had a specific workshop that focused on validating the ages of the empirical ages of these fish, and the age workshop concluded, even with the bomb radio carbon dating, that they could not validate those ages. At that point, you don't even have --

DR. REICHERT: I disagree with that statement.

DR. BELCHER: Which?

DR. REICHERT: The bomb radio carbon. We published a paper on that.

DR. BELCHER: I thought that was what I read out of the executive summary, that said that, even with that, it didn't validate the ages, and so my --

DR. REICHERT: That was information that was largely available after that, and so there was no opportunity to include that.

DR. BELCHER: Okay. Well, then maybe I misread. However, my understanding was --

DR. GRIMES: I thought precision of the ageing was more the issue than the validation.

DR. REICHERT: Irrespective, ages were not used.

DR. BELCHER: So the empirical ages were not valid, however you want to -- If I took that out of context and incorrectly stated that, I apologize, but my understanding was the empirical ages were not useful, and so that's coming out of an ancillary workshop to the data workshop, and so, at that point, carrying the ages forward into the assessment, to me, didn't seem to make sense.

DR. REICHERT: No, and I completely agree with you, and that's, I think the -- Yes, that's the conundrum we have right now, or one of them, with this assessment. The other thing was, and I made a note, that the review panel itself endorsed both models, and so it's not that we are selecting something that the review panel made clear that they could not endorse, and so I think that's something that we said earlier, too.

Okay. For the population south of Hatteras, we have a model, and we have a model run, and so the next -- We need to go through some of the -- Did we address all of the action items, Mike and George? Do we need to go through some of those? There is a bunch of them, and they are the usual action items. Let's read through them and see if we can get a consensus from the committee.

I am going through the action items in the overview. Review assessment, and does the assessment address the terms of reference to the SSC's satisfaction? I would say they have, or they are. Correct? Yes. Does the assessment represent best scientific information available? We have extensively discussed that, and the answer is yes. Does the assessment provide an adequate basis for determining stock status and support fishing level recommendations? We just concluded that, and so the answer is yes.

DR. CROSSON: For the south of Hatteras area, yes.

DR. REICHERT: Everything I am saying here is Hatteras south. The second bullet is identify, summarize, and discuss assessment uncertainties. Review, summarize, and discuss the factors of this assessment that affect the reliability and estimates of stock status and fishing level recommendations, and we extensively discussed that, and so we did review that.

Describe the risk and consequences of the assessment uncertainties with regard to status and fishing level recommendations. We discussed that, and I would argue extensively, and we may want to provide a little bit of additional language to the report. Are methods of addressing uncertainty consistent with the SSC's expectations and available information? I would say, given the available information, the methods address the uncertainty that is consistent with our expectations. If anyone disagrees, just speak up. Otherwise, I will just move on.

List, in order of greatest contribution to risk and overall assessment uncertainty, and comment on the effects of those assessment factors that most contribute to risk and impact status determination and future yield predictions. That's a little more broad, and I'm not entirely sure if we have language to address that action item.

DR. AHRENS: I think that we can make some comments as to the fact that there is no real fishery-independent abundant index in the assessment and that's a concern. I think there is some question, for some of the years, as to the suitability of the catch that has been included.

DR. REICHERT: I would argue the fact that there are no age data as limited.

DR. AHRENS: And life history characterization of the species is poor.

DR. REICHERT: Thank you.

DR. SHAROV: A clarification question. Here, when you were answering the questions, list whether the current assessment, et cetera, et cetera, et cetera, describe the uncertainty in the current assessment, and when we use this term now, does it mean that the current assessment includes only the biomass production model results, the one that was put forward by the assessment team, or is the alternative model put forward by the review part of the assessment as well, because that's -- Depending on that, the uncertainty, the way we will describe uncertainty, for example, varies quite a bit, and so are we just tossing -- I just want to be clear in what we do.

DR. REICHERT: To that point, I was under the impression that we were looking at the ASPIC model and not the age-aggregated model, because we recommended that the ASPIC model is going to be used for management advice.

MS. LANGE: I agree. This is based on what model we chose to use, and so the assessment still stands. The information is still there for both models, but we're making our recommendations based on the ASPIC model, and our response to these questions is based on what we're using for our recommendation.

DR. CROSSON: There is just a couple more things to add to the list there. One was the amount of outside recruitment coming in from the Gulf of Mexico. That was an uncertainty in the model, and then the other is the spike in landings that was discussed circa 1980, which is I guess related to the question of how much of the early landings were made up of unknown tilefish, golden versus blueline. That ratio is unknown.

DR. REICHERT: The other thing relative to this point is I personally find it very difficult to list this in order of greatest contribution. I think we can do that in relative terms, but I think I would

have a very hard time listing which one would have the greatest influence, and so, if people want to change that list, then just let us know.

DR. NESSLAGE: This is a production model. If that catch is not as high as we think it was in 1980, the magnitude of this model is completely off, and so I think the catch, far beyond all the other things in this model, would have the greatest effect.

DR. REICHERT: That is the Bullet Point 2 and the last one. That should be moved up as far as most influential. Thank you for that, but we can clarify in the model that those are very influential and it's more difficult to evaluate the relative importance of the other factors. Okay. Please help us include that language in the report when we review it. Anything else before we go to the ABC control rule? I will let Mike finish his sentence, and then we can bring up the ABC control rule.

DR. ERRIGO: These are the P* dimensions.

DR. REICHERT: I have asked Mike to run us through that. Remember that we changed the language of tiers and dimensions a little bit around, and so forgive me if I mix up the terminology. This is a document that was provided in the briefing book.

DR. ERRIGO: It's Attachment 14.

DR. REICHERT: Attachment 14.

DR. ERRIGO: We can just -- Here is the dimensions for the P* analysis, starting out with the assessment information.

DR. REICHERT: We have here the assessment information. A quantitative assessment provides estimates of exploitation and biomass and includes MSY-derived benchmarks. Then 2 is reliable estimates of exploitation or biomass, including proxy. There is no MSY proxy reference points. Relative measure of exploitation or biomass, absolute measure of status unavailable, proxy reference points. Reliable catch history, and then scarce or unreliable catch records. What would be the appropriate category here?

DR. AHRENS: It would seem that Category 1, that quantitative assessment provided exploitation and biomass, including MSY-derived benchmarks.

DR. REICHERT: The only thing is, and I am -- I am mixing the age-aggregated and ASPIC up. Sorry. Anyone disagree with that? We have a Number 1. That is 0 percent. Then 2 is uncertainty characterization. Is it complete, high, medium, or low? This is what we have discussed in other assessments. This would come out of Number 2, because the environmental conditions are not fully included and accounted for in the assessment. Does anyone disagree with that? Then Number 2 is high. That is 2.5 percent. Stock status, neither overfished nor overfishing. That's Number 2, and that's two-and-a-half percent. Does anyone disagree with that?

DR. BARBIERI: No, but I was trying to follow. You still wanted the uncertainty characterization?

DR. REICHERT: No, I moved on, because no one disagreed with what I said earlier.

DR. BARBIERI: I'm sorry, but what did you say?

DR. REICHERT: Maybe I am going too fast. Let's go back to uncertainty characterization.

DR. ERRIGO: Yes, I missed that, too.

DR. REICHERT: I said I recommended Number 2, because, as we have done in previous assessments, environmental conditions were not fully included and accounted for in this assessment, because we rarely do that, and I don't believe they were in this assessment, and so that's why I moved to 2, but, if people disagree with that, then --

DR. BARBIERI: Well, let me make a different suggestion here. In this case, in this case, considering the nature of this model, we know that there is a high degree of uncertainty, and it's not being able to explicitly account for age composition and stock and selectivities and all, and I think that the uncertainty characterization is low. I mean, that would be my point, because it's very different when you use this for an age-structured model versus biomass dynamic model.

DR. REICHERT: But correct me if I'm wrong, but we are not comparing an age-structured in our ABC control rule, and so, if you look at the categories, don't we have a distribution of FMSY and MSY or not? We do, and so I would not characterize this as low. It may be higher or lower than in other assessments, but --

DR. BARBIERI: This is one of the cases where, as much as we have used this Tier 1 control rule as a way of -- It may not really be as applicable. I mean, they have to be relative to each other, to some extent, because, otherwise, there is a major uncertainty there that we are not properly accounting for. I don't know if we consider it low and justify in our report or we step completely off the control rule and consider that this is a very unusual assessment, and I don't remember another Tier 1 assessment that had stock status determination based on a biomass dynamic model that we have seen here.

DR. REICHERT: That is a good point, and we have the ability to actually deviate from our control rule, and so this would be a reason for us to do so. However, it also requires us to justify why we are doing that, and you provided the justification, if the committee agrees with that. You just provided that justification to do so. I am looking at John. I know we can deviate from the ABC control rule, and that also means that we can deviate from sections of our ABC control rule, right? Okay. Yes. I just wanted to make sure that that was the case.

DR. SHAROV: I totally agree with Luiz here. This is a highly uncertain assessment, and it may fit with your formal definition of high and low, and, for low, your current criteria is no distribution for F and BMSY, but, undoubtedly, there is very high uncertainty with this assessment, and then we have to acknowledge that.

DR. REICHERT: I have asked Mike to scroll up a little, and I think, in our justification for our deviation from the control rule, we can use some of the previous discussions and some of the things that are listed here on the screen right now, and so, again, make sure that we -- There is a variety of other statements that we made earlier that can address the uncertainty characterization, and, again, make sure that we list and clarify that, justify that, in our report. The recommendation by Luiz is to make the uncertainty characterization low. Does anyone disagree with that?

DR. BELCHER: I am just curious why we would not consider medium. I am not saying that just to split the difference, but I'm saying that because if you read -- It's uncertainties are addressed via statistical techniques and sensitivities, which we have done, but full uncertainty is not carried forward in the projections.

DR. REICHERT: I would argue because there are uncertainties that we discussed today that are not captured in these categories, and it's -- Anyone else? Do we want to change it to medium, or are we comfortable with low? Low? Carolyn, you were the one that brought it up, and you're comfortable?

DR. BELCHER: Like I said, it was just to get the conversation started about, again, the differences between. We kind of just didn't offer it as a potential and what would make you deviate from a medium, and that would be the only thing that I would ask, and you're saying there is additional uncertainties that aren't captured, and so I'm fine with that. I just think we need to talk about why that's not an option.

DR. REICHERT: Okay.

DR. BARBIERI: To that point, and Alexei brought this up before. I mean, this a long-lived species that has multiple ages in the fishery. The exploited phase of life, there is a whole bunch of ages there, and there might be differences in selectivity here between fleets, and none of this is accounted for in this biomass dynamic model.

To me, this is really an unfortunate situation. Obviously this is a species that we have regionally focused on collecting otoliths, because we realize that age information will be very, very valuable in properly describing the dynamics of this population and the impacts of fishing on it, and so the fact that we can't do is a deficiency that is very, very hard to account for. That would be my interpretation of what Alexei had presented before.

DR. REICHERT: Thank you. Number 3. Again, I am sorry if I moved a little too fast earlier. I won't do that again.

DR. ERRIGO: I just was wondering if you might want to -- Did you want to reconsider Dimension 1, given that now that you are rethinking how you're using these dimensions for this assessment? You currently have the Dimension 1 as Tier 1, a quantitative assessment provides estimates of exploitation and biomass and includes MSY-derived benchmarks.

DR. REICHERT: Do we want to reconsider? I see heads shaking. Okay. We do not reconsider. If you want to reconsider, speak up. All right. Number 3 is stock status. At least that's an easy one. It's neither overfished nor overfishing. Is it in close proximity to benchmark values? I would say that I don't think that it is very close. Of course, that's a relative term. I propose to recommend Number 1. The stock is at high biomass with low exploitation relative to benchmark values. I would not necessarily say there is low exploitation relative to benchmark values, and so perhaps we should go to Number 2. I see nods around the table. Does anyone disagree with neither overfished nor overfishing, but the stock may be in close proximity to benchmark values. If necessary, we can put up those graphs again, but I personally think that that may be a more appropriate stock status category. Okay. I see no objections.

Number 4, I looked at the PSA score in both the South Atlantic MRAG and the original MRAG, and it's high, and I did not see anything in that report that made me think that we should reevaluate that. Does anyone disagree? Seeing no disagreements, the productivity and susceptibility is high, and it's 10 percent. Where does that get us, Mike? I have Alexei.

DR. SHAROV: I am sorry to come back, but so what is this decision based on, the low productivity and high vulnerability, just in general? It's a long-lived and extended age structure, but I would like to know.

DR. REICHERT: That is based on the MRAG reports. That was included in a variety of briefing books, but I don't think it was included in this one. It is a ranking based on reproductive strategy, distribution, longevity, desirability in the fishery, and help me out. What other factors are included in that? Size and age at maturity, and I think the reproductive strategy, whether or not it's a protogynous hermaphrodite or not, and I believe fecundity is included in that, and so there's a variety of factors that determines whether a productivity and susceptibility is ranked from low to medium to high.

It gets a score, and, based on that scoring, it's either determined to be low, medium, or high. I know this is a very rough summary of what that entails, but there is obviously a lot more thought and information going into it. In the past, when we go through our ABC control rule, we have looked at that, because, in some instances, we as the committee felt, because the original MRAG was Gulf of Mexico, I believe, and help me out here, but we felt that what was listed in that report may not be entirely appropriate for the species or the stock that we evaluated, and so, in the past, we have made some slight changes to the PSA score based on our collective knowledge of that particular species, and this is one of the things that we discussed in the ABC control rule, that that may be something that we can look at for other species.

DR. SERCHUK: I am sorry to bring this up now, Chair, but I am having difficulty going through this exercise, and the reason I am having difficulty going through the exercise is we have a document here that we're going to be discussing later on about the ABC control rule, and it talks about that we've made decisions as a committee, and it says, well, we're no longer going to consider stock status. That's something that is --

DR. REICHERT: I think I need to interrupt you here.

DR. SERCHUK: Sure.

DR. REICHERT: The problem that we are having is that, currently, we do not have a new ABC control rule on the books, and so, currently, what we are facing, and I'm looking around to see if that is incorrect, but we need to follow our current ABC rule, because that is what is in the amendment. We cannot use or consider other things just yet, and I completely understand your conundrum, in terms of we are now doing things that, once the new ABC control rule is in place, may be entirely different, but, right now, that is something that we cannot consider. John or others, that's a --

MR. CARMICHAEL: But you can deviate.

DR. REICHERT: Yes, but I wanted to make sure that -- Of course, we can deviate from our ABC control rule, but that is different than considering a potential new approach of the ABC control rule, and I'm sorry if I jumped the gun there in terms of what you were planning on proposing, and so I apologize if I misinterpreted what you were going to say, Fred, but go ahead.

DR. SERCHUK: I will withhold my comment, Chair.

DR. REICHERT: Okay. Anyone else?

MS. LANGE: I guess, to Fred's point, when this comes up, changing the control rule, does it become effective, or does it go through the council to be approved?

DR. REICHERT: That needs to become an amendment, correct, John? Yes.

MS. LANGE: So it will go through a complete process beyond our recommendation sometime this week.

DR. REICHERT: Yes. Where did that leave us, Mike?

DR. ERRIGO: You're at a P* of 30 percent for this analysis south of Hatteras.

DR. REICHERT: Okay, and, as usual, we will fill in the table. You will be doing that for us?

DR. ERRIGO: Yes.

DR. REICHERT: Okay. Thank you. Then, going back to the action points, comment on any difficulties encountered in applying the control rule, and here we go, and including any required information that's not available. I think, if we want to make additional comments on applying the control rule, to Fred's point, I think it is appropriate to say that the SSC is struggling a little bit with the fact that we know that there are some considerable changes upcoming in the ABC control rule, but, to a degree, although we realize that we can deviate from our control rule, to a degree, our hands are tied, because we are tasked with applying the control rule that is currently on the books. Does anyone want to further comment on that? The other points, we made earlier, and this is where we need to justify where we deviated from the control rule as we normally apply it. Is adequate rebuilding progress being made? Go ahead.

DR. ERRIGO: You're actually not really finished with your ABC control rule discussion, because you need to have an ABC for that area of Hatteras north.

DR. REICHERT: I agree. I just wanted to finish this point relative to the population of Hatteras south, and then we can pick up what Scott mentioned earlier. I see some confused faces around the table. Is that clear, or clear as mud? Is adequate rebuilding progress being made? Remind me. Was this under a rebuilding? I don't think that's a relevant action point, and so we can delete that action point.

Provide advice in monitoring the stock until the next assessment, and I think we already discussed that. I think we have said before that it's very important to have a deepwater fishery independent monitoring, which is currently not in place, or at least not a consistent program. Is there anything

else that the committee would like to recommend there, in terms of the advice and monitoring? What indices and metrics should the council monitor? I would say landings. Is any new information needed? How could we evaluate the stock until the next assessment? We get our fishery-independent update, but there is no fishery-independent index for this species. We get the landings, and is there anything else that the committee would like to see in addition to -- I would say the performance reports would probably be very useful for us to consider.

DR. BOREMAN: How about just ageing and growth parameters and maturation rates, all those basics that we don't have here?

DR. REICHERT: Yes, but that is currently -- Yes, that is something we need, but, unfortunately, we don't have that available to monitor, and so that would be under the research recommendations, and, once we have that available, that should be something that we can monitor.

DR. AHRENS: I would put composition information, at least, and so lengths.

DR. REICHERT: Anything else?

DR. SHAROV: Some spatial information as well as to where the catches are coming from, because there could be new areas explored and shifts in removals, and that's important.

DR. REICHERT: Thank you. Anything else? Then something we discussed in the past, although we never really filled in the details is, is there a recommended trigger level for these metrics? How should the council respond if a trigger is activated? I would argue that's very difficult to say. I can't think of anything that we currently have available that we could use.

DR. AHRENS: I think if you have kind of persistent changes in the mean lengths, particularly if it drops, that that should trigger some investigations as to why that persistent change has occurred, and, if it is in association with increases in catches, then they need to reassess what's going on.

DR. REICHERT: Anyone else? Then the last point is research recommendations. A lot of them are already in there, and so we can distill those. Are there any other research recommendations or recommendations that we can make that are not in that list already?

DR. BOREMAN: I also mentioned the maturity, because we only had four immature individuals last time, but that's also part of the monitoring program and not just research. I mean, if they're out there doing a survey, they should be collecting ages and sizes and sex and all that stuff.

DR. REICHERT: That's life history information, in particular maturity. The same is true for the fecundity, because we increasingly are including age-based fecundity information.

DR. GRIMES: Just the extent of recruitment from the Gulf of Mexico. What we did was based on this drifter analysis, and that's good, but there is more to it than that.

DR. REICHERT: Thank you. Of course, there is a lot of research recommendations already in the assessment report, and I think we are repeating some of those, but that's okay.

DR. BOREMAN: I basically was going to say the same thing, factors affecting the exchange of individuals among the different stock areas, the stock and not the biological stock, but the managed stock, like north of Cape Hatteras versus south of Cape Hatteras and then around the Keys and into the Gulf.

MS. LANGE: Did we include resolving the ageing issue somewhere, or is this not the right place?

DR. REICHERT: No, this is absolutely the right place to do that, and I think it's further up. We already list the ageing, but that's an excellent point, that that needs to be addressed, too.

DR. SCHUELLER: I think we're including ageing, the landings spikes, the fishery-independent stuff, plus what's up here, and I have discards, movement information, and where the early life history stages occur also on my list.

DR. REICHERT: Thank you.

DR. SHAROV: Real quick, I am always for the fishery-independent index, but, beyond just a wish, what is realistically an expectation of having this index being developed? If the probability is 0.0001, then maybe we should recommend looking at how the commercial indices could be improved, and the way it could be improved is getting better information on the trip details, as to when, where, how, how long, et cetera, et cetera, and trying to develop a better index out of the existing information, if we know that we're not likely to get the fishery-independent.

DR. REICHERT: Thank you.

DR. SERCHUK: I just want to raise the point, and I think it was raised early on in comments that Michelle made, but, when we've gone through this list here, we've looked at criteria related to the stock, but, really, because the dynamics of the biological stock are based on the information that we already have and are beyond the management unit, I think we need to think somewhat more broadly about that.

I mean, we're looking at this as if it was a self-contained reproductive unit, and we have reason to believe, from the stock ID work, that that isn't the case, and so I think we need to keep that in our minds. We know we're talking about movement from one area to the other area and exchange of products, but the fact is that the template we're using is not exactly appropriate when you're dealing with a management unit as opposed to a stock, because we recognize, at least on the available information that we have, that the stock, at least from a biological point of view, based on the information, is much larger than the management unit, and I think that's a concern.

DR. REICHERT: Then I would propose to add that. All of these factors should be looked at as a stock and not as a geographical area, and so ages and all of these need to be looked at in the framework of the entire stock, so they can be used in future assessments stock-wide.

DR. GRIMES: There is also language to that effect in the assessment, in the review report.

DR. REICHERT: Okay. Again, once you have the draft report, please feel free to clarify what's on the screen right now. Then provide guidance on the next stock assessment, addressing its timing and type. I think I want to come back to what Fred said earlier. I think it's important that any new

stock assessment should be done when we have sufficient additional information, and so that's the guidance on the next stock assessment, and I think it's very important that we have sufficient information to treat this as a stock, to assess this as a stock, whether or not that's feasible or not. In terms of the timing, I think that, in my opinion, that relies on when additional information is available. Anyone to that point?

DR. SCHUELLER: It seems to me that you're correct that we do need additional information, and the low-hanging fruit, potentially, is the age information, and so it seems like we should be recommending that be addressed before we come back to this topic, as to when the stock assessment would come back up.

DR. REICHERT: That is a very strong recommendation, that determining the ages and provide age information is something that should be addressed before another assessment is being scheduled or attempted. Okay.

DR. SHAROV: Related to this, at least the natural mortality estimates as well, because, if we get the final age validation that everybody will be happy with and now we will agree that we know, that wouldn't help us much with the past data, because we're not going to re-age the -- We're not going to have the age structures available for the past years, and so it would still be a challenge, in terms of the modeling exercise. It would be, at the best, the ASPM with a better chance of having a more reliable model. Nonetheless, age and natural mortality at least needs to --

DR. REICHERT: Thank you. We could add that, and I would say -- This is wordsmithing, but age determination and estimates of natural mortality should be addressed. Anything else?

DR. BUCKEL: I guess, if there isn't any resolution with ages, if we can't get to a point where these species can be aged in the near-term, I guess I would want some input from the folks that know about the biomass dynamic model versus some of the data-poor approaches, if the bullet above to provide any additional research -- Should there be research put into using a data-poor approach for the whole east coast? Do we have enough to go beyond that? It seems like we had to go south of Hatteras because the long-term indices, fishery-dependent indices, were available there, and they're not available for north of Hatteras, and so, to try to get a coast-wide assessment, it may -- Maybe there should be some research into a data-poor approach.

DR. BOREMAN: Part of that approach would be -- It would start off with a management strategy evaluation. You would basically decide what you want to get out of it, in terms of management of the stock, and then you go through the fifty-five or so methods and take those that, based on the data you have at hand, which would fit the best, in terms of methods that could be used to develop management advice, and so at least a management strategy evaluation of the data-poor methods, to see if any of them provide a good match with the current data we have at hand.

DR. REICHERT: Thank you. Anything else? That's the last action item, and so I would like to go back to what Scott mentioned earlier, because there is still the little issue of what to do with Hatteras north, and so, Scott, maybe you can remind the committee briefly of what you mentioned earlier.

DR. CROSSON: My thought on this would -- Because there is management aspects to this and biological aspects on this, and so my thought on the easiest way for us to deal with this would be

-- Not easy, but the easier way to deal with this would be for us to take the north of Hatteras estimates, which, again, are the east coast north of Hatteras. They're going up into the Mid-Atlantic region, and that's what was generated by the DLM model. Take those results, and run that through our ABC control rule, and come up with our ABC recommendation. Add that to the one we just generated for the south of Hatteras region and then, for the moment, subtract whatever the Mid-Atlantic ABC is from that, and that would be an ABC then for our entire region, from the North Carolina/Virginia border all the way down. Then we hand that to the council with a recommendation that they consider the possibility of localized depletion and potentially adjust regulations for that north of Hatteras to the Virginia/North Carolina border.

At the same time, we're basically -- I don't want to say empowering the Mid-Atlantic SSC, but there's still this question, and I'm not sure what the Mid-Atlantic SSC's perspective on this is anymore, whether it's still the conclusion of the Mid-Atlantic SSC as to whether there is a separate existing stock in their region or not.

I know that Cynthia Jones felt strongly about that, and I don't know what Yan thinks about it or John does, and also I don't know whether that's going to be a topic for your next meeting of the Mid-Atlantic SSC, but I think it would probably be useful if somebody from this SSC was at that next Mid-Atlantic SSC meeting where they discuss their blueline tilefish management unit, but that's my thought on the way forward for the moment, that our ABC recommendation be the two areas combined, actually, and, again, run through the control rule and then subtract the Mid-Atlantic region and hand this to our council to deal with.

MS. LANGE: I am not sure if I missed anything, but how do we derive the Mid-Atlantic number?

DR. CROSSON: They have a number right now. They have an ABC recommendation for their area right now.

DR. REICHERT: Anyone?

DR. BOREMAN: Your first step, in terms of giving the Mid-Atlantic SSC or the Mid-Atlantic Council a blank check, in terms of setting an ABC and then subtracting that, that's -- I mean, we have to go through that with dogfish now with Canada. We basically have to guess what Canada is going to land and then subtract that from our ACL or whatever for the New England, and that's dangerous, and I don't recommend that we do that.

I think we do have an ABC recommendation, and it was based on the DLM toolbox approach. It basically follows that, and we have a report written on that, and it's nothing to do with the biology of the stock, but it's just getting an ABC on the portion of the stock that's landed north of the Virginia/North Carolina border, and so I don't know if, Jason, you want to correct me if I'm wrong there, in terms of my characterization.

It's just that we have no information on biomass or anything else, if it's an expansion of the same group of fish that was previously below Hatteras or if it's a stock that's basically we're fishing on a virgin stock up there that hasn't been fished before or whatever, but it's not a stock defined by biology up there, and that's for sure. It's just a management unit.

DR. CROSSON: What is the timeline? What is the Mid-Atlantic SSC going to do with this SEDAR result? Are you all going to be discussing it at the next meeting?

DR. BOREMAN: Well, we were hoping that we wouldn't have to. We were hoping that it would all be taken care of here, but, basically, we're back to square one. We're back to where we were like three years ago, or two years ago, in terms of what we have to do and what our direction is from our council. Jason, do you want to talk to this?

MR. DIDDEN: Thank you, and so I don't think it was so much that they thought it was a unique stock, but just more that the previous assessment was uninformative for what the catch should be in our management area, and I think we had hoped the term of reference in the assessment -- Not so much that this SSC would take care of things, but that the assessment would take care of things. There was a term of reference in that said to come up with a method for catch recommendations that considered the council management boundaries, and the assessment was unable to meet that particular term of reference on that, for reasons it explained.

I mean, I think my thinking is, at this point, the most likely course of action would be, in either March or May, our SSC -- We don't have a final rule for our blueline amendment, but NMFS has approved the amendment, and, in the amendment, it basically says that our SSC will be setting an ABC for the management area, and so, absent some other course of action, I would anticipate, in March or May, our SSC will be coming up with an ABC for our management area, to the best of its ability.

DR. CROSSON: That's going to be interesting, because, as you pointed out, both -- When we had the review panel, I tried to gently push to see if I could get the reviewers to come up with some way of making a definition between those two regions, but the information that we were given was so limited.

It was these potential habitat areas, and it was very quickly obvious that you were going to be venturing into very shaky scientific ground if you tried to make them come up with some sort of recommendation from that, and so we backed off, and I think this was also the conclusion of the assessment workshop, is that you couldn't look at that potential habitat as any kind of way of defining an ABC difference between the two regions, and so I'm not sure, again, where we go from this. That's where I'm -- I just don't want to see this committee get stuck for the rest of the afternoon trying to figure this out, because, if the review panel couldn't come up with it and the workshop couldn't come up with it, I don't know how we're going to come up with it.

DR. BOREMAN: Just to expand on that, I believe, the last time, that Alexei and Amy were present at our discussion on the blueline at the Mid-Atlantic SSC, and so this exchange of SSC members already has a precedent to it. It's not going to solve the problem here, but at least we have some cross-fertilization of ideas.

DR. REICHERT: Are you recommending that perhaps we should have some people present there?

DR. BOREMAN: Yes, I think so.

DR. REICHERT: I support that recommendation, and we can see who is able and willing to participate in that meeting. That still leaves us with what to do next, and I know it's difficult to --

I know you don't have a crystal ball, John, but do you have any inclination as to how the Mid-Atlantic SSC may approach this?

DR. BOREMAN: When we set our ABC last year, Jason, was that a one-year ABC, or was it a multiyear? I forget, because we usually like to do it three years at a time.

MR. DIDDEN: I think that's usually the goal, but it may have only been one year, and Matt Seeley, who is taking over blueline at the Mid, kind of confirmed that we just did a one-year, and so the SSC will be looking at it for one to three years, coming in March or May.

DR. REICHERT: So what is the pleasure of the group? Where are we, and where do we need to go with this? We knew that this was a pretty big conundrum going into this.

DR. CROSSON: I would ask whatever South Atlantic Council members are here who want to contribute to this discussion what they think we should do, in terms of giving an ABC recommendation, because if we're not -- If John Boreman -- I understand where he's coming from about giving carte blanche to the Mid-Atlantic Council or the Mid-Atlantic SSC, and I see the dangers in that, but then the only other alternative I can think of that we can come up with today is that we provide an ABC for the entire east coast and hand that to the council and let them try and wrestle with it again, and so I'm not sure how to move forward. Michelle and I talked in Atlantic Beach, where she talked to the review panel about the importance of trying to come up with some way of delineating this, and we couldn't come up with something, and so I just don't know what direction they would think we should go in now.

DR. REICHERT: Michelle, thanks for coming to the table.

DR. DUVAL: You say thank you right now, but you may regret that. I appreciate Scott's efforts to try to come up with a logical and defensible way to move this forward. In speaking with Jason, I do have some concerns about sort of which council or which SSC ends up being sort of more empowered to make a decision and one management body kind of being left behind, potentially.

I really appreciate and support having a couple of our SSC members from here go up to the Mid-Atlantic's SSC, because I think some cross-pollination of minds might be able to help us come to some resolution, but I think -- I guess my recommendation, at this point, is I think the starting point needs to be you all need to look at that spaghetti mess of lines and come to some recommendation for what is the most appropriate recommendation for an ABC just for that entire area, first of all, and I have tried to do a little bit of thinking about -- Clearly, there is capacity in both management areas to harvest a significant amount of biomass.

The regulatory changes and loopholes over the past several years are probably not -- It's difficult to use landings as an indicator of what a sustainable level of biomass is, and there's been multiple discussions about that. Off the top of my head, I don't know if you could use some decrement of that overall proportion of harvest between the two regions to come up with a division.

I might have to spend a little bit of time thinking about it overnight, but I'm happy to try to come up with some ideas for something that the SSCs could consider. I know that the assessment team tried to come up with this habitat-based approach, and it was very difficult, just based on depth ranges, and given, obviously, the significantly greater amount of that particular depth range and

the area from the Virginia/North Carolina border north versus south. It makes things difficult. Anyhow, I think this is the first thing to tackle, first of all, but I will give it some thought. Thanks.

DR. REICHERT: A quick question for you, Michelle. What is the council's timeline for this, in terms of when you need the final recommendations on our end, and I am thinking about the possibility to talk with or us being present at the Mid-Atlantic SSC and see where that's going, and I don't necessarily want to postpone our decision, but it may be useful to kind of exchange some ideas, because they probably will be struggling with the same issue.

DR. DUVAL: Myra, where in the work plan do we have the snapper grouper amendment that was going to deal with the output of this assessment? I know it's in there for 2018, but I just can't remember the number and where in the schedule.

MS. BROUWER: Snapper Grouper Amendment 38 is the one that's been sort of slated to address management of blueline, and it is on the agenda for discussion in December, pending the outcome of these discussions, as far as development, but it's been slated for development through 2018. Brian and Roger can correct me if I'm wrong.

DR. REICHERT: It's coming up for discussion, but what does that mean for the timing?

MS. BROUWER: In December, what I envision is the Snapper Grouper Committee would give the staff guidance to begin work on an amendment. Depending on the outcome of this discussion here, if there is going to be an ABC anytime soon, then the council would give us guidance to start preparing an amendment to implement new catch levels, and that would take about a year to develop.

DR. REICHERT: Thank you, Myra.

DR. DUVAL: It seems like the recommendations that you have provided for the geographic region that is south of Cape Hatteras would obviously be incorporated into that. The decisions for the remainder of the Atlantic Coast and any other options for how to split things up by management unit for that area north of Hatteras, I'm not -- I definitely appreciate what Scott has put together and thought through, and I think that should be an option, obviously, but I am hopeful that more great minds around the table at the Mid-Atlantic SSC can help shed some light on other approaches as well.

DR. CROSSON: The Mid-Atlantic SSC, as sharp as they are, they're not going to be able to look at this potential biological habitat and come up with any better estimate than we can, and so, at that point, the only thing I see as an option is to, as you suggest, to do something based off of historical landings and go with that, and how you're going to properly weight that, based off of the surge in landings that happened a few years ago in the Mid-Atlantic region, before they got some management into place, I don't know how that's going to be dealt with.

That's a very political type of question as well, but that's the best I can come up with in thinking about that, because the information -- If the information on potential habitat, if the assessment team didn't think it was useful and the review workshop didn't think it was useful and we don't think it's useful, I don't think the Mid-Atlantic SSC is going to see it as useful.

DR. REICHERT: Thank you, Scott.

DR. GRIMES: I just want to ask Scott a question. Refresh my memory on what that habitat-based assessment was based upon. Was it just depth, or was it temperature and depth?

DR. CROSSON: No, there was something about the nature of the bottom. The blueline tilefish like I guess it's a muddy bottom, where they can get in there and get little burrows, and so it was depth, and it was also whether it was a hard bottom or something else that the fish could actually reside in.

DR. REICHERT: Remind me, but there were some estimates of that habitat that could potentially be used or not?

DR. CROSSON: I don't recall.

DR. ERRIGO: It wasn't very -- There wasn't like bottom mapping of everything all across. They estimated where potential habitat could be based on depth and temperature, and, basically, it goes up exponentially the further north you go. However, the population of blueline doesn't seem to do that, which is why we're not sure how useful this is. You see more blueline the further south you go, and you see less habitat.

DR. REICHERT: Remind me. Was that information in the report?

DR. ERRIGO: Yes.

DR. REICHERT: Okay. To that point, Michelle?

DR. DUVAL: Thank you, Mr. Chairman. Jason and I were just talking, and, given what Scott said about the Mid-Atlantic SSC probably not being able to come up with any better determination for a total ABC recommendation for the remainder of the Atlantic Coast other than what you all might do here with this, that perhaps a sub-group of a couple of members or two or three members from this SSC and two or three members of the Mid-Atlantic SSC to wrestle with this question of how best to divvy up that ABC. Thanks.

DR. REICHERT: Thank you, Michelle, and that was exactly the reason why I was asking about timing, in terms of when you would need an answer, and, if we have time to do that, I think that would -- I like that suggestion, and I am looking at John. I think this is something that we probably should try to accomplish before the Mid-Atlantic SSC meets, and that is in -- Can you remind me? Is that in March, when you take this topic up?

DR. BOREMAN: Well, it could be late February or March. It's sometime around that. That's the one meeting a year that we have it floating, depending on what needs to be done, because we will take up golden tilefish at that meeting too, and so we can put together -- I can look for volunteers. We have some social scientists on our SSC that are chomping at the bit to get into stuff like this, and so we can put them on the case.

DR. REICHERT: We may have one, too. I like that idea. I like that recommendation, and I would like to open the floor for any additional suggestions. I think that may provide us with a path forward.

DR. SHAROV: As I recall, the Mid-Atlantic SSC made their recommendations, or they set the ABC, based on the review of the set of the data-limited methods out of the DLM tool, and Mike Schmidtke, who is present here in the room, was the principal analyst on this, and he provided a significant support for the SSC on this analysis. We had the same tool, I believe, used, and Rob Ahrens had done some analysis on data-limited methods, right, Rob?

DR. AHRENS: The analysis was Tom Carruthers and people who had done the management strategy evaluation looking at the suitability of the various methods.

DR. SHAROV: Right. Exactly. It was the very same approach. What I am getting at is that certainly the two SSCs could work together, at least to make sure that the -- If we're limiting ourselves to this approach, that the similar set of methods are being used, or one set of methods will be used in cooperation by a sub-group, as was just proposed by Michelle, that would be the best outcome. How to divvy it up between the councils, that is not our task, but, in terms of providing the overall ABC setting, that is probably the way to go.

DR. REICHERT: Okay. I thought the initial request was also to look into methods and how potentially that ABC could be divided between area of north of Hatteras to the North Carolina/Virginia border, and so I would argue to add that to the terms of reference of this working group.

DR. BOREMAN: I am mulling over in my head what Scott had proposed originally, and something keeps nagging at me. If we have an ABC now that's based on information on landings and catch from Hatteras south, why would we have to subtract an ABC derived from Hatteras north from that to derive -- Wouldn't they be additive?

DR. REICHERT: I think what you were saying, Scott, is, if you have a total ABC, and you know what the Mid-Atlantic Council has considered their portion of that ABC, then you end up with -- I don't think that had to do with south of Hatteras.

DR. CROSSON: No, it's the south of Hatteras results with these north of Hatteras results, which are going to be including the area all the way up the east coast, and so that's the entire eastern seaboard, and so whatever would be the South Atlantic's stock of management would be -- You would have to take away the Mid-Atlantic one, right?

DR. BOREMAN: The ABC we just derived here --

DR. CROSSON: We have only partially derived an ABC. We have not finished deriving an ABC. We need to do one for the north of Hatteras region now.

DR. BOREMAN: That's what I'm saying. Okay. We're not there yet.

DR. REICHERT: No, and I think we're all talking about the same thing.

MR. DIDDEN: I have talked to Mike, and there are some parameters that have changed and are different from what was run here and what he ran, and so there's a potential for -- Even if we were just looking at Virginia north, that ours would be re-run before our SSC would make decisions, but I could imagine a scenario where the sub-group said, okay, if the catch outside of the different parameters is the primary thing that's driving this, split that up and keep all the parameters the same, and then it should be an A plus B equals C kind of thing, but, again, that's something that potentially a sub-group of both the SSCs and some staff could work on.

DR. REICHERT: Okay, and so I am proposing -- I am recommending that we form that sub-group. I am thinking maybe four from the South Atlantic and four from the Mid-Atlantic, but that's just a thought that I had. I don't think it would be good to have too large of a group, and so who in this -- Anne, go ahead.

MS. LANGE: The Mid-Atlantic has their ABC from the North Carolina/Virginia line, and that's been determined. The South Atlantic has an estimate or an ABC that we just derived from Cape Hatteras south, and so the group that we're looking at putting together is going to be coming up with an estimate of ABC from Cape Hatteras to the Virginia line?

DR. REICHERT: No, and correct me if I'm wrong, but the ABC -- That was an ABC that was set for one year, and so this is something that -- John, correct me if I'm wrong, but this is something that is going to be used beyond that, and so it's not just for that portion between Hatteras to the North Carolina/Virginia border. It's for that entire region. That's what the Mid-Atlantic SSC is going to discuss in their February/March meeting. Is that correct, John? Does that clarify the task? Okay. Anyone interested in participating in this working group, and I usually don't ask for specific volunteers, but I think it would make sense, Scott, if you are interested in participating. I think, John, you will probably be part of that group, and you --

DR. BOREMAN: I will find four volunteers from the SSC.

DR. REICHERT: Anyone else on this committee interested in participating in a working group? George. We've got two, and we can talk a little bit more offline later, to see if we can convince some other members to participate, and then the charge for this group is to come up with an ABC of the area from Hatteras north and then come up with a methodology to divide that ABC up between the South Atlantic Council and the Mid-Atlantic Council. Correct? Any additions or disagreements on that?

DR. CROSSON: I would certainly enjoy the company of any of our SSC representatives that were participants in the assessment workshop and who have been vocal today. That's all.

DR. REICHERT: Thank you, Rob. So we have three members. Amy, are you volunteering?

DR. SCHUELLER: No, I am not volunteering. I am just making sure that I understand what's going on. We're giving our task away, basically, that we have right now in front of us, or we're not giving it away, but we're delaying it and partnering with the Mid-Atlantic, in order to make the best-informed decision. My question, I guess, or my concern, is the Southeast Center did this work, and if this -- I am talking about what's up on the screen here, the figures and the different stuff that went into it. I am just trying to make sure that somebody from the Center is at this joint

SSC meeting, and I'm not saying me, and I don't think that means Scott, and I think it means somebody from the assessment team that has come here and presented to us. Sorry.

DR. REICHERT: I agree with you, and I think someone, and I forgot who it was, actually mentioned that this should potentially be an effort that includes the people that actually did the analyses, and so I second that recommendation. In terms of deciding what -- I fully expect that, after this group has come to a conclusion or a report, that this SSC, as well as the Mid-Atlantic SSC, will review that and then make final recommendations to the council, and so I don't foresee this group to be the end-all of that recommendation. Given the timeline, we may have to do that as a webinar, but we can talk about those details later.

DR. BUCKEL: Rob maybe, or anyone else that's familiar with the data-limited approaches, it seems to me, if that's going to be used by this group potentially, it sounds like -- There was discussion that Mike would re-run some of the data-limited approaches with the parameters here, and, if it's only going to use information at the northern part of the population, that doesn't seem like the correct thing to do.

It seems like you would want to -- Several of those approaches rely on depletion, and so it seems like you want to do that for the whole population, the whole east coast population, to develop an ABC. You still have the problems with divvying things up, but it just seems a little odd to only take a portion of that northern catch and use the data-limited approaches. Folks that are more familiar than me with those data-limited approaches can correct me if I'm wrong.

DR. REICHERT: Thank you, Jeff. Anyone?

DR. SCHUELLER: I am a little -- I guess I'm a little concerned by that comment, because I don't know that I -- I don't agree, maybe, process-wise, because -- I will just say what I'm going to say. We have this assessment document at hand, and I don't think that this group is meant to reinvent the wheel. I think this group is to take -- I don't envision them re-running the stuff, because it's already in here, and it just seems like that's a whole other assessment, and that's not -- I don't think that's what the task is, but am I wrong? It seems outside the bounds of the task.

DR. REICHERT: Except for the fact that Jason mentioned that there are some updates for that portion of Hatteras north. I don't think, unless I misunderstand that, I don't think it's an entirely different method, but it's just an updated run. That's what I understood from what Jason just mentioned, but, other than that, I think you're right, but please correct me if I'm wrong on that. That was the only caveat, in terms of a different model. I think that's basically an updated run, or not?

MR. DIDDEN: We haven't kind of thought about it in that much detail. We kind of have been waiting to see the output of the assessment, the review, and this body. I think it would potentially kind of be up to that sub-group to make a recommendation on could you just come up with some way to apportion the output of this or a way to apportion the inputs to this and re-run it, and I think that sub-group would figure out what their recommendation on a way to handle it is.

DR. REICHERT: Thank you. That's a different interpretation of what you said earlier than what I understood. Amy, does that clarify it?

DR. SCHUELLER: Yes, and I guess I looked at the task as apportioning what's coming out of what's already been done, this work. I would hope that whatever new information was available went to this workshop and was in this entire assessment process.

DR. REICHERT: That's why we had this process and had a review.

DR. BUCKEL: Amy, I guess maybe I'm misunderstanding. I thought the ABC coming out of this was only for south of Hatteras, and so then this other group is going to be not only coming up with an ABC for north of Hatteras, but also apportioning that between the two management bodies, but, to develop that ABC north of Hatteras, they're going to re-run data-limited methods on that catch time series north of Hatteras.

The theory behind several of those approaches, it seems that that's not appropriate, only doing it on this recent time series. You would want to do it for the whole population that had that historic catch and when there was depletion, et cetera. That would be an east coast ABC. Then there's still the issue of divvying that up, but I just wanted some discussion from folks that were familiar with those data-limited approaches and the theory that they're based on if it's appropriate just to take the catch north of Hatteras and use the DLM.

MS. LANGE: Erik didn't go over the north of Hatteras portion of what we had done in the assessment workgroup, but my recollection is we were looking at the entire stock, and the problem was the conflict between -- We had landings data for north of Hatteras and for the Mid-Atlantic region, but we didn't have matching indices, and so it wasn't as though it was completely ignored north of Hatteras. It was a matter of a decision was made during the assessment that the consistent data that could be used together ended at Hatteras, but I think there's been stuff that -- There was work that was done by the analysts for north of Hatteras, and I thought it was going to be presented in the next section, but --

DR. REICHERT: Erik did mention that, and he said he did not have any slides for that, because the information was in the report. Erik, I don't want to --

MS. LANGE: I guess my point is that there were things that were done, that the analysts and the assessment workgroup didn't just ignore north of Hatteras, and so think that needs to be involved in the discussion here, as opposed to assuming that there hasn't been anything looked at.

DR. AHRENS: I can try to clarify.

DR. REICHERT: Okay. Please do.

DR. AHRENS: It's my understanding that the DLM stuff that we're looking for includes all of the information available north of Hatteras. The trouble that we were having is that it was unclear how we were going to deal with the catch that was north of Hatteras to the line, because we were unsure, given where that catch was landed, where that catch actually came from, and that was the big conundrum.

It wasn't clear that, if it was landed north of Hatteras between the line, that it came from there or did it come from further north, and so we were -- You couldn't do some proportional catch allocation of this rule here, and so, unless we're going to run -- The Mid-Atlantic can run an

assessment, based on north of the line up and down, and we're still going to run into that problem that we ran into here, which is where did that catch actually come from and how would we apportion any sort of ABC recommendation coming out of this, which is strictly north of Hatteras.

DR. REICHERT: Thank you, Rob.

DR. SHAROV: Both SSCs used the same assessment methodology, the Caruthers DLM tool, which includes forty-seven methods. The Mid-Atlantic used four methods that they singled out to decide on their ABC setting. The South Atlantic SSC had used a few more, and this is the most recent estimate for the area north of Hatteras, to the full extent north.

One of the ways of presenting is to review this and accept or modify it, as appropriate, to date, and then it would be our estimate of the appropriate ABC for that whole area, and it would be up to the Mid-Atlantic SSC later to decide whether they agree with this and whether what they will calculate for their region will end up to be a sub-unit or a smaller number, hopefully, or maybe not, or, alternatively, we do this calculation together, making sure that we use the same methodology, the same set of methods, for the full area. Then, somehow, we'll come up with a method of sub-setting it into the two management regions, and so there are two ways of proceeding through it. There is a possibility for us to set the ABC today for the full region.

DR. REICHERT: Thank you for that, and you're absolutely right. I have Yan and Scott, and then we need to come up with a recommendation and a decision and a task for this working group.

DR. JIAO: I am not a member of the South Atlantic SSC, and so, if you think it's not appropriate, just ignore my comments.

DR. REICHERT: You are fully participating in this process.

DR. JIAO: From a stock assessment view, first, unless those sections north of the North Carolina/Virginia border and then north of Cape Hatteras to the Virginia border and then south of Cape Hatteras, unless they have a life history that is the same or change consistently, follow the same trend, and their catches are following a similar trend, then you can take like A plus B plus C equals the total quota and using the data-limited approach. Otherwise, it's better to do the -- At least as an alternative sensitivity analysis, for each region, and a separate one of the data-limited approach should be used, to make sure that the historical catch in different regions wouldn't influence the recommended ABC and ACL from each region, because, like if you put two regions together, actually they have different catch history in each region, and it will be risky for one region versus the other region.

Also, for the Mid-Atlantic ABC and OFL recommendation, the catch north of the Virginia border area has already taken a relative conservative way when the catch was calculated, and, from the -- Again, it's another reason to think about using the data-limited approach for south of Virginia and then up to the north of Cape Hatteras, at least to do a separate one to see whether you get an ABC recommendation that is consistent between putting them together and then separate them separately, and that's my comments about using this data-limited approach and setting an ABC for just the region north of Cape Hatteras to the Virginia border.

DR. REICHERT: Thank you. Scott, and then we need to start making a decision on where to go and how to move forward.

DR. CROSSON: I still think that we should go with what I originally proposed, in terms of at least giving an ABC recommendation for the north of Hatteras region that's using the model results in front of us. I mean, it's a data-limited approach, but it's been through the SEDAR, and it has the stamp of approval of the SEDAR review panel, and so I think it would be good for this committee to make a recommendation from that. It's the most recently scientifically-reviewed document that's out there, and so I think we should make an ABC recommendation.

Again, we'll have that for the north of Hatteras region. We're not going to have it differentiated out for the Mid-Atlantic and South Atlantic jurisdictional boundary, but I think that's what we should be accomplishing right now. At that point, then we can get into whatever the specific TORs are that you want to give to those members of this sub-committee that are going to be going and meeting with the Mid-Atlantic Council, but I really would think that that's the best thing we can do at this moment.

DR. REICHERT: Yes, and that's actually what I wrote down here, and so we have that information. This is page 381 in Attachment 17, and so that information was available, and so let's do that as the first task. First, the committee agreed that we should set an ABC right now, and then the working group can be tasked with methods to determine the ABC from Hatteras to the Virginia/North Carolina border, and so I would like to open the floor, in terms of recommendations, for the ABC, based on the presented information. Anyone?

DR. AHRENS: I think, given that there was quite a good signal in the mean length data that went in, I would like to consider focusing on the mean length method.

DR. REICHERT: Okay. Is anyone disagreeing with that? Seeing none, what would that lead us to? Remind me of which in the colors are we talking about here?

MR. CARMICHAEL: The ones with ML are this bright blue, Carolina blue, and what's this, fuchsia?

DR. REICHERT: Just what is the name of that curve? Mike is looking up a table that can guide us further. If we can recommend the method used, then the table would provide us with an ABC, and we can fill that value in later.

MR. CARMICHAEL: Rob, is there a mean length version that you prefer? Anyone on the committee, is there one of these versions that you prefer, the Fdem or the YPR?

DR. AHRENS: It's really a color preference at this point.

MR. DIDDEN: I had just one point of clarification that I wanted to make. We took that outputs of the DLM toolkit and did run it through the management strategy simulation to filter down to set our criteria, based on the simulation and the MSE, and so it's a bit of an apples-and-oranges, in terms of looking at the spread of ours that were considered and the spread that's up there, and that's all.

DR. BARBIERI: It's just that I was just kind of whispering here with Rob before about seeing those performance metrics, and they usually give us some guidance, right, and I couldn't find them in this report.

DR. AHRENS: If you scroll up, we actually did this, because we have a comparison for the methods run for south of Hatteras and how they performed relative to the ASPIC run. If you go up to Figure -- It's on page 141. It's Figure 57, Distribution of TACs from South of Hatteras, using the DLM analysis, and it shows the distribution of those various methods relative to the MSY that came out of the ASPIC.

DR. REICHERT: This is page 377.

DR. BARBIERI: This is using the data for south of Hatteras?

DR. AHRENS: Yes, and so this is using the data from south of Hatteras, but we truncated the mean length distribution so that it had a good signal in it, similar to the signal that existed in the mean length data north of Hatteras.

MR. CARMICHAEL: Do people think that an appropriate move is for this working group to take the general runs that were done here and run it through the MSE, as they did, and use that and then maybe use the -- Can you do that and then use the mean length models to get your ABC?

DR. AHRENS: Depending on the MSE that you run it through, a lot of the MSEs will have uninformative mean length trajectories in them, and these methods fail horribly when you have bad mean length information, and so they can get kicked out as not good methods, and so you have to be a little careful about how you filter it. There's a few more methods, and I know Merrill Rudd at the University of Washington has developed a mean length method that's a little bit more robust that you might consider, but -- I like the south versus north comparison of them relative to the ASPIC run. I think it's a useful comparison.

DR. BARBIERI: This is first, and it's like a proxy comparison, right, that gives us a look at the performance metrics, but using that proxy data that has been adjusted to -- Okay.

DR. REICHERT: So where is that leaving us?

DR. AHRENS: Carolina Blue or fuchsia.

DR. REICHERT: This is basically consistent with what we recommended earlier, correct?

DR. AHRENS: Yes, and, if we don't want to pick between the two, let's just average the two.

DR. REICHERT: Okay.

DR. AHRENS: So pick the two mean length ones and average the results and move forward from there.

DR. REICHERT: Anyone disagree?

DR. SCHUELLER: I guess I am -- Are we picking the peak there? Is that what we're doing?

DR. AHRENS: We're going five pages down and picking the modal value.

DR. SCHUELLER: The modal value and not the 50th -- I will say that I'm looking at the -- These aren't symmetrical, and so, if you look at the tables, like the 50th percentile, the median doesn't match up with the peak on that distribution, and so I think, if we're saying we're taking the peak of the distribution, that's fine, but that's not in the table. Do you see what I'm saying?

DR. AHRENS: Right, and I think we can go with the 50th and then apply the P*.

DR. SCHUELLER: But the 50th doesn't -- I am not okay with the 50th, because, if you look at the value for the 50th, it's way -- For the South Atlantic Table 23, PDF page 308, the 50th percentile for the blue and the pink lines are 263 and 278, and so, if you go back to the figure, is that the north of Hatteras? We need to go to the one that's comparing it to the ASPIC run. We're talking about numbers of 263 and 278 for the median, which is above the ASPIC run, and it's not the mode, and so it's different, and it matters and so I am proposing mode and not median.

DR. AHRENS: I like it.

DR. REICHERT: Okay. Mode. Where does that leave us?

MR. CARMICHAEL: When you say mode, don't I have to use the north of Cape Hatteras DLM analysis, and so you're talking like in this area?

DR. SCHUELLER: Yes, right there, but that's not the 50th percentile.

MR. CARMICHAEL: Right. You're talking the mode, and, whichever one you pick, it's about in there. You're talking about 175 or so.

DR. SCHUELLER: Correct.

MR. CARMICHAEL: What do you guys have now?

MR. DIDDEN: It's eighty and change, I think.

DR. REICHERT: Let's keep the conversation around this table, because it's hard to follow as it is, and so can we repeat what was just said, please? What was the question, and where are we now?

MR. DIDDEN: The current Mid-Atlantic ABC is about 87,000 pounds.

MR. CARMICHAEL: You have the median of -- You want to take the average of those two runs or the mode, excuse me. The mode that is the average of those two runs, or is there one -- It doesn't seem like there is reason to pick one over the other.

DR. SCHUELLER: I am indifferent about that. I was just making sure that we're not using the median, because that is very different than the central tendency, as we're observing up here on the figure. I don't think those numbers are going to be very different.

MR. CARMICHAEL: Mike, you have done this and worked on this for the Mid's version. Does that make sense, based on what you know of what you applied already?

MR. SCHMIDTKE: Yes, it makes sense, and like what we did last time was we did use the median, because that was the input, I guess, reference value, so to speak, that's in the DLM tool, but I actually am working on something that's more along the lines of Amy's suggestion of using the mode, because that sets central tendency. If you use the median, that's going to bias you high relative to what that tendency is, because of the shape of the distribution.

DR. BARBIERI: I wonder, and not to go back to square one, but I wonder whether the sub-committee composed of the members of the two SSCs, if it wouldn't be better to go back to that. I mean, usually, we have so much more, in terms of going through the diagnostics and seeing how the different methods -- How things shake out, in terms of the choices that you make, just for your methodology, and you can see the results of the MSEs, and you go from there. I think that, right now, because we don't have all those outputs in front of us, it's kind of difficult. Do we?

DR. REICHERT: They're all in the report.

MR. CARMICHAEL: It sounds to me like you guys have got a -- Call it a strawman recommendation, for lack of a better term, that could go to this sub-group and say, this is what we think is an appropriate interpretation of these results. You can make that as a recommendation, that they evaluate -- If they have some insight, and they can come up with something that says, you know, actually, after looking over this more, we have decided that maybe this is a better way, and they can justify that, then I think they should have that bit of leeway, particularly if you're saying their recommendation comes back to the individual SSCs.

I think it certainly helps to give them a direction that you're headed and say this is what we think, and do they concur, and then maybe they do, and maybe they can refine it slightly, but I think you've given good direction to that group, which is better than just leaving it wide open. Then you're saying you would like it to be built off of the information that you have here that has come through the SEDAR, and that is also useful information for them.

DR. REICHERT: I would like to make that first charge of that group, and then the second charge is to come up with a method to divide that ABC that the respective councils can use and obviously justify that decision and then bring that back to the respective SSCs, so we can review that and make recommendations to our respective councils. Is that sufficient guidance for this group? Do we need to be more specific, John? Then I have two other practical things. How is this group going to meet? Procedurally, can we, as an SSC, decide on that group, or is this something that needs to go as a recommendation to the council, and then the timeline of when this all needs to be accomplished, and there may be some other logistical things that we need to briefly talk about.

MR. CARMICHAEL: I think you would make a recommendation, if it involves meeting and taking action. The council leadership would probably like to take a look at it. I can't imagine that they would appoint other members than those who you identify here. It would be a courtesy to let

them know what is going on, and you can provide that through your report, but I think a bigger question is, yes, how is this going to meet? Do you envision this group meeting via webinars, or do you have a request for in-person meetings somewhere on neutral ground halfway between Charleston and Dover?

DR. REICHERT: I don't like webinars, but, in this case, I think a webinar would be very appropriate, and maybe the easiest way to set things up, because, otherwise, the scheduling is probably going to be a lot more complicated to get everyone in one location. I would recommend to do this via webinar, and I would like to look at the people who just volunteered to do this and whether they concur with that or whether they disagree with that, that meeting via webinar could accomplish the goals.

DR. CROSSON: This sounds like a fairly complicated task. I am having a hard time imagining doing it via webinar. I am not wanting to travel for it, but I'm just saying that this is -- Given the technical nature of this, I am wondering how effective it will be to do this through a webinar. I don't know.

DR. REICHERT: Okay. I am open to make that recommendation. Rob or John, recommend an in-person meeting?

DR. BOREMAN: I can't speak on behalf of the council, but I'm sure that this is important enough that they would support an in-person meeting.

MR. CARMICHAEL: You request an in-person meeting, as John said, and then the council directors and chairs will have to figure out if that's something we can handle.

DR. REICHERT: Okay.

DR. AHRENS: My concern is I think you're still going to get down to the intricacies of where the catch came from and how you figure that out, and I don't know if you can handle that on a webinar.

DR. REICHERT: Okay. The other thing is, and that goes back to what Amy mentioned earlier, is should we recommend to have someone from the analytical team there? I think that's very important, and so I'm not sure if we should make that recommendation. Who is ultimately making that request? All right. We did. Anything else?

MR. DIDDEN: I think, while this approach seems reasonable, from a staff perspective at this point, I think participation of our SSC and staff will have to go back through our council leadership, also.

DR. REICHERT: Thank you. By analysts, I meant not just folks from the South Atlantic, obviously.

DR. CROSSON: A technical question. Does this have to be in the Federal Register and a public meeting and all of that?

MR. CARMICHAEL: My first instinct is yes.

DR. REICHERT: So we have a path forward.

MR. CARMICHAEL: Do we have a time forward? Are you hoping to get this done before the Mid's SSC meeting in late January or February or early March?

DR. REICHERT: February/March is when you guys meet, and I think it should be done before that, and I think, in listening -- I think, at that point, that would also be an opportunity for the South Atlantic to review the outcome of that meeting. That means that we've got the holidays in there, and are we talking about January, or are we talking about earlier than that?

MR. CARMICHAEL: I think you are, just thinking from memory of what's already on the calendar, and considering we're going to have a red porgy workshop already squeezed in after the council meeting in December.

DR. REICHERT: January?

MR. CARMICHAEL: You're probably talking about January. Vermilion. Did I say the wrong species? Forget that then, but still it's tight, and so perhaps January might be best.

MR. DIDDEN: I think, earlier at the table, I said that I had envisioned -- Typically, we do tilefish in March. Because of potentially some limitations, I wasn't quite sure if that was going to be March or May, and so I just don't know exactly.

DR. DUVAL: I understand that you all have requested an in-person meeting for this discussion of the sub-group. You may just want to consider an orientation webinar, just to kind of bring Mid-Atlantic folks up to speed and have a quick review of the information, and that might be cost-effective and efficient, if you're then going to move forward with an in-person meeting, but that's just a suggestion.

DR. REICHERT: Where does that leave us? Is that it for blueline tilefish? We just need to get the number, and Mike was going to look that up, and we can put that in our report. With that, it's 4:10. I would like to take a ten-minute break. Then we'll come back, and our next agenda item is golden tilefish, because Kyle is giving that presentation, and he is here today.

(Whereupon, a recess was taken.)

DR. REICHERT: Welcome back. Our next agenda item is the Revised Golden Tilefish Assessment, Agenda Item 10. Kyle is going to give a presentation, and I want to remind the committee that the attachments are Attachments 20 and 21, and the assignments for this are Church, Anne, Laura Lee, Genny, and John Boreman.

A reminder of the action items here is, is the application of the new likelihood adequately documented, evaluated, and described? Is the new likelihood fitting approach appropriate for this assessment? Does the SSC recommend basing stock status and fishing level recommendations on one of the new assessment runs? Can the SSC provide any additional advice or recommendations on fitting algorithms for future assessments? With that, I will hand it over to Kyle. After Kyle's presentation, we will have an opportunity for public comment.

REVISED GOLDEN TILEFISH ASSESSMENT

DR. SHERTZER: Thanks, Marcel. I am happy to report that, compared to your last agenda item, this one should be terribly boring.

DR. REICHERT: Yay.

DR. SHERTZER: This was the request from the council, is that we redo the 2016 tilefish update assessment that Genny Nesslage did and essentially just replace the robust multinomial likelihood with the Dirichlet multinomial likelihood for fitting the age and length composition data, and everything else was intended to stay the same. Then there was a suite of projections that were requested.

Just a quick review of the data sources that were available for this assessment. The landings, there were three fleets that were modeled: commercial handline, and that had data for 1962 through 2014, which was the full timeline of this assessment; the commercial longline for the same years; and then the recreational fleets that were combined, the headboat and general recreational, and those started in 1981 and ended in 2014.

There were two indices of commercial longline, and that's 1993 through 2014, and that was really the primary index for this assessment, and there was also a MARMAP longline index, but it was a weak index for this one. They had only five years that were available, and they were pooled years, because of low sample sizes, and the CVs were quite high for the years that we did have. There were length comps for the three fleets, and there were age comps available for the commercial fleets and then the MARMAP longline. I also put on this slide the mean sample size for each one, because I wanted to give you an idea of the scale of the low sample size that we had, and so this is number of trips that were sampled, on average, for each of these fleets.

You can see, for commercial handline, it was 4.1, which is very low, and commercial longline was about thirty, and recreational was 6.25, and so keep in mind that this is relative to how many length bins there are, or how many age bins there are, and so, in this case, there were twenty-five ages being modeled, and there were twenty-three length bins being modeled.

This plot is to give you an idea of the scale of the landings in numbers and also to just give you an idea of the relative proportions among the fleets, and so it's mostly commercial longline with roughly 20 percent or less commercial handline and then a small amount of the recreational landings that had a larger proportion towards the end of the time series in the 2000s.

Life history input included fixed growth parameters, with an L infinity of about 825 millimeters. The maturity schedule had age-one at about 10 percent maturity, age-two at 25 percent, age-three at 50 percent, and age-four and beyond was 100 percent mature. The max age is forty years old, which implied an M of 0.11. Then the assessment used an age-dependent M based on the Lorenzen curve, and so that curve decreases from about 0.3 at age-one to about 0.1 at the oldest ages.

The assessment model configuration, as I said, it's really the same as the update assessment that was done and finished last year. I don't know if there's really any need to go through these, other

than I did want to point out that the spawning stock is based on mature female gonad weight, and the steepness was fixed at 0.84.

The initialization in 1962 was assumed a stable age structure, given a small initial F, reflecting that the landings were very small in that year, and the recruitment deviations were estimated starting in 1976, when the composition data were believed to be informative, but then ending in 2007, before the terminal year, because there is very little information at the end of the assessment, given the selectivities that were being estimated, so that we don't see the younger fish in the composition data.

Uncertainty was estimated through the usual Monte Carlo bootstrap approach, and so, again, just the primary difference here in this assessment versus the last one was replacing the robust multinomial likelihood with the Dirichlet multinomial likelihood for fitting composition data, and, initially, the intent here was just to replace that and move forward. Before trying this exercise, we expected that to work very well, given what I would say is limited experience with the Dirichlet multinomial, but, unfortunately, it didn't work out that way, and so we had to try some different modeling approaches.

The main issues that we ran into were, one, that the Dirichlet multinomial parameters -- For each composition, there is an estimated parameter that controls the variance inflation, and, in this case, the parameters themselves were not identifiable, and I will show a little bit more about what I mean. Another issue was that there was a degraded fit to the primary index of abundance, the commercial longline index, and then another issue that we ran into was model convergence.

This bit about the identifiability, these plots show a likelihood profile on the three length compositions, and I know you can't read this, but on the X-axis is the parameter value that's being estimated in log space, and the Y-axis is the total likelihood, negative log likelihood, but the key here is that it flattens out, and so you're looking for a minimum. In this case, there is no well-defined minimum. There is a wide range of values for which you achieve the same likelihood, and that's true for each of these length comps.

For the age comps, you see something very similar for the commercial handline and for the commercial longline. For the MARMAP, it turns out that there is a minimum that you can see, and this is what we would like to see when trying to estimate any parameter, is a well-defined minimum, and so this was the only parameter, Dirichlet multinomial parameter, that could be well estimated just from the data, and I just wanted to point out that the sample size, on average, for the MARMAP was quite a bit higher than for the other compositions.

Just for comparison, these are likelihood profiles from the red grouper assessment that also used the Dirichlet multinomial that you reviewed last spring, but this is what we would like to see, is these well-defined minima for each of the parameters, to show that the parameter itself is estimable.

The conclusion from that is that the Dirichlet multinomial parameter is poorly informed by the data, and so that doesn't mean that the distribution can't be used, but we need to do something to inform the estimate of that parameter, and so I guess there's a couple of ways to approach this.

The way that I approached it was to use a prior distribution. For the one case, the MARMAP age comps, where it did have a well-defined minimum, I defined the mean of the prior to be equal to the location of that minimum. In the other cases, it was defined to be basically where the likelihood profile saturated at its low value. Another approach would be to just fix it, because what is happening in those cases is that the estimated -- Essentially, the estimated effective sample size is asymptotically approaching the observed sample size, and so it's saying -- For example, if the observed sample size is thirty, it's saying that's what the effective sample size should be in the Dirichlet multinomial.

As the parameter, the variance inflation parameter, gets higher, that relationship to effective sample size to observed sample size saturates, and so you don't see any difference in the effective sample size for higher values in the variance inflation. In those cases, fixing the parameter would be one solution. I ended up putting a prior on it, and so I think that took care of that problem.

Another problem was this degraded fit to the primary index of abundance, and this plot shows what I mean by that. On this curve on the left, the red points are the observed values, and the blue-dashed curve is the fit to the index from the last assessment, the update assessment, and then the black curve is the fit from this assessment, and this Model 1 on the left is just the straight substitution, and so nothing else changes except the weighting on the index. They are all set to one, and so there is no additional weighting there, and you can see that you very much lose the fit to the commercial longline index.

Now the one on the right assumes the same weight to the commercial index that was used in the update assessment. In that case, with the Dirichlet multinomial, you achieve a fit that's almost as good as the last assessment. Not quite. It's missing an -- I would say it's not as close to the data in the terminal years, but it's much better than the one on the left.

Then the final issue was model convergence, and what we observed here was that the maximum gradient was not within the specified tolerance, and so this is indicating some type of scaling issue within the model that we didn't see before with the other likelihood. I don't have very strong intuition on why this is the case with the new likelihood, but I just observed that it was happening and that it's a problem, in terms of model convergence.

We looked at a series of models. In trying to choose a model, we had a couple of criteria. The first was that the model had to converge. If it didn't converge, it's not worth considering. The second was that the fit to the index was at least as good as the last assessment, the update assessment, and so what's shown in the right-hand column here is the mean square error of the fit to the commercial index, and the SEDAR 25 update, the last assessment, is shown in this top row, and then there is a series of models. The first one was just that straight substitution, but with no additional weighting on the indices. That model didn't converge, and then the next model, Model 2, is the straight substitution, but with weights on the indices that were the same as in the last assessment. That model didn't converge.

For the rest of the models here, the weight on the indices is the same as the last assessment, except for the ones where it's indicated that it's higher. For Model 3, this is using the priors on the Dirichlet multinomial parameters, and then those were used in all subsequent models as well. That model didn't converge, and then there is a series where the commercial index weight was increased twofold, fourfold, sixfold, and those did not converge.

Then there is a model where the Dirichlet multinomial parameters were fixed. They weren't estimated, but they were fixed, and they were fixed in a way to mimic the effective sample size that was used in the last assessment, based on the iterative reweighting. That model didn't converge, and then there was another one that the composition likelihoods were scaled by the 2016 update weights, but the Dirichlet multinomial parameter was still estimated, and so it's sort of a two-phase process on the estimation.

That one didn't converge, and then the ninth model -- Look here. This one did converge. This is when we took the same as Model 8, but multiplying the composition weights by 0.1, and so it is sort of down-weighting the composition data and then allowing the scaling parameter to also affect the relative weights of the compositions.

Then there is another one, Model 10, where all of the likelihoods were scaled by the same amount, 0.01, and then the Dirichlet multinomial parameters were estimated, and so we went with Model 10 as sort of a base or reference run, because it seemed to be more in line with just allowing the Dirichlet multinomial parameters to guide the relative weighting, because they're all receiving the initial same weight, rather than starting from the iterative reweighted robust multinomial approach, which seems rather convoluted and more affected by the previous assessment than what the intent might be here with just using a straight Dirichlet multinomial. Again, there is some issue with the scaling in this assessment, and we were able to evade that issue by down-weighting all the composition data.

The rest of these fits to data and results are sort of based around this Model 10, and I'm just going to scroll through the fits to the comp data, and stop me if you want to see something more closely, but the bottom line from these fits is that they fit either very similarly to the last assessment that used the robust multinomial or, in some cases, slightly worse.

These are commercial handline, starting here, and commercial longline, starting in the right-hand column, and we will get to the recreational lengths. These are age comps and commercial longline age comps, and then the last column are the MARMAP age comps. These are fits to the landings data, and, again, the model is configured to fit these very closely, and so the fit to the commercial longline index. These are the fits to the very noisy MARMAP index, and this is the -- This is a base run estimate of spawning stock that shows this decrease in the 1980s and some increase since 2000, sort of winding up in between the MSST and the SSB MSY.

This shows recruitment patterns over time, and it's a very well-defined spawner-recruit curve. This is fishing mortality estimated. This is F over FMSY on the left panel, showing overfishing in the terminal few years, and then the right panel breaks F up by fleet, and so you can see that most of F is coming from the commercial longline fleet, which makes sense, given the pattern in landings.

Uncertainty analysis, it's our usual Monte Carlo bootstrap approach. I thought I would at least point out the components of the Monte Carlo part. It includes a uniform distribution on the age-independent natural mortality. That ranges from 0.03 to 0.21, and then that's used to scale the Lorenzen age-dependent M. Steepness is drawn from a beta distribution, and it's truncated to a range of 0.32 to 0.99, and so some rather broad ranges for M and steepness. Then the commercial

index, which had a weight of three, has a weighting that is plus or minus 25 percent of that scheme, and so 2.25 to 3.75.

These are the distributions from the MCB of the benchmark values. Here, the solid line is the base run MLE estimate, and the dashed line is the median from the MCB analysis. FMSY is on the top-left panel, and SSB MSY is on the top-right panel. MSY is in the bottom-left panel, and then BMSY is in the bottom-right panel.

This is a scatter plot of all of the MCB results. This has F over FMSY on the X-axis and SSB over MSST on the Y-axis. These are those distributions, a different way to look at the last plot, and so the top panel has SSB over MSST, and, in this case, the base run estimate shows that the terminal ratio is less than one. The median, on the hand, shows that SSB over MSST is greater than one, and, of the full distribution, 59 percent of the distribution is below one, suggesting that it's overfished, but I would say there is a lot of uncertainty in that estimate.

The bottom panel shows F over FMSY, and, in that case, both the base run and the median are showing overfishing, with the values being greater than one, and about 79.1 percent of the distribution exceeds one. I just included the table of values, in case you needed it for reference, but I won't walk through them.

Then I did want to show the comparison to the last assessment, at least in terms of time series of F over FMSY and the time series of SSB over MSST. The top panel is the F over FMSY time series, and you can see that they are very similar, and likewise for SSB over MSST. The time series are very similar between the two assessments.

Projections, they're carrying forward the MCB runs, starting after the terminal year, and so these start in 2015, and so this means that there's an interim period here of about four years, since any new management wouldn't take place probably until 2019. 2015 and 2016 applied current F. 2017 applied an ACL of 558,000 pounds gutted weight, and then one of the branching points in these projections was the 2018 ACL, whether it was status quo, meaning the 558,000, or whether it was a reduced ACL of 323,000 pounds. Then that was one branching point.

The other was just what F to apply, and it was based on either a P* of 0.3, a P* of 0.35, a P* of 0.4, or 75 percent FMSY. This is just an example of the output, but I think, in all cases, this bottom-left panel shows the probability of the stock being above MSST, and I think, in all of these cases, they were above MSST. Not always in the same year, but, by 2020 or beyond, above MSST. Then I included the tables of output from each of the assessments, and not to walk through them now, again, but in case you needed to look at them while you're deliberating.

Conclusions from this assessment are that it indicates that tilefish are experiencing overfishing. The status of overfished is uncertain, or the base run would indicate no, and then 59 percent of the MCB runs and the median would indicate yes, and also this assessment was really not as straightforward as we had hoped. The simple substitution of likelihoods didn't work out as we thought that it might, because the model didn't converge, and it lost fidelity to the commercial index. Then the parameters for the Dirichlet multinomial were not identifiable.

Of the ten models that we explored, only two of them converged, and I did want to point out that although there have been some studies showing the advantages of the Dirichlet multinomial

distribution, I think more research is needed, or at least that's one lesson that I have taken away from this, is that there is more research needed to understand its limitations and where it may not work.

Model 10 was presented here as the base run, but I guess I would urge the SSC to consider it carefully before adopting it for management recommendations, in particular this idea of having to scale or the scaling that was applied to the likelihoods of 0.01 before applying the estimated parameters.

DR. REICHERT: Thank you, Kyle. Before we are going to have questions and the discussion, I want to invite anyone who would like to make a public comment to the table. Rusty.

MR. HUDSON: Thank you, Mr. Chairman. Rusty Hudson. With regards to what we just listened to, I am going to read from a prepared statement, and then I have a couple of things to add to that. With regards to -- At the May 2016 SSC meeting, we provided you with a written comment, including a thorough review of the suggested rejection of the SEDAR 25 update for golden tilefish, as it was confounded by assumptions, such as the use of the multinomial likelihood analysis and selectivity changes that were made without consultation of fishery experts, because it was an update that no longer involved fishery experts.

These assumptions were not consistent with the SEDAR 25 benchmark assessment that did involve fisheries experts. Further, the 2016 update is now out of context with results from an extensive and spatially-explicit 2016 NMFS-funded fisheries-independent cooperative research proposal, and see the plot below that we provided in our comment.

We agree with concerns that the council has raised to you on these issues, and we support their call for a new golden tilefish stock assessment as soon as possible, and it needs to be, at a minimum, a standard, something that you all talked to this morning, with a physical meeting and fishery experts involved. We are disappointed that the SSC allowed the Science Center to deviate from SEDAR protocol and utilize the multinomial likelihood analysis in the 2016 update stock assessment, when clearly that likelihood analysis had not been adequately reviewed and accepted for use by the greater scientific community.

We are aware of Chris Francis's 2014/2016 published criticisms of the use of the multinomial likelihood, and we appreciate the Southeast Fisheries Science Center's attempt to re-run the update with the more accepted Dirichlet multinomial likelihood. However, it is clear that the newest update model had issues converging, and, hence, is even less reliable than the 2016 update for indicating stock status or development of projections for ABCs.

In summary, we caution the SSC to not accept any stock assessment models for golden tilefish that are not consistent with the original benchmark base model of SEDAR 25. Further, we recommend that you use the findings of the NMFS-funded 2016 tilefish cooperative research proposal report as interim advice until a legitimate reassessment of the fishery stock can be achieved and with the ACL that's been currently set at 558,036 pounds gutted weight that has been in place now for several years, of which 75 percent was allocated to the longline fleet, which wound up getting endorsements, so that it became a limited fishery.

The open-access fishery got 25 percent, and they have been catching most, if not all, or in one year exceeded, their allocation, which was an indication of a healthier stock, in our minds. The twenty-two boats are mostly operating out of the Florida region, a spatially small area. The CRP showed that there was a lot of areas not fished, and the idea of dropping down to 323,000 pounds gutted weight just does not fit with the concept of an update of simply adding in a couple of extra years of data, like it was originally supposed to do.

Instead, we wind up with, at between four-dollars to five-dollars-and-fifty-cents a pound, between almost a million dollars to $1.2 million dollars in impact to both of these user groups, and that is just so wrong, and it needs to be readdressed. Now, you all have in the schedule of 2019 the golden tilefish assessment. There should be no further delays with that, because we need to stay there.

If you go back in time to 2003 and 2004, it was a million-pound quota. Then an assessment was done that gave a 295,000-pound quota. Since SEDAR 25, which involved fishery experts, we have the 558,000 pounds, but, with the behind-the-doors update -- When we originally created the standard hybrid that the Science Center wanted to use as a third way of doing things, that would involve fisheries experts, but the update was supposed to be to simply add in the last couple of years of data and move on and not go and make these other changes have been so terribly impacted, and so I searched the literature today, and I could not find a Socioeconomic Panel analysis of this impact from the first update, much less what this second update, if desired to be implemented, would be even worse. Thank you for your time.

DR. REICHERT: Thank you, Rusty. Michelle.

DR. DUVAL: Just one point of information, which is included in the projection slides that you saw in the presentation, but the council had requested an interim rule to reduce the golden tilefish annual catch limit to the yield at 75 percent FMSY, and so that's that 323,000 pounds that you see there that Kyle showed you in the different projection scenario. An interim rule request has similar characteristics to an emergency rule request. It is an interim emergency rule to reduce overfishing, and so that's just a point of information for the committee.

Then the other thing that I just wanted to bring up is the stakeholder concerns that I have heard about several times, and this is likely something that would have to be explored in a standard or a benchmark, but there has been concern about lack of commercial fish house sampling, I think south of the area, south of Cape Canaveral, and I know that, when we see an assessment report and it shows the various streams of removals, you will often see removals by state, but it's not necessarily broken down further than that, and so that's just something that I put forward for future consideration, is if there might be some way to look into that commercial fish house sampling to see if there is adequate sampling that is occurring

This is, again, a concern that has been brought forward by some golden tilefish fishermen to me, namely because apparently the folks down there tend to harvest smaller fish, and the folks in Cape Canaveral and north are harvesting larger fish, and it has to do with the size distribution of the fish that's being captured and the fishery-dependent sampling data. Thank you.

DR. REICHERT: Thank you, Michelle. Any other -- Seeing none, I would like to open the floor for questions. I have a few, but I saw that Rob has his hand up.

DR. AHRENS: I was wondering if we could just get a quick clarification. The iterative reweighting that was done, was that the McAlister and Ianelli reweighting scheme?

DR. SHERTZER: It's the Chris Francis recommended one.

DR. AHRENS: Okay. Do we know -- If you read the Thorson 2007 paper in *Fisheries Research*, the Dirichlet multinomial is really -- The performance of it is compared to iterative reweighting, and it performs just as well, assuming it works, and so I think that's something to consider, that if the previous assessment had iterative reweighting in it, that kind of is the standard that the Dirichlet is compared to, and it's my understanding that the Dirichlet -- The advantage of it is you just don't have to go through an iterative reweighting process, and, therefore, it's computationally more efficient.

I guess my other comment is I don't know how well it has been vetted against sparser composition datasets and in terms of the ability to estimate that annual parameter, the Dirichlet part of it, and I don't think that's been fully explored, and so I have -- I think, because it's compared to a reweighting standard, I have no issues defaulting back to the previous iterative reweighting assessment until we can better understand where sample size issues actually cause problems in kind of those likelihood profiles.

DR. REICHERT: Thank you, Rob, and maybe my question, although I am probably not that intimately familiar with these methods, is you talked a little bit about the limitations of the Dirichlet, and I was asking if you could elaborate a little bit, and maybe some of that is what you just mentioned, but could you say a little bit or elaborate a little bit on that?

DR. AHRENS: Sure. I think it's an open question at this point, and we don't know where the limitations are or where it breaks down, and I think it really begs for a simulation study, but the difficulty is how do you set up the error structure in the simulation study that you're trying to test. We have been wanting to do such a study, but, if the SSC has recommendations on how to set up the error structure that mimics the types of errors you would see in composition data in the Southeast, then we would be very interested in hearing that.

DR. REICHERT: Anyone else have questions or comments?

DR. GRIMES: That spike in the landings of I think it's the commercial longline landings in the 1980s is in there, and that same thing was in the blueline tilefish, and the complaint that somebody lodged there was that was just all tilefish. Is that an issue here?

DR. SHERTZER: It may be, especially if it wasn't blueline and the classification to species wasn't as well done back then. I didn't attempt to address that here, because I was just trying to look at the likelihood.

DR. REICHERT: So what I'm hearing you say is that may be equally influential to the outcome of the stock assessment.

DR. GRIMES: Yes, and, if it's true about blueline, it's the same problems for this assessment.

DR. REICHERT: Anyone else? We have a recommendation on the table from Rob, in terms of whether we should accept this as a model run to base recommendations on, and I think Rob said that we probably should consider not doing that. Is that the correct interpretation for what you said?

DR. AHRENS: Yes, I think so.

DR. REICHERT: Anyone else?

DR. BOREMAN: I agree. I think that's what Kyle was kind of hinting at too in his presentation. There is still too many questions about this and its appropriateness and are we gaining anything by doing it, other than what we had, and so I agree that it's probably not ready for primetime yet.

DR. REICHERT: Thank you. I agree with that, too.

DR. BARBIERI: I want to say that it's difficult to evaluate how this performs relative to the other one, or anything else for that matter, because the problems with sample size and the data seems to be persistent, and so it's very difficult to evaluate what the actual performance would be relative to something else that was used in the past.

To me, I think this was very informative, Kyle, and probably a lot of work to go through, but there were questions from the council, and this committee had faced that issue, and I thought that, when Genny came and presented the update, I thought it was very well done and very reliable, in terms of us going through that entire process, but it's nice to see how the two compare using basically the same kind of data and not seeing any significant differences, and thank you for that. I thought that was very helpful.

I just want to say, Mr. Chairman, that, when we get to the right point here, is highlight the importance of improved data collection for this species, because Rusty brought up the point of another assessment as soon as possible, but, unless we have better data, we're going to be pretty much in that same situation, where the uncertainty is going to be just very high, and so I enjoyed the presentation, and thank you for that.

DR. REICHERT: Thank you, Luiz. Anyone else?

DR. SCHUELLER: I just want to say that I agree with what Rob had said originally, that we should not move forward with this, and then I'm fine with defaulting back to what was done for the update.

DR. REICHERT: Anyone else? So there is consensus on that recommendation? Then I would like to go through some of the action points, and some of them may be irrelevant, but is the application of the new likelihood adequately documented, evaluated, and described? We agreed that that was very well done.

Is the new likelihood fitting approach appropriate for this assessment? I think there's a lot of questions still, and so, based on what we just discussed, that answer would be no. That also means that we do not recommend basing stock status of fishing level recommendations on this new assessment. Then, can the SSC provide additional advice or recommendations on fitting

algorithms on future assessments? I cannot. I am not a stock assessment scientist, but there may be others who -- Rob.

DR. AHRENS: I think the work still needs to be done in the simulation testing.

DR. REICHERT: So we recommend that the suggestion that Kyle made earlier, I believe, on the simulation -- I would also like to add the comment that was made earlier, in terms of improved data collection, and I think that goes back to some of the remarks that Fred made earlier, in terms of when we consider stock assessments, and we can only expect a better assessment if we have indeed better data. If we do the same all over again, we get the same result. That is the improved data collections.

I think Michelle mentioned the data collection south of Cape Canaveral, and I would like to add that to our research recommendations, also. Of course, that's close to my heart is the fishery-independent data collection. We have proposed to do that potentially in collaboration with the commercial sector, and so I think that goes back to the deepwater snapper grouper fishery-independent survey. Anyone else, in terms of recommendations?

DR. BARBIERI: I just have a quick question. Rusty's comments mentioned the CRP project that is collecting additional data, and so has there been an increase in the collection of biological information too?

DR. REICHERT: As part of that project and several other projects, yes. They were all one or two-year projects, and so it's not part of a long-term plan, except for the fact that potential long-term plans can be based upon those studies, and so we do have ages and reproductive tissues that have been processed. Those were done, for some of these projects, were done in our lab.

I just confirmed that basically means that we will revert back to the recommendations that we already have on the books. Okay. Then that concludes this agenda item. It is 5:05, and I do want to at least make a good start on the ABC recommendations today, and so we'll take a five-minute break, and that means that John can set up, and then we'll start on the ABC control rule. Thank you, Kyle. We appreciate it.

(Whereupon, a recess was taken.)

MODIFICATIONS TO THE ABC CONTROL RULE

DR. REICHERT: Welcome back. We are at Agenda Item Number 11. This is Attachments 22 and 23, and I want to thank Mike for doing the analysis on the ABC control rule example stocks. A reminder of the assignments for this agenda item are Luiz, Carolyn, Scott, Genny, Amy, Fred, and Tracy. There is a series of action items, but I am not going to go through them here.

The only thing that I would want to do is, because I expect that we will have your presentation and then a discussion, and so I want to give the public an opportunity to comment before we start discussing that, and so I would like to do that now. Is there anyone who would like to make a public comment? Michelle.

DR. DUVAL: Thank you, Mr. Chairman. This is really picky, but I would request that you guys consider using the term "data-limited" instead of "data-poor" in these documents, and I think I mentioned this before, but I feel like there is a public perception, that is not always correct, that if you call something data-poor that it means the data that are available are bad, and I don't think that's necessarily the case. It just means that you can have very good data, but you just have a limited amount, and so I would just request that the SSC consider "data-limited" instead of "data-poor". Thank you.

DR. REICHERT: Thank you, Michelle, and I think that's a good point, and I am certainly willing to consider that, and I don't think that's a big issue. Anyone else? All right. John, take it away.

MR. CARMICHAEL: Thank you. This is a continuing evolution of this discussion document addressing the control rule. We have seen it before, and, as things change, I just add to the background and timeline, and so I'm not going to spend a lot of time on that. What I will jump up to now, of course, is where we stand now, and so we're having the review here of the SSC, and the council is going to have a dedicated webinar meeting on November 6 to talk about this in more detail.

They talked about it some at their last meeting in September, and we'll get to their recommendations that they made at that point in a second, and then one of the things to discuss at the November meeting for the council is just going to be what's the mechanism that they do this with. Right now, we've got our control rule kind of implemented, through various amendments and different FMPs, and it's not consistently applied, the biggest challenge being that ORCS is not available to all of our plans, because it was done in the Snapper Grouper FMP, and so we're going to talk with the council about doing a comprehensive amendment to modify all FMPs when we implement these new changes, so that everything is consistent across the board, and I think everyone supports that, and it will certainly make life a lot easier for all of us, I do believe, and less confusing.

There is a summary of actions in there, and then one of the first things that we look at is the purpose and need, because the first action item is just do folks see any other purpose and need items to include? This will become an important part of the ultimate amendment, because the amendment needs to address the things that are listed here in the purpose and need.

The purpose, of course, is revising the ABC control rule, and I would probably add to that next and considering some revisions in accountability measures, which come up at the end. The need is a list of things that have really been discussed around this table, and, to a lesser extent, at the council table over the last couple of years as we have talked about the control rule. I will just pause there and see if anybody has any other need items to be added.

DR. REICHERT: Anyone? John, seeing none at this point.

MR. CARMICHAEL: Okay. The first action just is what we talked about for modifying the rule to make categories, based on available information and the uncertainty evaluation, and so, the last time we were here, we talked about three categories of data rich, data moderate, and data poor. I think that would become now, based on Michelle's recommendation, if you all agree, data rich, data moderate, and data limited. In April, there was some thought that maybe someone would come up with some words that you guys liked a little better or felt were more informative, and so

I think here's a chance, if anyone has had any inspiration over the last six months on these categories, please do share.

DR. REICHERT: Seeing none, John. Amy.

DR. SCHUELLER: Are we directly answering the question about data rich, data moderate, and data poor, or are we allowed to comment on Action 1 alternatives and the description at this point?

MR. CARMICHAEL: The latter. Whatever you have.

DR. SCHUELLER: Under data rich, it basically really points out MSY reference points, and I feel like there should be some generality in there, making sure to include things like proxies, and so I would hate to see this be so prescriptive that we get down the road and we're like, oh, man, we made a mistake and we didn't generalize this enough, and so that's the one thing that I had seen on this Action 1 that I was concerned about.

DR. REICHERT: Thank you, Amy.

DR. NESSLAGE: I apologize that I was not here when you guys discussed this last time, and so maybe this is the eleventh hour, but, by this scheme, would, for instance, blueline tilefish be called data rich, because we have a quantitative assessment, and do we really want to call it data rich?

DR. ERRIGO: By your definition, we might not have any data-rich stocks.

MR. CARMICHAEL: I think that was some of the discussion last time, is how we ended up with those two phrases for each of these, because do you want to tie it more to the level of assessment you can do, qualitative or quantitative versus pretty much none, or do you tie it to the data levels? That's kind of a philosophical thing there.

DR. NESSLAGE: Can we just have the levels be quantitative and qualitative and data limited on assessed stocks? Then we're not saying we think some of the stocks that have quantitative assessments are data rich.

MR. CARMICHAEL: Yes, I think you can recast that into the assessed conditions as opposed to the data conditions.

DR. BOREMAN: The Mid-Atlantic, we characterize, well, whatever the categories are, according to the quality of the information provided in the assessment and the amount of uncertainty. It's the ability of the assessment to provide robust estimates of biological reference points, but also the ability of the assessment to characterize the scientific uncertainty.

MR. CARMICHAEL: Do you like the idea of sort of bringing in the quantitatively assessed or not as well as the robust uncertainty characterization, to really characterize them?

DR. REICHERT: Yes, and I think the other suggestion that Genny had was to perhaps remove data rich and data moderate and leave it at quantitatively and qualitatively. I think both -- I would support both recommendations.

DR. BELCHER: I think the only thing that I get kind of stuck on is that, quantitatively or qualitatively, is your data limited are technically quantitative, and so I don't know if that's as good of a category as well, because, to me, qualitative is kind of like -- It may be in the sense of the meta-analysis, because I was thinking about blueline tile as a potential example for that data moderate, because there was a lot more discussions about information, and it wasn't all integrated into one model, because there were problems with it, but you could discuss and bring things in to talk about reproductive risk or whatever. That was all part of that process, but you were still -- That's where I think more of that qualitative blend with the quantitative, because you're generating numbers. Not all of them are just a thumbs-up or thumbs-down, and that's what I think of with a qualitative assessment.

DR. REICHERT: That would put more emphasis on the text behind stocks that defines what those qualitative and quantitative stocks -- What the assessment actually means.

DR. BELCHER: I would be interested to hear what John says the Mid-Atlantic does, because I kind of think about it with -- Again, it's back to those old tiers that we had. You've got age data, and you've got length data, and you've got all of this high number of parameters versus one that's probably a little less data intensive, but you're still -- Sometimes we're working with proxies, but not generally so, but, like I said, I would be interested to hear what John says they use for the Mid-Atlantic.

DR. REICHERT: John, to that point.

DR. BOREMAN: Yes, to that point. Basically, for us, it boils down to does the assessment have a peer-reviewed, accepted OFL, estimate of OFL. That separates out three of the four categories. If it doesn't have an acceptable OFL, then it goes into what we call our ad hoc or data-limited toolbox. If it does have an acceptable OFL, the assessment has passed peer review, in other words, are all the major sources of scientific uncertainty, all the significant sources, accounted for within the assessment itself? That's one category.

Another category is, if they're not all accounted for within the assessment, did the assessment team do an adequate job of accounting for them outside of the assessment, but adding on uncertainty in the OFL to account for those major sources, and the third category is, if the SSC is not happy with the way that the assessment team did it, then the SSC comes up with an appropriate characterization of the uncertainty in the OFL, and that's precisely what we're working on right now. We have a working group that's working on that and developing criteria to be as consistent as possible among all the species when we pull numbers out of our back pockets.

DR. REICHERT: Thank you, John.

DR. SCHUELLER: My first thought is we don't need to label them anything. We could call them Category 1 and Category 2 and Category 3 and then just have the description there. I mean, we don't have to say data-rich, quantitative-assessed stocks. We can just say a Category 1 stock has these characteristics, and that avoids all of those laden terms that we tend to get hung up on.

Then, as I was reading these again, I was again thinking about blueline tilefish and where this would go, and I thought, okay, data moderate, but I got hung up on this provides reasonable proxies for ABC or OFL, but does not provide uncertainty evaluations of those parameters, and so I still

don't know where that particular stock would fall. It's not exactly clear-cut for these categories still, and so I think these still need more -- I don't have a suggestion, and I'm sorry, because it just occurred to me.

DR. REICHERT: I think, unfortunately, even if we come up with a dozen different categories, there will be instances where we probably don't have a good idea of where to put that.

MR. CARMICHAEL: I think that's fine. I think we look at this, and we're kind on honing in on what we want, and we're making it a little better each time, and I think that's adequate. What we'll do is -- I think your idea of just listing the category seems to make a lot of sense. We have made a number of changes, and we can pull some of the things that John mentioned that the Mid uses and kind of work it into there and maybe stretch it out a little bit, with some more resolution for you.

DR. SCHUELLER: I was just thinking the way to get around it is to just say that it may or may not provide distributions around those parameters. That way, we're still allowed to have assessments that -- For example, reliable catch with some auxiliary information, but we're still given a PDF of those values, and so I think just maybe generalizing that category would be suitable.

MR. CARMICHAEL: We could maybe generalize them in general and just say this is not exhaustive or inclusive or a checkbox situation, but these are the general kind of traits that fall into this category.

DR. SERCHUK: I want to get back to Amy's point about where stocks fall into it, because we want something that's going to be sort of useful for us. Earlier on, we talked about sixteen assessed stocks, the principal stocks, and I think it would be useful, for whatever we do, whatever -- If we have a three-way category here to try to think about where those stocks fit in, because that's going to be helpful for us.

The fact is that we don't want to have too many exceptions of, well, it doesn't fit here and it doesn't fit there, and so I think, if we think about categories, in terms of how it's going to be useful in terms of the after effects of ABCs, we ought to be using a template that we can put assessed stocks into readily, and so I'm thinking, whatever we decide, I think the next step is let's look at the assessed stocks, and, based on our knowledge, where would they fall in these three categories? Otherwise, we're going to get into situations like, well, I don't know where this one fits in, and maybe we need to recast the description of the category, and I think we don't want that, quite frankly.

DR. SCHUELLER: It technically applies to all the stocks for which an ABC needs to be provided and not just assessed stocks, but I completely agree with you that it would be nice to go through and say, okay, this makes sense and it falls out or it still doesn't and here is why.

DR. REICHERT: Yes, and I agree, but obviously, at some point, that will -- Hopefully that will change, because, over time, we will have -- But it would be good to see where the stocks, as we currently know them, would fall out.

MR. CARMICHAEL: We will need to do that, I think, at some point. We would want to say how do existing stocks fall into this new rule, and maybe we -- We should be able to make some

progress on that for the next meeting, considering this is starting to get a little more steam under it.

DR. REICHERT: I think, in the past, we've also said that it may provide a tool, in terms of -- Because, of course, ultimately, we want, ideally, all to fall in Category 1, but we can see how much progress we are making, although we do know that some stocks will never get there.

DR. BOREMAN: This idea of calling these Categories 1, 2, and 3, we started out by doing that, and it turned out to be a -- It really worsened our relationship with the Center, because, all of a sudden, we had second-class citizens in the Center, guys who were stuck with Tier 3 species and other guys were doing Tier 2, and so they might have been getting better performance ratings or whatever, but that -- It turns out, after having a couple of workshops with the Center, that we realized that this was a problem, is labeling and this desire to have everything a Category 1.

Well, in this day and age, it isn't going to happen. We're not going to have enough money in the universe to make all of these stocks Category 1, and so we steered away from giving a hierarchy approach to these categories and just say they are what they are. I mean, if you have this much information, it's in this category or this type of whatever, box, that you want to put it in, but I strongly recommend against anything that gives an idea that we have these 1, 2, 3, and 4, because then there's the focus on, well, how do we get this stock from a Category 3 to a Category 2, and maybe you don't want to spend the money doing that. Maybe that money is best spent on just collecting better catch data and leaving it where it is or whatever, but just keep that in mind. It developed a stigma in the Northeast when we tried that.

MS. LANGE: John, I thought when we first went through developing the control rule that we did go through each of the stocks and try to get a feel for which category they would fit into. I may be imagining something different, but I thought we had a big spreadsheet that had indication of what level they would fall into. Am I mis-remembering?

MR. CARMICHAEL: Are you saying in the recent or --

MS. LANGE: No, way back, when we first put the control rule --

MR. CARMICHAEL: When we first did the control rule, yes. That's why I said that we will get to that point, but we just haven't really been there yet.

DR. ERRIGO: I just wanted to say that the data rich and data moderate and data poor categories, that's actually -- We have gone full circle now, and we're having the same discussion we had in April. That's exactly how we came up with those. We had Category 1, 2, and 3 last time, and then we had this discussion and come up with those, and so just FYI.

DR. REICHERT: It's interesting how the process works.

MR. CARMICHAEL: Action 2 is pretty straightforward. It just modifies the rule to enable the council to determine risk tolerance. Everyone supports this. It has two alternatives, and so I just throw it out there as does anyone see any other alternatives that we would put there? It's fine to have only the Alternative 2 that makes a change, but we just have to make a record that that's really the only reasonable alternative in this case.

DR. BELCHER: I was taking notes as I went through and read, and I kind of was asking more from the -- The council will specify its risk tolerance and provide an overfishing level, and will this vary or become species dependent? That was one of the first questions that came to mind. Like, before, we were given the risk tolerance, and that was how we crafted the original control rule, and so I was just kind of -- Those were the questions that just -- I didn't know how we were going to discuss that part of it, and why change from the current value?

That was the only other thing that came to my mind for questions, and, if they're not founded questions, that's fine, but my questions were how are we going to deal with that P*, the risk assessment? Is it every time we go into an assessment that it will be given to us upfront? Is it something that gets discussed after the fact? I guess how is that going to be derived?

MR. CARMICHAEL: That's coming. This is the first step, is to just say that we want to let the council establish the risk tolerance, and the details are the next couple of actions.

DR. SCHUELLER: I had a whole bunch of questions as I went through this section, for Action 2 and Action 3, because, right now, and I got wrapped around the axle, because, right now, the way the P* is developed, there is this combination of science and management-based risk, and I guess I'm -- I think, as we move forward, that we need to be very careful about which pieces are management risk and which pieces are science-based risk and how we're actually going to deal with that, and I wasn't -- I mean, this Action 2 is pretty -- There's not much text to it, and so, again, I was like how is this going to work out?

MR. CARMICHAEL: I think that's the details when we get into 3, and so I think this is -- Really, we're talking about council risk and scientific uncertainty, and I agree that we have to map out which components are appropriate for which group to discuss. That's hopefully what we can do through -- I think it's 3 and 4 where we really get into that.

DR. REICHERT: Action 2 was basically to acknowledge that we move this over to the council.

MR. CARMICHAEL: Action 2 creates the problem, and then we try to solve it. I think, with that, maybe we can move into 3.

MR. GRIMES: This may be more of a council meeting question thing, but, when I'm looking at this, I am -- The control rule, the ABC control rule, is a council control rule, but it's developed in conjunction with the SSC, in consultation with the SSC, and it's a heavily science-influenced thing. In this, when the council -- In the alternatives, the council specifies this, and are we thinking they do this in a vacuum, or does the council do this in consultation with the SSC? Is this the only bite at it that the SSC is going to get until they get an actual assessment? Then how does that process work, just thinking of it operationally. They will be told that, okay, this is the P*. Well, what if the SSC is like, well, that's a crazy P* under these facts, and how is that going to play in?

MR. CARMICHAEL: That's the next alternative.

MR. GRIMES: Well, I've looked at the other alternatives, and I know it's in the document and how, okay, this is how the council is going to do it, but that still doesn't answer -- To me, the alternatives there is no action and the council does it, the council does it on a case-by-case basis,

in consultation with the SSC, and the council does it -- That's what I'm thinking, just in terms of a reasonable range of alternatives and what things the council should be looking at. I am probably going to be at the December council meeting, and so I can put that on the record then and there, based on what happens here, but, anyway, I would just keep that in the back of your minds, because you will probably hear it again.

DR. REICHERT: Thanks, Shep. Okay, John.

MR. CARMICHAEL: Yes, Shep, I think that's a good potential alternative, bringing in that idea of the consultation with the SSC on that part. Then 3 is where you get more rubber hitting the road on what is the criteria for establishing the risk tolerance, and this is one place where the idea of whether it's done across the board or it's done by species and all of that would really come into play.

What we have now, the discussions we had last time, if you look down to -- This is the figure that is similar to what is used in the Mid-Atlantic and in some of the areas that is the so-called hockey stick, and this is something that we presented along with this table here, which is more of a tabular approach. We presented it at the last council meeting, and the discussion there amongst the council was a feeling that our assessments don't really provide the type of resolution and don't come with the timeliness that really justifies this kind of relationship here, where slight changes in the biomass levels will lead to slight changes in the target P* levels, and the thought was that really didn't seem to be consistent with what's known about our assessments and the level of precision and the certainty that we have in those assessments.

The council felt something along more of a tabular approach, or categorical approach, perhaps as we have in Alternative 4, where there is bigger changes, but they are -- They are not gradual like that. It's more you get to this point and you change it, and the council liked that approach, and, in thinking about that some more, I came up with the idea of -- I struggled with this thought of does the fact that you're -- How should you consider your biomass level when you're considering your risk of overfishing?

Obviously, if you have a really high biomass, the consequences of overfishing are pretty light, and it makes sense that you could accept a higher risk of overfishing. That got me thinking, well, really, you wouldn't want to then just leave this big category as we have here, where it's anywhere from BMSY all the MSST and you have the same risk of overfishing, because -- It seems like, as you get closer to that MSST, you do actually have much greater consequences from overfishing, which is what the figure gets at that this set of categories didn't, and so that's where I came up with this idea of this other alternative that actually adds an additional inflection point on this, and this is kind of thinking of from a simple example where the MSST is half of BMSY and you have a midpoint at 75 percent of BMSY, and so you could have an inflection there. You would have one risk tolerance when you're above BMSY.

When you're between BMSY and 75 percent of it, or say halfway to your MSST, you accept another risk level, but then, when you drop over that halfway point, and you're closer to MSST than you are to BMSY, then maybe it makes sense to have an even lower risk tolerance at that point, and so I just throw it out there to you guys and see what you think of this type of approach on this table for dealing with the category situation.

DR. BELCHER: I just had a couple of thoughts, because the one thing that kind of jumped out is you would be dealing with your estimates without accounting for the uncertainty in the estimate, and so you're treating it kind of like it's a known without the variation around it, and so then somehow --

MR. CARMICHAEL: To that point, the uncertainty in the estimates is what is under the SSC's purview, and so the uncertainty in the estimates is what you use when you take a P* now and turn it into an ABC, and so this is dealing with the council setting its risk tolerance, and so the council, in this example, could say, okay, based on these conditions, our risk tolerance for this stock is 0.45. Then it would be on the SSC to say, okay, given a risk tolerance of 0.45 and an assessment output with a PDF of OFL or something, what is the actual ABC that lines up with that, and so they're separate things that you're dealing with.

DR. BELCHER: I guess I was misreading how that chart was, because I was thinking that we're pulling out from our preferred model that this is what our rate of B to BMSY looks like, knowing that there's a phase plot that shows that it could be any range of values between here and there, and so the confidence in you actually being at 0.5 or 0.4 is -- Do you know what I mean?

Again, it's trying to get at that point estimate thing, and so that's the only thing that kind of came to mind initially, but one of the things I did want to say about the PSA, because I know we've been back and forth with those discussions in years past, is that, knowing that we want to be more flexible in updating the PSAs, I think that lends to the idea of, if we want to get to that discussion about whether you use the NMFS approach or the MRAG approach, we don't have a tool from MRAG to go and easily update those numbers. You would have to re-engage with MRAG to have MRAG do that, where at least we have the NMFS, and it's in the toolbox.

We have to still have our discussions, because obviously we had our reservations as to why we didn't use the NMFS originally, but I was just -- Again, I know I'm spit-balling and throwing out too much at the same time, but I'm just thinking about the coupling of those things, and, for me, the one thing that did jump out about that table was how do you address the uncertainty with those values? As you're saying, how much of your B to BMSY is meeting that threshold? If you've got a high degree of uncertainty, where you're splitting it and it's not the majority, then what do you do? To me, there's more risk involved in that when you've got a larger spread in how each of those runs are generating.

MR. CARMICHAEL: That's a good point. There is uncertainty around all of these. I think we would use this in the same way that we use the biomass levels when we declare if the stock is overfished or not, and we would use whatever values you say is this is the current biomass and this is the MSST, and that's what you would use to determine where you fall within this table, and so it would be -- Whether you chose a run out of a base run or you did some averaging or you chose the median or what have you -- Whatever you chose that you give now that becomes the values that determines stock status and whether or not it's overfished is what we would use there, but there will likely be situations where -- You know, we've had some stocks where it's not overfished by 0.01, and we will probably be in there, which I think is maybe where you will always have to leave a little bit of flexibility, in terms of people dealing with this.

I think the council would like that as well. You know, it's like this is a guide, but they have situations where they could say really, well, we think this stock we should actually set a lower risk

tolerance, and I think that's the expectation, is the council would be judging each stock as they do this, and, as we've talked before, the council would want to judge some of these characteristics of the stock and where they think it falls in time, so that you can incorporate it into the ABC recommendations.

DR. BARBIERI: I just wanted to say that what you just said right there, John, in terms of the value of biomass that we are comparing there, I think this needs to be captured in our notes, because eventually we might forget which one we are actually thinking about using, and that is one that is going to be very consistent with the status determination table, and then, of course, writing some language there, just like what you said, that will leave some flexibility, instead of being completely prescriptive, for the SSC and/or the council to have some discussion about where you might need to adjust a bit.

DR. REICHERT: Thank you, and let's make sure that we capture that in our report.

DR. SCHUELLER: I am going to make an entirely different comment, and it is that the range here for the min and max is 0.5 and 0.3, at least in this table, and I have heartburn over 0.5. I could understand why 0.5 is appealing. I guess I think that we should make a suggestion to the council that they should acknowledge some management uncertainty in that maximum value.

You don't know -- There is uncertainty, right, and you're projecting out these closure dates and things based on landings that are coming in and stuff like that, and so it's a little bit -- It gives me some heartburn, because I think that the SSC needs to make a statement about that, but then also I would hate to see them giving themselves a high risk of getting into a situation that would then cause them to have to take some action that they may not want to take, and so I think that it probably behooves them to be a little bit, maybe, more conservative than they initially would like to be, for their own good. That's my opinion, of course.

DR. REICHERT: Can I ask a clarifying question? Isn't the management risk part of their ACL? While we're getting here, we're getting to the ABC, and that's not different than what it was previously, unless I misunderstand what you are saying.

DR. SCHUELLER: You're right, but I'm operating under the basis that the ACL equals the ABC, which isn't that the case a lot?

MR. CARMICHAEL: We could change that, because I like what you're saying. I think some discussion of what the appropriate range is would be good, as well as the idea of the management uncertainty needs to be included, and I think, per the Act, it really should come in in the ACL, and I think it's certainly well within you all's right to make a recommendation of that, that management uncertainty and the ability to meet quotas and manage fisheries and close them down, et cetera, and I think, in that regard, you get kind of into the recreational versus commercial situations, and we do have some of that, in terms of setting ACTs, but I think making that more explicitly and setting the ACLs and what your thoughts are on ABC equals ACL situations.

DR. BOREMAN: There is another aspect to that as well, and that is the councils want to avoid invoking accountability measures, and so that's another incentive that they have, in terms of if you're at 0.5 and setting your ACL equal to ABC, you're running the risk of hitting an accountability measure sooner than anticipated, which could -- You pay the penalties.

DR. DUVAL: I apologize, but I just wanted to make a note that the table that Amy is referring to, the one that has got the 0.5 for everything, the council hasn't seen that yet. What we saw was the previous table that has like the 0.45 and the 0.5, and so we had that other, and so I definitely appreciate your comments, and I just want to make sure that you were not under the impression that that was something that we had like approved. I think it was John's attempt to try to provide you all with some additional information for how to have increased granularity, I guess, in those options.

DR. REICHERT: Thank you for that, Michelle.

MR. CARMICHAEL: To that, yes. I mean, when you think about that, is there -- Can we have some justification for why, if the stock is above BMSY, and potentially well above MSST -- Is there biological risk to that stock, and is it tied to some kind of risk rating, if we were to use that approach, that really says, you know, for some stocks, you should probably have an overfishing risk of less than 0.5, even if you're above BMSY.

DR. BELCHER: The one thing that kind of -- That statement you just made, John, the one thing that kind of stuck in my head was with a recreational fishery, when you're dealing with your evaluations for an ABC that we're missing marks by a whole lot. I mean, I understand that it's an estimate and we don't know the true removals, but, for that exact same reason, we really don't know what the impact is going to be. Commercial, you kind of feel a little more grounded with it, but, just recreational, I think for some species --

MR. CARMICHAEL: Should that come as a stronger separation between ABC and ACL? I am trying to just really think of it purely in terms of the consequences of risk of overfishing. That is certainly a huge management uncertainty factor, but is it a risk of overfishing factor? I am kind of fishing for some ideas here to do -- We're going to have to do a write-up and a justification, and so what are the reason that we would say that, for this stock, even if your biomass is huge, we need a lower tolerance for overfishing? What are the reasons?

DR. SCHUELLER: My very first thought on that was, under this high-risk category, if you had really long-lived species and the population status was in a good place, but the acceptable fishing mortality rate for it was quite low, and then you could have a situation where all of a sudden, in a year or two, a fisherman decides that they've found some niche market for this particular species and they're going to go out and -- I mean, it can happen. It's plausible that you have this long-lived species that's in good shape and suddenly the fishing mortality rate goes up really quickly, and then, all of a sudden, you're in big trouble, and you didn't know it.

MR. CARMICHAEL: To follow up on that then, something along the lines of you're talking about -- It's really somewhat with your assessment frequency as well as how fast the biomass of that stock could potentially go from BMSY to MSST. I think that's a pretty good consideration, yes. I like that.

DR. YANDLE: Some thoughts on this. The first one is that we do have scientists who can make scientific comment on management uncertainty. That's one of the roles of social scientists and economists and so on, and so there is a potential role for the SSC to be able to comment on

management uncertainty that is not taken advantage of to date yet, and so I would throw that out there for people to think about.

What I am chewing on, but don't have an answer yet to is, is that something that gets included as part of ABC, which, in some ways, I like, because it's a way of formalizing that insight, and we have been searching for a way to do that. However, as it's set up right now, that is not the traditional way we have used that insight, and so I would put that out there for greater discussion, and I don't know if Scott wants to think about it or comment later or what, but I wanted to put that out there.

DR. REICHERT: Thank you.

DR. SERCHUK: There is one constraint when stocks are above BMSY, and that is the maximum fishing mortality you can fish at is FMSY. You cannot fish higher than FMSY. That's the upper limit, and so, quite frankly, I don't see that as a problem for stocks that are above BMSY, because, if you fish at FMSY, it's implied that, if you kept that fishing mortality long enough, you would be able to build the stock to BMSY, and so that's a constraint. The law does not allow, as I understand it, to fish higher than FMSY.

The real problem that I have is that you need to think about, whatever fishing mortality you do set, what's the span between assessments, because, in many cases, you will not know the status of the stock unless you go either to an interim sort of thing that we're looking at it to find out, and so, if you're setting a risk tolerance at a certain level, but your space between assessments is ten years, and you don't really have any other indicators that's going on, you could really be in a very difficult situation by setting your risk tolerance at one level and thinking that that's going to proceed for the entire period.

I think you need to think something about the time interval between getting a signal on what the stock status is relative to the risks that you are setting, risks to probabilities, for setting these fishing mortality targets. I think they're linked, quite frankly, and one of the things that I am concerned about is that I see many cases, particularly in this case, that, because the process is so long, you might use -- If you did an assessment in 2017, you might have a terminal year of 2015, and you might set three-year or four-year specifications before you do another update, and, in some cases, there is no indication of an indicator that would allow you to say, wait a second, we're on track or we're off track until you get the next assessment. Somehow, that needs to be considered.

DR. REICHERT: I really agree with that. What I am struggling with is how could we incorporate that in here, and so, John.

MR. CARMICHAEL: I think that's a good point, and I think where I think that we incorporate it is that, if we look at what's here now as low risk, medium risk, high risk being the PSA rating, we're really talking about something that -- Bringing in what you said and what Amy said, sort of considering more of the type of assessment and the timing of that assessment and the frequency of that assessment.

We talked earlier about the key stocks and the timing of them. Well, you may accept a higher risk for those than a stock that is not in that category and might go longer before you get an assessment.

It could come down to what kind of metrics you have that you're going to look at and how often you're going to have them.

If it's a matter of just tracking landings, you might want to say, in that case, this is a high-risk stock, and these are the reasons, and so I think it's a great idea, and we should bring it in and kind of expand how we think of this categorization of risk, and it's not just as simple as pull a number out of those PSA tables, but maybe we develop some risk criteria to fill in these categories here, based on things like that are actually appropriate to us.

DR. CROSSON: In answer to what Tracy was saying earlier, I certainly think that the PSA scores have already, in the past -- Not that they couldn't be improved on, but they have already included a certain aspect of social and economic behavior of commercial fishermen, of both commercial and recreational fishermen, and so that -- There is certainly room for improvement on that.

I can think of a number of different examples where there is the different allocations or the different catch histories between the different sectors are going to be important, the fact that some sectors may target larger fish. For example, the king mackerel recreational fishery is usually targeting larger fish, a lot of that because of the tournaments, versus the commercial sector may have a different goal, and so I think that this -- I haven't really thought it out as fully as it could be thought out, but I certainly think there's a lot of room for that in this particular sub-alternative.

DR. REICHERT: Thank you.

DR. AHRENS: Just a bit off of what Fred said and a few others, I think, if you're up at 0.5 as your tolerance, I think we saw, kind of earlier yesterday, that there are a number of fisheries that are surpassing the OFL, and so we have an idea of how much those fisheries are surpassing the OFL at times, or under it, and I think you can use some of that information to say, wow, if you're going 150 percent over the OFL, that means that, if I'm setting this at 0.5 and you're going to go 50 percent over, then, because I am doing output control, I have blown my FMSY, and so I think you probably have some insight there, just looking at the nature of those fisheries and the nature of the overages, to be able to say, wow, is that 0.5 reasonable.

MR. CARMICHAEL: Kind of an interesting evaluation is you could say here is a stock that has exceeded its OFL at times by 25 percent. If that were to go on repeatedly for a number of years, even if you were at BMSY, how long might it take you before you're at MSST, and then you consider that against your likely assessment frequency for that stock, and then you could have some sense of saying, wow, that really, in that case, would be way too risky, and we would have, I think, a good justification for setting a lower number. That's a great idea.

I think the ACL thing is interesting, because the SSC has tended to say, okay, here is the ABC, and the council goes and deals with it, and the ACLs are specified in the amendments, but sometimes it's not something that the SSC really looks explicitly at, and so that is something that I think that we should consider within the bigger framework of this, and certainly amendments that are coming, is maybe the SSC, the SEP component, should look a little more closely at some of the ACL specifications in the evaluation of management uncertainty, and all that stuff is in the management plans, and maybe bring that to you a little bit more explicitly than we have in the past.

DR. CROSSON: To that effect, especially, again, this is something that we've not really considered at this level before, but the recreational sector may have an interest in having a biomass larger than BMSY, because their primary concern is increased incidence of encountering the fish that they're targeting, and so they're not necessarily trying to harvest the maximum amount, and this is something that you commonly hear from the recreational sector in the public sphere, and so that's something we, at some point in the future, we probably should deal with for those fisheries that do have a large recreational component.

DR. REICHERT: Thanks, Scott.

MR. CARMICHAEL: It seems like what they forget -- The flip side of that, sometimes, is then you have that biomass and you have a very high stock abundance, which means that fish are very easy to catch. You get into situations like we have seen far too often. Then they get a very short season, because the fish are super easy to catch. If it's catch-and-release and the fish survive, then a high biomass is great. You can catch the fish multiple times and throw them back, and the fish is able to be caught more than once. If the fish is going to die from discard mortality, then some of that high biomass is an extreme problem. It's a double-edged sword, indeed.

DR. CROSSON: Compounded by the fact that, if it's shared -- If the ABC is shared with a commercial component, you're basically generating positive externalities for the commercial sector, and the recreational sector may not be particularly happy about that, but that's the price we pay, since the fish don't seem to nicely know that they're supposed to split into these categories and these guys are assigned to go over and get caught by the recreational fishermen and these guys are just reserved for the slaughterhouse of the commercial sector.

DR. REICHERT: I am shocked that that's not already the case. Anyway, John.

MR. CARMICHAEL: The part we just did, that's kind of the tough work that the council will face, and then this next action is the tough work that you will face, and this means taking that risk tolerance and turning it into an ABC by way of how you evaluate the assessment uncertainty. We certainly have had some discussions about that today in dealing with assessments, and so I think it's fresh in everybody's mind what the alternatives are.

Now, the council didn't really talk about this in September, and so this largely reflects what you guys talked about through April, and the alternatives are there of using the CVs and the PDFs, and the question is what do the CVs look like for the assessments and how do you come up with ways that maybe you want to modify that CV, and I think this part really very much remains a work in progress.

I think we need some, probably today, general discussion and some thoughts and maybe things that could be explored or evaluated. I think maybe if there's a little general discussion, and then this would be a good time to flip over to the spreadsheet, where Mike did some analysis kind of illustrating the different distributions and the CVs and applying it to some of the estimated CVs that we have taken from stocks that have been assessed recently.

Of course, you have the CV, as well as, obviously, as Mike's analysis shows, the distribution that you assume, the shape of that distribution, has a big effect on the realized ABC that you get from

any given CV, and so this is the real complicated one, I think, but it's very critical to the values that are going to actually come out of this control rule.

DR. REICHERT: Mike, do you want to run us through that real quick?

DR. NESSLAGE: Sorry, but I'm confused. Is this the order that the decision would go in, that the council would select a risk tolerance and then we would be presented with the assessment and that risk tolerance level and come up with --

DR. REICHERT: I think we discussed some of that timing, and I think the SSC has expressed some concern that the risk tolerance should be the -- The level of risk tolerance, if I remember correctly, should be done prior or around the same time that the terms of reference are being discussed and not after the fact. I think, if I remember correctly, John, I think that's some of the discussions we had.

In some alternatives, that is easier, because it's more qualitative, and, in others, for instance if we just the PSA score, then I think we discussed to review that around the time that we review and approve the terms of reference, or at least that's my recollection, and I checked my notes on that, but let me know if I didn't remember that correctly, and does that address the question you had?

DR. NESSLAGE: Yes, and we were just discussing that you can't -- If the council is going to use one of these tables, like you just said, they can't make that decision until they've seen the assessment, which, honestly, I think the council should have the last say in how risky they want to be, after having seen the assessment. They are taking into account all of the socioeconomic considerations and stakeholder considerations, and maybe I'm the only one here who thinks that, but they should really have the final say. If that means that the analysts have to do the final calculations at the council meeting, then that may be the case. I am not sure.

DR. REICHERT: Thank you. That clarifies that.

DR. BARBIERI: I just want to say that this made perfect sense to me. Often here, we cross that bridge where, through the discussion here, the review and discussion of the assessment outputs, we can inform them of their ability to take a higher or lower risk, and we can make a -- That is absolutely spot-on.

MR. CARMICHAEL: I think, if we're in a scenario where there is these discreet categories, then, just as we do multiple P* value runs now, it might only be a couple of runs that the SSC would say, yes, depending on the risk tolerance you set, if it were categories like this, then they could have that. If they have more flexibility to deviate between those and start doing some interpolation, then they may have to do some other runs and come up with some other stronger justification, but I like your idea.

One of the reasons that we talked about having the council do that upfront is there was some concern that, well, would the council be charged with saying that you chose a high risk level for this stock because it had consequences and it was leading to a catch reduction, and so there was a concern that the council maybe didn't want to be seen as -- If they picked the high risk level for a stock which was going to result in catch reductions, so that it had lesser catch reductions, then they might be seen as not being truly objective, but I think the points that you made about the council

does have the big picture and they have the socioeconomic concerns and they hear the concerns coming up about the fishery is a good counter to that kind of fear concern that they would just avoid trying to do what they need to do.

DR. REICHERT: I was just asking John -- I was looking at the time, and it's 6:05, but, if at all possible, I would like to see if we can at least finish the large part. John just informed me that this is the last big part of our ABC control rule discussion. If we can do this, I think that would help us a lot with our agenda tomorrow, because we have to start with the ecosystem modeling, because we have speakers from out of town, and that may limit some of the flexibility we have after that, and so my intention is to continue this discussion and see if we can finish that, and so that's what I would like. I realize it's been a long day and it's past six, but I really would like to see if we can finish this today.

MR. CARMICHAEL: We had this discussion of how we handle the CVs and the uncertainty, and the spreadsheet shows kind of how the buffers respond, and, if we pick the P* and you know the distribution, you can calculate in advance what the buffer is going to be. I don't know how much people want to dig into this and how much you looked at it and what thoughts you have.

As I said, this is a work in progress, and so, if you have some thoughts about how we can illustrate these problems and what we might be able to do to tie it back to our assessments better, that would be helpful, and then, as far as the rest of the things, the following items are really addressing the flexibility allowed in the Magnuson Act, and we've talked about those. They're pretty straightforward.

I think, as this becomes an amendment, we may want to fine-tune some of the criteria in which those different flexibilities are applied or set some bounds on them, but I think, if we don't get to that at this meeting, I feel that we're fine with the number of things that we've discussed already, and, if we can make some more progress on this, that would be a much better use of our time.

DR. REICHERT: Thank you, John. Okay.

MR. CARMICHAEL: I guess, if there's any questions about the spreadsheet and some of the examples.

DR. BARBIERI: One question. To me, the take-home, in looking at this, is that, basically, even though the uncertainty characterization analysis that's coming out of our assessment seems to be very well done, it's still not capturing enough. It looks like that the buffers are very, very small, when we look at the examples here that Mike E. ran through, and so I think this lines up well with this point of Alternative 3 and what to do about CVs, and we know the other SSCs have had to deal with this issue as well. This has come up in National SSC Meetings and all, because capturing all of that uncertainty has been a challenge nationally.

MR. CARMICHAEL: I think kind of, as John described for the Mid, you evaluate each stock, and, based on your judgment of how well it's performing with regard to what you think is likely to be the uncertainty, perhaps based on your understanding of the input data and the uncertainties that are in the input data and the sampling and how well you have defined growth and reproduction and all of that cool stuff, that you make a judgment on how you think the CV is working and whether or not you need to modify it.

I was wondering, John, in the Mid's examples, are there -- What are they using for the distribution? Is the distribution estimated from the assessment and they apply the CV to that, or are they assuming like a normal or log normal or what are they actually doing, in terms of converting that number to the ABC?

DR. BOREMAN: They assume -- Well, for ones where the SSC decides -- Well, that's all of them now. We don't trust anybody. The SSC uses a log normal distribution, and, right now, we're using defaults of 100 percent CV or 60 percent, depending on the quality of the assessment. Our working group is saying 60 or 100, and we want to quantify, as much as possible, or characterize as much as possible, why we're selecting a certain CV level, and we have, I think, eight criteria now that we're using that we're going to be looking at along those lines, and so forcing ourselves, every time we go through to make a decision on choosing a CV, we're going to force ourselves to go down through a list of criteria and discuss each one and write a narrative about each one, so it's more what we have been calling transparent to the council members and the public exactly how we came up with the number.

DR. REICHERT: Thank you. Anyone else?

MR. CARMICHAEL: Are your P*s falling in the 0.3 to 0.4 range for a lot of stocks, or is it going even lower in some cases?

DR. BOREMAN: Mostly in the 0.35 to 0.4 range.

MR. CARMICHAEL: So, I guess, in here, is this pretty accurate then to what you guys are getting, sort of between the 0.3 is the yellow, and the 0.4 is the orange, and 0.35 is the gray. If you had a CV of one, you would have almost a 50 percent buffer. ABC would be about half of OFL. I am just trying to see if we're even in the right scale here with this example. I will follow-up with the -- Are the Center folks calculating these or something?

DR. BOREMAN: No, we do it. We just have an app for that, basically, but you're asking me to carry these numbers around in my head, and I've got better things to think of, like grandkids and stuff like that.

MR. CARMICHAEL: Can you share the app and we could get to know it a little bit?

DR. BOREMAN: It's a spreadsheet. It's on Excel. I mean, every scientist in their right mind should have one.

DR. REICHERT: Anyone else? John.

MR. CARMICHAEL: I think that's kind of it. As I say, if you guys have other thoughts on these distributions -- It sounds like we like the kind of Alternative 3 approach, and we'll continue working on that, and the next iteration will have feedback from the council in November and feedback from the council in December. Maybe we'll have a sense of what the amendment will be, comprehensive amendment, in numbers, and this will move more into a -- It will begin to look like a draft amendment document.

DR. REICHERT: Okay.

DR. SCHUELLER: Does this mean we're skipping comments on Actions 5 through 10?

MR. CARMICHAEL: I think we'll take any brief comments that people have, however much time you want to allow, Mr. Chair.

DR. REICHERT: I think we have some time to do that. I think that would be very useful. My question was actually one of timing, in terms of what the timing ultimately is for this amendment, but we can address that later, maybe.

MR. CARMICHAEL: To be worked on in 2018. Hopefully we'll know more after the November and December council meetings about what sort of timing schedule we are on.

DR. REICHERT: Okay. I want to go back, because I was just looking at our action items, and Mike put them up there, and so, John, what other critical information or feedback from the committee would you need? We discussed through Action 4.

DR. ERRIGO: Do you guys like this approach for Action 4? Would you like to see it fleshed out more, to move forward at least some more to the next stages?

DR. BARBIERI: I think it would be instructive, for the next meeting, for us to see perhaps an application of an approach similar to what the Mid-Atlantic uses, in terms of that expansion of the CV and how they go through that process, just for us to see how that compares.

DR. AHRENS: John, can I get clarification -- Are you actually taking the MLE estimates and then applying your own CV to those? Okay.

DR. BOREMAN: We do get a CV on the assessments, but those CVs are basically model fits, and they range from 10 to 20 percent. There has been work done on the west coast by our groups and fellows in Santa Cruz, and they said the best that they could -- Based on their information, the best you can get is about a CV of 30 percent for a stock, and that's really tight for what they've done out there through their meta-analysis, and so we're using that, and that's just for biomass, but, if you have a CV also for fishing mortality, because OFL is a combination of those two, we basically say then 60 percent is probably as good as you can get, but we've got a lot of criticism for that, because it's just a number we're pulling out the air at this point, and so we want to put a little more meat to our explanation, and we're working on that now.

DR. ERRIGO: If you guys are curious, in the third tab, there is black sea bass and golden tilefish. What I did was I took the estimates and assumed a log normal distribution and back-calculated the CV that should have gone with them, with those estimates, and so, for golden tilefish, it was around a CV of 0.4, and I just truncated it down to -- It was a really long decimal number, but I'm just looking at the table. For black sea bass, it was 0.1. That's what it came out to be, but that's just a back-solving for the CV and what it would have been if there was a log normal PDF, and the mean was the OFL that we got, or the ABC value.

MR. CARMICHAEL: Amy hinted that she might have some comments on some of the other actions, and that's the last few action items in your overview, just these other action items, if there is comments to throw out there.

DR. SCHUELLER: I am sorry. I am getting a little tired here, but so I was -- I didn't have a comment written on my paper about Action 5, but I remember, when we were discussing it in April, I think that Fred made a comment about multi-year specifications and rules about if you go above a specification in one year how that's going to play out when you have a multi-year specification, and I just -- Some of those comments from the April meeting should be incorporated into this, because, right now, all it says, and, if this goes to the council, it says the SSC supports the action for periods of three to five years and that's it, but we've made comments on some of these already.

For Action 6, phase-in, how much of an ABC change justifies a phase-in, and I think that it would be good for the council to think about that and specify that ahead of time, or at least give some thought to what a range for that would be. Obviously, if there's a 50 percent change, I would assume a phase-in, but does a 10 percent change justify that? Maybe it's related to the economic piece of it, and I don't know, but I think it's something that's going to require a bit more discussion than maybe folks anticipate.

The carryover thing, it gives me a little bit of heartburn. We've had discussions on the number of stocks that are way under the ACL, and we don't know why, and should we really carry over those? Some of those, yes, they're ecosystem component species, and there's different things, but I'm sure there is some component of them that they're below their ACL, and do we really want to carry over? Granted, this implies that the ACL isn't equal to the ABC, which isn't equal to the OFL, but I just -- There's a lot to consider here as far as why things are happening the way they are and not just, yes, we want to use our underages next year and we want to phase-in. There are risks associated with that, and they need to be considered.

DR. REICHERT: Thank you. Scott, to that point?

DR. CROSSON: Perhaps because, as you've noticed, I can't manage to stay off of committees and sub-committees, and I found myself appointed to the national one, the technical guidance group, and so, at some point, there will be guidance coming out on those issues, because there is a sub-group, which I have also managed to wind up on, that is dealing with phase-in and carryover and other harvest policies under NS 1, and so I don't know when that guidance is going to be coming out.

I know that I've been part of the group meetings, and I have missed a few of them, because of travel, but, again, you asked about economics and the phase-in and especially the carryover aspects, most of the economists ended up on that sub-group that is part of the national technical guidance group, and so there will be, I'm sure -- Included Dan Holland, who is the chair of the sub-group, and he's an economist at the Northwest Fisheries Science Center, and so, yes, there will be a lot of econ mixed in with that.

DR. BOREMAN: A couple of comments in response to Amy's comments. In terms of phase-in, we have been asked by our council to consider that. We have done it for tilefish, and, basically, they want to go to averaging ABCs, averaging the P*, basically, over three years, and it's sort of

like phasing in, but it's boiling to economics that is driving it more than anything, and so we're engaging our social scientists in developing some criteria for when you phase in and when you don't.

The other item, in terms of carryover, I always cringe when I hear that with regard to fish. I can see it for our quahogs that live for like 500 years, and so, if you don't catch it this year, maybe a hundred years from now they will still be there, and probably still the same size, but, when you're dealing with fish populations, I think, in terms of carryover, it may be more of a lesson to setting the ACLs and management uncertainty. If you're consistently undershooting your targets, then that's a clue that maybe you need to make a few adjustments elsewhere in your ACLs, make them a little closer to the ABC, or make your ABCs a little closer to the OFLs. Thanks.

DR. REICHERT: Thank you, John. To that point?

MR. CARMICHAEL: That is kind of the thought on the ACL, the carryover in particular, and that's why the Alternative 3 is a provision that you only allow the carryover if it has experienced a regulatory closure, and so it's to keep from saying -- Yes, if you're consistently under, I think the hope is that you don't solve that by saying, gee, maybe I have a carryover, but you solve that by figuring out why you're under and adjusting accordingly.

I think the idea of maybe some biological constraints coming in there could -- There is obviously different risks, as you said, with the quahogs versus maybe something that lives a couple of years, and so maybe give some thought for the next meeting about are there some biological constraints that should be brought in there as alternatives that the council could consider.

DR. SERCHUK: I think we want to be a little bit circumspect about the phase-in process. I understand why it exists. To my mind, it's to cover the situation where there is an abrupt change in the allowable catch or the status of the stock, and so you don't -- You limit the amount of change in any one year, which essentially means you take account of the impact of that on the viability of the fisheries. There are some places in the world, for example, that I'm very familiar with that they don't allow changes of more than 25 percent or 30 percent, if they do annual assessments. It's because they recognize that more than that is going to be a jolt to the stakeholders.

On the other hand, if you have a phase shift in your understanding of what the stock is, you're going to have to take that in a series of steps, and so it really relates to how many years you have as well, quite frankly, whether you're talking about a three-year or a five-year, but you have to get to that point at the end of that period, and the reason that I am a little bit leery of phase-ins is that it's -- I mentioned this before, but it's the Wimpy approach that happened in groundfish way back when. I will gladly pay you on Tuesday for a hamburger today.

What happened was they didn't take as much of the reduction as they would, and then, when they got to the point where they had to take a big reduction, because it wasn't a sequential phase-in, they said economic emergency, and the Service had to come in and basically change the rules all over again, because the situation was worse at that point in time, and I think there's lessons to be learned there, in terms of, okay, we have a three-year period, and if you want to take it in as equal sums, but you have to get to where you have to get to at the end of that period.

It will depend on the situation, but it has to be very regimented, as far as I'm concerned. In some cases, taking the big cut, the bigger cut upfront, is often better, but I can see that there's going to be a lot of analytical work in doing this, but the fact is that a phase-in means that you have to go from a known place to some place -- In most cases, it's probably more undesirable than at the present, and I realize that you don't want to cause economic dislocation to cause bankruptcies and unviability and so on and so forth, but you have to get there.

DR. REICHERT: Thank you, Fred.

DR. BELCHER: I had one comment. It was more to the -- By saying that the action is allow phase-in of ABC changes, I am thinking that's multidirectional, up or down, but we talked specifically about reductions, and so I am just thinking about consistency of language more than anything else with that. Again, it's an editing comment, but, for me, I was thinking that, okay, what do you do in the case that ABC goes up? I wouldn't think you would phase in catch, but, at the same time, you're talking specific to that point.

The other thing was, when you're looking at that Alternative 2 and it's talking about how the phase-ins are going to occur, and you have year four and beyond, and we don't do multiyear specs, or we're not proposing multiyear specs, beyond five years, and so how many years is an acceptable time limit for a phase-in? If you're going say four years and beyond, is that to five to years, or is that to ten years?

MR. CARMICHAEL: What that's saying is the phase-in period is over three years, and then, year four and beyond, your ABC is based on the projections. That is no longer a phase-in period. That's however long your projections are in place, and one of the challenges with -- The reason this focuses on reductions is because, if the council chooses to phase in an increase, they have a lot of flexibility, because your ABC would be here and their ACL is there, and they can phase in that ACL without getting into any legal problems with being over your ABC.

If you set your ABC here and their ACL is here, they can't have an ACL that exceeds your ABC, and so they need a way to bring the ABC to adjust to that phasing of the ABC, and that's where all of this gets so complicated, and the same with like the carryover and three-year specs, because they're bound by not exceeding the ABC.

There's a lot of things that they would like to do, in terms of managing the ACL to avoid the big changes and that sort of thing, and address the socioeconomic concerns, but, as long as their hands are tied by ABC shall not exceed ACL, they need these kinds of things which modify the ABC so they can do that. I think we can handle the increases easily enough and we don't need to do anything, but it's the decreases in the ABC that cause us the heartburn.

DR. REICHERT: With that, I would like to wrap up the discussion for today. If necessary, and if there is a desire by the committee, we can come back to the ABC control rule tomorrow. Currently, the plan for tomorrow is to start at 8:00 and to start with the ecosystem-based modeling. Then we will have Erik's update and then Amendment 46, and then we basically follow the agenda, and I think that means that we have all of the agenda items covered. If there is a desire by the committee, as I said, we can come back to the ABC control rule. With that, thank you, and thank you for sticking with it.

DR. SERCHUK: Is it your expectation that we will finish at three, or we'll finish when we finish?

DR. REICHERT: We finish at three or before. Not after three. I really hope that we have a little bit of time tomorrow to kind of take another look at the report. I think we caught up with a lot of items today, but that's the plan for tomorrow, but I am currently not planning on wrapping up before lunch. That's not my expectation right now. Thank you.

(Whereupon, the meeting recessed on October 25, 2017.)

- - -

OCTOBER 26, 2017

THURSDAY MORNING SESSION

- - -

The Scientific and Statistical Committee of the South Atlantic Fishery Management Council reconvened at the Town and Country Inn, Charleston, South Carolina, October 26, 2017, and was called to order at 8:00 o'clock a.m. by Chairman Marcel Reichert.

DR. REICHERT: Good morning. Welcome, and, since I made you guys come in early, I provided some extra energy this morning. This morning, I would like to remind you that we're following the agenda, and we start with the modeling, but then we will ask Erik to give us update on the research efforts at the Southeast Fisheries Science Center, and so that's the only change in the agenda for today.

With that, let's go to the Agenda Item 12, and the attachments are Attachment 24 and 25, and our action items are to review and provide comments on the use of the ecosystem model, provide feedback as to the possible directions of the modeling efforts, and discuss how this could assist the SSC in providing recommendations to the council in the future. I want to say that I think it's important for us to provide some general guidance. I don't think this is meant to provide detailed feedback as to like parameters and other details of the model. Some of you may be familiar with the ecosystem model that is going to be presented. I think it's important for us to provide some general guidance to the modelers and to Roger, in terms of how we feel this tool could be used in the future for us to formulate guidance and recommendations to the council.

There were some meetings prior to this, and Luiz and George and I were part of some of these meetings, and so we have provided some general feedback in the past, and with this, there is going to be a presentation or two presentations by Doctors Tom Okey and Howard Townsend, and I will hand it over to Roger, who will give a brief introduction of the model and the process.

SOUTH ATLANTIC ECOSYSTEM MODEL REVIEW

MR. PUGLIESE: I will be real brief. I just wanted to acknowledge the fact of where we are in this effort. It has been a long-term collaboration, and it's great to have both Dr. Okey and Dr. Townsend. The timing is perfect, in terms of information available, technology available, and how

we have been able to work with partners to advance this, because this effort has been funded through collaboration that we've worked with, with the South Atlantic Landscape Conservation Cooperative, with the intent of really understanding connections across everything from the marine environment and into the estuarine system.

As they get into the presentations, you will see some of the details about how we are collaborating with everything from Dr. Ruoying He and understanding and integrating oceanographic models with even looking at the, ultimately, connectivity with estuarine and internal models, and so we have been -- With Dr. Okey, we've been working from going all the way back to when the Sea Around Us Project was funded and really an investigation of beginning to understand what we know and what we don't know in the ecosystem, to begin to at least test where we were, and we started with that process, and, as I said, he'll get probably into some more of the details of the core of where it started.

It has provided that opportunity to evolve, has time has gotten to this point, where what we'll see is that we're at a very important stage to advance and integrate information, especially at spatial levels, that really has gone far beyond what the original Ecopath, Ecosim, Ecospace were capable of, and so I think the timing has been excellent.

It's great to have Howard be able to be involved, and it's great to have the commitment from NOAA Fisheries to acknowledge what we can advance in the Southeast on being able to provide capability to the SSC and provide focus and a broader scale, but also a refined focus, and so Howard's background in working directly with the Chesapeake and advancing the information and trying to use these from beginning to actually application is a real incredible, valuable insight into advancing this entire progress, and the workgroup has really provided that step forward, and this is another opportunity to kind of give us a good guidance from where NOAA has been applying this in other regions and how we can go further in ours and take advantage of this collaboration that we have come to this point with, but I just wanted to at least kind of set the stage for what I think is a very exciting time in our region to be able to advance these kind of capabilities.

DR. REICHERT: For those of you who do not know Tom and Howard, could you please quickly introduce them?

MR. PUGLIESE: Dr. Okey, his firm Ocean Integrity, is a research group that has done a lot of work over time, but has been both involved and directly associated with the University of British Columbia in their original -- They were the original core developers of the Ecopath/Ecosim/Ecospace collaboration and were the focus area, and now that's shifted over to Spain, with some of the collaborative efforts that have been active. He also works presently as I think an adjunct professor with the University of Victoria, and he has a lot of other irons in the fire that are addressing ecosystem in the broader sense and citizen participation and all types of aspects that really benefit us, in terms of our collaboration with him.

Howard, as I mentioned, and I think he can touch further on his background with working directly with all the modeling efforts in the Chesapeake, and that's something that I think Jason acknowledged in bringing him onboard as the head of modeling for NOAA Fisheries nationally.

DR. REICHERT: Thank you. Is Tom or Howard starting this off? Howard? Okay. Thank you. Howard is starting this off. Thank you for joining us today.

DR. TOWNSEND: Thank you for inviting me to be here today. I appreciate this. I am the Coordinator for Ecosystem Modeling within NMFS. If you're more familiar with stock assessment modeling, you might know Patrick Lynch. He's the National Coordinator for the Stock Assessment Modeling, and so, as we've been moving forward with ecosystem-based fisheries management and implementing the roadmap, they created this position, so we can help to coordinate the efforts among the councils and the regions and the Science Centers as far as the modeling that's needed for ecosystem-based management, to help develop review procedures that will help ensure there is capacity to get it all done and to help just in general advance this, so that we can apply these sorts of approaches. That's enough background on me, and I will give a little background on the talk, or overview of the talk.

I've got a lot of slides, and I plan to go through many of them very quickly, and you can sort of stop me. I would imagine that many of you have heard a talk or two about the EBFM roadmap, and so I've just got a few refresher slides on that. I want to give a little background on sort of the broad range of ecosystem modeling that's being used, ecosystem/multispecies modeling, I should say, but I will just call it ecosystem modeling, to keep it short.

I will sort of talk about where we've been and what different science centers have done with their regions and the councils and what the Office of Science and Technology and that work has done to help coordinate those efforts and hit some of the highlights of specific Science Center application of ecosystem models for EBFM. Then I'll sort of talk about where we're planning to go next and what we can do to support some of the efforts here in the South Atlantic.

Why EBFM? I stole a bunch of these slides from Jason Link, and so, if they look familiar, you can just say that we've seen it or we've heard it and move on. Why EBFM? This is sort of Jason's take-home points there, is that we're going to need something to help us provide advice with climate change and various other long-term drivers that are going to cause shifts in fish stocks.

Also, to move forward with triage and prioritization of stocks, and we're also thinking not just about fisheries stocks, but other living marine resources, marine mammals, sea turtles, habitats, and those sorts of things. Also, we feel that EBFM can increase the stability in catch and also address tradeoffs. I think we all have an in implicit understanding that there is tradeoffs. When you decide to fish one stock one way, that will, more likely than not, influence other stocks, and we want to be able to understand that.

You have probably seen this slide, if you've been to any of the EBFM roadmaps, and this is just sort of to help think about the different levels of fisheries management. There is the single species stock assessment sorts of approaches and ecosystem approaches, where still a single stock is in the center, but other drivers are included in thinking about how they influence the stock.

There is more thinking in the EBFM realm of which is the sweet spot we're shooting for right now, where you're thinking about groups of stocks interacting and then all of these external drivers influencing those stocks, and, of course, as you move towards EBFM and do this sort of modeling, there is certainly applications for the broader ecosystem-based management, where we're thinking across multiple sectors and how we use marine resources, but we'll kind of keep it at the EBFM level for now.

Why did NMFS come out with the EBFM roadmap? Well, it's one of those things that have been talked about for many years, and it felt like it was time to really set out some guidelines and start implementing and moving in the right direction, as far as EBFM goes, to make more of a concerted effort, and we're still kind of -- There is a roadmap, but there is a lot of details that still need to be filled in on that roadmap, and we're sort of learning as we go on a lot of this, but we have made some pretty big steps in some areas.

It is building on current efforts. We're not starting from scratch on any of this. It's going to be implemented for the next five years, and we're going to have a timetable to reevaluate and readjust the path on the roadmap, if necessary, but the big thing here is just to skip to the big, guiding principles, and I think that's the thing that I want to focus on mostly, and you have probably seen these all before, but the idea is to start developing fisheries ecosystem plans and have ecosystem status reports, so that, as you make single species decisions even, you've got sort of the larger context of what's going on in an ecosystem.

It's a wide range of things. Start to develop ecosystem-level reference points, and that's been one that we've been talking about for a while now, and I see several folks with the Atlantic States Marine Fisheries Commission group, where we've been working on that for quite some time as well, but I'm going to focus mostly on sort of this idea of exploring and addressing tradeoffs. Under that, in the roadmap, we talk about the need to build our modeling and to management strategy evaluations is sort of the big thing we're pushing. That's just a pithy quote from some direct information about being able to optimize. We want to keep in mind that there are interactions, and we want to get as much out of the system as we can sustainably.

Just a quick little bit of background on ecosystem modeling. I know, when you hear the words "ecosystem model", maybe something pops into your head of like a big Atlantis model that models everything from ocean currents all the way up to the economics of fleet dynamics and everything in between, and that is certainly something we think about on one of the end of the spectrum, but we really are moving towards thinking of modeling as a spectrum, and so you have more sort of the single species end of the spectrum, and then you can maybe throw in some add-ons, some external factors to an external model, and then move on to multispecies models, and so there really is a range of models that we use for living marine resource management, and I just want to also point out that, while us ecosystem modelers are going around showing this sort of spectrum slide, I should add here conceptual models.

That's another thing that we've started using a lot in the ecosystem modeling world, where you work with stakeholders to get their understanding, their mental model, of the system onto paper and then use that to inform how to turn that into more of a quantitative model, but that's sort of a new advancement since we've been showing this spectrum around, and I need to put that on there, but, anyway, this is how us ecosystem modelers have been thinking about it.

Meanwhile, while we were going around and showing this, Rick Methot, who is the Chief Stock Assessment for NMFS, has been going around and talking about the onion of model simplification. If you peeled that onion and rolled it out, you would have our spectrum, and so we really are thinking in similar sorts of approaches here, and we are working closely together and making sure that stock assessment modelers and ecosystem models are talking more and more.

Now I've got a bunch of information about all these different types of model and pros and cons and data needs, and I am just going to leave this in the slide deck and leave the slide deck available, if you want to look into this in more detail, because this could take quite some time to do that, but just, on the spectrum, you have all these different levels of modeling. You have single-species models and what it's used for and pros and cons and data needs, all the way up to let's take that single-species model and add some environmental parameters, like ocean temperature and how does that affect catchability or red tide and how does that affect mortality of grouper, and so those sorts of things are starting to feel kind of ecosystemy. That's a new adjective that we're coming up with as we talk about the EBFM road map, but it's a hard one to pronounce, ecosystemy.

Multispecies models, in the multispecies model category, this really is probably where there is a lot of parallel between single-species and multispecies models, and so you have single-species production models, and we're also developing multispecies production models and multispecies virtual population analysis and multispecies statistical catch-at-age models, and so it's a very similar structure, except for you have multiple species, and so there is some consumption and interaction between the species in addition to the population dynamics aspects of the models.

Biophysical models, this is a lot of folks doing things with ocean circulation models, like ROMS, to get an idea of sort of the environmental parameters that drive stocks and where they might be. On the west coast, they're doing a lot and moving towards a little bit of the dynamic forecasting, I think it's called. I forget what the term-of-art is, but really know, in the next two or three days, where the big stocks of fish are going to be or marine mammals, so you can change the regulation on the fly and say you can't fish in this area, because there is a big bunch of sea turtles there, but, in three or four days, they'll be gone, and you can come back in. It's really moving towards that area.

The food web models, and so this is getting more towards Ecopath with Ecosim that Tom is going to be talking about, and we really love to draw these horrendograms with these and show all the complexity and interactions of those, but these can be really important for thinking about tradeoffs or, as we call it, the ecosystem Jello. If you poke the Jello here, where does it shake somewhere else? It's those sorts of strategic questions that we'll discuss a little bit further.

Aggregate biomass models, instead of thinking of fish sort of like -- These are sort of like multispecies models, but, instead of thinking of individual fish stocks, we're thinking of them as sort of groups of similar stocks, as guilds or those sorts of things, and Mike Fogarty in the Northeast is moving a lot on this sort of approach and thinking about how to apply that towards the management.

Biogeochemical models, I am thinking like full-system models, like Atlantis, and I talked about sort of going from circulation through the whole nitrogen-phytoplankton-zooplankton sorts of cycles and bacterial loops all the way up to food webs and fishery fleets. All right. That's enough.

Why do we need to do ecosystem modeling for living resource management? Basically, the idea is there cumulative effects and unintended consequences in fisheries management that we can explore with these sorts of models, and that's the sort of thing we want to do, using management strategy evaluation, and we also want to think about the spectrum of modeling and using a few different models on that spectrum, so you can use multi-model inference, and that's like the hurricane centers and weather centers do, to deal with uncertainty in our model structures and then

also for risk assessment and, again, thinking about unintended consequences and tradeoffs and the big picture.

How do we use these for fisheries management? I think there's three different levels of management that we think about. There is heurism, tactical, and strategic. Heurism, it's good to have an understanding of the ecosystem function, and so a lot of Science Centers have started writing up sort of ecosystem consideration parts of their stock assessments. They did that especially in Alaska well before there was a big EBFM push. It was just, hey, let's sort of set the context and what interesting, neat things are going on in the ecosystem that might influence fish stocks, and we don't necessarily have them quantitatively figured out, but it's something to be thinking about.

I know the warm blob in the Pacific a few years ago, that was a big ecosystem consideration, and there is some uncertainty of what's going to happen here, and we need to take that into account when we get to the ABCs and ACLs. Just to have that sort of information is useful, and it also helps to advance scientific theory.

Tactical management, this is what we're used to. This is the wheelhouse. We are making tactical decisions and figuring out what the status of the stock is at and what sort of adjustments we need to make to yields, and this is binding in scope. You make a tactical decision, and that's what you've got to go with.

I just wanted to throw in here that we are starting to -- It's not a big push with ecosystem models, but folks have started using them a bit in sort of more tactical management, and this is an example from Alaska, where they use a single-species model for these different species, but they also include Ecopath with Ecosim and a multispecies VPA forecasting model, to sort of assess what levels the stock is at, and so kind of moving towards that multi-model inference, and there is not any real weighting here. It's just sort of projecting and comparing across models and saying, well, something like pollock, one model shows there's a lot more than other models, and maybe there is some uncertainty there that we need to take into account as we make decisions on that.

Then there is strategic management. This is really getting into that thinking about the tradeoffs and thinking about longer-term climate change and thinking about the cumulative impacts. If there is climate change and there is a habitat destruction issue and there's an oil spill, and you start laying these things, in the long term, what might that do to individual stocks, but also the ecosystem structure, and so this is more bounding in scope. What is likely to happen in the long term and should we sort of think about these things and how they're going to influence our more tactical decisions?

One of the things they've done in the Northeast was just to take all their models of a bunch of single-species stock assessments and sum up the MSYs from those and then use an ecosystem model to calculate an MSY for the system, and they found that you can't really implement each single species MSY, because the system level wouldn't support it, and so these sorts of things -- Again, it's an exploratory thing. You don't necessarily have to take an action. There is no -- But it's something to think about, to say, well, how do we start to consider that in our single-species management if we can't really get to MSY for all species simultaneously? That's enough background on ecosystem modeling, and I will be glad to answer questions, but I did want to sort of get everybody thinking along those lines.

I want to sort of touch now on what the coordination efforts have been NMFS, NMFS with our Regional Offices and the Science Centers and the councils. Then I will talk about a few specific examples, highlights, at some of the other regions, Science Centers, and councils, where they have implemented this in more of an operational sort of approach.

Our coordination began about 2006 or 2007. Well, I think, in 2005 or 2006, a bunch of us ecosystem modelers were sort of talking to each other, and it was like we should all get together sometime, like they did with the National Stock Assessment Workshop, and start to compare notes, and so Jason Link and Kerim Aydin and several others and I established this first National Ecosystem Modeling Workshop.

We started that first NEMoW, and we've done three others since then, and I just want to highlight what we've done there, but the idea with these is to get together and think about the issues of how we're applying these ecosystem models and how we can do it better for making management decisions or supporting management decisions and developing the standards and review practices and that sort of thing.

The first one, and all of these are in tech memos, and some of them we've even had some additional peer review publications from, and so, if there's any more detail that you want to know about anything, I would be glad to share the tech memos with you and get you more specific information. I just wanted to, again, as quickly as possible, provide a brief background.

Here, we reviewed a bunch of different software packages, and we sort of looked at that spectrum that I showed earlier. This is the abbreviated version, and we sort of thought about what are the recommendations for use and the data requirements and what are the best practices for parameterizing and how do we start to validate these models? These are really lots of data. We say there's lots of data, but it's really a lot of the same data that you use for stock assessment, but it's just a lot of pulling together existing data.

The second NEMoW, we were starting to get a little worried about uncertainty, because we felt like there is a -- We treat of treat uncertainty as like there's this one -- There is uncertainty, and it's all the same uncertainty, and some of it is just unfamiliarity with ecosystem models that make you feel uncertain about using them, but there are actually different ways of breaking down uncertainty, and so we worked with Randall Peterman from Simon Fraser University was one of the main speakers here who kind of helped us think about the -- This is sort of an adaptive management loop and where different types of uncertainty come in and how ecosystem models, and a little bit of how stock assessment models, deal with these sorts of uncertainties, but one of the big take-home points with that was that all of our models have some structural complexity and uncertainty associated with that.

A stock assessment model, you make some assumptions, and so there might be some bias there. An ecosystem model that's got 50,000 parameters, you're probably going to have some parameter uncertainty, and so, really, the best practice here is multiple-model inference, and so, from that, our next workshop, back in 2014, was focused on multiple-model inference and bringing in experts from other disciplines, ocean and climate modeling and hurricane center modeling, and that's why we have our cool little hurricane graphic there.

It was very interesting to hear the story of how the hurricane center came to the approach of using the cone of doom or whatever you call this cone of uncertainty around hurricanes, and it was like how do we start to communicate that uncertainty with our models, and so we're -- Again, you have to have multiple models.

The other interesting thing is all the modeling you want to do in multi-model inference, at the end of the day, with the hurricanes, there is a forecaster in the hot seat who kind of assimilates all that information and writes out a few paragraphs about here's where we expect the hurricane is going in the next six hours and here is why, and, similarly, we're doing the same thing. We don't have a forecaster in the hot seat. We have a technical committee in the hot seat, or a plan development team in the hot seat, but it comes down there is a lot of that, and we have to interpret. You can't just sort of average the models and call it good.

Then our last one was just last year, in February/March, and we really got to talking about tradeoffs, and we really had a great time. We were down at the Southeast Regional Office in St. Petersburg, and we had a management panel, and we heard from those folks, who are not like us modelers and off cranking on computers every day, but they are actually having to make a decision on here is a habitat permitting issue we've got to make a decision on or here's a protected resources or here's a stock assessment issue.

We really got a lot of good information from them and, again, we can go into detail, or I will share that report, if you want to know more about that, but, really, the other thing we talked about here was sort of getting back to communicating and visualizing and thinking about those tradeoffs, because it's a fairly complex thing, when you really get down to it, and how do we quantify and communicate that, and that's been one of the major things that we've talked about over the years.

What are some of the major recommendations? I offer these major recommendations because, as we think about the South Atlantic EWE model and other efforts that that modeling workgroup has talked about, these are some of the things that should kind of be underlying that, and so some of the recommendations were that NMFS formally support and expand dedicated ecosystem modeling efforts at centers, and we wanted to adopt some national standards and review practices. We want to keep having these workshops, so we can kind of keep charting the course as we go. Then, like I said, we're more and more merging the ecosystem modeling and the stock assessment modeling workshops.

Make sure you and identify sources of uncertainty in your models. The best practice is to adopt a multi-model inference approach, and then we also want to encourage folks to perform simulation studies to evaluate the skills. These are things that are often done in stock assessment models, and, then, also, finally, engage early and often with stakeholders as you build the models. Sometimes you have to start off with a strawman model, and then the stakeholders will provide input and say, well, you didn't include this environmental factor over this stock, and I'm on the water every day, and I know that this is important, and so there's some back-and-forth. For stakeholders broadly, make sure you're talking with the council and the SSC and that sort of thing on a regular basis as you move forward.

I am going to skip all of this, because I'm running long, but some of the goals for our ecosystem modeling coordination from Headquarters is to help support and conduct science to understand ecosystems and look at drivers and status and trends. We want to explore the tradeoffs and develop

the capacity to be able to analyze tradeoffs and do management strategy evaluation, so that you can look at tradeoffs among different management tactics that you might take.

We want to make sure that we get ecosystem information incorporated into management advice, whether it be ecosystem-level reference points or ecosystem status reports or a broad range of things to start helping flesh out that picture for fisheries and other living marine resource management. Part of my job is to ensure that we have adequate capacity at the -- I say centers, and I mean the centers, the councils, the Regional Offices, and ensure that this ecosystem information is getting taken in and used by the councils and other regional management bodies.

Some of the big efforts that we're focusing on are just sort of cataloging what all we've done around the different areas and who has what expertise in what type of model and also developing a toolbox. You have a stock assessment toolbox that has really facilitated stock assessment, and you have kind of cut down on the time you have to spend on writing code, and you can get some models done.

We don't want to discourage people writing code and developing new models. We want to be able to do that, but also have just some tools that are ready to go and get going, so that we can more readily do multispecies modeling and we can set up some -- If you have regular tools that people use on a regular basis, when you start to have a CIE or some other group review it, then they've seen this before, and it does sort of make that review go a little more smoothly, but it takes a few rounds of that.

Now I want to talk about some of the highlights of what's been going on at some of the centers, and this is just a reminder slide that we do focus a lot on our large marine ecosystems and our EEZs, but we also have our protected resources sorts of issues, and we've got LMEs that we don't really think about that NOAA is involved with, Antarctic and the Arctic and just some of the territories out in the middle of the Pacific, that we work with not just councils, but commissions, and so lots of areas where we're working, and so that has led to a lot of folks applying a lot of different ecosystem modeling approaches to answer specific questions.

I just want to highlight a few, and I'm going to talk about the ones that have been around for a while. These weren't sort of groups that got started when the EBFM roadmap came out. These are groups that got started twenty years ago, and they have developed their models, and talked with councils and SSCs, and they have really fleshed out what's needed.

The Alaska Science Center, they have four different large marine ecosystems or EEZs, and I'm not sure which this is, that they have to deal with: Eastern Bering Sea, Gulf of Alaska, Aleutian Islands, and the Arctic. They have got sort of coupled ocean circulation models with NPZ models, and they have done a lot of just enhanced stock assessment approaches. They have got food web models. They have actually reprogrammed EwE into C++, so they have more flexibility with it.

Multispecies statistical models, like the multispecies statistical catch-at-age, up to this FEAST, and I will show you a little more on that, and just sort of qualitative network modeling or conceptual modeling is also known, and so they've been well-funded over the years, and so it's not a surprise that they've got a lot going on, and they are making a lot of progress in getting this taken into management. Their SSC, in their comments, suggested some more precaution on pollock, based on some of their model outputs, and this CEATTLE is a multispecies statistical

catch-at-age model. They like to give nice names to their models there and not just the standard acronyms.

This is the sort of thing that the ecosystem modeling can be used for, and then they have this huge model that you've got multiple different models, multiple model approaches. They've got a big climate driving model that causes changes in their ecosystem models, and they're using that to evaluate future scenarios and how different harvest control rules -- What types of harvest control rule might work best, given these long-term effects. They are in the middle of that now, and they're using lots of high-performance computing and lots of people. It's really neat stuff, and we'll keep you updated on that, but they really have kind of made the Atlantis model an ocean circulation model, but running real time and not just forcing, all the way up to the economics and fleet effort and fleet dynamics sort of things.

The Northeast Science Center has lots of different modeling approaches published and being used. They are pushing on management strategy evaluation as well as the efforts that I mentioned about Mike Fogarty and aggregate production models. The Northwest Science Center, again, multiple model approaches, taking that California current and breaking it up spatially and using -- MICE is an acronym for models of intermediate complexity for ecosystem assessment. It is more of a statistical model than a simulation model, but then also Atlantis and Ecopath with Ecosim and using that to look at decisions on how fishing sardines might affect different trophic groups, and also a lot of work with ocean acidification that they've done with these models.

They really are thinking about this adaptive management, or we call it the integrated ecosystem assessment loop, and pointing out that the models -- Just the first step of building a model is a really useful tool just for synthesizing the data for a system, and I can't stress that enough, that just sort of that synthesis and the heuristics there is useful, but, also, it helps to point out where there might be some key missing data or some research or monitoring that could help fill some gaps. They are really pushing on management strategy evaluation sorts of approaches and then looking at how different stressors are affecting the food web from top-down or bottom-up.

The Southeast Science Center has been interesting. They have worked a lot with academic partners, and so this is from an Atlantis model. They're working on it at the University of Florida, where they did some management strategy evaluation, and they have also, kind of outside of the center, but a Southeast Regional Office issue, was the Coastal Louisiana Restoration. They've got these plans for huge freshwater diversion projects down in coastal Louisiana to help rebuild marsh.

Before the NOAA Habitat folks, who permit this stuff, can make decisions, they need to have an idea of how this is going to affect fish stocks and marine mammal stocks in the short term and in the long term, and so this has been actually a multi-agency effort to use a couple of different models to explore that, one of them being Ecopath, like you said, and the Ecospace, and another one being more of an individual-based multispecies model, and so a broad range of applications of how this has been used for a broad range of types of management. That's where we've been.

Where are we going? I think I said this multiple times, but the management strategy evaluations is really big, because that also allows you to account all those different levels of uncertainty, parameter uncertainty, implementation uncertainty, et cetera. Also, quantitative tradeoff evaluations and establishing ecosystem-level reference points and then developing standardized

tools, so we could be much more operational. Building models takes a lot of time if we have the tools in place that can help expedite that, and that's what we want to do.

Some of the strengths, we've got some strong ecosystem modeling programs at some of the centers, and we can draw on their expertise. We have a good history of collaboration among the centers and with our regional offices and councils, and we've got some clear direction and goals, and that's one of the things with the NEMoW that we have noticed, that it's been helpful to have this roadmap and say we're doing this part of the roadmap, and that's why we're doing this, and that's why we need funding. Not that we always get the funding, but at least we have something to point to.

There is challenges. This is not a panacea, and it's not going to be 100 percent easy, but not all of our centers have dedicated ecosystem modeling staff. That's why I am here to help fill in the blanks, to some extent, or to find some ways to get some support, and a few councils have actually started using this, but I have pointed out some cases where they're doing that, and I think part of that is just to have this conversation, to get started and see what the models can do and have the councils and other management bodies explore what else they would like to have answered. Maybe it's develop new models or modify an existing model.

Finally, there is a lack of standard peer review process. When you go do a stock assessment, you know what awaits before it's going to get taken up. You might not look forward to it, but you know what's waiting for you. We've got now, I think, three of our centers that have gone through a CIE review of their models, but it's been different types of models, and so we need to start developing, for each model structure, here's the sorts of things that you need to ask about.

If you've got an EwE model, how did you get those vulnerabilities, or where did you get this biomass input or this production? If you have an Atlantis model, where did you get your -- What oceanographic model did you use to drive it? If you have a statistical catch-at-age model, why did you do that? I'm just kidding.

I have had the pleasure of talking with Roger and Tom over the past year or so and joining in on Ecosystem Modeling Workgroup meetings to see what's been going on with the EwE model as well as other folks have been talking about other modeling work, and I've got to start off with a large -- I shouldn't say "holistic", but I should say larger model, like EwE or Atlantis, that's a pretty common thing that we've done at a lot of the other regions, is you start off big, and you do some exploration with that and look at some tradeoffs. You get some heuristic understanding of the system, and then, if you pull together the information for a larger model, that kind of makes it easier to do if you want a specific model to look more closely at a particular issue. You can go back to that EwE or Atlantis model and pull a lot of the data that you need to start on another model.

Also, just building this large system model helps you to understand where your gaps in knowledge are and what other research and monitoring is needed, and it also gives a place to hang new research and modeling. Once you get the study done, you can plug it into the model here, and then the other big take-home thing with us has been, from the national perspective, you've got to have an iterative two-way discussion about what do you want to do with these models and what are we trying to achieve.

We want to move towards EBFM and implement roadmap things, and what are some applications and how can we modify models to do that? That communication often turns into dealing with other ecosystem stuff besides modeling. It's like, hey, let's get an ecosystem status report going, because we want to know, every few years, are there major events that might influence stocks that we should be aware of when we're making our single species sorts of decisions.

As you move forward in this region, NMFS can help. I am here. I am plugged into the Ecosystem Modeling Workgroup, and we will continue to help. I can also help draw on expertise from other Science Centers or pull in folks from the Southeast Center. I know folks at the Beaufort Lab are starting to explore around with some other types of ecosystem models, and so I can definitely help to pull that in.

We want to help with the model review process. If you start to use this operationally and feel there needs to be a certain level of review, we can help to do that. If there is other items on the EBFM roadmap, as the council moves forward, I can -- I don't know if I can help, but I can help find the folks at NMFS who would help support that, and so I will stop now, and maybe we could wait for questions for everybody, and is that the best approach, Marcel, or does anybody want to --

DR. REICHERT: If there is a quick question for clarification, we can entertain that now. Otherwise, I would suggest that we wait until after Tom's presentation. Seeing none, thank you, Howard. We appreciate that overview. Thanks, Tom.

DR. OKEY: Thank you, Marcel, and thanks, everybody, for having me. Thank you very much, Howard, for that very useful presentation. That makes my job easier today. I am just going to give you a taste of what we've been up to and what the Ecopath models are about initially. I think the familiarity with the Ecopath models in our audience varies among individuals, and so I will do a little bit of review, but I will breeze past this pretty quickly, because some of them are pretty easy concepts.

The South Atlantic Bight, or the South Atlantic region, Ecopath model, that is Ecopath with Ecosim and Ecospace modeling approach, has a long history, starting in about 2001, and I will describe some of that. In this particular effort, this latest effort, we have a growing collaboration of folks, and I will mention some of them as we go through, but Rua Mordecai and Simeon Yurek are helping with some of the -- They're really leading some of the thinking on the spatial part, which I will mention a little bit later, and others have contributed data. Tracey Smart is here, and Wally Bubley was also around, and they have contributed so far. Anyway, it's a growing group.

Essentially, we are trying to take this original preliminary model that we put together in 2001, and we've gone through four iterations, and I will describe those, and we're now advancing that model. The point of this latest iteration is to try to articulate the managed species for the South Atlantic region, so that it can be much more useful for the fishery management council and others who want to potentially use it.

Essentially, we're talking about a food web model, and we all know what that is, but the point for us is that any given component of the system that you might care about is connected to and influenced by and influences other components of the system, and so we're talking about a whole-system approach.

Then we can think of these as fishery ecosystem models as well, and so the fisheries and human interactions of the system are also incorporated in the modeling approach, but they are sometimes more than fishery ecosystem models, because now we can incorporate questions about climate change or environmental changes or oceanographic changes that we might expect and, in this case, also interactions with not just the marine ecosystem, but estuarine systems and terrestrial and upland watersheds and so forth, and so there's a lot of potential.

This is just a depiction of the just this last previous iteration of this modeling approach that Kelly Kearney actually put together for me, because she was interested in these connected systems, and so this is the 99-box model, as we call it, with a report associated with this that came out in 2014 in a Fisheries Center working paper series report, and so that can be shared with you, and you can get lots of information about this model in that report.

This is part of an updating model advancement phase, or initiative, and so this is really -- I am going to talk about Activity 1 here, which is developing or advancing the South Atlantic Ecopath model, but there are other activities, and you see Marcel and his group are listed just below that, in terms of data development and support of the development, and then there are others as well that involve the parameterization of the Ecospace part, which we can make this modeling approach spatially explicit, and I will talk about some of that. I do want to save time for questions later, and so I am kind of breezing through this, or trying to breeze through this, pretty fast.

This is the only slide with a bunch of bullets, and maybe you can't see that very well, but, essentially, our goal is to support the South Atlantic Fishery Management Council's move to ecosystem-based management, to whatever extent it wants to go there, and also to advance and refine the Landscape Conservation Collaborative conservation blueprint, and it can essentially link to oceanographic models and satellite data, and that's where we're trying to go with this, and provide more realistic predictions about spatial policy options, in terms of spatial management and what the implications and impacts or effects might be.

Also, as I said, the effects of changes that you might expect in the coming decades, in terms of oceanographic changes or variability, and then exploring impacts of episodic events, such as oil spills and so forth, which I have focused on a little bit with the Prince William Sound model in Alaska, and I have experience constructing a number of ecosystem models throughout the world, including originally the West Florida Shelf and actually the original Mid-Atlantic Bight model and then in Galapagos and Australia and various places.

Essentially, the idea with this approach is that no fish is an island, and I think I mentioned this idea, and so, if you're interested in one particular fish species or stock, again that is connected with the rest of the system, and I don't have to belabor that, and these models have been constructed all around the world. I don't need to stick on that, either.

Essentially, this approach has three components. The first is really a static description of the flows of biomass in the system, you might say, and that is useful in its own right, in a variety of ways, as Howard was mentioning. The next part of this is a dynamic expression of those relationships or the characterization of the food web, so that you can start asking questions and start manipulating certain parts of the system to try to explore the possibilities of what might happen to the other components of the system over time, so you can do simulations over time, and that's temporal dynamics.

The third part is the spatial dynamics, and so essentially enabling the system, or the spatial part, to redistribute the organisms or the functional groups in your system over space and then, for various reasons, one way to -- I can go through that, but it's essentially exploring spatial dynamics in the system, in terms of both what might occur, habitats, questions you might have, management questions, about habitat and also say the effects of marine protected areas or any kinds of spatial questions you have.

Essentially, I won't dwell on this, and some of it is not even showing up there in the first equation, but this is the -- This is the basic model itself and the equations, and so the master equations of Ecopath, and, essentially, it's a mass balance model, at its core, or mass continuity model, really, because there are changes or dynamics inherent in it, and so, essentially, the production -- One of the equations is that the food consumption of a given functional group or species has equal the production and the respiration and unassimilated biomass.

The production of any given group has to equal all the sources of change, including the predation, the fisheries yield, net migration, and other mortality. Then we can express this dynamically, essentially, but some of the -- This shows some of the parameters. These are some of the basic parameters there on the right, which you may not be able to see very well, but it's essentially rates of consumption, rates of production, standing biomass to start with, and other parameters, such as ecotrophic efficiency, in terms of what proportions are consumed by predators and so forth.

Then other key parameters include diet composition for every group, and so, in our latest iteration of the model, we have 137 functional groups right now, and that's pretty huge for these ecosystem models. In my history of doing this, I have tended to err on the more articulated side, and there is a conversation and debate about this, but one problem, historically, has been just computational issues, but that has changed over time. The other consideration is whether or not you're going to miss important sub-webs or dynamics in the system if you over-aggregate, and so I also am a benthic ecologist originally by training, and I so tend to include benthic components and benthic-pelagic coupling, which now is emerging in people's minds as very important, and I think it is in the system, as in many systems.

Anyway, this is the brief history. Again, I mentioned 2001. We had a strawman model, a 48-group model. Then, very soon after that, we put together a pretty involved collaborative exercise, where we refined that model and increased its quality, and it ended up being a 98-group model, in 2003 it could say here, and then the model was refined in 2014, and I will mention that a little bit, because of interest in forage fish, and my examples here will be some of the simulations from that.

Then this is current effort, and we're calling it 2017, to articulate those managed species, and this was the original preliminary model report back in 2001, and you can get that, or I can send it. That's a Fisheries Center research report, and it's pretty gray literature, but it's available, and there are a whole variety of contributors, and so these were the primary contributor of that 2001 effort. Not this latest one, but the 2001 effort. These are kind of older slides.

You will recognize a lot of those names, if you can see them, from this region, and a lot of people put in some good work and contributions, and so I guess the point being that this really is a collaborative approach. We're not really in such a black box, although we hide in our black box for a while, and hopefully then communicate what we've done, and this is -- For some reason, I

am listing them as secondary contributors here, but everybody was a contributor to the process for that model.

Then you end up with a big model, and these kind of diagrams are useful only to say that there is a lot of connections in a large model like this, and this one is just highlighting menhaden there over on the left and all the connections to the higher trophic levels and only a few connections to the lower trophic levels here.

This working paper series document here, report, is useful, again, for you to look at if you have any interest in this, because it gives a lot of the background and what it's all about and some of the simulations that we did regarding forage fish, but we essentially -- This iteration was sponsored by the Pew Charitable Trusts, because they were interested in forage fish, and essentially we broke out and articulated the forage fish groups, where they had been aggregated previous to this, so that we could ask more specific questions about their roles, and so this is just giving you an example of what you can do.

As Howard was saying, you can modify it to whatever particular questions that you have if you have a model, and so we broke out these particular forage groups, and I say they are groups because some of them, like halfbeaks, has three species in here, and sardines, it looks like it has two, and scads have three species, but then there is a real aggregated group here called pelagic oceanic planktivores, and that includes chub mackerel, lanternfish, antenna codlet, and striated argentine, and the original membership of these aggregated groups were thought through very carefully by a number of fish experts in this region. John Hare was sort of leading that, but a whole bunch of other people contributed to that membership, and so all of the steps that we went through for this model were really well thought out, logically. Then the parameters were developed with weighted averages across all the species and everything, and so a lot of care was taken there too, as we do.

This is another kind of silly slide to show, but these are all the functional groups in the 2014 iteration, that 99-box model, and you can see some of the forage groups. There is a bunch of bird groups too, and some of these are -- It's kind of controversial if you're not interested or interested in birds. We have got like seven bird groups, but, if you have some of those questions, then it can be useful.

Then these were sort of -- Aside from those forage groups, these are seven or eight groups that were pulled out as predatory fish of particular value that we use focused on at this point to see what the impacts were. The point of this slide here is just to show that we did some comparative simulations and explorations, just showing that some groups -- Essentially, I was manipulating individual forage groups and then just taking a look at the overall impacts on the rest of the groups in the overall system in this whole 99-box system, and so some groups, when you reduce them by 50 percent here, like mullets, had very little effect on this particular model iteration. Yet, if you reduced squids, which included an illex species and a loligo species, relatively small ones, the squid really had a much larger effect, and so this is sort of comparative explorations.

These are results. Essentially, this is the number of species on the left, the number of functional groups, that were affected by manipulations of just menhaden, and so these were the groups that emerged as having greater than 15 percent change, and the scale here is essentially relative biomass change, and so the 2 on the upper scale means a doubling of the biomass.

Now, what I did was I sorted the results of these responses after the ten years. These were thirty-year simulations, but, ten years after the start of the simulation, these responses emerged, and there is four manipulations here of an increase of 50 percent, an increase of 100 percent in menhaden, or a decrease of 50 percent or a decrease of 100 percent of menhaden, and so then I sorted them by actually the reduced menhaden by 50 percent, and I sorted all the simulations that way, and so, essentially, it ended up as this is the top of an hourglass of this figure, showing that menhaden -- It's generally showing that menhaden is facilitative in the overall system, and these are the functional groups that responded positively to menhaden at the top of this chart. Even though there is a positive and negative, the top of the hourglass here shows all the groups that are facilitated by menhaden, if you kind of follow me.

I did a number of those kinds of simulations, and this is showing the squid, the responses of all the species in the system that change greater than 15 percent for squid, and this is a different pattern, showing that there is sort of a top of an hourglass, but there's also the bottom of that hourglass, and it's not as much of a change as the menhaden one, but it's in more balanced effect, meaning that squids, because they're about one trophic level higher than menhaden in the system, at least these species of squid, they essentially suppress functional groups, the ones at the bottom, whereas they facilitate some of the ones at the top a little bit, because squid are a forage group, but they are also predators.

Again, this is just an example of the kinds of simulations you could do, and so then I just went through other groups. Anchovies did not have very much of an effect in the system relative to menhaden. Now, remember that menhaden has a much larger biomass than any of the rest of the forage groups, and so part of the reason they're having a strong effect in the system, in this model, is because of their very large biomass.

Then halfbeaks also have this balanced hourglass, but, again, it's a pretty small effect in the overall system. Interestingly, the marsh vegetation is the one at the bottom, and it pops out, because they eat marsh vegetation, to some extent, the halfbeaks group. Then shrimp, I am including it in this forage group, and they have a generally facilitative effect, except for estuarine polychaete, which is part of their diet.

Then this was just the same simulation with all forage fish, and you can see the group in the middle there, which are all of those forage fish. It's showing the manipulated changes, but then the rest of the groups are the functional groups in the system that change. Again, the top of the hourglass are the ones that the forage groups facilitate in the system, and then the bottom are the groups that forage fish suppress. That is when you change all forage fish at once, and so that's an important point, because obviously they are prey in the system. The one that I just showed you is all forage fish groups, and then the next one, very similar, is all forage groups, and that includes the squid and the shrimps.

Anyway, it's just some example simulations, and these are those eight groups of -- Actually, there is seven listed here, and I'm not sure why, but there is seven groups of valued predatory fish, basically, showing that the menhaden really facilitates those fish in the system, the presence of the menhaden, and then this is -- This is all forage fish, and it's similar to the menhaden, and so the menhaden signal is really driving the all forage fish signal a lot, again because of its really dominant biomass, and then this is all forage, again including shrimps and squids, and you can see that they differ a bit, in interesting ways, but they are pretty similar with the menhaden.

Then this next phase -- That was just the example from that forage exploration. Then this is really all of the managed species or managed functional groups, for the most part, that were broken out, and so there's about forty-five of them here, and so then this is a 137-group model. We went through kind of an iterative process of determining which ones to break out, but it was essentially the ones that are actively managed and also the ones that don't have a really -- They don't appear to have a really super tiny biomass or are important for the fishery, and so there are some groups that are technically managed that we did not articulate in the model, because they seem to have a low biomass and importance, but it's always a debate about which ones to break out or not.

We want to have some time for discussion, and I will wrap it up pretty quickly, and I will just breeze through a couple of ideas. The Ecosim essentially is the dynamic expression of the Ecopath models. This just lists a number of ways that it can be used to explore different scenarios. It hinges largely on this notion of the foraging arena, where, rather than a strict kind of dynamic where all predators have access to all prey in the system, we know that really doesn't happen in nature and that fish hide, basically, and so they move between their hiding places and places that they forage. When they move to the places that they forage, they become more vulnerable to predators.

This is essentially that exchange rate between the vulnerable state and the non-vulnerable state that enables actually the models to be stable, in a sense, but also that this parameter is a really important parameter for the sensitivity of the model to perturbations and also the relative importance of top-down versus bottom-up forcing in the system, and, actually, you might recognize this name down here, Rob Ahrens, who is on your SSC here, and he was integral to developing some of that theory and its expression in Ecosim. Maybe he can say that differently than I, but, anyway, we have Rob here as a really great resource and having a good perspective on this.

What we do is we try to calibrate the models dynamically by trying to fit the models and drive the model with the history of fisheries and then fit the model to, ideally, fishery-independent indices of let's say biomass or relative biomass over time, to try to calibrate the dynamics, the temporal dynamics, and this is just an example of that kind of fitting, so that we can have -- The calibration essentially adjusts those vulnerability parameters.

That's not to say that the diet composition matrix of the model isn't equally important, because it really is. It really drives those dynamics, and some of the other parameters as well, but it's that vulnerability parameter that gets adjusted when you calibrate the model, and so you can end up with some higher confidence in the model dynamics for future simulations.

We also -- I can't say very much about this, because there is not much time, but the Ecospace part of this is what we really are excited about, in terms of really bringing this model to a place that is really at the forefront and the cutting edge of development of these modeling approaches. We can integrate this kind of model that we can gain confidence in.

Even though it's very complex and dynamic, we can integrate that with big oceanographic data and the output of oceanographic models, in terms of changes in -- Well, the spatial distribution and changes in habitat characteristics, like temperature, salinity, productivity, and also the habitat information that folks in this region have been working so hard to put together and are so important

for this region, so we can bring together all of those layers and express the model in that spatial sense and ask questions that can be really useful.

In Ecospace, essentially, it involves the Ecopath and Ecosim model expressed in each cell across a grid, and, essentially -- Again, I won't get into details right now about that, but, again, here is just -- We are asking questions about marine protected areas and then doing simulations. These panels are all the various functional groups that change spatially when you implement some kind of spatial management. You can't really see those panels, but then this is integrated with the temporal dynamic modeling approach as well, and so you can do simulations of both time and space with this. Maybe some of the questions will relate to Ecospace.

We can sort of redistribute the species, and we can explore questions about spatial impact of fishing, MPAs, and impacts of environmental change, in a spatial sense, and so I won't go through this, but only to say that, essentially, the latest development is that this includes habitat capacity models, and so it includes like bioclimatic envelope modeling, where we import the maps of various drivers or variables and then we identify response functions of all the functional groups to that particular variable, and so then the groups redistribute themselves in space, and, of course, are interacting with each other in each cell in different ways, depending on their relative abundances, and so each cell is kind of a shifted model, depending on how those habitats and variables are driving the relative abundances of all the species, if you will, and so it's a pretty exciting time in this kind of modeling, but I won't go through how to set up the habitat foraging capacity models and so forth.

The other last point is we can import some of these response curves, because, in a big model like this, it can be really daunting, but there are resources, because there are other bioclimatic envelope models that we can import those response curves from and then put together these habitat capacities for various functional groups in the system.

Other than to say that there is a capacity to import a lot of layers, GIS-based layers, and other spatial layers, and the approach has advanced now in the capacity to import all those layers, and so we can put this together in a relatively straightforward way, except that it is kind of, in another sense, kind of a gargantuan task to parameterize all of this, and this is just a sampling of sort of the overall broader project team for this whole initiative, but, again, there is others, and I will stop there for some questions, for either Howard or myself.

DR. REICHERT: Thank you, Tom. I would like to open the floor for questions or remarks and to remind you of our action items here. It is to provide feedback to the possible direction of modeling efforts and discuss how this model could assist the SSC in providing recommendations to the council. I may have mentioned it, Tom, but I think one of the cool things that we can fold into these modeling efforts is fishing fleets and the behavior of fishing fleets, and I think, eventually, the possibility to enter some socioeconomic information in there. With that, I would like to open the floor for questions.

DR. TOWNSEND: I just wanted to maybe get Tom to clarify one point there. When you were in the 99-box model, you were tinkering with different levels of removal of forage, and was that a calibrated model, or that was just sort of an exploratory model?

DR. OKEY: Thank you, Howard. That's a really important point. That was an exploratory model, and we used the default value for the vulnerability exchange rate, which is -- The default value emphasizes more of the bottom-up forcing of the system, and so what we want to do is, now that we have time series data for fisheries and then we can fit to the fishery-independent data, now we can calibrate the model in the sense that we do an optimization of fit, which adjusts the vulnerability parameters, and so future simulations that we do will be more calibrated, but the value of those non-calibrated explorations is simply the comparisons between the different groups, and so I thought that was valuable.

DR. TOWNSEND: Thanks. I just didn't want people to walk away thinking that's how the system works, but more of a demonstration of what you can do with the tool.

DR. OKEY: Yes, and I guess that's a broader important point, that we need to really understand and be clear what each simulation is doing, because we -- In some cases, we don't want to hang our hat on the magnitude of change that comes out of some of the simulations, especially in an uncalibrated model like that, but it's the general direction and dynamics sometimes that provides insight. Thanks.

DR. REICHERT: George reminded me that I forgot to ask if anyone in the public has any public comments. I am looking around, and I see no hands up, and so I just wanted to do that.

DR. SCHUELLER: I have a bunch of questions. For this South Atlantic model, I was wondering what the spatial scale of the model is. Is it on an annual time step? What do the diet data look like for this? I am just wondering if there's any consideration of spatial and temporal differences in diet data, and I will stop there.

DR. OKEY: The model is an annual time step, and so that's the unit that's used, and so the spatial scope of the model is essentially from Cape Hatteras. It was to the tip of Florida, but now, because the South Atlantic region goes around into the Keys, we're including Keys for this iteration. In terms of the spatial simulations that we do, it could be let's say on a ten-kilometer grid size that we resolve the data at and bring all of the data together at, but, when you have a larger model like this, there might be some -- We can go to finer-scale resolution with it, but then there might be some constraints, in terms of computational -- Rob might have a perspective on that as well, and I think this is something to explore, what the resolution is going to be on some of those.

Then the diet composition, essentially, it is a -- The input is a diet composition matrix, really, that includes all of the groups in the system with almost all of the -- Well, almost all of the groups as predators and all of the groups as prey, and, essentially, it is the proportion, let's say -- We use biomass wet weight, normally, and it's the proportion of that biomass in the diet that each prey represents in the overall diet, but then, to translate the existing diet information that we have, which is always emerging as more advanced -- Like Tracey Smart and her group provided some of the latest diet information from Marcel's group in North Carolina, and so those data are incorporated into the model, but some of the species have really highly-resolved diet data and some do not, and so it is a big process to go through the whole diet composition.

We sometimes take diet information from other sources, from various sources, basically, but, for all the parameters in the overall model, because there are so many, there is an approach in this modeling approach called data pedigree, where you're rating the relative quality, essentially, on a

quality scale of each parameter in the overall model, so that you can get an overall rating or have a roadmap to which parameters have better quality than others.

DR. TOWNSEND: One thing about the diet composition data, Tim Essington at the University of Washington did some sensitivity analysis with the initial Ecopath input, and so that includes the biomass, the production for biomass, consumption for biomass, diet composition, to create that snapshot of the food web. Some of the sensitivity analyses showed that models aren't terribly sensitive to the numbers in the diet composition. It's more that you get the right groups.

If you have, in the real world, Species X eats Species Y, but you don't have that in the model, that can be a problem, but the actual values -- Once you start moving into Ecosim, it's not like those are fixed values. They can change, depending on the biomass that's being modeled, and the other thing is the time step is an annual time step for fisheries, but, when you start pulling in these environmental forcing functions, you can have a daily or monthly time step to drive things, and so it's a really flexible time step. What is the plan for the calibration period? What's the first -- Is it 1982 to two-thousand-and-something? I don't remember.

DR. OKEY: The starting period of the model from its original inception was actually 1995 to 1998. That is the initialization period, because that's the time, at least at that time, that we had enough good information for, to start with. Then the calibration will be trying to -- The calibration time period is from 1995 to the present, basically, and so we try to get the model to recapture how the changes in fisheries and biomass changed over that time.

DR. SCHUELLER: I'm sure Howard knows where I'm coming from on this point, having the menhaden on here as an example, and it's just -- I will say it so the rest of the group knows, but there's a lot of differences in spatial and temporal overlap with predators and prey that need to be considered, because sometimes a species is only eaten by another species in a short time window, perhaps in the winter, in a special location, and you hate to see that sort of ballooned up into it being a huge diet component for that particular species when, in reality, it's not when you look at it on an annual time step across an entire spatial distribution such as this, and so that's basically why I was asking those questions.

DR. OKEY: That concern is one of the main reasons for the development of Ecospace, and so those are the kinds of questions that we explore with Ecospace.

DR. REICHERT: The way I translate this, Amy, is that's something that, as a committee, we may want to ask to explore, although we all know that also requires the data to inform the model, and, as Tom said, we provided some of the diet data, and that's very sparse relative to some of the other data that we have.

DR. AHRENS: I would just make a couple of comments. One, the diet data is a challenge going into these, because you draw from disparate time periods and different seasons, and you try and make the best of it, and it's really -- It can be problematic, but I think there's checks and balances in the model parameterization process. If menhaden are coming out as you would not suspect them to come out, when you expect those most of those to be estuarine interactions at return times, then you say, wow, okay, then let's go and look at the diet data and where did it come from and what was it about, and so I think that's part of the pedigree and part of the discussions.

What's interesting with the move to Ecospace is really those diets set up baseline mortalities, and the vulnerabilities set up how those mortalities change as a function of density. Then, as you spatialize and go temporal, that diet matrix really becomes spatially and temporally dynamic, depending on the specifications, and so it can change dramatically, but I think what's critical for us to think about as an SSC is, given the capabilities of these range of models, Ecopath or any of them, kind of what questions might we have that will come up and will we have questions as they relate to climate change and how species interactions may shift and how species distributions may shift?

Do we have question about really the socioeconomics? There is a really nice socioeconomic addition in EwE that allows you to look at value chain production through the system and, as we look at species interactions or changes or changes in fleets or changes in catch, how that may cascade all the way through that system, and we can actually explore those questions.

It would behoove us to say, well, over the next ten years, what questions might we have? Are they really related to changes in the Gulf Stream, or are they more related to changes to fleet dynamics? Kind of where do you want to shift those models and tweak them? There is a lot of potential, but you can just spin your wheels building ecosystem models if you don't have some pretty structured questions or interest from the council to say, yes, let's move that model in this direction, because they do require an incredible amount of work, in terms of the parameterization, and so, if it's economic questions, then you have to put that work in there. You have to get the economics and stuff in there, or, if it's the spatial and climate change, then how do you downscale the IPP scenarios and how do you integrate that with forcing on estuaries and those sorts of questions.

DR. REICHERT: Thanks, Rob, and I think that goes to the core of what we are tasked to do in this kind of first introduction of these efforts.

MS. LANGE: I guess, following up on what Rob said, I was involved when Ecopath and Ecosim was first brought into the Chesapeake Bay program in the mid-1990s, and the questions I had then are the same questions I have now. We have a difficult time getting data of the quality necessary for individual stocks, as we discussed with blueline tilefish.

When you're looking at the vast number of inputs for all the various species, it's difficult for me to understand how we would expect to get the right data for large -- To me, this modeling would be very useful on very specific questions, a group of species in a certain area with the environmental issues that come in, with the diet, but to try to expand it to be all species and everything and all inputs in an area, I think we're just looking for trouble, as far as parameterizing it.

I mean, it's just -- Again, I'm not sure what the goal of it is for use within the council system or the SSC advice, but I would be -- It would be hard for me to look at this being a be-all-end-all and just crunch the numbers in, and, just because the model is able to generate things, at what point do we -- I am not saying this is a not useful effort, but I'm just concerned that the goal might be to try to put everything into one model, and I don't think that's appropriate with the information that we have. Questions like what Amy brought up, those are the -- For every single species, for every single stock, for every single environmental factor, and I'm just not sure how to interpret the results.

DR. AHRENS: I think the developers of the model recognize that concern, and it was never developed as a tool to be answering specific biomass changes and those sorts of things. It is a tool that allows you to amass your understanding of the system and ask those broad-scale changes, like what might happen if we put closed areas here or what might happen if there is a one-and-a-half-degree shift in temperature, and so it's a tool that is designed to facilitate discussions around the potential impacts of changes and accounting for ecosystem interactions, and it's intended to facilitate the discussions around those.

I don't think anyone envisioned it to be used to come with hard numbers, in terms of that, but it's really to look for things like vampires in the basement. It's like, wow, we did not expect that to be the outcome of putting a marine protected area here. We were intending to protect this species, but, by putting an MPA, given the cascades through the ecosystem, we're actually having a negative impact, and it's there to allow you to reveal some of the counterintuitive impacts of policy decisions, and I think, if you keep it as a tool for that, there's a lot of utility.

I think if you're going to delve in and say, wow, we need this to give us specific answers, then you get in the weeds and you never get anywhere with these things, and so you have to appreciate that these are going to be not perfect and there's goings to be lots of issues and you can pick them apart, but they're there to really help facilitate discussions around ecosystem-based management type ideas, and, if you use them for that, then they're really good. If you use them for the specifics, then you just get into a whole bunch of trouble.

DR. REICHERT: Thank you, Rob.

DR. SHAROV: I had comments very much similar in line with Anne's and Amy's, and so I will try to be short. I also had the experience with helping out with being involved somewhat with building that very same model in the Chesapeake Bay region and later with the multispecies VPA, and I know how hard it was, and still is, to come up with species-specific or group-specific estimates of biomass. Most of them, or lots of them, are guesstimates. They're all just a hodge-podge of local surveys that have different timing periods that they have and different designs, or no designs whatsoever.

They were originated with different thoughts, or no thoughts at all, and so our estimates of exploited populations that are of high value to us as we go through stock assessments, those are quite uncertain. What do we know about the biomass of anchovies, et cetera, and lots of small pelagics? Those estimates are highly uncertain. We have some relative CPUEs from different surveys, and we have no catchability estimates, and we all know this.

Therefore, there is high uncertainty, definitely, and the same applies to the diet data, and so I think what I would like to hear -- Really, to go into the details of this and review it, it's going to take days, but I trust people that build those models and work with them, but what I would want to hear is what kinds of questions we can still answer using these models and which ones not.

Thanks to Rob, and, like he said, this is what we think these models could answer, those questions, but, unfortunately, very often, I hear that the way they are being marketed to managers is very different and that the managers are often being promised exactly the specific answers, like we will reduce the menhaden removals by so much and here is what would be the response of striped bass

or whatever other predator and here is how much we want to leave in the population or in the ecosystem, for the ecosystem services.

With a highly-uncertain model, we are so tempted, so tempted, to get the answers, because they are important answers, and that's an abuse, and so I think that's what I would want to hear from you folks specifically, is what we can do and what we cannot, and certainly as the tool to explore the nature, it's certainly invaluable, obviously. Thanks.

DR. REICHERT: Thank you, Alexei, and, to that last point that you made, there were extensive discussions within the group about just that point, in terms of expectations and what the model could potentially provide, and Rob has indicated some of those. I am not sure if Howard or Tom would like to address some of the questions that Alexei had.

DR. OKEY: Just quickly, I guess there's two parts to that. The model itself, when you construct that model, without getting into the variation in quality of the different models or the -- We talked a little bit about characterizing the quality of particularly the parameters of the models. Without getting into that, because it's a mass continuity model, when we construct a model, we think of it as a possible scenario, and it's possible because it all fits together internally, but, of course, there is varying degrees of uncertainty in the various parameters and everything, and so that's where -- The model practitioners tend to have thought about these issues, but it's true that what you're pointing out is the longest running kind of concern about this model, I think.

Even my examples, when you present that and put it up on the board, obviously the results are showing a magnitude, and that's the critical role of someone like me, is to soften that message that is shown, that I am showing, because we don't want to hang our hats on the particular magnitudes that are coming out of it, and so, without a longer -- I mean, I can chat with you a lot more about that, but, Howard, did you have any thoughts on that?

DR. TOWNSEND: Just to add a few things here. The first thing is I should have drawn this a little more clearly in my presentation. I outlined different levels of management, heuristic, strategic, and tactical, and I think, with each of those levels of management, you have to have much more thorough levels of review and much more concern about all the different parameter uncertainty with models like this.

Just also, as a reminder, the whole reason sort of EwE exploded, the eco-pocalypse, as somebody have called it, is that, around the world, where developing countries weren't able to do stock assessment, or they had limited data on a few different species, this was a useful tool with just a few sort of -- It was like can we get a basic biomass parameter or can we make some assumptions about the production for biomass, and they were able to at least develop a sort of heuristic understanding of their systems to help guide the management, to deal with the fact that they were lacking those data, and so I think, in that sense, it's a really strong tool, but, when it comes down to it, if you're a council or you're a committee or the Scientific and Statistical Committee, and you've got to be able to answer these questions.

I think part of what we're trying to do with this ecosystem modeling coordination is kind of help come up with what are the checkboxes for reviewing these models for the different levels of application. So a heuristic application, it's just whatever you're comfortable with, essentially. If it's more strategic, and that strategic application starts to help you sort of make some decisions

about precautionary limits and sort of thing, maybe it's a little more thorough review, but, specifically for EwE, there is the list of best practices to help reduce some of these sorts of issues.

There is things you do to check just the basic Ecopath structure, to make sure that the biomasses of the different trophic levels make sense, given sort of general food web and ecological theory, and there is sensitivity analyses that you can do with the different parameters, and so you would run lots of runs and get not so much that point estimate, but more of a window of possible estimates that will help sort of soften that. You could say, well, it looks like it's a magnitude, but there's a lot of parameter uncertainty, and so it's within this range. I think there's things that can be done, and it's just sort of fleshing out what works best, I think the SSC would be really important for helping to decide those levels of review for each application.

DR. GRIMES: I think my question is for Howard, or maybe for anybody around the table, and I hope it's not too off-the-wall, but there are lots of challenges to implementation actually of EBFM, and you have mentioned a lot of that stuff, greater uncertainty in the modeling and the expanded scope of research and monitoring that's going to be required and stuff, and there are tradeoffs, which has always struck me as being the most knotty one, and that means winners and losers. Do you guys envision -- Who decides who the winners and losers are, and will that be worked out within the council sort of system, or do you envision some modification of it in some way or something else to sort of make those kinds of policy decisions, I guess they are?

DR. TOWNSEND: Thanks for bringing that up, Church. That's definitely something we've been working on in our first workshop we had back in January or February, thinking about how do we address tradeoffs with these models. About a couple of hours into it, we said that we should have had a lot more social scientists and economists at this meeting, and so we'll probably do that again and invite some more folks who do that sort of thing.

You get this idea of winners and losers, but you also -- If you sort of have this iterative approach with stakeholders, so they can see the winning and losing, you can often sort of massage things a little bit. You don't have to have two extreme views, but you can sort of start working towards a sort of optimal view for multiple parties, and so that's very broadly speaking. How to actually do that is going to take some time, and I think that's a lot of what the EBFM roadmap is geared towards, is much more stakeholder engagement and to be able to deal with that and connecting up the socioeconomic aspects of this.

One part that I should have mentioned a lot more in my presentation is that we are more and more working with social scientists and economists to think about that, and so hopefully it's not just you win or you lose, but you sacrifice a little bit here and you sacrifice a little bit here, but, in the long run, you both get a lot more there or those sorts of -- It's thinking of it more in a broader term instead of just at the table and what happens right then, wins and losses, but you're right that it's going to take some work, and that's going to be a conversation with the Science Centers and councils and Regional Offices and stakeholders, and it's going to take some work.

DR. REICHERT: Thank you, Howard. I would like to wrap this up. This is kind of the first time that we have had an opportunity to talk about this. I reckon that it won't be the last, and so I think there will be plenty of opportunities in the future to kind of help in guiding this process and give some guidance, in terms of where we're going with this. I do want to give people an opportunity

to comment on what are we expecting and how can we guide what the next step is and what would we like to see and for Tom and his colleagues to concentrate on before we wrap this up.

DR. BUCKEL: I think, in Howard's presentation, he mentioned that one of the nice things about these is it shows you where the data gaps are, and so you mentioned data pedigree, and so I think that would help, listing things you feel you're certain about and the areas that have less certainty and then to provide that to experts in the South Atlantic that could help potentially improve where you don't feel like you have a high level of certainty.

Just looking at this, I saw several things that stood out to me, and I'm sure someone else that's familiar with the biomass or consumptions would have areas where they could help fill in, and so I guess that -- To me, before we get into these questions that we can address with it, there is still this trying to improve the model. I mean, this is a great first cut, but trying to bring in expertise to help with those areas that you have low levels of certainty on.

DR. BARBIERI: Real quickly, I think it would be really helpful to have the SSC engage at some point in having sort of a -- Develop a feeling for how we can perhaps work with the council to develop better contextualized questions that can be addressed, so the issues become, instead of more of a general model development that's trying to paint that broader picture, we can start addressing some more specific questions.

I think that this -- It doesn't have to be detailed and really specific answers, but understanding specific processes that might be better viewed through this framework. For example, the West Florida Shelf model that was somewhat tied to grouper rebuilding and how that grouper rebuilding was impacting the trophic dynamics of the West Florida Shelf has really helped us have an understanding of the connections there and the issue about water temperature, and, of course, the red tide event of 2005 that really impacted the system, and there is a clear signal there that was critical for us to understand and how that reverberated through the system.

It's not necessarily providing specific answers, but asking questions that can help us understand the ecological context of some of these processes and impacts, and I think that it's very difficult, sometimes, for the council to do this alone, and the SSC has a major role to play in guiding that process and working with the council.

DR. REICHERT: Thank you, Luiz. All right. Howard, thank you for your presentation and your input. Tom, thank you for your efforts. As I said, I expect we will see this and that it will come back to the SSC to provide more guidance, both to you guys and the council, and so, with that, I would like to take a ten-minute break. Then we will move on to our next agenda item, and so thank you.

(Whereupon, a recess was taken.)

DR. REICHERT: All right. Welcome back. As a reminder, please, if you're in the audience, a reminder to sign in. Another reminder for the committee. I have asked Dr. Erik Williams to come to the table to update us on the Science Center research, and that's original Agenda Item 7. Then we will move into Agenda Item 13, the Snapper Grouper Amendment. Erik, thanks for coming to the table.

SEFSC ACTIVITIES UPDATE

DR. WILLIAMS: Thank you, Marcel. I was just going to give a quick update on the research that's going on at the Center. You already heard one piece of it, and so I'll skip over part of this presentation, which was the age validation studies. I talked about that yesterday. I will end with a sort of quick talk on sort of updating where we are with our thinking on the index research that we started discussing the past two meetings, almost, with respect to red snapper.

Here is sort of an outline. I just thought I would give an update on -- I expect that this will become more of a routine presentation for you guys, and I'm fine with that, and so one of the things that I will probably try to update you on regularly is whether we have changes in staffing or data collection or assessments. I will talk about ongoing projects, and then, like I said, I'm going to give a quick presentation on interpreting and applying abundance indices. For now, there is nothing really to report. There are no changes in staffing, which is generally good. Stability is good, and there are no changes in data or assessment modeling yet, and so nothing there. We did this yesterday, the age validation project, and so I will skip over that.

The other project that I thought that I would mention is we have a sampling strategy evaluation project going on right now that's been funded through ACCSP. That project basically is a repeat of the analysis that Kate Siegfried and I and others worked on, which was using -- At that time, we just sort of put together a generalized sort of snapper grouper species and did some model simulation, but what we're doing this time is actually getting into specific species and actually using the assessment models for a select set of species and then actually running sampling strategy evaluations.

It's fairly complicated code, and it takes a lot of computing power, and so we're going to have to use some high-performance computing. One of the estimates was, when we finish it all and we want to run all the simulations, I think it was going to take three years of computing time on one computer, and so we have to definitely use some high-performance computing to get that done, but the expected result for this is to get some concrete conclusions about what would be the best bang for the buck in improving sampling programs, whether that's increasing sampling, adjusting the spatial distribution of sampling, things like that, on a species-specific level. If anybody has any questions at any point during this, feel free to ask.

DR. REICHERT: Can you clarify if that is related to both fishery-dependent and fishery-independent programs?

DR. WILLIAMS: Yes, we're hoping to sort of test all the data inputs, yes.

DR. REICHERT: Thank you.

DR. WILLIAMS: That brings me to the last item, which I'll spend a little bit of time on, if that's okay, but I wanted to go over what our thinking is in Beaufort and where we've kind of gone with this idea of using index information outside of an assessment model and how we can use it and what we should be careful about and that sort of stuff.

I thought I would start sort of with an overarching discussion about abundance indices in general. They usually come in two flavors, either an absolute measure of abundance or relative. Of course, getting an absolute is very difficult, but there's a lot of efforts to try and move some of our data collection systems towards that in other parts of the country, but the more common type of abundance index is a relative abundance index, and it does -- With a relative abundance index, we're more interested in the trajectory of the index and the changes from year to year and not necessarily the scale. We use the assessment model to more or less scale that index. In the South Atlantic, that's what we're doing, which is all relative abundance indices.

With some minor flute music, I will talk a little bit about how that actually works in the model. Usually, we compute an index in terms of either biomass or numbers. Then, in the model, it is fit or matched to the estimates of biomass or numbers that come out of the model, usually with a catchability parameter, Q. That Q is often assumed constant over time, but it can be time varying. In this equation, I am just illustrating that it has a constant.

The other thing to note is it's not quite as simple as the top equations. It actually gets a little more complicated when we start to factor in selectivity, and so, really, the equation below just sort of illustrates that selectivity usually, especially for fishery-dependent indices, we borrow the selectivity from the fishery and apply that to the logbook data or whatever we use to compute the index, and we multiply that by the population estimates from them model and then by the catchability coefficient to get our index, our predicted index, value.

Let's talk about fluctuations in an index. When an index changes from year to year, what are the factors that cause it to change? I have here a sort of delta I, which would be a change in the index value. That's usually a function of recruitment, natural mortality, fishing mortality, growth, and then some observation error, or observation and process error. In this case, I am just calling it observation error.

It's important to realize that any change in any given year is a function of all of these things, and so it's important to understand what are the causes of those fluctuations for a given index, and we can have high fluctuations, and we can have low fluctuations. High fluctuations seem to be more common for us, but examples of species where we see that sometimes is short-lived, recruitment-driven species, for example menhaden.

If our index is affected by temperature and we're not accounting for it, then you can see that effect, and we've seen that in vermilion snapper. If the sampling size is low, or if we have low occurrence in the survey, you can get high fluctuations. Another example of that would be red snapper in the early years of the trap survey. We see a lot of high fluctuations.

What our assessment model attempts to do is parse this out into basically explaining what the causes in the fluctuation are as a way to think of what we're doing with the assessment model. Here is just to illustrate the difference between a good fit and a sort of poor fit, and so, in the top case, this would be an example where the assessment model is able to explain those fluctuations quite well, either through the recruitment, fishing mortality, growth. Whatever parameters we're putting into the model, it's able to explain it quite well, and there is what appears to be low observation error then.

In the case below, this would be a case where the model is not doing quite as well, and we see what we call large residuals. It's not explaining those high fluctuations from year to year, because something else is going on that we're not explaining in the assessment model, and usually we chalk that up to just observation error.

It's important to recognize that, without knowing the cause of these fluctuations, inferences that we can draw from future index values is limited. We have to be careful, and so, if we see an index going up, we have to ask ourselves why it's going up. We can't immediately jump to the conclusion that abundance is going up. It could be other factors. It could just be plain observation error.

The point here is that it's exceedingly difficult to try to use an index to then update an ABC calculation, because of all of these factors. Now, when we started down the road of thinking about red snapper, there was some hope that we might be able to do something with that, because red snapper was a unique situation in which the fishery was basically in a moratorium, which sort of fixed M, F, and G, the natural mortality, fishing mortality, and growth. We could more or less assume those were kind of constant, which then just left us with recruitment and observation error, and so, in a sense, we could maybe parse that out by looking at past performance of the index and comparing that to the future values and sort of make some assumptions about the probability that a change in the index was due to recruitment or observation error.

That's when we had -- When we had talked about this before, it was sort of in a context of we could use this in a monitoring way. It wasn't going to be able to spit out an ABC, but it could tell us what the probability of that index being sort of on track with what we expected or, if it was off track, was it off track because of observation error or was it potentially off track because of changes in recruitment. It was more of a probability sort of space that we could talk about at that point, but not an ABC.

As you can see, I think the conclusion is you can't really use an index to get an ABC, and, in particular, in the case of red snapper even, which is the less complicated case, you can't directly attribute whether a given fluctuation in an index is driven by recruitment or just observation error, and, in fact, trying to assign it one or the other, you're basically -- They're in opposition, in the way they act, and so, if you assume it's recruitment when it's actually observation error, you're going to get a different result than if you assumed it's observation and it's actually recruitment.

Where does this leave us? Well, to tease out R and E sources, we need more information, and so where can we get that information? Well, that information comes from age composition data, among other things, and so the solution we're headed towards in trying to provide what you guys want, which seems to be ABC values in between assessments, or in the future when we get updated information, is going to be basically to go with updated projection analyses that allow for the estimation of recruitment parameters and F parameters.

Basically, here is sort of a structure of how we might do that. We're calling -- I would call it an interim projection analysis, which is similar to that interim analysis we were talking about when we looked at the SEDAR schedule. You could call it an assessment lite, depending on how much new data you're providing it, but essentially the idea is that we would take the base stock assessment model and then hold as much constant as we can and then free up things that are supported by the new data.

In the case where we did an updated projection analysis and we only had landings and discards to put into that updated projection, we would only be able to estimate F parameters, and then our recruitment would just come from a stock-recruit curve, which is typically the way we do projections now, because that's all we update, is landings and discards, but if we add in something like an index, if we add landings, discards, and just the index data, we might be able to estimate a few recruitment parameters. They would have to be fairly constrained, but it's possible, and that's one of the things that we want to test with some simulation analysis, to see when and how many recruitment parameters we could estimate with just index data.

Then, of course, the enchilada is, if we can get landings, discards, index, and age composition data, then we can clearly estimate those recruitment parameters, and so this is sort of the scheme we're working towards, and I think, with this method, we could provide updated ABC values, but the trick is we have to have that updated information, and, of course, Marcel is probably cringing, because he sees, in Item 3, we're asking for updated age composition data.

I just wanted to give you an update on our thinking of where we're headed with sort of this index research. It has really morphed into providing basically interim projection analysis, because of the recognition that what you guys really want, which wasn't really communicated to us clearly, is ABC values and not just a monitoring tool, and so I think that's where I will end my presentation, and, if there are any questions, I would be glad to answer.

DR. REICHERT: Thanks, Erik. Relative to the index and ages, of course, we are using fishery-dependent and fishery-independent indices, and that would mean that you would have to have, ideally, the age information from both of those sources. I know that may depend on the species, but if you have like three indices in a stock assessment, but you can only get that information updated from one of those, would that limit you guys, in terms of what we could get out of that analysis?

DR. WILLIAMS: No, and I think the trick is -- Actually, we envision just really updating the fishery-independent index and the fishery-independent age comps.

DR. REICHERT: Thank you.

DR. WILLIAMS: You just need one set of age comps. You just need -- Again, this is where the simulation testing is going to come in, to try and tell us how much information we really need to really nail down some of these parameters.

DR. REICHERT: I guess that's why you mentioned the potential cringing.

DR. WILLIAMS: Yes.

DR. NESSLAGE: Correct me if I'm wrong, but, on the west coast, don't they skip years of both their surveys and age comps? On the east coast, we're very, very interested in getting all the detailed information about the age comps for every single year, and there is a lot of scrutiny of the stock assessments, and there is a lot of concern about making sure that we have all the Ts crossed and the Is dotted, and I am wondering if, for instance, if we did interim or updates or whatnot with not having every year of age comps in these statistical catch-at-age models, it might not be the end

of the world, and it might reduce the burden on the data providers. How might that sort of reduced amount of data affect these analyses or your plan for the higher throughput? Maybe that's not -- Correct me if I'm off the topic here.

DR. WILLIAMS: No, you're right on. I mean, that is true for the west coast, and we don't need annual age comps, necessarily. It is better, in some ways, and, again, it's sort of a variance information tradeoff, and so how noisy are our age comps to begin with? Do we benefit from multiple years, or do we benefit from say doubling our sample size, but doing it every other year? You're getting into sampling questions, which really this isn't meant to answer, but, again, just to emphasize, what we're planning to do, which is why we want to spend some doing sort of simulation studies with this, is to get a good sense of when is the information enough to nail down some of these parameters.

DR. SHAROV: Thank you, Erik. I am generally in support of what you are proposing here. I would just comment that maybe we could, in some cases, distinguish whether the observed increase in an index is the result of recruitment or just the uncertainty in your survey-based estimates. Obviously, we have variance estimates, and we have error estimates, and, if your error estimates are small enough so that you can detect and show that there was a statistically-significant increase, there you go.

Even in the cases when you have several data points, adjacent data points, where you have confidence intervals, you could still make some inferences, in some cases. For example, if there are three years of data that are statistically not significantly different, because of the high level of the uncertainty that you have or your wide confidence intervals, but each year you have a higher point, considering that each data point you have has an equal probability -- If it's random sort of error, then you have equal probability of being above or below.

The probability of each year of increasing data points would be -- Say 0.5 times 0.5 times 0.5, the chance that it's, by random, is three years and it increases is 12.5 percent, and that's a relatively low probability, and so it is more likely that you do have an increase. To the use of your smoothers, a three-year average or whatever, are widely applied, they are designed to sort of alleviate the effect of the random sampling. I think we're not hopeless. There is certainly an ability to develop an index-based monitoring system.

DR. WILLIAMS: Right, and I don't disagree with anything you said there, and the key there is that it's monitoring. To convert that then to an ABC is a little trickier. The other thing I would add to that is the thing that you have to factor in is how well the model is fitting the index in the first place, and so, if it's fitting it really well and you see three points going up, then you would expect that, yes, that that's probably a reflection of increased abundance, but, if it fits the index pretty poorly and you see in the past runs of five residuals or something, then three points may not mean that much in that particular setting.

DR. SERCHUK: Again, I appreciate Erik's approach, and, of course, it was a very deliberate approach, in terms of assumptions and what was needed, and no one is going to quibble with it, but I am thinking about the Plan B world, where the Plan A doesn't work. We have seen here where we've had an assessment on blueline that we no longer accept it, and so the approach here was, well, let's put up another assessment model and let's look at the data another way.

That is one approach, but another approach could be, well, what can we do to avoid doing nothing? Maybe we don't have a model that will satisfactorily fit, and we heard yesterday about the use of a modeling approach that didn't actually work very well. I am not talking about a situation that is hypothetical. It has happened in New England. They have had models that have been run that they found out that, either due to retrospective patterns or a variety of other things, they weren't accounting for things that they thought they were accounting for very well and they were felt to be no longer appropriate.

The projections were no longer appropriate, and the estimations were no longer appropriate, and so they came to a situation of what's our Plan B and what do we do? Do we just say we throw up our hands, or do we try to look for some sort of informational content that can guide us, and that's where they came to this empirical approach, where they tried to use indices, and, fortunately, there were time series of fishery-independent indices, so that they could look at the indices relative to how those indices were in previous time with different levels of landings, and so you have to have some contrast.

Was it an optimal way to proceed? No. Could they provide some guidance? Even using averaging, and they didn't use point estimates, and they averaged indices over a time span, to get away from this interannual changes that you see with variability, and I think, looking at some of the things that we're dealing with, I am thinking, if we had an index, and if we didn't have any information on recruitment, we have a fishery out there that can tell us something.

That's why we're going to these fishery performance reports. They can tell us. Have you seen a change in the size composition or the presumed age composition? Are things changing so much that the indices are not reliable or are they stable, in that sense, what's going into the underlying number, and I think we can link it. If we don't, what do we do?

I am thinking we have never really -- From the limited time here, I have never really seen how we validated our projections, and that's a big thing, in terms of not only model performance, but how valid are the projections going forward, and it's not that we've stayed within our catch limits. I am not talking about that. I am talking about are the projections reflective of the presumed stock abundance?

We found out, with red grouper, that was not the case, and why wasn't it the case? It was because we assumed a certain recruitment coming from a stock-recruitment curve that didn't exist, and so the projections had to be wrong, and they were proven wrong, and so I appreciate what you're saying, in terms of what's needed, but I think we don't really think about what happens when our models are no longer appropriate or somehow they no longer reflect the reality, and then what do we do?

I am posing the question, because it has happened in other cases, and people have had to be -- Necessity is the mother of invention sort of thing, and I am thinking about, well, I don't see a lot of indices used. Maybe that's really important. Maybe we need to start in that direction as a safeguard, as insurance, because we have seen our modeling doesn't work. We have seen the age breakdown. We have seen changes in distribution. We no longer are getting information on the entirety of the resource, and so I am not disparaging what you have said, but I am thinking -- I am trying to be a little bit forward-thinking about it and saying that we're likely to be in a very bad situation.

We have a number of assessments that didn't work out, and we've gone back and we had species ID problems, and what do you do in those circumstances? Do you just throw up your hands, or is there a way forward, with less-sophisticated and with less-extensive data, that we still might be able to provide catch guidance to the council? I am asking people to think about this, because I don't think it's a hypothetical situation. Thank you.

DR. REICHERT: Thank you, Fred. Before I go to Luiz and Jeff, I do want to ask -- I don't disagree with you, but I think it would be good for us to see if we can provide a recommendation or maybe a first step. In terms of we have identified that problem, and obviously it would be good not to have one approach, but, Fred, do you have any ideas or recommendations, in terms of how we can make that first step or what we should concentrate on or how could we potentially, as a committee, address this to move this forward?

DR. SERCHUK: If we have indices, and I don't know whether they're headboat indices or some other sort of indices, we could look at this and say, okay, had we had to use this over two or three years, and we had to peg it to the landings, would it be any worse or any better than what we had? I think you can do that sort of evaluations without being in the spot about now we have to provide it. You could see how well some of these data-limited techniques could work out.

Then we could have some feeling for whether this is really going to be workable or whether it's just going to be nonsense, but I think, if we're prepared in advance to think about these sorts of things, we'll be in a much better position when we have to face the reality that, down the road, something bad is going to happen, something different is going to happen, to our models, and we have a Plan B.

DR. REICHERT: So you are recommending or suggesting that we should evaluate that, and what we may do is ask you for some language in the report, because I think it's important to go beyond indicating the issues, and, as a committee, say, okay, we don't have a solution, but at least this is what we think may be a first step or --

DR. SERCHUK: The index approach has been applied elsewhere. It's been applied in New England, at least for two stocks that I know of. There was yellowtail flounder, where the assessment broke down completely, and it's been applied in at least stocks that I know of, and so we can get the information on that. Catch advice has come out of those circumstances. It's a very what they call empirical approach.

Again, you use whatever data you have, where you can link landings, or you can link catches, with an index, with a trajectory of an index, and that doesn't mean the index doesn't have the same problems that Erik has pointed out, but that's been sort of a Plan B approach in providing guidance to the managers.

DR. NESSLAGE: I think what I took from your comments, Fred, and correct me if I'm wrong, is that maybe these simulation-based approaches, as opposed to a retrospective re-analysis of multiple species that we have already provided recommendations for under alternate ABC recommendations, might be a more productive approach.

For instance, maybe take some of our key species, like blueline or red snapper or what have you, and go back ten years and try it using an index-based approach and try it using the typical projection approach and try it maybe with average catch, like a series of different alternate ABC-style recommendations, and see how well you might have provided good advice that would have helped rebuild the stock, in certain cases, or maintained whatever the goal was for that fishery. Maybe that might be an informative, illustrative approach for this body to deliberate over, and is that getting at some of your concerns?

DR. SERCHUK: Of course, when these Plan B have been put in, again, you have another index that comes in next year to see if you maintained the population or did the smooth index go down now, and so it gives you some sort of feedback mechanism to see, and that's why it's called empirical, quite frankly. I mean, you have limited data sources, and you're really trying to say, if this index is indicative of some way of stock abundance and you're linking it to landings and you have some time series, you can sort of be adaptive in it.

It's not a very sophisticated sort of thing, but, in many cases, we don't have a lot of sophisticated information, and, if the models don't work, and we've had case after case where models have been built on data and we find out the data in the models doesn't work, we can try another model, or we can try another approach, and I think one of the approaches that we need to think about is, is it possible to get some indices that we think have some bearing on the abundance of the stock?

You can call it a CPUE index, and we know what that's all fraught with, or you can talk about a fishery-independent index, or you can talk about anecdotal data and what that means, but I think we need to use all the possible tools in the toolbox, even if they were not the -- If we need a hammer, but we don't have a hammer in our toolbox, is there another tool that we could use to put that nail in the wall? I am thinking that's the sort of thinking that eventually will happen in one case or another. Rather than discounting that really we need a hammer, we have to think about is there a Plan B, some other type of approach, and that's all.

DR. REICHERT: Thank you, Fred, and I know that's a detail. For instance, I would consider, if we are making recommendations of some species that we can take a look at, species such as black sea bass, where we know we have a lot of information, and I think, the more information we have on a particular species, I would say the more we can play with the data and the simulations.

DR. BARBIERI: A lot of what I was going to say has already been said, and so I will try to make it short. I also would like to see a more complete overview. The Fisheries Service has, over the country, used different approaches to provide catch advice, and, in some cases, even based on indices. I think it would be helpful for the SSC to see -- I mean, this is kind of like when we were at our ABC control rule development that we kind of reached out to the other regions and tried to see the control rules that were being developed by other SSCs and how other councils were handling these types of issues.

I also agree with Erik's approach here. The presentation, I thought, was very thorough and on the mark, but there are uncertainties there in those equations that at times we fail to recognize, and so we get this impression, this idea, that we are actually getting a better metric because we follow that rationale, and this makes sense, but when the data is not there to inform it, it really can -- We have seen this will full assessments, and, here, we're talking about a projection, and so there will be even larger amounts of uncertainty there that are not explicit in the way that we look at this.

For example, discards is a large component of this, and estimates of the actual discard mortality, the removals due to just discards, how do we integrate all of this into this process without revisiting a lot of the really high uncertainties, and there are very explicit comments in the SEDAR 41 review workshop that address all of those things, and so I think that this is a great approach for the Center to continue on, and I would like to see that going forward, but, like Fred and Genny, I would like to see some other approaches.

There is a body of literature out there, and there is different regions of the country trying different approaches, and I think that having that list for the SSC to review would be very, very instructive, and, just before I finish, just a quick question for Erik. Erik, what is the timeline for completion, do you think, of this analysis that you laid out here?

I am asking this just in light of what Gregg presented the first day, and, for us as an SSC, we are waiting for a quantity to come from the Center, or we're going to have to make decisions, as a committee, on how to proceed, and we discussed what John brought up regarding what the Mid-Atlantic has used, but I think it makes sense, given the role of the Science Center in our region, to have the Center take the lead in providing that analysis in a timely manner, so the committee can proceed with an ABC recommendation, review it like we review all of the other products from the Center, and provide an ABC recommendation to the council in a timely manner. I think the timing is a factor here, so we have an end date that we can start evaluating if we're there and able to proceed as a committee or shall we move, like the Mid-Atlantic, to some other alternative ways of addressing this.

DR. REICHERT: Thank you, Luiz.

DR. WILLIAMS: It's a very important question that you ask. Obviously, the Southeast Center does a lot of work to try and be responsive to support management. In this particular case, we're caught in a need for something that's getting ahead of our ability to do the thorough research, and so, in other words, we could produce a particular -- We could use this method for red snapper and probably get that done in a matter of a few months, but it won't be tested. It won't be simulated. It won't be in the peer-reviewed literature and that sort of thing, which is what our longer-term objective is.

I would add, on top of that, that we would have been further along on this had we not been sidetracked by a tilefish revision request that put us on the sidelines, so to speak, from doing this work, and so, yes, it's a complicated answer. I mean, we try to meet the demands of the council, but, if they really want this for red snapper, recognize that it's not going to go through all of the simulation testing, and it's not going to have that peer-reviewed literature article to support it, necessarily.

DR. REICHERT: So you're talking about a couple of months, and how comfortable would you be, realizing that it did not go through the peer review and the other analysis, to present that, or would you be uncomfortable doing that until you completed those steps?

DR. WILLIAMS: I don't know if "comfort" is the right word, but I have no problem running this right now for red snapper. One of the things, obviously, we would need is the updated data, and

so we know we have the updated index information. The question is could we get updated age comp information to add into this analysis, and then we could proceed with doing it.

The question is that -- Obviously it will fall under some scrutiny, whatever we do, and to what degree are we going to be able to support that scrutiny when we haven't done, honestly, the due diligence to test it out and confirm that the method is an appropriate thing to do. Now, that being said, I am putting a lot of weight on this sort of simulation analysis and looking into it further. I mean, that's going to help us answer questions about when and how to apply this sometimes, but the reality is that this is really just an extension of the assessment.

It's not that complicated, and it's not that hard. It's not innovative, necessarily. In fact, I think the North Pacific does this type of analysis very routinely. We're coming at it mostly from, because we do have a little more uncertainty in our assessments, we want to make sure that we understand some of the pitfalls in applying this method, because of some of the increased uncertainty we face with our assessments. I don't know if that fully answers your question.

DR. REICHERT: Well, it does, and we can talk a little bit more about that offline, but, from what I understand from you, it's that you need an updated index, and you need age comps to accompany that updated index. We can certainly work on that and provide that to you as quickly as we can. Thanks. I appreciate that.

DR. BUCKEL: Erik, I am really excited about this, and, if this doesn't work, coming up with some other approach that can tell us if we're on track with the projections that come out of the assessment, and I think that's critical. I was talking to John Carmichael yesterday, and we were lamenting how dynamic many of the species that we manage are, and so, even after an assessment, it may take two to three years before the regulations hit the books. By then, things are different, and I think of black sea bass.

They were very abundant, and the survey indices were showing super high numbers, and more liberal regulations were put into place a couple of years later, but, by then, that year class had moved through, and the abundances had dropped, and so my guess is the projections weren't on track, because recruitment was probably lower, and so having something like this to help, even two to three years out of an assessment, when the regulation -- It's should we provide advice to the council of do we want to go with this more liberal regulation or not or more conservative or not.

DR. REICHERT: Thank you, Jeff, and that, in spite of the fact that in the assessment, and we had discussed that at length, we recognized those processes that you mentioned and the uncertainty relative to year classes going through, et cetera, and so, Erik.

DR. WILLIAMS: To that point, thanks, Jeff. That's an excellent comment, and that's why, honestly -- Think back to the presentation that John gave about this idea of sticking these key stocks into sort of an update interim analysis cycle, and this fits in perfectly with that. If you get an update assessment and then you're getting ready to put management in place two years later, you will have, right there at that two-year mark, this interim analysis handed to you with updated ABCs. I mean, honestly, it's my sense of where the council wants to go and where they kind of need to go to sort of really start moving with management.

MR. HARTIG: Thank you, Erik. For me -- Thank you for your detailed explanation. It was very well done, and I understood every bit of it, for a change, and so that was great. This is a game-changer for the council. I mean, we get caught in the do-loop of between assessments, and you know how long the timeframes have gone between assessments, and we see problems, and the AP is saying we need to do this, and then we get caught saying, well, the assessment is only two years out and we'll wait for the assessment results.

That, to me, is a mistake that we've made. In the past, when I was on the council in the 1990s and we saw declines in populations over time, we took action. Now, we couldn't always get ahead of that, based on we didn't take enough of a decline in catch rates to make that much -- To ever catch up with what you needed to catch up with, but I think now, if we go down this path, at least the council will have an informed way of looking at this and being able to take management actions when you see a stock declining.

Now, I don't think we'll be able to do it when it's going up, based on how we do things now, but, at least when it's going down, the council can get ahead of this, because the fishermen are going, man, it's been six years, and why do I have to pay for this decline six years down the road, when you could have at least done something three years ago that would have helped and not had such an economic impact on the fishery. This is really great, and I am really heartened to see this moving forward, and I look forward to seeing the results.

DR. REICHERT: Thank you, Ben. Anyone else? I was reminded by my staff that I am one of our red snapper readers, and so I will go on the record as saying that I will get on it. I want to be very clear that I think, as a committee, that we are in strong support of this approach, but I also want to make sure that we reflect in the report that we should probably not wait to see whether this works or not, but follow up on Fred's recommendation, in terms of exploring other methods that are used elsewhere in the country to see if that would be useful, because this may work for one species and it may not work for another species, and so it would be good to have multiple options there.

The other thing that I want to ask the committee is where do we go from here, because there is different approaches, in terms of working with the Center, and, in the previous meeting, we have said -- We have been on record saying that we would work with the Center and with the council to come up with ways to approach this, and so please remind me of the working group, and would that be something that could be folded into the charge of the red snapper working group?

I think it's linked and it would be appropriate, and so I would propose to the committee, and especially to those who volunteered to be part of the working group, to take that into account and work with the Science Center and others and then report back and see if we can move this to a stage where we can actually provide some recommendations to the council, and so I would like to throw that to the group, and I would like to see some feedback. I see nodding.

DR. SCHUELLER: I am assuming that I'm the spokesperson for this workgroup at this point.

DR. CROSSON: You're the chair.

DR. SCHUELLER: I'm the chair? Okay, Scott. I will keep that in mind, since you're on the committee and I'm going to be delegating tasks. I don't see why this wouldn't fold in, and I've

been taking notes on my own, as far as some tasks that could fold into that, and you saw that I did write up a task and some TORs and timeline that I distributed to the Chair and Vice Chair and those that had volunteered for the group.

DR. REICHERT: I appreciate that, and I was going to come back to that under Other Business, so we are on the same page, and we can distribute that to the rest of the committee. I will ask Mike to do that at our next break, and so thank you for that, and I think that also helps us to have a path forward.

DR. COLLIER: I was just going to mention that, for a complex analysis like this, the SSC has developed a process, and one of the ideas is to develop a terms of reference and a charter and a timeline for all of this, and it sounds like Amy has already started it, and so it can be presented. It can go through you guys and develop it and then be presented to the council in December for their review and approval, and so I think that would be a good option on how to begin this thing and make sure it's going in the right direction and follow kind of the standards that you guys have already set up.

DR. REICHERT: Thank you. The only concern I have is whether or not we should wait until December, because I think we should get this going as soon as possible, and so I will work with council staff and council leadership, to see if we can potentially move this process forward, even if we don't get the official approval until December, but I really want to stress that we need to get this going before the December council meeting. Anything else relative to Erik's -- I think this was a really important discussion and conversation that we had, and I am very happy that we now have a path forward, at least in the short term. All right. Thank you.

Our next agenda item is Agenda Item 13, Red Snapper Amendment 46, and there are no documents, and the action item is to review and provide comments, and Chip Collier is going to walk us through the amendment, and then there will be an opportunity for public comment, but I kind of expect that we will start our discussions during your presentation, and so remind me of a good time to have an opportunity for that public comment.

SNAPPER GROUPER AMENDMENT 46 - RED SNAPPER

DR. COLLIER: Right now, Amendment 46 doesn't really exist. It's going to be presented to the council as an options paper, and that's going to just have a list of actions, similar to what you guys received last year at this time. There will be about twelve different actions that are in that amendment. Some of the actions are going to be defining the overfishing limit, defining the ABC, the ACLs, the MSST, all of those things that come with the normal assessments and then a subsequent amendment.

Some of those options might have to be removed out. Probably some of the bigger things that is going to be included in this amendment will be the recreational reporting for private recreational fishermen and also best fishing practices. In the last council meeting, they wanted to include an option to remove circle hook requirements, and so that has been added to this, as well as removing powerhead restrictions in special management zones off of South Carolina.

These special management zones are different than a spawning special management zone. These special management zones are typically artificial reefs that have certain restrictions on them. One of the restrictions in South Carolina is to restrict the use of powerheads on most of those artificial reefs. I believe there is one that doesn't have the restriction, and so this would just be removing that powerhead restriction.

Everything else will be pretty similar to what you guys saw last year at this time, although, at the December meeting, we are going to have a little workshop on recreational reporting, where we're going to be looking at a variety of different methods, some of the tag-based methods, like big game, and also voluntary methods, like iSnapper, enhanced MRIP, like FWC has, or a modified MRIP, like LA Creel. We're also hoping to get Mississippi there as well with their Tails and Scales, which is a mandatory reporting method. It's going to run the gamut for reporting methods, and that's going to be presented to the council and have some discussion on those different methods, and that's all I have for you guys as far as the options for Amendment 46, currently.

DR. REICHERT: Any questions or comments? I think we discussed some aspects of this in previous meetings, or in the previous meeting.

DR. BARBIERI: Just real quickly, Chip, are we going to then get an update again on this in April?

DR. COLLIER: Yes, you will get an update as we develop this amendment, and so we're going to be working with you guys, in order to get that ABC for red snapper for Amendment 46 for red snapper.

DR. REICHERT: Again, that's why the working group work is extremely important. To that point, can you briefly lay out the timeline, or the timeline is uncertain at this point for this amendment?

DR. COLLIER: Currently, this amendment, the way that the spreadsheet is set up, it looks like the amendment is going to last a year, but, typically, those things go a little bit longer than a year. Red snapper is its own little bean, and things typically go a little bit slower for red snapper. It's going to be pretty thoroughly developed, and, with all these recreational options and best fishing practices, it could take a little bit of time to develop all of the analyses that are needed for some of the NEPA analysis and different things like that.

DR. REICHERT: So the expectation is that this committee will see that amendment at least once, or possibly more times, to provide feedback?

DR. COLLIER: Yes, and you guys will definitely see it. It will probably be presented to you and you will get more information in April and then much more in-depth in October, probably with detailed analysis included.

DR. REICHERT: Thank you. Rusty, thank for you reminding me. I will provide an opportunity for public comment.

MR. HUDSON: Thank you, Chairman Marcel Reichert, and thank you, Chip, for your presentation. Later, we'll follow up more, in another couple of weeks, but three things. One, when I brought up the peak of the spawn, generally we look at that as May and June, but, sometimes,

you will find animals in breeding condition from late March and April and stuff like that, and then the follow-up may be July and August or September. Some people even say October in some places, and so that's a pretty broad period of time.

Having said that, the peak of the spawn, of course, is like late spring or summer, and so I would caution, or I would suggest let's say, that, eventually, when we get there, with Amendment 46, that we have the opportunity to maybe create a slot so that you can see the build of the spawn, or, if the spawn is peaking before that May or June period, that would be very informative. Then, in those months thereafter, it could be the same. I know that we'll be able to get some animals, if we're going to have an opening in July, and we may be at that peak, and so all of that works out good for sampling.

Back to my working with various things like venting tools, for instance. It might be good to have some kind of better education for the people that don't exactly know how to use them. That was one of the problems. The other problem, like on big headboats and stuff, is it became a dangerous situation and insurance liability.

Descending devices, of course, have been improving every year that goes by, the elevators, et cetera, and so those are good things that I don't know how you're going to develop it, if there's going to be spin-off workshops and stuff for the different user groups once Amendment 46 is a finalized product, but that would be useful down the road.

Otherwise, you know I still would like to consider minimum sizes, and I definitely think j-hooks would be bad news for red snapper fishing. If you want little tiny hooks, like they're doing with the yellowtail for the gray triggerfish issue that's going on, but, really, the corner of the mouth, for the large percentage of the circle hooks, is a big deal, and that reduces the mortality, and so thank you very much.

DR. REICHERT: Thank you, Rusty. Anyone have any last comments?

DR. SCHUELLER: Sure. I would like to just say that, as this amendment is moving forward -- I know we meet in April and October, but if there are things, scientifically, that the council wishes to have comments on, we should have a webinar. I don't think we should wait until the next meeting if they're making recommendations at a meeting in June that they want something for by September. We need to be having webinars or doing something. We get in this routine, and I know this has been brought up over and over again, but I'm just going to say it again.

DR. REICHERT: No, I completely agree, and that's one of the tools we have, in terms of providing scientific recommendations to the council, and I actually will come back to that later, under Other Business, in terms of our meetings, the frequency of our meeting and the length of our meetings and the use of webinars, and so thanks for reminding me of that. Anyone else? All right. Thank you, Chip.

DR. COLLIER: Thank you, all.

DR. REICHERT: The next item on our agenda is Item 14, Wreckfish ITQ Review, and there is a document, Attachment 26, and the reminder of the assignments is George, Eric, Sherry, and Fred were on this topic. We will receive a presentation or an overview by Dr. Brian Cheuvront. I would

like to remind you of our action item to provide comments on the data and methods for reviewing the wreckfish ITQ systems, and, with that, once we have the presentation up, Brian.

WRECKFISH ITQ REVIEW

DR. CHEUVRONT: There is actually not a presentation, as such. You got a short document. What happened was we, due to hurricane issues and rescheduling the council meeting, we ended up having to change an IPT call to the date that was the same day this briefing book was due, and so we had a short document that we put together very quickly to talk about this, to give you all some background on it.

DR. REICHERT: That is the Attachment 26?

DR. CHEUVRONT: It is 26. There's been some slight revisions to it, but it was just -- We can send that out, if you all want to see that, but the basic content hasn't changed, but, because the document was put out so quickly, we have had some minor revisions to it.

DR. REICHERT: I think it would be good, for the record, to send that to us, and we can add that to the briefing book.

DR. CHEUVRONT: Okay. What we're doing here with this is -- Well, for one thing, I wanted to make sure that you all know that Dr. Jessica Stephen is here with me as well, and she's one of the counterparts at SERO who is working with us on getting this review done. What I wanted to do is to give you a quick overview of where and why we're even doing this and give you an update on where we are, where we hope to be, and then we basically have two categories of questions that we would like for the SSC to address related to this.

Some of you have not been on the SSC back in 2010 or 2011, when the SSC dealt with this species, where we had some real difficulties with when we had to set ABCs and all that, and OFL, for wreckfish. That caused some issues. Just to give you a bit of history, this fishery really took off in the South Atlantic in the 1990s, and, within a couple of years, nearly two-million pounds a year was being landed of this fish, and so the council took action, and they set, at that time, a quota of two-million pounds annually for the harvest of wreckfish.

When they got to their reauthorized MSA, the SSC had to make an ABC recommendation for the council, and what happened was that there really wasn't much in the way of reliable data to help the SSC to make this decision, and so, because the ABC was unknown, the SSC set ABC based mostly on catch level, what it was at that time, and so the years that were considered for setting that ABC, there were basically three participants active in the fishery at the time. What happened was that the ABC recommendation basically was about 90 percent less than the original quota that was set in the 1990s.

In the meantime, prior to this, the council had set up an ITQ, and individual transferable quota, system for wreckfish, as a way to try to get a handle on what was happening with harvesters and things like that. Well, obviously, when you cut the quota down to roughly 250,000 pounds, suddenly the shareholders found that they had shares that were worth about 10 percent of what they were worth before.

What the council did, after the ABC was set, was they went and did an amendment, Snapper Grouper Amendment 20A, in which they redistributed the shares among those who were actively participating, and so now we're at a situation where we have six shareholders with seven entities, and there's a little bit of complication in there of how they can do that, because multiple entities can share the shares, and it just gets very, very complicated.

Anyway, following along with the story here, the National Marine Fisheries Service came out with some guidelines that said that all ITQs need to be reviewed periodically and that we need to start the review of wreckfish by the end of 2017. Now, in 2009, there was a review of the wreckfish ITQ program that was done, and that sort of has counted as the initial review that was outlined in the NMFS guidelines, but what they wanted to have done is that, after five to seven years after an initial review, there needs to be a subsequent review of the ITQ and how it's functioning and all of this.

That's where we are right now. We are doing the first subsequent review of the wreckfish ITQ. In June of this year, the council directed staff to start that review, and so where we are at this point is that we don't have a document yet. We're just starting on it. What's going to happen is you're going to see this in April of 2018, and you're going to see probably what's going to be close to a final document, because the council is -- If we stay on schedule, as we hope we will, the council is going to look at it in June and basically tell us that, yes, we like this or, no, we don't like it, and we will go from there.

Understand that this is simply a review. This is not like a standard amendment that the council does. We're not proposing any actions or alternatives that the council is going to make changes to the ITQ, but this is simply a review. Now, as part of that review, however, there may be recommendations for changes to the ITQ that could come out of that, but, if the council actually wants to make changes, they're going to have to do a separate amendment process. If they do that, then we would be bringing this back to you at a later point as an amendment talking about what the council wants to do for this.

Now, what I do want to point out is that the SEP, the Socioeconomic Panel of the SSC, will be reviewing this document and a version of the draft review in February of next year, and I think we've got it scheduled for the week of February 5, and they will be meeting on it then. However, before that goes to the council, it needs to come back to you guys, and the whole SSC will review that review and what the SEP recommended at the same time that you will be seeing the more complete document and so before it will go to the council, which will probably be in June of next year.

Right now, what we wanted to do was we wanted to let you know that this is going on, but there's a couple of concerns that we have, as the staff of the two agencies are working together to put this review together, and that is we want to make sure that you all don't think that we're making a mistake in how we're looking at some of the data, because we've got some data issues.

We're dealing with a fishery that has very small numbers of participants, and so our biggest issues right now are dealing with confidentiality and how to deal with some of the confidential data, and then there are some other just general data issues that -- Because this is highly complicated, much more so than our regular snapper grouper data collection and things that we do, and so we want to

put a couple of things in front of you, to see if you have opinions, and you can help give direction, before we go too far down the path here of doing analysis and potentially make a mistake and you all come back and say, in April, when we think we're getting close to being done, gee, why didn't you do it this way. We are trying to head that off at the pass at this point now.

The first thing I think we would like to do is talk about some confidentiality issues. What we're trying to do is, because there are so few participants in the fishery and the shareholders are somewhat geographically dispersed, we have -- We need to do some analysis, and we're trying to figure out at what level we can do these analyses.

One of the issues that we have is confidentiality, and so we're asking shareholders to sign waivers to release access to that information, and it's not just the current shareholders. It's all the people who were shareholders during the time period that we're analyzing, and so the issue is that, if just one entity says, no, you can't use my data and report my data, which are confidential, then we can't do any of it. We can't just leave them out. It's an all-or-none sort of thing.

We don't have the confidentiality waivers back yet from folks on this, and so we're trying to figure out some what-if scenarios. What if we are in the situation where we don't have access to the confidential -- If we can't report the confidential data, I mean, and so the group has been thinking about how we can handle this information if we can't release the confidential data.

What they would like the SSC to weigh in on is, if we're dealing with confidentiality issues, how can we present the data in ways that won't violate the confidentiality? Some of the things that the staff have been thinking about doing is like using rolling averages or perhaps some other methods to present this information, and would that be considered adequate enough, in terms of providing the information that folks would need to be able to do analyses? What we're looking for in this topic simply is do you have some suggestions for us on how we can handle this potential confidentiality issue with presenting information when there are so few participants in the fishery? That would be the first thing.

DR. REICHERT: Thank you, Brian, and I have a couple of questions before I open the floor. One is I think what is critical is to see how the rolling averages differs from when you're using the raw data, and so that's a matter of analysis, but then still review may be an issue, if people cannot see that analysis, and I am not sure, but are there any SSC members who, because of the nature of their work, are able to review confidential data, because that may be an option for the committee, to assign that to those SSC members, and then they can perhaps report back, without providing details to the committee, in terms of how comfortable they are with that method relative to the original information, and I'm not sure if that's an option, but I just wanted to throw that out.

DR. CHEUVRONT: Yes, I think that old be an option. Scott is on the team that is working on this review, and, as you all probably may remember, or may not remember, but Tracy and Scott, who are members of this SSC, have extensive experience working with this fishery, having published information on the history of how this whole ITQ thing has transpired, and so Scott is intimately involved in this, to say the least.

DR. ERRIGO: One suggestion I could give, because I often have to show confidential data streams, is to standardize. You can standardize to an overall mean, and you can standardize to anything. What you will get is just relative numbers, but you don't lose your trend, and so you

can still see the trend. If you want to give an idea of the magnitude for different time periods, you can say the average landings in this time period, like these ten or fifteen years was this, so you get an idea of what the magnitude of the landings were, and then the standardized landings would be -- They would be on the order of -- A one would be the average number that you're standardizing across, and the two would be the landings were twice as high, and so they're all relative numbers, but the exact trend would still be there. In fact, that's how I present to the wreckfish data to the SSC when they're looking at trends.

DR. SEDBERRY: Just a couple of years ago, there was an independent assessment of wreckfish that faced these same issues, and the SSC reviewed that assessment, and we dealt with it, I think, the way that Mike is talking about. That's how we've done it in the past, and it seems like we could do that again.

DR. CHEUVRONT: That was the Butterworth assessment, I think, that was done, and so we'll verify how that was dealt with.

DR. REICHERT: I was part of that assessment, and I think there were some issues, in terms of us not being able to see certain data, which kind of complicated that assessment a little bit. Not that much in the end, but I remember there were some similar concerns.

DR. CROSSON: I am just trying to follow Mike's train of thought of what you were saying. If you're doing -- You're basically looking at how far people were deviating from the mean, and would you be able to do that in comparing performance across different regions without breaking confidentiality, because that's one of the things that we're -- Not performance, and I don't know what the right word is, but just landings, right? If you're talking about landings for -- There are active fishermen in --

DR. ERRIGO: If you want to compare, what you need to do is standardize everything to the same number. It could be any number you want, and so you can have average landings across all vessels and all years, and then you standardize all the landings to that number, to that level. Then they are comparable on the same graph.

DR. CHEUVRONT: In essence, you would transform to something like a Z score type of thing and then work with Z scores as opposed to the actual landings data. Okay.

DR. REICHERT: Okay. I am struggling a little bit, because, as I expected, we'll go into some of the discussions now, whether to provide public comment, and I think I am doing that now. If there is a need to do that after that next question, I am more than happy to entertain that, too. Rusty.

MR. HUDSON: Thank you, Mr. Chair. Brian, I need one clarification. You mentioned something about the previous permit level, perhaps, before you all consolidated down to the current permit level.

DR. CHEUVRONT: You're asking what was the number of permits before the consolidation?

MR. HUDSON: No, but you said you had to send out requests and if you had denial, and is that the bigger group that preceded this smaller group?

DR. CHEUVRONT: Right. In Amendment 20A, and I think that was in 2012, and we would need to verify who the permit holders were who had -- Is it 2013 is the -- Through 2016, and do you remember, Jessica?

DR. STEPHEN: Yes, and so we're doing 2009 through 2010 for the base year and then that baseline of 2009/2010 through 2011/2012 will be compared to the 2012/2013 season through the 2016/2017 season.

MR. HUDSON: Okay. With that said, of course, we know that some of the people are deceased, and I'm not sure how the heirs fit into all of that. Then there were some people that you have complications of actually finding them, and so we got down to what we're down to, and it was the same situation that I had to work through between the scientists that we had brought in to be able to do the industry-generated assessment and then try to get it to the SSC and everything else.

I am not going to try to put words into the stakeholders' mouths that exist right now, but, Brian, as you know, except for a couple of little things, they were pretty much -- They were pretty sure of what they were having to share with you that day in Ormond Beach, and so I think it was a good meeting, and I expect the review will reflect a lot of that. The last thing I wanted to say is Scott and Tracy I thought did a great job on trying to be able to demonstrate the history with their document they presented, and so thank you very much.

DR. REICHERT: Thank you, Rusty.

DR. CHEUVRONT: Just to follow up with something that Rusty had just said, it's not that they just had to be a permit holder, but they had to have landings. If they didn't have landings, we don't need confidentiality statements from them, because they didn't land anything, and a lot of the people -- Basically, everybody removed from the fishery hadn't had landings in recent years, and so we're not anticipating that there's going to be a huge amount of problem here with this.

DR. STEPHEN: Just to clarify too, it's not just the permit holders who had landings, but we have to get confidentiality waivers from the dealers as well, because, depending on what that breakout was by region and year, there could be confidentiality that needs to be taken into consideration for the dealers as well as the permit holders.

DR. REICHERT: Thanks for that clarification, Jessica. Brian, I think we made two recommendations or thoughts, and does that provide sufficient guidance for you right now? I am looking around the room, and I don't see any hands for additional suggestions.

DR. CHEUVRONT: If you could help get some folks that could help us out with looking at that analysis that you had talked about, Marcel, that looks at the averages versus the raw data, if the SSC -- If you want to go ahead and invest that into Scott or somebody, who may already be working on this, who could then come back and report to you next spring specifically on that, and, if you guys want to make that as a direction, that gives us some --

DR. REICHERT: Would you be willing do that, Scott?

DR. CROSSON: Sure. I am just noticing my name popping up on the notes a lot with tasks assigned.

DR. CHEUVRONT: I think that does help a lot, because I think the whole notion of using standard scores was not something that we have really discussed yet, and so we'll certainly evaluate that and make sure that it works. I think there's enough expertise within the IPT that we'll be able to do that. Thank you. Jessica is going to take over for this next part, because we have started getting some of the wreckfish data from the Science Center, and Jessica is much more familiar with that right now than I am.

DR. REICHERT: Thank you, Jessica.

DR. STEPHEN: The next part we were looking to is looking into how wreckfish data was collected and how we can use it to analyze -- This would be assuming we had the confidentiality or if we didn't have to do another method. The first thing to kind of keep in mind with everyone is this is a very old program, when it first started. It was one of the first catch share programs, and it still has some rather antiquated data collection techniques to it.

There is four separate but related data collection techniques that occur. There is a wreckfish vessel logbook, and this is separate from the coastal logbooks that you guys are probably used to seeing, and so it's an entirely separate logbook report. When that gets turned in, the fishermen also have to turn in a paper coupon, and those coupons are in 100 and 500-pound increments, and so you can see that those might not completely match the actual weights of what is landed, but we need both as verification of what is occurring. The other two components is that the dealers turn in a separate wreckfish dealer report monthly, and that also has to have attached to it the second-half of the coupon that the dealer said that he received those pounds from that.

We're dealing with four sets of data that are related, but don't have the same information in all of them, and, on top of that, in the -- There is a lot of confusion among the fishermen who are doing it about what to report where. In particular, one of our concerns is with the co-occurring species that are caught with wreckfish. Sometimes they are reported on the wreckfish vessel logbook, and sometimes only wreckfish are reported there, and the co-occurring species might be reported on a coastal logbook trip, logbook record.

The matching of those two has not been successful at this point from our Science Center. Sometimes the dates are slightly off, because they might have done the wreckfish in between a longer trip, and so have a shorter amount of dates, and the matching has not been something that we kind of code out and get an automatic match for.

A similar problem exists with the dealer reports, where it's only the wreckfish coming in there, and then the rest of the species are reported on a trip ticket, but wreckfish may not also be reported on that trip ticket, and so, again, you can't match the two records, per se, up to each other, and, again, remember at the time this was developed, they only cared really about the wreckfish landings. There wasn't as much concern about what is co-occurring. One of the mandates in this review guidance is that we look at those other species that are co-occurring and what the impact is of the fishery as a whole in relation to the ITQ program.

On top of that, on the vessel logbook records, there is some data that's mandatory and typically filled out and the other data, again, which is kind of more the bycatch, is not always correctly filled out, and so we're looking for suggestions on how these merged datasets have to go, and I forgot to mention that there are times that the vessel logbook is not turned in and the dealer trip is or vice

versa, and so there's not even a one-to-one match every time between the vessel logbook and a monthly dealer report.

What the Science Center does now is does a merge file and combines them together. What we are confident of is that we have all wreckfish landings. What we're not as confident about is the co-occurring species matching up exactly, and so we're looking at suggestions of whether we just, when we go to look at co-occurring species in that analysis, do we just drop that data, or is there another mechanism where we can try and infer a match to that?

DR. REICHERT: I am trying to wrap my head around all of these different reporting complications and how that affects what you guys are trying to do.

DR. STEPHEN: I guarantee you that the results of the review will be not to do it this way.

DR. REICHERT: I think the committee would probably highly agree with that statement, but the question I have is so -- Remind me why that link with the other species is important. You may have mentioned that, but maybe you can remind the committee of why that is.

DR. STEPHEN: Sure. Under the review guidance for the catch share programs, one of the requirements is to look at not just the impact of that species in the program, but all the species that result in that fishery, and so that's the entire snapper grouper fishery. Now, obviously, we don't want to compare to people who aren't catching wreckfish, and so we want to look at what are those co-occurring species and what's the effect of the wreckfish ITQ program on those species that are co-caught with it.

DR. REICHERT: So that requirement comes to the core of this. It's not that you don't have overall reliable catches for wreckfish, but it's the link to the other species that creates that.

DR. STEPHEN: Correct.

DR. REICHERT: Thank you. I think, for me, that helped a lot.

DR. SEDBERRY: Jessica, how many managed species are actually co-occurring with wreckfish?

DR. STEPHEN: Just a couple, really, which is also kind of problematic and where we're feeling that maybe we can get by with just using the limited data we have and caveating it, but we wanted to make sure that we weren't going to run down that track and then later come back and find out that we should have done a different type of analysis.

DR. CHEUVRONT: Unfortunately, one of those species is golden tilefish.

DR. CROSSON: There are significant golden tilefish landings mixed in with wreckfish?

DR. CHEUVRONT: Only in the month of January, but there is some evidence that there is co-occurrence that they are being caught on the same trip.

DR. REICHERT: Any of the committee members, any thoughts or recommendations or suggestions, in terms of how to potentially approach that? I assume that you have thought about this and maybe have suggestions?

DR. AHRENS: Do you have an idea of how many clean records you have?

DR. STEPHEN: No, and so I'm still waiting for the Science Center to deliver the final kind of set of data to us. As I said, this is more of an antiquated fishery, and a lot of this was not analyzed, because it wasn't needed to run the ITQ program.

DR. AHRENS: There are certainly ways to develop a model to fill in the gaps, and so, if you know you have, on a ticket, the actual wreckfish landings, and you have a reasonable subset across space and time of what is co-occurring, then you can build a boosted regression tree or a random force model or something like that to explain those co-occurrences and therefore model the tickets where you don't have that information provided, similar to what we do for fishing or not fishing on VMS or something like that. That's one option.

DR. STEPHEN: I think the other thing with this, and I was remembering the conversation I had with some of the Science Center folks, is that it may be that certain fishermen tend to typically not report and others do, and so we might have regional components to that lack of data at times.

DR. REICHERT: Thank you.

DR. CROSSON: Before you get too far down that line, remembering that you're dealing with a really small N, and so the idea of getting a regression out of this that's going to have any predictive value is unlikely. The last time I looked at the wreckfish logbooks, and everybody is kind of looking surprised, but the wreckfish logbooks are actually older than any of the other active data collections in the Southeast Fisheries Science Center. They created it, because they created the program for the ITQ, and so it's actually, I think, a year or two older than the snapper grouper logbooks and stuff that we've seen a lot.

The last time I looked at it, which would have been when Tracy and I did that paper that was in *Marine Resource Economics*, the only thing I remember them catching occasionally was blackbelly rosefish, which I don't think is regulated at all, because they catch wreckfish in really, really deep water, and I don't think they are -- They are not catching golden tilefish in the same habitat, and so they must be stopping and moving on the same trip to a much different area if they're hauling in any kind of golden tilefish, because they would not be co-occurring, that I can think of.

Also, something that Brian didn't mention, but hopefully the committee is aware, to fish for wreckfish, you actually have to have a snapper grouper permit as well, and so some of these guys, on separate trips, would go out and do snapper grouper trips and report in the snapper grouper logbook series, but then, if they were on a wreckfish trip, they would usually just use the wreckfish logbook, which, again, that's -- But that's as of like 2012. I haven't looked at the data recently.

DR. REICHERT: Thank you, Scott, for that clarification.

DR. BUCKEL: Scott made my point. If you need to know what gets caught when they're fishing for wreckfish, then it's likely that these other species aren't -- It's not an issue, because those other fish are being caught somewhere else and not when they are targeting wreckfish.

DR. CROSSON: It mattered to me what other trips those folks were using, because we were doing an economic analysis, and so, to generate ideas of net profit and how efficiently capital was being used, we had to have some idea of what those vessels were being for on other trips, but, in terms of biological factors, I don't think it's going to be a factor.

DR. REICHERT: Okay. I am not sure if we provided a solution, other than that modeling effort, Brian. Is this something you can work with, knowing that we may see that again, and, as Amy mentioned, if we can provide some further guidance in the meantime, please let us know.

DR. CHEUVRONT: I think what we wanted to get from you was if you had specific guidance that will help us as we go into this now. I just guess that, when we come back to you in April, based on what we've been able to find and how we've been able to caveat the data, et cetera, that you will be gentle, because, as Jessica described, the datasets are difficult to work with, and so you may have some real questions as to why couldn't you do this or why couldn't -- We have kind of explained some of that now, and hopefully that will be in the report as well, and so just understand that this is not as clean as we would like, but, as Jessica said, part of the recommendation that could come out of the report is that we could work on this for the future.

This was the kind of thing that was not discussed in the initial review of the wreckfish ITQ, because, at that point, there were no guidelines on how to do an ITQ review. It was just done, and so this now is something that we need to follow up on, but I think some of the things, with the guidelines that we now have, will help make this ITQ program a stronger and more robust program that we can manage more closely and directly for the future, and so this is a good process, because it really is pointing out some of the problems that we're facing as we're looking at ITQ management for wreckfish. As Jessica said, this is one of the oldest, and this was actually the first finfish ITQ program in the country. It's the second-oldest overall. It was behind ocean quahog or something like that.

DR. NESSLAGE: Just a suggestion, and perhaps you're already planning to do this, but, if you present each of the different data sources separately, for instance the wreckfish logbook versus the coastal logbook, and indicate the average length of the trip, which I assume you can get from that, the length of the trip.

DR. STEPHEN: Yes, from the logbook.

DR. NESSLAGE: I think that would give us some indication to support your conclusion that the bycatch or other catch in the wreckfish directed portion of the trip is not being captured, and so does that make sense, what I'm requesting? You would report what the other fish catch is from one logbook and the other and, along with that, the average length of the trip, so we can get an idea -- It's just to justify and caveat your presentation, but that would be really helpful, I think.

DR. STEPHEN: That's helpful. Thank you.

DR. REICHERT: All right. Thank you. Thank you, Brian, and thank you, Jessica.

DR. CHEUVRONT: Thank you so much.

DR. REICHERT: What we have left on the agenda is the Snapper Grouper Visioning Amendment, the Council Work Plan Update, and we have the general public comment, and then I have a number of items under Other Business. Then we have the report review. In terms of the report, I would like to, in particular, review the blueline tilefish workshop tasks and timing and the red snapper working group, for which Mike just sent the committee the strawman that Amy provided, and there's a couple of other items, such as meetings, and so what I am looking at -- It's around quarter to twelve now. We have been here before, and we have an option to break for lunch and then come back, or we can work through lunch and end a little early, and so I would like to put that before the committee. I have no preference one way or the other.

DR. BOREMAN: Well, I do. I want to keep at it and work through, so we can hit the road and beat the traffic out of Charleston.

DR. REICHERT: That means that -- I am looking around the room, and I see some people nodding and other people not.

DR. NESSLAGE: What's your estimate on how much longer it's going to take?

DR. REICHERT: The end of the meeting is always three o'clock, because people have travel, and so we never intend to go past three. If we do not break for lunch, and I kind of set an hour aside, then that means that we should wrap up between 1:30 and two o'clock, but we may be done earlier, but we will not be later than two o'clock, and so that's what I am looking at right now.

What we can do is break for five minutes, so you can confer amongst yourselves, and then, when we come back, we'll make a decision whether to work through lunch or whether we break for lunch and come back an hour later, and so we'll have a short break.

(Whereupon, a recess was taken.)

DR. REICHERT: Real brief, I heard from several people, and there's a couple of things. The consensus is that we break for lunch. We have no more than an hour, and, during that lunch break, I would like you guys to take a look at the strawman that Amy sent out and think about how we can potentially work some of that language into the blueline tilefish, so we also have a kind of first draft of the terms of reference. The other thing is Mike sent out the report. If you have an opportunity, please take a little bit of time to look at that. In addition to that, before we break for lunch, I want to provide an opportunity for public comment, and then we will break for lunch, and so, after public comment, we will reconvene at 12:55. Michelle.

DR. DUVAL: Thank you, Mr. Chairman. I am going to try to scoot out of here early, which is why I had asked Marcel if I could be allowed to provide my public comment early. I am going to try to make a public hearing back on home on one of my other favorite species, cobia.

First of all, I just wanted to thank the committee for what I thought was a really productive discussion on Tuesday afternoon, right after you all first got here, and for the comments on establishing or reestablishing sort of a more formal SSC training or SSC orientation. I think there

are some things that could be pulled into that, probably from the national council member training that occurs.

Some of the materials in that would probably be very helpful, and I think even probably some cross-exchange between the SSC and the council, where each body gets to see the other body's orientation packet, and I think it would just foster better communication and understanding. This body generally deals with National Standard 2, best scientific information available, and the council is dealing with ten different National Standards, and so, when we come back to the SSC sometimes to ask for additional advice on a particular topic, it is because we are trying to meet our National Standard 1 obligations, but still address other National Standard 8 and dealing with some of those social and economic impacts.

While you all might make a recommendation that, when we see something where perhaps you all do not feel there is a significant change in say a fishing mortality rate, but it might result in what we believe would be a significant change in yield that could still achieve the National Standard 1 requirements, but also allow us to address National Standard 8 requirements, that's why we will come back to you sometimes. I think if there is an opportunity to have that type of exchange of sort of orientation packets, that might be helpful for both bodies.

In terms of the ABC control rule, I really appreciate all the comments and input that you all made yesterday. I completely agree with some of the comments with regard to being very careful about carryover and phase-in of ABCs. I think, in terms of carryover, there are some examples that folks could look at from HMS. That was one of the things that the council was discussing, in terms of the parameters that HMS puts on allowances for carryover.

I completely agree with Fred's comments about clearly defining when that could occur. Certainly if there is a species where you are significantly underachieving your ACL, such as red grouper, that should be a signal that that's probably not something that you want to carry over. Similarly, with phase-in, and I think that's the thing that we are most interested in. We do have the ability to request an interim rule to address overfishing, which is what we have used several times. We have used it in the past for blueline tilefish, and we just used it in June for golden tilefish.

For several of our assessments, we do receive ABCs that change more than 25 percent or 30 percent, and it's oftentimes a reduction, and so having the ability to phase those in over three years under a very carefully constructed set of circumstances would allow us to try to address some of those National Standard 8 concerns that stakeholders have been bringing up.

Ecosystem models, I completely agree with Rob Ahrens' comments regarding the utility of these models, and I think it would be helpful, as you all continue to consider this, to perhaps bring a few council members in that could provide sort of what the council's perspective is or what types of questions we would be looking to try to answer with this. Some of the things that come up, to me, are changes in abundance that we're seeing from stock assessments, could those changes in abundance be put into one of these ecosystem models?

For example, we're seeing an increased abundance of red snapper. What type of impact does that have on black sea bass? Those are the types of bigger-picture questions that it seems like those ecosystem models could help us to understand. I think things like the economic impacts of shifting species distributions -- King mackerel are routinely caught up off of New York now. I mean, that

is where the management unit extends through there, but we are seeing species shifts or expansions in distribution that we are kind of struggling with how to handle, and so understanding the conditions that might cause some of those species shifts would allow us to adjust some of our management approaches.

I think Gregg and Charlie are actually going to be going to the NRCC meeting in November to discuss the possibility of sort of forming an Atlantic coast-wide group to try to address some of these types of issues, and so those are the types of questions that I see these ecosystem models being useful for, things like cobia, king mackerel, snowy grouper, gray triggerfish. Shifts in distribution of those species and under what conditions they might occur, and would we expect that with a one or two-degree increase in water temperature? What would we expect if distribution of some of the prey of those species changes? How is that going to -- What are the economic impacts to our fishermen?

I really appreciate the update from Erik Williams on the projection updates. I completely agree with everything that Ben said about this is going to be an incredibly valuable tool for the council, and so I encourage the Science Center to keep moving forward with that, and whatever we can do, besides not requesting additional assessment updates that would get in the way of this work, let us know, and I also think that the council was informed that, by requesting the update or the revision to the tilefish update that there would be an impact on other work products, and I think, as we try to find ways to improve communication between this body and the council and the Science Center and the council, the more the council can know exactly what those impacts are going to be, then here's the tradeoff and you can make a decision, council. It's this or that.

Let's see. I think that was it. The one last thing I will just note is that John sent an email around to everyone. The council is meeting as a committee of the whole on November 6 to discuss the ABC control rule, and so we chatted about the council reviewing draft terms of reference for the red snapper ABC working group, and so we can at least provide some input on that, so that that sub-committee can get going. Thank you very much, Mr. Chairman.

DR. REICHERT: Thank you, Michelle, and I want to thank you especially for what you've done the last two years as the Chair of the council. You have always joined us for our meetings, and I really appreciate that and the guidance and the advice that you have provided, and so thank you for that. Rusty, we'll have another opportunity for public comment at the end of the meeting, and so, with that, let's reconvene at one o'clock. Please take a look at the strawman, because that's one of the things we're going to talk about, and take a look at the draft report that Mike sent out, if you have an opportunity to do that during lunch. We will break for lunch, and we will be back here at one.

(Whereupon, a recess was taken.)

DR. REICHERT: All right. Welcome back. As I said, we will spend the remaining two hours of the meeting, if we need that time, to go through the remaining agenda items. I would like to see if we can power through this and see if we can get some people out of here a little early today. Our next agenda item is Item 15, the Snapper Grouper Visioning Amendments, and we have Myra Brouwer, council staff, here for a brief presentation and overview.

The attachments are Attachments 27, 28, and 29. In particular, Attachment 29, the Appendix J, contained the two methods that we are particularly going to be asked to comment on, and so the action items are to review and comment on the use of uncertainties of the two methods used in Actions 1 through 6 of the Regulatory Amendment 27 to analyze the effects of the alternatives and to comment on any other actions or items, as appropriate. I want to remind the committee that we will have another opportunity to review this at our spring meeting of next year, and, with that, I will turn it over to Myra.

SNAPPER GROUPER VISIONING AMENDMENTS

MS. BROUWER: Thank you, Marcel. I will be very brief and just give you a little bit of background of where we are with these two amendments. These are the amendments that resulted from the visioning project that the council undertook in 2015, I think is when we started, and so they are parallel. They are sister amendments. One addresses the recreational sector, and that's Regulatory Amendment 26, and the other one is just for commercial.

It's been a little bumpy in trying to get these fleshed out into actions and alternatives that we can then just run with and produce the analyses for, and so, in September, when the council met and talked about these, we sort of regrouped on the recreational amendment. The council staff had come up with a different kind of approach, because the vision was a little blurry, and it needed to be sharpened a bit, and so we approached the committee, the council, with a different outline for how we envisioned the amendment being developed.

We talked about that, and they gave us the go-ahead, and so the timeline has shifted because of that, and so the council is now scheduled to review the actions and alternatives in December and hopefully finalize all of that, finalize the purpose and need, and then we will start in earnest with all the analyses and bring those back to the council in March, and so you guys will have lots more opportunity to comment on these technical analyses.

For today, what we had hoped was that, if you want to give comments or recommendations, there is Attachment 29. That is the analysis that the Regional Office has put together, and it's preliminary right now, because, as I said, we haven't really fleshed out all of the actions and alternatives in full, but it does use two different methodologies to come up with projected landings to analyze things like seasonal closures, and this is for the commercial fishery, based on adjustments to trip limits or splitting out the ACL into two different seasons, assigning different percentages to portions of the year and that sort of thing.

That contains two methods. One is based on a seasonal autoregressive moving average, a SAREMA model. The other one is based on a last three, I believe is what Dr. Farmer calls it, and so that is what we have for the SSC, to see if there are any comments or recommendations as far as which of those two approaches is most appropriate to analyze these sorts of actions.

DR. REICHERT: I have asked Mike to very briefly remind us of those two methods, and then we can discuss or provide recommendations. Again, this is Attachment 29. That is the Appendix J to the Regulatory Amendment 27.

DR. ERRIGO: There are two ways of looking at projecting the landings in order to do the analyses on impacts of different management regulations. One was a simple using the most current three years of data to look at what the monthly catch rates might be under different management scenarios and then assuming that the catch rates would be similar in the next year when the new management measures went into effect.

The other ways is using this SAREMA model. It's an autoregressive model for time series data, and you put in the time series data and it outputs something that looks like this. If you put in the time series of data, on a monthly -- This is on a monthly time step, and it produces -- It tries to estimate what the landings would be based on the landings that you give it on a monthly time step, and then it projects it. The circles are the data, and then it projects it into the future with varying amounts of uncertainty, and so there is a cloud of uncertainty around the projections.

We were wondering about the use of that with these particular data, because they happen to be very sparse, and the clouds of uncertainty for these particular analyses are very wide, and also the error bars around it are wide, but they are also for the average analysis, using the last three years and averaging them together and coming up with average catch rates, monthly catch rates, but there is more -- There is a lot more of the uncertainty accounted for here, but it's so high that some of the estimates are like, for example, this fishery is projected to close in June, but the brackets are somewhere between February and November.

That is not exactly useful, because the entire year is there, whereas the three-month average does not account for quite as much uncertainty, and so it doesn't give as much of a range. It does give a general idea, and so we just wanted some feedback on the use of these methods here and are they appropriate. We can use both and just show how much uncertainty there is, but this one is very difficult to explain.

DR. REICHERT: Thank you, Mike. Any comments or remarks? I think, for a full evaluation, I would like to see a little more information than was included in the appendix, and maybe we can discuss that then a little further in one of our next meetings.

DR. BOREMAN: Just a couple of comments. One, if it's difficult to explain, that, to me, puts it in the negative column, because the council is going to have to use this. Second, the most recent three years, that's usually how fisheries operate. They are based on the most recent three years, as opposed to using the whole time series, and I think it's more representative of what might happen next year in the fishery.

Without getting into depth or these uncertainties, and I'm not even certain how these uncertainty bounds -- What they're representing even in here, other than just it's model uncertainty, I guess, based on the spread in the data, the noise in the data. Without knowing anything deeper than that, I would prefer just using the three-year method. It's an easier decision model, I think, for the councils, and they can do it on their pocket calculators.

DR. REICHERT: Thank you, John, and that was kind of my thinking.

DR. SERCHUK: Because at first blush, or at least my first blush, it looks like you have a long time series here that goes back at least ten or fifteen years, and I'm just wondering why you couldn't evaluate truncating the dataset at five or six years before the end and then seeing whether

the values that you would predict from both methods would approximate the empirical values that you had at the latter part of the series, rather than fitting the whole series and then seeing how it would look in the future.

You have a long enough data series here to take off four or five points at the end and then fit both approaches and see how well you approximately the empirical data at the end, which you know those values, and that would lend more a performance metric to it that I think would give us another way to evaluate the efficacy of the methods.

DR. REICHERT: Thank you, Fred. Anyone else on the committee?

DR. SCHARF: Mike, if you scroll down to the next figure, the monthly landings figure that's below that, the monthly error, using the SAREMA model, it seems that it doesn't change from month to month, but you have really big swings, using the last three method, from month to month. Is that what you would expect, using both of those two approaches, that the monthly -- When you try to break it down and look at seasonal patterns in landings, you're going to have a lot of uncertainty in using the last three approach, but not as much in the other approach.

DR. ERRIGO: Yes, because, for the SAREMA model, it's using all the data that it has, and so the prediction for each month is going to have the same uncertainty, because it has the same amount of data that it's using to predict, whereas the last three month has different amounts of data for each month when you're doing the prediction, and so there are a different number of data points going into the average, calculating the average, catch rate. That's why it varies wildly from month to month.

DR. SCHARF: I like Fred's suggestion though of using a subset of the data for some cross-validation.

DR. REICHERT: We will make that a recommendation. Any other members? Seeing none, I started out with saying that perhaps, for a further evaluation, that maybe we can get some more detailed information, and maybe some of the suggestions that were made by the committee, and take another look at that in April.

DR. AHRENS: Does the pattern in trips basically match the pattern in catch, and so if you did this by kind of more of an effort-driven number of trips?

DR. ERRIGO: I have no idea, because I did not do this analysis. I'm sorry. This was done by Nick Farmer at the Regional Office, and so I don't know how that was done. We can get that type of information for you from Nick. The next time you see this, we can have all those questions answered, but I have no idea.

DR. REICHERT: Okay. Rob, go ahead.

DR. AHRENS: I guess one of my concerns is also, in kind of any of these sort of attempts to forecast what might go on, is you do need to have somewhat of an understanding of how the fishing fleet itself is going to respond to the changes in those regulations, and so, if it's open all year, is it going to behave one way, or, if you split it between two time periods, then they might behave in a

different way, and I think it would be worthwhile to also have some insight into how we understand that effort, how that effort may respond to those changes.

DR. REICHERT: That's an excellent point. Thanks, Rob.

DR. NESSLAGE: Correct me if I'm wrong, Mike, but is there some sort of smoothing or kernel size used for this SAREMA, because some of these -- Like some of these examples, like greater amberjack, an increase in the last five to ten years results in a leveling off in the overall pattern, and in some, like snowy, it just takes off into infinity, and I think the model is probably sensitive to whatever the -- I am not as familiar with the SAREMA, but I know there is probably some sort of kernel or smoothing range that they're using, and it might be good, if they really do want to move in that direction, to do some sensitivities to that, because some of these species predictions appear to be sensitive to that, if I understand how it's working.

DR. REICHERT: When I thought about that -- For instance, in snowy grouper, there was a recent management change, and so that may explain some of the changes in the landings, and so that goes back to the point that Rob made, and that's important to take into account when you try to use that data. Okay. As I said, we'll have another opportunity to review this. Myra, for now, do you have enough guidance from the committee to move forward?

MS. BROUWER: Yes, I do. Thank you.

COUNCIL WORK PLAN UPDATE

DR. REICHERT: Thanks, Myra, and thanks, Mike, for kind of briefly going over this. All right. Our next agenda item is Agenda Item 16, the Council Work Plan Update. This is something we have an opportunity to review pretty much every meeting, and this is just for our information, to see what projects the council staff are working on. These are Attachments 30 and 31. In particular, 30 is the spreadsheet with the various projects and who is assigned to that and a very rough timeline. There is no specific action required. Mike said that he was more than willing to walk us through some of these projects.

DR. ERRIGO: Basically, this is just to let the SSC know what's going on now, what the timeline is, when you are going to see things and when they're going to be finished, if there's anything that is going through that you may not see again. The second attachment is just an explanation of each of the amendments that is in the works now or just finishing up or just getting started, so that you all know where we are and what's going on.

If you have any questions, any specific questions about anything, either I or the person who is in charge of that particular amendment can help answer any questions you have, but there is nothing to walk you through or anything. There are no action items, but this is always here, just in case anyone has anything.

DR. BOREMAN: On the agenda, it mentioned that you're going to update us on the joint SSC meeting on MRIP. I am personally curious about the status of that.

DR. ERRIGO: Basically, the update is that that joint SSC -- The meeting that we were talking about at the last meeting between our SSC and the Gulf SSC and the Science Center people and talking about the MRIP estimations for rarely-encountered species and things like that, to try to come up with some more robust methodologies for getting estimates for those species, that now has been put on hold indefinitely. What is happening currently is MRIP and the Science Center are having workshops, I think is how it's going on, and they are currently looking into developing and testing methods, and so that workshop will not happen, certainly not any time soon.

DR. BOREMAN: My understanding is, based on Dave Van Voorhees presentation here a year or so ago, or maybe over a year, was that there was a misinterpretation that S&T at NMFS Headquarters had a methodology for selecting appropriate PSEs for MRIP estimates. In other words, if a PSE is above 50 percent, then you don't use the number, because it's too uncertain and so on, but it turns out that Dave was only providing that as an example, and they really haven't done any work on developing a peer-reviewed methodology yet, but I would encourage everybody to keep thinking about that and working in that direction.

The problem with S&T is that we're under --Well, when I was there, we were under Presidential Order to expose all of our information, and you can't withhold data from the public, and so it's tough to say that we're not going to put this data out there because the PSEs are 100 percent and so it's worthless. We still have to put it out, but, at some point, somebody has got to come up with some rule-of-thumb on if the glove don't fit then you must acquit type of rule-of-thumb here about PSEs and MRIP, because we're still getting people, from the industry and so on, using these whacko numbers and then throwing them back in the face of the agency and saying look how stupid these extrapolations are. From one sample, you're getting 10,000 fish or whatever, and you know that's highly uncertain, and so I just want to put a -- I want to encourage the council to keep the SSC or whomever, staff, to keep working in that direction.

DR. REICHERT: Thank you, John, and I was part of that conference call, and I was disappointed that that ended up being an indefinite postponement of that workshop, and I believe the council was equally disappointed, and they actually, I think, wrote a letter expressing that disappointment, and so I appreciate that, and I think, as a committee, we need to continue to think about that and perhaps put it on our agenda, to see what we can collectively come up with, and so thanks for that. Any other questions? As Mike said, this gives us an opportunity. If we have any questions, then we know which staff member is working on what project.

DR. SERCHUK: Just to follow up on the subject matter that John raised, would it be worthwhile for us to take cognizance of John's comment and have that forwarded to S&T, that we are concerned and we know that they're going through a standardization process and we know that they are looking at the quality of the intercept work and how that's going to be used in being applied to the new effort standardization and there is this concern that the expansion factors may be very large, in some cases, based on very meager sampling, and that that is an issue, in terms of the utility of the data and the confidence that we have in it, particularly if it's going to have a very large error structure around it? Can we voice a concern even at this stage?

They are going to be looking, I think. I mean, they have looked at the effort part of the standardization process, but I thought they were still going to be looking at the intercept part, because that's the part where the rubber meets the road, in terms of getting the actual estimates of fish that have been landed.

I just think we can be a little bit more proactive than waiting for them to do it, by saying that we know that a problem exists, and we want you to know that we know that the problem exists, and we hope that you will address it in a meaningful way, because not the confidence in all numbers that are produced is not the same.

DR. REICHERT: Yes, we can. We can express our concern. We can do that in our report, and then Mike is working on some language that we can take a look at, and we can obviously forward that to the council and to others. We have discussed this in the past, and I think that's where -- That ultimately resulted in the conference call.

DR. SERCHUK: I raise it now because what's on the horizon, and we all know this, in our planning is we're going to be revisiting assessments with the new MRIP standardized data, but, if some of those data are based on very low sampling intensity or have a high variability around it, we need to know that, in terms of the quality of the information.

DR. REICHERT: I agree, and so Mike is trying to capture that, and so take a look at that, because that will be part of our report, and we can obviously work on that a little more later, but Mike just put that up there.

DR. NESSLAGE: Can we go a step farther as an SSC and say that we would recommend, for instance, the Center not use any recreational estimates above a certain PSE, because we won't consider them good enough for making our recommendations to the council?

DR. REICHERT: I would be extremely hesitant to go that far, because of the implications that may have.

DR. CROSSON: Just to that point, if you run a query through the online MRIP system, it will flag it red, I think, if the PSEs are beyond a certain level, which basically means that you should be very wary of using that.

DR. REICHERT: I would personally much rather treat that when those data are used, and then we can make a recommendation in terms of when we feel that it's appropriate or not appropriate, but I will open the floor to others, in terms of a recommendation like that.

DR. AHRENS: I think we can put forward a recommendation that the council encourage research as to how best to potentially smooth or interpolate those data when they are noisy, and encouraging work in that area is certainly one way to move forward.

DR. REICHERT: I encourage you to take a look at the screen and see, Fred, if that captures what your intent was. Then the second one, I believe, addresses the recommendation that Rob just made. As I said, we can take a look at that later, to wordsmith it to our final recommendation.

DR. SERCHUK: I know we can comment on this after the meeting, before we get the report done, but I actually want to be more specific than this. I would like to say that we're concerned about the PSEs of the recreational data that we're going to be using in the assessment that uses the revised MRIP data and we would like to be provided with as much detail on those PSEs as possible. Send that recommendation to S&T.

DR. REICHERT: That's exactly why I am asking the committee to take a look at the language on the screen and make recommendations as to changes to that language, so you're comfortable with that.

MS. LANGE: I think Rob's point is very important on having a way of smoothing it. If you remember, in the data workshop for blueline tilefish, there was an estimate, and I can't remember the specifics, but there were like two fish sampled, and it terrible torqued all the analysis, and the S&T representative was very adamant that it not be changed and that's the number, that's the number. There needs to be a way of ensuring that S&T is onboard with how to handle those really bad outliers.

DR. REICHERT: Thank you, Anne. Again, Fred, I think the first statement, and I have a hard time reading that, and is that specific enough for what you brought forth?

DR. SERCHUK: I don't want to wordsmith things too much, but I would like to say that the SSC would like to be informed about the PSE values that are being used and so on and so forth. We want to be informed what they actually are, and then we can decide whether those numbers are reliable enough to be used.

DR. BOREMAN: We can inform ourselves, because it's all online. I mean, you can access the data, and it probably gives you the numbers of the intercepts and how it's extrapolated. All of that is laid out.

DR. REICHERT: The methods?

DR. BOREMAN: It's already there.

MR. CARMICHAEL: I agree. I think most of that stuff is there. The MRIP site is pretty thorough, in terms of how they handle the stuff and how they calculate things. I think, to Genny's idea of above some level that maybe we don't use them, it's an intriguing idea. I think the challenge is the council, under the federal system, the agency has said MRIP is the number, and that's the numbers that you will use, and we don't have an alternative to fall back on.

We're not excused from setting ABCs and fishing level recommendations for any species because the data are highly uncertain, and we're not excused from monitoring those fisheries and things of that nature because the data are really uncertain, and so I think it takes maybe a more measured consideration of what we do, because it is a huge problem. The council is very concerned about it.

They are concerned about what it does to assessments and what it does to accountability measures. As their letters, numerous letters, over the last several years have alluded to, they are very concerned with the kind of spiky estimates which drive stocks over their catch limits based on an observation or two and all of these things. They are concerned about how abundance affects recreational fisheries and the relationship between the MRIP estimates and the true catch.

To me, this is the kind of thing that the SSC maybe -- It's a working group type of thing. If there are some people passionate about this, get together and start thinking about, from a big-picture

perspective, what can we do about this? Are there ways of better dealing with the MRIP data within the stock assessments and within our estimation of ABCs for data-limited species or for how the council handles accountability measures and sets catch limits?

I think the MRIP data permeates everything we do. The Southeast Region is particularly concerned about it, because of -- I don't know, but 70 to 80 percent, sometimes, of the offshore recreational trips are happening right here in the Southeast. We are a big part of it, and they're a big part of our fisheries, and so I think, if you guys wanted to make this kind of a long-term project to work on, that would be a great idea, because this is the next hurdle, is getting this next calibration, and then I'm sure there will be more coming down the road, and we're seeing more electronic reporting methods, and how are those going to get folded in? How is the council's charter boat reporting going to get folded in?

There is a lot of questions about this, and a lot of people are working on it. MRIP folks are aware of all of these issues, and they're working on it as they can, and anything we can do to help them would really probably be greatly appreciated. They have been very open, certainly in the last several years, and certainly Dave Van Voorhees, in particular, has really worked hard to try and bring these issues into the system and be open to listening to alternatives.

DR. REICHERT: I agree with you, John, but I also have a little bit of a feeling that we are running around in circles, because we recognized this, and then we discussed this, and we recognized that this is an issue that not just our SSC is struggling with, but the Gulf of Mexico and the Mid-Atlantic, and so, unless I am completely wrong, we actually discussed like a workgroup. Then, we also, because of that realization, said let's see how we can put this in some broader perspective, and I think that was part of why we ended up with the conference call. I may be wrong, and now we're going back.

I really like the idea of us working on that, maybe in a working group, but I do believe that we should consult with SSCs in the Gulf of Mexico and the Mid-Atlantic, because they are struggling with the same issues, and we have done the same thing with the ABC control rule, and so, anyway, that's just my thoughts.

DR. AHRENS: One option is to work with NOAA and get this issue put up on the priority list for S-K funds or for MARFIN and get it out to the scientific people in general, to say this is a priority and let's get some input on how -- I mean, there are tried-and-true methods out there for smoothing when you have noisy data. The question is what's the best one to use, given the nature of the sampling and the application, and so, to encourage NOAA to put it as a priority in the funding, because of its impact on stock assessments, is a way to go.

DR. REICHERT: I think we should put that in our report, that the committee feels that this has a high priority and encourages to make this a high priority research area for funding or to be addressed by NOAA or otherwise.

DR. BOREMAN: The MRIP program itself has about two-and-a-half-million dollars a year to spend on research, and so there is no reason why we can't go to MRIP and say to boost this up. I believe -- I was involved with writing the strategic plan, and I believe it's probably in there and pretty prominent in there, but all we're doing is casting our vote and saying the priority of this

should be pretty high, especially, as Fred said, they're coming out with these new effort estimates, and the intercept methodology has been changed, and they are using a new one now.

That was changed a couple of years ago, and so we're going to have new intercept methodologies being used now, and we're going to have a new effort methodology that's being used. Now is the time to sit down and, as a group, as a national group. Maybe at the next National SSC Meeting or something, we can come up with methods to handle these rare-event intercepts.

DR. REICHERT: Thank you, John. I completely agree. Of course, that doesn't preclude us from thinking about it and seeing how we would like to approach that, especially in a region where recreational fisheries have a high impact, such as the Gulf of Mexico.

DR. BOREMAN: You can handle it at a SEDAR workshop. We used to have SEDAR workshops which were single topic, and this might be a nice topic for a SEDAR-sponsored workshop.

DR. REICHERT: I think that's an excellent idea, actually, and we should capture that suggestion. Do you think SEDAR would be open to something like that? I think perhaps, generally, SEDAR workshops have tackled --

MR. CARMICHAEL: Yes, I think it would, I think particularly the middle one there, about smoothing and interpolating. I think if you threw into that dealing with historical, pre-MRIP, estimation and how you bring the various bits and pieces of data from pre-1981 into line with MRIP and such are all topics that have crossed most all of the assessments lately, and that would be a perfect SEDAR kind of topic to deal with, and it would be one -- Like we've done them in the past where we have reached out to other regions, to expand the expertise and the knowledge, and I agree with John that I think this is great National SSC topic. It may not resonate as much with some of the other regions, but certainly on the Atlantic Coast there is a lot of support for this, and we think that we've had trouble with MRIP now, give ourselves a year.

DR. REICHERT: I completely agree, and I would also -- I would be willing to add to that that this committee recommends that, if this is going to be a SEDAR workshop, that that should be an extremely high priority and see if we can organize that as soon as possible, given the limitations, of course, that SEDAR has.

MR. CARMICHAEL: One last thing for maybe a group to work on is, if people have some sense of specific research needs, and if some folks could craft specific-worded recommendations, we do get the opportunity to comment on various NMFS priorities, and, if we had some good language that had been vetted by the SSC, that would certainly probably strengthen what we might suggest.

The other thing would be the council's research plan. We just reviewed it last year, and we do it biannually, and so, not this coming April, but next April, we'll have another crack at that, but, if people felt some of this was very important, we could obviously address that any time that we need to, and so that's where I was thinking about maybe a workgroup to start thinking about what are really the priority issues and what are the best ways to solve different ones, and maybe it becomes kind of a shotgun of here's some things to do through a workshop and here's some things that require this type of research and here are some things that require this other suggested National SSC workshop, maybe, to look at it. I think then maybe we start getting some traction and get some other SSCs onboard with us.

DR. REICHERT: Thank you, John. What I would like to recommend or suggest is that we come back to this in April. We currently have two SSC working groups that we established this meeting, and so I would like to come back to this the next meeting and see where we are and see if we can move that forward and see if we should do this in a working group format. In the meantime, it would be good just for us as members to kind of gather our thoughts and ideas and what we would like to see to come out of a workshop like this, and maybe we can reach out to the SSCs in the surrounding areas to see how we can move this forward. Okay. Anyone else? All right. Thank you. Next is our end of the SSC meeting public comment period, and I am looking around to see if anyone wants to make a public comment, and I see Rusty get up.

PUBLIC COMMENT

MR. HUDSON: Thank you, Mr. Hudson. Rusty Hudson. I think I have covered a lot of bases already, and so a lot of stuff is already going to be there in everybody's mind. Amendment 46 for the red snapper thing going forward, one of the things that I think should be considered is the idea of a minimum size, and that minimum size probably would be beneficial using what the Gulf of Mexico has, thirteen inches for commercial and sixteen inches for the recreational, or maybe something that's unique to us, but the twenty-inch was a 3.6-year-old fish at four-and-a-half pounds.

Historically, what we called the chicken snapper, once it gets to thirteen inches and stuff like that, that's very useful in the market, and it always has been, because you fillet it and you get two meals out of one fish. Once you start getting up to the bigger fish, you get into a different situation, and, if you get into the ponies and sows, the ten to thirty-pound animals, then you're into butterflying and all kinds of other stuff in the market, and it's a different value system, or historically it used to be. We got less for the big fish than we did for the fish that was easier to use in the restaurants.

Earlier, Brian had mentioned the golden tile with the wreckfish stuff, and I looked back at the spawning season closure for wreckfish, and it starts on January 15, and so the only way that intercept -- I believe that Scott brought up that there is some trip issues here or something that needs to be clarified, because they use a bandit rig on steroids. They're used to fishing in 2,000 foot of water. As to where they would intercept golden tile of any size, usually I felt like that was more back in shore a little bit, but it's definitely sometimes over a thousand foot in some areas. Again, it has to be mud bottom.

I had heard earlier about blueline tile doing burrows in mud, and that's not normal. That's golden tile. The blueline is going to be in a different kind of burrowing sand, but, anyway, that being said, those are the last couple of items that I wanted to share, and thank you for bearing with me this go-round.

OTHER BUSINESS

DR. REICHERT: Thank you for your comments, Rusty. They are much appreciated. With that, we move to our Other Business. I have a number of things that I had on my list before I open the floor. The review of the tasks and timing of the blueline tilefish workshop and the red snapper

working group, I would like to review that when we are reviewing the report, and so I'll come back to that at that point.

I want to give you a brief update on the National SSC Meeting preparations. That meeting will be held in San Diego in January. Currently, the Chair, Vice Chair, and the Chair of the SEP are scheduled to attend, as well as John Carmichael as council staff. I believe there is one more slot that may potentially be available for our SSC. Luiz and John, I believe, are also attending that meeting from this SSC, and so, although some people may wear different hats, there is currently five members attending.

If you are interested in attending, let us know, please sooner rather than later, because we have a tight -- The travel has a tight deadline, and then we can bring that to the council. I haven't seen the final agenda just yet, but I will share that with the committee, and then in April, we will provide an overview and update of that meeting.

DR. BOREMAN: I don't know if you were going to mention the topic of the meeting.

DR. REICHERT: I did not, but we mentioned that earlier, but, if you would want to provide a highlight on that.

DR. BOREMAN: It's basically MSEs, management strategy evaluations, but also tying in ecosystem modeling and how to incorporate ecosystem-type information into ABC development using MSEs or whatever, and also, when I talked about our working group efforts on developing CVs for OFLs, that's going to be another topic that we're going to be addressing there, and so our working group has been incentivized to get their work done so that we can present it at the January meeting.

DR. REICHERT: Thank you, John, and there is also an opportunity that I saw for poster presentations at that meeting, which I think is the first time that I remember that there was an opportunity for that. I may be wrong, but the ones that I attended did not have that.

DR. CROSSON: John, are you part of the planning for this one?

DR. BOREMAN: So is Marcel.

DR. CROSSON: So is Marcel? Okay. Well, good. Are you making efforts to make sure that the SSC members are not just speaking to other members of their own SSC and that kind of problem we had with the last one? Because I hope that's been fixed. That's been a problem with a lot of these.

DR. BOREMAN: I kind of raised that, and I was very adamant that, number one, we limit the number of keynote speakers, and so we're down to like three for the whole meeting, three or four, and then we don't spend in time in groups where we meet with ourselves and then report out. That was a waste of time, in terms of not allowing for cross-fertilization of ideas, and so now the emphasis is going to be on group discussion among everybody and limit the breakout sessions, if we're going to have any, but start with a topic and one keynote and then launch into general discussion.

DR. REICHERT: I would like to echo that. There was extensive discussion about exactly that point, and I think the limit of the total number of presentations and then have more time for discussions. Also, initially, there was a much longer list of the topics that the committee wanted to talk about, and I think, collectively, we scrapped a bunch and compressed a bunch, just to give us more opportunity to actually discuss a fewer number of topics, but have a more in-depth discussion, and so I hope -- I completely agree. I hope this will be a productive National SSC Meeting. Thank you.

The other thing that we touched on was the potential postponement of the SSC meeting in April to allow for the review of the vermilion snapper assessment, and I'm not sure if we need to make a decision here now, but I'm just going to ask if anyone who has looked at their agenda has some major heartburn with moving that SSC meeting up a week, so that Mike, George, John, and I, and others, can prepare for that.

DR. BOREMAN: Do you mean moving it up or moving it back?

DR. REICHERT: Sorry, moving it forward, to later, to one week later.

DR. BOREMAN: That's moving it back a week.

DR. REICHERT: Then I meant to say that we are moving it back. It will be May 1 through May 3. Then, relative to that, keep in the back of our mind that we also discussed the orientation, and I will talk with council staff and council members, to see, if we potentially do that, for instance, to start Tuesday early and have that or how we are going to handle that, and so we'll involve you guys or send some emails out to get some feedback on how the committee would like to handle that, just as a heads-up.

Then a related issue is we've talked about adding meetings or adding webinars, and another option is to make this meeting, make the meetings we have, longer. Some people have said that perhaps it would be good, for instance, once every two years, to meet in conjunction with the council meeting, to have some interaction with other council members.

We have done that in the past, and we've gone away from that, because there was always that tension that the council was waiting for recommendations from the SSC while we were still meeting, and that created a lot of pressure, and it may have resulted in some discussion that we had to finish because the council was waiting, and I personally think that worked out quite well, but it also meant that we have lost kind of that interaction with council members.

These were some suggestions that I have heard of, and so I want to throw that to the group and see what the SSC's thoughts are on either adding a meeting, to give us an opportunity to go through some of the agenda items in more depth, or give us an opportunity to pick up some of the topics that we discussed, like the ones that we are forming working groups for, or can we potentially do that by extending a meeting or do it via webinars? I personally am not in favor of a lot of webinars, but there is a function for those when we need to make recommendations on relatively short notice on topics that are not tremendously complex.

DR. CROSSON: I wouldn't mind starting the meetings on a Tuesday morning rather than mid-afternoon on Tuesday, because Charleston is not a major airport, and so folks that are flying up

usually have to make connections, which requires you getting to the airport at a very, very early hour. I think it would be better if people were flying in Monday night or Monday afternoon, and then we would start the meeting promptly at 8:30 or something like that. I think that would be a better setup for most folks. Even the folks that drive, if you're driving four or five hours, it still means leaving a little earlier, and remember that when I lived in Carteret County.

DR. REICHERT: Anyone else? How about adding a meeting, pros or cons? Just for your information, other SSCs are meeting more, and I think there is maybe one that meets less, but -- No, not true?

DR. SCHUELLER: Personally, I don't know that I want to increase the amount of time that we're having for the meetings. I think we have just about the right amount of time to be perfectly brain taxed, like I am right now, and so I don't know that I am for creating longer meetings. I would rather -- Maybe this isn't going to be the popular opinion, but I would rather meet another time than actually extend what we're doing now, just because it's already quite a bit, and I would rather have the time in between to fully think about and mentally process what's going on than just trying to cram it into four days or something instead.

DR. REICHERT: Before I go to John and Tracy, the other thing is our briefing book currently is pretty voluminous as it is, and so, if we make our meetings longer, than we will see even thicker briefing books, and I'm not sure whether that is productive for the careful consideration of our agenda items, and that's my concern, because, if we make our meeting longer, I don't think that we can extend the time we have to go through the briefing book, and so that will still be like the two weeks that we currently have.

DR. BOREMAN: Both nature and bureaucracies hate a vacuum, and I am afraid that, if we go to -- I am in perfect agreement that we should have a third meeting, but the agenda for that meeting should be more under our control than the council's, because, if we go to a third meeting, I'm sure the council will find a way to fill up the agenda for us, like they usually do, and not with bad stuff, but just work, but I think one meeting -- Like at our council, our SSC meets four times a year, but one of those meetings we try to devote mostly to science, science discussion among ourselves on topics, like CVs and so on, so that we're not saddled with coming up with ABCs or something like that. If we can do that here, have a meeting where the topics are more science-oriented rather than cranking out ABCs, I would be all in favor of that.

DR. REICHERT: I couldn't agree more. I am kind of looking at John, because I think -- I am not sure, formally, who ultimately sets the agenda. I think it has always been kind of a combination of the council and council staff and the SSC, and so I think there's room for that, and I really like that, because then we can potentially have the luxury to say, okay, we set an entire day aside to discuss one topic and maybe have multiple presenters come in, and I really like that idea, because that may alleviate some of the time pressure we currently have.

Now, today, there was like nineteen agenda items, and some of them were really important, but, of course, we all keep in the back of our minds that there's another twelve to go from there, and so I really like that idea, and so I am more than happy to bring that to the council and the council staff, if we decide that we have another meeting. Thanks for that, John.

DR. YANDLE: I am just also supporting the idea, because I think it will really help reduce a lot of the time delays in responding to the council when things come up suddenly, and so I think it's a good idea, for responsiveness.

DR. BELCHER: I agree with those statements too, and I kind of had that thought. If we start involving more working groups, it kind of has the flavor of ASMFC's tech weeks. You can have concurrent groups working on ideas, and you can still come together and do an overview of what people have gotten through with progress, and I think it would be a good way to go.

DR. REICHERT: Thank you. Anyone in disagreement with that? I would integrally try to add what John just mentioned in that, that we are in favor of adding a meeting, under the condition that that gives us a little more flexibility in addressing certain points and gives us a little more freedom in setting our own agenda for that particular meeting. Okay.

Then the question will be when should that happen? I already mentioned that we could potentially talk about the concurrent -- Well, let's make that a separate item, and so when in the year -- We have now an April and an October meeting, and when in the year would that be best, or would you like us to make some recommendations? I always know the tension between especially the people who are working in the academic environment, and it's difficult to break out an entire week during the semester. There is also a lot of other things to consider, such as council meetings, SEDAR meetings, et cetera, and so I would like some recommendations, and then I can talk with John and George and Mike and others and see if we can come up with some recommendations to the committee.

DR. YANDLE: A strong preference for August.

DR. REICHERT: August?

DR. CROSSON: I have a preference for not August.

DR. REICHERT: I was afraid that this was going to be the conversation that we were going to have.

DR. CROSSON: I hate to disagree with my favorite collaborator, but I am just telling you that, for the federal system, we usually are trying to wrap up all of our work for our work plan in August and get it delivered, and so that tends to make my Augusts a little rough. On the other hand, I just chaired a SEDAR, and so I guess I'm able to do it sometimes, and so maybe that's not an issue.

DR. REICHERT: Okay. Thank you. What I will do is let's -- Genny.

DR. NESSLAGE: In general, I think it would be good, eventually, at some point to have perhaps a concurrent meeting at the council. I am just looking that, if we're going to have a meeting in May actually and not April, and they meet in June as a summer meeting, that would be too -- No offense, but to see everybody again that soon might be a little soon, and maybe the year after?

DR. REICHERT: That's why I said let's make that a separate discussion, and that's perfectly fine. What I will do I will talk with people and see if we can come up with some suggestions, in terms of when we should have that additional meeting, and we can also consider making that a meeting

that has a changing date through the years, although I kind of like to know what the schedule is ahead of time.

DR. BELCHER: I think, some of it, the problem is going to be just what you've got for demand of things to do, because, I mean, if you set it aside, but there's not really anything heavy that we're focused on -- Maybe, at the end of these meetings, as we've discussed, we've got two working groups that are talking about putting plans together, which obviously that would be something that probably could benefit from that meeting.

As you're building -- At the end of the meeting, having that discussion of do we need one now or does it wait until mid-next cycle, and I don't know if that's -- I understand where you're going with setting a date, but my question would be how hard would it be at that point to fill up a set date?

DR. REICHERT: We can certainly consider that. My thought is that -- I think the council will always have stuff for us to look at. The other thing is, if we follow the plan that John had, then there will always be those ongoing, long-term topics that I think we can discuss at any time, and so let's develop some plans, and then we can come back to the committee with some recommendations, and then we can take that further. I think, for me, the most important thing for this meeting is that we are in agreement that it would be extremely helpful to have an additional meeting, and, of course, there is some logistical and financial issues that we need to bring to the council and see if we can actually do that.

DR. CROSSON: I just was thinking, if it was the first week of August, it wouldn't be too difficult for me. For the people that are academics, their school year doesn't usually start until the end of August, and so they're far enough away that they're not the week before and they're getting their plans together, and it's also before the peak of the hurricane season, which is also a concern for those of us from the Southeast, because that doesn't really ramp up until the middle to late August. When is AFS?

DR. BELCHER: That is usually in August.

DR. REICHERT: We are meeting in October, talking about the peak of the hurricane season, and so, anyway. I promise that I will come back to the committee, and then we'll take it from there. Briefly, the next meeting, I have on here that I am going to discuss the stock assessment item that we discussed earlier, the PSE discussion, and then we have the orientation.

That's all I had right now for other business, and so I'm asking if anyone else has anything to bring up under Other Business. Then we will move on to the report. On the report, I'm going to talk about the terms of reference.

DR. SHAROV: A quick question. Could you remind us what additional support you need on the SSC side for the upcoming stock assessment? You mentioned earlier, yesterday, that there is still some needs for assignments for the upcoming assessments, and I could take it in the form of email or whatever.

REPORT AND RECOMMENDATIONS REVIEW

DR. REICHERT: Yes, and I also have that under reviewing the report, because all of that information is in the report, and so, under the next agenda item, we'll just go through that. Then you can see where you and others are assigned to, and then we can fill that in further. If we still need slots after that, don't worry. You will receive an email from me and others to find out if we can twist some arms. Okay. Anything else under Other Business?

Then I would like to go to the next agenda item, and that's Report and Recommendations Review. In particular, I would like to talk a little bit about the blueline tilefish workshop and see if we can come up with some draft terms of reference and the red snapper working group and do the same there. I think we can possibly use that strawman that Amy sent out earlier, with adjustments, for the blueline tilefish workshop also, and so let's do red snapper first, and I really like what Amy put down there, and I will ask Mike to put that up on the screen.

The members currently, and correct me if I'm wrong, are Rob, Scott, Amy, and Genny, and we have requested a Science Center representative or participation, and also I think we made it specifically clear that we can consult outside sources or participants as needed, people with specific expertise.

Then Amy has put in there that the task is to collate data, analysis, stock assessments, and other background information on red snapper in order to determine an acceptable biological catch. If necessary, work on additional analyses to provide an ABC or tracking of an ABC. Based on the presentation or the update that Erik Williams provided, I think we agreed that we could potentially fold that index-based analysis in there.

Then there is five terms of reference already in there. The first is to collate and evaluate existing information on red snapper. Determine if an ABC can be determined from existing information, and, if an ABC cannot be determined from existing information, provide a plan of action for moving forward to determine an ABC, and that plan of action should include evaluation of index-based methods, and that's what we discussed earlier, for tracking an ABC as well as the consideration of an index-based method that can be used to determine an ABC, and I think that's where some of the remarks that Fred made earlier may come into play.

Fully assess newly-developed methods, providing strengths and weaknesses of each method, and provide a final ABC recommendation and also include any viable alternatives in priority order, based on the science and data available. Thank you, Amy, for doing this. I think this is a fantastic start. I, at this point, have no additions to that, and I would like to open the floor for comments or additions or suggestions.

DR. SCHUELLER: I have had one comment come in verbally about Number 4, to fully assess newly-developed methods, and the prospect that this workgroup may not be able to do that in the amount of time that's allowed, and so I think maybe a little bit of wordsmithing there, just to soften it a bit.

DR. REICHERT: Assess, where possible --

DR. SCHUELLER: Assess where possible, yes, or assess, to the extent possible, the newly-developed methods, because everybody is aware that we're not going to be able to do full

simulation analyses in six months. That was the only comment that I had received directly from anybody.

DR. SERCHUK: Just a point of information, Chairman. I had spoken with Luiz informally about becoming a member of this working group.

DR. REICHERT: Okay.

DR. SERCHUK: I thought he indicated that he was going to be a part of it, and I thought that was really important, because he had been very involved with the last assessment, in terms of the SSC participation on it, and I think we need that continuity, quite frankly, and his background, and so has he spoken to you about it?

DR. REICHERT: He did with me, and I apologize that I didn't bring that up, because I was reading from Amy's email, and I have it in my notes that you and Luiz both volunteered to --

DR. SERCHUK: I didn't volunteer.

DR. REICHERT: I thought you did. That you had mentioned -- I did speak with Luiz, and Luiz said that he was willing to participate in this working group.

DR. SCHUELLER: Okay, because what I had understood when we were on the record was he turned his microphone on and said that I am not volunteering.

DR. REICHERT: I spoke with Luiz specifically about this, and he confirmed that he was willing to participate in this group, and that was based on what Fred said. He said, yes, I have been involved in this, and so he was willing to do that.

DR. SCHUELLER: He is not here, and so we can make him the chair.

DR. REICHERT: Thanks for that reminder. I appreciate that, and so sorry that I left that out. Anyone else? Do we think that these are detailed enough? Perhaps the council may have some additional thoughts on that, and so, as we said, there is some urgency here, and so we may do the refinement of the terms of reference via email, because I don't believe that we need a webinar for that, but we may send it back and forth, and so, if you see that, please keep in the back of your mind that urgency, and so reply if you can. Okay. Anything else relative to the red snapper working group?

Then also we will discuss a potential timeline, because, again, I think it's important, and I believe, if I remember correctly, that Ben or Michelle said that they would be willing and able to review this in the November webinar, correct?

DR. ERRIGO: Yes, this was going to go to the council's November webinar for them to look at and approve or for them to comment on.

DR. SCHUELLER: I just put an approximate timeline of how I saw this, potentially, unfolding, so that people that were volunteering kind of knew at least what I thought they were getting

themselves into, and I think, if they can review the -- If the council can review the terms of reference at that meeting, that still allows us time to get off the ground with a scoping call.

DR. REICHERT: Okay. Thank you for that, and we'll add that to the information to the council, and I think this is a very reasonable timeline, although I think it's a lot of work for the working group, and so I really appreciate you guys putting the time in or are willing to put the time in. Anything else?

Then, for the blueline tilefish, what's the pleasure of the group? Should we develop those terms of reference now? Can we develop that as part of that with the group that volunteered to be participating in that workshop? What is the pleasure of the group? I think, as I said earlier, with the terms of reference that Amy laid out, I think we can use a lot of that language for that blueline tilefish workshop also, and I think the goal is to come up with that ABC recommendation. To remind the committee, it's the area north of Cape Hatteras. What is the pleasure of the group? Are you okay with a smaller group to develop those terms of reference, and then we'll send it out to the committee for review, and we'll probably also do that by email.

DR. CROSSON: Did you say to develop an ABC north of Cape Hatteras or north of the North Carolina/Virginia border?

DR. REICHERT: Those are linked, right?

DR. CROSSON: They are linked, right.

DR. REICHERT: I don't want to mean specifics, but I just wanted to remind the committee that that's the issue that we were discussing, and so don't hang me up on the specifics of that.

DR. BOREMAN: I would like the Mid-Atlantic SSC to weigh in on the terms of reference as well, and so --

DR. REICHERT: Thank you for that reminder. I think we have that actually in the notes for earlier in the meeting, but maybe you can capture that, Scott. It is very important that we do that. John, I would actually go a step further and see if you could perhaps also discuss that with members of the Mid-Atlantic SSC and see if they can also come up with some terms of reference or what they would like to see out of that, so we can work on that in combination.

Then the other thing that I would like to do real quick, and I am asking Mike if he is willing to do that, is run through the report, so we can look at the assignments, so we are all on the same page in terms of who has volunteered for what task, in particular relative to the SEDAR schedule, but I will let you finish your thought here first.

DR. BELCHER: The only other thing I was going to ask is, because we had talked about at the last meeting, and we had people that were on it, but I think Eric was part of that, was the black sea bass. There was an analysis, bag analysis and size analysis, that there was asked for participation, and do you remember the specifics of it? We had talked about it, and I offered afterwards, off-mic, to participate, but I just didn't know if we were still going to do it.

DR. REICHERT: That was a topic that was not on this agenda, and I need to refer to Mike, in terms of what the timeline is for that and when the committee will see that again, but thanks for volunteering.

DR. ERRIGO: The timing for it wasn't good for this meeting. There was a lot going on to fit in here, and I'm really hoping to have time for it at the next meeting. As far as the timing for black sea bass, that assessment was postponed, and so that's why it wasn't deemed a high priority, because it requires outputs from the assessment in order to be useful, and so black sea bass was postponed. The assessment was postponed, and so the timing is actually really good if we went over it at the April meeting.

DR. REICHERT: Correct me if I'm wrong, but it was on the original agenda, but, given the volume of the agenda, we actually crossed some agenda items off. Okay. Thank you.

DR. BELCHER: The clarification was more for the folks who had agreed to do offline work on it, and that was -- I just was curious if we were going to be engaged on that, and that was all, because, like I said, I thought somewhere in the middle we were --

DR. ERRIGO: That's up to me, and I will engage you guys. I hadn't, because I saw that we weren't going to go anywhere there, and I got inundated with this, but, yes, I have all of your names.

DR. REICHERT: So, yes, stay tuned. Mike, if you would run us, in particular, through the items for SEDAR, so we can review who is tasked with what, and then we'll wrap this up.

DR. ERRIGO: I did do this.

DR. REICHERT: Excellent. Thank you for doing that. We have the red snapper ABC working group, and that's Rob, Amy, Scott, Luiz, and Genny. Then, for scamp, we have Luiz and Rob, and is that all we need, two people? I believe so.

DR. ERRIGO: Yes.

DR. REICHERT: Then cobia stock ID workshop is George and Jeff. The review workshop is Church, and then the joint cooperator review is John and Eric, and I think that's all we needed for that. Okay. For greater amberjack, we needed two people, I believe, and that's Anne and Fred. Do we need more? One more? Do you need anyone else?

DR. BELCHER: Didn't we have a -- There was a chair for one of the committees that you were looking for, right, that was acting more like a facilitator?

DR. REICHERT: That's cobia. I think we had a -- I can look at the minutes, but I think we had someone who had -- No? We had no one that has volunteered?

MS. BYRD: For the cobia stock ID workshop, we're looking for a chair that would serve more in a facilitator role and would help in compiling that report. That person would also be responsible for helping present those results with workgroup leaders at the next two kind of review stages, at the review workshop and at the joint cooperator review. I don't think anybody volunteered, and,

if you're interested, let me know, or if you can think of someone who may not be on the SSC, but who you think may be good at serving in that role, let me know.

DR. REICHERT: I may have a suggestion.

MS. BYRD: Perfect.

DR. REICHERT: Okay. Greater amberjack, I think we went through that. Red porgy, Fred Scharf, I believe.

DR. ERRIGO: This one was Fred Scharf.

DR. REICHERT: Yes, and myself and Scott. Blueline tilefish ABC, that is that workshop, and it's Scott, George, and Rob. Do we need another SSC member for that? Remind me, please. The Mid-Atlantic will add some members to that. Was that all the assignments that we needed for this meeting?

DR. ERRIGO: That's all that I had in my notes.

DR. REICHERT: Okay. All right. I think this was most important for us to go through the report, the workshops and this assignment. Again, please, sooner rather than later, take a look at the report that Mike will send out, and I will work with Mike and George in the next couple of days to flesh some of the details out there, and then help us write the report, especially relative to your assigned agenda items.

DR. BELCHER: This is probably to John, but, knowing that the council is having the webinar on November 6, how does that affect our report, especially because of the ABC control rule portion?

MR. CARMICHAEL: Normally what we ask you guys to do is to work with the Chair to get your comments on those particular topics to him in time that when he gives his report at the council that he is speaking on behalf of everyone.

DR. BELCHER: But this is specific to your webinar, which is November 6.

MR. CARMICHAEL: Right, and so comments that you guys have on -- They're going to be talking about the ABC control rule, and so I think you would want to look at your recommendations regarding the ABC control rule, if you have a limited amount of time, and get those to him. Then, if you have comments on those terms of reference for red snapper, get those to Marcel as soon as possible, so that he can work that up in his report, I would say within a week. If you have comments on that stuff, get those to him within a week or less.

DR. REICHERT: Thank you, John. I actually have a timeline, and so here it is. We need to provide, or I need to provide, the report at 9:00 a.m. on Tuesday, November 14. That means that we have two weeks to complete our report.

DR. BELCHER: I thought it was the 6th.

DR. REICHERT: This is for the council meeting in December, and so what I would like to see is the first draft ready by the end of this meeting, and we'll spend a little bit of time to get that to you. Comments to me no later than close of business on November 2, and so a full copy goes to the committee. Then I will provide -- I will include those comments, and then I will provide the final draft to the committee by close of business on November 6. That means, perhaps by the webinar, we can provide the council with some feedback, if we do this, and that means that --

MR. CARMICHAEL: Yes, you're going to be expected to provide the SSC's comments on the control rule.

DR. REICHERT: On that webinar?

MR. CARMICHAEL: On the webinar.

DR. REICHERT: Well, then I guess --

MR. CARMICHAEL: If you can be there. I hope you can be there.

DR. REICHERT: I will take a look at my calendar, but that also means that that timeline is critical. Comments of the committee to me no later than close of business by November 2. Then if there is any competing comments or contrasting comments, then I will get in touch, and then I will provide the final draft to the committee on that November 6.

That still means that you guys, in terms of the council meeting in December, have a little bit of time to provide some critical edits to me by close of business on November 9. That is kind of my timeline. Is that clear as mud to everyone? Okay. Good. I will send this out in an email, so you guys know that.

Briefly, next meetings, I have a request that, in addition to the ASMFC meetings and the SSC meetings, perhaps, John, you can, or Mike, can add the dates of the SEDAR Steering Committee meetings or the general timeframe, because we often comment on discussions and decisions made in the SEDAR Steering Committee meeting, and so that would be helpful.

MR. CARMICHAEL: The general timeframes are May and September.

DR. REICHERT: Okay. If you guys could add that to the overview, that would be helpful for me, because I keep forgetting that. Finally, before I ask for any closing remarks from anyone else, I want to thank Mike for playing both the role of keeping our comments on track and helping keep me sane here at the table, and so thanks for your efforts, Mike.

I also specifically want to thank Erik Williams and Shep Grimes for their presence here at this meeting. I think their presence here is extremely valuable, and I think it's very important that we can continue to have representation from General Counsel and the Science Center here to answer questions.

I think that helped us out a lot in the last couple of meetings, and so I just wanted to mention that, and I hope that the committee can second that, and so I think that's really, really very helpful. With that, any other remarks or comments on the brink of adjournment? Then I adjourn the

meeting. Have safe travels, everyone, and we'll see you at one of the next meetings or at the next SSC meeting. Thank you.

(Whereupon, the meeting adjourned on October 26, 2017.)

- - -

Certified By: _____ Date: _____

Transcribed By:
Amanda Thomas
November 6, 2017

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SCIENTIFIC AND STATISTICAL COMMITTEE

Dr. Marcel Reichert, Chairman
SC DNR/Marine Resources Division
PO Box 12559 (217 Ft. Johnson Road, Charleston SC 29412); Charleston, SC 29422-2559
843/ 953-5778 (ph)
ReichertM@dnr.sc.gov
3/08*, 6/11, 6/14*, 6/17*

Dr. George Sedberry, Vice-Chair
NOAA
Gray's Reef National Marine Sanctuary
10 Ocean Science Circle
Savannah, GA 31411
912/ 598-2345
george.sedberry@noaa.gov
6/10*, 6/13*, 6/16*

Dr. Robert Ahrens
University of Florida
135 Newins-Ziegler Hall
Gainsville, FL 32611
352/273-3630 (ph)
rahrens@ufl.edu
6/16*

Dr. Luiz Barbieri
FL FWCC/FMRI
100 Eighth Avenue SE
St. Petersburg, FL 33701-5095
727- 896-8626 ext. 4920 (ph)
luiz.barbieri@fwc.state.fl.us
3/08*, 6/10*, 6/13*, 6/16*

Dr. Carolyn Belcher
GA Department of Natural Resources
Coastal Resources Division
One Conservation Way, Suite 300
Brunswick, GA 31520
912/264-7218 (ph); 912/262-3143
Carolyn_Belcher@dnr.state.ga.us
12/01*, 3/08*,6/09*,6/12*, 6/15*

Dr. John Boreman, Jr.
23 Covington Lane
Durham, NC 27712
919/768-7198 (ph)
jgboremanjr@gmail.com
6/09*, 6/12*, 6/15*

Dr. Jeffrey Buckel
Department of Zoology
Center for Marine Science and Technology
North Carolina State University
303 College Circle
Morehead City, NC 28557
252/222-6341(ph); 252/222-6311(f)
jeffrey_buckel@ncsu.edu
9/05*,3/08*,6/10*, 6/13*,6/16*

Dr. Scott Crosson
NMFS SEFSC
75 Virginia Beach Drive
Miami, FL 33149
305/361-4468
Scott.Crosson@noaa.gov
3/08*, 6/11*, 6/14*, 6/17*

Dr. Churchill Grimes
211 Moriah Creek Road
Crawfordville, FL
831/713-6543
churchill.grimes@gmail.com
6/10*, 6/13*, 6/16*

Dr. Eric Johnson
Department of Biology
University of North Florida
1 UNF Drive
Jacksonville, FL 32224
904/ 620-5764
eric.johnson@unf.edu
6/10*, 6/11*, 6/14*, 6/17*

Anne Lange
1493 Diamond Blvd
Mt Pleasant, SC 29466
843/ 971-0628 (ph)
AMLange@aol.com
3/08*, 6/11*,6/14*, 6/17*

(Continued)

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SCIENTIFIC AND STATISTICAL COMMITTEE (continued)

Dr. Sherry L. Larkin
Food & Resource Economics Dept.
P.O. Box 110240
University of Florida
Gainesville, FL 32611-0240
352/392-1845 Ext. 431(ph);
352/392-3646 (f)
SLarkin@ufl.edu
6/04*, 6/15*

Laura Lee *via webinar
NC Division of Marine Fisheries
3441 Arendell St.
Morehead City, NC 28557
252/808-8094 (ph)
laura.lee@ncdenr.gov
6/15*

Dr. Genny Nesslage
Chesapeake Biological Laboratory
P.O. Box 38
146 Williams Street
Solomons, MD 20688-0038
410/326-7223 (ph)
nesslage@umces.edu
6/16*

Dr. Amy Schueller
NOAA Fisheries SEFSC
NOAA Beaufort Laboratory
101 Pivers Island Road
Beaufort, NC 28516
252/838-0815 (ph)
Amy.Schueller@noaa.gov
6/14*, 6/17*

Dr. Frederick Scharf
University of North Carolina Wilmington
Department of Biology and Marine Biology
601 South College Rd
Wilmington, NC 28403
6/17*
scharff@uncw.edu

Dr. Fred Serchuk
Casa Bonita 1, Unit 704
26000 Hickory Blvd.
Bonita Springs, FL 34134
774/392-4975 (ph)
fred.serchuk@gmail.com
6/15*

Dr. Alexei Sharov
Maryland Dept. of Natural Resources
508 Taylor Avenue
Annapolis, MD 21401
410/260-8288 (ph)
ASHAROV@dnr.state.md.us
6/15*

Dr. Tracy Yandle
Dept. of Environmental Studies
Mathematics and Science Center
Emory University
400 Dowman Dr.
Atlanta, GA 30322
404/727-6314 (ph)
404/727-4448 (f)
tyandle@emory.edu
6/11*, 6/14*, 6/17*

*Denotes year of appointment. SSC members serve 3-year terms.

Go to Top

2017 COUNCIL MEMBERSHIP

COUNCIL CHAIR
Charlie Phillips
Phillips Seafood/Sapelo Sea Farms
1418 Sapelo Avenue, N.E.
Townsend, GA 31331
912/832-4423 (ph); 912/832-6228 (f)
Ga_capt@yahoo.com

VICE-CHAIR
Mark Brown
3642 Pandora Drive
Mt. Pleasant, SC 29466
843/881-9735 (ph); 843/881-4446 (f)
capt.markbrown101@gmail.com

Robert E. Beal
Executive Director
Atlantic States Marine Fisheries Commission
1050 N. Highland St., Suite 200 A-N
Arlington, VA 20001
703/842-0740 (ph); 703/842-0741 (f)
rbeal@asmfc.org

Anna Beckwith
1907 Paulette Road
Morehead City, NC 28557
252/671-3474 (ph)
AnnaBarriosBeckwith@gmail.com

Mel Bell
S.C. Dept. of Natural Resources
Marine Resources Division
P.O. Box 12559
(217 Ft. Johnson Road)
Charleston, SC 29422-2559
843/953-9007 (ph)
843/953-9159 (fax)
bellm@dnr.sc.gov

Zack Bowen
P.O. Box 30825
Savannah, GA 31410
912/398-3733 (ph)
zackbowensafmc@gmail.com

W. Chester Brewer
250 Australian Ave. South
Suite 1400
West Palm Beach, FL 33408
561/655-4777 (ph)
wcbsafmc@gmail.com

Chris Conklin
P.O. Box 972
Murrells Inlet, SC 29576
843/543-3833
conklinsafmc@gmail.com

Dr. Roy Crabtree
Regional Administrator
NOAA Fisheries, Southeast Region
263 13th Avenue South
St. Petersburg, FL 33701
727/824-5301 (ph); 727/824-5320 (f)
roy.crabtree@noaa.gov

Dr. Michelle Duval
NC Division of Marine Fisheries
3441 Arendell Street
(PO Box 769)
Morehead City, NC 28557
252/808-8011 (ph);
252/726-0254 (f)
michelle.duval@ncdenr.gov

Tim Griner
4446 Woodlark Lane
Charlotte, NC 28211
980/722-0918 (ph)
timgrinersafmc@gmail.com

Ben Hartig
9277 Sharon Street
Hobe Sound, FL 33455
772/546-1541 (ph)
mackattackben@att.net

(Continued)

2017 COUNCIL MEMBERSHIP (continued)

Doug Haymans
Coastal Resources Division
GA Dept. of Natural Resources
One Conservation Way, Suite 300
Brunswick, GA 31520-8687
912/264-7218 (ph); 912/262-2318 (f)
haymanssafmc@gmail.com

Dr. Wilson Laney
U.S. Fish and Wildlife Service
South Atlantic Fisheries Coordinator
P.O. Box 33683
Raleigh, NC 27695-7617
(110 Brooks Ave
237 David Clark Laboratories,
NCSU Campus
Raleigh, NC 27695-7617)
919/515-5019 (ph)
919/515-4415 (f)
Wilson_Laney@fws.gov

Jessica McCawley
Florida Fish and Wildlife
Conservation Commission
2590 Executive Center Circle E.,
Suite 201
Tallahassee, FL 32301
850/487-0554 (ph); 850/487-4847(f)
jessica.mccawley@myfwc.com

U.S. Coast Guard
Seventh Coast Guard District
Enforcement Branch (DRE)
305/415-6788(ph); 305/710-4569(c)
Jeremy.J.Montes@uscg.mil

Deirdre Warner-Kramer
Office of Marine Conservation
OES/OMC
2201 C Street, N.W.
Department of State, Room 5806
Washington, DC 20520
202/647-3228 (ph); 202/736-7350 (f)
Warner-KramerDM@state.gov

Go to Top

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

COUNCIL STAFF

Executive Director
Gregg T. Waugh
gregg.waugh@safmc.net

Deputy Director – Science & Statistics
John Carmichael
john.carmichael@safmc.net

Deputy Director - Management
Dr. Brian Cheuvront
brian.cheuvront@safmc.net

Fishery Scientist
Myra Brouwer
myra.brouwer@safmc.net

Admin. Secretary /Travel Coordinator
Cindy Chaya
cindy.chaya@safmc.net

Purchasing & Grants
Kimberly Cole
kimberly.cole@safmc.net

Fishery Scientist
Dr. Chip Collier
chip.collier@safmc.net

Administrative Officer
Mike Collins
mike.collins@safmc.net

Outreach Specialist
Kelsey Dick
Kelsey.dick@safmc.net

Fishery Biologist
Dr. Mike Errigo
mike.errigo@safmc.net

Fishery Economist
John Hadley
John.hadley@safmc.net

Outreach Specialist
Kathleen Howington
Kathleen.howington@safmc.net

Public Information Officer
Kim Iverson
kim.iverson@safmc.net

Senior Fishery Biologist
Roger Pugliese
roger.pugliese@safmc.net

Outreach Specialist
Cameron Rhodes
Cameron.rhodes@safmc.net

Financial Secretary
Suzanna Thomas
suzanna.thomas@safmc.net

Fishery Citizen Science Program Manager
Amber Von Harten
amber.vonharten@safmc.net

Fisheries Social Scientist
Christina Wiegand
Christina.wiegand@safmc.net

SEDAR Coordinators
Dr. Julie Neer - julie.neer@safmc.net
Julia Byrd – julia.byrd@safmc.net

Go to Top

Dr. Erik Williams
Dr. Jessica Stephen
Tom Okey-(DR)
Shep Grimes
Rusty Hudson
Lora Clark
Dr. Joey Ballengar
Mike schmidtke
[illegible]
Jason Dicldion
Dr. Kyle Shertzer (Dr.)
Dr. Howard Townsend

SSC DAY 1 OF 3 10/24/17

Last Name	First Name	Email Address
Ballenger	Joseph	ballengerj@dnr.sc.gov
Barile	Peter	abaco711@hotmail.com
Bianchi	Alan	Alan.Bianchi@ncdenr.gov
Blackhart	Kristan	kristan.blackhart@noaa.gov
Boreman	John	jgboremanjr@gmail.com
Bowen	Zack	fishzack@comcast.net
Burgess	Erika	erika.burgess@myfwc.com
Cheshire	Rob	rob.cheshire@noaa.gov
Clarke	Lora	lclarke@pewtrusts.org
Cunningham	Leda	lcunningham@pewtrusts.org
DeVictor	Rick	rick.devictor@noaa.gov
Helies	Frank	frank.helies@noaa.gov
Hudson	Rusty	DSF2009@aol.com
Iverson	Kim	kim.iverson@safmc.net
Khamar	Saloni	skhamar@emory.edu
Larkin	Michael	Michael.Larkin@noaa.gov
Lee	Laura	laura.lee@ncdenr.gov
Leung	Winston	winston.leung@emory.edu
Mehta	Nikhil	nikhil.mehta@noaa.gov
Neer	Julie	julie.neer@safmc.net
Nesslage	Genny	nesslage@umces.edu
Rodgers	Juliana	jbrodge@emory.edu
Schueller	Amy	amy.schueller@noaa.gov
Sedberry	George	george.sedberry@noaa.gov
Shertzer	Kyle	kyle.shertzer@noaa.gov
Siegfried	Katie	kate.siegfried@noaa.gov
Smart	Tracey	smartt@dnr.sc.gov
Stephen	Jessica	jessica.stephen@noaa.gov
Takade-Heumacher	Helen	htakade@edf.org
Theilig	Kayla	ktheili@emory.edu
Thomas	Adesola	adesola.thomas@emory.edu
Wyanski	David	wyanskid@dnr.sc.gov
Zhao	Helena	helena.zhao@emory.edu
conklin	chris	conklinsafmc@gmail.com
thomas	suz	suzanna.thomas@safmc.net
vara	mary	mary.vara@noaa.gov

SSC DAY 2 OF 3 10/25/17

Last Name	First Name	Email Address
Barile	Peter	abaco711@hotmail.com
Bianchi	Alan	Alan.Bianchi@ncdenr.gov
Boreman	John	jgboremanjr@gmail.com
Boyle	Alexandra	allie.boyle@emory.edu
Burgess	Erika	erika.burgess@myfwc.com
CONKLIN	CHRIS	CONKLINSAFMC@GMAIL.COM
Chambers	Shannon	schamb6@emory.edu
Cheshire	Rob	rob.cheshire@noaa.gov
Clarke	Lora	lclarke@pewtrusts.org
DeVictor	Rick	rick.devictor@noaa.gov
Fife	Aidan	aidan.john.fife@emory.edu
Greene	Karen	karen.e.greene@noaa.gov
Hartig	Ben	mackattackben@att.net
Helies	Frank	frank.helies@noaa.gov
Hudson	Rusty	DSF2009@aol.com
Knight	Jeremy	jeremy.joshua.knight@emory.edu
Larkin	Michael	Michael.Larkin@noaa.gov
Lawal	Dede	dede.lawal@emory.edu
Lee	Laura	laura.lee@ncdenr.gov
Leung	Winston	winston.leung@emory.edu
Long	David	dolong@emory.edu
Markwith	Anne	anne.markwith@ncdenr.gov
Merle	John	johnnymerle@gmail.com
Miranda	Katarina	katarina.miranda@emory.edu
Mosley	Camille	mosleycamille23@gmail.com
Neer	Julie	julie.neer@safmc.net
Potts	Douglas	douglas.potts@noaa.gov
Pulver	Jeff	Jeff.Pulver@noaa.gov
Salkow-Shapiro	Kenneth	Ksalkow@emory.edu
Schueller	Amy	amy.schueller@noaa.gov
Siegfried	Katie	kate.siegfried@noaa.gov
Smith-Wellman	Carter	csmithw@emory.edu
Stephen	Jessica	jessica.stephen@noaa.gov
Sullins	Andrew	andrew.sullins@emory.edu
Takade-Heumacher	Helen	htakade@edf.org
Tollen	Cooper	CTOLLEN@EMORY.EDU
Wawer	Julia	jswawer@emory.edu
Wyanski	David	wyanskid@dnr.sc.gov
Zhao	Helena	helena.zhao@emory.edu
Zienowicz	Justine	justine.zienowicz@emory.edu
brouwer	myra	myra.brouwer@safmc.net

SSC Day 3 of 3 10/26/17

Last Name	First Name	Email Address
Archibald	Tommy	tarchib@emory.edu
Argrett	Jordan	jordan.cleo.argrett@gmail.com
Barile	Peter	abaco711@hotmail.com
Bianchi	Alan	Alan.Bianchi@ncdenr.gov
Boreman	John	jgboremanjr@gmail.com
Bradshaw	Halle	halle.bradshaw@emory.edu
Bubley	Wally	bubleyw@dnr.sc.gov
Burgess	Erika	erika.burgess@myfwc.com
CONKLIN	CHRIS	CONKLINSAFMC@GMAIL.COM
Cheshire	Rob	rob.cheshire@noaa.gov
Clarke	Lora	lclarke@pewtrusts.org
DeVictor	Rick	rick.devictor@noaa.gov
Dubon-Robinson	Nia	ndubonr@emory.edu
Dymit	Ellen	ellen.dymit@emory.edu
Fitzpatrick	Eric	eric.fitzpatrick@noaa.gov
Glickman	Julia	julia.glickman@emory.edu
Greenwald	Eliana	elgree7@emory.edu
Hadley	John	john.hadley@safmc.net
Hartig	Ben	mackattackben@att.net
Helies	Frank	frank.helies@noaa.gov
Hudson	Rusty	DSF2009@aol.com
Ishimwe	Vanessa	vanessa.ishimwe@emory.edu
Izenson	William	wizenso@emory.edu
Kapel	Lindsey	lindsey.kapel@emory.edu
Knight	Jeremy	jeremy.joshua.knight@emory.edu
Lee	Laura	laura.lee@ncdenr.gov
Logan	Stanley	logan301_99@yahoo.com
Markwith	Anne	anne.markwith@ncdenr.gov
Mehta	Nikhil	nikhil.mehta@noaa.gov
Merle	John	johnnymerle@gmail.com
Neer	Julie	julie.neer@safmc.net
Nifong	David	david.nifong@emory.edu
Pulver	Jeff	Jeff.Pulver@noaa.gov
Schueller	Amy	amy.schueller@noaa.gov
Sedberry	George	george.sedberry@noaa.gov
Shertzer	Kyle	kyle.shertzer@noaa.gov
Siegfried	Katie	kate.siegfried@noaa.gov
Stephen	Jessica	jessica.stephen@noaa.gov
Takade-Heumacher	Helen	htakade@edf.org
Thomas	Adesola	adesola.thomas@emory.edu
Valiji	Alifya	alifya.valiji@emory.edu
Wyanski	David	wyanskid@dnr.sc.gov
blough	heather	heather.blough@noaa.gov
brouwer	myra	myra.brouwer@safmc.net
pugliese	roger	roger.pugliese@safmc.net
VARA	MARY	MARY.VARA@NOAA.GOV

SSC Sign In Sheet: 10/24/17

Name	How do you Participate in the South Atlantic Fishery? (Private, Charter/Headboat, Commercial, Dealer/wholesaler, NGO, other…)	Do we have your Contact info on file? (if no, please contine filling out.)	Email	Mailing Address
Rusty Hudson	Fisheries Consultant	Yes	✓	✓
Lora Clarke	NGO	✓	✓	✓

SSC Sign In Sheet: 10/25/17

Name	How do you Participate in the South Atlantic Fishery? (Private, Charter/Headboat, Commercial, Dealer/wholesaler, NGO, other…)	Do we have your Contact info on file? (if no, please contine filling out.)	Email	Mailing Address
Rusty Hudson	Fisheries Consultant	Yes	✓	✓
Lora Clarke	NGO	Yes	✓	✓
Wally Bubley	Govt	Yes	✓	✓
Kevin Kolmos	Govt	yes	✓	✓

SSC Sign In Sheet: 10/26/17

Name	How do you Participate in the South Atlantic Fishery? (Private, Charter/Headboat, Commercial, Dealer/wholesaler, NGO, other...)	Do we have your Contact info on file? (if no, please contine filling out.)	Email	Mailing Address
Lora Clarke	NGO	Y	✓	✓
Joey Ballenger	State Agency	Y	✓	✓
Rusty Hudson	Fisheries Consultant	Y	✓	✓