SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SCIENTIFIC AND STATISTICAL COMMITTEE

Town and Country Inn
Charleston, SC

May 1-3, 2018

Summary Minutes

Scientific and Statistical Committee Members

Dr. Marcel Reichert, Chair
Dr. Robert Ahrens
Dr. Carolyn Belcher
Dr. Jeffrey Buckel
Dr. Eric Johnson
Dr. Sherry Larkin
Dr. Genny Nesslage
Dr. Fred Scharf
Dr. Alexei Sharov
Dr. Scott Crosson
Dr. George Sedberry, Vice-chair
Dr. Luiz Barbieri
Dr. John Boreman
Dr. Churchill Grimes
Anne Lange
Laura Lee
Dr. Amy Schueller
Dr. Fred Serchuk
Dr. Tracy Yandle

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Chris Conklin
Mark Brown
Ben Hartig

Council Staff

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Kimberly Cole
Dr. Mike Errigo
Cameron Rhodes
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Julia Byrd
Dr. Brian Cheuvront
Dr. Chip Collier
John Hadley
Amber Von-Harten
Dr. Julie Neer

Observers and Participants

Shep Grimes
Dr. Katie Siegfried
Mike Schmidtke
Dr. Erik Williams
Dr. Kevin Craig
Dr. Joey Ballenger

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, May 1, 2018, and was called to order at 1:30 o'clock p.m. by Chairman Marcel Reichert.

DR. REICHERT: Welcome to the SSC meeting. I just want to remind the committee that the meeting is recorded and broadcasted via webinar. Before we go to our introductions, I want to welcome Erik Williams as our Science Center liaison and Mark Brown as our Vice Chair. I also want to welcome Ben Hartig. This is going to be his last meeting as the council-SSC liaison. Ben rotates off the council in June, and, Ben, I want to thank you for all of your contributions and your input to the SSC. I, and I think I speak for the rest of the committee, have always valued your input, and so thank you for that. How many years have you been our liaison, at least five or six years, something like that?

MR. HARTIG: I have attended every SSC meeting for the last nine years.

DR. REICHERT: Thank you so much for your input, Ben. Shep Grimes was hoping to be here, but he's at another meeting, and he's hoping to join us for some of our meeting today via webinar and then I will talk a little bit more about the agenda later, but he's going to join us via webinar on Thursday morning, and so, with that, I would like to go ahead and do our introductions, and I would like to start with you, Anne.

INTRODUCTION

MS. LANGE: Anne Lange.

DR. SERCHUK: Fred Serchuk, SSC.

DR. SHAROV: Alexei Sharov, SSC member, Maryland Department of Natural Resources.

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

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

DR. CROSSON: Scott Crosson, Southeast Fisheries Science Center.

MS. LEE: Laura Lee, North Carolina Division of Marine Fisheries.

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

DR. SEDBERRY: George Sedberry, SSC, Vice Chair.

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

DR. ERRIGO: Mike Errigo, council staff.

DR. YANDLE: Tracy Yandle, Emory University.

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

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

DR. GRIMES: Churchill Grimes, SSC.

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

DR. AHRENS: Robert Ahrens, University of Florida.

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

DR. BOREMAN: John Boreman, North Carolina State University.

DR. REICHERT: Thank you. Let's go ahead and review and approve the agenda. Because Shep has indicated that he really would like to provide some feedback and had some questions for us concerning the ABC control rule, I propose that we move the ABC control rule to Thursday and then move the SEDAR agenda item to tomorrow, between the stock assessments, and so I'm asking if anyone has objections to this change. Seeing none, then we will do that, and I will let Shep know that we have indeed changed the agenda.

The next agenda item is approving the minutes. Does anyone have any comments or edits to the minutes? Seeing none, the minutes are approved. The next agenda item is Public Comment, and I want to remind everyone that we have opportunities at the beginning and the end of the meeting and also at every agenda item, and we have received, I believe, two written comments that were forwarded to the committee, and I am looking around to see if there is anyone who wants to provide verbal comments.

Seeing none, let's move to our next agenda item, and that is the Blueline Tilefish. The attachments are Attachment 2 and 3 and 4 and 5. I have also asked John Boreman, if necessary, to give a brief overview of the Mid-Atlantic SSC recommendations, if needed, and their ABC control rule. The SSC assignments for this agenda item are Scott Crosson, John Boreman, Church Grimes, Alexei Sharov, and Sherry Larkin.

The action items are -- Actually, there are a number, but they are to review the workshop recommendation for determining ABC for the portion of the blueline tilefish stock north of Cape Hatteras. Maybe you will remember that we reviewed the assessment for the stock portion south of Hatteras, and so we provided an ABC recommendation for that portion, and there was an issue of how to divvy up the north of Hatteras portion between the Mid-Atlantic and South Atlantic Council, and they reviewed the workshop's recommendation for determining the jurisdictional allocation for the blueline tilefish stock north of Hatteras, and there is a number of sub-items that we will discuss later, and provide a recommendation for the stock status portion of the north of Cape Hatteras portion of the stock. With that, I am going to ask Scott to provide an overview of the workgroup recommendations.

BLUELINE TILEFISH ABC WORKGROUP

DR. CROSSON: Thank you, Marcel. This working group was formed, and we asked for it at our last SSC meeting, and then I worked with John Boreman, who, of course, is also the Chair of the Mid-Atlantic SSC, to appoint people from there, and so, just for a refresher, for folks that may not remember, SEDAR 50 was the most recent assessment for blueline tilefish. I was the chair of the review panel last summer in Atlantic Beach, and so we used and we reviewed -- There were two different models that were used for the regions in our jurisdiction.

We had enough data from fisheries-independent and dependent indices to do a full ASPIC or production model that we used for the -- I am getting them confused, and I can't remember which one we chose, because the review panel chose one and we chose the other one, but there was enough to do a full production model for the south of Cape Hatteras region.

Now, our council does not regulate blueline tilefish differently north and south of Cape Hatteras, but we developed an ABC for that south of Hatteras region, and then the model that was done in SEDAR 50 for the north of Hatteras region was done using the DLMToolkit, and so you can see the reasons up there for that. Unfortunately, that model run had to include basically the whole eastern seaboard above Cape Hatteras, which creeps into the Mid-Atlantic Council's jurisdiction, where we know there is also an active fishery ongoing.

This workgroup had to figure out how to divide up that quota and how to come to some sort of agreement with the Mid-Atlantic SSC, and so, the next slide, you can see who were the members of this working group, and it was myself and George and Robert from our SSC, and you can see the other members from the Mid-Atlantic and NOAA and council staff, and then Mike Schmidtke is an ASMFC biologist, but he was working as a contractor under the Mid-Atlantic Council's budget, and so he was also a member of this, and a rather important one. Then, from NOAA, Nikolai was the analyst for SEDAR 50, and then Paul Nitschke is a stock assessment scientist up in the Northeast Fisheries Science Center.

DR. REICHERT: Just to let you guys know, Mike Schmidtke is on the webinar right now, and so we'll welcome Mike to the meeting, and he's available to answer any questions if they may come up.

DR. CROSSON: Fantastic. I was not aware of that. Okay. Going to the next slide, these are the terms of reference. I think the working group came up with these, because we were given somewhat vague instructions by this SSC, but both SSCs, of course, had to sign-off on this, but we were -- We basically have developed that both of us are going to come up with separate ABC recommendations, because of the structure legally that we're operating under. However, we need to coordinate those ABC recommendations for the areas north and south of the council border line on the Virginia/North Carolina border, and so the working group had to basically figure out how we're going to do that, which datasets are most appropriate for that, figure out what methodology we're going to use, and then propose ABC recommendations for the two SSCs, and so one is going to be what is the number and then the second is going to be how are you going to split that up.

The progress is we met, I think, three or four times via webinar. We didn't really feel like we actually had to do a meeting in person, and that worked out relatively well for us, considering, when you have that many people, trying to coordinate schedules can be difficult, and so we had several webinars, and I chaired those, and I worked with council staff from both councils to set up the agenda.

What we had to do is we had to basically look at the landings history from both regions and looking at the fisheries-dependent data that existed in both regions, and, again, we're looking at that north of Hatteras dataset, and so, much like SEDAR 50, we came to the same conclusion that the landings history was erratic, and it was very heavily driven by management, because, at one point, some of this fishery was unregulated on the Mid-Atlantic Council side, because, for whatever reason, they weren't ready for those fish to be there.

The review panel conclusion is the same one that the working group came to. Basically, it's tea leaves. You could read anything you want out of looking at landings history and derive some idea about the stock status. There certainly was a very large spike that was noticeable in the past ten years, and so, basically, we decided to use instead -- Mike Frisk is a, I think, SUNY Stonybrook professor, and he's on the Mid-Atlantic SSC, and his group has done some sampling in this region for golden and blueline and some other of these species.

We had a distribution, based off of the sampling, up and down that area, and some of it is inside our council's jurisdiction, and so we basically looked at where those samples were occurring, and we used that to allocate an estimate of where the fish are located. I mean, it's not a -- We basically used the DLMToolkit and modified it slightly to -- I guess we can move to the next slide and I will explain some of it more, but we reran the DLMToolkit, and we were looking at -- The north of Hatteras region, this is very similar to what we used for SEDAR 50.

We basically reran the numbers. We agreed that we would rerun the numbers, but use a much shorter time period. We started in 2002, because, during SEDAR 50, there were certainly a lot of questions about identification of blueline versus golden tilefish in the landings series from the 1980s, especially the early 1980s, and so we used a shorter time series to reduce the coefficient of variation, and then we agreed that -- Mike Schmidtke basically did that under contract, but he worked with Nikolai and Paul to make sure that everything was onboard statistically, and then we split the ABC according to the distribution from the fisheries-independent sampling that Mike Frisk's group had done.

Then we weighted it slightly, because of some of the inconsistencies in sampling. Where some of the sampling was done was not quite the whole region's jurisdiction, and some things were a little bit oversampled or undersampled, and so, when we did that, we came up with a number basically allocating 56 percent of the DLMToolkit ABC recommendations that came out of the DLMToolkit -- We basically allocated 56 percent of it north of Cape Hatteras and the rest of it below, and that's going to give us an ABC recommendation for that council jurisdiction down to north of Hatteras, when then, of course, we would add to whatever we have for the south of Hatteras region and then perhaps make a recommendation to the council about being careful with local depletion, because a large portion of the fishery activity is in that region north of Cape Hatteras, on either side. It's right on either side of the North Carolina/Virginia border, and it's very close, but that's something the council management will have to make a decision about.

The workgroup signed off on all of this, and Mike Schmidtke ran the numbers, and there is a copy of the report in our briefing book, and then Marcel and I ventured up to the frozen tundra of Baltimore in early March, during a very cold meeting, and we went in there and presented this to the Mid-Atlantic SSC, who looked at it and agreed -- I will let John Boreman speak more to this, but they looked at it, and they generally agreed that this is an improvement over the estimates that

they had for their current ABC for blueline tilefish. They agreed that this was the best scientific information.

They did not accept the idea that this was an estimate for driving ABC. They looked at this as an OFL proxy, and they ran it through their control rule. Now, they ran it through their control rule by first running the output of the model north of -- The whole DLM model north of Cape Hatteras. They ran it through their control rule and came up with a smaller number for an ABC recommendation and then followed the formula that I laid out here for you on how to split on either side of the border.

That is where we're at, and I don't know if John would like to contribute something to that, but you have a copy of the Mid-Atlantic SSC's report in your briefing book, and hopefully you all have read that in-depth, and, John, do you want to talk a little bit more about this?

DR. BOREMAN: Sure. That was very abbreviated. I thought we were going to have a presentation on the DLMTool, but that's okay. It's in the report. Mike Schmidtke came up to our SSC meeting and presented the DLMTool analysis that he performed with guidance from the working group. Several changes were made, alterations, based on the series of webinars that we had and questions that were raised. He did a great job getting it all together, and he presented nice, clear results of the analysis.

Immediately, I think our SSC was taken aback by the amount of scientific uncertainty throughout, I mean in all aspects, but it's because of the limitations of the data, the shortened time series, the lack of adequate number of samples north of Cape Hatteras into the Mid-Atlantic area and so on, but all that considered, we still figured it was a step up, and it's much better than the DLMTool analysis that we used a couple of years earlier to derive our first ABC recommendation for the council.

It was newer information, and this information came out of the SEDAR peer-reviewed assessment, and so it had a stronger basis for the biology and the assumptions in the models, and so it was a step up. As Scott said, the DLMTool analysis gave an estimate of MSY, and we decided to adopt the MSY estimate as a proxy for OFL and not ABC, because we think MSY reflects more the OFL than ABC, and, by doing that, it allowed us to use our P* approach and the council risk policy to derive an ABC.

In terms of the level of -- We usually start by determining what the level of uncertainty is in the assessment and then bin it accordingly, and, in this case, since we did have an OFL estimate available, an OFL proxy, we determined that that was the appropriate bin, but also the bin in which the SSC determines the coefficient of variation for the OFL, which is a necessary step to estimate the P* value. The OFL is the MSY estimate of 107.2 metric tons, and, as I said, that's equivalent to the MSY proxy derived from the DLMTool analysis.

In terms of determining the coefficient of variation for the OFL, we had just completed an exercise that our working group did over the past couple of years, and we've been working on developing a more consistent approach to assigning coefficients of variation to OFLs than what we had been using, which was basically just expert opinion at that point, but what we've done is we've formed a working group to look at how we can come up with a consistent application of CVs for OFLs

across species, given the uncertainties, the types of uncertainties, that we see in the assessments and in the accompanying data.

That group came up with a draft protocol that uses the two bins that we have been using, a 60 percent CV and a 100 percent CV, and 100 percent is our default CV, but they also added a third bin, which is 150 percent CV, and that -- Basically, by using those three bins, it encompasses most of the coefficients of variation that you see coming out of the assessments, the range of coefficients of variation.

DR. ERRIGO: Just so you know, I have the document that you guys used that shows the three bins.

DR. BOREMAN: Okay, yes, and so that's basically what we did. John Weidman from Rutgers did a management strategy evaluation of the first two, to see if they were adequate, and, basically, the conclusion is that, yes, the 60 and 100 percent are separated enough that you can draw a clear distinction, in terms of impact, on management. The 150 was a value that we just added, and, again, thought it represented an outside range of what you might expect in an assessment.

We had identified nine different factors, and what we're doing now is forcing ourselves to basically walk through a checklist, looking at all aspects of uncertainty, and then saying does this create a high confidence, a medium confidence, or a low confidence, and so we did that, and, in this case, we decided the bin for the -- Since there was so much uncertainty throughout, we decided to put it in the 150 percent CV bin. Basically, there were no reliable abundance indices, and the catch estimates are unreliable. The natural mortality rate is unknown, and the plausible models that were used in the DLMTool analysis gave highly-divergent results. There was no retrospective analysis performed, no estimate of recruitment, and no estimate of prediction error, and so that kind of slams it into the 150 percent category, and we will be using that method in the future on all of our P* approaches.

The ABC recommendation, part of our P* is the P* is also based on the ratio of the current biomass, stock biomass, to BMSY. Since we had no estimate of either, we used a default ratio of one. The current biomass could be above BMSY or below BMSY, and so we just used one.

The resultant ABC estimate we came up with was 81.42 metric tons, and that is for the stock north of Cape Hatteras, and so that's including the part that's in the jurisdiction of the South Atlantic Council. After some discussion, we looked at, again, the catch history and so on and agreed with the SEDAR panel and the working group that catch data is just insufficient to allow a good, honest way of separating out what we call the sliver, the part of the ABC that is between Cape Hatteras and the Virginia/North Carolina border, which is under the South Atlantic jurisdiction, and then the part that's north of the North Carolina/Virginia border.

As Scott said, Mike Frisk has conducted one year, a pilot survey, and that was set up to look at both golden tilefish and blueline tilefish. It was a pilot under contract with the Mid-Atlantic Council to see if it's feasible to conduct such a survey in the future for those two species. Since it was a fishery-independent survey, it was stratified according to depth and latitude, I believe, and it did extend down to almost all the way down to Cape Hatteras. There were some parts there where we had to add and subtract areas in order to get the strata from the survey to match the

jurisdictional areas. Mike Frisk worked with Paul Nitschke at the Northeast Center to get that done.

We wound up agreeing with the recommendation from the working group to allocate 56 percent of the ABC to the portion of the stock north of the Virginia/North Carolina border. Again, it's based on a fishery-independent survey and one year. This adds to the uncertainty, but the catch estimates were not reliable enough to support the allocation decisions, and we recommended that to the council, and so the ABC for the Mid-Atlantic Council managed portion of the stock that we recommended to the council, and they subsequently adopted, is 45.6 metric tons, and we recommended that specification for fishing years 2019, 2020, and 2021. We usually do this on a three-year basis, though every year we go back and review the current data that we have, to see if we want to change our recommendation.

Next year, we'll be looking at these numbers again, and we'll look at any regulatory changes and how they may have affected fishery performance during the year, the total catch by fisheries sector, size distribution in the catch, to see if that's changed, any spatially-explicit catch that we can tease out, including the recreational side, which is going to be difficult, given that MRIP is not a good vehicle at this point for estimating recreational catch of blueline, since they are basically rarely encountered, and we'll look at the CPUE and size distributions in the fishery-independent surveys, and hopefully the Frisk survey will be allowed to continue.

Then we have the whole series of list of sources, what we considered significant sources, of scientific uncertainty, and I probably will save us time by not going through that list, because we would be here all afternoon. There are a number of sources, and we list those in our report as well as some research recommendations. Thank you.

DR. REICHERT: Thanks, John. Before I open the floor for discussions, I am going to look around to see if anyone has any public comments. Seeing none, I would like to open the floor. Scott, do you have any additional comments after John's explanation?

DR. CROSSON: It was interesting that the first question that I was asked by the Mid-Atlantic SSC was something to the effect of isn't this an allocation decision, to which I replied yes, and then I said nothing else, but this is the task we were given, and we initially -- The working group, especially with this question of how to allocate -- We looked at the Frisk survey relatively early and said, well, that's just one year, and there's all kinds of problems with using that as a system for divvying up the quota, and so let's go look at the landings series again, and that is where we went, and then we said, no, I guess Mike Frisk's sampling is looking a lot better now than it was earlier.

This was a gradual process, but this is something that we looked at. The review panel looked at this and tried to figure out a way to allocate stuff, but they did not have a copy of the Frisk survey at that point. It wasn't out yet, and so the review panel looked and couldn't come up with a methodology for splitting the allocation, and this SSC looked at it and could not come up with a method for splitting the allocation. The working group looked at it, and we had one new piece of information, and we thought this was the best thing that's out there, compared to the landings history.

The Mid-Atlantic SSC then looked at it and started to -- I think, if I remember correctly, they started to wonder whether there was another way of doing it and maybe they should send it back, at which point I told them what I just told you all, which is that we keep knocking this around, but this is what we have, and that's why the working group exists, and so I'm hoping that you all will see that, and so we have a bunch of questions that are up here that we have to answer as part of our assignment.

A big question that Marcel and I have had discussion about is that, if we follow this recommendation, we are moving to something that we have not done before, which is looking at the P* methodology that the Mid-Atlantic SSC is using and adopting that. I mean, that's probably the most sensible way to do it, because what we're trying to do is coordinate the ABC recommendations on either side of the border, so that stock is not overfished, and so that's something that we're going to have to justify and explain, but I am hopeful that that's a doable task, and I guess that's it for right now. If people have some questions, I would like to hear them.

DR. REICHERT: I think that's one option. There may be other options. Our ABC control rule, this is an area where our ABC control rule doesn't provide a clear guidance, but there are some options within our ABC control rule. That's part of why we have been looking at changes in the ABC control rule, because it was rather prescriptive in terms of the methods used for stock assessments.

Before I hand it over to some folks who had their hands up, I think it would be good for us to consider the Frisk method, et al., to see if we agree with the recommendation of the working group and the Mid-Atlantic SSC and the use of the DLMTool analysis, and then we can move on with discussing how we are going to approach OFL and ABC recommendations, and so, with that, I think a couple of folks had their hands up.

DR. GRIMES: That was more or less my question, I guess the disagreement on the part of the Mid-Atlantic Council that it represented ABC, the DLMToolkit analysis plus the results of Scott's group that it was an MSY and, therefore, needed to go through the -- It was OFL, and it needed to go through the P* analysis, and that's a pretty big deal. It makes quite a bit of difference in what you say the ABC is, and I just was curious whether -- I wanted to hear some discussion of that decision and whether everybody was happy with that.

DR. CROSSON: I thought about reconvening the working group to discuss this between the Mid-Atlantic SSC's meeting and this meeting, and I thought about reconvening us and having us decide whether we were going to change our recommendation to reflect that, and, after -- There were pros and cons to that, and I think, after discussion, we agreed that it would be best if this SSC just used the results of what the Mid-Atlantic SSC saw and see what the Mid-Atlantic SSC has done and then move from there, rather than try and -- If the working group changed its recommendation, at that point now you have the different SSCs that have seen different presentations and different recommendations, and we didn't want to go down that road yet, unless we have to.

DR. REICHERT: Plus the question was does then the workgroup again have to reconsider their recommendations after this SSC has, and then you get in this vicious circle. Let's talk a little bit about the DLMTool analysis.

DR. ERRIGO: I was going to suggest that perhaps Mike Schmidtke can give us a very, very quick, quick basic rundown of what he did, because we did change the time series of landings, and then he can also talk about with analyses from the DLMToolkit we used and what posterior analyses were used after the fact.

DR. REICHERT: Thanks for reminding me of that, Mike.

MR. SCHMIDTKE: This is going to be rather informal, just because I don't have anything prepared, but I can give some comments as to the process. Specifically, you would want to reference the report, which I believe is in your briefing materials, and one of the big changes that was talked about in the transition from the stock assessment, the DLMTool run, the SEDAR 50 DLMTool run versus the one that was finally decided upon by the working group, was the shortening of that time series.

The previous one, I just want to make sure I have my dates correct, but it went back into the 1970s, I believe, through the terminal year of the assessment. It was 1978 through 2015, and we shortened that to 2002 through 2015. One of the primary reasons for that was including the removals that occurred from 1978 through 2001 results in a huge coefficient of variation for the time series average.

Now, that doesn't affect, if you will, the location. It doesn't affect the estimate that is kind of like the baseline for abundance in the DLMTool methods that were applied, because the two methods that were applied both use recent catch, and then use that in a way to approximate abundance, but what it affects is the coefficient of variation that is then associated with abundance after that, and so it can result in fairly wide swings from run to run of what the final estimate is going to be, and so, to try to narrow that down, and also taking into account the fact that, in that area north of Hatteras, there were very minimal landings from 1978 through 2001 that weren't really useful proxies for abundance in any way. They weren't really reflective of abundance, and they were basically adding a bunch of zeroes to the time series, and that's why that section, that chunk, was cut out.

Going more kind of into a summary of the actual DLMTool methods, there were two models that were decided upon. One was a demographic model and another one was a yield per recruit model, and both of them used the Gedamke-Hoenig method for estimating a total mortality, from which we did derive a fishing mortality, natural mortality, and it was based off of life history parameters, and, really, one of the comments from the Mid-Atlantic SSC was one of the numerous sources of uncertainty that went into this model were the growth parameters, which are from other species and they're not from blueline tilefish directly. They're a meta-analysis of other species.

These then were used to estimate natural mortality, and so we have estimates based on estimates based on estimates from other species, and so that was a place where there was a considerable amount of uncertainty that gave the Mid-Atlantic SSC pause, but that is the information that was brought out as the best that we could do from the assessment, and so that's what we moved forward with.

Once we decided upon the removals time series, we re-ran with the removals time series, and, if you look at Figure 1 from the report, that shows the total allowable catch distributions that came out of the DLMTool run with that adjusted time series, and you will see the two methods, the two

management procedures, that we were using for that Fdem and yield per recruit, and what we did to kind of combine the effects of those two is we did a composite distribution, where basically the results of each of those management procedures were combined into a single distribution, where we estimated a single modal point as our MSY proxy.

One thing that is -- In going through discussions that different members of the workgroup thought would be useful in considering kind of how that modal estimate matches up with the frequencies of results and different numbers within the range of results that came out of those DLMTool runs was seeing how that distribution matched up to a histogram of the actual values.

There was some questions about the smoothing process that occurs in estimating the distributions you see in Figure 1, and so that smoothed distribution was estimated using kernel density estimation, and that's shown against a histogram of the total allowable catch values that came out of the DLMTool, and so you can see how that distribution sits up against those raw values, and, really, when you look at the frequencies, the raw frequencies, you will see there are four TAC values that have a frequency of eleven, and those were divided into about 2,000-pound bins, and three of the four values that had a frequency of eleven sat on the lower end, and I believe that was around 100,000 pounds, and there was one value that was a bit higher, and so the final modal estimate doesn't sit directly in the middle of those. It tended towards three. It tended down a little bit lower, and that's kind of a short and quick summary of how we went through and got to where we had a TAC estimate for above Cape Hatteras, and, from there, we relied on the tilefish pilot survey to do the allocation work.

DR. REICHERT: Thanks, Mike.

DR. BARBIERI: Mike, a quick question, and I may have missed something here, but how did you get your MSY estimate within this procedure?

MR. SCHMIDTKE: The TAC value is a proxy for MSY. The total allowable catch, those distributions are -- The distribution that you see is bootstrapped runs, in an effort to estimate TAC, a proxy for MSY. We viewed the modal value of those distributions as our MSY estimate.

DR. BOREMAN: I was just going to say that it's just a terminology issue, because, normally, when you hear "TAC", you're assuming you're hearing ABC, and I think that's how the working group first responded to that, until it was pointed out that, no, those are MSY proxies and not ABC.

DR. BARBIERI: Rob and I were discussing here looking at how they arrived at that MSY, and I kind of assumed it was like Mike described, which is a terminology thing, and it involves a level of pretty strong assumptions.

DR. AHRENS: I believe the final calculation coming out of both of the mean length routines is akin to an FMSY times B current, and, therefore, it would be an OFL that is turned to TAC.

DR. REICHERT: John, correct me if I'm wrong, but that was exactly the discussion that the Mid-Atlantic SSC had. Any other questions for Mike?

DR. BUCKEL: Mike, thanks for the overview. I am curious about these two mean length approaches. I know there's been a lot of work, and I haven't kept up with it, examining how robust

these data-limited approaches are using simulated data or comparisons to other more robust stock assessment approaches, and could you provide a sense of how these have ranked, if they have been examined, relative to other data-limited approaches, how the two approaches that you used ranked?

MR. SCHMIDTKE: I would say that they're probably of the stronger approaches that fall within the range of data-limited methods out there. One difficulty that we had, with this assessment in particular, was with how data-limited we actually were, because it wasn't simply that we didn't have a way to estimate abundance, which a lot of times can fall into a data-limited category, but it was we didn't have -- We didn't have ages, and that was really a huge factor, and we didn't have any way to assess the depletion level for this fishery, and we had kind of an added-on problem of the way that management has changed within recent years and the very obvious impacts that the management changes have had on the removals time series.

Really, when thinking about all of the different factors playing in and the available data, we had these two methods, and there was one other mean length method that was available for use, but we elected not to use it, because, in that case, the FMSY that gets used here, the FMSY estimate from that method, the Beddington and Kirkwood, is Fmax being used as a proxy for FMSY, which had a tendency, from the previous runs, to greatly overestimate relative to the other methods what the TAC values would be, but, outside of those mean length methods, the rest of the methods that were at our disposal were really just averages of different portions of the removals time series, and we felt that, with the removals time series being, in a way, compromised because of the management changes impacting it, that we wanted to incorporate, even in the most base way, some level of biological information to go along with that removals information.

DR. REICHERT: Anyone else have questions?

DR. AHRENS: It's my understanding that there actually hasn't been a thorough MSE on the mean length methods. Some of the preliminary work that was done, there was issues with implementation, and they worked really well sometimes and other times, depending on the mean length time series -- Like the Gedamke and Hoenig failed pretty badly, and there are certainly other -- Like LIME that Merrill Rudd and developed and others, with Jim Thorson, are kind of more robust, but they're just not in the DLMToolkit right now, and I would be happy to put the actual code that the DLMTool uses to calculate the TAC up, and we can walk through it quickly, if people want, if that would help.

DR. REICHERT: Would that --

DR. AHRENS: It's really short, but it's just so you can see the steps that are actually used.

DR. REICHERT: I see some nodding, and so that may be a good idea. While Rob is preparing for that, I saw Mark come to the table.

MR. BROWN: I will just be brief. In regard to this fishery, I don't fish in this fishery a lot, and I have to go to -- My go-to person is Dewey Hemilright, and so I called Dewey. When we first got that request for the ABC for that area, I drew it out on Google Earth and saw that that's a hundred-mile sliver, and I am thinking to myself that that's a pretty good-sized area, and so I called Dewey, and I asked him, and he said, in his opinion, that's where the bulk of the commercial landings come from. He said he fishes hard in that area and that there's a good mass of fish right there, and

so I don't know if that's any good input or not or if you've got the trip tickets or something that shows that, but he told me that that was where he saw a majority of the blueline.

DR. REICHERT: Thanks, Mark.

DR. CROSSON: While Rob is setting that up, Dewey tuned in on some of the webinars, and Dewey was also at the SEDAR 50 review workshop as a Mid-Atlantic SSC observer, I guess, and so I know Dewey had some concerns with this issue. It's a tough one to sort out, but a good chunk of -- I don't disagree with a lot of the historical landings have come from that hundred miles, and the explosion on the Mid-Atlantic side is relatively recent, and it's, of course, both commercial and a lot of it I think is headboat related as well. It's really difficult, because a lot of these landings are right on that border. I mean, they are very close to each other on one side or the other. John, do you want to speak to this? I don't know how to quite answer this particular issue.

DR. BOREMAN: Dewey has had some really great input, and, of course, that added to our level of uncertainty on all of this, but remember that the Frisk survey is a fishery-independent survey. It's based on abundance and density along the coast, and it's not based on landings, and so what may be happening in the landings may not be reflective of true population abundance out there, because landings depend on where people fish.

MR. BROWN: Also, just to let you know, I called Dewey about this, and, right after I called him, he had a heart attack, and he ended up going to the hospital there locally, and they sent him to Norfolk, and he had to have two arteries cleared. He had one cleared, and then two days later another one, and he said the doctor told him that if he was out in the ocean that he probably wouldn't have made it, but, anyway, I talked to him after that, and he's doing a lot better now.

DR. REICHERT: Obviously we all wish him well. I didn't know that, and thanks for letting me know. Dewey, I hope you're doing better, and so thanks for that information, Mark. Okay. We have the code up. Rob, would you --

DR. AHRENS: This is just kind of the internal call from the Fdem mean length, and the other one is very similar to this, but you will see that it's basically -- This top part is just doing random draws for mortality rates, von Bertalanffy Ks, growth parameters, and those sorts of things that it needs. Then, if we scroll down, it's then going into -- This step is going into the Gedamke and Hoenig to get the estimate of Z, given the changes in the mean length. Then, if you scroll down a little more, then it goes into this get R function, and so this is a life history kind of based estimate of intrinsic rate of increase, and so it's taking R over two as the FMSY proxy, and then it's using the catch at that -- That AC call is using the catch and the estimate of total mortality rate, and so one minus E to the minus Z is the exploitation rate, and, therefore, take the catch divided by the exploitation rate, and that gives you your estimate of the biomass. Then you've got an FMSY, and then it's doing the TAC as FMSY times B current. That is the sausage of the Fdem, and so the only hidden ones are the call to the Gedamke and Hoenig and then this get R function, which is a life-history-based one.

DR. CROSSON: I am just going to observe how much I love being an economist. When I'm around stock assessment people, that looks clear as anything.

DR. NESSLAGE: Just a few questions. The mean length goes into both, both analyses?

DR. AHRENS: The mean length goes into the Gedamke and Hoenig method, and so the trend in the mean length goes in to calculate, given that slope, what the total mortality rate would have to be to explain that.

DR. NESSLAGE: So the mean length -- They are getting that, am I correct, from Table 2, the catch length frequencies, in this report? The reason I am -- It's a leading question.

DR. AHRENS: The 2002 to 2015 length comps, I believe, went into the calculation of the mean length.

DR. NESSLAGE: Because it only shows 2008 to 2015 in Table 2.

DR. AHRENS: I didn't make the table.

DR. NESSLAGE: No, but this is a general question, and I guess where I'm going with this is that, if that's where it's getting its estimate of -- If that's informing mortality, I am just -- If you look at this kind of googly-eyed, you can see there is a trend in the last few years, right? There is a trend up of increasing length and then decreasing max length, and I would love to see how the mean length has changed over this time period, whether it's 2002 to 2015 or 2008 to 2015, but I think maybe I'm going down a rabbit hole that I shouldn't.

DR. AHRENS: That's in the stock assessment report.

DR. NESSLAGE: Do you remember, off the top of your head, what it looks like? Then it goes down, and so there is some information at the end of the time series when the catch has got over a certain amount.

DR. AHRENS: Yes, there is a declining trend in mean length at the end of the time series.

DR. NESSLAGE: I would be curious to see what the corresponding catch is to what pushed it over the edge and how that corresponds with where that tipping point is, because that is, essentially, what the model is doing, right? It's seeing where that tipping point is with the catch relative to the change -- As soon as we get change in the mean length and how that compares to the ABC that's coming out at the end of this, or is that --

DR. AHRENS: The Gedamke and Hoenig method doesn't use the catch. It uses just the trend. It looks for breakpoints in the mean length pattern, and it identifies those breakpoints, and I think it's only one in this one, and then, given those, it estimates what the Z should be to explain the trends you see in the mean length in those break periods. I believe there was -- When this was run, there was a breakpoint put right at the beginning of the time series, and then it was fitting, basically, at just a single regression through those mean length points, but that is stretching the ability of my memory. I think the take-home is that this is calculating an OFL. Once the sausage has been made, it's the OFL that is coming out.

DR. BARBIERI: Genny, I was having trouble just getting to that point where -- I didn't think that they would have an estimate of current biomass to begin with, given all the other factors that we

are missing, and he explained how, through that process, they get to that point, and you can actually --

DR. REICHERT: Scott, and I may ask Mike, on the webinar, if he has anything to add to that discussion.

DR. CROSSON: Speaking as just a non-stock assessment scientist, but an SSC member and not as the chair of the working group, I don't disagree with what the Mid-Atlantic SSC chose to do, in terms of using this as an OFL estimate and running it past their P* process. It seemed like a logical thing.

DR. REICHERT: Thank you, Scott, and I don't disagree with that.

DR. AHRENS: I will just make one -- When I said that they calculated the current biomass as one minus E to the minus Z, that was wrong. The FM is its estimate of the current fishing mortality rate that produced that trend, and so it's one minus E to the minus F that is being used in that calculation.

DR. SERCHUK: Just a question, Chairman. By using the annual length frequencies in this analysis, does that presume that the samples were collected over the same temporal period in all years? In other words, I presume, when you use annual length frequencies, that you are combining samples that you have in the beginning of the fishery and at the end of the fishery. If, in some cases, most of your samples come from the beginning of the temporal window, they may differ, depending on the growth rate of the species, from those that might have been collected at the end of the temporal period, and I'm just wondering if that's an assumption that goes into this technique.

DR. REICHERT: I believe it is an assumption. Yes, Rob says that that's an assumption, and I think that, in part, contributes to the uncertainty of the outcome of this analysis.

DR. ERRIGO: I remember discussing actually this exact point during one of the meetings, and that is an assumption that we have to be careful about, because I had brought up the same point. However, this is the longline fishery that this is all coming from. That's where most of the landings are coming from north of Hatteras during this time period, and most of the landings are processed in a certain time period, which is sampled throughout that time period, and I don't think it's a -- It's not year-round, from what I understood, and so they said it may not -- It may not have as huge of an impact, or it may not be as large of an issue, because of that fact.

DR. SERCHUK: Can I just follow-up for a second, Chair? I know it's been mentioned before, but is there concern that the size distribution looks like it's been truncated in 2014 to 2015 to sizes that are smaller than appeared a few years before that?

DR. AHRENS: I mean, I think there is two things we don't know about it. One, we don't have good spatial information, and so we don't know if there's this temporal pattern of the fishery and they just happened to be moving in areas where there are smaller fish, or we don't know if this is a big recruitment pulse moving through the fishery either. I mean, we know there are many factors that affect length frequency distributions when you look at them, and so it is possible that that is occurring and we're interpreting it as a change in the mean length under kind of stationary recruitment and stationary spatial distribution.

DR. BARBIERI: Not to really say anything negative about this analysis, and, I mean, this was done the best way possible and considering all the information available, but I have seen in other processes, the Caribbean in particular, where you really go through sort of a lengthy process to try and evaluate those data issues that might be compromising the interpretation of some of these indicators or data inputs, like mean length or the like, because, yes, you get a big pulse of recruits, and you're going to have lower mean lengths, but that doesn't mean necessarily changes in exploitation at that point, and so, again, not to invalidate this analysis, but it's just a point of concern. I mean, it's something that I think we need to look at in terms of very high levels of uncertainty.

DR. REICHERT: I think there is no disagreement, in terms of the level of uncertainty. As John indicated earlier, the Mid-Atlantic SSC was very cognizant of that, and that's clearly laid out in their report.

DR. ERRIGO: I was just going to say that you're absolutely right. Like Marcel said, the Mid-Atlantic said explicitly that there is a large amount of uncertainty, a lot of which was not encompassed, just because they couldn't. However, the data and the analyses that went into this were discussed at length during SEDAR 50. All of this came out of SEDAR 50, and the only changes that were made were the truncation of the landings dataset, and there were some posterior statistics that were slightly different. They didn't use any of the catch-based methods.

MR. BROWN: Dewey said it's killing him not to be able to be here. He said it's hard for him to just sit still and not be able to comment, but he said north of Hatteras, but south of Virginia, samples are from April to October.

DR. REICHERT: Thank you, and thanks, Dewey.

DR. CROSSON: Just, again, and this is in our last SSC report, because it's based off of what came out of the SEDAR 50 report, but there were a lot of questions about life history that were borrowed from golden tilefish, because the data just wasn't there. There were problems with sampling, and I think that was only south of Hatteras, but, still, there were questions about sampling, because of otoliths that were not able to be matched up, and so that data was not included in SEDAR 50. The mobility of the stock and the fact of outside recruitment -- We keep talking about it as if it's a north of Hatteras stock, but the fact is that probably there is recruitment coming up the South Atlantic seaboard along the Gulf Stream, or maybe a little different than that, but there is definitely a lot of interplay going on back and forth with that Cape Hatteras border, and so there's a lot of things that the SEDAR review panel looked at, and these are just known unknowns, and there is a lot of them.

DR. SERCHUK: Just one other question, Chair. Is there any sampling data from 2016 or 2017, in terms of the length frequencies, that would either show that there has been a shift to these smaller fish or it's just due to small sample sizes in those last two years?

DR. REICHERT: Fred, are you specifically asking about the commercial fishery or any type of data available?

DR. SERCHUK: I am asking about data that would be similar to this from 2016 to 2017, and is there a single year, in any fashion, that suggests, wait a second, there is either a recruitment event -- Although I still see there is large fish not being caught here in the last two years, and so that would modify our perception of the results from this analysis, even in a qualitative sense, by looking at the size compositions from 2016 or 2017, and I know everybody wants more data, but I am just saying it looks like something has happened here. What has actually happened, I don't know, but we have some additional data that we didn't have at this point in time that might give us some additional insight into the dynamic. Thank you.

DR. REICHERT: Thanks, Fred. Mike, to that point?

DR. ERRIGO: A couple of things. One is, in the later years -- Most of this sampling is coming from the South Atlantic. There is a little bit of sampling that came from an ODU study, but most of the commercial sampling is coming from the South Atlantic, because the Mid-Atlantic didn't have sampling protocols for blueline tilefish at this time.

The reason why you see the sample sizes go down and then way down is because the South Atlantic put in an ACL, a very restrictive ACL, and closed the fishery very early, and I believe that, again, happened in 2016, and that data is available now, although I don't believe it was available at the time, and there is information on size from the Frisk report that perhaps we can take a look at.

MS. SCHMIDTKE: The ODU samples were not included in the length frequency information that was input into the DLMTool. That was only the commercial sampling from North Carolina north of Cape Hatteras. We took out the ODU samples, because they showed differing -- There were differing trends in mean lengths, and there were questions about the sampling protocol for acquiring the recreational samples, as far as if that would be biased in a direction as far as size goes, and so we took those out, and we only did the commercial lengths for the DLMTool runs.

DR. REICHERT: Thanks, Mike. Mike Errigo is putting up the graph from the report, and I want to caution the committee that there may be some selectivity issues here, and so it may be difficult to compare this with the table, but --

DR. ERRIGO: Right. This is not the commercial fishery. This isn't the longline commercial fishery. This is from the survey, but I believe they did use longline gear, but it's not from the fishery.

DR. AHRENS: There's three different hook sizes indicated there.

DR. REICHERT: Those are the small, regular, and large. Just as a reminder for the committee, the small, regular, and large refer to the hook sizes they used. This is fork length, and so that complicates a direct comparison a little bit. The bottom line is we don't really have any information that can inform us about what's happening in the population past 2015. Let me know if anyone disagrees, and this may give us a little bit of information, but I am somewhat hesitant to compare this with the table, but thanks for pulling this up.

DR. SCHARF: I am not sure if this -- Back to Rob's point that he made about other factors that can affect those mean length changes over time, one of the things that I was -- I haven't seen the full report, but were there any changes in gear selectivity or any changes in gear over the time

series that may have been driven by regulatory changes or just fishing practices that could have affected selectivity?

DR. ERRIGO: I can try to get to that for you, being at all the blueline SEDARs, and so the portion from Hatteras north and when the fishery starts, and so this time period, it's mostly -- Most of the landings are longline fishery landings, and, in fact, what was used for the analysis was longline landings and stuff, and there is also a hook-and-line fishery, and it's not as directed as the longline fishery. That is more multispecies, and so it does have a different -- It's different gear and different selectivity, but that wasn't used in this. This just uses the longline landings and lengths.

DR. SCHARF: Were the hook sizes generally consistent over the time series from 2002 to 2015 in that commercial longline?

DR. ERRIGO: From what I understand, yes, because we did not discuss any selectivity changes during either of the SEDAR data workshops or anything like that, which means that the hook sizes would have remained the same, or the mix of hook sizes used would have remained fairly constant over time.

DR. REICHERT: Thank you, Mike. So, given the uncertainty that we have discussed and that are laid out in the Mid-Atlantic SSC report on pages 7 and 8, given what we heard about the analysis, I am going to ask the committee if -- What is the pleasure of the committee, in terms of accepting the data-limited tool analysis as a proxy for OFL? Does the committee agree with the Mid-Atlantic SSC that, given all the uncertainty, this is an estimate of OFL?

DR. CROSSON: Yes.

DR. REICHERT: Does anyone disagree? Then I propose that this will be our consensus recommendation for the first part and that we agree, and that we can list the uncertainties that are listed here plus some of the other uncertainties that we discussed here. Then the next question for us will be how do we get from an OFL to an ABC, and there is a couple of things that -- Well, let's do something else first. Then the other one is the Frisk survey that was in the report and that was discussed both at the workgroup and at the Mid-Atlantic SSC, and there was a recent review done. I don't think that report is out yet, but I may be mistaken, and so, again, let's discuss that and see if we can agree with the findings of that report and the Mid-Atlantic SSC about the 56/44 split, and so I would like to open the discussion relative to that topic, and then we can discuss the ABC.

MR. BROWN: I didn't get a chance to interact with you a few minutes ago, but Dewey said he had something that he wanted to say about selectivity, and he said he's available to talk.

DR. CROSSON: This is the selectivity of the fisheries-independent sampling? Is that what he had something to --

DR. ERRIGO: I believe he is probably talking about the commercial fishery.

DR. CROSSON: Right now, we have this question about the fishery-independent sampling.

DR. REICHERT: No, but Mark was referring back to an earlier discussion.

MR. BROWN: I am sure he will be brief.

MR. HEMILRIGHT: I had a couple of things to say. Can you put up the slide that you had up there with all the years and the different lengths? Some of the questions that I was hearing, there is a lot of variance in the reason for these lengths. The cause of that is the different methods of fishing that's going on, whether you're longline fishing or bandit fishing in the different areas up and down north of Cape Hatteras, and south of the Virginia/North Carolina line is where all of the landings came from that were longline and is the sampling there.

If you had sharks on the southern end, you moved further up to get out of the sharks, or, if you had cold water, and so that's -- Then the last of the year is, I believe, 2014 and 2015, and most of your landings are going to come from bandit fishing, which is hook-and-line and not longlining, because of you only had, I think a 100 to 300-pound trip limit, and so you can't go get a lot of bait and go longlining, because they're not going to make money on 300 pounds, and so there's a lot of changing that's happening there in the various sizes of where you would fish according to what was going on.

Also, for that survey that took place, I understand, and I asked questions about the randomness of a survey and how you choose the area you go to, and so I was interested in looking at where the survey went in the areas that I fished.

(There is a gap in the recording during Mr. Hemilright's comments.)

DR. ERRIGO: Dewey, you are cutting out, and we can't hear you at all.

DR. REICHERT: All right. We are having technical difficulties, and we cannot hear you, Dewey. We will try to solve that, but I would like to move on to the next discussion and see if we can get Dewey. Otherwise, I recommend, Dewey, that maybe you can -- If we can't get a connection going, you can email us or type it into the comment box, and then we will address that.

One comment I have is that I understand that there is the fishery using different gears, but the table is specifically for the longline fishery, and so I just wanted to make that remark, and we will work on establishing that connection or see if we can get some comments. I am sorry that we couldn't hear you. I would like to go to the Frisk study and open the floor for discussions there. Again, we discussed at length that the catches were low, and there is a high level of uncertainty, but, right now, there is not a lot of other information that we can go by.

DR. BOREMAN: This, obviously, was discussed at the working group, and the working group said, well, look, we have three choices. We have either use the catch data, which are unreliable, use the Frisk survey, which has a great deal of uncertainty, for reasons we've talked about, or use neither and have nothing to base an allocation on. That's what it came down to.

DR. REICHERT: Yes, and I completely agree, and that is something that we, I think, briefly discussed in the previous meeting.

DR. SERCHUK: I think John has characterized it correctly, but I mean, if you look at the total number of blueline they caught in one survey, there is only seventy-five fish, and it was spread over a wide period, and it's one year worth of sampling, and I think they recognized that. We need

to be careful, because we don't have any annual replicates, and we know that there could be gear effects or there could be area effects, and they went ahead and used whatever data, and I actually don't know how many of those seventy-five fish came from this small area, because they go all the way from Stata 2 and they go all the way from Strata 4 to Strata 9, according to the table in the document, and so it's maybe even less than that, and, I mean, I know I'm -- I know that's obvious to everybody.

DR. BOREMAN: Well, 44 percent came from that area of the catch. That's why we have a 56/44 split.

DR. SERCHUK: It's a very small sample size.

DR. REICHERT: Yes, and that was recognized, and that adds to the uncertainty.

DR. SERCHUK: My question is will you revisit it next -- When are they supposed to continue this survey? Will you revisit it next year and say, well, wait a second, we had more things here and the distribution has now shifted quite a bit? That's the question I'm asking.

DR. REICHERT: But that can be part of -- There is research recommendations that -- Right now, I think that survey has stopped, but there is a research recommendation to continue that survey and continue that in conjunction with other surveys in the region, so we can collectively collect more information on that and see where this is going.

DR. CROSSON: That gets to the question of how long this ABC recommendation is going to exist, and so the Mid-Atlantic SSC is going to -- You said annually you're going to revisit this?

DR. BOREMAN: Yes.

DR. CROSSON: So I know I don't want to have these discussions every year, but we should at least keep track of what's going on on the Mid-Atlantic side with this stock, and I don't know that this working group is just a one-off. I think it may be something that's going to be called upon when needed, anytime things change on one side or the other of the border.

DR. REICHERT: We will have an opportunity to comment on how long this recommendation should stay in place and what else needs to be done. I think before the committee currently is the question of the Frisk information -- As John said, we have a choice of three, and the Mid-Atlantic said, given all of the uncertainty, this is the information available, and they have used that to divide the OFL up between the two regions, and so, given the information in the briefing book and what we've heard, is that something that this committee can adopt also of those three options that we have in front of us, again given all the uncertainty that we know is part of all of this, or, in other words, does anyone disagree with accepting the survey results and dividing up the OFL between the two regions, given the percentages in the report?

DR. NESSLAGE: I don't necessarily disagree, but it brings up the question again of, if 56 percent is going to the Mid-Atlantic, is that going to be in perpetuity, because there isn't going to be a follow-up of this survey, most likely?

DR. REICHERT: That's an excellent question, and we can address that in our recommendations, that we feel that it should be in place for one year or two years or three years or five years.

DR. BOREMAN: Our recommendation right now in the Mid is to use that for three years and then have some checks along the way to make sure it's still -- From whatever data we can find, and there may not be any data for the next three years.

DR. REICHERT: Exactly, and we can consider something similar or we can decide that it should be valid for a shorter or a longer period of time, but we can -- I want to go back a little bit, and so I did not see anyone shaking their heads, and so we accept the Frisk survey and the split between the regions, given all the uncertainties that we have discussed and are also outlined in the Mid-Atlantic report. I will let Mike catch up with us.

Then the question before the committee is the ABC and how to come from the OFL and the split to an ABC recommendation to our council, and we have a couple of options, and I will ask Mike to -- He said he looked into some of that. Currently, strictly speaking, I think this is kind of a gray area within our current ABC control rule. We can deviate from our ABC control rule by adjusting some of the methods, or we can adopt the Mid-Atlantic SSC recommendation, or the Mid-Atlantic ABC control rule, for this specific case, or we can go with any other options. Mike mentioned that he had some thoughts or had prepared something.

DR. ERRIGO: Yes, I do. I see three options that the SSC can pursue, and one is to accept the Mid-Atlantic's proposed ABC and just use that, and the other is to use our ABC control rule to come up with an ABC value, and the third is to deviate completely and come up with an ABC using a different method. What, I don't know, and so one thing I tried to do was figure out how we might be able to use our ABC control rule, and I just came up with one possibility.

I looked to see that, if I used the 56 percent/44 percent split to split the OFL, rather than split the ABC, do the numbers still come out the same, and they do, and so the Mid-Atlantic -- I just wanted to make sure, because this is done using a lognormal distribution with a CV and P* value, and so I just wanted to make sure that everything worked out right.

DR. REICHERT: That is, just for orientation sake, that's the lower-left-hand table there that you were just talking about?

DR. ERRIGO: No, this is what the Mid-Atlantic did. They took the OFL, and they got an ABC value, and then they split it.

DR. REICHERT: But that table under that is the comparison? No, I'm mistaken. Forget what I said. Sorry. Go ahead.

DR. ERRIGO: Okay. This is something else, and I'm sorry. This was for a different -- Pay no attention to the man behind the curtain.

DR. REICHERT: That's what I was trying to --

DR. ERRIGO: Okay, and so what I did was did you get the same -- This is in pounds, which is why it doesn't look like the numbers that John Boreman was talking about, which were in metric

tons. The Mid-Atlantic gets 100,520 pounds, and the South Atlantic will get 78,980 pounds, and I just did these down to the number. I didn't like truncate them off or round or anything. I just made sure that, if I split the OFL and run them through the same process, and so I ran them both through the Mid-Atlantic's control rule, and you get the same numbers.

If we wanted to use our control rule, we might be able to split the OFL so that the Mid-Atlantic would still wind up with their ABC for that area, the 100,520, and then we could potentially apply our control rule, and I tried two different scenarios for that, because I am not the SSC, and I wasn't sure which way it should go, and so the dimensions -- Here is each of the dimensions, 1 through 4, and I came up with possible scorings for those, and so, for one, I get a P* value of 15 percent.

DR. REICHERT: I think what we should do, as an SSC, is then go through that and see what would come out, rather than trying to compare what you came up with.

DR. ERRIGO: Okay. Then, rather than me explaining the numbers that I got, let me just explain how I got the ABC.

DR. REICHERT: Okay.

DR. ERRIGO: I came up with P* value, and then the CV actually comes from the DLMToolkit analysis that Mike Schmidtke performed, and this is the CV of the bootstrap distribution around the OFL value that came out of the DLM tool, and I used a lognormal distribution to estimate the ABC value, and so, if were to apply our control rule to get a P* value, we use the CV that was estimated to get an ABC value, and so that's one possible way of approaching this. We could just accept the Mid-Atlantic's way of doing it, or we could apply our control rule to the entire OFL and ask the Mid-Atlantic to accept our control rule. That's another possibility.

DR. BOREMAN: I got lost. The CV that you applied, this 58 percent, can you move the screen over a little bit, so we can see the right side there? Like Dimension 2, uncertainty characterization, isn't that what the CV is supposed to be representing, among other things? Aren't you double-counting uncertainty here by doing that?

DR. ERRIGO: This is just the control rule, and that's always how it's done. The dimension for uncertainty characterization has all kinds of things, like did you incorporate this or did you just use sensitivities or was there a bootstrapping type of approach that was used to look at uncertainties and things like that.

DR. BOREMAN: Which is basically what we do in the Mid when we go down our checklist.

DR. ERRIGO: Yes.

DR. BOREMAN: But then we don't go ahead and after that and -- We don't subtract for that and then come back later and put another CV on there to account for uncertainty, because we already have.

DR. ERRIGO: Hence the reason why we're looking at changing the ABC control rule.

DR. REICHERT: At least this applies our control rule similar to what we have done, and so this at least gives us a tool in saying should we deviate, or should we apply the control rule, and I'm looking around the room. What is the pleasure of the group?

DR. GRIMES: It seems a little bizarre to me that you would apply a different control rule to the two regions. I mean, it seems like we ought to decide we like ours or we like theirs and agree with the Mid-Atlantic that we do it the same way.

DR. REICHERT: For the sake of consistency, I completely agree with you, and that is why I said earlier that I feel that we are trying to fit our control rule in something that is -- Our control rule did not entirely fit this type of analysis, and so I agree with you.

DR. BOREMAN: Another way to look at it is to agree with the Mid-Atlantic's decision that the DLMTool gave us an OFL and then take the 44 percent of that and call that the OFL for the sliver. From that, use whatever method you want to establish a buffer, either more or less, depending on the risk policy of the council.

DR. REICHERT: Yes, and that is exactly what Mike just did, because it's kind of the other way around from what you guys have done, in terms of OFL and applying the ABC control rule and then split it up. If you have the OFL split up and then you apply the Mid-Atlantic ABC control rule, it comes up with the exact same numbers, and so it's cleaner to do it that way, so each of the regions can apply their own ABC control rule, and so the question now is for the South Atlantic. Whether you apply that to the OFL or to the ABC, what method to use to go from that OFL, whether you talk about the entire region or just the split, to come to an ABC.

DR. BOREMAN: It's just that the current control rule that Mike is applying here is not one that I am particularly comfortable with, because you're double-counting uncertainty. We can deviate from that, because we're all deviants to start with, I guess.

DR. REICHERT: Yes, and I agree with you, and we can do that, and we need to justify why we're doing that, and one justification is that we feel that -- If the committee agrees that it doesn't really fit our control rule, that our control rule doesn't really fit this particular scenario, plus the SSC felt that there is double-counting and you are accounting for the uncertainty, large as it is -- Maybe not twice, but you are counting it more than once.

DR. ERRIGO: To that point, I see what you're saying. The thing is that this CV describes the distribution around OFL. The problem is what this uncertainty characterization is saying is do you think that that distribution incorporates all the uncertainty that's around that OFL value or do you think there is more uncertainty there that's not in that CV value, so that we need to put more of it in there? The Mid-Atlantic does it by increasing the CV, and the South Atlantic has done it by reducing the P* value, and so that's how that works. That is what that does.

DR. BOREMAN: Thank you.

DR. REICHERT: Yes, thanks for that clarification, Mike.

DR. BELCHER: I don't know -- I guess some of what I'm trying to get my head wrapped around is the OFL is for the stock, and we have an allocation thing, and now we're saying 46 percent of

OFL is going to be the South Atlantic OFL, and how do you know that that's an appropriate overfishing -- We have an overarching OFL for both the Mid-Atlantic and the South Atlantic combined. Based on an assessment for your stock, this is what the overfishing level is. We're apportioning it out like an allocation and then setting an ABC, but do you have some binding to say that that 46 percent of that OFL is truly indicative of overfishing levels for the South Atlantic, so that, when you set your ABC -- If you were treating them as two separate stocks, there would be a South Atlantic OFL value.

DR. REICHERT: It's considered one stock. Well, it's a little more complicated than that.

DR. BELCHER: I am just thinking about how we allocate. Our allocations are kind of done at the lowest denominator when we do it, and we set ABC, and it's allocated out. If you're doing it as an allocation for fishery components, your allocation is done at the lowest level that you are controlling for, and so does the 46 percent get allocated to OFL, or should it get allocated to an ABC? Should you do an ABC relative to the total stock and then apportion your ABC to the regions, as opposed to parsing out the OFL level, because there isn't a guarantee that you are going to have that overfishing limit as the correct overfishing limit for your region. Does that make sense?

DR. REICHERT: Mike, to that point?

DR. ERRIGO: It actually makes a lot of sense, and, normally, I would completely agree with you that you need to have an OFL for the total stock and then get an ABC for the stock and then split it. However, that's because we usually use landings to allocate. Here, we're actually using a survey, which we're assuming is splitting the actual biomass of the stock between the two areas, and so we're about as certain of that as we are as with the uncertainty in the survey, and so there's a lot of uncertainty in that, but it has to do with the uncertainty in the survey, but the assumption is that the survey is splitting between the two areas based on biomass. Therefore, you should be able to split the OFL, and it should work. Technically, it should work, but it is very uncertain.

DR. REICHERT: That goes back to one of Scott's first questions in terms of the allocation. I believe this is the best information we have to make that decision, which is consistent with the working group recommendation.

DR. CROSSON: I think, at this point, if somebody really has a solid proposed alternative, and they want to propose it and see if the committee buys it, then go ahead and do so. Otherwise, I really would like to sort of -- We have to get to red snapper, and I would like to see if we can wrap this up soon.

DR. REICHERT: Well, but we also need to finish the discussion about blueline tilefish before we get to red snapper.

DR. NESSLAGE: Just very quickly, I wanted to -- I think we should apply the South Atlantic control rules, just to be consistent with the southern section of this stock and just to be fair to the fishery. If we're going to apply Mid-Atlantic rules to a South Atlantic stock, it just seems strange, and you are giving me a funny look.

DR. REICHERT: No, and I don't necessarily disagree, but there can be -- We can deviate from our ABC control rule if we can justify it. If we can use our current South Atlantic ABC control rule, then, as I said earlier, I think that would be a cleaner way to do that, but I have several hands up.

DR. NESSLAGE: Where I was going is that we're going to change our control rules very soon, but we're also going to make several decisions this week that we're going to have to probably change again very quickly, and so, if we use the Mid-Atlantic rule, that's fine, but I think it should have a time limit on it and that perhaps we would revisit it again next year, and that might end the discussion, to adopt it for one year, but then, after we've decided what our new control rules are going to be, we would then apply whatever our new South Atlantic method would be, would be my recommendation.

DR. REICHERT: Thank you.

DR. SHAROV: Ideally, the OFL and the ABCs should be calculated using the unified approach, and that would be ideal, rather than -- You would want to split the OFL, and so I think that there is a general agreement to accept the current OFL for that region, but we have to admit that there is a lot of uncertainty in the estimate of OFL, and so I think using two different ABCs calculated for the management jurisdiction, one for the South Atlantic and one for the Mid-Atlantic, is acceptable as long as the sum does not exceed the OFL.

We would be fooling ourselves thinking that we really know much about it, and so, at least formulaically, we stay within the limits, and that is probably the most that could be done, given the existing information, and so I'm in support of any outcome, essentially, I mean any of the two approaches using the ABC, as long as, all together, they do not exceed the OFL.

DR. REICHERT: Thank you, which they don't right now.

DR. SERCHUK: I can only support the last two interventions. I don't think, at this time, we should be mucking around changing our control rules. The fact is the two councils decided to manage these things separately, and that was a given, and the fact is, at this point in time, I think we're dealing with such sketchy data that to start changing control rules in the middle of a process is not good, because the data could change next year completely. Five fish one way or the other and we would have had a 50/50 split, and, again, it's a low sample size, and so all I'm saying is let's stay with what we have, and then we can reexamine it when we have additional data coming in during future years. Thank you.

DR. REICHERT: Thank you. So the proposal is -- Go ahead, Rob.

DR. AHRENS: Just one last point. I think we also have to consider that, south of Hatteras, we have to apply a control rule as well, and what are we going to use there? Are we going to split our control rule?

DR. REICHERT: No, we already have. That's already done.

DR. AHRENS: I know, and so are we going to use the method that we used to establish the ABC for south of Hatteras and be internally consistent, or are we going to swap?

DR. REICHERT: Thank you, and so the proposal is to use the South Atlantic ABC control rule, and so let's run through the dimensions. Mike, can you guide us through the dimensions? All right. Mike is putting them up on the screen. All right. What is Dimension 1?

DR. ERRIGO: Dimension 1 is assessment information.

DR. REICHERT: Okay. Then Dimension Number 2. Then 3 or 4. Does anyone disagree with 4?

DR. BARBIERI: How can we apply the P* method if we don't have a distribution?

DR. ERRIGO: We do. There was a distribution with a CV, and that's why I was able to --

DR. BARBIERI: Then the distribution is from --

DR. ERRIGO: The distribution is from the bootstrapping that Mike Schmidtke to get the modal -- That's how we got the modal.

DR. BARBIERI: Right, but, in that case, then the distribution of MSY is not lacking, right, it cannot be?

DR. SCHUELLER: It seems to me that this does not fit within 3 or 4, which is probably why we're having these ABC control rule changes to begin with. I don't know what the default is when it doesn't fall within something, but my default, if I were going to be in charge, would be to go to the lowest common denominator and say, since 3 doesn't really fit, and 4 doesn't fit either, but it's the lowest common denominator, I guess. We're sort of in the middle of them, I guess.

DR. BARBIERI: Because this is the uncertainty characterization, and one of the things that we have discussed over and over is that this method is highly uncertain.

DR. CROSSON: Then help me out, as a non-stock assessment scientist. Is the DLMToolkit that comes out of Mike Schmidtke's analysis and using the mode and all those things -- It doesn't have any distribution or an OFL proxy, or an FMSY proxy, or anything in there?

DR. ERRIGO: It has a distribution of that MSY proxy.

DR. AHRENS: You remember that we looked at the code, and those first couple of lines is where you are reading in your estimate of the mean mortality rate and your CV on that mortality rate, your mean K from the von Bertalanffy and your CV, and so it's using the uncertainty in those life history parameters that you have specified, and it carries, propagates, that uncertainty all the way through the analysis to come up with basically the distribution of the FMSY and the MSY, and so it's not based off of a fit to a stock-recruitment curve like we normally would do, but it is a taking of the uncertainty in those life history parameters through various life history methods to get Rs, intrinsic rates of increase, from those, and, therefore, that gives you your distribution.

DR. CROSSON: Okay, and so I am understanding the committee that -- 4 would fit, and we don't have a proper distribution of FMSY, and so I guess the difference would be, if you ran a DLM

model, you would hit 4 automatically if you don't have the full FMSY distribution, and, if you didn't have any assessment at all, then that's what would you get you to 5, and is that probably a way of reading it?

DR. ERRIGO: 5 would be if you only had point estimates and you didn't have any distribution, no bootstrapping, nothing.

DR. REICHERT: So we have some of that information. That's why I initially thought that 4 was probably the most proper choice, given the fact that it really doesn't fit here.

DR. AHRENS: I will say that what is not being characterized is when you are -- The true uncertainty around the relationship between those life history parameters and the intrinsic rate of increase, that uncertainty is not being expressed, and so it's not really a full characterization of that, and so it's between a 3 and a 4.

DR. REICHERT: So the proposal on the table is --

DR. CROSSON: Also, keep in mind the review panel stated a warning, and I know it was for the original DLMToolkit that they ran as part of SEDAR 50, but they put a warning in there that current fishing levels may not be sustainable, and so I would go to the more conservative of those two, if it were between 3 and 4.

DR. REICHERT: Okay. Does anyone disagree with 4? Seeing none, stock status is unknown, I believe. The PSA, remind me. I think that was a high, if I remember correctly, but I didn't look it up. I am pretty sure it's high. Does anyone remember the blueline tilefish PSA score?

DR. CROSSON: This is a multi-decade life span, deepwater fish. This is a high.

DR. REICHERT: It's a targeted fishery.

DR. CROSSON: I think they borrowed the estimate for fertility or whatever, I think that borrowed that from golden tilefish, or what do you call it, the age of reproduction or something.

DR. REICHERT: Yes. Where does that leave us, Mike? Is that one of the tables that you have filled out?

DR. CROSSON: Can you flip back over to what Mike just calculated? Is that right? Got it.

DR. REICHERT: All right. Is that all we need?

DR. ERRIGO: I can calculate the ABC right now.

DR. REICHERT: Okay, and so Mike will calculate the ABC for us. Let's take a quick look at the action items. I think we may not have specifically considered or determined that best available scientific information, but, implicitly, we have determined that we have recognized the uncertainty, but it is the best available scientific information right now, and we recommended an ABC, and we have discussed the uncertainties associated with this. Provide recommendations for stock status of the portion of north of Cape Hatteras, and I believe we don't have a stock status for

that portion. What is not in here is making a determination for the length of this recommendation, and I would agree with the Mid-Atlantic that this should probably be for -- Given the uncertainty, for not more than three years, and I would open the floor for discussions. Does anyone disagree?

DR. CROSSON: Did Genny recommend that we do it next year again, because of the change in the ABC control rule?

DR. REICHERT: Good point. John, remind me, when is the ABC control rule expected to be in place? Do you guys have a timeline for that yet?

MR. CARMICHAEL: Probably 2020 is when we will have it approved for use.

DR. REICHERT: What we can say is this is in place until the new ABC control rule is in place, which the SSC should evaluate the recommendations.

DR. YANDLE: I support that option, because it also allows us to both be consistent with the Mid-Atlantic and then be consistent to our internal procedures, and I think it's a really nice, elegant solution.

DR. REICHERT: Thank you. We will make that recommendation. That's not in the action items, and there is a series of research recommendations that the Mid-Atlantic came up with. There is research recommendations in the stock assessment, and I don't have any additional research recommendations, but --

DR. CROSSON: We also made research recommendations in our last report, for the south of Hatteras stock, technically, but it applies to the whole SEDAR, I think.

DR. REICHERT: If any one of you have thoughts of any additional research recommendations, please let me know.

DR. SERCHUK: I haven't thought of any, but I just want to make a point about this stock status, if I could, because we're talking about -- As I understand it, we're talking about the portion of the stock that's in the South Atlantic, and is that correct? It's a management unit, and it's not a stock unit. These things get -- I mean, we had one thing that said it's one stock, but they want to be managed differently in the Mid-Atlantic versus the South Atlantic, and I think we should be very careful about when we use the term "stock" and when we use the term "management unit". Thank you.

DR. REICHERT: I agree, and the action item was to provide a recommendation for the stock status of the portion, and I agree completely with you, and we discussed that extensively when we discussed the stock assessment, and this was determined to be one stock, and we are assessing it as two stocks, and we make recommendations as two stocks and one stock and one portion of a stock, and so I agree, and hopefully, with additional information, additional data, we can hopefully, in the future, assess this as one stock. Anyone else?

MS. LANGE: It says for the portion of the blueline tilefish stock north of Cape Hatteras, and, in that section there, should that be for the entire north of Cape Hatteras or to the state line?

DR. REICHERT: But I don't think there is a stock status for that entire region for the section north of Hatteras to the Virginia/North Carolina border.

MS. LANGE: I guess that's my question then.

DR. REICHERT: Did that answer your question, Anne. All right. Anything else, or, as George said, is it cookie time? I am proposing a ten-minute break, and then we will move on to red snapper.

(Whereupon, a recess was taken.)

RED SNAPPER ABC WORKGROUP

DR. REICHERT: I just want to give the committee a little bit of a heads-up. Given the agenda, I am really going to do everything I can to finish red snapper today, even if that means that we have to run a little long, but we have black sea bass and vermilion snapper SEDARs tomorrow, and we have another couple of really important agenda items for Thursday, including the ABC control rule, and so, if at all possible, I would like to finish that today, red snapper.

That doesn't mean that, if it's absolutely necessary, we can't continue the discussions tomorrow, but I just want to ask the committee to help me and others to finish this agenda item today. With that, I am going to hand it over to Amy, and I also want to thank Amy. I sat in on a lot of the webinars, and there was a lot of work done by the working group, and Amy also has done a lot of work to produce the report, and so thank you for that. Also, Scott, I failed to mention that, for chairing the blueline tilefish workgroup, and so thank you.

DR. CROSSON: I think Amy should be able to put this report on her CV, honestly.

DR. REICHERT: Amy, with that, I am handing it over to you.

DR. SCHUELLER: Okay, and so I'm going to go through an overview presentation of the workgroup document that was provided, and that's the document that is Attachment 7. Then the workgroup made a recommendation of a preferred method, and Erik is going to come to the table and talk about the method specifically, and we'll just try to, and I don't know if this is the smoothest way, but give both presentations and then do questions, so that we're not asking things prior to getting to it in the presentation. Hopefully that works out okay.

DR. REICHERT: Yes, and please remind me to ask for public comment after Erik's presentation. Thanks.

DR. SCHUELLER: There are basically three documents that were in the briefing book, this presentation, the overall workgroup report, which contains an executive summary, a timeline of events to how we got to having a workgroup, and then it has in it some basics of the methods that are in there, and so some basic discussion. If you want more details about the methods that have been reviewed, those are contained within Attachment 8, and the list of what's in Attachment 8 is at the very end of Attachment 7, and it gives the supplementary list of what's in that attachment.

I am going to go over the workgroup membership, the task, the terms of reference, just to refamiliarize everybody with what we were tasked with doing, a summary of the vetted options, and then additional topics of interest to the SSC or council, and so, as we met over the last six months, we came up with a series of topics that sort of come up habitually that there is some confusion on, perhaps, or just could be clarified a little bit, and so those topics are in here as well, and they're in the main document, and so I guess I will move on from there.

If you want to see the notes from each of the meetings, that is also included in the supplementary materials, and so we met about once a month for the last six months, and all the notes and information on what we talked about, what the action items are, it's all in there for everybody to see as clear as day.

The workgroup membership included Rob Ahrens, Luiz Barbieri, Scott Crosson, Eric Johnson, Genny Nesslage, and myself, and we had support from council staff and Southeast Fisheries Science Center staff. Mike helped out with setting up meetings and things like that, and the Southeast Center staff provided updated projections for us and then also analyses on the Center interim analysis.

The working group task in general was to collate data analyses, stock assessments, and any other background information on red snapper, in order to determine an ABC. If necessary, work on additional analyses for providing an ABC or tracking an ABC, which we're not really tracking an ABC. We're tracking an ACL.

Terms of reference, we were to collate and evaluate existing information on red snapper. Hence, the, I think, over 3,000 pages of supplementary materials included. Determine if an ABC can be determined from existing information. If an ABC cannot be determined from existing information, provide a plan of action for moving forward to determine an ABC. The plan of action should include evaluation of index-based methods for tracking an ABC as well as consideration of the index-based method and whether it can be used to determine an ABC.

Assess, to the extent possible, newly-developed methods providing strengths and weaknesses of each method, and, finally, to provide a final ABC recommendation and also include any viable alternatives, in priority order, based on the science and data available. This set of terms of reference went to the council to be approved, I think, in November, right after we met last October, and they approved it, and so we moved forward with meetings and the sub-committee or workgroup, and I am not sure what we are called, exactly.

We vetted five sets of options, and we tried to use sort of the council's verbiage here on not recommended and then recommended and then preferred versus non-preferred, and so the vetted options included what we're calling the Center Interim Analysis, and that's our preferred recommendation, and that's what Erik will be presenting on after this presentation is over.

We also vetted the stock assessment and projections, specifically SEDAR 41, and that was recommended for use, although not the preferred alternative, and we vetted data limited methods, or the DLM, and that was not recommended for use. We vetted the index methods used in other Science Centers, and so we did a reach-out to members in other Science Centers to see what kinds of index-based methods they were using, if they were using any, to set an ABC, and those methods were not recommended for this instance as well.

Then, finally, we reviewed Amendments 43 and 46, and the methods that were used in there were not recommended either, and so, moving forward, the Center Interim Analysis -- I basically am just going to go through the pros and cons of each of these, just as a basic overview, and, if we have specific questions, we can get to those at the end, and so, for the Center Interim Analysis, this is our preferred recommendation, and the pros are that it uses the best available science and data from the stock assessment, and it uses up-to-date, meaning terminal year 2016, catch, discards, fishery-independent index ages, and index values to forecast recruitment cohorts. It is the least delay between the catch and index terminal year and when management will be put into place. As far as a con, the con is the uncertainty in the inputs. There is still uncertainty in the inputs, including the uncertainty in the discards in MRIP, which that is true no matter where we go.

Next is the stock assessment and projections, specifically SEDAR 41. This is a recommended alternative, but not preferred. The pros include that it uses the best available science and data up to the terminal year, specifically 2014, of the assessment. Projections use up-to-date information on catch and discards, specifically the terminal year of 2016, and what happened was the sub-group requested updated projections from the Science Center, and they provided those for this workgroup, and they are included in the supplementary materials and in the main body of this report. Finally, the other pro is it's reviewed by external CIEs.

As far as cons go, the projections do not use updated available data on the ages and the index. Uncertainty in the inputs, including uncertainty in the discards in MRIP, as discussed during the review process, remain, and so that's the same con as the Center Interim Analysis, and then the final one here is the current age of the assessment with the terminal year of 2014. It's a lot older than what we would be looking at if we used the Center Interim Analysis.

Data-limited methods, this method was not recommended for use for red snapper, and so the pros are that it's easy to calculate. The cons outweigh the pros, and so the cons are that it does not use all of the best data available for red snapper. The average catch method does not perform well if a stock is assumed overfished. Mean length methods have been formally vetted and do not work with noisy length data, and then methods were developed for active fisheries rather than small or closed fisheries, as is the case with red snapper. Obviously, with each of these, there is more pros and cons, but these are sort of the main ones that we hit upon in the documentation. If anybody on the workgroup wants to speak up, let me know. Remember that I am just delivering.

Index methods used in the other Science Centers, this was not recommended, and the pro is that it's a fishery-independent index, and it could be updated, but the con is that none of the indices for red snapper have a time series that cover the current time period and span a time during which the stock was either not exploited or only lightly exploited, and so the index-based methods used at other Science Centers have that caveat. They tend to have longer-term indices with a greater range in time and exploitation history, and we don't have that for red snapper. An additional con is we do not know the scale of the index, and we do not have an estimate of the catchability, and so, without those pieces, it's difficult, possible, to use an index-based method.

Amendments 43 and 46 were not recommended. The pro here, again, is the same as the last one, that the fishery-independent index was updated or can be updated. The con is that none of the indices have a time series that cover the current time period and span a time during which the stock

was either not exploited or only lightly exploited, and this is the same con from the last option. We do not know the scale of the index, and we do not have an estimate of the catchability.

In addition to that, what was done in the amendments used an index that didn't sample red snapper habitat sufficiently during the entire duration of the sampling, and the method hasn't been peer reviewed or reviewed by the SSC, and it also assumes that the 2012 to 2014 fishing level is sustainable, which we do not know.

The recommendation out of the group was that we go ahead with the Center Interim Analysis. If the full SSC formally recommends this option, then the table below provides an ABC value for a 50 percent probability of rebuilding by 2044. This is in the document, and you can take a look at it, and we are able to provide an ABC by year for this if we tend to go this way, or if we end up going this way.

I am going to go through some additional topics that came up over and over again, and so this is a very boring black-and-white presentation with tons of text, but that's what happens when you get on a red snapper workgroup, and so landings and discards when setting an ABC, and so this topic came up a lot, the fact that we're including both landings and discards in this ABC, and the red snapper ABC is based on landings and discards, it's under a moratorium, and the ABC is tracked as discards.

Discard mortality and effort levels can be high enough to exceed an ABC even under a moratorium, which is why we need to take into account discards, and, if so, managers need to consider alternatives to reduce effort and discard mortality if this is the case, and so there's a lot more background in the document on each of these topics if you want to look at it further, but this is just a reminder that this ABC is in landings and discards.

The next topic is ACL monitoring as opposed to ABC determination, and ABC determination has been used interchangeably with ACL monitoring, and they are not the same thing. ACL is dependent upon the ABC, but the monitoring of the ACL is not dependent on the ABC, and so, a lot of times, the ABC is equal -- The ACL is equal to an ABC, but it doesn't have to be, and so the ACL can be monitored using best available data for landings and discards. In some circumstances, datasets are used for monitoring, but are still not ideal.

However, ACL must still be monitored, even if no alternative -- Given that no alternative data are available, and then the last comment on here was that an ACT can be considered for further buffering, given the uncertainties in monitoring of an ACL, and so, if an ABC is set and the council is going to provide an ACL, they could, in addition to that, choose to use the ACT option to give themselves a further buffer if they're worried about the uncertainty and, for example, discard monitoring.

Merits of the CVID index, and so this is the index that was used in the stock assessment that is a combination of the video and the chevron trap, and so I just wanted to go through a couple of things related to this. First, it's developed by the data collected through the partner-led survey SERFS. Sampling coverage expanded primarily in Florida in 2010 and 2011, and so it's sampling between Cape Hatteras, North Carolina and St. Lucie Inlet, Florida, as of now. Spatial coverage of the survey after 2010 adequately covered the center of the distribution of red snapper, and the

percent of positive catches increased to higher levels, in fact high enough levels to develop an index.

The data workshop provided a chevron trap and a video index separately, originally, in the stock assessment. However, the two indices were deemed not to be independent measures of abundance, and so they were combined into the CVID index using the Conn method. The CVID index selectivity was assumed logistic and informed by those chevron trap age comps, because the video index does not have an associated information on length or age.

Use of the chevron trap index from 1990 to the present, this came up, given that it was used in the amendments, and this index was not used for the last two assessments, in order to provide an index of abundance for red snapper for the years 1990 to 2009. In fact, the assessments have used a truncated time series from 2010 to 2014 to provide the best available information on red snapper trends in abundance, and, prior to 2010, the spatial coverage of the chevron trap index was not adequate to cover the center of distribution of red snapper, and the percent positives was extremely low.

One of the questions that came up with this was, okay, if it's not useful for red snapper, what is it useful for, and so we wanted to make it clear that while the sub-committee and the assessment basically said that this information wasn't useful for red snapper, it's still useful for other species, and the chevron trap data has been used for black sea bass, vermilion snapper, red porgy, red grouper, and gray triggerfish. It adequately samples those species habitats, and the fluctuations in the index have been deemed to be adequate to look at changes in relative abundance.

We just also put in here a couple of notes, and so the introduction of the video recordings has significantly increased the value of the data and the survey, and, in addition to the survey providing indices for those other species, it also provides biological information, and so age and reproductive and diet and genetic information for other stock assessments and management.

The next topic is validity of indices at low population size and examples of interpreting data. This came up just because, when an index gets really low, sometimes there is some questions about whether or not it's actually reflecting abundance trends or not, and so indices of abundance can be used as indicators of population trend, recruitment, or changes in age and size structure. This information is used in conjunction with the other information in an assessment, to make those determinations using sort of weights of evidence, and so we're using life history information, size and age structure information, catch, biomass, fishing mortality, things like that, in connection with the index data to get at population dynamics of a species.

However, only fishery-independent indices of abundance have the potential to provide trend information about portions of the stock not encountered by the fishery, and so that's the key. Fishery-dependent indices are only covering where the fishery is, while a fishery-independent index is covering, hopefully and typically, a broader range of the stock.

However, several circumstances do exist where even fishery-independent indices of abundance must be interpreted with caution, and there is some examples here. Trends in relative abundance may be dampened or disappear when plotted with associated confidence intervals, and so that's something to consider. At low population sizes, surveys may rarely encounter existing individuals, such that changes in relative abundance over time may be indicative of rare catches rather than an

overall population trend. Changes in management may not result in immediate changes in index trend, depending on the spatial extent of the survey and the selectivity of the gear and, in addition, the life history of the species. They're not going to necessarily react in two years if they're a long-lived species. Then we just made in here a comment about interpretation of trends independent of other stock assessment information can lead to misinterpretation.

Observation versus process error in the index, and so, when interpreting changes in stock abundance from indices, you must consider the potential relative impact of both the expected variation in abundance, the process error, and the variation in sampling, the observation error. Most index methods have associated standard error estimates, which provide insight into the observation error, but understanding of the process error is limited to the length of the index.

One of the other topics that comes up is fine-scale shifts in spatial targeting and the inability to track them, and so changes in the spatial distribution of fisheries and research surveys have the potential to obscure changes in stock abundance when catch and effort information are not geospatially referenced at scales at which the assumption of representative sampling can be made. The resulting catch and effort that is commonly used to generate relative abundance trends will not be proportional to stock abundance in that case, and so hyperstability or hyperdepletion. In general, the issue of non-proportionality is greater with fishery-dependent data that is documented at broad spatial scales.

I think that's the end of the major topics, and so all of those topics are written up in that document, and they're fairly near the top, just because we wanted that to all be on everybody's radar. They're things that came up over and over again as we were going through our six months of meetings, and so we wanted to put them up, and so the take-home from this is the group has provided some recommendations to the SSC, and we have a preferred recommendation, which Erik is going to talk about the Center Interim Analysis methods that were used.

DR. REICHERT: Thank you, Amy.

DR. WILLIAMS: Since this was the working group's preferred option, I thought it would be useful to give a separate presentation just on this method, to give a little more detail, since this is a sort of new method, but there is a fully-written report too in the documentation that details how this analysis works.

Basically, what we're doing with this analysis is it's -- Why we call it the interim analysis is because it's a way to conduct sort of an analysis in between assessments with as much updated information as we can get. Now, it doesn't necessarily need to be in this form for every species. This is one of the ideas that's being put forth in sort of changes for SEDAR, is to consider doing more of these interim analyses, which can be simple projection analyses, and it can be what's being presented here, as well as other things, but, basically, the idea is you're taking advantage of recent data after an assessment has been completed and including it in the analysis and updating information that could provide new ABCs.

What we're doing with this one is we're basically taking what we would do as normal projection analysis and just adding new information. It's a little more costly to us, in terms of time and effort and even coding, because we had to code this up, compared to our standard projection analysis, but the advantage is it's far less expensive than a whole new assessment.

This is sort of a table to just sort of illustrate the differences between what we do with standard sort of projection analyses and what we do with the assessment and what we can do with this interim analysis, in terms of information that's included, and so, if we just project out, which we do at the end of an assessment, with current F values, and you don't update the data, and you don't have any estimates of interim Fs, and you don't get any new recruitment estimates, and so we basically just project out a constant F and assume a constant recruitment, or, in a stochastic setting, we do a random sampling of recruitment, and that would be sort of the current F in that first column.

The second column would be what I call status quo here, which is where, when we get requests for updated projections, this is what we do. We update the landings and discards only, and we then estimate interim year Fs, but we do not estimate recruitment values. In this interim analysis, what we're proposing is to, by adding in the index data as well as the age comps, we can then, in addition to what we normally do in projections, actually estimate new recruitment values as well and actually update even older recruitment values in the assessment.

In the case of red snapper, the terminal year in the assessment was 2014, and we added 2015 and 2016 data for this interim analysis. Here is some more details about the method, and so, basically, what we do is re-run the assessment model, including the Monte Carlo bootstraps, and so we do the full uncertainty analysis with this.

All parameters are fixed at their previous values except where we can estimate certain things, and so the benchmarks are not modified, because we don't want -- I don't think we want to go down the road of having these interim analyses potentially changing stock status. What we're really after is just trying to update what -- The additional thing we're really gaining with this new data in the interim analysis is these recruitment estimates, and we're able to estimate recruitment deviations in 2015 and 2016, because those are the two new years of data, but, also, we're able to update estimates of previous years, and so, if you recognize that in an age composition data in a given year you have ages that represent multiple cohorts that go back in time, and so the idea is that, by adding a couple more years, you're also adding additional information on historic recruitment values, and so that is why we're re-estimating recruitments going all the way back to 2004.

I shouldn't say re-estimate, and hopefully it will become clear what we're doing is actually updating those recruitment estimates. If there is enough information to suggest a modification in that estimate, the model does so. If there isn't, it just sticks to the value from the original assessment.

The projections are just like we normally do projections. We still require assumptions about future recruitment beyond 2016, and so we just assume, like we do in our regular projection analyses, and we sample from a distribution that's commensurate with the pattern of recruitment we saw in the assessment itself, and then, in this case, we started with new management in 2018, and we had landings in 2017 that were assumed equal to sort of an average from 2012 to 2014, because those were years where we actually had landed catch. Recall that 2015 and 2016 did not.

We basically ran this in three ways, and we labeled them IA1, IA2, and IA3, Interim Analysis 1, 2, and 3. IA1 is essentially an analysis with all the new data, and so we include removals for 2015

and 2016, and we include the CVID index values for 2015 and 2016 as well as the age comps, and then we did an IA2 version, where did not include the age comps, and this was more or less out of sensitivity. Sort of, we wanted to see what the effects were if we didn't have the age comps and just the index and how well we could -- What we would get from that and compare that to the IA1. Then IA3 would be what we would normally do, sort of the status quo approach of just updating the landings estimates.

DR. BARBIERI: A quick question, Erik. The age comps there, are those -- The updated age comps are just coming out of the SERFS, and so this did not include like the age composition of the catch?

DR. WILLIAMS: Yes, that's a very good question and a very good point. It is just the fishery-independent data, and so it's only the fishery-independent age comps and only the index values for that.

DR. REICHERT: Another quick question, for clarification. SERFS is the CVID, and so it included the video index?

DR. WILLIAMS: Yes, it did.

DR. REICHERT: Okay. Thanks.

DR. WILLIAMS: Here is looking at those three sensitivity runs, I guess you could call them. This is just showing the fit to the CVID index, and you can see that, when we're fitting the index, it fits the index, but in the bottom panel, which is the sort of status quo, where we wouldn't have the index information or the age comps, you can see, in that last year, we're not fitting that index very well, and so the fitted values are the blue line, and then the open circles with the error bars are the observed values from the CVID index.

I am going to focus on just the IA1 results, and I will show some of the IA3, too. The IA2, like I said, was more of a sensitivity run. Really, what we wanted to do is compare our sort of old status quo method of doing projection analysis to this new IA1 method, and that's the better comparison, to see what benefit we get by adding the index values as well as the age comp information from the fishery-independent survey.

This is the results of abundance, and one thing you will note is that, in the last year, or actually the last two years, we're at some of the highest abundance levels we've seen since 1970, according to this analysis. This is showing spawning stock biomass, which doesn't show quite as much of a difference compared to 1970. You can still see there's an uptick in the last few years, and that's a function of because the abundance here is numbers, and this is biomass, which includes all the ages, and you will see why that matters in just a few minutes here.

Here are the recruitment estimates, and we are showing all three methods here, the IA1, the IA2, and the IA3. Again, IA1 is the full interim analysis, IA2 is index only, IA3 is neither, no ages and no index values. You can see what the effect is on recruitment values, and what it's doing is pulling up recruitment values, particularly in those last three years.

Here is what the abundance at age looks like, the age structure in 2017, and what the IA1 is suggesting is that -- As it showed in the previous, a lot of recruits coming in, and that's reflected here by a high abundance at age for the youngest ages, particularly ages-one through four, particularly when you compare it relative to the IA3 method.

Again, comparing that IA1 and IA3 methods, here are the projected spawning stock biomass, and I know those are probably hard to see, but spawning stock biomass is in the top panel, the middle panel is landings, and the bottom panel is discards, and so you can see a dramatic difference when we include the index and age comp data from the fishery-independent survey here. That would be the blue line and the green line, is when we don't include that information.

Here is a look at sort of the stock status that comes out of this analysis. Again, I said we probably wouldn't want to use this method to update stock status, but we can still look at the fishing mortality rates as they compare to the benchmark that was estimated in the original stock assessment, and, basically, what it indicates is that there is still overfishing occurring, but, certainly in the last two years, it has come down a fair amount.

Recruitment, here is the recruitment pattern that we're estimating, and one thing I wanted to highlight, because we found it interesting, is you can see those high recruitments in the last three years. You also note that we've had one of the biggest year classes we've had on record occurred in 2014, but one thing we noted is that that little cluster of three big recruitments is very similar to what we experienced back in 2006 through 2008, and so we got a little ambitious and decided to look at this and look at what-if scenarios, since those were similar, to kind of illustrate what's been going on with this fishery, and so, basically, we looked at going back in time and said what if management had taken some action in 2008 or 2010 and what would have been the fate of those three year classes, since they're similar to three year classes we're experiencing right now.

We did projections at various F levels, shown in the bottom there, and the results of that are shown here. What you can see are the scenarios of F that we ran. We ran it starting in 2008 and also in 2010, and we ran it at various levels of F equals zero, 75 percent F30, F30, and at the current F estimate that we had from the assessment. This is just showing the F values, and here is the resulting spawning stock biomass projections that you get from that.

What this illustrates is how important those big year classes could be if fishing mortality is curtailed early enough. You get a lot of benefit, in terms of stock increase over time, and so I just wanted to point out that these recent recruitment values are very similar to those three that we had prior to 2008.

I think that's the end of my presentation. We had extra slides in case you actually wanted to see the table maybe a little bigger, but this actually doesn't help that much, but I will take questions at this point. Hopefully this helped to sort of explain the method. Again, the documentation should be another source of information to understand the guts and details of this method.

DR. REICHERT: Thank you, Erik. Before I open the floor, I am going to look around and see if there are any public comments on red snapper. Seeing none, I also -- Sorry, Ben.

MR. HARTIG: Thank you, Marcel, and thanks for the presentation, Erik. I think the main problem I see with moving forward with this interim analysis is that it doesn't use the information from the

FWC, which was cooperative research done with industry for a number of years now that adds a number of different ages into the system that weren't collected by the trap gear.

That information shows that -- Well, I don't want to step on Luiz's toes, and so it's kind of tough here, because we haven't really aired this before the SSC, and it's time that we do, because the information presented shows that traps in general don't catch most of the animals at about 600 centimeters, I think it is. The traps catch proportionally less of those animals than other gears that are used in that fishery, where they are repetitive time drops, and they're captain's choice. Then, if you add in the stereo-video camera information, that produces even a broader age structure than what is shown in the information that is collected by SEFIS.

To me, it would be untenable not to include that information in at least the ages in the new information that goes into the interim analysis. The other thing is, is this -- I mean, there is information that the SSC needs to see that's done by FWC, and this is over a multiyear period, and there may even be a way to do an index for some of this information. If that is possible, we should add that index to this as well.

Only to continue to focus -- Now, Erik gave you a presentation on what would have happened if we had protected those year classes, and it's untenable for me to say that we eliminated that year class with fishing. That just did not happen, and, if you look at the age classes that continue to go through the fishery from the fishery work done by FWC, you see these year classes showing up in much larger numbers than shows up in the trap studies. The traps are not going to collect the older fish. They're just not going to do it. The older, larger fish are not collected at the same proportion as the smaller fish.

Now, those studies are great for the smaller animals in the population, and we see that again this year and last year in the new recruitment in this stock, and so, yes, those studies are -- The trap studies, I think will come out and show that it's great for the small animals, and it shows great new recruitment into the fishery, but, for showing the older animals and rebuilding the stock, it just doesn't -- It's not able to collect the larger animals in that proportion.

If you're going to go forward with this, you're going to absolutely have to use all the data that's available to the Center from the various different studies that we have, and to do anything less than that would be a disservice to the red snapper fishery, the fishermen that fish in it, the cooperative research that's been done with the FWC, and that's all I will say. Thank you.

DR. REICHERT: Thanks, Ben. Erik, remind me. I should have looked this up, but what was the selectivity, because this comes back to selectivity of gears, if I remember correctly, and so what was the selectivity that was used for the CVID index? Do you remember that?

DR. WILLIAMS: Yes, it's a flat-top selectivity.

DR. REICHERT: Remind me, but the complication there is that it's a combined video -- One of the complications is it's a combined video trap index, and so the videos may pick up the larger fish, but we don't have the size composition of the video information.

DR. WILLIAMS: Correct, and, again, I have not seen the FWC data yet. I mean, I think I've seen preliminary shots, some screenshots, that folks have shared with me from it, but recall that, and I

think this is documented in SEDAR 41, we did do extensive analysis comparing sort of catch curve, which is sort of the best thing you can do to look at the descending limb of the age structure compared to the fishery, and we saw no differences.

I can see where it looks like, on the face of it, that traps don't catch some of the biggest, oldest fish very often, but part of that is also because they catch the very young fish at a much greater proportion than hook gear or the commercial fishery does, and so, really, the phenomena that seems to be happening is the traps are just shifted like two ages to younger fish, and so then it looks like they are catching much fewer older fish, but, really, when you compare the sort of catch curve or the decline of the age structure, which would indicate whether things are dome-shaped or not, it looks to be about the same compared to the commercial fishery, but that's what was done at SEDAR 41.

Of course, I think Ben is correct that a lot more data has been collected since then, and I don't think anybody has bothered to sit down and sort of put it all down at once and sort of look at it in a comparison study, and so I think that's -- I agree that would be helpful to sort of determine for sure what's going on there.

DR. BARBIERI: To that point, Erik is absolutely right. I mean, I just sent you a copy of the report, the MARFIN study, for the selectivity analysis for the different gears, including cameras, and so you actually can see, and that uses the stereo cameras as well, and you can actually do measurements of the fish and come up with an age composition of the population versus what's being caught by the different gears.

It's PDF page 66 of that report, and we've talked about this in the past. I mean, none of this is one versus the other, but we are trying to represent -- Science works like this, and we want to move forward in having a better understanding of new methodologies that are being developed and are being used to account for some difficulties that exist throughout the world in terms of indexing abundance of reef fisheries when you have gear selectivity issues, and, unless we conduct these comparative directed studies that are experimentally set up for that purpose and use methodologies that can actually help clarify, it's hard for us to infer selectivity without.

It is unfortunate that this study was just finished and that that wasn't available yet, or, actually, even last year, when I gave a brief presentation to the council, we had not had all the video data from the stereo-video cameras and all the measurements processed, because it takes a lot of manhours, a lot of time, to go through that process, but it's something that I think, to me, after I saw these results, it really brings into question -- This is why I asked the question about what are the age compositions, and there's nothing wrong with the model, and there is nothing wrong with the stock assessment methodology being used, but it's simply the way that we are assigning selectivity functions that may not be truly representative of what the selectivity of those gears are and trying to come up with an age composition of the population that may not be representative of the actual population. It would be PDF page 66.

DR. REICHERT: Okay. A couple of things. First, because we are kind of going from public comment into our discussions, I first want to remind people of the assignments. It's Amy, Luiz, Eric, Rob, and Jeff, and so please help me with making notes and help us write the report. Then we can review the action items in a little bit. I have Amy and Fred, but, Luiz, what page were you referring to and --

DR. BARBIERI: That is the page on the actual report.

DR. REICHERT: Again, this goes back to selectivity of different gears. Unfortunately, as you said, and correct me if I'm wrong, but this information was not available for this interim analysis, and so that's one of the uncertainties we may have to take into account when we ultimately start looking at recommendations, and there is a -- Remind me, but the red snapper is a benchmark or a standard?

MR. CARMICHAEL: It's a benchmark.

DR. REICHERT: A benchmark in 2020? In 2020, and so, obviously, this is information that becomes very important there. Luiz, that was basically the basis of your -- Of the stuff that you wanted to bring to the committee?

DR. BARBIERI: Well, right now, yes.

DR. REICHERT: Okay. Then go ahead, Amy.

DR. SCHUELLER: I agree with what Marcel just said that this isn't available, and wasn't available, for the assessment or the analyses, and I am interested in seeing it, and this is a good thing, because science is always evolving, and that's what makes it exciting, at least for me, but I guess I don't want to stray too far from what the tasks are for this meeting, because I think that the law does state something about you can't just wait and wait and wait to set recommendations for new information, and I was thinking about this well before the meeting.

I was thinking what does this equate to, and, in my mind, an analogy is you buy a lottery ticket, but you still go to work every day, right, because you don't quit your job thinking you're going to win the lottery, and it's the same thing. We have to wait and see, when it's vetted, whether or not it's going to have an impact and what that looks like, rather than quit our job now. I say that this is interesting, and it's great that science is evolving, but we should still make sure that we address our tasks at hand, and we can include recommendations for the future, and I think that would be the best path, as I see it.

DR. SERCHUK: I have a couple of points, Chairman. I wonder whether there was any thought given to using half of the historical time series. Let's cut it off in 2003 and then apply this method going forward, just using the same type of approach, just using the chevron trap data, to see whether the projections from that point forward will mimic the assessment results that we have that we know -- We have already accepted the assessment, but we haven't accepted the projections. We thought the projections were -- You should be able to do that.

We've only gotten two years' worth of data that you've looked at, 2015 and 2016, but you could actually go back to an earlier period, when we had the chevron trap data, which you're using as an age composition surrogate, and put that in and then see whether you can replicate the time series that we know we got from the assessment, and that would give me a greater feeling for whether we're actually able to reproduce what actually happened, and, if not, we can then start saying, well, why not?

That's one issue, and the other issue I have is I can't recall what the natural mortality was that's used for this stock, but I am presuming it's quite a bit higher than the F rebuild or the 0.14 or the 0.13, and can you recall what the natural mortality is that was used in the assessment? I only raise this because, if we're projecting forward to 2044, which is a long time in the future, and your natural mortality rate may be double, and I don't know what it is, but let's say it's much higher, and that's the thing that is going to control the population, and it's not going to be -- Generally, we try to get -- In many cases, if we're overfishing, we want to bring it down, and so, quite frankly, fishing mortality rate is not the thing that's controlling, the major controller, of the population, but, when it's natural mortality, then, over a long period of time, you are fooling yourselves to think that, quite frankly, we now have the control over it, and so I am just wondering for scaling, if for no other reason, if we could be reminded of what the natural mortality rate was.

MR. CARMICHAEL: 0.12 to 0.14 is the range.

DR. SERCHUK: 0.12 to 0.14. Okay. It would be about the same as the F rebuild. Okay. Thank you.

DR. AHRENS: The only point I wanted to make is the graph that Luiz was talking about is also in the public comment from the SFA, on page 1.

DR. REICHERT: It is.

DR. BARBIERI: This was conducted as a NOAA Fisheries-funded cooperative research project, and the idea -- I want to emphasize this here, because, I mean, I have a lot of friends within the Center, and I have a history of working very closely with the Center, and this is not the Florida FWC versus the Science Center in any way. This is simply a way to us discussing what are the inputs and the outcomes, outputs, of a stock assessment projections exercise and the fact that we are supposed to be presenting the council with advice that is conducive to them managing the stock properly and to bring credibility to the management process.

We have within our regional Science Center a process for funding research by different principal investigators in conjunction with industry, exactly because there are situations when those types of data collection are more productive, and so here we have the result of one of those projects that was specifically -- This started three or four years ago, whenever it started and the proposal was submitted, and the idea was exactly to evaluate selectivity, because, ever since we started, ever since SEDAR 15, the issue of selectivity has been problematic for us with that assessment, and I served in several of those assessment panels, and I remember those discussions and all the uncertainty associated with selectivities.

The idea was, well, let's try to collect some information, so we can have better-informed selectivities, and so I feel uncomfortable, and this is not to pit anybody against anybody, and I think that the SEDAR 41 process took place, and I think that the interim analysis is a good idea, but I don't feel comfortable, really, going and accepting the results of this interim analysis that assumes a logistic selectivity for the chevron traps when recent research shows that not to be the case. I mean, I think this would be a disservice to the council to be given catch level recommendations based on an analysis that, I mean, we know has problems. That is my point.

DR. REICHERT: I don't think anyone devalues the value of that study. I think the conundrum is now, before the committee, is that information was not available when this analysis was done, and so we can postpone until the next meeting, and then there may be other information that will be available at the last moment that may be equally valuable and may have an impact, but that, I think, goes to Amy's point in terms of at what point are we making a decision. I agree that it may be a conundrum, but we, nevertheless, are tasked with providing recommendations.

DR. CROSSON: I guess just my question for Luiz then is are you more -- The alternative is not bringing in this additional data at the moment. The alternative right now is to continue with the method that's listed in Amendment 43, and so the question is, is this an improvement over the method that's in Amendment 43, because that is currently what's being used to set the quota for red snapper in the South Atlantic. If the answer is yes, you're more comfortable using that, then I understand that, but that's a concern of mine.

DR. BARBIERI: If that's a direct question, I don't know. I don't know how to answer that, because I would have to look at the outcomes of both analyses. One, I think that, in terms of the index of abundance, it's -- I do believe that MARMAP and SERFS are indexing abundance correctly. I just don't believe that it's really representative of the age composition, and so those are two different things, whether an index of abundance is providing what you believe is something that's reflecting the dynamics of population fluctuations versus not.

DR. CROSSON: Absolute abundance or relative abundance?

DR. BARBIERI: Relative, yes.

DR. SCHUELLER: I am a little disgruntled, Luiz. I know this isn't a Science Center/FWC thing, and I don't think it is, but you were on this workgroup, and the workgroup approved the report, and the workgroup suggested that the Center interim analysis was the preferred recommendation over what's in Amendment 43, as Scott stated, which is what's in there now.

Then I don't know, but I challenge you. If you don't now agree, what is your alternative? Like there has to be an alternative on the table for us to vet today, in my opinion. It can't just be that I don't feel like this is going to be the best option, because we're never in a best-case scenario, and that's why it's best available science and information. It's not perfect, and it never will be, and so we have to move forward. What is your recommendation?

DR. BARBIERI: Amy, this committee, that's why it's a committee. It's not one, and it's not deterministic, and so there will be a consensus recommendation coming out of here, and, yes, I missed a couple, maybe three, of those webinars, and, no, I had not even seen the final report of this.

DR. REICHERT: Luiz, with this, you mean the FWRI report or the red snapper report?

DR. BARBIERI: Yes, and you remember that I presented this to the council fairly recently, and we didn't have all of the data completed for this, and so this is something that -- Again, I don't know why this is becoming an issue that is my talking against the committee. I am not talking against the committee, but I'm just saying this is information that has just come up. The way that

Erik presented the presentation today, talking about the age composition and how the selectivity for the gear was assumed, I think it's leading to an output that is not correct.

I mean, I think it's my professional obligation to make that point, because that is scientific advice to the council, that the council is going to have to use to manage the stock, number one. Number two is I don't know how the agency itself will consider -- I mean, we have documentation from the Science Center itself, and, if this wasn't accepted before, why is it being accepted now by the agency? Is it?

DR. REICHERT: With this, you mean what?

DR. BARBIERI: Well, the recommendation that will come out of this report.

DR. REICHERT: But that needs to go through the SSC, and that's not an agency determination. That is the determination of the SSC, which then goes to the council, and then the agency has, at some point, an opportunity -- I am not entirely sure where you're getting at, and the other question is that I am trying to wrap my head around where we go from here.

We have several options. We can say, okay, we have the suite of options, in terms of accepting the recommendations of the working group or not, but, if we don't, I think we are obligated to come up with an alternative, and I would like to hear your suggestions for alternatives, and so two questions. I wasn't sure what you meant or where you were going, and then the second one that's still on the table is an alternative for the --

DR. BARBIERI: Let's review the process. The process that we have, the council process, is we have an ABC in place until a new assessment is provided through our regional assessment process that provides a new OFL and a new ABC, correct? This committee made a recommendation, and I have the report right in front of me, that recommended projections through a report that we produced and put out there, and those are the recommendations that stand.

Why are we producing a new ABC? We have an assessment that was reviewed within our regional stock assessment process, SEDAR, and that was SEDAR 41, and this committee reviewed that report, and we have an actual report on the administrative record that has projections in there. Why are we asking for a new ABC?

DR. REICHERT: Because, in a more recent meeting, we as a committee determined that we could not come up with an ABC. There is another thing is that the ABC that we recommended, after reviewing SEDAR 41, that stock assessment was corrected, and we never updated that ABC recommendation, but I think that is somewhat beside the point, because where we are now is because, as a committee, we said that we could not recommend an ABC, and that's what led to alternative methods, and, why we could not recommend an ABC, that is clearly laid out in our minutes and our report.

That's why we are here, and that's why we went the route of the working group, to come up with a method to provide an ABC until the next assessment was completed, and that's why I may have difficulty understanding exactly where you are coming from. That is separate from the fact that there was now new information that became available not in time to be fully included in this

interim analysis, it's my understanding, but, yes, we have that information now, but what do we do now? That's where we are.

DR. BELCHER: I am kind of understanding some of Luiz's point in one situation, because I'm looking back at what's in the overview, and it was saying that clarification was provided by NMFS to the SSC that the assessment is still considered BSIA. However, the data available to monitor the landings and discards are too uncertain to track any projected ABC, and so, if our uncertainty in tracking it is the problem, coming up with a new ABC isn't fixing the data problem.

That was where, when you read down through, there was an investigation using data-limited and index-based methods, and then we were informed that they were not going to continue on -- The research activity of the Southeast Fisheries Science Center regarding an approach to use fishery-independent index information was not proceeding, and so, at that point, we were told we were looking at some other approach other than trying to use ABC approaches, because we didn't have the confidence that we could work with that data to properly monitor and do what we need to do with the ABC values.

By going through this exercise again, we are reproducing ABCs, but we don't have any better approach to monitoring or using the data, at least according to those two highlighted statements in the report. It says 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. Well, that hasn't changed. I mean, the uncertainty is still the same in the catch data, and so generating the new ABC isn't changing our confidence in the catch data, and so is that not to your point, Luiz? That's kind of where I'm at, too.

DR. SERCHUK: Sorry to be a broken record here, Chair, but I think we've just summarized -- We had projections before, and now we have a new set of projections, except the new set of projections actually doesn't use age composition data. It uses data from the chevron traps as a surrogate for age composition, but we know, from what I'm hearing, that it doesn't reflect the full age composition of what you might get from the removals.

That's the reason I suggested that, if you believe that is a better thing, go back and chop up half of your history and then go forward with the chevron trap and see whether you can actually get the age compositions in the projections that you see from the assessment. That would give me a lot of faith in saying, yes, we've made a big step forward here and we can use a subset that's independent of the commercial fishery and see whether we actually could get the same age compositions that we had when we had the age compositions in the assessment, and that hasn't been done. I am thinking to myself that we're no better off than we were before, because we have no way to pin this down, in terms of its veracity, in terms of simulating the real population. Am I totally lost here?

MR. BROWN: I like what you're saying, Fred, but I'm sitting here trying to listen and understand what you all are saying, and then I'm thinking to myself, what is the risk? What are we talking about here? Why are we going down these different paths and everything when you came up with a way to where we can actually do some sampling and get some feedback? What is the risk of this?

DR. BELCHER: To the point that, based on what we're doing, it's not like using the index, and so the information from the index is not informing us on what to do with how to turn or monitor the ABC value itself. That is what we're -- At this point, what we're doing is regenerating a catch number to set an ABC, but it's not tied to -- At least this is, again, where I'm coming back to what Luiz's comment was.

We were hoping to use that index in lieu of using landings or the MRFSS and the combined commercial to get the ABC value, and we're not doing that. All we're doing is regenerating the stock assessment to get new ABCs, and the problem isn't the ABC, but it's the way that we monitor and make sure that we're giving adequate reflection in landings to the fishermen, because, again, think about it relative to the recreational landings. MRIP has a pretty big error estimate around it, and so we're trying to hit an exact number, but there's so much slop on it that we could be way over or we could be way under, and that's not changing, because we're not focusing on that index. We are looking at the total removals still.

MR. HARTIG: I think the thing that bothers me the most is, while the paper that Luiz put up there and showed you the figure is new, the information coming from the FWC is not new. We have four years, at least, or possibly five years, of data that could have been -- At least some which the age comps could have been put into this index, and why ignore those? It was information -- We have presented this information to the SSC before in reports. The Southeast Fisheries Science Center has put Luiz's information, in lieu of he didn't want it put forward, put forward before the SSC in their papers, yet this information is available, and it adds age structure that isn't in the interim analysis to the analysis, and it was -- Well, I'm not going to say it was ignored, but it was not used on information that could have been used.

DR. BARBIERI: To that point, Mr. Chairman. Ben, my opinion on that, in terms of an index, for even the age composition, and I know members of industry have their own opinions about this, about what the age composition represents, and, to me, this study was conducted at the center of abundance, literally, of this stock, and over a very broad, very narrow, geographic area for -- That's where the study was conducted, is off of northeast Florida.

As an index of abundance or a representation of the age composition of the stock, I don't think it is that informative, and that's my own opinion. My opinion is, as we learn about selectivity of the gears and our ability to extrapolate, to use, age composition that comes out of the chevron traps to assign that to the age composition of the population of red snapper as we assess the stock, and so, to me, those are two different things, and I know folks have different ideas about this, and I have discussed this with them repeatedly, but it's just the way that we use that information, and, to me, until the selectivity study was completed and the report put together, we couldn't look at all the stereo camera information to assess what the actual size and age composition was, as opposed to what was coming out of the chevron traps. We didn't have, really, a finer resolution on that, and so that's just my explanation for why that did not go in.

DR. REICHERT: I want to make sure that, in terms of what information was available and what was not available, what was potentially available, and I think what Ben was referring to, just so I can wrap my head around what's going on, is, for instance, age composition and that type of information. What was not available, which is critical information for the selectivity estimate, was the video, and that is the component of that report that only became available recently, and so that

information was not ignored, but it was just not available, and I agree with you that potentially the age composition may not have been that informative in the interim analysis.

MR. CARMICHAEL: If the group is not ready to go forward and extract recommendations from this, for the various reasons you've talked about, potentially the comments that would come under the uncertainties, or whether or you not you think this is BSIA at this point in time, then maybe come up with the revisions and suggestions that you have for it, so that maybe you can get to the next iteration.

To me, you either think it has potential and it just needs some changes or you don't think the approach has any potential and you don't want to devote any more effort to it, and so I think, if you sort of decide those basic things, then maybe you know which way to go, because it's not going to get us very far to continue to think about what should have been used or could have been used unless we want to first say that this seems to have potential and we may be able to turn this into something useful or you may disagree with that.

DR. REICHERT: I agree with that. However, the complication, in my mind, is that, next time, there may be yet another new piece of information that may become available that wasn't available when the analysis was done, and at what point are we going to make a recommendation saying, okay, we will review this again at some point, and either it be an update of our analysis, an update of our ABC recommendation, or an update in the stock assessment, and so that's what I am struggling with a little bit, because, at some point, we have to make a recommendation. If this is something that is critically important for the committee to make a valid recommendation, then we can certainly do that.

DR. BARBIERI: To John's point, I mean, under the provisions of NS 2, this committee has the statutory responsibility to review any new science products that are to be presented to the council, and so we are hereby -- Because the interim assessment hasn't been reviewed by any peer review up to this point, and so this meeting, as we discuss this, we are actually reviewing the contents of this report and providing recommendations.

To me, this is basically an attempt to look at the analysis, and I think that the analysis has merit. How are we going to come out of that conundrum of having an absolute ABC recommendation that would lead to anything in terms of being able to monitor, and that's to be discussed, right, but, as far as right now, seeing how the Center is moving forward with an analysis, this interim analysis, and that we have information that we can continue working with the council to revise the analysis -- Out of our review process, we can say here are the -- We find the science to have a lot of merit, and the methodologies are all accepted methodologies, and they follow standard procedures, and they represent the best methods to conduct these types of analysis, but here is a recommendation that I think that, if you guys actually go back and revise your selectivity functions and revise then the age composition inputs that are going into your assessment, you might be able to provide the council with a more realistic picture of stock status and perhaps more accurate projections of how this can work into the future, because here is the review process for that report.

MR. CARMICHAEL: If you think big-picture, this is the first interim analysis to look at, and the plan is potentially to give these to you on a regular basis. We always, in fisheries, have to deal with Marcel's point of there is new data and there is new research. At some point, you always have to draw the line of, well, do I think it's so compelling that I wait or do I think I need to move

forward with what I have, and that's a big discussion of every stock assessment we ever do and every time you all give analyses.

Yes, you apply your judgment to that and deal with it, but I am pondering getting into changes of selectivity in the survey in something that's an interim. That's such an integral part of the assessment, and that certainly opens a can of worms, in terms of what we do with it, and so I think we have a couple of things at work here. What do you do with this for red snapper? Do you think it's something that could lead to an ABC down the road, and what do we think of interim analyses in general and how we're going to handle them and review them and deal with the fact that new information is always going to pop up between assessments, and we may not be able -- We probably won't be able to answer those bigger-picture questions, but, as the interim analysis idea plays out, I think that's something we're going to have to keep in the back of our minds.

DR. REICHERT: That's exactly the issue that I am struggling with now, in terms of where do we move from here, but I saw two people.

DR. SERCHUK: First, a question. Does anyone believe that this resource will take a significant amount of time to rebuild? Both the projections that we have here at 0.14 and 0.13 suggest it's going to take until 2044 to rebuild this stock. Those are the results, and you can look at the tables. How many assumptions are implicit in the next twenty-five years for that stock to rebuild?

We are a little bit delusional here, I think. It's going to take a long time, and there's going to be a lot of interventions going on, but we know the F has to be low. That, we know. Whether it's 0.14 or 0.13 in these two analyses here, and maybe it could be a little bit higher if we have much better recruitment, but it's going to take a long time, and we're going to have to iterate on this in the future quite a bit, because we're in no-man's land. There is a lot of assumptions that go on after the first three or four years. We may have good recruitment now, and it may skyrocket, but it may not. It may level off.

I think we're really trying to be very precise when we really don't have a lot of information, and I think the idea of having the working group was to try to get another metric, outside of projections completely, to give us a better understanding of what is the relative stock abundance or the absolute stock abundance, and we haven't gotten that, quite frankly. We've got an assessment that we're just using a different projection method, and which admittedly is not a good proxy, from what I understand, by using the chevron trap size-age composition to mimic the commercial composition.

What I get from this is we're going to have to have a low fishing mortality no matter what we do, and it's going to take a long time to do it, and my feeling is, in the interim, we try to use the best available information that we have on the fishery itself, whether that's the discards or the size composition or something else, but I am just thinking that -- If I step back and say, well, we had projections before, and we had a big discussion that projections were not really useful, and part of it was the long time horizon, and part of it was the assumptions you have to make over ten or fifteen or twenty or twenty-five years that compounds that, and we're still in exactly the same situation that we were the last time we looked at it. I mean, maybe I am being too simplistic about it, but it seems to me that those are the things that I get from the results that have been presented.

DR. CROSSON: I could use some help in getting some of these things explained to me, and so walk me through it. After dealing with blueline, my mind is kind of -- The fish that dies from

being caught and retained and the fish that dies because of bycatch mortality, it doesn't matter with the fish, right, and the fish is gone one way or another.

When we talk about what the ABC level is, what those removals are going to entail, why does this question still seem to be so vital to this, because I look and I can see what the council is doing. Fred talked about all the assumptions over the next thirty years, when we're all flying in hover-boats and using radar and stuff or whatever, but I look at this and I think about things that the council is moving forward on for monitoring, like the MyFishCount thing, which I think we have a lot of promise with, and I would like to see that eventually integrated in, because we know that, for species that are infrequently caught, the MRIP numbers can sometimes be questionable.

I look at the council's efforts to look into descending devices, which we know the bycatch is the big problem, and the recreational bycatch especially is a big problem, and it's causing a lot of these mortality rates, and so the descending devices, even if a certain percentage of the fishing population, fishermen, are using these descending devices, that's going to help greatly, I would hope. 15 or 20 percent even would help greatly reduce this bycatch mortality that we're getting, but I still don't understand why this question about projections is so important.

To me, it seems like we need to come up -- These are management actions that the council needs to address, and they have to use the best data that they have for dealing with monitoring, which hopefully eventually will be more than just MRIP, but, at the moment, it's MRIP plus some of the other information that's coming from the states.

In terms of dealing with bycatch mortality, the council is going to move forward on some of these things, hopefully, and that will reduce that, and so they're taking steps so that, perhaps in the future, we can move forward a little bit beyond where we are right now, but I still don't understand why we have difficulty setting an ABC right now when it's going to be a number that's going to include whatever the expected discard rate is from the science that we have available right now plus whatever mini-seasons or something that are operating. You take those numbers and you add them together and that's our ABC recommendation.

Now, you were asking about some of these issues with this method and whether there is information that is being included from some of the different state agencies, and these are really legitimate questions, and, if that's the case, then I would say go to the second option that we have on the list, which is go to SEDAR 41, which has gone through peer review and passed peer review, and this SSC has already accepted, and so I think that's our second option.

We didn't drop it all the way down to the bottom, but I think it's still a better one for coming up with an ABC recommendation. I really am troubled by the fact that we don't have an ABC recommendation for red snapper and that we could continue indefinitely without one, and so those are my two-cents for the moment.

DR. BARBIERI: I am going to have to put you on the spot. I hate to do this, but we go back a long time, and so -- Knowing you for as long as I do, because I am not considering Amy sitting in this committee as being a representative of the Science Center, and so this is why, as you are the Science Center liaison, I'm asking you. Having seen the information that you have seen so far regarding the selectivity of the gear and the assumptions in the current version, the current parameterization, of the interim analysis models, are you comfortable putting this as a product of

the Science Center for management advice to the South Atlantic Council, for review by this committee and management advice by the council?

DR. WILLIAMS: So that's not a loaded question in any way, not at all, and I'm not going to speak to my comfort or discomfort, but I will give an answer that I actually just sort of bounced off of Ben, and that is this. What is important here is the scientific process itself, and so Amy made an interesting analogy with the lottery ticket, and here's the analogy I would make that I think puts the one piece of information that needs to be considered here.

Let's say you have a patient who has brain cancer, and you're not going to stop treatment on that patient because there is a rat study that shows that a polio virus can end brain cancer in that rat. You're not going to stop treatment with typical radiation and chemo because you're waiting on the results of that or because that indicates that that's a better solution. You're going to continue with treatment that you have in hand, and so what's critical in that analogy is time.

Time is critical for us as well, and we can't put things continually on delay because something is always on the horizon, and I think Marcel was trying to make that point, and so, again, process matters. Now, that doesn't mean that you guys can't consider preliminary data. The question is you have to have a process for considering that preliminary data, and so what is your process for bringing in preliminary data that hasn't been published or is just coming out, hot off the boat, so to speak? Fine, you can consider it, but what is your process for considering it and how does it then play into what you guys are tasked with doing? I know that doesn't exactly answer your question, and I'm not going to answer my comfort or discomfort though.

DR. BARBIERI: My point being the actual responsibility of our Science Center, its role in working with the fishery management councils, and my expectation, and this is working with you guys for twenty-years-plus, is that the Center has always, always, put its best foot forward to present science that is credible and honest. There are uncertainties that exist, and there are knowns that are known and unknown unknowns, but I can 100 percent confidently say that the integrity and the honesty of our Science Center is absolutely unquestionable.

I would expect, given that scenario, that scientists within the Science Center would be the first ones to welcome new information, and I'm not talking about something that is completely -- I am not talking about new data that did not get integrated, really, but it's really the shape of a selectivity function that can influence the outcome of the science that we want to put before the council. Really, by working with all of your over all of these years, I have seen nothing but that level of directedness.

I mean, the truth is number one to our Science Center, and that is something that commands a lot of respect across the board in our region, and so I think this discussion here is not for or against anything, but it's a discussion about information that we know may represent critical parameters there in the way that we are evaluating the status of the stock, and this is influencing our advice to the council. I asked that question in that vein, because I trust that our Science Center really functions within those parameters.

MS. LANGE: I was not involved with the workgroup, but I guess I am concerned about the process. For instance, how long has this study been available? Has it been vetted completely, so that it's completed science and it's reviewed either internally or within the group or anything? If

it wasn't available for the working group, who has worked for the last six months to come up with a -- To resolve the issues that were presented at our last meeting, it seems odd to me that all that work for six months and all the work that Erik has done suddenly is thrown out because suddenly -- Halfway through the discussion of the topic, something new comes up, and it was good that Ben brought up the study. I wasn't aware of it, but I am not sure how -- Do we just say, okay, we're going to table the work of the last six months and bring this back up at the next meeting, and I guess I'm just not sure how you're expecting the process to go on.

Yes, the Science Center does its work, and they do great, honest, straightforward work, but it seems to be crippling them when they have been working on this process for six months, in cooperation with other members of the committee, and, just when they finish that project and they have 1,600 other ones to get on to, suddenly they're being told to go back to ground-zero. I am not sure how to resolve that, but we haven't reviewed the document, and I think it's premature to stop the process that's been going on for the last six months and throw it away and start over again. I think I'm not sure --

DR. BARBIERI: Anne, that is a valid point. I just feel that this is something that is out there that I think needed to be discussed by the committee, and, of course, the committee is going to still make decisions that are based on the consensus of the committee, and I just felt that this needed to be brought up, because it's something that is going to have a lot of discussion as this issue goes forward, and so it's not that -- It couldn't be ignored as we discuss the results.

DR. YANDLE: I believe what I'm saying is very much in conjunction with what Anne is saying here, and I've been watching the SSC struggle with this species for years, and all of us have, and we reached the point last meeting where we said we need some in-depth, serious thought and analysis on this and then we're going to move forward based on the work that they do.

As we all saw from the report and the appendices, they did the best job they could with the information available at that time, and we had essentially delegated that to them to do that work, and they did that work for us. At this stage, we need to start moving forward and thinking about what we are doing next, and this isn't the only time we're going to be looking at this decision until 2044, and it's not going to be until then. I guarantee you that we will have an opportunity to come back and look at this issue again, probably more than we want to, and we need to start making decisions.

If we don't do that -- I am starting to feel like, if we just kick the can down the road for another six months, we're starting to shirk our responsibilities, or more than starting to, and so I am not one of the biologists, but it does feel to me, from my policy perspective, that we've got to start moving this forward, acknowledging that this isn't going to be a permanent decision, but we've got to start making some decisions.

DR. REICHERT: I agree.

DR. BOREMAN: I am going to try to help here, help us get out of this hole that we're in. This goes back to our discussion at the start of this meeting about what constitutes and who has responsibility for delivering the best scientific information to the council, and it's our responsibility to provide that advice to the council. Therefore, we have to deem what's best, and

I don't think anybody can sit here today and deem that what was presented as a report that we haven't had a chance to review yet, that we can deem that best available.

Therefore, we have to move back to the best available, and that is the report coming out of the working group, and so, until we're in a position to review this report and have it adequately peer reviewed, it may require peer review beyond experts around this table, and I'm not in a position to deem that the best available and forget everything that's happened up until then.

DR. REICHERT: Thank you. Anyone? What is the pleasure of the group? Are we willing and able to -- We are going to make a decision here, and so we have before us the recommendation of the working group, and we've had some questions relative to the issues that Luiz brought up, and we discussed that at length, and so I'm going to ask the committee whether we are right now, given the information that was available to the working group and the Science Center at the time, whether we are willing to accept the recommendations of the working group, and then we can come up with some recommendations in terms of where to go from here, whether it is to request to review the study that Luiz mentioned, because it has the potential for some significant implications, but I see that as the next step of where to go from here. I put that thought or recommendation on the table, and I would like some input from the committee.

DR. CROSSON: Can I just ask a question? Are you asking whether the committee, the SSC, prefers the preferred recommendation, the top one, the new method that Erik outlined? You have to be very specific. We outlined five or six different options, in descending order, and so are you asking about the top one?

DR. REICHERT: Yes, because I had assumed that that's the recommendation of the working group, in terms of the preferred recommendation, and so let me just maybe -- That helps, and Mike had them up earlier, the actions. Review the workshop recommendations for determining an ABC for red snapper and discuss the uncertainties associated with the proposed approach, and we have addressed some of those already.

Does the SSC consider the proposed approach for determining an ABC the best scientific information available and usable for management, and that was the issue that several of us addressed, and John mentioned, just a while ago, and the last one is, if not, can the SSC recommend another approach, and that goes back to the question that I earlier posed in terms of, okay, if we consider that this method has issues that the committee deemed too significant, then what's the alternative. Does that answer your question? The recommendation is that, yes, the recommended approach by the working group.

DR. AHRENS: Just a couple of things. One, I am quite happy to move forward with the recommendations of the working group. Two, I think it's great that work on selectivity was done, and I really think the appropriate way forward with that is to start looking at the relative influence of those through a management strategy evaluation.

DR. REICHERT: Thank you. Anyone else?

DR. SERCHUK: I don't think the projection approach is ready for primetime. We have heard from a number of people that are familiar with the fishery that they don't believe that the age composition from the chevron traps is representative of the age composition of the catch. We're

going to lose credibility if we don't take cognizance of that, and my feeling is we would be ill-suited to accept the recommendation from the committee carte blanche. I think a little bit more work needs to be done, and I have suggested a way, perhaps, to see whether that approach actually does yield sensible results, and it hasn't been tried, and it hasn't been put before us. Other individuals have suggested other ways of moving forward with it. I just don't think it's ready for primetime, Chair. Thank you.

DR. CROSSON: Well, I guess it depends on how -- Do you feel very strongly about that, Fred?

DR. SERCHUK: I do, because I have gotten some very strong feedback from people that are familiar with this fishery that absolutely say that this is not correct, and like we haven't had the -- Again, my approach initially was to split the series and see whether it works against data that we know from the assessment, and that hasn't been tried, and so I am not -- If it was done, I would have to --

DR. SCHUELLER: Can I just -- What series do you want to split, because there isn't -- I don't understand what you are saying.

DR. SERCHUK: We have a chevron trap series that goes back to 1970, as I see it in the report.

DR. SCHUELLER: Okay, but that is not used, because -- So there is a number of paragraphs in this report that talks about why the chevron trap wasn't used, and it's not adequate to -- I mean, it was deemed to not adequately reflect the changes in abundance for the stock.

DR. SERCHUK: I am not talking about an index of abundance.

DR. SCHUELLER: What are you talking about then? I don't understand.

DR. SERCHUK: I am talking about an index of age composition. Isn't that what was used to go forward, because we didn't have commercial age composition data for the two years?

DR. SCHUELLER: But, for the chevron trap index, as it was expanded spatially, and I still don't -- The index was updated to --

DR. SERCHUK: Where did the age compositions come from for the last -- That you used going forward for the last two years?

DR. SCHUELLER: The age compositions were from the chevron traps.

DR. SERCHUK: Hello. That's my point.

DR. SCHUELLER: But that's not taking into account the fact that the SERFS program expanded spatially to cover the range of red snapper where it wasn't like that previously, and so it's not a cohesive index from the 1970s through.

DR. SERCHUK: Fine, but I am still not convinced that those adequately represent a surrogate for the actual age compositions in the catch.

DR. SCHUELLER: Okay, but so what's the recommendation?

DR. SERCHUK: Well, the recommendation I'm hearing is that they are significantly biased towards younger and younger age groups. That's what I'm hearing from people that are familiar with it.

DR. SCHUELLER: But we're basing that on data that haven't been vetted.

DR. SERCHUK: If they haven't been vetted, why did you use them?

DR. SCHUELLER: What do you mean?

DR. REICHERT: I am not entirely sure what you're trying to --

DR. SCHUELLER: We're not using the data that they're talking about from this other report. We are using data consistent with what was used in the assessment, and I don't think that, in the assessment, there was any statement made, and maybe I am wrong, about there being younger and younger age classes. I think there is some --

DR. SERCHUK: I thought I heard, from some of the interventions, that there was an absence of older fish showing up in the trap surveys, and did I misunderstand?

DR. SCHUELLER: I thought that statement was coming from these data that haven't been vetted and not from within the report or within the assessment of the sub-committee.

DR. SERCHUK: Don't we have some information that the industry has provided us with, in terms of the materials that they provided, that go to that question?

DR. REICHERT: But that information became available only days ago.

DR. SERCHUK: That doesn't mean it's false.

DR. SCHUELLER: I know, but it's not industry data. It's fishery-independent data. That's why I am confused, because I don't know what you're recommending, because there isn't -- It's not industry data. It's fishery-independent data that were collected in a shorter time period comparing, if I understand it correctly, the size information from a camera versus it would be size information from a trap, because we're not getting -- Do we get ages from the camera? We can't get that, and so we're getting lengths, and, to me, we still need to vet that, and so, if there is a lot of variability in size at age, it may not necessarily be changes in age, and it's hard to know that without looking at it.

DR. SERCHUK: I just don't see the qualitative difference, even stepping back, between the projections that were done prior and these new projections. I actually don't see any difference in their robustness. We didn't accept them before, and I don't see any reason to accept these now. Where is the ah-ha moment here? I don't see it.

DR. BELCHER: I am going to take it from a different approach, because I don't necessarily see what's been done as being any different than what we were suggesting earlier, but it's just a

different way of coming at how we're working with the projection stream, but I am referring to our documents. This is the roadmap. If you look at Section 4.3 of the overview for us, what I see in highlights there, which was relative to what the Southeast Fisheries Science Center said, that they were not providing projections, and so this was back to our April 2017 meeting.

What I am taking away from this is more of the concern of what is happening with how we go about monitoring. It's not the ABC value that's been produced that's in question, but it's how do we go about monitoring the ACL or whatever, and, if you go back and look at slides from that meeting, when we were talking about landings, we have species that are intercepted better that, when you look at the ACL -- Like blueline tilefish in 2016, we were 115 percent over, and this is what they're talking about.

These are species that we have a little bit more confidence in, and they're not rare-encountered species, and here's a fishery that you have had zero on. We're estimating discards, and we're not even -- We don't see them. They're non-tangible, and they're reported, and so our uncertainty is extremely high with what that number is, and so how are we hitting our mark for our ABC? That's what I am reading is the problem.

It's not that the production is the problem, and the numbers aren't the problem, but it's the process by which we're monitoring the number that's the problem, and so that's the hole. Reproducing ABCs isn't fixing the problem. We are still monitoring it the same way, and so the thought was could we use something in lieu of landings that would give us a better indication of what's going on with the population, i.e., a fishery-independent index, to say, as you're monitoring over time, we feel that this is okay and we're not having a marked increase or decrease and, however we're managing it, there is a checkoff that we can say something that we're not putting it into an overfishing status, but that's the problem, is how do we go about doing that.

I thought that was why we were shifting towards fishery-independent, but, basically, we've come full circle, and we've basically come up with an update to the stock assessment, which was never in question to begin with. The ABCs themselves are not in question. The monitoring is in question, and so what do we do to try to make sure we're not over on species by 115 or 101 percent?

If you go back and you look at cobia or the New York/Georgia or whatever the line was, the difference was we're 260 percent over an ACL, and that's what they're concerned at. It's not the number. It's the process to monitor the number, and so I don't know that I totally -- I'm just trying to get us out of the weeds, because I feel like we're arguing about something that's really not the essence of the problem. It's how do we go about accounting for these removals in an appropriate way.

DR. REICHERT: So where do we go from here? Do we want to go back and say we need more analysis and this is not, and I forgot who said it, but ready for primetime? I mean, earlier, we discussed whether or not this was a method that we could use, at least in the interim.

DR. CROSSON: If Fred is not comfortable with this, are you comfortable with the second option that the sub-committee put together, which is to use the SEDAR 41 projections and assessment, the assessment, basically, really, because we keep talking about coming up with an ABC.

DR. SERCHUK: The committee as a whole the last time we considered it wasn't comfortable with those projections. We're on record with that.

DR. CROSSON: I think there was a lot of confusion, I think, when the SSC discussed this last year, in the spring, and I think that there was an unnecessary mixing of this question about monitoring recreational discards with setting an ABC, and I don't think we ever should have gotten confused on that. I think, under Magnuson, and under NS 1, we have a pretty clear guideline that we were to provide an ABC recommendation for this stock, and the monitoring issue is a significant issue.

As I mentioned earlier, I worry about the monitoring as well, and I think the council is moving forward wonderfully both with increasing our reliability of the monitoring and taking a lead on that, and I think that's very promising, and I think that the council is moving forward, hopefully, on dealing with bycatch mortality through descender devices, and I think that's a wonderful thing, and that will probably enable management to get a better hold on these things.

I am looking at all of this stuff, and I don't even understand how we could ever -- This has almost, in some ways, reminded me of black grouper. Once you install a moratorium, how do you ever get out of it, because then the data is now all over the place, and you don't have any clear estimate on bycatch mortality, because you don't have any reliable dependent indices, and so I don't know if we can ever get out of a moratorium, listening to these arguments that you're making, and so I would, again, say move forward on SEDAR 41. If that's the next option on the list, that's what I would recommend doing. I would rather have the first one, but I can understand moving to the next one.

What I am not comfortable with is moving down to the bottom and using the one that's in Amendment 43, and that's the default, is to say that we cannot come up with an ABC and we have no idea how we're ever going to come up with an ABC, because we keep bringing monitoring into it, and that is problematic, to me, because I think we do have a charge to deal with this.

DR. BELCHER: To Scott's point, again, going back to that 4.3 section in our document, it said the SSC felt they could not determine the extent of overfishing that was occurring, because it was mostly comprised of discards over the last five years. The committee recommended an ABC value of the yield at F rebuild for the stochastic projections. At our April 2017 meeting, the issue of the ABC for red snapper was brought back before the SSC for consideration. The council had requested revised projections. However, they were informed by the Southeast Fisheries Science Center that those projections could not be provided, on the grounds that they could not be considered the best scientific information available.

We provided it based on the information that was at hand, and the Science Center told us no, and so then we got further clarification on what was meant by that, and it said that clarification was provided by NMFS to the SSC that the assessment is still considered BSIA. However, the data available to monitor the landings and discards are too uncertain to track any projected ABC. That is the clarification.

DR. CROSSON: That seems just odd, because you're trying to track the ACL and the landings, and so I don't understand -- I know I am also a Science Center employee, but --

DR. BELCHER: Then it says, therefore, an index-based approach is being proposed to track and monitor the condition of red snapper. Then, further clarification, the current projected yield streams are considered BSIA, but are not useful for management and monitoring, because of the uncertainty in the catch data, as most of the catch is discarded, and so that's the clarification that came out of the Science Center as to why we did not get the projected streams that we had asked for that we were hoping to use for our ABC recommendations. It's not that we didn't propose it. We had a halt put on us that they did not provide the projections that were asked for.

DR. CROSSON: I understand everything you just said, and, at the same time, I have questions, because I don't understand how we got sidetracked into this question about monitoring the discards and having that influencing our ABC, and I was a bit confused, I guess, a year ago, because my belief, I guess, perhaps, at the time, was that, if we didn't make a new recommendation, we still had a standing ABC that would be used, but we just couldn't come up with anything new to deal with monitoring the projections, but I guess I was -- I was wrong when I look at that. We said that we could not provide an ABC last year, and I'm not a lawyer, but it seems to me like we don't have one, and so I don't know what to do at this point, but I feel like we still have some information here to provide an ABC.

MS. LANGE: I guess, listening and having Carolyn go through it again, did the -- Was the workgroup given the appropriate task? They went through and developed another ABC or projections, but were they supposed to be coming up with a way of using -- I mean, I am not sure that the task was assigned correctly, because it says here to review the workgroup's recommendations for determining an ABC for red snapper, unless the ABC we're determining was based on an index, which is what I think the task was supposed to be.

DR. SCHUELLER: I didn't write the overview, and I don't like the overview, which is why I suggested workgroup chairs should be tasked with doing that in the future. The introduction of the workgroup report basically starts out with a summary of events that transpired, and, yes, I'm a Center employee, but I'm here as a scientist who is confused and annoyed.

I think that why we got in the discussion we did last October is because, as it stands, there is no ABC, and they are moving forward in Amendment 43 with some methods that I think this group did not agree with and had not been fully vetted, and hence the task was put together, and we put that task together, and I did it at the workshop, and it was approved here, and so this group knew we were going forward with making sure we were putting together an ABC recommendation and not that we were discussing monitoring of the ACL.

Those are two different topics, and it's why, in this report, we also have a section on it talking about what the differences between the ABC determination and the ACL monitoring, and they're separate, and, I mean, it does -- This April 2017, it's confusing, and it says right in here that the memos from the Southeast Fisheries Science Center could have caused confusion regarding the ability to provide ABC advice directly in here, and I will admit that I wrote that, because I think that's true.

I hate to see us spin our wheels on this. Right now, we have Amendment 43, and that's what's on the books for what the ABC is, and that was vetted through this workgroup and put into the report, and it's here for this group to consider, and we can move forward with that option, but it's not recommended, and we provided some alternative recommendations.

Now, if this group doesn't like those alternative recommendations, and it shouldn't even be like. If this group feels that the alternative recommendations are not the best scientific information available, then I challenge this group to put forward alternative recommendations. I mean, we need to move forward, and I hate for us to just keep getting hung up on what's been done and said. We are where we are, and let's move forward.

DR. BELCHER: The question that I would ask then is just, again, based on those captured comments, because I don't disagree. Like I said, I don't think we should ever stagnate and hold if there's a better approach to doing it, but, when you have the Science Center stating these concerns, how did we address the current concern of the current projected yield streams are still considered BSIA, but are not useful for management, because of the uncertainty in the catch data?

It has nothing to do -- They're not saying that how we did the projections before are incorrect, any more than we would be saying that the current ones are incorrect, but how are we addressing that latter part, because of the uncertainty in the catch data? The new ABC is not fixing that problem, and that's the only thing that I keep coming back to, and so how is giving an opposing projection stream going to fix the issue that's been identified there?

DR. SCHUELLER: It's not. I mean, that's a separate topic, right, ACL monitoring, which we have said, but I think that the new -- I think what the group viewed as this preferred recommendation is that we're not recommending the ABC that was in Amendment 43. Instead, we're recommending this interim analysis, and I think that the advantage the interim analysis has over the standard projection analysis, which they have considered the best scientific information available, I think, and I don't -- It's confusing, right?

It takes into account that there have been recruitments occurring higher than what we would have projected it to be in the past, and so, to me, that's the main difference, and the anecdotal information and the information in the age compositions from the index suggest that that's occurring, that there are younger fish coming in, and there seems to be some recruitment occurring, and so I think what the group was thinking was that it's trying to account for that.

Now, that doesn't get us out of this ACL monitoring question, but that wasn't the workgroup's task. It was we don't -- I thought that it was to determine an ABC, since the SSC is not really onboard with Amendment 43.

DR. BELCHER: But my point was that we had offered an ABC, and, when we asked for the continuation through the projections, they stopped us and said no, and so it's not that we never gave an ABC or we never held back on an ABC or values. We were told that you're not getting the projections, because we don't think that they're worth what we need for management, and so that's why I'm saying what would stop that same procedure and same comment from being made to us now, regardless of what the SSC feels about this projection stream being a better approach to what was proposed in the last assessment?

That is what I am getting at. We were stymied. We as a group asked for that, and it was told no, because we don't feel that we can use this in a management setting, period, and so how do we continue forward with that? It's not that we never said anything. We said it, and they said, no, don't use it.

DR. SCHUELLER: This has happened to me before, right? You ask for something, and if somebody says no, if I think it's the right thing to ask for, I just do it again, because I think that wasn't a correct statement, and so, in my mind, we're -- I think we should ask again.

DR. BELCHER: My question is where does the division come between Beaufort and Southeast Fisheries Science Center that we seem to have where you all are the people who have gone out -- You're the experts in the field, and you have done the work. We go and we take the approach and we get asked, and we get cut off. Now, again, we're going through you guys have done six months' worth of work, and everybody agrees with the approach that has come up, and there is a very good chance that, based on this uncertainty in the catch data, which hasn't changed -- MRIP, if anything, we know is getting ready to come through with a whole set of new estimates that we have no idea what the impacts are going to be.

How do we -- There is a good chance that, again, we're going to give them an ABC estimate and they're going to go, sorry, we're not going to use that projection or we're not going to do that, and so how do we reconcile that? Nobody has missed their charge, but it's just, again, this hang-up on the procedurality past that ABC recommendation is making us not provide you with a chain of five to ten to fifteen years' worth of ABC recommendations.

MS. LANGE: I was going to suggest that Erik, as one of the ones that is doing the work, and also is tied to the Center, he may be the best person to address some of this.

DR. WILLIAMS: I can give you the notes that were behind the memos. The memos were poorly worded, to say the least. The notes behind the memo were the reason that we did not provide projections at that time were twofold. One was actually a workload issue that we didn't mention in the memo, and two was that, at that time, the new MRIP numbers were on the cusp of coming out, and we didn't provide them because of that, primarily, because we knew that those projections were going to be meaningless with new MRIP numbers right around the corner.

Now, since then, the new MRIP numbers have been delayed even further, and so that is the notes behind that memo, and so don't take that memo word-for-word for what it is, because that is not what the intention was for why the Center didn't provide those projections at that time. It was a poorly-worded memo.

DR. BELCHER: Right, and so, understanding that, we're still working with the context of our overview, which is what, again -- When you try to revisit where you were six months ago or a year ago, sometimes this is the earliest place we've got to go to, and then we can go back and reconstruct it, but filling that in would have been helpful. Those two statements are bolded and identified as clarifications marks for us, and that is not in that clarification, and so we're operating on what information is put in front of us.

MS. LANGE: Just to Carolyn's point just now, that is what is in here, but I think, when Erik was working with the working group, he was addressing what they were addressing, what was needed, because they didn't look at the highlighted stuff that we were looking at in the report. They were looking at how to do better projections, and so I think it threw us off, but --

DR. REICHERT: So there is projections in the interim analysis, and so you are -- What I am hearing you say, but correct me if I'm wrong, is that you are comfortable with those projections, in spite of the fact that, earlier, based on what you just told us, you guys were not comfortable or willing to provide the projections earlier. Correct me if I'm wrongly interpreting what you just said.

DR. WILLIAMS: Well, again, I don't speak to my comfort, but yes. I mean, we are still operating, from a science standpoint, that SEDAR 41 is the best available assessment for red snapper, and it's been peer reviewed, and you guys reviewed it, and that projections coming from that are still best scientific information available. This interim analysis turned out the way it did -- I mean, if you recall, we discussed a bunch of times about you doing an index-based method.

Well, when we looked into that further and started actually to sort of map out the mechanics of doing that, we realized that we would run into some of the issues that were raised in this report that you guys are reviewing that talked about why an index approach isn't appropriate for red snapper, and what it morphed into was essentially this interim analysis, because we wanted to use the index, because the index was important, because it showed a strong uptick, and it indicated, because we knew that the trap was catching younger fish, that it was also an indicator of upcoming recruitments, and so that's exactly why we went forward with what we did, and so that is the Science Center's best foot forward, in terms of potential for ABC advice.

DR. REICHERT: The second question I had was, in light of the potential new information relative to the selectivity of the gears, if you were to include that information in an update interim analysis, how feasible would that be?

DR. WILLIAMS: Well, I'm glad you asked that question, because you guys have been dancing around this whole dome-shaped selectivity question, and so here's the thing. Recall that in SEDAR 41 that we investigate every fishery and index for the potential for dome-shaped selectivity, and I mentioned that in my presentation, that we do things like catch curve analysis. We look at the descending limb of that age structure to see if one, in relative comparison between the fishery and the index or the recreational fishery and the commercial fishery, are there indications that one is potentially dome-shaped relative to the other. We did not see that come out from our analysis with the chevron trap age comps at that time.

Now, this new information may bring more light to that, and it may initiate a further analysis of that, but I don't think we can just take what FWC has done and just suddenly fold it in somehow into -- It's going to have to be put into the context of all the age data and the relative fisheries and then look at how we would then go forward with modifying the selectivity at that point.

DR. REICHERT: That's exactly why I was asking the question, and so it's not a matter of, okay, we'll just plug in a different selectivity and run the model and here you've got the -- Thank you, Erik.

DR. CROSSON: I just need some help for somebody to explain this to me. I am looking at Table 3 that has the recommendations from our group's preferred alternative, and it has L is landings and D is discards, and that's the total mortality from --

DR. REICHERT: What table are you referring to?

DR. CROSSON: I am looking at Table 3, and it's very early on in the document that is the group report. It's PDF page 7. Maybe Amy had it up there in her presentation somewhere, and I don't know, but it has -- It's a very large table, and I'm sure you all didn't read it when it was up there on the screen, but, looking at landings and looking at discards, and there is different ways, different runs, that you can use to choose whether you want stochastic or whatever, but why is L plus D not an ABC estimate if the fish don't care whether they are caught and retained or caught and die from barotrauma or whatever else? What is the issue with doing that?

That's the table. L is landings, and D is discards, and they're listed in either thousands of pounds of something, thousands of fish, and I forget what, and then there is different -- It's a little complex, because there is different ways that you can run the models, and that's beyond me. I'm not a stock assessment scientist, but L plus D is going to give you an ABC estimate based off of this model that is adapted from SEDAR 41, and so you have that.

Once you have done that, I agree that you may have problems monitoring the discards, given the situation that we've all discussed, and I don't doubt that, but that's a monitoring question. That's a management decision, and I don't understand why we can't add those two numbers together, unless there is something that I am missing about stock assessment that it does matter to the fish which way they die, but, unless I am missing something about that, then I don't understand why you can't just add these two numbers together and come up with an ABC and say this is what we have, and we recognize that it's going to be difficult to monitor this, but that's not -- It's not something that's in our purview at the moment, other than we did include a little section in here talking about the monitoring and the measures that are moving forward, and I wrote that one, and so obviously it's very well written, but I think that this is something that -- It seems clear to me, and I don't understand why we can't just take those numbers together and have an ABC recommendation.

DR. SCHUELLER: Well, that is what the group recommended. We can, and if the problem is monitoring, we should recommend things the council could do to do a better job monitoring, and it's not like what they do now is set in stone. They could develop some methods in order to improve that over time.

DR. CROSSON: Yes, and a lot of that is in Amendment 46. There are lots of things, I think, if I'm remembering correctly, because the numbers kind of sometimes run together in my head, but I think Amendment 46 had some suggestions, some alternatives, that the council is considering for -- Some of that, at least, is monitoring, I'm pretty sure.

DR. REICHERT: But, unless I am completely missing something, this means that the committee follows the recommendation of the working group, because that's what comes out of that interim analysis.

DR. CROSSON: Yes.

DR. REICHERT: I think, going back, we were almost there, but then we weren't, because there were members of the committee who were not comfortable with that, and so I am going back. If that's the case, yes, I completely understand, and then that next step is not all that complicated, but I am struggling with, okay, if that interim analysis is something the committee cannot recommend,

then where do we go from there, and I think that's what Amy earlier tried to say, is, okay, we have several options in front of us, and so the last thing I want to say is, if we are going to SEDAR 41, then we also need to revisit that, because we still did not provide an updated ABC based on the corrected stock assessment. We never did that.

DR. SCHUELLER: But there are updated projections in this document if we wish to do that. We asked the Science Center for them, and they are included.

DR. REICHERT: But I just wanted to remind the committee that we still need to do that.

DR. SHAROV: I am not sure if we will not continue going in circles for the next two hours, as we are doing, but it's important. I think, well at least in my mind, the issue on uncertainty, particularly with respect to the removals related to the discard mortality, and that's the primary reason for some of us being skeptical of projections, but the key here is whether we accept or not the terminal year estimates of the stock size and the fishing mortality based on the assessment, and so we have agreed that this is the best scientific information available.

If that's the case, if we were confident about the status of the stock in the terminal year, then nothing should stop us from doing the projections if we appropriately characterize the population parameters and we determine what level of fishing mortality is needed to maintain -- To reach the stock recovery in a certain time period. The projection tells you how much fishing mortality you should have and what is your total number of killed fish for every year, which would be essentially our ABC recommendation.

I don't see why we could not do that, and that seems to be straightforward, and the only difference from the projections that were done back then compared to now is that there is a slight improvement that -- Instead of starting from the terminal year and having constant F projections, we add existing information on the index of abundance, and that's an improvement, and so we're sort of fitting in -- We have some -- It's not complete, but some information of what happens to the stock, and it seems all logical.

The problem -- Well, and people were completely correct that the ABC is totally different from whether estimates of the total discards are good or not good, and the problem I see is that, yes, the assessment was the best scientific information, because it was based on the long time series of the existing catches, where the actual physical catch, that is the landings, were significant, but then, in the most recent years, the discards became the primary source of the presumed mortality, and the discards, obviously, are the one that we know the least, or are the least precise about it.

If there is a large amount of uncertainty in the characterization of discards in the most years, then, while the assessment is generally correctly portraying the history of the stock, we could be starting our projections from the wrong place and projecting them forward, given the uncertainty in the estimated discards and an unknown or poorly-estimated discard mortality rate, leads us to the fantasy land where we really don't know, and there is too much uncertainty in going forward.

That is, in my mind, the principle uncertainty that Fred is arguing about, that we don't know much, and we couldn't trust much of the projections, but I would like to repeat that, if we are confident, or sufficiently confident, in our terminal year estimates, then ABC should be -- We should be able

to calculate ABC based on the -- Based on the projections and the target mortality rate at least to stock recovery.

DR. REICHERT: Thank you. I had Tracy, and then we're going to try to see if we can wrap this up.

DR. YANDLE: Again, this is my broader-picture perspective, but this is a complex issue, and it's sensitive, and we want to get it right. We also need to remember that we don't need to have everything perfect to get it right. This isn't the only time we're going to make this decision. This is going to come before us again, and we can look at it again when we have more information and so on. Essentially, that's it. It's an iterative process, and this iteration is better than what the current decision that is our default setting is, and we just need to keep moving this forward.

DR. REICHERT: Thank you. The consensus is that, at this moment, the interim analysis is the preferred option to determine an ABC at this moment. If that is the case, then our ABC recommendation is in that table, and so we have a method and an ABC recommendation for the council. Let me finish my thought, and then you can comment.

Then that is an ABC right now, and we need to determine how long we feel comfortable having that in place. Having said that, I think it's important, based on the conversations we've had today, to review the study that came out that has important implications for the selectivity in the stock assessment, and we can do that via webinar, and then ask if it is possible, after we have reviewed it, ask if it's possible to update the interim analysis, and I don't know what implications that has for the workload, if that new information can be incorporated in an updated interim analysis, and we can see where that is, and we have an opportunity to provide an updated ABC recommendation to the council. I think I have forgotten something, but I lost my train of thoughts.

DR. CROSSON: There are two things, and one of them is a question, because, again, I am a poor economist, but this question of -- There is several options, the way that the L and the D are listed, and one of them is something about stochastic modeling, and something about something else, and so it looked like we had a choice, and is that correct? Am I understanding this correctly, or are those the same thing and just listed under different language? Do we have to make a choice between the two things that you have listed there, the rebuild versus the base?

DR. SCHUELLER: The base is the projection coming directly out of the base run, which is the configuration, which was reviewed and is from SEDAR 41. The med is the median of the distribution, and so the base and the median are not the same, and I think that we always go with the base, and am I wrong on that? I think we go with the base.

DR. ERRIGO: For projections, we always use the median of the MCB distribution. For stock status, we always use the base run.

DR. REICHERT: So, for the sake of consistency, we should continue to do that, in terms of our recommendation to the council, correct?

DR. CROSSON: Okay, and I think I know what you forgot. The thing I think you forgot is when are we starting this? What year is the beginning year? Is it 2018 or 2019? This starts in 2017, which I doubt we're going to go back and do anything in 2017.

DR. REICHERT: That is probably unlikely.

DR. ERRIGO: The interim analysis starts in 2018. Management starts in 2018.

DR. BELCHER: I just wanted to suggest, as far as time window, you indicated earlier that we're looking at a benchmark in 2020?

DR. REICHERT: Yes.

DR. BELCHER: So we're looking at at least three to five years, probably, of projections that we would need.

DR. REICHERT: Yes, but, also, keep in the back of our minds that we have asked for a potential update, which may result in an update, but --

DR. BELCHER: Doesn't that then negate what Amy and them have done if you're doing an update, because you're going back to the update of the assessment.

DR. SCHUELLER: Personally, I don't think you can just update with the new data from Florida, because it's an entirely new data stream, and, if you change the selectivity on an index, that's going to impact all the other parameters that are being estimated, and so it's not just, oh, we'll change this one selectivity and everything else will stay the same. It's likely it's going to have other impacts. What those are -- I'm an assessment scientist, and I never guess on that, or gamble, because it never turns out the way I think it's going to.

DR. REICHERT: No, and that's not what I am proposing. What I am proposing is that we shouldn't be recommending this and saying, okay, that's it. At the same time, I propose to review the study and then investigate what the implications could be for an interim analysis and see, but that, again, depends on the workload and whether that's possible and whether the desire of the council to ask for an investigation or an update or whatever you want to call it, and it may be that, at that time, we are in the middle of the update, and then that becomes a moot point. The benchmark assessment becomes a moot point.

DR. SCHUELLER: I think it's just a terminology thing. You're saying -- I think what you mean, and maybe I'm wrong, is an analysis of what those data look like compared to what other data look like, and is that what you mean? When you say "update", I think an update of the stock assessment, and I don't think that's on the books. What's on the books is a benchmark.

DR. REICHERT: Yes. Sorry, that's why I corrected myself, in terms of, if at that point we are in the middle of doing the benchmark, then an update of the interim analysis becomes a moot point.

DR. BARBIERI: I would just recommend, since we've been officially informed that the new estimates of recreational fishing effort are going to be provided as of July 1, that we -- My recommendation would be to the Science Center not to duplicate work and wait until then to have those analyses done, because there will be quite a bit of changes that are projected to be coming up.

DR. REICHERT: That's a good point.

DR. SERCHUK: Just one small thing, Chair. An assumption was made about what the landings were going to be in 2017. In the report, it indicates that 2017 landings were assumed to be the average of 2012 to 2014, because the opening was about the same. Do we have any idea what the 2017 landings were?

DR. REICHERT: I am looking at Erik, and I don't believe we have that information, but, Luiz, maybe you have information to that point?

DR. BARBIERI: I know that that information has been provided by the states and by the MRIP office to the Regional Office this week.

DR. SERCHUK: My point is, because that's an assumption, even if it's not spot-on, if it's close, we can say, well, the assumed value was close to what we believe it was, adding more confidence that the starting point of the projections were more or less correct, and I think that's an important aspect, because, as Alexei pointed out, the projections have some dependence on the starting point, and I don't expect them to be spot-on. They could be a little bit higher or they could be a little bit lower, but I just don't want them to be way off. If they're way off, then it's going to be questioned, but I think the assumption that was made was a reasonable one, and so, if we could have just some language in there, and, if we could get that, that would be helpful.

DR. SHAROV: Just a question that the MRIP recalibrated estimates are going to start -- Luiz just said July 1 or so, and I am not that much concerned about their effect on the 2017 assumptions, but I am concerned about their profound effect on the assessment itself, as it relies on the long time series of the recreational estimates, and that is the big question. It's either we just simply say, well, we know that it will have significant effect, but it will just have to wait until 2020, or do we just simply do the update with just the MRIP estimates redone? That's a bigger question.

DR. REICHERT: Yes, and I agree with you, but I think that will all come out in the upcoming assessments, whether it be the adjustments that we do on assessments that were already conducted or the benchmark assessments.

DR. BELCHER: From sitting in the MRIP meeting, my understanding is there's going to be recommendations from them on how to proceed, especially when there is big deviations. They are expecting people to do sensitivities based on those changes, and it was difficult for those of us, because, unfortunately, we didn't see problem species, and that was kind of -- I was just telling Laura that, that Matt Cieri came up with a particular one that he felt was one that he would like to see what the impacts were, and there was just this low-intercept nighttime fishery that doesn't show up all that frequently.

Red snapper from the South Atlantic wasn't on the list, but it was for the Gulf, and so seeing the extremes was what some of us on the group were really concerned about. It was like, okay, and so red drum and seatrout for the South Atlantic are not the species that we're worried about. The CVs are not outside of 20 to 30, and so those weren't the ones. We were hoping to see some of the extreme cases, and so those are still under the reveal, and that's the thing that -- I think their understanding was that they were going to roll them out similarly, with the old and the new methodologies, so people could see what those number changes have been, with the expectation

that the analysts would be made aware that they need to be looking at it from a sensitivity run standpoint.

DR. REICHERT: Thank you. So, last point. We have three years, and this is the recommendation, that it should be in place for no more than three years, and so we still have that should that start in 2018 or 2019, and 2018 -- I'm not sure, but that may be difficult time-wise for the council to put in place, and that means that that recommendation would be 2019 to 2021, and what's the pleasure of the group? Any preference? Should it be 2018 to 2020, unless that's not possible for the council?

DR. ERRIGO: The ABC probably won't make it in for the red snapper season, I don't think. It would be for 2019.

DR. REICHERT: Okay. 2019 through 2021, and that should then -- At that point, the stock assessment should be either completed or almost completed, the benchmark.

DR. BOREMAN: That will synchronize with the Mid, too. Our recommendations are 2019, 2020, and 2021.

DR. REICHERT: Thank you. All right. Thank you for sticking with this.

DR. SERCHUK: Are we going to be more specific, in terms of putting the numbers, the actual numbers, here?

DR. ERRIGO: Yes, I will insert a table, like I do for assessments, with the ABC recommendations. It's going to be from this table you see here on the big screen.

DR. SERCHUK: I know, but there are a lot of numbers in the table. I want the numbers for the actual ABCs.

DR. ERRIGO: Yes, and I will insert the landings, in both numbers and weight, the discards, in both numbers and weight, and then the total ABC in both numbers and weight.

DR. REICHERT: That is a table that you will be able to review before the end of the meeting.

DR. SERCHUK: Good. Thank you.

DR. REICHERT: All right. Once again, thanks for sticking with it. I think this was an important discussion, and I think a lot of the issues were discussed at length, and I know we went over by about an hour-and-a-half, but, given what else is on the agenda -- We will recess for today, and we will meet again at 8:30 tomorrow morning. Thank you, enjoy dinner, and I will see you tomorrow.

(Whereupon, the meeting recessed on May 1, 2018.)

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MAY 2, 2018

WEDNESDAY MORNING SESSION

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The Scientific and Statistical Committee of the South Atlantic Fishery Management Council reconvened at the Town and Country Inn, Charleston, South Carolina, May 2, 2018, and was called to order at 8:30 o'clock a.m. by Chairman Marcel Reichert.

DR. REICHERT: The attachments are 9 and 10, and the assignments for this agenda item are George, Carolyn, Jeff, Amy, Fred, and Sherry, who is not present at the meeting. Take it away.

SEDAR 56 BLACK SEA BASS ASSESSMENT REVIEW

DR. SIEGFRIED: Hello, everyone. I provided this presentation to Mike E. to send around, although I have made a couple of aesthetic adjustments, and so I will just jump right in. This is the outline for you all, and I'm going to go over some background for this assessment, and I'm going to review the data that were available and which ones we used, and I'm going to go through the catch-age model configuration, and then I will go over the projections for you. This is a standard assessment, and I don't think I've presented a standard assessment to the SSC yet, and so let's see how it goes.

This is evaluating the stock of South Atlantic black sea bass. All of the data and modeling decisions were done by panel consensus of our assessment panel that was assigned and volunteered for us. This assessment was delayed from its original schedule due to some data delays, and, because of that, we were able to shift the terminal year and include data through 2016.

This is a complicated regulatory history, and I feel for the stakeholders and the managers for this species. It's a very complicated management history. We received data back to 1983, and there are several size limit changes, ranging from an eight-inch total length size limit to a thirteen-inch, depending on the fleet. The season start and end dates change based on quotas or other regulations by date, and that changed by fleet or gear within those fleets. There is regulations by handline, trawl, or pot fleet, and there is also bag limit changes, ranging from twenty per person per day, or none, of course, to five per person per day, and then the picture that you all know well, the jurisdictional boundaries.

Before we go into the data review, I wanted to review the TOR that is related to our data inputs. Specifically, we were asked to consider the inclusion of the SERFS video index, and we were asked to incorporate the latest model configurations and detail the changes made and how those changes impacted the results and then look at that both for the update and the benchmark. Then we were to reconsider the use of age and length composition data.

Let me start with the data review for you. Our northern boundary and southern boundary didn't change. The northern boundary is Cape Hatteras, and the southern boundary is the jurisdictional boundary in the Keys. Most of our life history parameters did change, and I'm just giving this to you as a refresher. We had a logistic model for both sex ratio and maturity and then a log of fecundity that was regressed on body weight for our batch fecundity and then a standard von

Bertalanffy growth curve. The bottom-left corner is the von Bertalanffy curve with the error and then on the right is the natural mortality as was input for the SEDAR 25 update and then for this assessment. The upper and lower bounds there will be used for things like sensitivities and MCB.

One life history component that did change is the discard mortality, though that was not explicitly addressed in the TORs, but it was reopened by panel consensus, due to the availability of a new peer-reviewed study, and so, at the top of the slide here, I have here for you the point estimates and the ranges that were used for discard mortality in the benchmark and update. It ranged from 1 percent to 15 percent, and then I have the top and bottom part of the article, the Rudershausen et al. article from 2014 for you. We have one of the authors of that study in the room, and so, if I get anything wrong, they can help me out.

This was partly a tag-recapture study, and the substantial change here seems to be the use of scuba gear to tag trapped fish at depth, and that provided a control group. The fish were captured using traps or hook-and-line and tagged and released, and then the subsequent sampling provided a post-release disposition. This was conducted in Onslow Bay, North Carolina, and this was in waters and depths fished by both commercial and recreational fishers for this species, and it was an eleven to thirty-five-meter depth range overall.

The paper provided four disposition estimates and then combined those for overall estimates, and you can see those were 19 percent for hook-and-line, 14 percent for trap gear, and that was sort of an overall combined discard mortality, and then we had some panel input from our Florida cooperators, collaborators, and the dispositions from those Florida observer data helped us to get fleet-specific estimates that were based on the mortality rates derived from the Rudershausen study. Let me explain that a little bit more.

What the panel did was we looked at the depths fished in each fleet and with each gear and then looked at disposition data from our Florida partners by fleet, and so we had charter boat and headboat dispositions, and we compared that with the Rudershausen study, the dispositions that were described there, and we also, importantly, looked at the regulations for mesh size in the pot fishery, and there was a change from one-and-a-half-inch mesh to two-inch back panel or two-inch all panel mesh, and there was discussion amongst the panel of how that affected our discard mortality estimates, and so we went back to another Rudershausen study, because he really likes black sea bass, and he and his collaborators offered a comparison of those one-and-a-half-inch and two-inch mesh pot mortalities.

What I have here circled in red is the presumed mortality for their control, which was the one-and-a-half-inch mesh, the two-inch back panel mesh, and the all panel, and you can see there is a change. There is a decrease based on this regulation that required two-inch mesh, at least in the back panel, and this is kind of all we had to go on for the difference between one-and-a-half-inch mesh and two-inch mesh, and we decided, as a panel, that the two-inch mesh was approximately 48.3 percent, the mortality of one-and-a-half-inch mesh. This is all that we had in the literature, and the stakeholders were involved in this conversation, along with the panelists, and so this is what we could glean.

Based on our Florida collaborators, the Rudershausen study, and input from our panel and the experts in the field, we have these new discard mortalities that we used. For commercial lines, we still use the Rudershausen 19 percent estimate. For headboat, informed by Florida, it's 15.2

percent. The charter boat mode would be 13.7 percent, and then the commercial pots before the two-inch regulation were 14 percent and after were 6.8 percent. We didn't have any recreational pots that we needed to consider. That was a whole lot of talking distilled into a couple of slides. Were there any questions about the way that we came up with our new discard mortality estimates? Not that you can't answer later too, but --

DR. ERRIGO: I just don't remember, but what was used for the discard mortality for private recreational? Was that just charter?

DR. SIEGFRIED: It's charter, yes. Our fleets for general recreational is charter and private together.

DR. BUCKEL: I had one thing. Several times, when we've been talking about black sea bass over the years, I have been concerned about the discard mortalities that we use, and the dispositions are all in the ocean, and those are studies where the fishery for the adults takes place, but there's a lot of -- In the MRFSS data, there is a lot of B2s that are caught in state waters, and so, in shallow water, that presumably wouldn't have the issues with the pressure trauma, and it would just be hook trauma, and so the Florida data allowed Katie to take that into account, and we applied a lower discard mortality for those shallow-water catches, which sometimes can be 70 percent of the annual live releases, and so it can be substantial, and that's taken into account here, which is another nice improvement.

DR. REICHERT: Thanks, Jeff.

DR. SIEGFRIED: We still have the research recommendation to look at how discard mortality rates may change in shallower depths than eleven meters.

DR. NESSLAGE: I am curious about the difference -- Forgive me, and I'm not as familiar with this study as I should be, but the difference in mortality between the one-and-a-half-inch mesh and the two-inch back or full panel is pretty much twice, double, and is that a function of the size -- Is that potentially a function of the size of animals in Onslow Bay, or can you just talk to that, because I'm just curious.

DR. BUCKEL: It's an issue of density in the traps, and so those one-and-a-half-inch traps get really packed full, and then the fish start to -- The eyes get abraded against the trap wire mesh, and so the fish are just in worse condition when they are really packed in those one-and-a-half-inch traps compared to the traps that have a back panel, and those small fish can find a way out, and so then the densities are lower in the trap.

DR. SIEGFRIED: The next part of data review is looking at the removals, and we have these in weight and numbers, but I just showed them here in weight. We did model our discards in weight mostly in this assessment. In other assessments, we use number, and partially that's because of the history of black sea bass being reported in boxes, and it's converting from numbers to weight is less certain, and it wasn't necessarily reported as numbers in the past, like other discards, and so we did model it in weight here.

You can see that MRIP is the dominant source of removals for almost the whole time series, which is -- Again, MRIP is meant to state charter boat and private boat mode. Headboat is the blue, and

then that pea-green color is the pots, and then the lines are the orange, and there is this little tiny teal strip of the trawl, and there is very little trawl effort for black sea bass, and that's for landings. On the right, the headboat is that sort of teal color, and we grouped the commercial discards together.

For our compositions, this is an update in both the data that were provided and also the way that compositions are created, and so we used a thirty-fish minimum per region annual cutoff for length comps and ten fish per region annual age comp cutoff, or for discard comps, because discards can't have as high of a standard, because we just don't have as many composition data for discards.

That working paper that I list here, Working Paper 5, we'll explain to you how that was done for the commercial compositions. These minimums are meant to prevent like a really small sample size from being scaled up by very large landings, which we could see in places like Florida, and then we weighted our commercial age comp for Florida for black sea bass, and not for other species, but then we weighted our commercial age comps by state landings instead of length, and that's detailed in that Working Paper 6.

We also had a bit of an issue for black sea bass with whole haul sampling, and there were a number of data culled if we could not identify whole haul sampling. If they were identified, they were culled as well, but, if we did not have trip-level data and couldn't verify that they were not whole haul sampled, they had to be removed, and that was a data description in our first webinar. There were samplers who, for whatever reason, just thought they were overachieving and just sampled the entire haul, and it wasn't a good statistical design for composition data.

Then there were some corrections required from the update and the benchmark in our composition data, and then they were updated for all years and not just the last few years, and the thirty and ten is kind of a standard cutoff now, and I don't recall if it's in the best practices document, but that's what we've used in recent assessments.

Our indices of abundance had a TOR that directly addressed them, and so the chevron trap and video indices can be repetitive for species, simply because of the fact that the videos are mounted to the chevron traps, and so you all have seen us combine these indices in the past, and we did the same thing here, and we combined them using the Conn method. The Conn method has the benefit of accounting for process error in our indices, which the standardization CVs may not be reflective of process error in the system. The CVID index, and this was a panel decision, was then to use the chevron trap age composition, and so it's video, and we don't have stereo-video cameras, and so we used the age compositions from the samples gathered by the traps to reflect the combined index.

Then we looked at the CVs of the fishery-dependent indices, and we did some literature searching, and, this Francis et al. paper in 2003, we have used in past assessments to explain why we would alter the CVs provided by a standardization. What we did here was we used the justification there, which is at least as high as 0.2, is what Francis recommended, and then we looked back at what the update and benchmark did, and we fixed the CVs of the dependent indices and the trap to the highest CV of the combined index, and we thought that that was going to better reflect the true variation in abundance that we would see from these indices.

In the past, we have used Francis to fix it at 0.2, but we have here used the process error that we get from the Conn method, and it informed our other indices of that known uncertainty in the system. The citations are there for you, and I think that Julia made them research documents as well.

DR. SERCHUK: I have a question, Chairman, about the length and age compositions. Could I ask it?

DR. REICHERT: Yes, and I am hesitant, because I want to avoid getting into an extensive discussion right now, before we allow Katie to finish her presentation, and so, if it's a point of clarification, please ask your question. Otherwise, perhaps we can pick this up when we start the larger conversation of the assessment.

DR. SERCHUK: What would you like me to do, Chairman? I will do whatever you feel is appropriate.

DR. REICHERT: Well, if you feel that this may be a somewhat lengthy discussion, then maybe we can hold off. If it's a clarification, then --

DR. SERCHUK: It's really a very simple question. When I'm looking at the report, I noticed that, in some cases, when you had the length data, you used the length data. In some cases, where you had the age data, you used the age data, and my feeling is -- Did you ever do a comparison, where you had the two datasets, where you applied the age data and then compared it with the length data, to see whether you got the same type of results? The reason I raise that is because, if you look at Table 5, there is no length data for the commercial fishery since 2004, and you apply the age data to those catches, and I'm just wondering if there is an analysis that shows the comparability between using age sampling data, when you have it, versus length sampling data to get at size or age composition of the population, of the catches.

DR. SIEGFRIED: All of the discussions that we had in the panel were about whether to include both length and age compositions or just age compositions, because there was more faith, for lack of a better word, in the age compositions for this species. I did look at them. When I had length compositions and age compositions, or just lengths and then ages later in the time series, I did run the model early in the process with both included, and we specifically looked at that when we were deciding whether to use the Dirichlet multinomial and whether the inclusion of the length compositions helped with estimating those parameters.

In some instances, I actually couldn't get as good of a fit to the age comps if I included the length comps when they were overlapping, but what we did do is, when we have length comps and no age comps, we used them until age comps came in, and then we used those preferentially. The times that I used age comps and length comps simultaneously were when the age data were sparse, and so like, for instance, the black fish trap index, there is one year of age composition and then all the rest are length comps, and I used all of the comps available for that index.

When I first started, there were four years of general recreational age compositions, and I used those, and then the panel decided to eliminate those, because they weren't representative, but we looked at using all of the compositions that we had, and we came to using length compositions

when age comps weren't available or were sparse, but I never used just lengths and no age compositions.

DR. SERCHUK: Okay, but my question was rather a simpler one than that. I just wanted to know whether the catch compositions were the same in those cases where you have just applied age samples and you also had length samples and you also planned for the lengths, and whether there were any significant differences by using one method versus another. I know you used all the data when you had it, and I'm not questioning that, but there could be cases where, if you just used the length data, you will get one set of results. If you just use the age data, you would get a different set of results, and I'm just wondering, if that was done, how similar were those results. That's all. Thank you.

DR. SIEGFRIED: We did not do it with just lengths if we had lengths and ages. We did not do that comparison, I don't think, that you're describing. The next part of our indices of abundance discussion is changes. We, as a panel, decided to exclude the headboat discard index. We did this after examination of the compositions of the headboat discard index in relation to the compositions of other indices available. We compared the length of the time series, whether they were indexing a similar geographic range or proportion of the population, and what we found is there is almost exact overlap in the headboat discard index compositions and the chevron trap index compositions.

The chevron trap index is quite a good index for black sea bass. It goes back to 1990, and we combined it in the more recent years with CVID. We thought that this was a more representative index and that the headboat discard index was repetitive in a way that wasn't necessary, and so we excluded that from this base run, but we did decide to use the discard length composition data to help estimate discard selectivity.

Also, the SERFS chevron trap index was standardized with a more recent method. It's a zero-inflated negative binomial model, and that working paper -- I think there is a working paper for a previous assessment to describe that methodology, but I think that that was done in the last few assessments, that zero-inflated negative binomial, for the chevron trap index.

What we came up with as a panel is, on the left-hand side here, is a visual of our base run indices. We have quite good correlation between indices for black sea bass. This is really nice, and the headboat is in lighter blue, and the black fish trap is in darker blue, and it's a shorter time series at the beginning there, and the commercial handline is in orange, and our CVID index is in green. The CVID index is the only index that we have after 2010.

On the right-hand side, you will see all of the index CVs that we agreed to use as a panel. The furthest-right column is the CVID, and that's the -- Those are the CVs we got from the Conn standardization, and the largest in that is then used to inform the black fish trap, the commercial handline, and the headboat in the later time period. We were told by data providers that, prior to 1984, there were issues with headboat reporting, and that is indicated here as a doubling of the CV prior to 1984 to 0.54.

One thing that I neglected to mention, and I think I mention it in a summary slide, but I will wait for that, and so then here is a visualization of our data fit by the assessment. 1978 is our first year, and 2016 is our last, and, if it's shaded, it's an age comp. If it's just a plain color block in the third section, it's length compositions, and so we do have some headboat age compositions early, one

year of black fish trap age compositions, but the majority of age compositions for dependent indices started in 2003.

The chevron trap has been collecting composition data from the beginning, and so we have that long time series, and we have discard data earlier for headboat and general recreational, and then it starts in 1993 for commercial, and then we have it separated into an open and closed season. The closed season starts in 2009, that separate data stream. As I said before, we have early commercial trawl data, and it's pretty minimal. We have headboat and commercial pots throughout and then general recreational data comes in during 1981.

Let me give you a summary of these data updates and modifications. For this assessment, and this is strange that we have to mention this, but all landings data are complete. For the SEDAR 25 update, some of our removals were preliminary, and I think that the assessment was due in January, and so some of our recreational data were still preliminary from the last wave of -- Maybe it was MRFSS at the time, but the next bullet there shows that we removed the last year of commercial lines index, and we did that because, as is done for a lot of other fishery-dependent indices, we had to cut it off when regulations would affect the way that the data were useful for an index, and there was a partial closed season in 2010, and so the last year of our commercial lines index is 2009, and so that's one year different from the update.

We did remove our four years of MRIP age comps by panel consensus, and they decided they weren't representative of the fleet. In particular, our Florida partners didn't think that -- They weren't really sure how frequently they are gathered and why those four years would have them and other years wouldn't, and so it seemed like they just weren't representative, and we excluded them.

We updated all discard streams, because they were either model or ratio-based estimates, and we recalculated all the -- Other people, and not me, recalculated all comps, and then we used the Dirichlet multinomial method in the model, which I will explain in the catch-age configuration section. Our chevron trap index was standardized using the new methodology, and then it was combined with the video index using the Conn method. As I said, the headboat at-sea index was removed, and we did use updated discard mortalities.

Let me go through how we configured our catch-age model for you. We modeled ages zero to eleven-plus group, and it started in 1978, which is consistent with our benchmark and update. The terminal year is 2016, and we initialized assuming equilibrium age structure and calculated an F in it, and our fleet structure for landings and discards were a commercial lines fleet, a pot fleet, and a trawl fleet, but then it was a commercial discard combined. For recreational, we had a headboat fleet and a charter boat and private boat mode combined general recreational fleet, and we had separate discard streams for those two.

I alluded to the complicated regulations, and this is just to give you a visual. The left-hand side, and we need to go through this for selectivities, because I've got some complicated selectivities for you, too. On the left-hand side is the recreational open and closed season data. We have data starting in 2010, and it varies. You can see that some years it's open the whole time and some years it's open and closed, and we have the data there, and that's provided by SEDAR.

The middle table is commercial for the same days open and days closed, and then, in 2013, it was split out by gear, pots and handline, and then, on the right-hand side, we have a table of the size limits, and I tried to shade it here for eight-inch size limit, ten-inch size limit, and eleven-inch size limit for commercial. Of course, there is no size limit prior to 1984, and so there is four blocks there.

Recreational, we have five, one where there is no size limit, an eight-inch, ten-inch, twelve-inch, and thirteen-inch size limit. The red block here for you shows after the update, and so we actually had a new size limit implemented after the update, and so we needed to update our selectivity assumptions and configurations.

The commercial landings selectivities were assumed logistic, and we had the three time blocks, based on no size limit or eight, ten, and eleven, and these plots are all going to look the same, in that the selectivity by age -- The age is on the X-axis, and the colors mean to indicate the first year of the time block, and so the blue line says 1978 to 1998, and the blue line is the selectivity, and the red line is 1999 to 2011, and the green line is 2012 on, and so that will be the same description for all of these selectivity plots.

On the left, we have commercial lines, and, on the right, we have commercial pots. We didn't seem to have any trouble estimating those logistic selectivities. Commercial trawl mirrors the pot selectivity, and so the right-hand panel was used for trawl. We did have enough composition data to estimate selectivities for headboat and our general recreational fleet separately. In the update and the benchmark, MRIP was assumed to be the same as headboat, we had plenty of composition data, and we were able to estimate these logistic selectivities. We have the five time blocks for both the headboats on the left and the MRIP is on the right, or the general recreational is on the right.

These are a little harder to explain, and so I've given you, or given myself actually, a descriptor on the left, so that I can keep it right for you. Our recreational discard selectivities are dome-shaped. For Blocks 1 and 2, and this is consistent with the benchmark and update, ages-zero, one, and two are estimated using a logit function. That's just trying to find something between zero and one based on the headboat discard compositions.

Age-three is assumed to be one, or fully selected, and then ages-four-plus follow the probability of being below the size limit at each age, and there's not a lot of probability of being below the size limit at each age, but you can see, as the size limit increased, that probability increased at age-four, and then we don't have any probably at age-five of being below the size limit.

For Blocks 3 and 4, the selectivity is estimated using a four-parameter, and this is a logistic exponential function. Three of those are estimated, and one of them is the assumed age of full selectivity, which is our age-threes are assumed fully selected, and so that's a one right here. Then the other parameters are estimated with -- We had loose priors with a 0.5 CV of those logistic exponential curves. Then the general recreational discard selectivity mirrors our headboat discard selectivity. We didn't have any general recreational comps.

Then the commercial discard selectivities are no less complicated. They are dome-shaped as well, and we assume no selectivity when there is no size limits, and so this dark-blue line from 1978 to 1983 is flat. All time blocks except for the last mirror the headboat discard selectivity to start, and

the last time block, which is this teal line, that matches the headboat logit estimates for ages-zero through two, and it assumes the full selectivity at age-three, and, again, this is at one. Then it uses the probability of being below the size limit at each age for ages four-plus, and the difference here for commercial discards is that we have the open and closed season. During the closed season, the discards will not only be undersized individuals, and so there will be some selectivity of older individuals during closed seasons.

DR. SHAROV: Real quick, on the first item, no selectivity when there is -- You mean the selectivity is one when there is no size limit, correct?

DR. SIEGFRIED: I assumed it was zero. There is no --

DR. SHAROV: No fishing?

DR. SIEGFRIED: There is no discards. What we did was we used those discards that were provided for both open and closed seasons, and the open season discards are assumed to follow discard selectivity, because open season discards would -- They would only be discarding undersized individuals. The closed season discards are assumed to follow the landings discards, and so what you end up seeing is -- If you recall, the landing selectivity is logistic, and so, in effect, what it's going to do is pull these curves up a little bit based on how much of the season was closed versus open. Just a point to give you here are commercial discards are very negligible. I think one of these years it was 900 fish, and so it was a lot of work to address a very small proportion of the removals. Are there any questions about these simple selectivities? Really? All right.

Catchabilities, we had a constant catchability in both the benchmark and the update. Constant catchability was kind of a standard operating procedure for a long time. However, recent work has shown that using a constant catchability can cause a non-conservative bias in our stock status estimates. In fact, SEDAR procedural guidance is to investigate our time-varying catchability, when possible, and the document actually states the time-varying catchability is a common and important phenomenon with strong theoretical and empirical support, and it should be considered in future Southeast assessments.

Back to Bullet 3, and that is that we used a random walk model for catchability, and it can decrease this bias. A random walk catchability can account for factors that the standardization model may not have, and we investigated different ways to incorporate time-varying catchability. We talked about potentially using a linear increase, but the problem with that is how much of a linear increase, what year do we start the linear increase, and it seemed more subjective, and so the panel recommended using a random walk catchability and to configure that based on Wilberg and Bence, which is a standard deviation of 0.17. We used that as was applied to headboat and commercial lines indices, and so our dependent series. We did not use this for our independent indices.

The SEDAR procedural guidance is there cited at the bottom, and then the two Wilberg and Bence papers are also there cited for you, and I think they're research documents. I think Julia put them on the server as research documents, and so we are following SEDAR procedural guidance.

Steepness, we looked at steepness as a panel. We looked at the likelihood profile surface and found it be flat, and it was within two likelihood units, between 0.31 and 0.19, and it was pretty consistently being estimated somewhere around 0.7 in most of my runs leading up to the third-ish

webinar. We decided, as a group, to try to estimate it using the prior, the Shertzer and Conn prior, and we decided to try to do that. However, during the MCB step of an assessment, we found that it wasn't really behaving well with that prior, and so the panel decided to fix it at the midpoint of that flat range, which is 0.64 for our base run, and then I incorporated the uncertainty we obviously have here in our MCB for steepness, which I will show in a minute, and so our steepness was fixed at 0.64.

DR. REICHERT: Can I interrupt you for just one second? Mike, we are back online, in terms of the webinar?

MR. COLLINS: Yes.

DR. REICHERT: For those of you who were trying or are following us via webinar, we had some technical issues earlier this morning, and they seem to be fixed, and so we are up on the webinar, and I just wanted to inform everyone out there what was happening earlier today, and so we hope that we can have this webinar up and have no more technical issues, and so sorry for that interruption, Katie.

DR. SIEGFRIED: No problem. So far, our catch-age model configuration is to include our length comps where the age comps are missing or sparse, which is what was done for the update and the benchmark. We did exclude the MRIP age comps, because they didn't -- They weren't thought to reflect the age composition of the general recreational fleet. The Dirichlet multinomial distribution was attempted to -- We attempted to use that to model the composition data, and you all have, I think, heard or been presented an assessment with the Dirichlet multinomial used before, but it's a self-weighting distribution.

We don't have to go through iterative reweighting with the Dirichlet multinomial. It allows for zeroes, and it, in a way, limits the effective sample size of the composition, so you don't end up with an effective that's much larger than the true sample size. It's recommended in recent literature. Francis, who seems to be the guru of weighting and modeling composition data, published a paper in 2017 recommending the DM method, and the Thorson et al. paper recommends it, and it explains how it's included in the SS models.

When we incorporated, that it seemed to function well and work well in our model. However, five of our DM parameters hit the upper bound, and that's not necessarily a bad thing. What that means is that those -- That means that the effective sample size is the sample size you are feeding into that, into the model, and we didn't have any DM parameters hit a lower bound, and we did have some -- We looked at the likelihood profiles for all of our DM parameters and found that they either were going to the upper bound or there was a minimum.

The panel consensus was to use the DM method, and they were made aware of when these DM parameters hit upper bounds, and that was acceptable. We used the data weighting method and assumptions from the benchmark and the update, and we attempted to iteratively reweight the indices, because we don't need to do it anymore for the compositions if we have the Dirichlet multinomial.

The iterative reweighting, though we attempted it, it failed to fit the fishery-independent index well, and, for this species, the fishery-independent index is thought to track abundance very well,

and it wasn't acceptable to the panel that it didn't fit that index well, and so, when that failed to work, we went back to the update and benchmark assumptions and protocol of -- It was a 2.5 weight on the CVs of all of the indices, because they were all correlated, and so we didn't deviate from the assumptions of the benchmark or update for that. We have a sensitivity that shows what happens when we don't up-weight all of the indices, and that's just showing what the model does and how it wasn't fitting the index well.

I am just going to go ahead and jump right into the fits to the base run. Here, I have the annual composition fits as well in slides at the end of this presentation, if you all would like to examine those more closely, and they're in the report as well, but I am kind of enjoying this whole pooled composition lately. It gives me an overall view of how well we're doing fitting compositions from each fleet, but, if you would like me to, just let me know, and I can switch to the annual view.

On the left-hand side here is the pooled fit to our length comps from the headboat discards. On the right is the pooled fit to our length comps from the general recreational fleet, and you can see we're doing really well for general recreational. We're missing a bit of the peak here for discards, though I would argue, for discard compositions, this is really good.

On the left-hand side is our headboat length comps for landings, and on the right is the length comps for the commercial pot fishery. We're doing very well for the left-hand side, and we're fitting the tails pretty well for the commercial pots. We're missing a little bit of the peak here, but wait until you see the age comps. They're really nice.

On the left-hand side is the commercial lines length comps, and on the right is the black fish trap length comps. We are underestimating a little bit for commercial lines on the upper end of the size distribution and overestimating for the black fish trap just a bit, but then this is the age comps for the headboat. We have sort of a two-age peak here, and we're fitting that pretty well. We're doing really well on the lower end, and, here, we have a little bit of overestimation of sixes and sevens for both the headboat and the commercial pot. This is the commercial lines on the left and the chevron trap comps on the right, and, again, just a little bit high on sevens and eights, and here a little bit high on sixes and sevens.

On the left-hand side is the CVID index fit, and on the right-hand side is our black fish trap fit. What we were seeing on the left-hand side is we weren't getting any of the increase for that 2011 and 2012 sort of jump-up, and that's what we saw in the update, and that's kind of what drove the recovery in the update as well. We thought that the standard needed to follow this trend, and this is what we got from an up-weight of 2.5.

On the left-hand side here, we have headboat, and it's a really good fit there, too. On the right-hand side, that's our commercial lines, and this is our scale residuals. What we're looking for here on the bottom panel of these plots is to not have too many runs, meaning too many positive or negative residuals in a row, and not to have too many that are too large.

Here, we have our numbers at age and our biomass at age, and it gives you a different perspective, in that you can see where the recruits come in or where they are out and then how much of our older age classes we have in the population versus at the beginning of the model, and so we are seeing a decline in the numbers at age since 2011, or 2010, and a bit of a decline, though not as strong as the numbers at age, which I think you will see why in a minute.

We have a big dip in recruitment, and so we have lower than average recruitment in the last six years of the model, and this is a difference from the update and benchmark. The residuals are this pattern where we see higher than average recruitment prior to 1990, and it wasn't exclusively high recruitments in the update or the benchmark, but it was more scattered around the RMSY line, and so we have our recruitment and the log recruitment residuals for you here. The biomass is up on the top-right corner, with the BMSY line indicated here, and then the bottom-right corner is the biomass status, with the SSB MSY line in green and the MSST line in purple.

The update found that the stock had been rebuilt, which meant that it was above SSB MSY, which we show the standard is consistent with that finding, but that the stock has dropped SSB MSY, though it has not dropped below MSST, and it seems to be related to this drop in recruitment.

I have the fishing mortality by fleet here for you, which has actually dropped off in the last years, and so one could argue that the status is related more to recruitment than a direct increase in landings, although that's you all's decision. This is the fishing mortality rate by year, and the general recreational discards are a much larger proportion of the fishing mortality now than they have been in the past. The pots is a much smaller proportion. In general, the commercial fleet has been in the decline, as far as fishing mortality, since 2000.

Here is some sort of standard plots for you. Here is the equilibrium yield, and this is in the report, and then this is the spawning stock biomass plot, but keep in mind that the steepness is fixed at 0.64. This is our equilibrium age structure plot, and what you can glean from this is 2016 is the open circles with the solid line, and it looks like the youngest age classes are below what we would expect at equilibrium, and so are the oldest age classes, but that we have either at or above what would be expected at equilibrium in the sort of middle age ranges. We provided the other line sort of to show you what's been happening through the decades.

The next thing I will go over are the sensitivities for the assessment. We have thirteen sensitivities and then our retrospectives, and they're sort of in -- We have five pairs, where we have a high and low, and so we have a high and low natural mortality, a high and low weight on the indices, a high and low steepness, a high and low recreational landings and discards, and then a high and low discard mortality, and we also have constant catchability, and we included a sensitivity where the chevron trap index alone, rather than CVID, was included. Then we attempted a continuity here, and continuities are very difficult to truly accomplish, and I will go through what we included there.

This first one on the left is different, I promise, and the constant catchability and the base run are extremely similar, though I can give you the RDAP files and you can see that they are not identical. Maybe there wasn't a lot that we didn't account for. Otherwise, the random walk wasn't actually necessary here, but this is what you see. On the right-hand side, we have the sensitivities around natural mortality. The red line is a lower natural mortality, and the blue line is a higher, and these are Lorenzen curves scaled to Hoenig max age estimates, and these really encapsulate the base run pretty well. In all of these sensitivities, the top panel is going to be your F status, fishing status, and the bottom will be your biomass status with the corresponding lines indicated at one.

DR. ERRIGO: The SSB over SSB MSY, why does the high natural mortality run at the end drop below both the base run and the low natural mortality run? That seems counterintuitive.

DR. SIEGFRIED: I can pull both of those runs up and we can go through what happened there. It could potentially be something that happened with selectivity in that terminal block. It could be -- It seems to start to occur in 2013, which is that last time block, but, for all those sensitivities, I don't check for proper convergence and do all the rechecks on everything, and so I think it's the 2013 selectivity time block. We saw something funky like that for the benchmark, too.

This is even weirder. This one is the -- I have a good explanation for this one though, because I did look into this, because it was so odd to me, but this is a sensitivity to our index weights. Now, recall we assumed had an index weight of 2.5 on our four indices, and, here, we have a lower weight of one, and so just really no change, based on the weighting, for the blue line. Then a higher weight of five, and what happens here is the CVID catchability parameter goes to a lower bound in the higher weights run, and so the red line, and I don't think that that model converges, and I didn't follow through how to fix that. I don't think, as a panel, we would have ever chosen to use a weight that was so high that it forced a catchability to go haywire, and so a weight of five seems too high, and it doesn't seem like a viable run here.

Here is our sensitivity to steepness, and now this one is -- The base run is not perfectly in the center of these two, and it seems like, when I looked at the likelihood profile, it is -- The lower and the upper bound of our range is within two likelihood units, that whole flat region, but the 0.64 is 0.1 likelihood units closer to the upper bound of that flat surface, as opposed to the lower bound, and so there is sort of a disparity in what you see here. It's not exactly encapsulating the base run if you use the upper and lower bound of the flat region of the likelihood profile. If I could go back and do all of this again, I would probably just do something closer to what we assumed for the fixed level of steepness.

DR. REICHERT: Katie, can you remind me -- Do you remember what the steepness was in the previous assessment?

DR. SIEGFRIED: Yes, and it was estimated at 0.48.

DR. REICHERT: Thanks.

DR. SIEGFRIED: Last time, it was estimated with the Shertzer prior, the beta prior, but that just did not work for us this time. The sensitivity shows the model's reaction to using just the chevron trap index, as opposed to the combined trap video index, and then the CVs. What's interesting about this is that our terminal status is nearly identical, but there is a little bit of difference in the behavior of the model prior to that.

The landings and discards uncertainty, we not only accounted for this in our MCB, but we ran these sensitivities to take a look at this. I started doing this for red snapper, and what we did was we used a plus/minus two standard deviations of our -- There is a lot of uncertainty around our MRIP landings and discards, and so we wanted to make sure that was all accounted for in this model. The two standard deviations were used to create a new high and low MRIP landings and discards stream to then put into these for sensitivities, and it was modeled as annual deviations for the MCBs, but I will go over that when I get there.

This shows, in the bottom plot, sort of when our discards came in, and that's why you see that flip in the lower versus higher, because the discards have become a substantial component of our removals in about 1991, but, in general, this shows just sort of some noise around our F status, but it does show a directional effect in our biomass status.

DR. BARBIERI: Katie, a quick question. That was the criteria for the creating alternative landings streams, right, I mean alternative streams for landings and discards, but, within those streams, did you still constrain the CVs to the same level CV that you used in the base?

DR. SIEGFRIED: Yes, we kept the CVs the same, but the CVs for black sea bass from MRIP are really not very high, and they have been decreasing through time, but we do account for the CVs in the MCBs, but, for the sensitivity, we just put in a new stream high or low.

This is the sensitivity to our discard mortality, and so we went through a lot of discussions and evaluations and literature searches and everything to come to -- We got a lot of input from a lot of people to get our new discard mortality estimates. We wanted to look at the high and low -- The sensitivity of the model to a high and low estimate, and so the high estimate is the high from the Rudershausen paper, and the low estimate is what was used in the update.

What you see here on the bottom panel is sort of intuitive. You see the lower discards with the more optimistic output and the higher discards with the more pessimistic output. What's a little confusing is what happens in the F status, because you see a lower discard being more optimistic, but the higher discard also being more optimistic. What happens, when I went through this model much more carefully than other sensitivities, is the higher discard mortality seems to affect the ratio of our fishing mortality between landings and discards. The model is estimating a total F, and it's apportioning that between landings and discards across the fleets.

There is a pretty similar F estimated for all three of these, but the higher discard M is sending a lot of that to the discards, and that sort of affects the estimates of most of the selectivities, and so I didn't change any constraints on selectivities when I did these sensitivities. We have different estimates of selectivities with the higher discard M estimates than the base run, and so that seems to be what is affecting the F, because the selectivities are used to calculate RMSY and then our FMSY, and that is what is scaling that whole F status plot at the top there for you.

What I saw, explicitly, was that there was a change in the weighted selectivity of the landings. It was about half for the high discard mortality run, and that accounts for -- You can see it kind of splits the difference between the lower discard mortality blue line and the base run. Nobody on the panel thinks that the higher discard mortality is appropriate to use as a base run here either, and this was meant to push the limits of whatever would be assumed in the model, and we did. Any questions about that one? Okay.

The continuity run, I personally think that continuity runs are really difficult to do, because you're sort of trying to recreate this past assessment model that we have made a lot of modeling changes both to our assessment model, but also the models used to calculate data, and so we can't get an exact continuity, but we tried to do that here by using the old assumptions for discard mortality, natural mortality, steepness we have fixed at the 0.48, and we assume the same recruitment standard deviation, and we used the multinomial likelihood for compositions and iteratively reweighted everything, but it's still not exactly the inputs that were used for the previous

assessment, and so this shouldn't really be used as a guidepost, but just more making sure that there is nothing catastrophically wrong in our current base run. What we see here is just a scale shift, which I think is a good sign for our base run. I recall, because I did the update, but the stock was rebuilt to 1.03 of SSB MSY, and, if you look at the red line on the bottom, it looks like it's pretty close to that.

Here is a phase plot of all the sensitivities that we did. The legend is in the top-right corner for you. Only a very high steepness, which is to the right of the dashed line, the pink and the red, the very high steepness or the very high discard mortality showed anything besides the qualitative status given to you from the base run. Not that we think that there is any overfishing occurring. That's just when you push the limits of the model. That's the only time you can get anything different from the status that we get from the base run.

DR. REICHERT: I could have looked it up by looking at the values, but the base run is overlapped with another run?

DR. SIEGFRIED: That's that constant catchability that you couldn't differentiate the lines.

DR. REICHERT: Okay, and so that is between the upside-down purple triangles and the blue squares?

DR. SIEGFRIED: It's this right here. It's the yellow asterisk over the red open circle Okay. The retrospectives, I guess, are considered sensitivities. What we did here was removed as many years back as we could, and so this was a minimal retrospective, because we could only remove three years. The video index would drop out, and our last selectivity block would drop out. In fact, when we remove three years, we're already at one year of a selectivity block and three years of an index.

You can't really see the right very well, but the panel consensus was there is no alarming retrospective pattern here, but we do see this -- It seems like this is trying to maybe fit the CVID index more closely in this bottom panel as we peel back the layers of data. The top two panels don't look especially notable, but the bottom one -- I think this is trying to fit the CVID index more.

If it's okay, I can move on to our uncertainty analysis. There is two steps to our MCB. There is the bootstrapping and the Monte Carlo sampling, and so, with the bootstrapping portion, we wanted to generate a new time series of landings, discards, or indices by assuming a lognormal error with the mean equal to point estimates and CVs from the model input. The 0.5 is assumed as the CV for commercial landings with fitting those exactly, but I do include more error around the recreational landings and discards and then the commercial discards.

The new length compositions or age compositions are creating by drawing a sample size for the number of fish and placed in each age or length bin and then with the probability that's equal to that of the original data, which this is standard for what we've done in the past, and this slide here is a little bit different.

For MRIP landings, we used the CVs provided by the recreational working group to draw annual values, and I will show you what that looks like. I have some plots for that. For headboat, we

didn't get a CV explicitly for landings, and so we talked to the data providers, and they provided what they thought was the uncertainty around their landings estimates, and the short period from 1978 to 1981 was much less certain than the more modern times. They gave us reasons for their certainty increasing, and so, in that short period, there was not mandatory reporting and far from full compliance. From 1981 to 1995, there was an improvement, because there was now mandatory reporting, and the headboat lead thinks that there's been pretty much full compliance since 1996, and so we assigned a lower CV, with his help, as compliance and reporting increased.

If no CVs were provided for discards, and so this last one was landings, and this one is discards, and, if no CVs were provided, we used a blanket CV of 0.2, which is larger than most years of landings, but smaller than the MRIP discards, which MRIP discards were thought to be more uncertain than headboat discards.

What that looks like, here is some typical plots for you to see what we're getting, and this is all 4,000 runs from our MCBs. The left-hand plot is by year, and this is the landings stream for headboats, and you can see there is a lot more uncertainty in the early years, and then it gets more and more certain. That's what we meant to do with our CVs, and so this shows that what we're feeding into our bootstrapping stuff works, or getting out of our bootstrapping stuff.

The right panel is our general recreational data, and this is informed by the CVs from MRIP, and you can see there is these annual variations, and that is much less certain prior to 1995 than it is later. Here, I have the discards for headboat on the left and the commercial discards on the right, and the headboat is the 2.2 assumed, and we have a large value of -- If you have a CV and you have a large mean, you're going to have a bigger level of uncertainty, like here, where there is a peak year. On the right is our commercial discards, and we got CVs from Kevin McCarthy's standardization there, and he used a model-based discards estimate.

This is what we were able to do for our bootstrapping step for our MCBs. For the Monte Carlo sampling, we specifically looked at four parameters, or four protocols of natural mortality, discard mortality, the way we weight our indices, and then steepness.

Natural mortality, this was done exactly the same way as it was done for the benchmark, and we have our point estimate of 0.38, and we draw a new value from a truncated normal distribution with the lower and upper range of that plot I showed you, and I think it was one of the first plots, 0.27 to 0.53, and the mean of that truncated normal is 0.38.

Each of those realized values of M are then used to scale the age-specific Lorenzen M, just as we did in the base run, and this is the plot of the value that's been used in our assessment, and so the mean is at 0.38, and it's a truncated normal, and, in -- You have truncated at 0.27, but the plot wants it to be pretty, and so it looks like it goes down to 0.25, but it's truncated at 0.27, and it's truncated at 0.53.

DR. SHAROV: Real quick, is there any reason to believe that the density distribution of M should follow the normal distribution? In other words, if we assume that the true M is different, why should there be a high weight drawn from the 0.38 estimate? In other words, why normal distribution versus the uniform?

DR. SIEGFRIED: I think the reason that was used for the benchmark was because the life history group was asked to provide their understanding of uncertainty around a point estimate they were providing or a vector, which is the Hoenig-scaled Lorenzen, and what could happen is that they could provide us with the method that they have the most belief in, or that they think represents the fish best, but there may be some higher or lower bound to all of the methods that could be used to calculate natural mortality, but we didn't revisit that in this case. I think if you had multiple equally likely options of natural mortality, you should use a uniform, but that's not what was done before, and we didn't decide to change that assumption.

The discard mortality is more complicated though, and I think you will see a pattern here. A new value, just like for M, for the commercial lines discard mortality was drawn, the same way as the truncated normal, and this is because this isn't a uniform. This is a normal, because of the recommendations from the Rudershausen paper. All of the values in that range are not equally likely.

The mean is the assumed point estimate, 0.19, and then we calculated a standard deviation to provide a lower and upper 95 percent confidence limit. That was for commercial lines. For recreational and headboat, we used information from the Rudershausen paper, but then also from the Florida partners, and we looked at actual trips sampled and dispositions provided by them, and they had it for both charter boat and headboat trips, so we could do a more complicated Monte Carlo sampling instead of just from a truncated normal. We actually sampled the real data.

Disposition mortalities from the Rudershausen paper were then applied to all those disposition data that we have from Florida, and we applied them using a truncated normal, as was indicated in the Rudershausen paper, and it's to each of the four dispositions as follows, and it's just the four dispositions are what the fish looks like as they leave the boat, and so all that's important for you to see here -- I don't know why it says zero, and it should be point. Our four point estimates are 0.13, 0.09, 0.64, and 0.84. Those are the means of our truncated normal and the ranges are zero to 0.33, zero to 0.31, and on and on, and that was recommended from the Rudershausen paper and applied to the Florida disposition data.

The fish are then sampled using multinomial and then combined using the frequency of occurrence, and then a new estimate was drawn, as described for each MCB, and then the last step was to do the scaling for the 1.5-inch pots to two-inch pots, and this was just draw a value for 1.5-inch pots and then multiply it by 0.483, and here is what all of that talking looks like.

On the left-hand side, we have the one-and-a-half-inch pots. Then the right side is two-inch pots. All this should be is the right should be 48.3 percent, the value, of here, and so they should look identical, but they are just scaled. The other one, this is the commercial lines draw, and so we want it to be between zero and 0.33, which, again, it doesn't show the truncation in a tight way, and here is the headboat and general recreational, and so all that talking is meant to explain how we got just these distributions. We sampled the data to get these distributions, drew a sample from each of these distributions, and ran the model with this different discard mortality for each MCB. Is there any question about discard mortality MCBs? Okay.

Steepness was sampled similarly, and it's a truncated normal distribution with a mean of 0.64 and a standard deviation such that the lower number bounds were 0.31 and 0.97, respectively. This could be a uniform as well, and this is what was discussed as a panel.

That is all the configurations we did to our MCB or uncertainty analysis, and then what we have are the distributions that resulted. The solid line is from the base run, and so the top-left is the distribution of FMSY, and the top-right is that of SSB MSY, and the bottom-left is MSY in thousands of pounds, and the bottom-right is discards, and this is in fish.

The top-left here is the distribution of our status, and so this is relative to MSST, and so whether the stock is overfished. This shows the base run, and the majority of the density of our distribution says it is not. The bottom plot here is whether there is overfishing occurring in our base run, and the majority of the density of our MCB runs say it is not experiencing overfishing. Another way to visualize this is on the right, where the envelope of uncertainty, the 5th to 95th percentile of the runs, is shaded in gray, and the black lines are the base run.

This is yet another way to show it, and this gives you percentages. Here, we have our F status on the X-axis and our biomass status on the Y-axis and then each of the quadrants is -- We provided a percentage of the runs from our MCB that were in each quadrant, and 76.7 percent of our runs indicate the stock is not overfished, meaning it's not below MSST, and 95.2 percent of the runs indicate the stock is not experiencing overfishing. The last thing I have to talk about is projections.

DR. REICHERT: I think it's been an hour-and-a-half, and I think this is a good point to break for about ten minutes. Then, when we come back, we will finish your presentation up with the projections, and so let's meet back at 10:15. Thank you.

(Whereupon, a recess was taken.)

DR. REICHERT: Welcome back from the break. Katie, go ahead.

DR. SIEGFRIED: Okay, and so I'm going to go over projections now. The TOR about projections stated just a couple of things. It laid out the four F scenarios that were requested, and one is the P* of 50 percent and then an FMSY run and then to determine the ABC, the P*, at 40 percent, and an F at 75 percent FMSY was requested.

They also specifically stated in here that we need to get panel advice about how to treat the interim years, the 2017 and 2018, and that we were to assume the first year of management was 2019. The TORs, the last set of TORs, actually said the terminal year is 2015, but it is 2016, and so I'm not sure if the TORs just were assumed to be from before, but I didn't want to deviate here, because I was quoting.

What we did was we assumed that F current in the interim years was accurate, and so we didn't assume like a lower or higher F value in the interim years, and we just took forward our current level of fishing mortality and a weighted selectivity from the terminal years of the assessment. That was the panel consensus, and that's kind of standard, though there were other discussions here, and we also didn't provide a separate 1 and 2, and so the P* at 50 percent is FMSY, and so there is only three different projections that we provide here, the FMSY, the F when P* is 0.4, and the F at 75 percent FMSY.

We ran these projections to predict the stock status from 2017 to 2023, and the interim years were 2017 and 2018, and the structure of the projection model is the same as that of the assessment

model, and the parameter estimates were those from the assessment. Any time-varying quantities, like recreational selectivity, or really any of the selectivities that had a terminal time block, were fixed to the most recent values of the assessment period, and a single selectivity curve was applied to calculate removals, and it was averaged across fleets using the geometric mean fishing mortality from the last three years of the assessment period. The assumed changes to regulations or fishing rates was 2019.

I am going to show you some busy plots. I wanted to sort of lay out what you're going to be looking at. The expected values are solid lines and solid circles, the medians are dashed lines and open circles, and the uncertainty is represented by the thinner lines, and it's the 5th to 95th percentile of those replicate projections, and so here you see dashed versus solid and the thin lines, and so solid is based, the dashed is medians, and then the thin lines are the envelope of uncertainty.

The top-left corner is this spawning stock, and the upper-right is landings. The left-middle is recruits, the right-middle is dead discards, the bottom-left is our fishing mortality, and our bottom-right is the probability that our spawning stock biomass is greater than spawning stock biomass at MSY.

We're not actually currently fishing at FMSY, or it doesn't seem like it, because, when you fish at FMSY, you don't actually get to 50 percent probability in the right-hand corner of being above SSB MSY, and so what you see here in the upper-right corner is the landings. We are currently not fishing at FMSY levels, and so we end up sort of having to get towards the MSY levels by fishing at FMSY.

What you will see here is these three -- I am going to go through them like this, and so FMSY is the largest fishing mortality, and the next one is the P* at 0.4, and this is something like 93 percent FMSY, and this is 75 percent FMSY, and so, if you look at the bottom-right corner, you see how that line is getting closer to the 0.5. It gets a teeny bit closer, and then it gets even closer, and so you're reducing the amount of fishing pressure through these projections.

The second one is P* of 0.4, and it's slightly less than FMSY. You can see, like the bottom-left corner, we're not quite to the FMSY line. In the upper-right corner, we're fishing a little less than we were here. I think of these as relative, and I hope it's not annoying to switch back and forth, and this is the 75 percent FMSY, and so, the bottom-left corner, we're down below the FMSY line, and, in the bottom-right, we're even closer to SSB MSY.

To put this all into numbers for you, we have these tables that are also in the report, and I encapsulated in a red box the interim period for each of the three scenarios, and those should be identical, or I did something wrong. Then the first year of new regulations is 2019, and so you can kind of see, if you look at L.b(n), and so that's the base run in numbers, or, if you look at L.b(w), that's the base run in weight. For the top table, it's the largest, and then the middle table is a little less, because it's 93 percent FMSY, and then the next table down is 75 percent FMSY fishing levels. You guys will discuss these tables a lot, I'm sure.

DR. SERCHUK: I have some small comments about the projections, Chair. One of the -- I have two issues. If you look at page 48 of the report, there is a strange selectivity pattern that happened in the most recent year, and that's 2016, where we have the highest apical F on age-three, which is 0.2, where all of the ages are much lower than that, and I know that there was sort of an average

F used over the last three years to go forward, and so that is not a big thing, but that's just to show you that I think the first year in the projection, with this F of 0.2, maybe overestimated, quite frankly, because we haven't seen that pattern. Generally, it's full recruitment and flat-top at age-six.

More importantly, if you look at the recruitments that have been used here, you will see that it jumps up from two-something to 33872, and that 33872 is the highest recruitment, and we've seen it five years ago, and there is no value that high in the past four years. I am not saying that the generator for the recruitment is wrong, but it would have been helpful, particularly when we know we have below-average recruitment, even though it's increasing, to use some average of the last maybe two or three years, just to give a sensitivity analysis that, if we're still in this low-recruitment regime, we're not going to get the recovery that you would get by jumping up from two to 338 or 397, which, again, we haven't seen those recruitments since four or five years ago. That's just a sensitivity analysis. Thank you.

DR. REICHERT: Thank you, Fred.

DR. SIEGFRIED: That's a good point. We did have discussion about that within our panel, and so the SSC folks that were on that call can attest to this too, but we went back and forth about whether to use just the -- To include a just low-recruitment scenario, because we had six years of below-average recruitment at the end of the time series, or to include the whole time series or to include something in between, and ten years was proposed as well.

The discussion came down to whether we thought this was a new pattern and that this was going to continue into the future or it was some sort of -- This was a low-recruitment period and how long into the future it would go, and what the panel consensus was, it was to use the whole time series of recruitment instead of to limit it, although we went round-and-round about it, and it has been done for other species, to look at just a low-recruitment scenario. I don't know if it was red grouper, maybe, or gag grouper, where we did that.

Then I don't know how you all would know how many years into the future that would continue, and we did get some stakeholder input, and there were some statements that what they were seeing on the water was a big recruitment coming through, and so the stakeholder input was that they didn't think this was carrying through into the future, and so what the panel decided to do, what I did, was use the entire series of recruitment to inform our projections, but I think it's valid argument and discussion to have.

DR. REICHERT: Thank you. Alexei, before I go to you, I don't want to forget to ask if there is any public comment before we continue our discussions, and so I'm going to look around the room and see if anyone has any public comment. All right. Seeing none, Alexei.

DR. SHAROV: Continuing on Fred's comments about the recruitment, we always generate these wide envelopes that result in permutations based on the assumed variability for whatever number of parameters, which they will vary and to what extent, but these are not true uncertainties. That is, they are not equal probabilities, but we just put this all in and we say the probability of SSB recovering is such-and-such, but the reality is that the actual realization for whatever number of years projected is you will have only one outcome for every year, and that might be quite different from what the median line shows and what the envelopes are telling us.

I think there is more value in doing what Fred suggested, for example, in exploring what the low level of recruitment would do for the projection. Similarly to this, what would one or two recruitment events, which I still think are likely to happen or could happen, and how that would have affected the trends in the SSB and other metrics, and I think that's more informative than just these wide envelopes that we traditionally print out, that they have very little information in them. I don't know if you would agree with me, but --

DR. SIEGFRIED: Well, I do agree with you about the probability part. Those technically aren't probabilities, but it's just the number above a line. I'm not showing you a distribution. I guess it's just sort of incorrectly classically been the way that we've described it, and a lot of things that I say are estimates are not actually estimates. Either they're a calculation or -- But, yes, it's not truly a probability of being rebuilt.

I think that my personal opinion about how many years to include, you are going to know better in the future whether we made the right choice, right? It's hard to know what's going to happen in the next couple of years, and the anecdotal expert opinions that we got show that they didn't think that we were continuing in a low-recruitment era, and we didn't know whether to include ten years, six years, eight years, fifteen years. I mean, it's a subjective discussion as well, however exact we want to be, and so I think it's a difficult issue here.

DR. BUCKEL: For the last ten to fifteen years, this has been recruitment driven, and you have the opposite of what you think. In the 2005 to 2010 period, you have the highest Fs, or some of the highest Fs, and the biomass goes up, and then you get to these lower Fs in recent years, where you would expect biomass to go up, but it actually goes down, and so that's recruitment that's doing that on both sides of the 2010 to 2012 period, and so I think it is important to have as something for us to keep an eye on is the recruitment, because that's what is, at least in the last ten to fifteen years, what's been driving this population, and it's not F. Thanks.

DR. REICHERT: Yes, I noticed the same thing, in terms of the counterintuitive pattern, when you have high fishing, high Fs, and that's also when you see an increase in the population, and so thanks for that.

DR. NESSLAGE: That's confusing me as well, or at least it caught my eye as well, and I was just curious, and so correct me if I'm wrong, but there is no recruitment index in this, correct?

DR. SIEGFRIED: That's right.

DR. NESSLAGE: Right, and so the recruitments are essentially backed out, because your landings are going down, your indices are going down, and, therefore, recruitment had to have gone down, and it's not that you have data that indicates that recruitment has been low in the last five to six years, correct?

DR. SIEGFRIED: That's right.

DR. NESSLAGE: Okay, and so, if that is the case, I've been scouring your report for any indication of what the hell happened in 2011, because there's this abrupt change, and I'm curious, because I don't know these datasets well, but the one thing that I did notice -- Well, two things.

Obviously, the discards shoot up dramatically in 2011, and then it's recreational, right? The recreational discards shoot up, and then the other thing is that there's a sudden increase, which is great, in the number of age samples in the SERFS MARMAP chevron trap index, and I was wondering if you could speak to the selectivity of that and how both of those things might be affecting what we're interpreting as a drop in recruitment.

DR. SIEGFRIED: We lose our dependent indices at the same that we gain those other things, and I think it would be agreed upon by the entire panel, and you all can correct me if I'm wrong, that the SERFS chevron trap index, and before that MARMAP, is a very good index for black sea bass.

DR. NESSLAGE: What is the size range?

DR. SIEGFRIED: We didn't go through and try to block the selectivity of chevron trap, because, in theory, it shouldn't change. The selectivity basically -- The part that is the gear shouldn't change, and we didn't necessarily model anything about availability separate, and so there are other components to vulnerability that we didn't necessarily account for in selectivity, but, here, we did not change the way that the MARMAP gear and then the SERFS gear selected for the species.

I think it's a big deal that we lost our dependent index signals, and then it's the most active, for lack of a better term, part of the SERFS index. It's this big uptick, which you know the update attempted to follow, and then this big downtick, and then we don't have any other indices, though we do think it's a good index for this species.

DR. REICHERT: In the time periods where we do have them, they track each other quite well. I mean, we still don't know whether that would have continued if we would have had the data, but there is few conflicts between the index when we have overlap.

DR. SIEGFRIED: Yes, those are very well correlated indices, but there is no other place for the model to account for what you're saying. There is no other part of the balloon to push out, and so, if the landings are going down, which they were, and I've had a lot of pot fishermen, two pot fishermen, come to me, and then other gear fishermen come to me, and say that we're just not catching the quotas, and we're not doing this, and the fact that this shows up as recruitment -- That's the only other place it could be.

DR. REICHERT: That's a question that I had, in terms of fishing pressure, or F, and the ACL wasn't met in several years, correct, if I remember correctly, and so the fishermen can't catch them, or there may be some market-driven component, or maybe it's changes in management, or the result of management, or probably a combination of all of them. Did the panel discuss some of that, in terms of maybe explaining why the catches were so low? As you said earlier, the fishermen have told you that they just simply don't catch that many, or haven't caught that many, black sea bass in the last couple of years.

DR. SIEGFRIED: Yes, and I don't have hard-and-fast evidence to show you. Basically, it's been there has been regulations that have prohibited them from their normal operating procedures of fishing. They can't get them when they do get out there, and there is also -- I am sure you guys will come to this, but the MSY found in the update is much larger than the MSY that was in the benchmark or now the standard estimated. It was a million-something, and now we're closer to

900,000, and it's very large. I think the total take allowed is -- I don't want to say anything about management that's wrong, but it's much larger than a million, as estimated from the update, and so I don't know if they can catch this and the last one was off-scale and that's why they couldn't catch it, but it seems like there must be something having to do with recruitment as well.

DR. NESSLAGE: I don't want to drag a Mid-Atlantic question into the South Atlantic, but I am just curious. Have there been any spatial shifts observed in the distribution of the catch or the indices or anything?

DR. SIEGFRIED: There was a brief discussion about that on our last webinar, and I spoke with the MRIP rep after, and we looked at the data and didn't see a shift in that, but I am not sure that the quick examination we did could definitively say there has not been a shift. One of our research recommendations was to look at how something like climate change could affect a range shift of a species like this, but we did not fully address that.

DR. BOREMAN: We are seeing a shift in the Northeast, that's for sure. We're starting to see them show up in the Gulf of Maine.

DR. ERRIGO: I can talk a little bit about the recreational fishery, and I did an analysis on that a while back. One thing that they were seeing there is that, since the thirteen-inch size limit went into place, they're having a real hard time catching thirteen-inch black sea bass, and so the discards have gone up significantly since the update. That might be a combination of factors, but, if there was a huge recruitment pulse of small fish, that would certainly add to the difficulty of finding a thirteen-inch black sea bass.

DR. SERCHUK: Just an observation, Chair, because we talked about these high Fs early on. If you look at the Table 11, you see that the high Fs are coming out from apical Fs that are in ages-six, seven, eight, and nine, and they don't make up most of the catch. Most of the catch in recent years is being made up of age groups that are less than that, four and five, which would have much lower Fs, and I only raise this point that -- There is nothing wrong with using an apical F, because the fact is that it often focuses on one or two age groups, and they often don't make up -- They comprise most of the catch, either in numbers or weight, and, if you used a different metric, you would probably get a different picture, a more moderate picture, of the Fs. They wouldn't be quite as high, but they would account for more of the catch.

What I'm saying is we have, this year, if you look at Table 11, where the apical F is now at age-three, and we haven't seen that in a very long time, and age-three makes up 3 percent of the catch, and so that's just a point that you can change perspective if you really look at what efforts are being applied across the age groups, and I am not saying that anything has been done wrong, but I am just saying you could get a different perspective. Thank you.

DR. REICHERT: Any other questions or comments for Katie?

DR. BUCKEL: On the last webinar, we had input from industry, and I'm just curious if -- I can't remember, but did we talk about the 2017 trap data for fishery-independent data and if there was any signal from that on recruitment or abundance?

DR. SIEGFRIED: We did discuss that, and, unfortunately, as is the case at the end of a lot of these assessments, it's like go, go, go, go, go, meet the deadline, and I didn't hear back about that, and I didn't hear back from the Florida folks about the headboat at-sea index potentially being another signal that we could look at. I just didn't get to follow through with that.

DR. REICHERT: All I can say from the chevron trap data that does not include the video, because we don't have that data yet, from 2016 to 2017, it's been flat. That is the nominal, and it declines a little bit if you standardize that, and, if that's useful to the committee, I can show that, since you brought that up, but we don't have the age comps yet. We just have the index from the chevron trap catches updated. Any other questions? No? Thank you, Katie, and, if additional questions may come up, we may ask you to come back to the table.

DR. SIEGFRIED: Yes, and there's a whole bunch of extra slides at the end of the presentation you all have, if you're interested, and so you have everything that you need there, and I will be in the room. Thank you.

DR. SHAROV: Just a quick follow-up, and I didn't want to take time earlier, and I was saving it for more important questions, but could you interpret as to what was the dynamics around this 2010 and 2011? There was a strong recruitment and a rise in the biomass and a very steep drop, and I am wondering what is the cause of the steep drop, because the Fs seem to be declining too, but is this because of the high natural mortality and, once you don't have full recruitment, then you have a very quick decline in the SSB?

DR. SIEGFRIED: I wish I would have put up the update recruitment pattern here for you, though I'm sure that you all can find that too, but I think that there was more variability in this recruitment time series, and I was trying to understand why there would be this big peak in 2008, and only before 1990 did you see something that was above average, and I remember it being more variable around this mean line.

I am not sure what in the biology would be forcing this, and I am looking at it from a modeling point of view, and there is just nowhere else for this to come from in this model. As far as whether this recruitment time series is accurate, when I was doing the update, I got a lot of reports from industry that they were seeing more small black sea bass than they had ever seen in their entire life those same years, and so those corroborated what I had, and the industry perspective has been the same, but in the opposite direction, during this process.

That's always encouraging that it's not counter to the data that we have. I don't know why there would have been a drop-off. Again, this is a closed system model, and we're not able to model any emigration, and I guess that's a possibility, but we don't have that data or capacity in this model, and so the Fs are going down, because the landings are going down, but also we're seeing this recruitment pattern put out, and I don't know how to speculate for you any better than that.

DR. REICHERT: This is a species that matures really early, and so that could potentially explain some peaks in recruitment, because it doesn't take years for a large part of the population to reach sexual maturity. Then there may be other factors, in terms of changes in community structure, that obviously we are not capturing in the assessment.

DR. NESSLAGE: I know you walked us through your sensitivities, but help me out, because there were a lot of them, but the lower weight sensitivity on the indices, that's where they were set to one instead of two-point -- Is that correct?

DR. SIEGFRIED: Yes.

DR. NESSLAGE: Set to one meaning that all indices were equal?

DR. SIEGFRIED: Yes.

DR. NESSLAGE: Were they equal with the catch at age? How did the catch at age relate to the weighting of the indices, because the indices you're weighting -- I guess where I'm going with this, and this might help you answer the question, is, if you're really highly weighting the indices, and the indices are all saying that it went down, and then crash, or at least the last index does, the last index standing, and there might be an indication in the catch at age that that recruitment pulse isn't as strong, you might be just relying completely on this CVID index, and what did the recruitment look like in the lower weight sensitivity run?

DR. SIEGFRIED: That's something I could potentially get for you to show you, but let me pull up the fits. The weighting was purely to get this left panel to come down or to go up in the last six years, and so, like for the update, that uptick was fit very well, because there was this upweighting, and there is iterative reweighting on the comps and all this changing in the way that the data were weighted.

When you didn't upweight here, you ended up with a very flat fit, this index, which then it was just assuming there is no information, and like the error bars here are scaled to what your weight is, and so, if this is scaled to reduce the error bars by that scalar that we weighted it, the error bars were larger, and so the fit was just very flat through it. As far as -- I don't recall it not fitting the comps any different, like not fitting the comps or fitting them poorly, but it just was not getting any of the signal the last six years of those independent index, and so I'm not -- I mean, I can pull up, maybe during a break or something, the recruitment for the low weight and see how that differed. It's easy. I can just show you. Does the panel all want to see it, or do you just want to show you? Then you can decide if the panel needs to see it too, I guess.

DR. NESSLAGE: I guess, if it's dramatically different, then the panel would probably want to see it. If it still indicates a decline in the last few years, then I would say forget about it.

MS. LEE: I have two questions, and I think I figured out the answer to the first one, but it's about the retrospectives on Slide 53. For the SSB, I see it's consistently overestimating SSB in the terminal year, but it says no alarming pattern, and is that because the magnitude is so -- There is no real difference in magnitude, and that's just saying there is no alarming pattern? Like what would be alarming?

DR. SIEGFRIED: Alarming for the -- Honestly, the retrospective analysis is not something that we do a lot of in the South Atlantic, and so the top two are less alarming, but they're really not -- This is a ridiculous explanation to you, but we talked about the lower panel specifically, and I remember Erik and Jeff talking a lot about whether this was fitting the index better if you peeled back years, and so the bottom one wasn't alarming, because there is an explanation. A lot of times,

retrospectives have no explanation. You can't find why, but they just go crazy, and that's alarming. Is that acceptable? Okay.

MS. LEE: My other question is, in the report, there is a statement that suggests about fishery-independent indices obviously being superior to fishery-dependent indices, and so I was just wondering if you considered a sensitivity analysis where you just included fishery-independent indices and what you think that might look like.

DR. SIEGFRIED: We didn't actually consider doing that for this model. A lot of what we did or didn't consider was based on the fact that it was a standard, and, even if we saw something that was compelling in a sensitivity, we can't exclude three other indices, and we also have two independent indices, and so do we include them both? We just didn't go into including just that. There is a lot of things that we could do differently in a benchmark setting and would consider doing a lot of things about the fishery-independent index, potentially looking at what Genny was alluding to about sample size and all kinds of things, but we wanted to fit the index as well as possible, like the update did, but we didn't look into what you're asking about.

DR. REICHERT: Some of this may be good to capture in the report, in terms of suggestions, in terms of a potential future benchmark, and so any other questions?

DR. AHRENS: I've been trying to work through a mental experiment, and I'm getting stuck, and so what happens if one of your components of the CVID surveys has dome-shaped selectivity on it?

DR. SIEGFRIED: One of the components to the CVID survey?

DR. AHRENS: Right, and so the cameras probably not, but the traps actually might, but I can't figure out how that would influence it, because that survey index is dropping so quickly. If in fact there is a dome-shaped selectivity on it, and whether or not it's actually causing your recruitment indices to have to go further negative than they actually have to to explain -- If you're assuming it's fully logistic, and you have this rapid decline, that is really having to tank your recruitment to get that index total biomass to drop as fast as it should, whereas, if it was a dome-shaped selectivity, it may not tank that recruitment quite so much.

DR. SIEGFRIED: Yes, and there's another component to that, if you want to get more confused. In these comps, the age comps, we are a little bit overestimating sixes and sevens and sevens and eights in most of these, which adds to what you're saying. We are actually overestimating SSB a little bit, because of this overfitting of the older, fecund individuals, and so the SSB might be a little bit optimistic, and the recruitment might be a little bit pessimistic, and, whether that's a wash, I'm not sure.

DR. AHRENS: Yes, and I don't know how that plays back to using the Conn method to combine the two either, if one actually has a logistic -- If they're indexing slightly different components, I haven't played with the Conn enough to know.

DR. SIEGFRIED: The Conn method -- I mean, Kyle is listening right now, and he can't say anything, but he has a different opinion than I do about this, I think, or what I've heard in the past. The Conn method just takes the combining of those indices out of the model, does it before, and

puts it in, and it inflates the error to allow for process error. It's probably right that the CV goes up a little bit, because the standardizations are usually an underestimate of the error. Whether combining the two indices in the model or before you put it in the model is changing all the other estimates that go along with fitting those indices, I am not sure.

The video index is a little bit unique here, because we don't have comps for it. There is no size information. The pattern here is identical. They are exactly parallel, and so I don't think that you're going to get a different signal, and you are double-indexing the same individuals for black sea bass. It may not be the case for other individuals that prefer to stay outside of the trap and not go into the trap, but I think that your point is well taken, more so than for other species, but it seems like, for black sea bass, the trap and video are so in parallel that I don't think it's a problem. The CVs just decides how close to the central trend it's going to get, as you know, and so I don't think that inflating those and then upping the index weight, which reduces them again, had a big effect on this index in this assessment. That's for your initial SSB versus recruitment, and I don't know if that's a wash or not.

DR. AHRENS: I can't intuit that either.

DR. REICHERT: I've got a question for Luiz. The study that FWRI did, they did not just look at red snapper, right, and so would that mean that we may have some information on other species that, in the future, could potentially address that question?

DR. BARBIERI: Correct, yes. There is a few other species in there as well.

DR. REICHERT: I still -- Since it's a much smaller species, I am not sure what the exact selectivity looks like, but I don't think the doming would be dramatic, but I haven't done that analysis, and so I see your point, but I'm not sure how influential that would potentially be.

DR. AHRENS: Yes, and I guess, if you have a big recruitment pulse coming through, then does behavior change? Are the larger fish avoiding -- Do you start to get a bigger separation for some reason and therefore you actually have kind of a size-dependent change in the selectivity that -- In other words, you get a bunch of little ones in the trap, and the bigger ones are like, well, why bother going in, in terms of the competitive conditions in the traps.

DR. BUCKEL: Katie touched on this before, but we don't have the fishery-dependent indices moving forward, but the on-the-water observations, the hook-and-line and trapping during this time, showed the same pattern in this fishery, just really in decline, and so it will be interesting to see how things have changed in the next couple of years. If there's good recruitment, like some of the industry folks have -- The on-the-water observations from fishery-dependent, our work being out there tagging fish in the last couple of years, it's been more difficult to get the numbers, and so if that gives you any confidence in the CVID index.

DR. REICHERT: Thanks for that. Any other questions? All right. Thank you, Katie, for that presentation. All right. I propose to take a look at our action items, and I didn't go through them, because they were pretty standard for review of our stock assessments. I want to remind the committee that, if anyone feels that we should add some action items, to speak up. Again, I hope that especially those who made some comments that may be relevant for the review, please add them to the report.

The first one is review the assessment, and the question is does the assessment address the terms of reference to the SSC's satisfaction? I would like to see anyone speak up if you do not believe that the assessment addresses the terms of reference to our committee's satisfaction. I am looking around the room, and I don't see anyone disagreeing with that.

The second question is does the assessment represent the best scientific information available? I am asking the same question. Does anyone have any concerns? Seeing none, then the answer is yes. Again, if there is any additional information that we need to add to the report to correctly reflect our discussions, please help us by adding that.

Does the assessment provide an adequate basis for determination of stock status and supporting fishing level recommendations? Does anyone disagree with the fact that it provides an adequate basis for determination of stock status and fishing level recommendations? I am looking around the room and seeing none, and then the answer to that question is yes.

The second action item is identify, summarize, and discuss assessment uncertainties, and we have already addressed some of that, and Mike has tried to capture some of the discussions here, and so please take a little bit of time to look at those and see if we need to add anything or if the discussions are captured adequately.

The sub-action items are to review, summarize, and discuss the factors of this assessment that affect the reliability of estimates of stock status and fishing level recommendations and describe the risks and consequences of the assessment uncertainties with regard to status and fishing level recommendations and are the methods addressing uncertainty consistent with SSC expectations and available information. I think we discussed some of these, and I think they are captured above. Are there any additional risks and consequences that we need to add to our report based on our discussions?

DR. SHAROV: I think, in relation to the projections and then advice of the fishing level, the uncertainty in the recruitment and how we should treat the uncertainty in the recruitment, for example projecting forward assuming the recent, say five years, level of recruitment versus just simply using the assumed stock-recruitment relationship or the estimated level of the steepness parameter. That is something maybe to talk about a little bit.

DR. REICHERT: Okay, and so do you have any suggestions or proposals of how to approach that?

DR. SHAROV: Well, I would think that the SSC should consider a projection that is reliant on the selected period of recruitment, that is the most recent level of recruitment, and the facts of that level of recruitment to the recommended fishing mortality level. That is my suggestion. That is different from just the standard projection that is based on the assumed variability of recruitment through the stock-recruitment model.

DR. SERCHUK: My feeling, Chairman, is either we can accept the assessment projections as they are and express a caveat that, should the low recruitment that we've seen in the past four or five years continue, those projections are going to be optimistic. We can do that, or we can -- I don't know whether it's possible even to show a new projection with it, and it seems to me that the

committee has to make a decision here whether we agree that we use ten years' worth of recruitment in going ahead, in average, or there is some other period of recruitment.

It doesn't make a difference to me as long as we have a caveat in there that, should we stay in this period of low recruitment in the immediate future, we're not going to see the gains in stock size that are pictured, and that is a little warning flag, and so either we -- If we could get another projection, that would be fine, because I think that would be helpful, but, if we can't, I think we have to cover the bases, because I am uncomfortable, personally, using a ten-year recruitment horizon, particularly when we have this period of low recruitment recently and much higher, and it just jumps up in 2018, I guess, from this low two-whatever-it-is value to three-point-something, which we haven't seen in the past five years. That's my point, and it's not important how we do it, but I think we have to put that message forward. Thank you.

DR. AHRENS: I think, to strengthen that, most of the recruitment anomalies are negative since the 1990s, when you look at that. It's not just the recent years that is saying that, but the recent decades have actually been lower, and there is just one spike for a strong recruitment pulse that comes in.

DR. REICHERT: I am trying to pull up that recruitment slide. I think your point is well taken, and I think we can possibly come back to that when we are talking about the length of our recommendation, in terms of what we should do or what we could potentially monitor to get to that recruitment question.

DR. SCHUELLER: I agree with Fred's sentiment, and I was just -- For the record, Katie, if we ask for that projection, how long would it take to run that?

DR. SIEGFRIED: (Dr. Siegfried's comment is not audible on the recording.)

DR. SCHUELLER: Not long, and so it's something that is doable in a short time period? Okay. I knew that, but just so that everybody knows. It's not a request that isn't doable.

DR. REICHERT: Thank you for that. I think we need to be very specific in terms of what projection we would then like to see, to avoid seeing a projection and then, based on that projection, we would like to see yet another projection, and so perhaps we should spend a little bit of time in terms of, okay, what would help us in terms of formulating our recommendations. How should we approach that?

DR. SERCHUK: Here's my suggestion, Chairman, and this may be the worst-case scenario, but I would use the recruitment for the last four years. The last four years have been the lowest in the time series, even though it's improving, and that will give a worst-case scenario if recruitment remains low, and that would be my suggestion for the recruitment to go forward in this series, that average.

DR. REICHERT: Thank you.

DR. NESSLAGE: I think that's a little aggressive. I was glad to hear -- Sorry. Maybe that's a bad word. Fred, you're so aggressive. Anyway, I was glad to hear Robert bring up the -- I was noticing that recruitment was below MSY since 1991, and, I mean, I would feel more comfortable

with going back to perhaps 1991 and excluding the time period where it was far above RMSY, but I am open to discussion. I will try to be passive, instead of aggressive.

DR. REICHERT: You said 1991 and excluding that high --

DR. NESSLAGE: You can't see the crossbars in that very well, but, yes, that first year where it dips below RMSY.

DR. REICHERT: So the consequence is that you then bring that more to a, quote, unquote, long-term average.

DR. NESSLAGE: Right, but you're missing the giant peaks in the very beginning of the time series, which are probably drifting it more towards what Fred is worried about, which is the really high recruitment time period regime, if that's really what's happening.

DR. REICHERT: Anyone else to that point? We have two thoughts on the table.

DR. BOREMAN: Do we really have to run these projections? Isn't it -- I mean, if you say that the recruitment since 1991 has been below RMSY, and therefore, if projections are based on recent recruitment levels, you're going to get lower stock projections than if you use the entire time series here, and do we need the exact numbers of what these projections are going to show?

DR. SHAROV: It was my understanding that these projections would define then what, given this assumed level of recruitment, what should the recommended fishing mortality be to have as the target.

DR. AHRENS: I think it matters if you're worrying about, within your management consideration, if time to recovery is something that you're looking at. Then being able to see -- If you did the last five years and then you did an average over maybe the last ten years or something like that and say how does that affect your time to recovery, if that's going to factor into the decision.

DR. SERCHUK: I am also worried about, given the fact that spawning stock biomass is near the threshold, a lower recruitment will either delay -- The lower recruitment might actually exacerbate the problem of the stock size falling below the minimum stock size threshold, therefore forcing a situation where you have to get into an F rebuild because it's overfished. That is a concern, and it's a phase shift now. You have crossed the line and, all of a sudden, you're under a different regulatory regimen.

DR. SCHUELLER: That sort of brings up the phase plot, which shows a quarter of the runs from the uncertainty analysis are in the overfished category, and I -- At what point do we become concerned that too big of a proportion of those runs are in that category, and, I mean, this is all intertwined. I don't know the answer to that. I would love to hear other people's opinions about it, but, at some point, are we comfortable with a quarter? Are we comfortable with 40 percent? Obviously, if we get to 50 percent, that's a problem, but --

DR. REICHERT: Well, in addition to that, I think the direction the biomass is going is probably somewhat of a signal to us too, and it is trending downward for the last four years or something

like that, and so, if it's flat and the stock status shows that pattern, then there may be less concern. Anyone else to that point?

DR. CROSSON: This is a stock that has not been meeting its ACL, right, in either sector, because of regulations, and so that's probably what is helping keep it above the borderline there on a lot of the runs.

DR. REICHERT: Anyone else to that point? We still have the question in front of us of what is the committee's pleasure in terms of asking for another projection, in terms of recruitment? Fred suggested the last four years, and I think Genny suggested maybe going a little further back. Any strong feelings?

DR. BOREMAN: Why can't we have both the longer term, like since 1991, and the most recent X number of years and then have one versus the extreme, as Fred put it, for the last four years?

DR. REICHERT: If we do the longer one, the committee wants to leave those two high years of recruitment, because that was what you were suggesting, is not including those peaks, or did I misunderstand you?

DR. NESSLAGE: I am sorry, but can you just restate that?

DR. REICHERT: You suggested to go back to what was it, 1991, and then you also, if I remember correctly, you said, but let's eliminate those two years of high recruitment.

DR. NESSLAGE: No, that was in order to eliminate the first time period.

DR. REICHERT: Then I misunderstood you. Okay. Let me turn around and ask Katie whether that would complicate her timeframe.

DR. SIEGFRIED: Does it complicate my time table to remove the two years? Is that what --

DR. REICHERT: No, the question of the committee is can you run two projection scenarios?

DR. SIEGFRIED: Yes, and can I put my two-cents in here about what you all want to be getting from me?

DR. REICHERT: Absolutely.

DR. SIEGFRIED: I don't mind aggression, and so I kind of like your idea of bracketing the lower ends to see what would happen if we had the lowest recruitment ever continue, but that wouldn't necessarily be used for ABC, right? That would just be used to see what would happen if, or are both of these projections potentially going to be used to set an ABC, because that's a different question, right, for me, to make sure I get in my report what you all need.

DR. SCHUELLER: In my mind, they both have the potential to be used to set an ABC, given the concerns that we have expressed.

DR. SIEGFRIED: If I use the last four years or the last years since 1991, the way that the projection works is it just samples one of those, and it's not going to give an average, and so you would still have those two potential high years, and that would make a lot of sense as to what we were seeing in the historical pattern, like if the time trend has been mostly below average, with the occasional peak, and so it would -- That would make sense to me. There is nothing in the history that says we will experience the lowest recruitment ever into perpetuity, and so doing the two runs isn't going to take that much time for me to provide to you, and I wouldn't think that they would both be equally valuable to you, but that's just my personal point of view.

DR. REICHERT: Just to make sure, one is using the last four years and the other one is using the years back to 1991.

MS. LANGE: Just quickly, Katie, can you remind us exactly what years were used in the runs?

DR. SIEGFRIED: All of them. The model had all of those options to select from, and it would select randomly all of the potential recruitments.

DR. AHRENS: I was just going to say that we could potentially do multiple of them, not to be too generous with Katie's time, but --

DR. SHAROV: Ideally, we should have some leading hypothesis or logic, some reasoning, behind why we do we think that there is a high probability of lower recruitment in the upcoming period. We are seeing this currently, like folks noted, and, since 1991, most of the observations are below, but you could still think of this that this was the stock-recruitment relationship that describes the general association with these two metrics, but, just the random variability -- We just have a shorter period of time to actually -- It just falls out this way that we have a temporal period of lower recruitment, but, in the scale of events of several hundred years, that would be not important, but, if there is a reason for us to believe that there is a driving force in the environment, that does force the recruitment to be below the expected values in the most recent years, and what is it or at least what are the reasons for us to believe that is happening, even if we cannot explain it. That may help in deciding on the length of the interval.

DR. REICHERT: I had a similar question, in terms of remind me, Katie or the SSC members that were panel members, did you guys have a discussion in terms of looking at recruitment or why that recruitment was so low in recent years?

DR. SIEGFRIED: We discussed a lot of what you all have been discussing, that it's truly that, and we got input from stakeholders that that seems to be what they see, and we talked about movement of the black sea bass out of the range of samples, that seeing low recruitment in this model could just be a proxy for movement of the species out of the range, and we talked about the whole time period versus a truncated time period versus just the end for recruitment in the projections, and something that Rob mentioned earlier is, if we do sample the whole time period, the majority of them are lower than average, and so that was something the panel said, well, it's not like we're missing low recruitment, and there is really only two years of spectacularly low recruitment in the last four years, and that's completely out of the range of what we see in the middle of the time period, and so sampling the whole thing seemed to be sufficient to the panel. One more thing. At the end of the report, we do state this always, and we really only recommend using this for three to five years in the future. Ten years is a very long time for a projection.

DR. REICHERT: Thank you, and that's what I mentioned earlier, in terms of how long we feel our recommendations should be valid. Ben, you came to the table earlier, and I assume you had a question or a remark?

MR. HARTIG: I will keep it short. Basically, you got to where I wanted to go by having the discussion you did and not calling on me.

DR. REICHERT: We read your mind. One of the things that I mentioned earlier that we haven't discussed is species interactions that are very difficult to get a handle on.

DR. NESSLAGE: I think we're definitely moving towards asking for projections, but I would rather keep it at projection rather than projections, because when we get -- Not that they're not difficult to do, but how are we going to make a decision between the two? I think we have to make a priori decision that we think this is the appropriate time period and pick one, and then it will just fall out. The ABC would fall out from that, and I am willing to -- I am not stuck on 1991, and so I'm willing to back down if that's the decision of the group.

DR. REICHERT: That's a good point. Anyone else to that point?

DR. SCHUELLER: I agree with Genny. I believe we need an a priori decision on which projection we want, and we should have a reason, rather than looking at this and just randomly picking, and I think that I am starting to fall in the camp of using the 1991 on. I think that the last four years is just too short of a time period to get at the true potential variability.

MR. PHILLIPS: I could see the council being willing to look if you wanted to do multiple projections, say the last four years, which is basically kind of worst-case, and a longer timeframe, and then the council could look and listen to stakeholders and listen to your rationale on why you think each projection would have the pluses and minuses, and then they could figure out what they thought the best way forward was.

I am nervous if you send us just a worst-case scenario when we've heard stakeholders say they see recruitment that hasn't showed up in the models yet, but I could see that we could look at more than one projection, if you wanted to send us one, and then we would figure out what kind of -- Just listen to all the stakeholders and figure out the best way forward, knowing that we're probably going to get another assessment in four years, and the Science Center is working on getting more assessments to us on a much quicker basis, and then we've still got to figure out how to work that into the whole suite of things to do. Thanks.

DR. SERCHUK: Chairman, I don't disagree with going forward in our report with one recruitment scenario or another, but I actually would like to see both of them done and then have us look at it and then decide. I don't think a priori is a good idea, because there may be something that will affect the stock size with respect to the minimum stock size threshold, and I think that's really quite important. We could put one in, the ten-year one, and then just have another -- If we decide that's the one, we could say other runs were conducted, which would suggest that, if this is not the case, things are going to be more troubling with respect to the ABCs and so on and so forth. We could caveat it that way, but I would like to see both runs, if we could, knowing that it doesn't look like it's a lot of problem to produce them. Thank you.

DR. REICHERT: Thank you, Fred. I've got Rob, and then I've got a couple of thoughts.

DR. AHRENS: I think the advantage of putting in both the runs is, one, I think if you run it with the worst-case scenario, your spawning stock biomass is going to drop below the MSST point with greater than 50 percent probability. It's really going to drive that down, and I think that's useful information, I think, for the council to have to consider what potential near-term consequences could occur. If they get feedback from people that they are not seeing the recruitment in recent years, I think that's valuable information, versus if they say, no, we're now getting these little guys in the gear there.

DR. REICHERT: Thank you, and that's my thought, because that speaks to the risk of overfishing, and so, thinking about it, I think this would be useful information for us and for the council. There still is the question of, if we have multiple projections, what the committee is going to use as guidance to set an ABC, and so what I'm hearing from Fred is that he is okay with the longer time series, but he would like to see the other projection just as guidance for us, and potentially for the council, to assess the potential risk. I see nodding around the table, and so let's do that as our recommendation.

The next is to provide fishing level recommendations and to apply the ABC control rule to complete the recommendation table, and, Mike, if you can bring up, for the committee -- Mike will bring up our ABC control rule. We should all know this word for word by heart now, but I would still like to see it up on the screen.

All right. We have Dimension 1, and we have the fixed steepness, and so that's a proxy, and so that would be Number 2. Any discussion or disagreements? Seeing none, certainty characterization. I would say that is complete, or maybe -- No, that's the environmental conditions that were not included, and so that would be high. Number 2 is 2.5, and does anyone disagree? Seeing none, Number 3 is neither overfished nor overfishing.

This may warrant some discussion, and that goes back to I think what Amy just mentioned, and correct me if I'm wrong, Amy. What do we consider close proximation? That's where potentially -- There is another question that comes later that is comment on any difficulties encountered in applying the control rule, and this may be a complication. We have seen the direction the biomass goes into, and then what do we consider proximity? I would like to open the floor for comment relative to that selection, whether we select Number 1 or Number 2. Does anyone have any thoughts or comments on that?

DR. SCHARF: So you don't have a definition for "close proximity" from past sort of applications of this?

DR. REICHERT: We do not. That is at the SSC's discretion or based on our expert opinion. Anyone? Do we feel that the --

DR. SCHUELLER: I suggest Option 2, given a quarter -- I mean, it's 25 percent are below, and, given the recruitment recently, it's a risk. I think, at this point, my recommendation would be to choose Option 2.

DR. REICHERT: Does anyone disagree with that recommendation? Seeing none around the room, then it would be Number 2, 2.5. The productivity and susceptibility, I looked that up, and, according to the MRAG PDF page 38, it's high. I have been pondering the -- I looked it up, and I may be completely wrong, but I was wondering why that ranking was high, and it did not make -- I think it is because it's a highly-desirable species, and it's targeted heavily, and I think that's where that is swayed to a high susceptibility, and the productivity is also high, and I am just reading what I looked up, and so this is something I felt the SSC should discuss, potentially.

DR. CROSSON: I would suggest medium risk for this fishery. I wouldn't go along with high risk for this.

DR. REICHERT: But if we deviate, it would be good to have some language in the report to justify why we are changing, and we've done that in the past in stock assessments, where we deviated from the provided PSA score.

DR. CROSSON: The reasoning is that it's a mixture of those different variables, and so it's a much more productive stock than I would consider to be in the high-risk category, which I would reserve for some of the deeper-water snapper grouper species, and so, based on productivity, I would not put it at high risk. I do understand that it is fairly high on susceptibility, and I can't remember which one is the one of how easily it's caught, and they're aggressive, but I would still put it as a medium risk.

DR. REICHERT: I completely agree with that, but I just wanted to open the discussion based on the score that was published, and I agree that I am much more comfortable with a medium risk than with a high risk, but I also understand where that's coming from, and that is mostly because of the encounterability and availability and the desirability for this species.

DR. BELCHER: I am only going to ask one question, because it will come down to we have assessed this before, and we have put it through a P*, and we have not deviated from high risk before. The biology of the fish hasn't changed, and I get -- Like I said, I don't disagree with what Scott is saying, but I am just saying, from the record standpoint, why are we now disagreeing with using the high-risk category?

DR. BARBIERI: I want to make sure that we indeed did not deviate last time, and I cannot remember.

DR. BELCHER: That was the only thing that I wanted to point out, is for consistency's sake of what we've had for previous discussions. The biology of this animal hasn't changed, and, if we're used the high before --

DR. CROSSON: We've become increasingly questioning of the MRAG scores, and I guess that's one thing, over time, and that was one of the reasons that it's under review by the new control rule revisions.

DR. REICHERT: Exactly, and we discussed that at length when we were discussing the ABC control rule, whether or not it would be our preference to continue to use that.

DR. BELCHER: My only point is to make sure that we capture the reasoning for it, because it's not -- It's making a statement about productivity is high, it's always been high for this animal, and so I just think there just needs to be more discussion about -- It's not just for that reason, and that's all.

DR. NESSLAGE: I was just going to comment on Carolyn's comment, which is maybe why it wasn't high before, and that would be the big question. Was the understanding that you had to use the MRAG numbers and you just never questioned it before?

DR. REICHERT: Well, we did question it before, but Carolyn's point is a valid one, whether or not we went through that and discussed it last time. If we selected a high last time, then we are now deviating from that, and that's why I mentioned earlier that we need to make sure that we put in the report why we are deviating, why we're having a different outcome now.

DR. BUCKEL: One of the categories that MRAG uses is discard mortality, and they have that as a medium or a high, and I can't remember which, and that has -- Recent studies have found that that's actually lower than it was during the last -- That would be one reason to go from high to medium.

DR. REICHERT: Mike was trying to look up what we used earlier, but I think he and I agree that we are almost positive that we used the MRAG score in the previous assessment.

DR. SCHUELLER: I am not super familiar with the MRAG, I will admit, but what are the criteria for determining productivity, because it's not like, in this example, steepness, which is a measure of productivity, is very high.

DR. ERRIGO: Low means higher productivity, and so, the higher the score, the more risk there is, and so a low score under productivity means higher productivity. Down here, where they add it all up to a total overall risk score, the higher this number, the higher the risk.

DR. REICHERT: Mike, if you scroll up, if you look at the productivity, the productivity is actually a low score, and so where the overall score increases is the susceptibility scores. Jeff made a good point that we now have other, more updated information on the post-capture mortality, which was scored high, and so that could potentially be part of our justification to call that medium.

DR. BELCHER: I think some of it too is, obviously, as we've talked about the ABC control rule, there has been discussion about this particular item, and so I'm not -- That's why all I'm saying is, at this point, with the structure that we currently have, if we deviate, I think we just need to make sure that it is well documented why.

Again, I am not disagreeing with the change, but it's just that, because we've run this through and we've done the control rule in its current form and that it's been a high category, we're applying the same structure the same way, and now, all of a sudden, we're deviating to moderate, but yet the reason we're talking about that has to do with productivity, which hasn't changed over the time interval in which we've defaulted to high, and so that's all I'm saying. If we want to change it, we just need to be extremely clear as to why, in the current form, we're deviating, when we haven't in the past.

DR. NESSLAGE: To the productivity thing, I am arguing against my earlier shock and awe that it was in the high category, but, if recruitment is low, if we think it's now in a new regime where it's lower, and possibly really low, then maybe it isn't -- I guess to Amy's point about the H, that maybe it is higher than my original instinct, and I wish there was a fourth category, because I wouldn't put it in the same category as a tilefish or one of the deep -- Like Scott said, the deepwater snapper grouper, but, all else being -- If we have no other categories, maybe it is.

DR. REICHERT: The other thing is we have used MRAG in the past, but we don't have to use MRAG, but, again, that goes back to Carolyn's point of, if we don't, then we need to document why we are doing something different. Genny put up a good point, which may counteract the potential change in score of the post-capture mortality. What is the pleasure of the group?

DR. SCHARF: Just to -- Maybe we're going to discuss this later or tomorrow, with the ABC control rule changes, but it's just curious to me that we only have three possible scores here, where most of the others there is five, and so you have -- You only have sort of low and medium risk, and, if you had sort of very low, low, medium, high, very high, we would probably use a four here, maybe, as opposed to a -- I'm not sure, but that's just --

DR. REICHERT: Yes, and that's the nature of our current ABC control rule, and, as you said, we'll discuss that tomorrow, but that's what we currently have to work with.

DR. BELCHER: To that point, MRAG only gives you low, medium, and high, and so there are no gradients in the middle, and so that was kind of just sticking with that format.

DR. REICHERT: Thanks for that clarification. So, coming back, the choices here, what is the pleasure of the committee, the medium or high risk?

DR. BELCHER: This is something that I've been struggling with as I was looking at how do you translate our information to managers to figure out to manage this fishery, knowing that the declines are not necessarily tied to the fishing part of it, and so the fact that we have a biological impact that we may not be able to do anything about -- I would side towards high risk, because you're going to increase that buffer from OFL to ABC.

If you go medium risk, you are decreasing that buffer between the OFL and the ABC, and knowing that we don't know how that decline is going to continue, you're almost giving yourself a little bit of credit for the potential of the decline continuing, because, otherwise, how else do you account for it? I mean, you've got six years of data, and it's a visually substantial decline in SSB, and shouldn't we think about how to be more conservative on that? It's a biological problem, and it's not a fishing problem, is how I see that, and so the only way I would see to do it is, if we're going to argue between medium and high risk here, we're not talking a huge -- We're not talking like 10 to 20 percent. We're talking 10 to 5 percent. It's still giving us that benefit of having that little bit of buffer, just because of that decline, and that's just my --

DR. CROSSON: I don't have an answer to that. I guess it's just a question of how likely you feel that this is a new trend with the stock versus this is just an aberration and another strong year class may come along right behind the ones that we have listed up here on the board. I just look at that overall history over the past few decades, and I think there's been plenty of evidence that this is a blip, and I'm not as worried about this, but, I mean, we're also putting other caveats along with

this number, because, as we said, we're going to try and run the numbers with just those four years and show that to the council, so they can hopefully incorporate that into their decisions about how much risk they're willing to tolerate with the management of this species, but I think that this is -- I mean, biologically, it still doesn't seem likely to me that this is a new era for black sea bass and that the productivity has now declined significantly to put it into that high category. I still feel like this is a medium-risk fish for PSA.

DR. REICHERT: Anyone else?

DR. YANDLE: I am sympathetic with the objective, but I am a bit concerned by the lack of transparency in dealing with this by going up to the high risk, in terms of we're using numbers -- We're using what classification we put the species in to achieve a buffer rather than explicitly stating on the record that it's -- Biologically, it's a medium risk, but we have these concerns, and we strongly recommend that the council be much more conservative.

DR. REICHERT: Unless I misunderstand you, if we follow the MRAG, it's a high risk, and so that's -- Initially, we felt that maybe this should be a medium risk, and then you have to justify why you are deviating from not only MRAG, but the recommendation that the committee made in earlier assessments, and so where in that table do we now feel there is changes relative to the previous assessment that we feel makes this a medium risk at this point, and we got one from Jeff, but then that was kind of counteracted by the potential recruitment, which was then counteracted by the fact that that may be a temporary thing.

DR. SCHARF: I agree with Scott that, without seeing that document, to me, it's a medium-risk fish, but I understand the point you made, but I think, given how important discard mortality is in the snapper grouper fishery, and given that we have new data that shows that it's not that high in this species, I think that that's justification, strong enough justification, to go from a high to a medium.

DR. BUCKEL: I also can see Carolyn's point, and I think, to me, we handled that issue with -- The low recruitment is driving that biomass down near the benchmark, and we handled that in Dimension 3, where we reduced it from a zero percent to 2.5 percent.

DR. REICHERT: That's a good point, and that was my concern, that we need to kind of keep the double-counting in the back of our minds, and so that's also something we discussed in terms of the adjusted ABC control rule, and that's a concern that we had earlier.

DR. CROSSON: In my own personal experience fishing for this, it's usually in a hundred feet or less of water, and is that where a lot of the commercial and recreational recruitment -- Or is it deeper? That's usually, for me, where I start thinking about barotrauma issues, is over a hundred feet of water, and I don't know how much the black sea bass pot guys -- Are they in much deeper water than that or what?

DR. BUCKEL: The pot fishery tends to be in less than a hundred feet, but the hook-and-line, recreational, and commercial can be out to 120 or 130.

DR. BELCHER: Like I said, I am not married to it one way or the other. I am still holding to the I would rather us keep it at the high risk, just because of the trend that we're seeing. I mean, it's

not gradual. It's been pretty consistent, and it's getting down to that level that we're going to have to provide completely different advice if it crosses the line again, and so just, whatever we do, if we decide to go with that medium risk, I just want us to have rock-solid records of why we're going to deviate, given the conversations and concerns, and, like I said, that's it. I will support whatever the group goes with, but I just want to make sure that our record is rock solid on it.

DR. REICHERT: Yes, and, again, the decline in the trend -- I think, in part, we addressed that in Dimension 3.

DR. SCHUELLER: I just wanted to say that I completely agree with Carolyn, and, if we're going to change it, we need to pull that table back up with the low, medium, and high with the scores in it, and we need to say exactly which element we're changing, which is the discard mortality, and then how does that impact the quantitative score for that, and does that then translate into a medium risk, rather than a high, and I'm not necessarily convinced that's the case.

One element change may change it, but I don't know. I think we need to go through and do it, in order to make sure that we do have solid, transparent footing on this decision, because it looks like, whatever species is all the way over, the high, high, medium, it still is a 2.33, and so, in the overall risk score, I don't know what that calculation is, but --

MR. CARMICHAEL: I seem to recall that we did this not all that long ago, maybe two or three years, when we first started raising some doubts about this and whether or not it was up to date and information was changing and you were wondering how to get it in there.

There was some confusion about how the scores were actually calculated, and, as I recall, you all discovered some things that you felt it didn't really line up with the way the methods suggested to you that it should line up, which became really the nail in the coffin in terms of us not looking at using this for the future control rule, and so you are making a great point, but just my recollection is we've gone down this path before, and we got to the end and couldn't really get the scores to work out in the way you anticipated you would once you started changing inputs, and so, if we have some other work-around or something, that might be more efficient.

DR. SCHUELLER: I agree with that, and I understand that's why there is suggested changes in the new ABC control rule, but we're not there. We're still in our current version, and so I think that deviating without a very transparent, clear reason is just not consistent.

DR. JOHNSON: Just to John's point, that was October of 2014. There is a spreadsheet that went around, and, as I remember, we had some really surprising findings, like warsaw grouper and dolphin were like right next to one another and things like that that were just logical incongruencies with the way we did it, and so we definitely have looked up that issue before.

DR. REICHERT: I think we have deviated before, and so I think that the difficulty here is we can change the scores, and then, if I remember correctly, we'll have a hard time actually calculating the value, and so I think we can do that qualitatively, where we feel that black sea bass has a medium risk rather than a high risk, because of the post-capture mortality and maybe some other issues.

DR. ERRIGO: That's all I was going to say. I don't think there is any way to actually calculate the overall risk score by changing anything, and I was going to say the same thing that Eric and Marcel -- I don't think there is any way to go back and put in new numbers for things, and so I think, qualitatively, this is different and that's different, and we feel that's enough to change the score from high to medium. That's about all that can be done at this point.

DR. REICHERT: I forgot what the proposal is on the table. Is it medium risk or high risk?

DR. CROSSON: If there is not one, then I propose medium risk.

DR. REICHERT: So the proposal on the table is to select medium risk, based on the conversation we've had. Anyone disagree with that? Then we will select medium risk, given the discussions that we've had, and I completely agree with both Carolyn and Amy that we need to make sure that we reflect in our report the reasoning for a change from high risk in the previous assessment.

DR. BELCHER: The other thing I was thinking about was is there a potential for growth overfishing with this particular stock, given the size limit and the fact that they're not making the ACL? Is that a potential, and is that something that, again, to throw in for those conversations about gimbling back towards high risk?

DR. REICHERT: They are fast-growing, very early-maturing fish.

DR. SCHUELLER: I was just going to say that I don't know what the growth looks like over time, or if it really changes, but my bigger concern, given the recruitment pattern, would be recruitment overfishing, given that this is a protogynous species.

DR. BELCHER: Sorry. Wrong term. You're right. Yes, recruitment overfishing, because we're cropping out and really putting hard pressure on those larger-sized fishes.

DR. REICHERT: I think this is also where the length of our recommendations is very important and where the different projections may be very informative. Anyone else? All right. Medium. Where does that leave us, Mike?

DR. BUCKEL: Can we go back to Dimension 1 really quickly? I missed that one.

DR. REICHERT: Sure. That is consistent with what we've done in the past, I believe, right, or was that Number 2?

DR. SERCHUK: I know this hasn't been discussed up to now, but the size limit issue is something that reminds me that this is a protogynous hermaphrodite, and the larger ones, presumably, are all going to be males, and so we haven't mentioned anything about sex ratios in the population and so on and so forth, but I know, because it has an unusual life history with respect to many other fish species, that this is a concern, and it has been raised in other forums, where other species are protogynous hermaphrodites, and so I'm just wondering if there is any concern by those people that are familiar with the biology of this species and the size limits that there may be something askew in the population sex ratio that may have something to do with recruitment dynamics or removal of males from the population?

DR. REICHERT: I forgot whether that was in the -- It's probably in the report, and I asked Wally to look up the numbers. From my recollection, I don't believe the sex ratio currently is of concern in black sea bass.

DR. BUCKEL: We haven't calculated the ratios through time, but our on-the-water observations this winter off of North Carolina, there is nothing -- You are still seeing the males in the similar percentages.

DR. REICHERT: Yes, and I remember there were no significant changes in the sex ratio, but we may get an answer to that question, at least from our trap catches.

DR. NESSLAGE: Even if the sex ratio isn't changing, increasing the minimum size may not be the best response, and so, if our ABC is lower and they have to respond in some fashion, can we make -- Is it wise for us or are we allowed to make a recommendation that perhaps achieving the new ABC/ACL using an increasing size limit probably might not be the best option and closed seasons might be a better option, to reduce discard mortality, and I don't know. I'm not a black sea bass expert, and I would look to others to comment on that.

DR. BELCHER: This is the hard part too, is trying not to dip the line into what the response would be as a fisheries manager, because they're not meeting the ACL now. They are actually not hitting the number at all, and so the size limit is almost -- In some ways, you feel like it's high enough that it's not letting them realize the potential as it is, and so you wouldn't necessarily be increasing the size limit. You would actually be trying to think about potentially dropping the size limit to help make the ACL, and so there's like a lot of -- For me, in my head, I'm having all these counterintuitive arguments with myself, because this is probably one of the few times that we're not dealing with an issue where we're seeing declines and we're having fishing pressure problems.

I mean, if anything, the fishing pressure is actually lower than what is realized, and so, if it's a biological failure going on, what's your ramification? It's like you want to -- It's the whole idea of I don't want to say you close the fishery, but, if you're talking about a biological collapse, what do you do? Fishing pressure is not causing the problem.

Based on this, fishing pressure is -- Do you know what I mean? It's just that it's not -- Well, I can't say that, but what I'm getting at is fishery management is going to have to be more restrictive to help make up for what the biology of the animal is actually depleting from it, and so this is -- Like I said, I don't want to discuss the management part of it, but, as you're thinking about the yin and the yang of what we're doing, we're focused on the biological buffer between what's the overfishing limit and acceptable biological catch, but yet we're seeing, as we're setting that, this decline leaning towards an ABC that is actually going to drop lower, which is then going to lead to a lower ACL, but it's not because of fishing pressure that we're moving to -- There is a whole complex to it that, to me, it feels like it's more related biological, and so anything we can do to make the OFL/ABC buffer -- Because it's a biology component is what I'm seeing right now.

With looking at the spawning stock biomass and knowing where we're at with the fishing stuff, my head is -- Like I said, everything is kind of churning in my head, but I feel like it's -- Because there is concerns about recruitment, we need to be conservative on the biological side and not more liberal on the biological side, which is why I'm having that struggle with changing from high to

medium, because we're not giving it the credit for that potential of a decrease in recruitment continuing.

DR. REICHERT: Plus, that gets in the realm of all the possible approaches to management, but we have -- As a committee, we have an opportunity to comment on any of the council actions, and so we can wait and see how the council is going to approach this, and then we have an opportunity to comment on that, in terms of what is the impact and the risk to the population. Where does that leave us? Someone was asking about Tier 1, and did we answer that question? Did we make a mistake there, and so Dimension 1 is Number 2? Jeff, can you rephrase your question?

DR. BUCKEL: I was asking, for Dimension 1, what the justification was for going from 1 to 2, and Rob and Luiz just reminded me that it was the fixed steepness that was the reason. Thanks.

DR. REICHERT: Okay. That means that you are able to fill out the table, Mike, with the projections?

DR. ERRIGO: We're going to have to get new projections, because the P* value was not one of the projection runs that was run. It's 37.5 percent.

DR. REICHERT: Okay, and so we can include that later. The other one is comment on the difficulties encountered in applying the ABC control rule, and I think we have extensively discussed that. The difficulties were with, I think, the last two tiers. Anything else? Is adequate rebuilding process being made? This is not a -- That is an irrelevant action item, I believe, because it wasn't in rebuilding.

Provide advice on monitoring the stock until the next assessment and what indicators and metrics should the council monitor and could the SSC use to evaluate the stock until the next assessment, and I would say -- Amy.

DR. SCHUELLER: We're not in a rebuilding plan, but it might be beneficial for us to make a comment about the phase plot and the proportion of runs that are in the overfished category, just so that the council is aware that there is risk involved.

DR. REICHERT: So the committee cautions -- Okay.

DR. BELCHER: To Amy's point as well, when the -- Again, looking at that SSB and the drop that's coming in there, we're talking about looking for upward trajectories and rebuild, but now we're actually seeing something that there has been a sustained decrease, and so it's kind of a potential on a negative rebuild, and so I think you've at least got to comment towards that. I mean, it's not like we're getting a lot of random noise over the years. I mean, it's been a consistent thing over five or six years. We would talk about it in a positive sense as it's coming up over five or six years, and you're getting closer to the one line, and now we're on the opposite side of that saying that.

DR. AHRENS: There is actually, if you take a look at those residuals over the entire time series, there is actually a slight negative trend to the whole thing. I mean, there are some outliers that are pulling it, but there's a slow negative trend all the way through there.

DR. REICHERT: So what indicators or metrics should the council monitor? I think, in the past, we've said we've got the independent index, and we've got the potential of age comps, and landings. Are there others? I am not sure if there is any information available to monitor recruitment, but that may be in the length and age comps, and is there anything else that the council should pay attention to in order to monitor the stock until the next assessment?

DR. AHRENS: I think they should be looking closely at the CVID results.

DR. REICHERT: Yes. That's the fishery-independent index, and we mentioned the age comps, if available, age and length comps, to look at that recruitment signal. Then landings.

DR. NESSLAGE: More important than landings would be discards, in my mind, because, if there's a recruitment pulse coming through, you're not going to see it for quite a while.

DR. REICHERT: That's a good point. Thank you. Anything else? All right.

DR. SCHUELLER: I would just say that, if we continue not to reach the ACL and we're well below it -- I mean, we've said this multiple times when the Regional Office comes and gives a presentation, but we really need to pay attention to that a little bit more. If they are habitually way under the ACL, there is obviously some misalignment that is occurring.

DR. REICHERT: Yes, and thank you. That's the relationship between the ACL and the landings. Okay. Anything else?

DR. BUCKEL: Just to Amy's point, I think the reason is, when the last assessment was done, they had those two years of high recruitment, and so that got projected forward, and we just didn't have that realized recruitment, and so the ACL is based on we've got a couple of good year classes, and those have moved through, and they're not there to catch, because we've had the below-average recruitment since then.

DR. REICHERT: Under the category of lessons learned.

DR. BUCKEL: And that was something that was discussed at the last assessment, that this is all relying on -- Those are real.

DR. REICHERT: I remember, both in the assessment report and in the SSC, we discussed that extensively, and I think that's also why, and correct me if I'm wrong, the council ultimately took relatively conservative measures. Anything else? Thank you. Is there a recommended trigger level for these metrics? How could the council respond to a trigger? Is there something that the recruitment projections could potentially do? I have a hard time wrapping my head around a particular trigger that could then lead to council action.

DR. NESSLAGE: What would this trigger? What are we triggering?

DR. REICHERT: I don't know.

DR. NESSLAGE: Because it's hard to answer the question if we don't know what we're triggering.

DR. REICHERT: I think what we could say is that we should, perhaps as a committee, look at those signals, and then our, quote, unquote, trigger would be to make a recommendation to look at this stock or perhaps change the priority of a stock assessment or something like that, and that's, I think, where potentially the role of the SSC is.

DR. AHRENS: I think, if you imagine a scenario where your CVID or your chevron trap survey over the next three years declines by another 20 percent or something, you know that you are below MSST in the next model run, and, therefore, is that the trigger to say, well, you now need to consider an F rebuild strategy? I mean, now we're basing it off an index, but what if they go down by 50 percent? What if they go up by 50 percent?

DR. REICHERT: Then the trigger is what should you do, the 10 percent or --

DR. AHRENS: Right.

DR. REICHERT: I think, for the committee, if we can indicate that we should continue to look at some of these signals, and then I think we as a committee can alert the council that we are getting into a situation where perhaps we are getting to a biomass that reaches that level.

DR. AHRENS: Is the trigger to say that we need to do an assessment? Is that what -- That we have to move the assessment up in priority? I don't know when the next one is, but --

DR. REICHERT: Yes, that could be one of our recommendations to the council if we see those trends going that way. Anything else to that point? Provide research recommendations and guidance to the next stock assessment. I think we mentioned a number of recommendations along, and the next assessment -- Remind me. There is an assessment on the books, John, or not for black sea bass? It is not on the schedule, right?

MS. BYRD: It's 2021.

DR. REICHERT: 2021? Okay, and so there is an MRIP revision, and is that a benchmark, Julia?

MS. BYRD: Right now, it's an update.

DR. REICHERT: Okay, and so that's an update in 2021. How long are we comfortable providing this recommendation to the council? We usually have like this three or five-year window looking at the whole question about recruitment, and I am comfortable with three years.

DR. CROSSON: Also, given the importance of this fishery, and this is, I think, one of the more important ones for the recreational and commercial sectors both.

DR. REICHERT: That leads us to around the time where the update is scheduled. Then, as we discussed earlier, if we feel there is a need to change that, we can make those recommendations to the council. I think that addresses our action points. Any others?

DR. SCHARF: Just a research recommendation. I was talking with Katie before, and so, in this assessment, most of the life history information is still being pulled from the old assessments, and

it hasn't been updated, but we just published a paper, or actually Nikolai Klibansky is the senior author on the paper, but with lots of really interesting patterns in reproductive biology, both in terms of interannual variation and spawning capability and really strong evidence for size dependence of spawning frequency, and so I think that the next assessment should try to incorporate some of that information.

DR. REICHERT: I fully agree, and I think that's a general trend, looking at age and size dependent spawning season, batch fecundity, and the like, and so I think that's an excellent point, and I think it's actually mentioned, and I forgot whether it was the black sea bass or the vermilion snapper assessment report, to actually look at that, and so I agree. Anything else that we should -- Okay. That was age and size-dependent reproductive parameters.

One of the things that I thought of relative to the whole recruitment issue is the investigating the potential for a recruitment index or a juvenile index or something that may give us an indication of recruitment. All right. Anything else? Any other action items or things that we should include? I will ask Mike to send out the notes, as I did earlier, and any other things to come up relative to black sea bass?

DR. ERRIGO: The projections, I think they were done for five years, and is that still okay? Do you want them for three? I just wanted to clarify and that's all. That's good with me. Three years is awesome.

DR. REICHERT: I see nodding around the table.

MS. LANGE: When will we be able to see the results of Katie's updated -- Will that factor into any additional discussion for this species?

DR. REICHERT: I think we determined how to use the two projections, and the one was more as a potential indication for risk, and I think we made a decision as a committee, and I want to avoid opening -- We can review, or re-review that, but I want to avoid opening the discussion, but, obviously, it's the pleasure of the group in terms of, after we see the projections, to discuss and review that.

DR. NESSLAGE: My impression, and maybe I was wrong, was that we would include those in our report to the council, to give them that extra risk information, and is that what --

DR. REICHERT: Thank you for that clarification.

MS. LANGE: I just wanted to make sure that it was stated, so that it was clear what was happening with that information.

DR. REICHERT: Thank you. That's a good point.

DR. SHAROV: On research recommendations to improve future assessments, I think it's important to go back to Fred's comment on the sex ratio and how it changes with the size and age structure of the population and the potential effect of the minimum size regulations on those shifts in the sex ratio and the effect on the SSB.

DR. REICHERT: Thank you, and we can add that, and I hope we can pull some of the notes from the earlier discussions into the research section also, and so, again, I'm asking the committee to help us with the text there in the report. Anything else before we break for lunch?

DR. SIEGFRIED: I know we've been talking about two scenarios, but it sounds like there is another one with where P* has been adjusted, based on your discussion, right? It's not at 0.4, and it's 0.375, and is that right? Okay, and so you need that updated with the current assumption about recruitment and then the new two assumptions about recruitment, and what is the F value? Is it the P* that you just decided? It's the new one and then the two scenarios with just the three different projections and you don't need the three different F scenarios for the two recruitment scenarios, do you?

DR. REICHERT: No, I don't believe so. It's 12:20, and let's give ourselves an hour for lunch, and we'll be back at 1:20. One thing, before we leave, is I propose that we move straight into -- Since we have now the lunch break to kind of recuperate from the black sea bass assessment, we will move into the vermilion snapper assessment after lunch, and then, at the end of that, we'll see how much time we have for other agenda items. Then we can adjust the agenda accordingly. All right. I will see you back in an hour.

(Whereupon, a recess was taken.)

DR. REICHERT: All right. Welcome back. The next agenda item, as I mentioned before our break, is the vermilion snapper assessment review, Attachments 12 and 13. The presentation was emailed out earlier by Mike, and it's also available on the website. The assignments are Rob, Luiz, Eric, Anne, Alexei, and Fred. I will not go over the action items, as I did with the black sea bass, because they are pretty standard for assessments, and, with that, I will hand it over to Kevin, who will run us through the assessment presentation.

SEDAR 55 VERMILION SNAPPER ASSESSMENT REVIEW

DR. CRAIG: Thanks, Marcel. This is the same outline that Katie showed for black sea bass, essentially, and so this was a standard assessment, and I will go through some general background information, the data review and the focus on what was actually changed for this assessment, the catch-age model, and then the uncertainty analysis in the projections.

MS. LEE: I just wanted to, before you get too into it, do you want us to save questions for the end, or is it okay during the presentation?

DR. REICHERT: As we've done with black sea bass, if you have a clarifying question that can be answered relatively quickly, by all means do so. If it's more going into the discussion, I would like to hold off with that until the end, so we can have public comment and then move into our discussion. Thank you.

DR. CRAIG: Assessment history, there have been two early assessments of vermilion prior to SEDAR, in the very early stages of SEDAR, that used catch-length models. The last benchmark was SEDAR 17, which included data through 2007 and used the BAM catch-age model, and I've got the status that resulted from that assessment. It was not overfishing and not overfished.

There was an update to that assessment, which basically added five more years of data, but it used the same model structure and assumptions, and it essentially came to the same conclusion. You can see the plots in the middle there show the change in the biomass status on the left and then in the fishing status on the right relative to the benchmarks, and that's from the last update assessment.

This was a standard, and we used the same model that was used in the update, and we extended the data through 2016. The one other thing that has changed since the update is the definition of MSST, which was based on natural mortality in the last update, and, in this assessment, it's defined as 75 percent of SSB MSY.

These are the relevant terms of reference. The primary TOR was to consider inclusion of the SERFS video index, use the latest changes in the BAM model configuration, and reconsider the use of the age and length comps, particularly in relation to the error structure used there, and we did end up using the Dirichlet multinomial for that, which was the main reason for that TOR. Then the projections are the same as for black sea bass. They are seven-year projections with a two-year interim period, with the management presumed to start in 2019.

In the scoping call, we had some discussions about other modifications that the panel wanted to explore, and those are listed here at the bottom. There was some additional life history information that came from MARMAP, particularly a revision or an update of the relationship between batch fecundity and body size, and we had some information on spawning frequency and then age at maturity, and so we did incorporate those into this assessment.

The last update used an older method to reconstruct the historic recreational removals. The SWAS method was based on saltwater angler surveys, and the last several assessments have used a newer, improved method to reconstruct those landings, the FWHAR method, and that's been used since SEDAR 32, I think, and it is recommended in the SEDAR best practices document, and we made that change.

Then we did have a lot of additional age sampling for vermilion for this assessment, both in terms of the number of years for which we had age comps available, and so we had additional years of fishery-independent age sampling that added 1990 to 2001, which extended the time series all the way to 2016, and we had increases in the number of age samples that were done from the fleets. I think the SSC was briefed on each of those at the October meeting.

In terms of the jurisdiction and the major regulations, the stock boundary is the Virginia/North Carolina border to the jurisdictional boundary of the Keys, and the major regulatory changes are listed here in this table. There was a trawl fishery in the South Atlantic that was banned in 1989, and there were vermilion that were caught in that fishery. Aside from that, most of the regulations have been size limits and bag limits, and so the recreational fishery had a ten-inch size limit in place in 1992 that increased to eleven inches in 1999 and twelve inches in 2007. During that timeframe, there was a ten-fish per person per day bag limit, and that bag limit was decreased to five fish per person per day in 2009.

On the commercial side, there was a twelve-inch length limit put in place in 1992, and then ACLs went into place in 2006, and then, since 2009, there has been various ACL and split season quotas

and things of that nature. In terms of the data, I mentioned the stock definition, and it's the same as for SEDAR 17, and the panel did consider updating the von Bertalanffy curve, but they decided against that, and so this is the von Bertalanffy curve that was used in the last update with the parameters shown there.

One thing to note, that we discussed a lot with the panel, is the high variability in length at age for vermilion, and so you can see that in the left side here, and then this is the growth curve that we ultimately used in the model, but a 300-millimeter fish can be anywhere from one-year old up to ten-years old, and so there is an extreme level of variation in length within age, and I think that played into a lot of the decisions that I will talk a little bit more about later, about the decision to remove length comps or downweight the use of length comps in the model relative to age compositions, particularly given that we had increasing sample sizes for age comps for a number of the data streams.

DR. SHAROV: Just real quick, why did you consider updating, and then why did you decide to not update?

DR. CRAIG: I think part of it was the practicalities of what it would take to update the growth curve, and I think there was a notion that there was a lot of samples in the existing curve and adding some additional samples wasn't going to change things that much. We did look at some of the age samples, to see it changed the maximum age, which might affect the estimates of natural mortality and things like that, and it didn't, and so I think it was more of a practical decision of wanting to update a few of the data sources that maybe were more easily updated but not explicitly mentioned in the TORs.

DR. REICHERT: Thanks, Kevin.

DR. CRAIG: I think the same argument would apply to natural mortality, and so we used the Lorenzen age-based natural mortality that was rescaled to provide the same survival to the maximum age as you get with the Hoenig point estimate, which was 0.22. There has been a number of new methods to estimate natural mortality, and I think the panel wasn't ready, within the context of a standard assessment, to revisit all of those, and so we did use the Lorenzen age-based mortality vector, and we did a sensitivity analysis with the Chernoff method, which is one of the newer methods.

Discard mortality was the same as the last update. It was 0.38 for our recreational fleets and 0.41 for the commercial fleets. That includes, if I understand correctly from the documentation from SEDAR 17, that's both immediate mortality and includes delayed mortality, and I think this is from one of the Rudershausen papers.

These are the updates to the life history information. The red line is what was used for this assessment, and then the blue line is what was used in the last update, and so it's fairly high maturity, 80 to 90 percent, at age-one, and so the more recent data suggested about 90 percent maturity at age-one. Batch fecundity, there is a slight revision to the relationship between batch fecundity and body size, and I think somebody mentioned earlier, with respect to black sea bass, the potential for age-dependent spawning frequency, and we saw some indication of that, with a slightly smaller number of batches per season for age-one fish relative to some of these older ages,

and so we used this red line in the model, and there wasn't really enough here to suggest much variation in spawning frequency across these older age classes.

We did spend some time on the historical recreational landings reconstruction, and so the start year for this model was 1946, and so the recreational landings observations start in 1981, and so the historical removals were reconstructed for the period of 1946 to 1980, and those were previously done using the saltwater angler survey, which is based on a linear interpolation between these three years, where there is reports of landings in saltwater angler surveys.

I think this was discussed quite a bit in a prior SEDAR, and there is issues with recall bias, and I think, in the case of vermilion, vermilion are lumped with all other snapper, and they are not identified to species in those surveys, and so we did switch to the FWHAR method, which is based on estimates of fishing effort along the Atlantic seaboard, and then those get multiplied by the CPUE from the MRFSS to get an estimate of landings, and those are reconstructed back in time based on the ratio method.

This gives you a sense of what that looks like, and so you can see the dashed line is the recreational landings that are observed, and then the red line is the estimate of historical recreational removals that was used in SEDAR 17, the update to SEDAR 17, based on the saltwater angler surveys, and then the new removals are shown here in black, and so they tend to be a little lower removals than what was estimated previously.

Length and age compositions, or the methods of developing those, are outlined in these working papers, and it's the standard methods, and they were the same as what was done in the update. Length comps were done by weighting by the landings at the trip level for commercial hand line and then at the region level for the headboat, and we ran into some issues with weighting the general recreational length comps.

It appeared to be mostly due to a disconnect between where the landings and the lengths are coming from, and so most of the landings for vermilion that were in the MRIP data were coming from private mode, but there weren't very many lengths, whereas the charter boat mode had few landings, but most of the lengths, and that caused a lot of spikiness in the weight and length comps, and so the panel recommended just using the nominal length compositions for the general recreational fleet, and the composition for the discards were nominal as well. The age compositions were weighted by the length compositions, to account for any potential biases in the sampling.

We spent quite a bit of time early on whether to include the length data at all for vermilion, particularly in light of the variability in length at age that was evident in the growth curve. The last update did include length compositions, in addition to age compositions, for all fleets, and we had some discussions with the panel about the potential for that to overweight the composition data, by including both lengths and ages, and we weren't estimating the growth curve internally, and so it wasn't clear what the length compositions would actually be providing beyond the age compositions.

In the recent SEDARs, we have tended to exclude length compositions when sufficient ages were available, and so we did exclude length compositions from all of the fleets except for commercial

handline and the earliest time block, which was a period where we needed an estimate of selectivity, but we didn't have any age data.

Indices, there are a number of indices that were used in the last update for the fishery-independent indices. The MARMAP, the Florida snapper trap, was a five-year index in the 1980s that was retained and then changed for this assessment, and the chevron trap was updated and re-standardized with a delta GLM that extended from 1990 to 2016. The SERFS video was developed and standardized with a zero-inflated negative binomial, and that's a five-year index from 2011 to 2016, and we spent time on methods to combine the trap and video data, and so we ended up using the Conn method, but there is a newer method that's being developed called the Gwinn method, and it's similar to the Conn, in that it's combining the trap and the video data, but it's doing so at the station level, as opposed to the Conn method, which is combining two previously developed indices.

We didn't have -- This was developing as the assessment was occurring, and it's got -- I think I have a slide that shows some of the advantages and disadvantages, but it takes a long time to run, and so we didn't really have it available to view in time that we needed to include it here, but we did do it as a sensitivity run.

Then there were three fishery-independent indices, the commercial handline, the recreational headboat, and then the general recreational. All of those had been truncated in the 2008, in the last assessment, because of the change in the bag limit and the imposition of the ACLs. It seemed to cause a disconnect between the catch rates and the abundance, and so that was a decision that was made in the last update that we carried through here for this assessment, and so all of the fishery-dependent indices terminate in 2008, because those of those regulatory effects that start up towards the end of the timeframe.

DR. SHAROV: Could those instead be broken into two components, and that is the last five years after the regulation, being as a separate index?

DR. CRAIG: For the fishery-dependent indices?

DR. SHAROV: Rather than truncating, right? You could just split them and consider it as a separate index from 2010 on.

DR. CRAIG: I think that's something we could have done. It wasn't done. It wasn't recommended by the panel, and I think particularly the variability in the regulatory effects over that time period, and so we have periods within that five-year block that you're talking about where there were no closures due to the ACL, where there were closures due to the ACL, and then there were split season quotas, and so I think that was something that I think could be addressed in a future assessment, but, here, I think the decision was to not revisit the decision that was made in the last update, particularly because the regulatory effects that led to that decision were still in place, but, yes, that's a point well taken.

These show the indices together, and so we had a lot of discussions about the ability to index vermilion at all, and I think this reflects it in this plot. We got a lot of input from the fishermen and other people on the panel that vermilion are often up in the water column, and so the trap and

video, shown here in purple, is on the bottom, sampling during the day, presumably when a lot of vermilion are up near the surface.

They also seem not to be as associated with a hard-bottom structure. They are, but they will move off of hardbottom structure as well, and so a lot of those issues were discussed with the panel, and I don't know that we had an answer to them for this assessment, and so these are the indices that we had to work with. You can see some periods they might be correlated with each other for a few years, but, overall, there is very little correlation among these indices, typically on the order of less than -- They're R squares of less than 0.1 or close to zero.

This is the video index that was developed. Again, this was standardized with the zero-inflated negative binomial, and there's a zero-inflated Poisson that was also considered. The response variable is SumCount. It's the number of individuals that are observed on a forty-one-frame sample of the video. There are a number of factors that were included in the standardization, and so this shows the standardized index in red here relative to the nominal index in blue and then the 95 percent confidence intervals here, and so the nominal and the standardized are both within the range of uncertainty for most years.

MS. LEE: For the factors, did you assume they were the same for both the count part of the model and the binomial part of the model, or did you consider separate factors for the two parts of the model?

DR. CRAIG: They were the same factors for both, but I think the significance differed based on whether it was the binomial or the positive part of the model, and I don't remember offhand which factors were significant. Typically, it's season, depth, and latitude, and I think temperature was in this case as well, but we could look at the working paper to see exactly what came out of the standardization, in terms of the significance.

I guess the other thing I should mention is there was an adjustment in the camera that was used to collect the video that changed in 2015, and there is a calibration study that was done the year before to develop an adjustment factor to account for that change, and so that's reflected here. The 2015 and 2016 values actually reflect the changes based on this calibration, which seemed to be fairly good for vermilion. I think there was a number of vermilion that were observed on both cameras, and so, in contrast to some other species, I think the calibration for vermilion is pretty good.

This shows the chevron trap index, and so this is the standardized index in black relative to the nominal, the dashed line, and so they tend to track each other fairly closely, or at least are within the range of uncertainty for most of the years, and then this shows that index relative to the same index in 2017, and it was used in the 2012 update of SEDAR 17.

This is the description of the methods used to combine those, I think the rationale is that those two gears are not independent of each other, because they are set concurrently at the same sampling stations, with the cameras mounted on the traps, and we looked at two methods, this Conn method, which had been used in the past, which assumes that the video and the trap index both reflect the same underlying abundance trend and just with different levels of observation error and process error. The combination accounts for both of those in developing the combined index, and it does tend to inflate the uncertainty, as Katie mentioned, for black sea bass, because you are incorporating the uncertainty for both of the indices.

The Gwinn method has not been used in any SEDAR assessments yet. The major difference is that it combines the trap and the camera counts into a single index at the level -- Based at the level of a station, and presumably that's better able to account for some of the detection issues with the two gears and the spatial and temporal variation in sampling across the years, and it does take a lot of computing time, and so we were trying to look at this index, but it was taking three or four days to run it, and so hopefully that's something that we'll use more in the future, but we didn't have it available in time to really be reviewed for this assessment.

DR. REICHERT: Kevin, that was a question I had. Do you expect that you may gradually move to the Gwinn method?

DR. CRAIG: I think it's hard to say. It seems like it has a lot of advantages, particularly the ability to account for things, the correlation, at the scale that they're occurring. I mean, they're occurring at the -- The lack of independence is occurring at the level of the sampling station, and so, frankly, it's not something that I am well-versed in. This is something that Kyle and Nate, and I know you've been involved in this, have been developing, but I think it has the potential to have some advantages over the Conn.

The Conn is simply an averaging method, basically. I mean, you end up, typically, splitting the difference between the two indices, and so it's not -- In my mind, it's sort of a fancy version of taking an average, basically, but I think the Gwinn method has a little more flexibility to account for that lack of independence, and particularly some of the changes in the sampling, because, as the survey has developed, the sampling intensity has changed, and sometimes the geographic coverage has changed as well.

DR. REICHERT: Thank you. The reason I was asking is, if this something that we will see as a committee more often, then maybe, in one of our future meetings, we could have a presentation about that method, so we can take a look at it and understand it, if this is something that we'll see a lot more, and so thanks.

DR. CRAIG: Yes. This shows the trap and video indices together, and so the trap index is shown here in black, and the video is in green, at the end, and the combined, using the Conn, is in blue, and so you can see the Conn method is essentially tracking the trap index, for the most part, because there is no video available. Then, when you see the video comes online, the Conn method is kind of splitting the difference between those two. The Gwinn method is doing something a little different. It's got larger swings in abundance and more sort of deviations from the trap earlier in the time series, but it's showing less of an uptick towards the end.

This is just a blow-up, because one thing the trap and the video do not -- They don't line up exactly, and so the trap itself is going from an index value of about 0.6 to 0.2 and then up to 0.8, and so that's about a two or two-and-a-half-fold drop and then a two to fourfold increase over this period, whereas the video tends to be more stable and doesn't show quite the swings that the trap index shows. The recommendation of the panel was to use the Conn method for the base run and then to use the Gwinn method as a sensitivity.

This is the data that we had available, and I have a clearer version of this slide, but the start year is 1946, and so the landings essentially go back to the 1940s across the different fleets as well as

the discards, and so this is coming from the historical reconstruction of the recreational landings. This is the same graph, but just truncated to 1976, so you can see it a little bit better, and so the compositions, the colored areas, are the lengths, and the shaded areas are the ages, and so we do have good age compositions for headboat since the early 2000s and also in the mid-1990s. It's a little bit more sporadic before then.

Recreational, we had some age compositions as well, which is unusual. The commercial handline, we had age compositions, except for a couple of years, going back to 1992, and some of these years fell out because they didn't meet a sample size cutoff, and so that's why there is gaps in here. Then, for the discards, we only had length compositions for the Florida snapper trap length compositions, and, here, for the chevron trap, we had age compositions going back to 1990.

These are the indices, and so headboat starts in 1976, and MRFSS starts in 1987, I think, and commercial handline in 1992, and they all end in 2007. Then here is the chevron trap and the SERFS video index.

This shows the landings and the discards in numbers by fleet, and so most of the landings are accounted for by the commercial handline, with the rest -- Second is headboat, and then general recreational. We did have this period where the commercial other, which is dominated by trawl prior to 1989, accounted for a reasonable portion of the removals, but, more recently, it's very small.

Then these are the discards, which are coming mostly from general recreational, and we did have this one spike in discards in 2007 from headboat and commercial handline. If you look at the axis, the landings are on the order of two-million fish a year, and the dead discards are on the order of 200,000 fish a year, and so the landings are about an order of magnitude greater than the discards, on average.

The modifications and updates, this is just to summarize, and we had the five years of additional data, and the general recreational fleet is now -- Those landings were constructed based on MRIP, as opposed to MRFSS, and the updates to the reproductive inputs of maturity, batch fecundity, spawning frequency. We used the newer method to reconstruct the historic recreational removals and included the additional years of age sampling. This excluded length compositions when we have sufficient age compositions, and so that limited the lengths to the one selectivity block for commercial handline, and then we used the combined chevron trap video index based on the Conn method. I can pause there and see if there is any questions about that.

DR. SHAROV: It seems that you did calculate the index based on Gwinn's method, right, but then I missed the logic as to why it was decided not to use it and just use in the sensitivity analysis.

DR. CRAIG: Well, I think we were able to use it as a sensitivity because it was available at the time the sensitivities were being discussed and decided. We didn't really have it earlier, and I think there was also -- It was being developed outside of the group, and so we had a person who was under contract to do it who was not on the assessment panel or part of the assessment, and so there was concerns that the expertise didn't lie with the assessment panel to run it or rerun it if it need be and we were reliant on somebody who wasn't really formally involved in the assessment process.

Then I think the time to construct it was the other thing, that it does take a long time to construct, and it seems to show a fairly similar pattern, albeit with kind of increased variation. The highs tend to be higher, and the lows tend to be a little bit lower, and it shows a more moderate increase towards the end compared to the trap, but the rate of increase is fairly similar to what we're getting with the Conn method over those last five years.

I think it probably will be a better method in the future, but I think it was one of those things that was under development as the assessment was ongoing, and the panel didn't really want to make a wholesale change to a different methodology that hadn't really been formally vetted.

MS. LEE: Did you consider combining the fishery-dependent indices?

DR. CRAIG: We didn't, and that is a good point. We did not consider combining those. It wasn't something that came up in the discussions. I guess, if you're going to combine them, then you may also be assigning some a priori weight to them, if you're just averaging them, and are you considering them equal representation of the trends in abundance? That's a good point, but it's not something we really considered on the panel.

The model was the same formulation as in SEDAR 17. It's a catch-age model, and it was fit using a maximum likelihood and the Beverton-Holt spawner recruit and the age-based natural mortality. The selectivities were the same in structure as for the 2012 update. They were allowed to vary across regulatory blocks, which were constructed mostly around those size limit changes that I showed earlier. Commercial and recreational fleets, the selectivities were logistic. For the SERFS index, they were dome-shaped, and all the discards were dome-shaped.

We weren't able to fully estimate selectivity for the discards, and so there is components of those that were partially estimated, which I will go through in a minute. Then, for the commercial other and historic trawl, we had very limited -- We had no age compositions and very limited length compositions, and so we made some assumptions just based on inspection of the available length data that fixed those selectivities, and it was essentially the same assumptions that were used in the last update.

Then the panel did recommend that the -- We had some discussions about the headboat and the general recreational fishery and whether they are actually operating differently in a way that would affect the selectivities, and the recommendation was to combine those, but have the same selectivity for headboat as for general recreational. We assumed virgin conditions in the model's start year in 1946 and an equilibrium age structure, and we had twelve age classes, with twelve being a plus group, and then the spawning stock was represented by the population fecundity, or egg production.

This will give you a sense of the blocking scheme for the selectivities, and it might be a little hard to see across the top, but on the left side are the commercial fleets, and so, for the commercial handline, there is no size limit prior to 1992, and there was a twelve-inch size limit starting in 1992. For commercial other, there were two blocks around the trawl ban, and that occurred in 1989. We had two years of historic trawl data, which was treated as a separate fleet, as in the last assessment, and those were assigned the same selectivity as the commercial other fleet.

Handline discards, we had a block around the twelve-inch size limit that occurred in 1992, and then there seemed to be an increase in legal-sized fish that were showing up in the discards, due to some of the split season ACLs or the closures that were occurring after 2009, and so that was set as a separate block.

For recreational, headboat and general recreational have the same blocking structure around the size limits, the ten-inch size limit that went in during 1992, and it was eleven inches in 1999, and then twelve inches in 2007. For the discards as well, the blocks were structured around those size limit changes. The last assessment assumed there were -- Well, we did have discards prior to the size limit change, and so those were just -- This block was extended back, based on the selectivity that was estimated for a ten-inch size limit. This is the same blocking structure that was used in the last update.

These are the selectivities, and so this is the commercial handline selectivity, and the first time block is in blue, and the second time block, after 1992, is in red. The commercial historic trawl, this was assumed at 100 percent selectivity at age-one, 50 percent at age-two, and zero percent at age-three. Because trawls tend to catch smaller sized fish, this really wasn't informed by any particular dataset, and it was an assumption that was made.

Commercial other was dominated by the trawls in the first period, prior to the trawl ban, and so the selectivity was set equal to that of historic trawls, and then, after the trawl ban in 1999, it was mostly traps, and I think some spears and some other miscellaneous gears, and it was a very small portion of the landings, and so the selectivity was set to that of the commercial handline fleet.

These are the selectivities for the discards, and so, for commercial, the assumption was that there were no discards prior to 1992, and the first time block, shown here in red, the approach was to fix the selectivity at age-one at zero, fix age-three at one, and then estimate age-two using a logit. Then, the age-four-plus, the selectivity was fixed at the age-specific probability of being below the size limit based on the growth curve.

In the later period, more length comps came online for the discards, and so age-one was fixed at zero, and age-three was fixed at one, similar to the first time block, but the age-two was fixed at that estimate for the first time block, and then the descending limb was actually estimated here, because we have more length composition data in this later time period.

This is the selectivity for the recreational in the first time block, and 1992 is when the ten-inch size limit comes in, 1999 is the eleven-inch size limit, and then 2007 is the twelve-inch size limit, and so the shifts in selectivity don't necessarily correspond to what you might expect with an increasing size limit. They are not ordered, and I think, given the variability in the length at age, it's probably what accounts for that, is that we've got ages that can span a really broad range of lengths.

Then the approach for the discard selectivities was similar as for commercial discards, and age-one was fixed at zero, age-three at three, and then age-two was estimated for block two, and then age-two in block one was fixed at that in block two, and then these older ages, four-plus, were the probability of being below the size limit, given the distribution of lengths at age for the ten-inch, the eleven-inch, and the twelve-inch limit.

These are for the SERFS trap survey, and so this was a slight change from the last update. We did estimate -- It was dome-shaped selectivity in the last update, but I think it was only partially estimated using logits for various age classes, and so this was fully estimated using a three-parameter logistic. We assume the full selection of age-three, which was based on inspection of the age composition, and then we allowed this estimate of doming for the older ages. The Florida snapper trap caught mostly very small fish, and so the selectivity there was just assumed to be one for age-one and zero thereafter.

These can be confusing, or at least for me they're confusing, but they're the same assumptions that were made in the last update, and so we really didn't deviate in terms of how we structured the selectivities from the prior update.

DR. SHAROV: Very quickly, to understand on age-one, you have a selectivity equal to one for the commercial fleet, or trawl, and, at the same time, it's zero for the discards, and so does that mean that there were no discards for age-one fish and that everything was retained? How should I interpret this?

DR. CRAIG: Which one are you talking about?

DR. SHAROV: Age-one, and so, for discards, it says at age-one it's zero, and so fixing the selectivity at -- Making it equal to zero, that means no discards, correct?

DR. CRAIG: Right.

DR. SHAROV: Then, earlier, when we walked through the commercial stuff, the age-one selectivity was one, and so everything that was caught was retained, and so I am trying to understand. These age-one fish, which are somewhere between ten to thirty centimeters, are they are always being retained and nothing is being discarded, and that's how it works?

DR. CRAIG: I think that was an assumption for the commercial, is that they would be retained, because they're available to that trawl gear, and they wouldn't be released or alive, whereas, for the recreational, I think the assumption here is that age-ones would be either not caught or would be released and there would be zero selectivity on them.

DR. REICHERT: Kevin, can you go back to Slide 33? You said in the trawl gear, but this was -- I just want to make sure we are on the same page. The next page, you were talking here about the trawl gear, and this is the --

DR. CRAIG: This is commercial other, and so this was actually a discussion that we had on the panel, because the fleet structure -- Because we have historic trawl and commercial other separated out as separate fleets, but those are actually the same gear in the early time period, and then commercial other, after the trawl ban, becomes more similar to commercial handline, and we used the selectivity for commercial handline.

In retrospect, you could pool the commercial other after the trawl ban with handline, since you're giving it the same selectivity, and it's a very, very small component of the removals, and then you could have a single trawl fleet that encompassed both commercial other prior to 1989 and the historic trawl, and so we had this discussion in one of the webinars, and so we recognized that as

an issue, and I think, because these were such small components of the removals, and I think you might be able to see that here, and so we did have a reasonable number of commercial other removals in the 1980s that are essentially trawl-caught fish, but they don't show up in any numbers after that. Not wanting to kind of modify the fleet structure I think was the other thing, and that wasn't really part of the TORs to reconfigure the fleet structure from the last update, and so that's how it was handled.

DR. REICHERT: Thank you, Kevin. I am not sure if that answers your question, Alexei, or if your question was answered.

DR. SHAROV: Yes, and so I understand -- I am clear on the commercial that the small fish, age-one, were just simply retained, even though they are small, but they were still commercially valuable, and they were retained and there were no discards, but then we're going into the recreational discard selectivity, and, for age-one, it's zero, which means no discards, no fish of that age were discarded, and is that because they are not being caught? Why is there zero discards for age-one? These are small fish. Supposedly, if you catch them, they probably should be discarded. Therefore, there should be non-zero selectivity. If it's zero, you don't see them in the catch?

DR. CRAIG: I don't think we really know, because we don't have the length compositions. I think the length compositions that we did have suggested that they were mostly age-two, but there could have been age-one, certainly, with the variability in the length at age. We had to anchor the selectivity curve in some way, and so what was done was to anchor the age-ones at zero and age-threes at one and then just focus on estimating the selectivity of age-two, which seemed to be consistent with the limited length data that was available.

DR. REICHERT: Thanks, Kevin.

DR. CRAIG: Again, I think those are questions that we could certainly revisit in another assessment. I think this was a compromise between trying to estimate some components of the selectivity and having to choose some given the limited length information that was available and then not wanting to deviate too much from what was done previously. Any other questions on that? Okay.

Catchability, and so the last assessment assumed a linear increase in catchability for all the fishery-dependent indices throughout the whole time period, up through 2008, and there was a procedural workshop that suggested, if we're modeling linear increases in catchability, it should stop at around 2003, or saturate around 2003, based on sort of perceptions of technological changes that would affect catchability.

In recent SEDARs, we've used a random walk to account for time-varying catchability, which we expect to occur, particularly in the commercial fleets, and so the assessment panel recommended using a random walk for all fishery-dependent indices, similar to black sea bass, using the recommendations from the Wilberg 2010 paper, the standard deviation of 0.17. Then we had a constant Q for both of the fishery-dependent indices.

I should also say, and this is something that I will get to in just a minute, but we had -- If you look at the report, we had a lot of trouble fitting the fishery-independent index, and we had originally thought that the random walk on the fishery-dependent indices might alleviate any potential

conflicts with the fishery-independent index, and that didn't actually appear to be the case. I think the issues with the fishery-independent index and the inability to fit that were independent of those earlier indices, and the conflict is really not with the fishery-dependent indices, but that was part of the discussion about methods to address the lack of fit to the fishery-independent index, but we also just decided to maintain those at random walk for the fishery-dependent indices, for the reasons mentioned here. It seemed to make more sense than assuming a constant catchability.

DR. BUCKEL: Kevin, with the Gwinn method, did it estimate detection probability annually for the trap, for example, and could you see any trend in detection probability, or was that fixed across the years?

DR. CRAIG: I don't know. I don't know the answer to that. I think it does deal with annual differences in detection probability., but we didn't really look at any time trends in that over time, and so you're thinking of using that as some indicator of how catchability might be changing?

DR. BUCKEL: Yes, and I think the idea is that you might see them on the video, and they don't go in the trap, and maybe that's because of water temperature, that for one year of the survey it's cooler water and they don't go in the trap, because they're not motivated to feed, and so that might be something to use as a proxy for catchability for the traps.

DR. CRAIG: Yes, that's a good thought.

DR. AHRENS: I think year and trap are random effects in that model. You could pull them up.

DR. SHAROV: Rationale on catchability, and so catchability for commercial gears is increasing through time. As the stock is declining, the fishery becomes more efficient on the per unit of effort, identifying where the fish are aggregated, and so the assumption on the recreational is that they are not capable of concentrating on and learning where the fish are and also improving their efficiencies, and is that why -- Why did you feel compelled that the catchability for the commercial fleet is likely to be increasing while the one for the recreational should be constant?

DR. CRAIG: The recreational indices have the random walk on them as well, and so the commercial and the two recreational indices all had a random walk on the catchability, and it was the fishery-independent index that had the constant catchability, presumably because there is a sampling design associated with that, and it's not the same sort of issues with hyperstability and things like that that you would expect with the dependent indices.

DR. REICHERT: Thanks.

DR. CRAIG: Steepness, we tried to estimate steepness, and we did get an estimate of steepness of 0.69, and it's a very unstable estimate. This is the profile, and you can kind of see why. The profile is essentially flat from 0.43 up to 1, and we did look at the components of the likelihood, and they weren't pointing to a single value of steepness. The minimums across those different components vary by quite a bit, and so what was happening is we were getting an estimate, but it was just some averaging across different data components that were pointing to different values of steepness, and so the profile is essentially flat.

The midpoint of that profile is about 0.17, and the last update did have an estimate of steepness of 0.17, but the profile there was very similar, and so I think it was a similar sort of issue, and so the panel recommended that we fix steepness at the value that we were getting, 0.69, which is essentially the same or very similar to what was used in the last update, and then we used the range from the profile in the uncertainty analysis, and so steepness is fixed in this model at 0.69.

The other change was to use the Dirichlet multinomial for the composition data, and the prior assessment had used a straight multinomial likelihood, and it wasn't a robust multinomial, but it was just a straight multinomial, and the Dirichlet presumably accounts for correlation sampling. It's self-weighting, and it allows for zeroes in the data, et cetera, and so this is a newly-recommended method.

We did look at profiles over the dispersion parameter, and none of those are estimated are the lower bound, which would imply an effective sample size for that composition of zero. They were all estimated near the profile minimum or at the upper bound, which would suggest the effective sample size and the observed sample size are the same, and I'm not going to spend a lot of time on this, but this just gives you an idea. These are the profiles across the range for the dispersion parameter and for the different data sources, and they are being estimated right around the minimum in most cases, and we don't have a minimum at the lower end, and so there didn't seem to be any problems with using the Dirichlet, and that was the recommendation of the panel, is to use that for the composition data.

For the base run, just to summarize, we had the combined SERFS trap video index, and we excluded the length comps, except when no age comps were available, and the selectivities were as I described previously, which were the same as in the update. We did scale the CVs on the fishery-dependent indices to a maximum of 0.3, because they were very, very small, because of the large sample sizes, and so that maintained the interannual variation, but it scaled it up to 0.3, which was what was done in the update.

We used the Dirichlet multinomial for the compositions, and we tried the iterative reweighting, and it didn't improve the model fit. I have some slides later, if people want to see more on that, but we weren't getting decreases in the SDNRs with changes in the weights, and so I think we don't know exactly why that is, and we've seen this kind of behavior before in some cases, and I think it might have something to do with having that random walk on all of the indices and only weighting across indices that have this sort of varying parameter. All the weights were set to one, and the CVs were scaled up to a maximum of 0.3. Random walk for the fishery-dependent indices for catchability, constant for fishery-independent, and then the fixed steepness.

These are the fits. This is the length comps for commercial handline. These are the length comps for headboat discards on the left and commercial handline discards on the right. Then the fits to the age composition, and so this is the pooled commercial handline age comps, and so it's a really good fit to those. These are the recreational headboat and general recreational, and so we're overestimating the older age classes a little bit and maybe underestimating these middle ages, but, overall, they look pretty good, and then for chevron trap age comps.

These are the indices, and this is the commercial handline, and there is no real pattern in the residuals. The two recreational indices, headboat is on the left and general recreational is on the right. Florida snapper trap, during the five years in the mid-1980s. Then this is the combined

CVID index, and so this is where we ran into issues with the assessment, and it consumed a lot of our time, is figuring out why we were having trouble fitting this index.

I think one question is how well should we fit it, and we are within the error bars of the standardization for almost all of the years except in this recent time period post-2010, where we are overestimating. The index is suggesting a decline and an increase, and the fit is just going right through that, and it's pretty flat. It's not capturing this decline here, and so a lot of the assessment was focused on trying to understand what was causing that behavior.

One of the things the assessment panel recommended trying was to block the catchability around the expansion and geographic coverage of the survey, and so the survey expanded its geographic coverage to sample further north and further south in 2011, and the second thing that was considered was upweighting the CVID index, and we considered upweighting of two to eightfold, and then we looked at the loss of fit to the other data sources.

I am going to show a little bit on each one of those and what we ultimately decided, and so this is with no blocking on the CVID index. If we block the catchability, this is the fit here in blue, and so there doesn't seem to be much improvement. We are still not capturing the suggested decline in the early years. It's mis-fitting these years here prior to the block and then kind of not capturing this decline and the increase.

The change in Q, it basically allow a rescaling based on where you establish the block, and so it's not really improving the fit, but it's just -- Instead of drawing the line here, it allows it to draw it here, and the direction was an issue too, and we expect Q to increase if the geographic coverage of the survey is increasing, and Q is actually estimated lower, and so I think the panel sort of recommended against blocking on catchability.

The other thing we considered was the upweighting, and what we discovered with upweighting the CVID index is that there is a significant conflict between the index and the age comps, both from the SERFS survey itself as well as the commercial handline and the other age compositions, and that lack of fit to the age comps, when you force the fit to the index, really alters the recruitment pattern. It seems to miss some recent strong year classes that seem to be present in multiple age compositions, and that altered recruitment pattern is due to a correlation between the landings and the index, and so the landings and the index are both declining since 2000, and the model can really only explain that by decreased recruitment, but that decreased recruitment is inconsistent with what we see in the age comps, and so I will try to unpack that a little bit more here.

This is the upweighted CVID index, and so this is onefold, twofold, threefold, and so up to eightfold, and so, by upweighting an index, we can certainly improve the fit, but we really lose fit to the compositions, and so this is the fit to the age comps from the SERFS survey that I showed earlier, which is pretty strong. Then, when you upweight the index, and I have just shown a fourfold upweighting, you really lose that fit.

We did look to see if we could upweight it all twofold or something along those lines, and we still felt like we were missing those age classes, and we see the same kind of thing, and not to the same degree, but in the traps. There is a degradation of the fit when you upweight the CVID index, and I think you will be able to see it here. Here is with -- There is these year classes that seem to be coming through, and this is an example of a 2008 year class that shows up, and 2011, and then it's

present in the population towards the terminal year, and then we really lose the fit to these older age classes, particularly towards the end of the assessment, when we upweight that index.

Those recruitment signals and age comps seem to show up across multiple independent data sources, and so we saw it in the handline age comps, and these are age-fours that show up in 2005, and you can see that age class moving through, and the same thing in the trap. That 2002 year class shows up as age-threes in 2004. You can see it moving through, and so I think the panel felt like there was good information on recruitment strength in the age comps, and they wanted to retain that.

We also looked at correlations with the SERFS index, and the SERFS index wasn't really strongly correlated with the other fishery-dependent indices, for the times that they overlapped, and this shows you the effect on the recruitment time series, and so no upweighting, and this is that 2002, and there is a 2006 and a 2008 year class that show up. When you upweight the index, you lose that recruitment signal, and the model is chasing these early big swings in the index, which I don't think we believe those are real. They are not informed by any composition data, and so it's a very different recruitment pattern based on the degree to which you upweight that index.

I think the other issue was the landings and the index are correlated, and so, if you look at the landings since the early 2000s, they have decreased. There has been about a 1.5 to twofold decline, and the index has also declined by about twofold over that same time period, and so that's why the model is estimating these low recruitments that don't show up in the age comps. This just shows the correlation between the landings and the index.

I guess, to try to summarize, we had multiple lines of evidence in the trap age comps and the handline age comps of these similar recruitment signals, and the CVID index was positively correlated with the landings. We didn't really see an uptick in the index when the landings declined, as you might expect, and it wasn't correlated with the other indices, and so what we ended up doing was retaining the CVID index in the model, but not really upweighting it, which seemed to be the best decision to make, particularly given that the fit that we did have, even though it didn't capture a lot of the pattern in the index, was within the range of uncertainty of the index itself. Are there any questions on that? I think this was the main thing that consumed most of the assessment, was this conflict between the index and the age compositions.

DR. REICHERT: I know that that may not have been possible within the terms of reference, but did you guys consider potentially truncating the fishery-independent time series? I am not sure if that would have addressed the lack of fit, but --

DR. CRAIG: I mean, we didn't really, and I think we might have talked a little bit about that, but I think the -- Where would you truncate it, and I think some of the issues with the lack of fit to the index and the conflict with the age comps occurred before 2010, and so there is those year classes that are in 2002, 2006, and 2008 that would show up in the index sometime in the mid to late 2000s, and so there wasn't a clear place to break the index. I mean, the obvious place would be around the change from MARMAP to SERFS, and that was somewhat the intent of the catchability, but --

DR. REICHERT: Yes, and I brought this up because, in red snapper, we did that, but that makes sense. Thank you. Anyone else?

DR. SHAROV: I am afraid it's not a question, but more of like a confirmation, and so we end up with the CVID index, which is the only one that we have after 2009, but it's the most poorly fitting that. That's where we ended up, right?

DR. CRAIG: That's right, and so I think this is where the discussions about how to index this species came up, and some of the issues we had recommended as research recommendations were revisiting the standardization, potentially using presence-absence, as opposed to abundance, as a way to construct the index, or something to try to deal with the fact that this is a schooling fish that's off the bottom and off the hardbottom areas that we're trying to index with a trap and video that's at a fixed location on the bottom.

I don't know that we have an answer for that, and it seems like the survey works well for some species like black sea bass, and I think it's questionable how well it's indexing vermilion, and a lot of the feedback that we got from the panel suggested that, with just the behavior of vermilion, that it might be better indexed using acoustics or something like that, but you're right that that is where we ended up.

I guess the caveats would be that, in the terminal year, we are fitting the index value, and the index has a lot of uncertainty, and so we are within the error bars of index, and so I think it becomes a question of how much faith you want to put in that sort of what appears to be a decline in the index that is not really corroborated by any other data source, and I can show this if you want to see it. I have the correlations with the other indices, but we don't have anything that would corroborate this kind of a decline.

It's certainly not something that the landings would suggest. They have actually declined as well, and we did have multiple lines of evidence that the age composition -- That those recruitment signals in the age comps were real. They showed up in the commercial handline, the SERFS, the trap survey, and also in the headboat survey, and so I think, ultimately, the decision was to allow the index to remain in the model, but to, in effect, put more weight on the age compositions and those recruitments in the later years.

DR. REICHERT: Thank you.

DR. CRAIG: If there is not any other questions, I will move on with the model outputs, and so this is the numbers and biomass at age. There is an initial drawdown since the 1950s, but numbers and biomass have been relatively constant, but variable, and you can see those recruitment signals here that show up in the mid to late 2000s and again in each one of these earlier, and we haven't seen that more recently.

This is the spawner-recruit curve, and so steepness was fixed at 0.69. This is the time series of recruitment in the recruitment deviations, and so relatively high recruitment in the 2000s, and more recent years have been average to slightly below average recruitment. The spawning biomass is on the left and total biomass on the right relative to SSB MSY and MSST.

The fishing mortality is dominated by commercial handline, followed by headboat and then general recreational. Then the fishing mortality, full F, relative to FMSY. It's been below FMSY

in most years, but a lot of variation over that timeframe corresponds with the landings pattern that I showed earlier.

This is the age structure, and so the abundance, log of abundance at age, and so the solid line is the expectation under equilibrium conditions, and so, in 2016, we're seeing many more older fish, and I think that's the result of those recruitments that occurred in the late 2000s that seemed to persist. There is more older fish at the end of the assessment than we see at any other time. Any questions on that? If not, I will move on to the sensitivities.

We had twenty-six sensitivity runs, and I have just grouped them here around natural mortality and steepness and the historic recreational landings, whether we include the length composition data or not, various permutations of the indices or the combination of indices. Natural mortality, the base run is the solid line with the open circles. Low M is shown here in red, and so this is the M of 0.16, and so in the direction you would expect, higher F and lower spawning biomass, and then the opposite for the high M and lower F and higher spawning biomass.

Steepness, we ran sensitivities with steepness of 0.43 to 0.99, and so the low steepness is shown here, and so less resilient to fishing, and so higher F and lower biomass, and then the opposite for the high steepness. Then we did the value from the meta-analysis, and this is the Shertzer and Conn paper that is a meta-analysis of steepness for various snapper groupers, and so 0.84 is the red line.

The reproduction, and so this mislabeled. It's not actually batch fecundity. It's the change in all the reproductive parameters, and it didn't really have much of an effect. The indices, and so the base used the Conn method, and the trap and the Conn method give essentially the same status, and you can see that here, because they are very similar. The combined method, using the Gwinn approach, actually gives you a slightly lower abundance, and so the F is a little bit higher and the spawning biomass a little bit lower using that Gwinn method. Then the video, because it's pretty flat over this time period, and it doesn't show that dip, and so the video is a little hard to judge, because we also removed the age compositions for the years prior to when the video started.

There was concern about these initial values of the SERFS index, 1990, which is one of the lowest in the time series, and 1991, which is the highest, and so we did sensitivities dropping just the first year and then also the first and the second year, and it didn't really have any effect. Catchability is similar, and there is not a lot of change based on these different versions of catchability, blocking the SERFS index around the expansion and the geographic coverage. Using a constant Q for the fishery-dependent indices instead of the random walk didn't have much effect, nor did linearly increasing Q.

These are the upweighting, and so, as I mentioned, we didn't upweight the CVID index. That is what we used for the base, and then, as you upweight that index, you get a slightly different picture. The F over FMSY goes up, and the SSB over SSB MSY goes down, and I think that's because you are losing the fit to the age compositions, and so, as I mentioned before, when you're upweighting it, you are losing those year classes in the mid-2000s, and so the fishing mortality goes up, and then the biomass is lower.

Historical removals didn't have any effect, and there's just a little bit of a change in the 1960s and 1970s, and this is one the length compositions. In the base, we decided to remove the length

compositions when we had ages, and you did get a different picture if you include the length compositions. It doesn't really affect the terminal status, but there is different dynamics that are going on in the model, and I think that's because the length compositions are overwhelming the age comps, and so, when you include the length comps, you lose the fit to the age compositions.

You lose those recruitment signals in the 2000s that were apparent in the age comps, and then the model chases the index, these high values in the index, which really aren't informed by any composition data, and so I think this is a case where including the length compositions actually over-weights other data sources, or overrides other data sources, that might have more information, and so it gives you a different picture of what the temporal patterns in recruitment have been.

The Dirichlet multinomial versus the -- We used just the multinomial likelihood, which was what was used in the last update, and things are a little bit different, but -- We had an ageing error matrix as well, and so we did a sensitivity with no ageing error matrix. The base run included the ageing error matrix. There are some slight changes, mostly towards the end.

Then the continuity, like Katie mentioned for black sea bass, it's hard to reconstruct something that's identical to what was done previously, but these are the things that were included in the continuity, the multinomial likelihood, the linear increase in Q on the dependent indices, the trap index only, the limited age comps, and so we omitted the age comps that weren't available in the last assessment prior to 2002. We included the length compositions and fixed steepness at 0.71 and used the old reproductive parameters and the old methodology to reconstruct the landings. That is shown here in red. I think, again, this is the effect of those length compositions that are overriding the recruitment signal in the age comps and elevating the F and decreasing the spawning biomass, but I'm not sure. There is a lot of things that were varied simultaneously here.

This is the phase plot, and so the base is somewhere in this cluster of points here. The things that alter the fishing status are the things you would expect, lower M and higher H. The upweighting of the CVID index did have an effect on the biomass relative to SSB MSY. It still isn't below MSST, but, as we talked about earlier, upweighting the CVID index alters those recruitment dynamics that affects the biomass. It gives more weight to those early years in the index.

This is a retrospective, and so this is a five-year peel, and so removing each of the five years back to the terminal year of the last assessment, and so the Fs tend to be a little bit higher, and the biomass tends to be lower, and I think a lot of that has to do with this 2008 year class, which is really prominent and well defined when the terminal year is 2016, but it's not as well defined as you go back in time. Uncertainties, this is the MCB, but, first, are there any questions on the sensitivities?

DR. REICHERT: Seeing none, Kevin.

DR. CRAIG: Okay, and so MCBs were similar in structure to black sea bass. We had 3,800 trials, and we retained about 91.1 percent of those. We had a new time series of landings, discards, and indices and length and age comps based on resampling the number of fish and assigning them to the appropriate bins.

For the Monte Carlo portion, we varied four things. Natural mortality, which was truncated, truncated normal, with a mean of 0.22 and a range of 0.16 to 0.28. Discard mortality was also

truncated normal with the means and ranges specified here, and these were identical to what was done in the last update, and so we might, in a benchmark or some other context, revisit the normal versus uniform for these, but this was done to be consistent with what was done previously in the update. Steepness was included as well, with a mean of 0.69 and the range based on the profile, and then we varied the historical recreational landings with a uniform distribution that basically multiplied the baseline values by plus or minus 25 percent.

These are the distributions of the MCB runs, and so steepness, and, again, the normal is centered on 0.69 and the uniform for the historic recreational removals and then the two discard mortalities, commercial and recreational, and the Lorenzen age-based natural mortality vector. These show the benchmarks, and so FMSY is the top-left, and SSB MSY is to the right. MSY is the bottom-left and then BMSY. The solid line is the base run, and then the dashed line is a median from the MCB, and so FMSY is around 0.4 or so. MSY is around 1.3 million pounds. This is slightly higher, I think, than what was in the update assessment. I think it was 1.1 million pounds.

This is the status, biomass status and fishing status, and so most of the distribution is above the one line. Most of the fishing status is below one, and then this shows the time series with the dashed line as the median of the MCBs, and the solid line is from the base run. There's a lot more uncertainty in the fishing status than in the biomass status.

This is the phase plot with the different quadrats, and it's about 92 percent of the runs indicate the stock is not overfished, SSB over MSST is above one, and about 83 percent indicated not overfishing, and so below the F over FMSY level. This is Table 18 from the -- I just pulled this from the report, and this shows the values for FMSY from the base run and from the MCBs along with the estimates of MSY and then the status indicators.

DR. REICHERT: Any questions from the committee?

DR. SCHARF: Kevin, can you go back a couple of slides? There is a lot more uncertainty for the F over FMSY plot on the bottom-right, and so is that meant to reflect those distributions to the left? It doesn't seem to be aligned with those.

DR. CRAIG: No, and I was noticing that too, and I don't -- I am not sure why that is. I mean, here, it looks like maybe 10 percent is below one, and I don't know what percentage that is for the biomass, but, here, that's the one line, and so that looks like about a third, a quarter to a third, is above one, and maybe a quarter to a third is above one here, and they may not line up exactly, but I think this is also a -- This is a mean. Well, no, these should be the same. Yes, they're the same. It's the geometric mean of the F in the last three years. This is the average.

DR. SCHARF: What do you think is driving that for the FMSY on the lower-left? It goes out to four, almost.

DR. CRAIG: Well, it's actually a trend at three, I think. I mean, there is some of these that don't converge, and there are some of these that hit a bound on F. When we do the MCBs, we usually trim them, and so we try to get rid of some of those potentially anomalous runs by trimming based on the FMSY, and I think we did trim those, but there are some that just estimate high values, and I'm not really sure why. I would have to go back and look and see, and it's not unusual that that would have some kind of skewed distribution for the Fs.

DR. AHRENS: I think if you're looking at some of the really low steepness values combined with some of the high Ms, that could just happen by chance alone in the draws. You get those really long tails.

DR. CRAIG: Yes, that's a good point. There is potentially correlations between those things that are considered independently in the MCBs, and so that's a good point.

DR. ERRIGO: There is no constraints about what parameters can be chosen with other ones, and this is why we use the base run estimates for stock status rather than the medians from the MCB analysis, and that's something that came out of I think it was SEDAR 32. It was around that time when we were considering using the MCB analysis, and it's because you can get odd combinations of different parameters.

DR. AHRENS: I mean, in an ideal world, you would go with a covariate structure that came out of -- You could run a multivariate normal or a multivariate T, whatever you wanted.

DR. REICHERT: Any other questions? If not, then before we go to the projections, we're going to have a ten-minute break, and so let's come back at twenty past three.

(Whereupon, a recess was taken.)

DR. REICHERT: We are back on the webinar. We are at the projections part of Kevin's presentation on vermilion snapper. Kevin.

DR. CRAIG: The projection methodology was identical to what Katie had described for black sea bass, and so it's an extension of the assessment model, and it carries forward all of the uncertainties that were in the MCB runs. Any of the time-varying quantities, particularly the selectivities, were fixed at the most recent values from the assessment, and then a single selectivity at curve was applied to calculate the removals. That was the average across fleets using the geometric mean from the last three years.

The initial age structure at the start of the projection period in 2017 was computed by the model, and then the fishing rates that define the projections were assumed to start in 2019, and so there were two interim years, 2017 and 2018, and these are seven-year projections. The panel recommendations for these interim years were the same as for black sea bass, to use F current, defined as a geometric mean of the F from the last three assessment years, and then a weighted selectivity from the terminal year. Then the three projection scenarios were identical as well, F equals FMSY, the F corresponding to a P* of 0.4, and then F equals 75 percent FMSY.

These are the projection plots. We keep adding more lines to these, and so it's kind of hard to keep them straight, but the thick blue line is the benchmark from the base run, and the green line is the median from the MCBs, and the thin solid line is the projection, and then these dashed lines are the 5th and 95th percentiles, and so the envelope of uncertainty.

This is the projection at F equals FMSY, and so the current F is slightly lower than FMSY, and so, when you up that to FMSY starting in 2019, you drive the landings up to the MSY level and the

spawning stock down to the benchmark, and then the probability of SSB being greater than that at MSY approaches 50 percent.

This is the same plot for P* equals 0.4, and so the F corresponding to this I think was 85 percent FMSY, and so we're not looking at big ranges in F across these projections, but the same sort of patterns occur. We are currently below FMSY, and so you increase that towards the benchmark, and the spawning stock goes down. Our landings go up and spawning stock goes down. Then the same thing at F equals 75 percent FMSY, and so here is the increase in F, increase in the landings, and a slight decline in the spawning stock, and then the probability that SSB is greater than SSB MSY.

The fishery is -- The Fs in the last three years are pretty close to FMSY. They are slightly below, and so you get a similar pattern across the different projection scenarios. Then here are the tables, and I just outlined the landings from the base run and the median from the MCBs across the three projection scenarios, and then these are the interim years, where we make the assumption that F is equal to F current for those two years, and so the landings should be the same. Then you see what follows from the relevant F for the remaining five years. That was all, and I know if there is too much more to say about the projections, and are there any questions on those?

DR. REICHERT: Any questions from the committee about the projections?

DR. SHAROV: I asked this question of the folks earlier, and then I was always kind of upset by the use of the geometric mean of three values, particularly for fishing mortality, and so I'm sorry that you have to take the hit on this, but what is --

DR. CRAIG: I won't take it personally.

DR. SHAROV: Thank you. What's the reasoning? Generally, like if you have evenly-spaced F values, there is no point of doing this. If you have two closer than the third one, then, depending on -- If there is a trend, and so depending on how they are located on this, you could either essentially underestimate the most recent trend in the F or overestimate, and, depending on where it's declining or increasing, that might create a problem, and so I think that this is a very poor way of selecting the average F or projections, yet it constantly shows up, and so I was wondering -- Well, I guess that's just a note, and I won't even ask you to sort of answer, but, if you think there was a logic, I would be very happy to hear why.

DR. CRAIG: Well, I don't know that I have a satisfactory answer. I mean, I think the reality is that it's a convention, and so we do look at the F in the last three years to see if there is some dramatic change, if one year is way out of whack with the others, but, beyond that, I think it's basically a -- As far as I know, it's just been a convention to average those last three years, because you don't know what the F is going to be, really, in the interim period, and so you're presuming some sort of average.

DR. SHAROV: If this were random, I would understand this, but it's more likely -- I mean, in most cases, we do see a trend, and for most of the species it often is a declining trend, and, in that case, it does matter, and so I think we just need to be more considerate or careful when we decide.

DR. ERRIGO: It may have been an SSC meeting, because they used to use the terminal F, both for -- Well, I know for stock status, and perhaps for the projections, but I don't recall. Then we switched to using the geometric mean from the last three years, and the reason was because of the amount of uncertainty in the terminal F estimate. We got several assessments where the retrospective pattern in the terminal F value was very pronounced. The F value changed dramatically as you peeled back years, and then, with the addition of the MCB analysis, the distributions were wide around the F, the terminal F, estimate, when we used terminal F.

It was decided to look at the geometric mean of the last three years to try to reduce the amount of uncertainty, and that was for the stock status, and then that was used -- I think that was then just carried forth and used for the projections, but I don't remember the connection as clearly between status and projections.

DR. BARBIERI: Just to reinforce what Mike E. just said, as you know, for stock status determination, this is just a convention that has been used in several places, and I know that, in the Gulf, it's used, and it came out of a lot of practices within ICES and ICCAT, the use of the geometric mean of those three years. Now, that was primarily for stock status determination, and how that crept into projections, I do not remember.

DR. SHAROV: Really quickly, and then I will shut up. If there is a retrospective bias, giving the geometric mean makes it worse, because you are actually giving more weight to the biased data points that you know they are biased, because you have a retrospective pattern there, and so it doesn't make sense at all, but we could discuss that at some other point that is a more generic time.

DR. REICHERT: Thank you.

DR. SERCHUK: If I may, Chairman, I want to take a slightly different tack than Alexei. I want to compliment the group. I found that the tables were very informative, and they were expressed in various different ways, and, when there were totals to be totaled at the end of the table, they gave the totals, and so I found this a very complete report.

If I have only one -- I did have one small issue, and it has nothing to do with the veracity of the information. It has to do with some of the presentation of the information, and one of my bugaboos is that we shouldn't present information in a more precise fashion than we can estimate it, and, in some of the tables, the F values are given to six decimal points, and we know that that is a precision far beyond our ability to calculate these Fs. Others, they shortened it down to three decimal points, and I am just saying, among us, it's not a problem, but people will pick up the report and say, gee whiz, those guys are like rocket scientists and they know it down to the very smallest level, and so it would behoove us -- I realize this is standard output, but I would not like to see Fs taken to more than three decimal points, because, beyond that, we're fooling ourselves. It's a small point, Chairman, and thank you.

DR. REICHERT: Thank you, Fred, and I would like to echo the compliment you had on the reports, and I think your point is well taken.

DR. SHAROV: One last comment, I promise.

DR. REICHERT: I hope it's not your last comment.

DR. SHAROV: Not in my life, I hope too, but how much of true information is there in the first ten or fifteen years of the time series? I don't think that much, and so I would suggest that the results are presented not starting with 1950. It's a burn-in period, essentially, but it does have a pronounced effect when you look at the graphs and you see this huge biomass that's very stable, and it's just a slight decline, and that is so far from the truth, and we all know this, but it provides a sort of wrong perception, and so I would probably start with somewhere where it starts declining, and that would be probably a better sort of interpretation of what we actually sort of think we know about the stock.

DR. CRAIG: Are you talking about just in terms of the presentation or would you argue for a later start date?

DR. SHAROV: Just the presentation.

DR. REICHERT: Thank you. Any other questions or clarification?

DR. NESSLAGE: Not my last comment. I am just qualifying that, but I just had a question about the -- Not a question, but just a notice on the headboat index. It seems pretty clear, and I know this was a standard, and so you couldn't really be dropping datasets, but perhaps a research recommendation or a note for the next benchmark is that headboat index drops dramatically in 1992 when you have a major change in regulations, which means it's tracking the management change and not the true abundance, which means it's not a very good index, at least, and so I would recommend considering either dropping it or doing something else with it in the future, but it's fine for now.

DR. CRAIG: That's a good point. Thanks.

DR. REICHERT: Thank you. Anyone else before we start the discussion? Seeing none, Kevin, thank you for that, and I hope you stick around for just a little bit longer, just in case any questions will come up.

DR. CRAIG: I did have the summary slide, if you want to see it, but that was it. It's just to sort of encapsulate it. It didn't look like there was any indication that the stock was overfished or overfishing. There's been a pretty significant decline in the landings since the early 2000s, but there have been some increases.

If you look at the landings pattern, they have increased in the last three to five years. It seems like that biomass pattern was driven by these three years of fairly strong recruitment in the mid-2000s, particularly 2002, 2006, and 2008, but we haven't seen that high recruitment in the last six or seven years, and there is a -- The result of this assessment is there is a lot more emphasis on the age comps, and I think, in the prior update and the benchmark, the length comps played a more prominent role, but we had a lot more age comp sampling and more indications of some recruitment signals in the composition data, and we discussed the indices, but I think particularly the fishery-independent index needs to be revisited, maybe in terms of the standardization, but also other factors that might be affecting the ability of that index to track abundance.

DR. REICHERT: Thank you, and, before I give Luiz the floor, I think I speak for the committee if I say that I think it's really important that you or Katie, or the assessment leads, can actually be here to give this presentation and answer any questions that the committee has. I think that's very valuable, and I also -- I think those comments were made at previous assessments, that the report was very thorough, and what's also nice -- That also, at the same time, creates some limitations that the reports are laid out the same way, which makes it very easy to compare assessments and to compare the current assessment with previous assessments. I know that creates some rigidity in the reports also, at the same time, but I just wanted to mention that, and so thank you for that.

DR. BARBIERI: I wanted to go along the same way, Mr. Chairman, and compliment both Kevin and Katie for the presentations. I thought that -- Obviously, you went both through a careful process of trying to identify issues that you thought would generate questions and get those things kind of included in your presentation and highlighted and pulled together and shown, and that really -- It was very much appreciated and well done, and thank you.

DR. REICHERT: All right, and so thank you. There is public comment, and does anyone want to provide public comment to the vermilion snapper assessment? Seeing none, then let's move to the discussion about the assessment. First, I would like to open the floor to comments or concerns relative to the overall assessments before we run through the action items, other than those that we've already discussed.

Seeing none, then let's move on to the action items, which I mentioned earlier are very similar to those in the black sea bass assessment, and so the first action item is does the assessment address the terms of reference to the SSC's satisfaction? I would argue that it does, and I would like to see any hands up if you disagree. Seeing none, then the answer is yes.

Does the assessment represent the best scientific information available? Once again, I would argue that that is indeed the case. Anyone that does not agree with that? Seeing none, the answer is yes. Does the assessment provide adequate basis for determining stock status and supporting fishing level recommendations? Anyone disagree? Seeing none, then that one is also yes.

Identify, summarize, and discuss assessment uncertainties and review, summarize, and discuss the factors of this assessment that affect the reliability of the estimates of stock status and fishing level recommendations. I think we have already discussed some of those, and I think Mike tried to capture the items that we discussed. I am asking the committee if there is any other points that we need to address. I think Mike is adding -- Obviously we can wordsmith this a little more later.

I think the other items are basically addressing similar points. Describe the risks and consequences of the assessment uncertainties with regard to status and fishing level recommendations and are the methods of addressing uncertainty consistent with SSC expectations and the available information, and I think we addressed that in earlier discussion and bullet points. Are there any other that we missed that we need to include in our report?

Seeing none, 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 determinations and future yield predictions. We can look at what's already there and then prioritize them, and so, once Mike sends the report out to the committee, maybe you guys can help us in prioritizing those and see if we missed anything.

Provide fishing level recommendations, and so we are back to the ABC control rule. The Dimension 1, assessment information, we are in a similar situation as black sea bass. We had a fixed steepness, and so that would result into a Number 2, 2.5. Does anyone disagree or would like to discuss? Seeing none, Dimension 2, uncertainty characterization, the environmental conditions is something that we discuss every single time. They were not fully included, I would argue, and so the Tier 2 is high, 2.5. Anyone disagree with that determination? Seeing none, Number 3, stock status, it's not overfished and not overfishing, Number 1. I think there is less of an issue than with black sea bass. I think black sea bass was closer to MSST.

Then Number 4, before we talk about vermilion, I want to come back real quick to black sea bass, and Mike was kind enough to look up what our score was last time around, and it was indeed a medium, and so that puts less pressure on our justification for deviation, and so I'm really happy that, without knowing that, we came to the same conclusion. Talk about consistency, although I told Mike that it would be good to keep some of the discussions that we had in the report, because, in the last report, I don't think there was a thorough discussion or explanation of why we deviated from the MRAG.

DR. ERRIGO: The reason why there is no justification for changing from the MRAG-suggested PSA score is because I put up the wrong MRAG document, and that was a draft. That was a draft document for the South Atlantic, and the final document actually used more criteria for the susceptibility analysis than the draft analysis did, and black sea bass -- As you see here, it's the first green one, with the red, but you see there is more susceptibility criteria here than there was in the previous one, and just so you can see. Productivity, those are pretty much the same, but, the susceptibility criteria, there are several extra ones there, and the black sea bass overall score is this one right here, and vermilion snapper is also medium.

DR. REICHERT: Comment on any difficulties encountered in applying the ABC control rule. I think, for vermilion snapper, this was a fairly straightforward filling-in of our scorings, and so I think we had less of a problem with this one than with black sea bass, and so I would argue there were few, if any, difficulties encountered, other than the reasons behind us now developing a new ABC control rule.

DR. BELCHER: Do we need to go back and just make sure that we fix the language in black sea bass, because, obviously, Dimension 4 is not the problem that it was.

DR. REICHERT: Yes, and Mike has already worked on that a little bit, and so I am going to ask the committee, maybe on Thursday, when we are reviewing the report, that we can look at that language, and Mike will also send it out, and I think you kept it in there, but then crossed it out?

DR. ERRIGO: Right, in case you wanted any of the language about that dimension. However, you may want to just take most of it out, being that -- The discard mortality is different, and you may want to keep that in, but you didn't change it, and so you may want to take some of the language out.

DR. REICHERT: Provide advice on monitoring the stock until the next assessment. I think we can borrow that language from the black sea bass fishery-dependent index, age comps, landings, and what were some of the other --

DR. AHRENS: I think, given the potential disconnect between the CVID and the age comps that are going in, that that should be looked at for potential reasons.

DR. REICHERT: We can add that here. I had that item under the research recommendations, but there were a couple -- I think, under black sea bass, we mentioned a couple of other ones, like discards, length comps, age-length comps, landings and discards. I think what's very important is the relationship between the landings and the ACL. I think that was the other one that we mentioned.

DR. BUCKEL: Just, on the discards, to put something in there specific to the recruitment, because that recruitment has been low or average for the last eight to ten years, and so explicitly that that's what needs to be examined.

DR. SHAROV: I am not sure that it would be correct to expect -- Why do we expect that the ACLs should be always be met by the fishery? You said monitoring the relationship between the catch and the ACLs, and then we were discussing, with the black sea bass, that the trouble is that they're not reaching ACL, which is an indicator, potential indicator, of the stock being low, and that shouldn't be necessarily the case. There could be many other factors that are affecting this.

DR. REICHERT: Well, maybe I used the wrong language. It's not the relationship. It is exactly what you're saying. If the ACL is not met consistently, then that may indicate an issue or vice versa, and we can probably use the -- I think there's similar language in the black sea bass, and so it may be that the language that I used, in terms of relationship -- It's basically like we've seen with red grouper and with black sea bass, where the ACL is not met and the stakeholders are telling us consistently, even if we try, we can't catch them.

DR. SERCHUK: I know we've discussed this in the past, Jeff, but this is where I think these industry reports are very useful to get that information. There are many reasons why. It could be market conditions, or it could be weather or many other things, and it's best to explore this issue through that medium. Thank you.

DR. REICHERT: I agree.

DR. NESSLAGE: For vermilion, you have fishery-independent indices up there as the first thing, and I'm a little concerned about that, because they seem largely uninformative, and there is the concern that the trap isn't really a good method for catching vermilion, and so I'm not sure how informative that would be to the SSC and the council.

DR. REICHERT: Thank you for that. That's an excellent point, and I think we should put that under research recommendations, to look at that fishery-independent index and to make it more informative to the assessment. Anything else? Then we've got the same trigger levels. I am not sure, in vermilion snapper -- Maybe, again, the direction of the standing stock biomass, and that may cause concern and may change the priority of the next assessment, and I am not quite sure how to address that.

DR. BUCKEL: I think that language that we had on recruitment for black sea bass is something that -- Given that recruitment has been below average or just at average for the last ten years or so, that would be -- We had language to that effect for black sea bass.

DR. REICHERT: Thank you, and I think part of that was looking at age comps to see if we can see those younger ages enter the data.

DR. SHAROV: I think we shouldn't labor too much. We shouldn't be trying to give birth to an elephant here. The stock is in good shape. It's not overfished, and it's not overfishing, and the projection horizon is very short, and what's the concern? There is no real need for a trigger, and so let's not just try to imagine something. I mean, the indicators are there, and take a look at them until the next assessment.

DR. REICHERT: No, and that's a valid point, but we never know when that next assessment is coming, and so I think that's kind of the background for this. If there is something that is cause for concern, then -- But I completely agree, and that may be very good to put that in the report, that, right now, the committee doesn't see much cause for concern, and so thanks. Okay.

Provide research recommendations and guidance on the next assessment, I think we have already discussed several research recommendations relative to the fishery-independent index. Once again, I would also argue that a juvenile index would be very informative, especially if we're talking about recruitment, and any other research recommendations?

DR. BUCKEL: I think maybe it was Kevin that mentioned that some of the folks on the panel felt that the use of sonar equipment might be a better way to build an index, a fishery-independent index, for vermilion snapper, and so that would be a potential research recommendation.

DR. REICHERT: If that's a feasible approach.

DR. BUCKEL: Yes, examining the utility of a sonar index for vermilion snapper.

DR. SHAROV: Yes, and I think one of the biggest concerns relative to others in the assessment was the conflict between the size frequency information versus the age composition. I am very grateful that the assessment team did try to look at the effects, and so they concluded that -- Well, of course the lengths are overwhelming, but I think there is conflict in the data, because, generally, if the age structure is weighted according to the length frequencies in the catches and we have a relatively good ageing or low ageing error and well-described growth, then they should be matching, generally speaking, and they are not matching, and so it's either an issue of selectivity or it's an issue of the inappropriate -- Somehow we are inappropriately describing growth or something else, but that certainly -- That is something to look into.

Obviously, on simple grounds, you are measuring length with a much better precision than the age. There is very little error there, and it's all then about the selectivity and the use of the spatial distribution, probably, and the differences in the length and distributions versus age distribution, et cetera, but I feel like there is so much more information in the length, but it's currently clashing with the age information, and so that's a research recommendation.

DR. REICHERT: Okay. I think I need some clarification here. You've got the error in the ageing determining the age, and then there is the other aspect that I actually wanted to mention, and that's the size at age. Even if you know the age very precisely, there is a huge variability in the size at age, and so those are two different issues that, if one or the other is more important, the approach is to -- The approaches are entirely different, and one of the things that I wanted to bring up, as a research recommendation, that would be really good to look into is whether the size at age variability is just inherent of the entire population or maybe there are other factors. There is local variability in growth rates, and, if you throw the entire population in the South Atlantic in one big heap, then you increase the variability in size at age, but those are two different issues, and so I want to make sure that I understand that what you're talking is the ageing error or the size at age variability.

DR. SHAROV: I am talking about it all, because, all together, it generates that principle difference. Again, what is the probability of capturing the older fish? It's much smaller than the younger fish. The older fish have a significant, very significant, overlap that is -- Generally in the larger sizes, you have a nearly full range of ages, except for the youngest ones, right, and so that's the level of uncertainty there.

You have a very large spread of size at age and a very large overlap of size at age among age groups and a low probability of encountering older ages and a low sample sizes for the older ages. Therefore, you have a significantly higher uncertainty on age/size distribution for the older fish, and that's when it comes to the age structure, and so -- Well, length consumes all of it. We have sort of the final outcome just on the length distribution, but all these components are playing into the length distribution. What I was saying is pretty much what you were saying, is investigate the effects of these uncertainties or the variability, the variability in size at age and the variability of size among age groups, et cetera.

DR. REICHERT: Okay. Thank you. It's mostly the size at age and not the age error, because we have a pretty good handle on that, and that's relatively minor. It's very minor relative to the size at age variability. We are pretty good at ageing these fish, and we have data, and that was the error matrix that was included in the stock assessment. I think we are talking about the same thing.

Provide guidance to the next assessment and address its timing and type. I would comfortable with a five-year for this assessment, given what we discussed. This was a standard, and I think the determination of whether this should be -- I think that the whole stock assessment setup is potentially changing, but I think whether this needs to be a benchmark, standard, or an update probably depends on what new information is available in about five years, and I would be uncomfortable saying that we need a benchmark, standard, or update, or at least an update, but any other comments on that? No?

I believe that was the last action item. Any other comments or closing remarks relative to this assessment? Mike, as usual, will -- We will fill in the table, or Mike will fill in the table, and we will distribute that, and we are asking you to help us draft a final version of the report. With that, that's vermilion snapper.

It is four o'clock, and let's see. We have a little bit of time, and so I would like to see if we can complete some of the agenda items that I think we can deal with relatively quickly, and I am

looking at Amy to see if she is willing to run through Erik's slides. Katie asked me for an additional remark, and I'm sorry that I forgot to do that, Katie.

DR. SIEGFRIED: I am having trouble with my VPN. I have a federal government computer, and I can't get access to my MCBs, which I need to then load to do the things that you have asked for the projections, and it may happen tomorrow in time for you, but I can't guarantee it, and so I'm clear on what I need to provide, and it will be as soon as I can get it to you, but I just didn't want my it's easy and relatively soon to mean today or definitely tomorrow. Then I enjoy you all's company, but is it okay if we drive home soon, since we're not allowed to stay another night?

DR. REICHERT: Yes, absolutely. Again, thank you for being here and presenting the assessments, and so thank you, Katie. All right. I would like to see if we can get through the Science Center updates, and then I was looking at the agenda, and Agenda Item 9 is Council Workplan Updates, and I think that's a relatively quick agenda item, because we covered some of that on Tuesday. Let's do those two and see where we are time-wise, and then I may ask to complete another agenda item, and maybe we are actually going to be on time at the end. Go ahead, Amy.

UPDATE ON SEFSC RESEARCH EFFORTS

DR. SCHUELLER: I didn't put this presentation together, and it's not my research, necessarily, and so, if you have questions, I may or may not be able to answer them. It looks like there's about seven things here, and so the scamp abundance analysis, the triggerfish movement study, red snapper recruitment, some sharks in the SERFS videos, life history, ecosystem status report, and then the interim analysis coder. That's what Erik has put in here. Apparently, there's a paper out by Joey. Joey, maybe you should go over this.

DR. REICHERT: We are very lucky that one of the authors of the paper is here in the room, and I think we haven't given him a heads-up, but, Joey, maybe you can go over this paper real quick.

DR. SCHUELLER: I haven't read the paper, and so, Joey, if you want to --

DR. REICHERT: It's my understanding that this was done in preparation of the scamp assessment. Joey, are you willing to, in like a minute, tell us about the main findings?

DR. BALLENGER: I don't mind speaking a little bit about this, but Nate Bachelor and I worked on this paper together, and we were looking at declines in scamp abundance along the southeast United States Atlantic Coast, and we basically used a delta GAM model, a spatial model, to look at potential declines in scamp abundance over time using the Chevron trap dataset that was available in -- I think the terminal year was 2015 that we used in this, and they also did a model where they included some of the video data. The chevron trap may have been through 2016, and the video data may have been through 2015, and I can't remember exactly.

Then we broke that up to see if there was changes or differences in the patterns or the trends over time with respect to small scamp or large scamp, to see if it was maybe recruitment issues or other things was driving the changes in abundance we were seeing along the coast. That's the bulk of it, in a nutshell.

DR. REICHERT: Any questions?

DR. GRIMES: Did you try to relate it to environmental variability or anything like that?

DR. BALLENGER: We did include some of the environmental data that was measured at the time of the survey itself, but I don't think that we related it to broader scale environmental data like the North Atlantic oscillation or anything like that.

DR. REICHERT: Thank you, Joey.

DR. SCHUELLER: Yes, thanks, Joey. Look. There is even more slides.

DR. BALLENGER: That is just showing the distribution of where the scamp samples came from, and it's showing the relative abundance spatially with the different size of the circles. There is the relationship showing the delta GLM model showing the general decline since the mid-1990s or so and scamp abundance. That's it.

DR. SERCHUK: I just want to compliment you on the last line of your abstract, that this decline is due to either an increase in M or an increase in F. You have hedged your bets.

DR. BALLENGER: I wasn't taking a hard stance there.

DR. NESSLAGE: I was just curious, but is it available online yet? I couldn't find it.

DR. BALLENGER: It should be. I am not positive. If you all are interested, I do have copies of that paper, and so I could share that with you.

DR. REICHERT: I think, Fred, you may actually have sent it around to the committee, but Joey can provide a copy of that. Okay. Next slide. Are you familiar with this study, Amy? Nate Bachelor gave a presentation not too long ago, an informal presentation about this, and this was basically a movement study.

They tagged gray triggerfish with acoustic tags and then deployed a trap in a grid to see how gray triggerfish was reacting to the presence of the trap, and I am trying to remember what he said, but it was mostly to see what the influence was of a trap. There were some other really interesting findings, but one of the findings was -- I don't want to jump to too many conclusions, but we currently deploy the traps about a minimum of 200, but normally closer to 400, meters apart. The interaction between the reaction of gray triggerfish to the trap was less than 200 meters, I believe. You were part of that. Sorry. I jumped the gun, but, Jeff, maybe you can add to that.

DR. BUCKEL: Nate is planning to address several questions. What is here is the first cut, just looking at the behavior and some of the variables, and what's shown here is a mix of different fish, where some responded to the traps and some didn't, but, overall -- I don't know if there is another slide that shows that. There is it. That shows some of the response. I think that's on the Y-axis.

You can see the distance. These fish are being tracked in a very fine scale, just down to just the meter scale, with this VEMCO technology, and so you can see where the fish are before the trap

goes in, and then the ones that respond, that top row, Nate looked at it at ten meters, twenty meters, thirty meters, forty meters, and that's where he said it was a response, and so, across all of those, you can see, if the fish is within a hundred meters to 150 meters, they are going to respond to the trap, and you get a higher probability of response, and so that matches what Marcel was saying about how close the trap is to the hardbottom habitat, for example.

Then the second row is the initial -- There are current meters on each trap, and so, if fish are responding to the bait plume, you would expect that just the fish that are downstream of the trap would respond, and the fish that are upstream wouldn't respond, and you can see that the fish that were initially downstream before the trap goes in have a higher probability of responding, compared to the ones that are off to the side or upstream of the trap.

There are some that did respond that were upstream or to the side of the trap, and there is probably visual cues as well as sound. The fish are -- We had one that -- The first trapping trip was right after one of the hurricanes that had come through, and we had a big slug of Mid-Atlantic water that was low salinity and high turbidity, and so you couldn't see with the cameras all the traps, but the fish were still finding it, and so there may be a -- The fish can hear the other fish and respond that way, but there is largely the bait plume effect downstream.

Then the last one -- Those were the three recapture periods, and so those are -- The first, second, and third recapture periods are on the X-axis, and that just shows that that first trip, the first trapping trip, had lower responses, and that's probably because of the turbidity and just that a lot of the fish were -- Things were really stirred up out there after that hurricane.

DR. REICHERT: One of the things was that this can address some of the questions about the dependability of one trap next to another and whether those are separate, completely separate, events. All right. Thank you, Jeff. Amy.

DR. SCHUELLER: Sure. At least this next one I have heard about a little bit. This is looking at larval transport between the Gulf of Mexico and the U.S. South Atlantic for red snapper using some finer scale circulation pattern models. On the next slide, there is some initial results, and I don't know a lot about the initial results, other than it looks like the top is Atlantic to Gulf of Mexico, Atlantic to Atlantic, and then Gulf of Mexico within itself, and then a transition from Gulf of Mexico to Atlantic. In that square, and it's hard to see, but there is black lines dividing that into four quadrants.

Then the picture on the side is a model trajectory of the larvae, and, on the next slide, it just talks about the initial results, and so it says the Gulf of Mexico and South Atlantic simulations indicate larval connectivity between the two regions, which is consistent with population genetic literature. Within the Gulf of Mexico, only the region south of Tampa Bay appears to supply recruits to the South Atlantic, and South Atlantic spawned larvae have a success rate for settlement in the Atlantic of about seventy-six times that of larvae spawned in the Gulf, and then the influence of the Gulf of Mexico on South Atlantic red snapper recruitment appears to be relatively low.

DR. GRIMES: What was in that -- Based upon what? Was this circulation or larval behavior or what went into it?

DR. SCHUELLER: I honestly don't know, Church. I do know that the circulation model is one that's been published, and I think Ruoying He is on the paper as one of the authors, and I think it's his circulation model that they're using, but I don't know the details of it. If anybody does, they can feel free to come up to the table.

DR. REICHERT: No, I think you're right.

DR. ERRIGO: Just so you guys know, the colors, black are the release locations, and green are the settlement locations of larvae released from the Gulf, and red are settlement locations of larvae released from the Atlantic. It looks like there is no red in the Gulf, but there is some green in the Atlantic. They are mostly outside of where the red is.

DR. REICHERT: All right. Next slide.

DR. SCHUELLER: This looks like something that Roldan and Mike are working on, looking at sampling of sharks. Anybody want to talk about this? Do you want to?

DR. REICHERT: Well, I don't know too much about it, but the chevron trap survey is focused on the snapper grouper complex, but, obviously, with the introduction of the videos, we capture a lot more species than just the snapper grouper, and sharks is one of them, which we obviously don't catch in the traps, but it may provide some information that can be useful for assessments, and I think that was the gist of this study.

DR. SCHUELLER: It looks like they are comparing their standard protocol for reading videos with another protocol in order to catch sharks on the video, and I looked ahead on the next slide, and the figure shows the percent of sites with sharks using the two different protocols, and, if you're using the standard protocol that is used by SERFS, you are seeing 24 percent of the sites having sharks, where, if you use the other protocol, that jumps up to 63 percent of the sites.

DR. REICHERT: If you go to the previous one, I think that's -- The first bullet point in the lower part, use computer hardware to read the entire video, and so, currently, we are only using part of the video, which makes sense, but that provides important information.

DR. SCHUELLER: Then I think the next slide just gives a breakdown of which sharks they are seeing, in general.

DR. REICHERT: Seeing some of these videos coming up from the traps has really surprised me how many great whites and other large sharks we actually see on the videos. That's just a cool aside.

DR. SCHUELLER: The next set of slides I think is some of the age validation stuff that Jennifer's group has been working on, and so the next one is age validation study of red porgy. That has been completed. It just says here in the notes that generally one opaque zone per year, and the first annulus has been identified, and about 45 percent of the otoliths show a distinct opaque zone in the late summer check mark inside of the true first annulus, and so they are having some confirmation on when the first annulus should be put down and how often they are seeing check marks. Then, in the figures, it looks like these are spawned and reared fish versus wild-caught fish

and what the different structures, and so dorsal, ventral, inside dorsal, inside ventral, and I'm not sure what that means exactly.

DR. REICHERT: It's how the otolith is read, but the bottom line is, if you look at the two-millimeter line, the inside first -- That first line, if it's inside that two-millimeter, it's what we call a false mark. It's not a first increment, and that is now being used to age all of the red porgy otoliths for the upcoming stock assessment, and so this was really important for the accuracy of age determination in the upcoming stock assessment.

DR. SCHUELLER: This is also being done for gray triggerfish, and so they weren't able to breed them in captivity, and so they held wild-caught fish for over two years, and they did obtain wild-caught known age-zeroes from surface waters on some of these cruises, and Jennifer said that they tend to hang out near sargassum or any sort of surface structure that they like to hide out in. All the spines and vertebrae from the triggerfish have been sectioned, and the otoliths have been extracted from the majority of the samples, and they're currently working on analyzing this, and so no results here, but progress nonetheless.

DR. REICHERT: If you will allow me, you may remember that this was a big issue for the -- That's why the gray triggerfish assessment failed, because of the uncertainty in the ages of the spines, and so that's a big issue. We cannot use the otoliths, because there are very small, and they look kind of like popcorn, but, once we can resolve this, then we can move forward with ageing gray triggerfish.

DR. SCHUELLER: The next slide, I think, is just sort of what they've been working on. For cobia, they recently completed the SEDAR 58 stock ID workshop, and I think some of the folks in this room were at that workshop. I wasn't there, and so, if people have questions, we can -- I think, Kevin, you went, and they also completed ages for the greater amberjack assessment, which is SEDAR 59, and then they're working on completing red porgy ages for SEDAR 60, and it just says here that they shared the results of the age validation with South Carolina DNR, and the consistency in age readings has been achieved, and they are looking at the historic age datasets at this point. I don't know if anybody has any questions about the cobia stock ID workshop or if you want to say anything, Kevin.

DR. ERRIGO: I think we'll talk about the actual ID workshop during SEDAR. Otherwise, I think that's going to create a huge discussion. This was just the age and growth was done for cobia.

DR. CRAIG: The review workshop is coming in about a month, and so there will be something more concrete forthcoming then.

DR. REICHERT: Yes, I would like to postpone the discussion until we see the report, because, Mike or John, I assume that the SSC will ultimately review that correct, the cobia?

DR. ERRIGO: Yes.

DR. REICHERT: Okay, and so let's wait until we have that in front of us. Thank you. With blueline tilefish, we were asked to review the stock ID workshop report, but that is not going to --

MS. BYRD: As you guys are aware, before the benchmark cobia assessment in the Atlantic gets underway, there is this multistep cobia stock ID process that is going on right now, and so the first step of that was a stock ID workshop, and that was done in April, and the goal of that was to review all of the available information and provide recommendations on biological and assessment unit stock structure.

That workshop was held, and they are writing the report right now, and I can give a little bit more information on that if folks are interested, but the second step will be a stock ID review workshop, and that is scheduled to take place the first week in June, and that will be an independent review panel will review the findings of the April workshop.

Then there is a third step, which is -- We're calling it the joint cooperator technical review, and what that is is there will be representatives from this SSC, the Gulf SSC, and the commission's Cobia Technical Committee, and they will review and evaluate the recommendations coming out of both the stock ID workshop and the stock ID review workshop, and they will be kind of coming up with the final kind of term of reference on assessment unit stock to be used in SEDAR 58, which will be the Atlantic cobia assessment.

Then there is also a fourth step that is the kind of -- We're calling it the science and management leadership call, and that will occur, if necessary, and what would probably trigger that to occur is if the recommendations on assessment unit stock cross cooperator jurisdictional areas, and then that group would consist of kind of Chairs and Vice Chairs from the councils, the commission, and the head of the Southeast Science Center and the Regional Office. If that occurs, they will decide kind of how to handle that and make sure that terms of reference are drafted to make sure the management parameters that are needed would be coming out of the assessment. It's a multistep process, and stock ID should be finalized in August of 2018.

DR. REICHERT: Thank you, and I would hate to add another step, but I am still going to ask the question. In blueline tilefish, the SSC ultimately reviewed the ID -- We did not?

MS. BYRD: There was a joint -- It was the same sort of thing. There were representatives from the South Atlantic SSC and the Gulf SSC and the Mid-Atlantic SSC that kind of reviewed the findings of the stock ID workshop via webinar, and so that sort of stage is happening for cobia, but it wasn't -- It was a sub-panel with representatives from each of the SSCs and not the full SSC.

DR. REICHERT: Okay, and so this is going to be similar. Okay. Thank you. Amy.

DR. SCHUELLER: Thank you. Kevin, you might as well stay, because I will let you talk about the next topic after this slide, since it's you and Todd, the ecosystem status report. These are non-SEDAR age and growth projects, and I know that Jennifer has been working with Mike Burton quite a bit to look at some other species and what their growth looks like, and so there is several on here, including four species of porgies, the jolthead, knobbed, whitebone, and littlehead porgies.

The jolthead paper has been published, and the paper for the other three is in review, and they're also looking at graysby, margate, warsaw grouper, and lane snapper, and so, in these figures -- On the top, that's knobbed porgy, and, on the bottom, that's graysby, and I know that they've been looking at different growth morphs for these species and having to do with spatial, and so this says on here Keys versus rest of the South Atlantic, where, depending on where the fish is, it's growing

at a different rate or trajectory. Then the next set, and I think this is the final, is an ecosystem status report for the South Atlantic, which has Todd and Kevin as points of contact on this. Do you want to talk about that, Kevin?

DR. CRAIG: Sure. Jeff has been involved in this as well, and several people from the lab, and so -- I haven't seen these slides, and so ecosystem status reports are basically a way to look at the ecosystem more holistically, and they are part of NOAA's effort to promote EBFM, or ecosystem-based approaches to management. They have been developed in most of the other regions, and I think the South Atlantic and the Caribbean are the last large marine ecosystems in the U.S. that don't have an ecosystem status report.

They are intended to be updated regularly and to be provided to the councils and other sort of management bodies, and they get used in various ways. Sometimes aspects of them get used explicitly in the assessment, and so, if you have an indicators of sea surface temperature or things like that that might be related to recruitment, or indicators that are related to natural mortality, those can be incorporated directly into the assessment, or they often come in in terms of setting the context within which to interpret the assessments, and so to provide some sort of idea of how the ecosystem may be changing or not.

We have been working on this for several months, and I will say it's nobody's full-time job. We have these different categories related to various components of the ecosystem, large scale climate forcing sorts of things, like ENSO and AMO, sea surface temperature, primary productivity, up to various metrics of sort of representing upper trophic levels, fish diversity, fish abundance, those kinds of things, long-term patterns and landings, and then larger-scale kind of human dimension aspects like population growth rates and fishing revenues and how those are changing in space and time, and so those are the different categories.

Then, within each of those, we have basically tried to track down relevant datasets to develop an indicator, so we can look at how those things change over time, and we have a goal of getting a completed draft by the end of 2018, and I think, at that point, we'll be soliciting feedback and review from various groups, probably including the SSC, and so hopefully you'll see some more on this in the future.

DR. BOREMAN: The Northeast Center, as you know, is much further along at this point. They already are now putting them out on the street, their state of the ecosystem report, and it's evolving, but, fortunately, one of the key authors is Sarah Gaichas, who is also on our SSC. She has been using the SSC as a sounding board on indices and what is a good index for each of the categories, like you list here, or sets of indices and how would they be interpreted, and the SSC was able to give a lot of really in-depth feedback, and it helped improve the report immensely, and so I recommend that they do the same thing here, is you use the SSC as a sounding board, maybe at the next meeting or something, just to get feedback on how valid these indices -- Not only that, but some indices can be misleading or misinterpreted too, giving the wrong impression, and so that's a good idea to have some eyes on that.

DR. CRAIG: Right, and I think that's good to hear, and I think we would definitely welcome the feedback. Our approach was to try to get some preliminary things on paper that we can then show and get some feedback on how relevant they may be or other things that people may be interested in, and so thanks.

DR. REICHERT: I think that was the last slide. Amy and others, thank you for presenting this. Any other questions? Seeing none, then I would like to see if we can discuss the council workplan real quick, because Mike indicated that we have covered most of that yesterday morning.

COUNCIL WORKPLAN UPDATE

DR. ERRIGO: Just real quick, during orientation, we already went over what's coming up that the SSC may be looking at and commenting on, but, just to tell you what these attachments are and all that, Attachment 15 is the amendments overview, and basically it goes through all the FMPs and tells you what all the amendments are that are being worked on or have just been worked on and submitted and things like that and what they are, what they do, or what they did, what changes were implemented or are going to be implemented by them and who the lead is. This is a great source document for anyone who is wondering about what's coming up or what did the council just do and that kind of thing.

DR. REICHERT: Any questions or clarifications other than what we saw yesterday morning?

DR. ERRIGO: This just shows what is happening right now, in 2018 and 2019, and so who is working on what for the upcoming near future, and you will notice that I'm not on there, because I work on pretty much everything, and so they figure they don't have to put me on there. That is what this is, and so this says John Hadley, for 2018, will be working on these projects. In 2019, it will be on these, and so on. These notes just tell you what all of the abbreviations mean, and there are two pages of that, and so this basically condenses -- It takes away all the stuff from the other document that was already finished and this and that and just tells you what the priority stuff is that we're working on right now.

DR. REICHERT: Thank you, Mike. All right. Seeing no hands, thanks for that. I always find it very helpful, especially when I have specific questions on amendments and what people are working on. I am going to -- I just talked with Brian real quick, and what I would like to do is go to the regulatory reform, because that is probably a relatively short agenda item, and that is Agenda Item Number 10. I did not assign anyone, relative to the small nature of the agenda item, but it's Attachment Number 16, and Brian is going to guide us through this agenda item.

REGULATORY REFORM

DR. CHEUVRONT: Just to give you all a heads-up of what's going on, one of the things that the council is doing is responding to directives that the councils all received, and President Trump, last year, issued an Executive Order that was designed to look at reducing the regulatory burdens on Americans, and so they implemented something very similar to what they did with the Snapper Grouper 1 permits with the council, a two-for-one program. To institute one regulation, you've got to remove two.

There is a dollar trigger that sets this off, and it's quite high. It's not likely that we're ever going to meet it in any one of our regulations, but one of the things that we need to point out is that this reduction in regulations is by department and not even down to something like National Marine Fisheries Service, or even NOAA, and so somebody in the Department of Commerce, if they could

find a regulation that can be removed in Fisheries that would help them reach the goal of what they need, they can borrow that one.

What happened is that all of the councils were asked to submit, by the end of December of 2017, a plan of how they're going to review all of their regulations that are applicable to them. The council did their plan, and, basically, what they decided they were going to do is that the council and SERO staff were going to go through the CFRs and see what they could find to see what the council can definitely get rid of, but also, with direction from the council, looked at things that could be modified that could potentially reduce burden and things like that as well.

The task that's being undertaken here is a little broader than what was the initial directive, but we're looking at this really as a review of our regulations overall, and so, when the council came up with that, they said, well, let's send all of this stuff out to all of our APs and the SSC this spring, because the council has to come up with their final list by the end of June.

This document that you have, what you can see is some of it is simple things. What we're trying to do is to identify regulations that are unneeded, unnecessary, or outdated, and so, just as an example, we have regulations here related to the golden crab fishery that are in there because they were used when the program was set up. We don't need to have specifically all of these things like an appeals process. If you didn't get one of the original permits, you had to have a process where you could appeal and all of that, and that's all been done many years ago, and this is no longer needed, because the fishery is established.

That is one that we considered recommending for removal, and then we have other things like permits and fees, and the SERO is looking at revising how they are going about requiring permits to be renewed, and, up until now, everything has had to have been done by mail, and you had to supply all of the information every time every year for every permit. Well, they are now looking at ways to actually do this more online.

Then the council is looking at modifying powerhead prohibited areas. Some things related to that, they are looking at, as we talked about in the visioning amendments, getting rid of the minimum size limits on some of the really deepwater species, because the fish is going to be dead when it comes up anyway, and so, like for blackfin, queen, and silk snappers, get rid of the twelve-inch size limit.

Then other things like transit provisions, particularly for shrimp vessels, and they are different, based on the different areas and things, and so looking at let's try to make them similar, and there is a lot of -- There is gear storage and that sort of thing, and the gear storage is the big one. It's very, very different how gear storage is actually defined. Then operator permits is something they are looking at in dolphin wahoo, but it's also required in shrimp fisheries, and so we're going to ask the council if they want to consider looking at getting rid of operator permits in the shrimp fishery. We got all of the stuff if they actually decide to move cobia, the Atlantic group cobia, off to the ASMFC. Then we can get rid of all of those regulations in there.

One of the things that came up last week, and this is the fourth week that I've been doing this in a row here, but, last week, we were meeting with some of the deepwater shrimp and golden crab fishermen in Florida, and there is -- It's not part of the regular fishery CFR, but it's a much higher level in U.S. Code, but there is a requirement that no more than 25 percent of the unlicensed

seamen have to be either a citizen of the United States or a permanent resident of the United States, and so, even if you have the proper work permits to work in the United States, you are not necessarily allowed to work on a fishing vessel.

We actually had a person who owns a fishing company who got a violation a couple of weeks ago because they had five people on the vessel, and, while all of them were documented to work in the United States, and three of them were citizens, two of them, at the time they were stopped, were considered to be unlicensed seamen and were not U.S. citizens or did not have permanent residency in the United States, and they got a violation for it, but they were permitted to work in the United States, and so they have requested that the council weigh-in on that.

Some folks have suggested that the council look at getting rid of the regulations to eliminate the two-for-one requirement for the Snapper Grouper 1 permit, or at least, if not get rid of it altogether, state what the criteria are for when this will end, because this has been in place for quite a while now, and, if you look at the CFRs, there is nothing in there that says what are the criteria that will turn this off.

Fishermen think that the sea turtle release gear requirements are overly burdensome for small vessels, and they would like to look at trying to do some revisions. Largely, the burdensomeness of it is not having to have gear, but it's the size of the gear. It's quite large. I mean, among the things they have to carry is a spare tire, in case they have to try to resuscitate the turtle. Well, if you're in a very small vessel, that takes up a lot of room for something that you are probably never going to need.

Then the same sort of thing for safety equipment and review circle hooks, because, at least in some places, circle hooks are not effective for some species, or as effective for some species, as they are for others. Then there is an issue with buoy line gear requirements for golden tilefish that some folks wanted to look at, being able to put additional hooks, but not extend the length of the line, so that they're not really looking like they're becoming a longline. It's still a thirty-foot shot of line, but allow them to put more hooks on that short length of line.

Another interesting thing is some fishermen said, well, can't we just make the permit process go for two years instead of one year, and, I mean, why do we have to do this every single year, and so they thought that that would reduce time and cost burden to fishermen, because they have to produce all of the legal documentation that goes with this every single year.

Actually, if you have a fish that is not whole, that has been mutilated say by a shark, you must throw it back, and sometimes that happens, where a shark -- Because it's considered a mutilated fish, but sometimes the shark might bite off part of a fin or something, and the fish is still otherwise viable, and you can still measure it and all this, but you still have to throw it back, because it's missing parts, and so that's throwing back profits for some of these guys.

Get rid of tournament sales, because some places -- Folks complain that Florida isn't enforcing the regulations on those, and that has to do with tournament-caught fish, or recreational-caught fish, but, if they get sold, they get counted towards the commercial quota, and potentially they could even be counted twice. There are some crew size restrictions that people wanted the council to look at as well for dually-permitted fishing vessels, and so this is what we've come up with to this point.

What I wanted to ask you, following up on the charge from the council, is, as a group, collectively or individually, do you have any ideas of any regulations that you would like for the council to consider as recommending for removal or modification, because it's outdated or unneeded?

DR. BELCHER: Only because we were talking about it with -- It's on page 5, the South Atlantic area season closures, and a trawl or try net may remain on the deck, but the trawl doors must be disconnected, and so obviously that language is there in that particular code, but, if you go under where we do the emergency closures, they're actually claiming that those nets need to be stored below deck, because we had that come up just recently with our federal-water closure.

DR. CHEUVRONT: Yes, and that's part of the whole thing. Everywhere you go and you look at what they mean by making your gear so that it's unfishable is different everywhere.

DR. BELCHER: Right, and so I was just saying, like within our own group, there is obviously differences in how that was addressed, and so I was just pointing out that there was that one inconsistency, if that helped.

DR. CHEUVRONT: Thank you.

DR. REICHERT: Anyone else?

DR. CROSSON: I think this might come up in the wreckfish report, but wasn't there something at one point that we were discussing whether the wreckfish licenses should still be required, given that the access is really controlled through the ITQ and there is some duplication there?

DR. CHEUVRONT: There is duplication there, and, also, that's a little bit ahead of where we are with wreckfish, because any kind of actions that come out of the wreckfish report will then have to go into another amendment, because the report can't do any actions in it, but that is probably something the council is going to look at, along with having an electronic program for reporting your catch, as opposed to having literally paper coupons, which is really crazy, when you think about it. It's like, oh my gosh, it's so 1970s, but anyway. Yes, there will be a few things like that that are going to come out of wreckfish as well.

DR. CROSSON: Another item that came up during the SEP presentation, and this is a bit deeper for the council to consider, but, whenever that material hits the council to look at, Kari MacLauchlin, the former anthropologist for the council, was doing presentations on some of the analysis that she's been doing under contract, and one thing that we found out was that there's a significant difference if you incorporate your commercial fishing snapper grouper permit. You can basically transfer it without using the two-for-one requirement.

It's a significant issue, and I think, given that, the council may want to look at whether it needs to remove the two-for-one buyback requirement entirely and whether the fleet has been significantly reduced enough right now that that's no longer necessary, because it certainly puts certain people at a disadvantage if they don't incorporate their businesses. There is certainly an element of fairness there to consider.

DR. CHEUVRONT: Yes, and we do have this. Some folks have recommended simply eliminating the two-for-one requirement for that snapper grouper permit.

DR. REICHERT: I've got a question. Isn't removing a regulation a regulation?

DR. CHEUVRONT: Exactly. It would have to go through an amendment process with actions and alternatives and the whole thing to do it, but the burden is not on us. They are looking at the American people, the burden on fishermen. That's basically what they're looking at, and, right now, having the two-for-one permit is a pretty big financial burden for a lot of fishermen.

DR. REICHERT: I am not talking about this specifically, but I am talking about the whole package, but, anyway, that's --

DR. SCHUELLER: What is up here and what's in the Attachment 16 document isn't the same, and I'm not sure why, other than you said you've been working on this for the last four weeks straight, and so maybe that's why, and so my question is, at the end of this document, it says to get rid of the ACL, ACT, and accountability measures for spiny lobster, and it seems like that's --

MS. WIEGAND: I can tell you why that's on there. That's something that the council has considered requesting in the past. I think they wrote a letter back in 2013 requesting that spiny lobster not be subject to the ABC and ACL requirements, given its sort of unique life cycle. Nothing every really came from that, and so I just added to this list as something for them to discuss and consider, and I'm sure they would welcome input from the SSC about the feasibility or reasonableness of removing that.

DR. ERRIGO: They were hoping to have it be considered similar to shrimp, because all of the recruitment is coming from outside the system. Therefore, fishing pressure being managed by the -- Shrimp doesn't have an ACL.

DR. REICHERT: I was more thinking about the recruitment remark you made, but that may be different.

DR. ERRIGO: Have it exempted from the ABC and ACL requirements, like shrimp is, because -- The reasoning that they had used before was that there is no recruitment coming from inside the system. All the recruitment is coming from outside, although that's not -- Some studies have shown that there is some recruitment being retained inside and this and that and the other thing, but that was what was trying to happen before.

DR. REICHERT: I just want to clarify, and correct me if I'm wrong, but shrimp is exempted because it's an annual crop, and so that's different than a species that -- The reasoning for that is different than with -- I just want to make sure that we --

DR. ERRIGO: I just meant there is a means to exempt species from the ABC and ACL requirement. Shrimp is one example of that.

DR. SCHUELLER: We had a special webinar, for those of you that were on the SSC at the time, just for spiny lobster because of this particular issue, and I seem to recall that some proportion of the recruitment comes from outside, but not all of it, and so I'm not sure that that's a valid scientific

reason. It's not an annual crop like shrimp, and so it just seems like this -- I don't know the law, but it may not qualify. I suppose the council can discuss it, but what happens -- They're going to discuss it, and then they're going to put forward their preferred recommendations for what they want to happen, and is this group going to see that again, or is this like our only shot to say something about the biology-related --

DR. CHEUVRONT: This is definitely not your only shot, because, if the council decides that this is something that they want to include in this, they have to go back and go through the amendment process, and so nothing is going to be changed as a result of this document. This document is simply what we are taking to the council in June as a compendium of things that have been suggested, and they're not even approved yet. The council has to go through all of this and say, no, that one is going to stay. I mean, people may have suggested that, but that doesn't mean it's going to be here, and then the council could still add some other things if they wanted to in June as well, and so basically what we're doing is this is draft document.

We're doing some legwork, and we're going out and hitting all of the advisors to the council as well as the staff that provides them with information and saying, okay, this is what we've come up with, and you all decide what you actually want to be in the document and what do you want to go forward, and so what goes out and is there anything else that you want to put in, and, if they do put in things that they do want to go ahead with and follow-up with, they're going to have to go through a plan amendment to make virtually all of these changes, for the ones that they can change.

The thing about the citizenship issue, that's way above council level, and so all they would be able to do is to make a recommendation and make other people aware of that, and that would be up to somebody else to look at that. The councils can't do that.

DR. NESSLAGE: Just a comment and a question. I want to echo Amy's concerns about spiny lobster and any changes to this. In the past, I have recommended a very high ABC, just because of the problems that the council keeps running into, but the times are changing, and other lobsters are responding very differently to climate change, and things could change in the future, and so, to get rid of an ABC or ACL completely in perpetuity would be perhaps a bad idea. That's just a comment.

A question would be you mentioned something about switching to biannual, or every other year, permitting, and I guess, in some regions of the country, and I'm not familiar so much with the South Atlantic, but annual permitting is used as an enforcement tool to try and make sure that folks are reporting, and are we going to end up with poor data because of that, although I admit this would be really nice for the fishermen to not have to do that annually.

DR. CHEUVRONT: Well, I think that's a really good point, because, when the fishermen were talking about it, they were talking about it from their perspective of it would just be really easy for them, but you're right that it's used as an enforcement tool, and we have a number of fisheries, especially fisheries with a low number of participants, that sometimes they don't always turn in their logbooks and things like that until they actually apply for their permits, and sometimes they send -- I think they send things in together. Lots of times, when you look at certain fisheries that are managed by the South Atlantic, if you look at the most recent annual landings, they are very low compared to previous years, and then you wait a year and they get back up again.

MS. LANGE: I know I read it somewhere in the documents, and I know, before I retired thirteen years ago, we were talking about transferring some of what are currently federal FMPs to the states, and Florida was one of the states where there were quite a few such stocks that were -- They were strictly state fisheries, and so was there a reason to have a federal FMP, and I don't know if that -- If there is more discussion about that on some of the species.

DR. CHEUVRONT: Some of that is -- Like red drum is an example that went from federal management and is not managed by the council anymore, where it had been at one time. We have transferred some species recently, and I think the most recent one that I can think of, besides working on cobia right now and looking at transferring that to ASMFC, was blue runner, when management of blue runner went to the State of Florida, because --

DR. REICHERT: Sheepshead.

DR. CHEUVRONT: Yes, and there was an amendment several years ago that took a few other species that were in the snapper grouper complex -- We were up to like seventy-some-odd species in the snapper grouper complex, and we moved some of those out.

MS. LANGE: I didn't have any species in particular in mind, but I just remember that it was an issue, working with the ASMFC and the Gulf States, whether or not there were species that would be better managed by them or by the individual states. I don't know if there is additional ones that could be removed from these FMPs or not.

DR. CHEUVRONT: We haven't gotten any specific requests along those lines that I can think of, at least through this process, from fishermen or anything, and so there may be some, but I don't think that's been directly addressed, or at least not in this process.

DR. BELCHER: Mike, can you scroll to what the language was relative to circle hooks, because the one question I have is -- I know it says here that they're looking at coordinating with SERO on potential regulations to remove. Okay, and so it says for some species, because I was thinking the circle hook requirements -- There is still a lot of stuff that -- Like, right now, dusky shark, HMS is really trying to push for requirements for circle hooks on that, and that will affect the Southeast as well, and so maybe making sure that at least HMS is discussed, if that should apply to -- Just to make sure the consistency is there.

DR. CHEUVRONT: Yes, and these things that are in all capital letters like this, this is stuff that were suggestions that came to me from talking to different fisheries groups. What happened was they gave the suggestions, and I now have to go back into the CFRs and find out which are the applicable CFRs that deal with this, and so this is going to take a bit of effort on my part to find it and see if it can translate it into something.

DR. BELCHER: Yes, but I was just thinking that we're talking about making the burden easier, but, if regions are still -- If certain regions or certain -- If HMS requires that, you're still having this individual have to sit here and go flip the light switch on for a shark species and shut it off for a smallmouth species and turn it on for state waters and off for federal, and so there seems like, for some of those things that have a more overarching gear share, you would almost have to make sure that everybody is in agreement, or you're not lessening the burden. You're just making it harder for the person to think which side of the line they're sitting on.

DR. CHEUVRONT: Thank you for that.

DR. REICHERT: Anyone else?

DR. ERRIGO: I didn't go through everything, but, the modify the buoy gear, they wanted to add hooks? How is that removing --

DR. CHEUVRONT: What they are wanting to do is they -- This came from the Snapper Grouper Advisory Panel meeting, and the request came primarily from one fishermen who uses this buoy gear for golden tilefish, and there is an issue with having -- They have the hooks, and what they really would like is they want to still have ten hooks, but can they have a little more than thirty feet, and I think I may not have said it exactly that way before.

What they would like to have is still a limit on the number of hooks, and they don't necessarily need more hooks, but having one hook every three feet basically is what would happen with the gear the way it's set up now. You are just simply not going to be able to catch multiple fish doing that, and so what they would like to do is keep us at ten hooks, but can we just have a little more length than thirty feet. This is not going to turn them into a longline, because they are specifically limited by the number of hooks, and that's the argument that was being given at the time. I am not saying that I agree. I don't have an opinion on this, but I'm just saying this is what the request was.

DR. ERRIGO: I still don't see how it fits under the removing regulations.

DR. CHEUVRONT: Remember this is more than just removing regulations. This is modifying regulations and things as well, because there are things that the council has suggested that they want to have looked at that really doesn't involve removing regulations either. It's revising regulations to make things less burdensome.

DR. REICHERT: Thank you. Anyone else? Seeing none, thank you, Brian, for that. It is 5:10, and we went really long yesterday, and so let's recess until tomorrow at 8:30. We have caught up a little bit. We still have SEDAR activities, wreckfish, golden tilefish, and the ABC control rule for tomorrow, and so I really hope we can get -- We actually have to get through all of those tomorrow, and so we will probably start with SEDAR activities and then move on to the regular sequence of the agenda. With that, I will wish you a nice dinner, and I will see you guys tomorrow.

(Whereupon, the meeting recessed on May 2, 2018.)

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MAY 3, 2018

THURSDAY MORNING SESSION

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The Scientific and Statistical Committee of the South Atlantic Fishery Management Council reconvened at the Town and Country Inn, Charleston, South Carolina, May 3, 2018, and was called to order at 8:30 o'clock a.m. by Chairman Marcel Reichert.

DR. REICHERT: Welcome to day three of the SSC meeting. For those on the webinar, we had a bit of a technical issue here, and I hope that everyone who was on is still on. We have resolved it, and so we are back up and running with the webinar. What I would like to do is start with the SEDAR activities and then go to the wreckfish ITQ and evaluation of golden tilefish and then do the ABC control rule and then finish the agenda. That is what we'll do this morning, and we still have quite a bit on the agenda, and so I'm going to ask John -- I think you are doing SEDAR?

MS. BYRD: I will start, and then I will hand it off.

DR. REICHERT: Okay. Excellent. Thank you, Julia.

SEDAR ACTIVITIES

MS. BYRD: Okay, and so, quickly, I'm just going to give you an update on some of the projects that are going on now or that will be coming up, and then we're going to be asking for you all's input and review of a couple of terms of reference schedules and be looking for volunteers for a few of these projects.

The first one will be SEDAR 58, cobia. I gave a really quick update on the stock ID process yesterday, and so we had the workshop in April, and the review workshop for the cobia stock ID will be coming up in June, and then the final stock ID should hopefully be finalized by the end of August, and then we'll get into the benchmark assessment, and so Attachment 20 is the Atlantic cobia terms of reference and schedule, and so we're asking you guys to please review those, and I guess I can pull them up here.

We're asking if you guys have any input on the terms of reference for SEDAR 58, cobia, for the data workshop, assessment workshop, or review. I will note that, for the Data Workshop Term of Reference Number 1, for the assessment unit stock, that will be developed through the cobia stock ID process, and so what's in there right now is a placeholder, and so the joint cooperator technical review team will kind of craft that in August, and it will be added to the terms of reference, and so any input on the terms of reference for cobia?

DR. REICHERT: Thank you, Julia. Everyone had a chance to read through it, and are there any questions, additions, or comments relative to the terms of reference? Seeing none, do we --

MS. BYRD: Can I flip through to the schedule really quickly, so you all can look at the schedule as well, and we are hoping to get SSC representatives for the data, assessment, and review workshops. I am pulling up the schedule here. The data workshop will be in Charleston, and it will be November 27 through 30. The assessment stage will happen via a series of webinars, and they will go from about February or March through June of 2019, and then the review workshop will be in the Beaufort/Morehead City area, and it will be July 30 through August 1, 2019, and so we're looking for SSC participants for all of those stages, and so is anyone willing to participate in any of those stages?

DR. REICHERT: Any members of the SSC willing to participate in any of these stages? The data workshop, anyone? We will be probably emailing or calling you if we don't get any participation. George.

DR. SEDBERRY: Yes, please.

DR. REICHERT: For the data workshop, George Sedberry. Since it's in Charleston, you can put my name on there.

MS. BYRD: Okay, and what about for the assessment? It's via a series of webinars. Jeff.

DR. REICHERT: Anyone else? As I said, we will probably then start calling or emailing members.

MS. BYRD: The review workshop?

DR. REICHERT: Can I ask a question? Normally, for the review workshop, the chair is an SSC member. So you are looking for a chair and one or two --

MS. BYRD: One reviewer.

DR. REICHERT: One reviewer and one chair.

MS. BYRD: I guess one other thing I will say is that this will be -- ASMFC will also be appointing people, and so they will also be appointing two participants to the review, and ASMFC and the council will work out kind of who will serve as the chair. However, if someone is interested in serving as the chair, we would love to know.

DR. REICHERT: Okay. Thank you. That's the reason why I was asking that question, and so is anyone interested in potentially serving as chair of the review committee? Is anyone interested in reviewing the -- Rob, as a reviewer or chair?

DR. AHRENS: Reviewer.

DR. REICHERT: Reviewer. Okay. Thank you. All right. For now, Jeff, can we tentatively put your name on, and then we can discuss responsibilities?

DR. BUCKEL: We will talk about it.

DR. REICHERT: All right. We may need a couple of extra people, but the rest of the committee can expect emails or calls for solicitation. All right.

MS. BYRD: Okay. Moving on, next is SEDAR 59, and this is a standard assessment that got underway in late March. One thing that's of interest to you guys that was discussed a little bit on Tuesday is incorporation of the fully calibrated MRIP data series into this assessment, and so MRIP is releasing numbers on July 1, and, in late March, we found out that the Science Center will need some more time to do an additional adjustment to the MRIP estimates to account for the change to

the for-hire survey for charter mode, and so some of the data deadlines, likely, for some of that MRIP data is going to be delayed, and so that may impact the timeline for this assessment, and so the SEDAR Steering Committee is meeting May 14 and 15, and one of the things they will be discussing is kind of the impact of when the fully calibrated MRIP data are going to be available, and so that may have impacts on timelines for not just assessments that are kind of getting underway now in the South Atlantic, but also in the Gulf and for a shark assessment, highly migratory species. I just wanted to make you guys aware of that.

Red porgy is slated to get underway later this year, and, again, the availability of the MRIP fully calibrated data may affect the timeline for that a little bit. Once we know more about what kind of impact that may have on the timeline for these assessments, we will follow up with the participants, SSC participants, in these assessments to kind of let you know what's going on.

Then the next assessment is SEDAR 64, and it's a yellowtail snapper benchmark assessment. Florida is the lead analytical team for this assessment, and Julie Neer is the coordinator for this assessment, and so, at this meeting, we would like for you guys to kind of review and provide input on the terms of reference and schedule, and then we're also looking to identify SSC members to participate in this assessment, and I believe this is Attachment 21.

Terms of reference were developed between Florida and SEDAR, and so here are the terms of reference. Hopefully you guys had an opportunity to review them, and so does anyone have any kind of questions or input or additions on the terms of reference for yellowtail snapper? It is a joint assessment between the Gulf and the South Atlantic, and so these terms of reference and schedule will also be making their way through the Gulf SSC and Gulf Council as well.

DR. REICHERT: Does anyone have any additions or comments? Seeing none, then we approve the terms of reference.

MS. BYRD: Okay. Then we're also looking for participants. Let me pull the schedule up here, and so the data workshop I believe is going to be in St. Pete, and it's going to be February 25 through March 1 of 2019, and then the assessment will take place over a series of webinars from April through July of 2019, and then the review workshop will be in St. Pete on September 10 through 12, 2019. Are there any folks who are interested in volunteering for any stages of this assessment? Fred, what stage?

DR. SERCHUK: (Dr. Serchuk's comment is not audible on the recording.)

MS. BYRD: Okay. Amy.

DR. SCHUELLER: I will be glad to serve on the review workshop.

MS. BYRD: Do you have any interest in serving as chair or as a reviewer?

DR. SCHUELLER: This is the one that I can volunteer for, since they're not my -- Everybody is egging me on, but I don't care.

MS. BYRD: Okay, and so, since this is a -- Again, this will be a Gulf and a South Atlantic assessment, and so the councils will decide who will serve as the chair, but, if you have a potential interest in chair, we will let them know.

DR. REICHERT: Julia, I am happy to be at the data workshop, unless others have a burning desire to do that.

MS. BYRD: Alexei.

DR. SHAROV: I was thinking either the data workshop or the review, and so wherever you have more needs to fill in.

DR. REICHERT: I think you would be an excellent candidate for the review, but that's just my personal opinion.

MS. BYRD: Any other interest in the data workshop or the assessment webinars from anyone?

DR. REICHERT: George for the data workshop.

MS. BYRD: Okay. Great. I think, ideally, we would like one more person for the assessment webinars too, if anybody is willing to commit to that now. If not, we'll probably -- Anne? Thank you. Okay.

Then, quickly, scamp. Scamp is going to be the first kind of pilot research track, and this scamp assessment has gotten delayed a little bit as we work out sort of details of the research track, and so I think kind of the Science Center was putting together a statement of work for this assessment, to kind of lay out a little bit more of what the research track will look like, the schedule, the terms of reference and that sort of thing, and I think we recently have gotten something from them, and the SEDAR Steering Committee will look at that.

Then, at your last meeting, we got some volunteers. After the Steering Committee kind of looks over this statement of work, we're going to have representatives from the South Atlantic and the Gulf SSCs look at this and develop terms of reference and a specific schedule, and so we're hoping that that will happen in the upcoming months.

DR. REICHERT: Remind me, but is there kind of a very general timeframe, because I think we have gone back and forth just a little bit, but --

MS. BYRD: Right now, it's supposed to occur in 2019, and we don't really have a more specific timeframe than that right now. I would guess that we would maybe work to develop that, a little more detailed schedule, after the Steering Committee.

Next are the MRIP revision assessments, and, again, you guys talked a little bit about this on Tuesday, and so it's just echoing what I mentioned earlier. MRIP is supposed to provide revised data by July 1, and the Science Center will need some additional time to do an additional adjustment, and so the timing of the MRIP revision assessments will be discussed at the upcoming SEDAR Steering Committee meeting, and, for the South Atlantic, the MRIP revision assessments are slated to occur for red grouper, blueline tilefish, black sea bass, and vermilion snapper. At the

March council meeting, they requested that kind of red grouper -- The MRIP revision for red grouper occur first, due to some statutory requirements about the rebuilding plan.

Next, just really briefly, there is a Gulf of Mexico and a South Atlantic king mackerel assessment that is slated to begin in late 2018 or 2019. Julie Neer will be the coordinator for this assessment, and it was initially planned as a benchmark, but the Steering Committee will be discussing this at their upcoming meeting, and they will be asked to consider kind of a standard or an update approach, and so we don't have any details on the timing now, but we just wanted to make sure that you all know that that will be underway and kind of planning soon, and, as soon as we have a schedule, we'll probably be coming back to you guys to look for participants.

Then the final kind of assessment that I wanted to mention is there is a South Atlantic golden tilefish standard assessment that is slated to occur in 2019. At the March council meeting, the council noted their interest in getting this assessment underway as soon as possible, and so this is another thing that will be discussed at the SEDAR Steering Committee.

Depending on the timeline for when as soon as possible is, we may be coming back to you guys via email and looking for volunteers for this assessment if we need to before your next meeting, and so we just wanted to let you know, as an FYI, that this is coming up and that we may be asking for volunteers and term of reference review via email, if that's what we have to do for the timeline, and that's all I had, and so I will hand it back to John.

DR. REICHERT: Thank you, Julia. Any other questions for Julia? Seeing none, thank you.

MR. CARMICHAEL: The next bit of SEDAR discussion is with future stock assessments, and so here's the schedule for 2018 and 2019, which is what Julia just went over, and what we're interested in is some feedback on our stocks for the future.

We have a pretty full slate going forward into 2020, 2021, and 2022. We would be interested in any guidance you have on potential first time assessments for 2023, and we're looking out that far in advance because the idea is that, if we identify a stock, we can get into RFPs for like MARMAP and MARFIN and CRP and get research done and completed and reports written and have the information for the assessment, and so we're trying to really look far off, in terms of new stocks.

We have asked the Science Center for some feedback on stocks that they think have some assessment potential, based on those that were priorities from the NMFS stock assessment tool and the council's existing priorities for 2023, 2024, and beyond, and so does anyone have any stocks that they know anything about or have some concerns, based on the research and activities that you guys are doing?

DR. REICHERT: I have a question, and not necessarily related to adding species, for instance, to the open slots, but there is also the new setup of the stock assessments, and is that something that is going to be gradually folded into the schedule, or is that still under discussion? Does that affect schedules and what species should come up? Can you talk a little bit about that?

MR. CARMICHAEL: Yes, and yes, yes, yes, basically. The idea of the research track operational assessments will be discussed by the Steering Committee when they meet in two weeks. It's kind of morphing into an even broader look that's bringing in the key stocks and interim analysis, as

we've talked about around this table a couple of times as a way of getting councils more up-to-date and timely information on supporting ABCs.

Yes, I expect, like any major change, it will probably be kind of a progressive rollout, particularly for folding in key stocks and regular scheduling of interim and operational assessments for those stocks. That's going to take a bit of juggling of things as we move forward to get all the stocks aligned and balance data and assessment expertise and all that sort of stuff. That will happen over time, and my expectation is that we will take the stocks that are already priorities for all of the cooperators in SEDAR and start aligning those with that overall process.

DR. REICHERT: You see that starting to happen in 2019 or 2020 or 2021?

MR. CARMICHAEL: At this point, probably 2021. I mean, I think it would be nice if we could do some sort of pilot interims for the Gulf and South Atlantic groups in 2019, and we will ask you, when we get to key stocks, about some stocks for that for the South Atlantic.

DR. BUCKEL: John, I noticed yesterday, for the Southeast Fisheries Science Center's research presentation, Mike Burton had aged a bunch of the porgies, non-red porgies, and so knobbed, et cetera, and I don't know if there's enough data there, but maybe like a porgy complex or something.

MR. CARMICHAEL: I think knobbed was on one of the potential priorities, and so that should play into that, and maybe we'll find out if there's enough data there.

DR. REICHERT: Does that mean that you make a recommendation to consider, for instance, either the porgy complex or knobbed porgy for the open slot in 2021?

DR. BUCKEL: I would like to hear others provide input on it and have some discussion.

MR. CARMICHAEL: I took that as more of a 2023 and beyond type of thing. The open in 2021 is being held in case there is a squeaky wheel.

DR. REICHERT: Okay, and so you are not asking --

MR. CARMICHAEL: No, I'm not looking to say -- I want to figure that out in the fall of 2019, and so I would hate to say something now, because a lot can happen in the next eighteen months. All right, and so I think that's good.

DR. REICHERT: I would agree. I think we may have enough information on especially knobbed porgy from our catches over time, and we will just have to evaluate that, but we catch them on a regular basis.

DR. SCHUELLER: Has the Science Center gotten back to you yet on their list of species? I mean, do we have the information they have provided?

MR. CARMICHAEL: No.

DR. SCHUELLER: Okay, and so you're waiting on it?

MR. CARMICHAEL: I think the memo is still waiting to go out. We were waiting for the Science Center directorship to be filled, because it seemed like things were sort of ending up in limbo, and so, since that's happened, we're getting a letter out to Clay, and what we would hope for is information from them for you guys for the October meeting. Then the 2021 slot, if you guys knew of like a stock that you think something is developing, but we just don't want to get into a new, because we probably couldn't get new research and such done for a stock, but if you like know of something that's existing that you have concern about, that's what we would be looking at for there.

DR. BUCKEL: There is a recent paper that came out that looked at fishery-dependent longline data out of Rob Latour's group, and I think it's Patrick Lynch, and they did as good a job as they could to standardize for all the different fishery-dependent issues, but there are several, mahi, in particular, since that's on the council's purview, that was showing a decline, and I don't know if that's real or something with the fishery-dependent dataset, but I think it's worthy of looking into some more.

MR. CARMICHAEL: Dolphin is definitely a council priority. They have talked to the Center about assessing it before. The challenge is its distribution, and they have kind of looked at is there some international organization which would be the appropriate place to assess it, and they don't think that SEDAR is the appropriate place, and so hopefully this is another thing we can get some traction on in the coming years, because there is growing interest in better understanding that population.

DR. SERCHUK: Just a question and then a comment. Does somebody from the Science Center participate on the SEDAR Steering Committee or at the meeting?

MR. CARMICHAEL: Yes, the Science Center Director is actually the Chair of the SEDAR Steering Committee.

DR. SERCHUK: Good, because I really think that's important. I see a lot of work ahead for the Science Center, because we've talked about standard assessments, and we've talked about benchmark assessments, and we've talked about operational assessments. All of those will involve Science Center staff, and we're not the only -- I see a very full plate, considering the MRIP revisions for a number of assessments, and I see some of the delays that are occurring already, and so I think it's really important, even if the letter doesn't go out, that they be at the table, because I am fearful that their constraints are going to be very compelling and that we'll have to tailor, the customers that is, their requirements accordingly. Thank you.

MR. CARMICHAEL: They're also at the council table, and the councils talk about priorities at nearly every meeting, and I know the South Atlantic specifically goes over this exact information four times a year at every council meeting, and so there's a lot of opportunities. If you're interested more in where this research track, operational, interim, and stuff is going, there is a document in the SEDAR Steering Committee materials that was posted this week on the SEDAR website, and it's actually a proposal from the Science Center for how this would work out, and so they certainly must be well aware of the work that's involved in doing that.

DR. REICHERT: I've got two species that I think should be considered, both of which we should discuss this week. One is vermilion snapper, and we said this was like a five-year, and so that would potentially come up in 2024, and I know that's a long way away, but I think looking at our committee recommendations. The other one, and I put a big question mark there, is blueline tilefish, and, of course, that depends on what is happening in terms of data collection and how can we address the questions that we discussed this week, but those were two species that I think should probably be on that list, and depending what information is available, especially relative to blueline tilefish.

MR. CARMICHAEL: For the future, the 2023-ish list?

DR. REICHERT: Yes, exactly. It may very well be that blueline tilefish may -- Down the road, it may be the best we have, but we are expecting to have some ages available.

DR. SCHUELLER: Do we have a full list of the species that they are -- I guess I was just wondering about the species encountered by the video, the SERFS survey, both the videos and the chevron traps, and if there is some species in that list that is higher up that hasn't been assessed before, and I don't know what that list looks like, but you might, or Joey might.

DR. REICHERT: Yes, there is a list, and so that's an excellent point, and maybe we should take a look at that and see if there's information in there that we did not have previously and how to make that -- I think their priorities are the managed species, and they do count or do a presence-absence of a number of non-managed species, but I think that's a great point, and maybe we can ask Todd or -- I will touch base with Todd and Nate and see if there is species on that list that may be of use in the future.

MR. CARMICHAEL: We can get that for October, when we talk about this with the Center recommendations, yes, and put that in the briefing book.

DR. BUCKEL: Just one more that I thought of, and I don't remember when it was done last, but snowy grouper. What's the --

MR. CARMICHAEL: Snowy is scheduled for 2019, and so it will get done soon. The other question then is 2020, and you see the stocks that are there listed, and we can't get data for everything all on the same day, and so some of these stocks may get done earlier in the year with a prior terminal year and some may be able to be done later in the year, with a later terminal year. If you guys have any feelings either way on any of these stocks as to which ones you would say, you know, I want red snapper to include particular data, or I want Spanish mackerel to make sure it has 2019 data, or I want gag to be to us by early 2021 kind of stuff. We're balancing terminal years versus delivery dates of assessments.

DR. REICHERT: Given the interest in red snapper, I think it's important to have the delay between the availability of the data and the start of the assessment as short as possible on that one, and I'm not entirely sure what that timeframe would be, and I'm not sure if any work can be done prior to that, but I think that's -- Given that list and the interest and the high priority, although I realize that other stakeholders may look at that list of priorities a little different.

MR. CARMICHAEL: I think that concludes the SEDAR discussions.

DR. REICHERT: Thank you, John. Any other questions for John or Julia at this point?

DR. BOREMAN: Just a comment on blueline. I'm on a working group that's setting up the schedule for the Northeast, the SARC schedule, coming up with an algorithm that we could use, and our decision on blueline is to defer to the Southeast. We are not planning on doing any kind of benchmark or any type of updated assessment on blueline. We will just work off of whatever you guys come up with through the SEDAR process.

DR. REICHERT: Thanks, John. Anyone else? Okay. Thank you. Next is wreckfish, and Brian Cheuvront is going to talk with us a little bit about that, and the SEP has extensively discussed that, and so the attachment is 17 and also the SEP report. The assignments for this agenda item are George, Laura Lee, Tracy, and Fred. The action item is review and discuss the SEP comments related to the wreckfish ITQ review and provide guidance for use of the SEP recommendations. I am handing it over to Brian, and then Scott probably will give us a brief overview of the SEP.

DR. CROSSON: Yes, that's fine. I don't have a presentation for it, but I have the SEP report.

DR. CHEUVRONT: No, but it may be useful for the committee kind of to highlight some of the discussions. I think there was a really good discussion at the SEP on this topic, and so, Brian.

WRECKFISH ITQ REVIEW

DR. CHEUVRONT: Thank you, Mr. Chair. As you all probably will recall, we talked about this last October, after the council had given direction to staff to start the review of wreckfish in June of last year, and so, if you would like me to -- I wasn't planning on it, but, if you would like me to, I can go back and rehash some of that basic stuff, but let's start with me giving you an update of where we are, and, if you feel like you would like to have more information, please speak up.

We came to you in October and explained to you what the council was trying to do, and the NMFS guidelines were that ITQ programs need to be reviewed initially within seven years, I believe, and then now have a subsequent review after no more than seven years have passed since the last one.

The wreckfish ITQ is the oldest finfish ITQ in the country, and it was reviewed back in 2009, and it was done as just a review, a status review, of where we were at that time, and so that has counted as the initial review of the program, and so the initial review starts from the beginning of the program up until the most recent time period that they can have data, and, for wreckfish, that went through the 2008/2009 fishing year, and so this subsequent review is using data from the 2009/2010 fishing year and up through 2016/2017, I believe.

We're using the first couple of years as baseline data, and then they are now doing comparisons back to that baseline data for this part of the review, and we had some difficulty with some of the data, and we discussed that last fall, and it was largely around the fact that we had multiple datasets that didn't always line up exactly, and it actually took longer than the folks working on it thought that it would take to put this all together, but those issues basically have been resolved.

The other big issue that we brought to you in October was the issue of confidentiality. We were very concerned about that. This is a relatively small number of participants, but, to be able to use all the data, we had to be able to go back to everybody who was a shareholder or a dealer from that 2009/2010 fishing year. We were concerned, because the number of participants is rather low and there is sort of two hotspots where the fishery occurs, one in Florida and one in South Carolina, and we were hoping to be able to do analysis by area and things, but, as it turns out, more than one dealer and more than one shareholder did not sign the confidentiality waiver, and so, since that had occurred, we can only provide some of the analysis in aggregate.

We are not going to be able to be as data-rich, in terms of the analysis that we're going to provide, but we can present some of the data in aggregate, and, in your -- One thing I want to point out about the review is the review is not like an FMP amendment. There will be no actions in this review. It is simply a review of the program and how it's functioning. The review itself, however, can recommend actions that the council could later consider in an amendment to improve or change the program from the way it exists now, but one of the things that you did at the October meeting that was pretty important, and I think turned out to be a very fruitful thing, was that so many of the items in the review process were socioeconomic in nature, as is many of the issues surrounding catch share programs.

What you did is you requested that the staff convene a meeting of the SEP, which is a sub-committee of the SSC made up of social scientists and economists, to review and make recommendations for this wreckfish ITQ review. Now, I'm going to pull up a slide that has all of those -- These are the main categories that are going into the review.

As you can see, looking at them, eligibility, participation, allocation, share caps, all this kind of stuff, really has a lot of socioeconomic implications, and so your SEP discussed this in great detail, and, if you look at the SEP report, which is Attachment 23 in your briefing book, you can see the bulk of the conversation is about wreckfish, and so they took the charge very seriously, and I think they came up with some really good advice, but, as that's part of the report, and Scott is the Chair of the SEP, I am going to turn it over to Scott and let him talk to you all about some of the recommendations that the SEP gave.

Now, what we're waiting on is, since the SEP is a sub-committee of the SSC, the SSC must bless this report before it can be incorporated, and it's just a protocol issue, and so, if we can get to that point today, or further direction of what you all would like to see, that would be a great thing to accomplish today.

Just then, to bring it back around a little bit, the council is not going to look at the wreckfish ITQ program review at their June meeting. They wanted to wait for us to get through the SSC, and the staff that's working on this is going to incorporate the SEP comments, assuming you approve them, and we're going to be holding a meeting of the ITQ shareholders in early July.

Once that is done, we think that we'll have all of the relevant information that we need to finish up a full and complete draft of the review that we'll present to the council in September. In September, the council will either decide to accept that review as it is then or give us further direction on what they would like to see happen, and so this may be your last chance as the SSC to look at the review. If actions come out of this, they will be in an FMP amendment, which will

come back to you later on, and so this review itself is not going to change anything with the program. It's just the state of affairs of where we are with things now. Now we'll go to Scott.

DR. REICHERT: Before we do that -- Thank you, Brian, but, before we do that, I realized that I forgot public comment on our previous agenda item, and so I'm going to combine the SEDAR and wreckfish ITQ and see if there is any public comment. Seeing none, then, Scott.

DR. CROSSON: As Brian mentioned, the SEP looked at this, and there is five pages of commentary from the SEP. We spent a good part of an afternoon -- Nothing excites fisheries economists quite like an ITQ, and so we gave a lot of feedback to the review team, and I don't need to go over everything in detail.

Some of it was about the confidentiality issues that Brian brought up, and I guess they had found out, just the week before, that we were not going to have sign-off from all of the previous shareholders, and so that kind of eliminated some of the potential types of analyses that could be presented as part of this review. There is some commentary in there about how things could be presented, given the limitations.

Not everything, of course, is confidential. The shareholders are not confidential, like who they are and what percentage of shares they own, and so you can see the distribution between the two primary states of Florida and South Carolina. Of course, it's really odd, because not only am I the Chair of the SEP, but Tracy and I are both authors on the only thing that's been published on the ITQ in the past twenty-some years, and so she and I encountered this situation back in 2012, and so we looked at CPUE, which can apparently be published, and we looked at the trends in CPUE, which there weren't any significant trends. You have to remember, of course, that, at some point, the participation shrank down to very small numbers, but, seriously, there is some information that can be presented in there.

One of the most remarkable things, I think, of course, is that the size of the fish has just not changed over the past few decades. It's within thirty-some pounds, every fish that gets pulled out, and I think the standard deviation over the whole lifespan of the ITQ is like 1.5 pounds, and so it's very consistently being hauled up, and there hasn't been much change. You can make some inferences, I guess, about the biological status of the stock, given that.

The concerns that we did bring up about the ITQ, and this is again, echoed, I think, in Tracy and my paper, is that the market for this ITQ has never worked really well, and it had a reputation of, I think, before we did this paper, of being an ITQ failure, and I think we tried to show that that was not the case, but, given such a small number of shareholders, you can still argue, I think, that the market for the ITQ shares is not functioning properly, and it's due to just, when you have that few number of shareholders and just one or two shareholders decides to sell or not sell, it can kind of cause difficulties overall in the functioning of the ITQ program.

Certainly there are a lot of obstacles to becoming a new entrant in this fishery, and I think I misspoke a little bit yesterday when we were talking about restrictions that could be removed by the South Atlantic Council. The big restriction, I think, that the SEP noted is that not only do you have to get -- If you want to enter this fishery, you have to buy a wreckfish license, which is an open-access license, and then you have to go get shares, which you have to find somebody to sell

them to, but you also have to have a snapper grouper permit, and, if you don't already have a snapper grouper permit, as we know, that is a seriously stiff entrance fee to this program.

Obviously, that allows you to participate in other fisheries, but that restriction -- Given that this -- When you look at the landings from this program for wreckfish trips, it almost exclusively is wreckfish with a small number of other species, most of -- I think blackbelly rosefish, which is not even federally managed, is the primary other fish that is pulled up from these depths, and so, if you're worried about bycatch from this fishery from other snapper grouper species, other than I think occasionally maybe snowy grouper might be pulled up, it's really not an issue, and so the council really should consider whether they want to remove that restriction, if they want to encourage new participants.

I don't remember, and I haven't seen the newest landings, but I did the analysis up through 2012/2013, but I think that this point -- Although the quota has been raised, I'm not sure that they're landing all the quota again, and is that correct, Brian?

DR. CHEUVRONT: No, they're landing pretty close to all of the quota. In fact, some of the fishermen, when we spoke with them, they had said that they have no problem with new entrants getting in the fishery as long as the ACL could be raised, and remember -- You all might remember some of the controversy around setting the ACL in this fishery, because there was a paucity of data, so that the ACL, back in 2011 or whatever, was set at what the landings were, which was about a tenth of what the TAC had been set at before.

Everybody sort of flipped out, and then the council consolidated participation and revoked shares that were inactive and created a bit of a fuss, and some of the shareholders actually even paid to have a stock assessment that was done that was reviewed by the SSC and approved, and the SSC took the lowest ABC from all the model runs that had been done, which set it at about 438,000 pounds, I believe, from their high of about two-million, but the value steadily went down over the years, and so now -- I think I have a slide that shows it. Yes, here it is.

They are now down to 406,000 pounds, but it's going to drop in 2020 to 389,000 and stay there in perpetuity, unless the council is able to change that in the future, and so that's kind of what has happened with the ACL.

DR. CROSSON: Okay, and so I'm going to comment on that in a minute, and I will switch hats when I do that, but, continuing on this discussion right here, the entrance requirements are something to consider, that the council should consider, especially the two-for-one requirement. The other big concern, from the regulatory side, and I know the commercial shareholders would heartedly endorse this, is that the council should really consider whether they need that 5 percent recreational set-aside for this fishery, considering that there is little evidence that those fish are actually being caught, but it's certainly causing a small, but significant, impact on the commercial shareholders. Not being able to pull in 5 percent of the ACL, when you know that there -- It's really unknown whether anybody is actually pulling those fish up.

There might be other ways to regulate that and to find that out, and so obviously it's an extremely rare event when it happens, and so there may be other ways to indicate that. This is not an easy fishery to participate in. You have to go, what, a hundred miles offshore to haul these things up, and you have to wait quite a long time, because of the depth that they're at.

DR. REICHERT: Yes, it's a very specialized fishery. It's a deepwater fishery.

DR. CROSSON: I am not going to go over it again, but the whole issue of paper coupons is -- They are very outdated, and so, if SERO can set up a system to piggyback this on the existing ITQ management system, and the shareholders want to go along with that, we definitely would agree with that, and I think the members of the review panel would probably agree with that, considering you're dealing with the coupons used, pounds landed in the wreckfish logbook program, whether there are additional landings that might be duplicates that are showing up in the snapper grouper logbook program, and, I mean, it was -- For such a small number of participants, it was really difficult to sometimes sync all of these things up, and so this system certainly could be simplified, and I think that that was certainly an idea that the SEP would promote.

You all can look through the five pages of comments, and that's the major issues that we noticed. If you have any additional concerns about that, please bring them up, but I would hope that the SSC would endorse the SEP's commentary, and, when we get done that, then I want to switch over my hat again and talk about the quota.

DR. REICHERT: I would like to open the floor for questions or remarks. I didn't have any, and I am more than happy to propose that we endorse the SEP's recommendations. I am not sure if we can just attach that to our report or if we need to include it in our report, but that's a minor detail, and so does anyone disagree with endorsing the SEP recommendations? Seeing none, Brian, go ahead.

DR. CHEUVRONT: I appreciate you all doing that, but I just want you all to know that everybody who either attended that meeting or read the report or whatever had incredibly positive things to say about the work that was done by the SEP this past February. I think there is a little bit of a logistical problem, the time lag between the time they met and then the time this group was meeting to approve the report, but them having that time set aside for them to be able to fully digest all of this information and the advice that they offered to the staff and the reviews that they provided were truly outstanding.

I mean, I have -- A lot of you who have known me for a while, I started in the federal process as a member of the SSC, back in the days when we had the two separate committees and all that, and so my time goes back seventeen or eighteen years with the SSC and all that, and I think the meeting that we had this February was probably one of the most productive meetings I have ever seen of social scientists in fisheries, to be perfectly honest with you.

They did an incredible job, and I just wanted to get it on the record that, as the Deputy Executive Director for Management for the South Atlantic Council now, how much we really appreciated all of the effort they put into it, from the discussions through the report writing. It was amazing, and, Scott, thank you for being Chair and taking care of all of that for us, because it really was terrific, and Tracy is a part of it, and so it was a fantastic event, and I sure hope we have more meetings like this one in the future.

DR. REICHERT: I second that. I attended a large part of that meeting, and I absolutely agree.

DR. CROSSON: I would say this, is that the -- Thank you for that compliment, and obviously the quality of the discussion is something that I would echo. One thing we might want to consider is -- We deliberately moved this up ahead of schedule, mostly to address this issue about the wreckfish ITQ, because, at that point, we thought that the council was going to be really trying to put its final stamp on this at the June meeting, but, since that's been delayed a bit, that relaxes that, and it's good that the SSC here can endorse the panel's recommendation at this point.

It was a little bit odd to have that delay, because the SEP report was done a couple of months ago, and so, for this sort of thing in the future, when it's really giving advice to staff, both at the council level and at the Regional Office, about how to move forward on presenting data, it's not really a policy recommendation, and it might be useful to just send this sort of thing out for the SSC to endorse at that point, so that you don't get in this situation where staff is really waiting on this endorsement from the SSC.

Obviously, which we spoke about on the first day, in our morning meeting here when we arrived on Tuesday, the SEP answers to the SSC, and the SSC does need to endorse that, and I think that's obviously a proper way to go about doing things, but I think, in the future, it might be easier to sort of send this thing out and say, hey, does anybody have a disagreement with this. Otherwise, people get in this weird waiting situation that we were in.

DR. REICHERT: I do believe that moving it a little further away from the SSC meeting is really helpful, because normally, and you commented on that, you're writing a report literally at lunch between the SEP meeting and the SSC meeting, and so this gives a little more time to actually write the report and review that within the committee, and so I think that's really helpful, but your point is well taken. Thank you.

MR. PHILLIPS: Two things. One, with the paper coupons, you can't buy allocation except when the fishery is closed. I own allocation now. I bought it last year, but I couldn't transfer it for several months. I had to wait until January 15 before I could transfer it, and so that slows things down. I think, if we didn't have paper coupons and it was electronic, from what I gather with permits, that would take care of that issue.

Something else that's kind of been talked about at the council is, if we were to do the recreational allocation as *de minimis*, and I think that's the term, then that may help alleviate that 5 percent, because I don't know that they might have seen one fish landed in MRIP, maybe, and so that might be something, if you want to talk about that, that the council would like some input on. Thanks.

DR. REICHERT: Thank you, Charlie, and I think both issues also, which I think is relevant for the committee, is there is links to data quality. Scott, your other hat?

DR. CROSSON: All right. So Science Center employee/SEP Chair/straightforward SSC member now and also an economist who has studied this fishery pretty closely, I don't want to pull open, at this meeting, an old scar, but I still feel like the ACL that this fishery is working under, that you saw in the table up there, is misleading. I think the biological modeling is confused, and I don't agree with the Butterworth model, because I believe that almost -- If not entirely, 90 percent or some extent like that, of the recruitment in this fishery is coming from outside.

I think these fish can be harvested at a higher level than that Butterworth model showed, and there was four-million-some pounds hauled out of this fishery back in the late 1980s and early 1990s, and you have never seen any change in CPUE or average size of the fish over the entire lifespan of this ITQ.

I think, at this point, given that we know that it has a gradual northeastern Atlantic cycle that it goes through, you would have seen some evidence that that had caused problems in this fishery, and so I really feel like -- One of the things that you can look at, and I would encourage you to read the MRE paper that we wrote, the *Marine Resource Economics* paper, but, really, the changes in this fishery over the decades have been entirely economic, driven by economic factors and people aging out of the fishery and into other opportunities that they saw and not because of some problem with the biological stock. If we ever did revisit that ABC recommendation, that's probably something that I would consider to be a good use of the committee's time.

DR. REICHERT: I have a question, because usually, when we review a stock assessment, we say, okay, we feel that this should be in place for X number of years, and does anyone remember -- Given the uncertainty, I can imagine that we provided that recommendation with a relatively short number of years, but I don't remember, and we can certainly look that up. Are you asking the committee to make a recommendation to revisit this based on the nature of the fishery and the biology and the stock assessment? How would you like us to move forward?

DR. CROSSON: Well, obviously, I know we can't make a new ABC recommendation at this meeting. It's not on the agenda.

DR. REICHERT: No, that's not what I'm asking.

DR. CROSSON: I know that's not what you're asking, and so let me -- Give me a second here. When we've had this discussion, for people that have -- We've been on this committee now for ten years. When we have run into -- Wreckfish, I always think of it as a very well-named fish, because every time this SSC has run into it, it's caused a giant wreck, and there have been very pitched battles over this relatively small fishery on this SSC, and there have been questions about the reliability of different models, and so I didn't always agree with some of the decisions that were made, and I am not a stock assessment scientist, which I've been reminded of several times during this discussion.

My sense of looking at the simplified DLM model that was run is that the fishery -- The model looks at the fish, and it looks at the catch, and it looks at the CPUE, and it says, well, basically, the CPUE hasn't changed over time, even though catch has diminished greatly, and so I believe the model basically looks at that and says this is evidence that the stock has declined in sync, because, otherwise, the CPUE would have gone up over time. If the stock is doing well and you're really under-catching what's out there, then B over BMSY would rise to a really high number, and you would start seeing changes in CPUE.

Since that didn't show up, I think the model basically agrees that the stock has declined in sync somehow with landings, and I don't buy that. What I think is that these fish are moving through the area and all the recruitment is coming in from outside, and so I don't know what the absolute number is that could be harvested from this fishery, but I have never seen any change. I can see the stock assessment people ready to correct me on this, but I haven't seen any evidence that the

landings trends in this fishery in any way, shape, or form have changed the biological nature of this stock, and so that's my argument. Now, if I'm going to get immediate resistance from this, I don't see that we need to spend hours and hours and hours rehashing an old battle, but that's my take on this.

DR. GRIMES: I am trying to remember back to when we had to review this proposal or this assessment and stuff, and there was a fair amount of controversy about it, as I recall, and maybe you guys remember that better than I do, but didn't Alec MacCall do some sort of assessment on this? I know Alec would agree with you that he didn't like what Butterworth had done, but, anyway, maybe there is some support for your disenchantment with the assessment.

MR. CARMICHAEL: The council has asked about wreckfish and the assessment. If you recall, a quick history, Butterworth did an assessment, and he was hired by a group of fishermen to do that, and it was done through the South Atlantic's Assessment, Development, and Review Process, which was kind of built because of that, and you guys took part in that assessment. You provided the peer review of that assessment, and the fishermen, maybe a year or two ago, starting saying, hey, when is that assessment going to be updated.

I think they were hoping that the process, SEDAR or the council or somebody somewhere, was going to grab that assessment and go ahead and take care of the care and feeding in the future. Well, as we all know, when you hire someone to do an assessment, they're not always around when it times to care and feed it, and, because it's their baby, they may -- In a lot of cases, I think -- I know Luiz, years and years ago, pre-SEDAR, dealt with this. When you come back to them and you want a change or an update, suddenly the price has gone up, and I don't know what happened with Butterworth. I have no idea about the finances, but I just do know, from the past, that that's kind of what happens.

What the fishermen said is they would like this looked into, and so the council asked the Center about can you take that assessment and update it, and the Center said no, it's not our product, it's not our model, it's not -- We didn't have anything to do with it, and so we can't take that and update it in good conscience and call that best science. Now, that's where we are now, is asking the next step, and one of the stocks listed in our request to the Center about things to assess is what do we do about wreckfish.

DR. CROSSON: My proposal is not to try and do another stock assessment. What I see as a model for this is what happened, I guess, with spiny lobster, which is that they looked at some of the changes, and I know this is in conjunction with the State of Florida and all of the complications with spiny lobster, but you had a sub-group of different people looking at it, and some of them were economists, because Sherry Larkin was on there.

They looked at some of the changes that happened with spiny lobster, and they realized that basically a lot of this stuff had been driven by economics, and that was signed-off on, and, if I'm misremembering, please correct me, but it was signed-off on, and so basically the agreement was that most of the recruitment was coming from outside for spiny lobster. Is that a little different?

MR. CARMICHAEL: It's a little different, but, I mean, are you in the position of you want this group to consider saying that the assessment is so far out of date that we no longer have confidence in it and we want to consider developing an ABC through a different approach? If you make a

motion like that, then that's something to consider, but I think you need to be very specific, because you have an assessment.

Granted, it is getting kind of old, but we don't have a statute of limitations on our assessments, and so you're going to have to say that for some reason you don't think that assessment is valid or you're concerned that perhaps it's not and you would like to form a working group, maybe, to evaluate whether or not that assessment is valid and what you may do to propose an ABC from some other method that you think is more up-to-date and timely.

DR. CROSSON: How about this then, and, please, again, other people hop in on this if they think it's worthwhile. What I would propose is that, once this ITQ review is finished and the council has signed off on it, that this SSC form a working group to consider whether changes in the ABC recommendation from this SSC could be adapted or could be changed based off of the ITQ review or based off of the literature that Tracy and I and other people have done since then, or hopefully other people have done, but at least the other information that was not available the last time we visited this issue.

DR. REICHERT: I don't disagree, but what I propose is looking at the timing of the completion of the review and that perhaps this is something we can take up in the October meeting.

DR. CROSSON: That seems logical to me, yes.

DR. REICHERT: That will give staff some time to prepare some documentation, and it gives the SSC some time to review some of the materials prior to that meeting, and so that would be my proposal.

DR. CROSSON: That sounds like a good task. If the council stays on timing, and they agree and they sign-off on everything in September for the ITQ review, then, yes, that would seem like a logical thing. We could, at that point, at our October meeting, consider whether we should form a sub-committee to investigate this and consider changing the ABC recommendation for this stock.

DR. REICHERT: Thank you.

DR. SERCHUK: I am just worrying about rules-of-thumb, in terms of good housekeeping for updating assessments. It seems to me that this is a really important concern for the committee. If something hasn't been done in five or six years, information can become stale, and it's always worth another look.

Outside of what we're talking about now with this particular issue, I get concerned that we haven't taken another look at it and maybe five or six years has passed, and so I think that's something we need to consider, quite frankly. If we're going ahead with catch levels that were implemented in 2015 and they're going through 2020, isn't it time we took another look at the basis for that type of decision? I would say this for any other stock as well, if that period -- I just think that the fishery has proceeded, and there may be changes in the resource, and, after that, if things are still the same, okay, then we can proceed as we did, but I just think there's some good housekeeping rules that we ought to keep in the back of our minds, in terms of not letting old data get stale. Thank you.

DR. REICHERT: I fully agree with you. I've got Luiz and then Church, and we have a couple of other important items on the agenda, and so I don't want to drag out this conversation, because I think, as a committee, we have good path forward, but I do -- You're absolutely right that this is not something that is unique to wreckfish, and I think that's why we as a committee recommend our recommendations to be -- They should be considered for X number of years.

DR. BARBIERI: I will make this very brief, and I just want to agree completely with Scott's approach on this and the discussion points he brought up, irrespective of the outcome one way or the other, but this is what this committee is about. I don't think that bringing points of agreement or disagreement and stirring the pot, in a way, should be seen as a negative.

The idea of having a committee is to bring together different levels of expertise and interest and to have a collective whole here that reflects differences of opinion and expertise, and so I think that, if this is an issue that you, as an expert on this stock, has concerns about, I think it is very appropriate for you to voice this concern for this committee to consider for discussion, and so I just wanted to put that out there. If you need to do an introduction and you're like, well, I don't know if this is appropriate, and I think it is very appropriate.

DR. REICHERT: Thank you, Luiz.

DR. GRIMES: I am going to correct myself a minute ago. My younger colleague, not surprisingly, has a better memory than I do, but there was another -- Andy Strelcheck is who did that DCAC assessment on this, and it's interesting that the Center would have said that they didn't have anything, and, I mean, it's a different assessment, but, anyway, that's their product, sort of, from their region.

DR. REICHERT: All right. Thank you. Brian, do you have from the committee sufficient information to move forward?

DR. CHEUVRONT: Yes, and I think the two big take-aways that we have got now is that you have endorsed the SEPs recommendations for further development of the review, and the second thing is that, contingent on the council approving this review at September, you would like us to come back in October with some things to help you evaluate this ABC for wreckfish, so you can come up with a plan on how you might want to consider going forward in terms of reviewing how the ABC is set for this species. Those are the two take-aways that I've got from this.

DR. CROSSON: One thing to add, because I'm not sure that this is in the SEP report, but please add on Charlie's comment about not being able to transfer -- How exactly did he put it? It was not being able to transfer coupons during -- That was something that did not make it to the SEP report that I really think that the review panel should mention in there and the council should know.

DR. CHEUVRONT: Actually, that didn't even come up in the initial meeting with the shareholders, and so that's a good thing for that to get put in.

DR. REICHERT: Thank you. It is quarter to ten, and we have golden tilefish next, and so let's take a five-minute break, and then we will start with golden tilefish.

(Whereupon, a recess was taken.)

DR. REICHERT: Welcome back. Our next agenda item is Number 12, Evaluation of the Golden Tilefish ABC, and it's Attachments 18 and 19. The assignments are John, Church, Laura Lee, and Genny, and the action items are in the briefing book, and I am going to hand it over to John, who is going to give us an overview and rationale for the request.

EVALUATION OF GOLDEN TILEFISH ABC

MR. CARMICHAEL: Thank you, Chairman Reichert, and so we're going to talk about tilefish, and you guys know that we've talked about tilefish quite a few times, and the two attachments are the council's discussions about that and their reasons for asking you to consider a higher ABC and then updated tilefish projections, which they requested. I did a brief presentation, just to kind of walk through where we've been and where we're going and hopefully hit the highlights of what's in those different documents.

This assessment was done in 2016, and it was an update of the SEDAR 25 benchmark with data through 2014, and, being an update, there is some limitations on things that can be changed and revised, and so some of the issues that were identified and have been discussed since that time were consider multiple selectivity periods, and there was a lot of discussion of the fitting algorithm. At that time, there were some changes being done in fitting algorithms, and the Dirichlet multinomial had just come along, and it was being talked about, and there were questions about selectivity patterns.

We recognized that there was a need to do a more robust assessment, maybe to do a standard, and look at some of this stuff a bit deeper, and so that was a request, and that's been on the SEDAR schedule there, as you can see, and it's hopefully coming up in early 2019 to get started on the next assessment, and the council had tried to prioritize that assessment and move it ahead on the schedule, and they just haven't been able to, due to the realities of trying to change the schedule late in the game.

You recommended a P* of 30 percent, and that resulted in some pretty big changes in the allowable catch limits, which I think kind of led to the trigger of the council figuring out what to do and how long to take and what they were going to do and looking at this Dirichlet to see if that was affecting it, and so they had a revision assessment in 2017 applying that, and you reviewed it. You didn't accept it, and, if you remember, I think Kyle presented on this, and there was a lot of trouble in fitting that to this assessment, and so it went back to the previous update that we had.

That update showed that the stock was determined to be overfishing, and the council got a letter from NMFS in January of 2017 providing that status. At that point, the council had two years to address the overfishing situation, and the status at that point was 1.22 for F over FMSY. The stock wasn't overfished, and it was only 1.13, and so it was just a little above MSST, and it was generally considered that, in the previous assessment, SEDAR 25, there was some thought by the fishermen and the council that it was a bit optimistic, and so they set the catch limits a bit lower even than what they were allowed through the SSC, and, basically, the update showed us that that previous assessment was overly optimistic and productivity wasn't as high as what it had suggested, and the catch limits needed to come down quite a bit, but, of course, the effect of fishing at a higher limit and not going over it had driven the stock down.

The council has two years to do this, but, if you're fishing at a higher level, as you guys well know, and we were able to show the council, if you keep fishing at that higher level over those couple of years that you have to work this out, then you're going to continue to drive your stock down, and so the council realized that taking action soon would be a way of stopping the bleeding, essentially, and reducing the amount of reduction that would be necessary say in 2019, 2020, and beyond, and so they could have spent 2017 and 2018 and have regulations going in in 2019, but they realized they could have more fish in 2019 if they did something pretty quick.

In 2017, they did an interim rule that reduced the ACL by 42 percent over what it was at the time, because, as I said, the delay would -- Delaying that action would have reduced the future landings, and interim rules don't last that long, and so they prepared Regulatory Amendment 28, and that's intending to implement new ACLs moving forward.

The concerns that the council has, and as they've been discussed here before and discussed by the council, is just with the overall amount of reduction that's required in the tilefish ACL, and there is significant social and economic consequences, of course, that go with that, and I think we've talked about those as well around here, and this sticks out in particular -- Why it's been discussed so much is because it has an extreme poundage buffer between the OFL and the ABC.

It's not a matter that the P* is too low, but it's that, when it's expressed and when it's applied to the stock and you get the actual ABC value and OFL value, this stock came out with a very high buffer, and we're looking at about a 25 percent buffer from the P* analysis, and there's been not a good explanation. At one point, in one of the earlier runs, it was upwards of 40 percent, the buffer for this stock, and this really stuck out to the council like a sore thumb, because most stocks are quite a bit lower, and so this stock has a very high buffer.

It seems to be perhaps related to the high age of selectivity. They select at six, but they don't really have a lot of juvenile data. There is no juvenile surveys, and there is not good age sampling, and the uncertainty factors that we often talk about, such as like the recreational fishery, the uncertainty with recreational data and recreational landings and high PSEs on MRIP data, aren't a factor, because it's mostly commercial.

There is one major gear, and it's longline, and it has a short season. It's closed when the landings are met, and so there aren't any discard problems, and it covers a pretty small geographic range, and so it should be amenable to effective sampling, and so all of these things have kind of factored into like why does this stock have such a strange outcome, and the Science Center has looked into it, and it just seems to be kind of things coming together within the stock assessment and how it's expressed for the P* analysis, but there is no single smoking gun here in this situation, as sometimes is the case.

Most of our stocks run in 10 to 20 percent, and so, for example, the black sea bass update, I just looked at that, and that had a P* of 0.4. If you compare that to the OFL level, P* of 0.5, the reduction is like 6 percent, and tilefish in 2017, with a P* of 0.4, and so comparing sort of apples and apples there with 0.4 and 0.5, the tilefish came out to 81 percent, and so the reduction was 19 percent.

The council has always questioned why does this stock have such a big buffer, and so we had a combination of a big reduction necessary because of changes in the estimated productivity along with a very high expression of uncertainty in terms of poundage for this individual stock, and that's been the core of why there has been so many projection scenarios and so many requests for additional information and so much discussion about this stock around the council table. If we had been in the case of like many stocks, like say black sea bass, where you end up with a 6 to 10 percent buffer poundage expressed, then I don't think we would have been having any of these discussions.

The council has a request that they would like to set the ABC at 362,000 pounds whole weight, and so I would just point out another point of confusion sometimes when we deal with this stock, is that it's assessed in gutted weight, and it's managed in whole weight, and there's a lot of back-and-forth, in terms of making sure that you give numbers that are in the right units. It has reared its head sometimes in different requests for projections, where the numbers have been mixed up, and so all of that is just a matter of this whole weight and gutted weight, and some groups have different conversion factors than other groups, and it's just another level of complexity.

If you sometimes see numbers that look a little different, just make sure you understand if they're talking gutted weight or whole weight and what conversion factor they made them, and, when the Center has done projections, they've been great, because they state exactly what they're using and report the conversion factor that was used, so you can figure out what's going on.

They would like to do this for 2019 and 2020, and those years are selected because of the assessment that's coming up to be done, and they expect to have results from that, certainly able to affect the fishery in 2020. As I mentioned, the longline fishery, that happens early in the year, and it usually closes by now, and it's very seldom open into May. It usually closes in March or April, and so this is an early-in-the-year fishery, and so that kind of affects the timing of when the council can take action.

If we get an assessment in 2020, the results sometime in 2020, they're going to have to act pretty quick to get that in for 2021, and so they would like to really get the assessment done maybe late in 2019, or get it to you guys in early 2020, but that's just another aspect of this fishery to deal with, and this ABC is what's been in use for the interim rule for 2018, and it was based on 75 percent of FMSY fishing mortality rate.

The council selected that for the interim because that's been a commonly used approach for setting OY on stocks, particularly those that are not overfished and not overfishing, and so, with the stock being not overfished and these actions ending overfishing, they felt that was an appropriate way, and that was a 42 percent reduction from the landings that had resulted in the overfishing determination. That was a pretty substantial reduction from what was being landed at the time, and the FMSY -- The 75 percent of FMSY F value is 0.18, and that equates to about a 30 percent SPR level.

The council had some recent projections done to address the catch level that was set in the interim rule, and so that gives some indication of how the fishery responds to that, and so it determined that in those projections, which you have as Attachment 19, that overfishing would not occur under this ABC, and this results in a 16 percent buffer in pounds between the ABC and the OFL, again based on the A19 projections, and a 20 percent buffer in 2020.

If you looked at those, you will notice that -- You see the big reduction that goes in for this catch level in 2018, and then, in 2019, it goes down a little bit more. Then, in 2020, it gets back to around where it was in 2018, and so another thing the council is trying to do is just have some stability in the fishery before they get the new assessment results, and those projections show the yield continuing to increase in 2020, 2021, 2022, et cetera, because the stock biomass is starting to recover now that we've ended the overfishing.

The other aspect the council is trying to do is just to have some stability in this fishery and say, well, if we could keep this catch level, and the guys have kind of adapted to that in their plans, and, if we can just hold that, it will be a much better social and economic impact, much better social and economic outcome, for the fishermen than taking another cut in 2019, but then going back to near this level in 2020.

That is the council's rationale, and, as I said, we get the new assessment in 2019, and we hope to get that started as soon as possible, and one of the reasons that they're comfortable with the risk associated with this is that they've been very good at managing this fishery. From 2012 to 2017, there was only one year where they went over the ACL, and, cumulatively, it's only a 2 percent overage, and so, really, it's been a very well-managed fishery.

They're effectively able to shut down the primary longline fishery in time to prevent overages, and the discards are low, because I mentioned, when the longline closes, those guys don't fish. This is it. They're not out there fishing for other stuff and catching tilefish and discarding them, and so, once their share of the ACL is met, they close, and then there is a little bit of hook-and-line that probably largely offsets encounters of those fish anyway and helps reduce discards.

The council felt that, based on the past management performance and what they see in these projections, that the slightly higher risk of overfishing that results from this harvest level was acceptable, and so they are hoping that you will agree with them and support this for 2019 and 2020.

DR. REICHERT: Thank you, John. I would like to open the floor for questions and remarks.

DR. GRIMES: I have some remarks, I guess. This risk of overfishing is sort of the council's -- It's within their purview to do this, or the stated rationale seems reasonable to me, and I don't have any problem with it. As he points out, it's a commercial fishery, and so the harvest level is relatively easy to control. I would say that the rationale of there being greater uncertainty in some of the aspects of the assessment justifying taking more risk for harvest is kind of non-secular, but, anyway, I don't have any heartburn with it.

DR. SERCHUK: The rationale seems okay to me, but I'm worried about roles and responsibilities here, quite frankly. If the council wants to set a higher risk policy, they can do it, and they don't have to come back to us. We were told on Monday morning that our things are just recommendations and just things for the council to consider. If the council feels that it's in their purview and that the information that we have provided in the past is too constraining, because they want to adopt a new risk policy, or a higher risk policy, it seems to me they are clearly within their arena to do so. Are they looking for us to basically say, well, yes, you can do it, or are they looking to us to say, well, wait a second, is our rationale correct?

MR. CARMICHAEL: They're asking for you to deviate from the ABC control rule and support this, because the control rule that they have led to a different ABC recommendation, and that's -- The control rule now ties the risk tolerance and the uncertainty all together, and you guys set that. The council set the rule, but then you apply the values, and so there's nothing in there that lets the council explicitly set the risk tolerance, and that's a big change that will come in the revised rule, but it's taking time to get that in place, and so, really, they do, because, strictly under the law and the control rule that they have, they need you to agree to deviate from your control rule.

DR. BOREMAN: My initial response is that the council is bound by our ABC recommendation, and so what I'm worried about is the precedent of this. How many times in the future is the council going to get an ABC recommendation and say, well, we can't live with that and let's go back and ask to change our risk? If that was done upfront -- In the Mid-Atlantic, this has happened a couple of times, but it was incorporated into the terms of reference upfront before the SSC acted on the ABC. It said, in this case, there are some economic hardships, in the summer flounder fishery or whatever, and we would like to relax the risk policy upfront, and so give us an ABC with this change in our policy for this species. You don't want to get into a situation where the greatest fear is the SSC delivers an ABC and the council says that we don't like this and it's back to the drawing board.

MR. CARMICHAEL: I totally agree with you, John. I think that's a good point, and I will say consider how many times the council has in the past come. I think, in general, they haven't, and so they have largely accepted them, and so I think that's a valid concern, but I don't know if it's very likely that they will start coming to you quite often or see this as a precedent. I would certainly hope not, and that would certainly be bad.

It would be nice if they could tell you upfront that they are concerned about the consequences, and I think, in this case, they didn't know the impacts and what was going to happen, and that's why they've come back a couple of times. It was more of an after the fact. Once they got the ABC is when the realization of those social and economic consequences -- They are kind of doing that now, by telling you a big reason they're asking you to relax is because of the social and economic consequences of that reduction, and so we're a little out of step, maybe, or a little behind where we could have been.

DR. BOREMAN: Usually, for us, our terms of reference are developed after everybody has seen the updates and so on, and so that helps too, but what we've done early on in the Mid is we came up with rules for remands to the SSC, what constitutes a remand, and, in this case, one rule may be an obvious economic hardship on the fishery. That would be a rule to rethink the ABC or go back and recalculate or whatever, but having those rules makes -- Otherwise, it's a free-for-all. Whoever gets to speak at the council meeting may drive the SSC.

DR. REICHERT: I agree with you, and I hope that some of this we may be able to address within the new ABC control rule.

DR. BELCHER: If this was explained, I apologize, and so, in reading the overview, it says the ABC level, that 362,000 pounds, the ABC level implemented by interim rule for 2018, and have we seen the language of the interim rule, just to have clarification on how -- I mean, I guess if it was -- In reading what's in the overview, it sounds like this was something that was discussed in

March, but I don't know -- I am trying to figure out what the interim rule was that was applied to get that number.

MR. CARMICHAEL: The interim rule based it on the F 75 percent of FMSY, and it was prepared last year, because, as I said, the fishery starts in January, and it normally closes by March, and so the interim rule had to be put in last year, so that it could affect the 2018 fishery, and so the longline fishery for 2018 has opened and closed, and so the discussions here were for dealing with 2019, and they had projections that they received in February that they discussed, and one of the things, as shown, was this drop-down in landings for 2019 and then being back in 2020 about to where they were in 2018.

That was just like another drop in the bucket here, and it was like, okay, so now we're going to have this additional reduction, and if we could just have some stability to offset these social and economic consequences and fish at this level until we get the new assessment, it will really be a big benefit to the fishery, as long as it doesn't result in overfishing, of course, and the information we have suggests that it won't result in overfishing.

DR. REICHERT: Anyone else on the committee have questions or comments?

DR. AHRENS: I will say that I really appreciate the kind of hardships and the complications that big changes in catch can occur, and I am pretty sensitive to that. I mean, with relationship to tilefish, blueline or golden, I have some concerns about the nature of the data in the assessments and the disparity between the spatial scale at which the fishery operates and the spatial scale at which the data is reported that can be masking some of the changes in abundance, and so I just throw that out again as a cautionary note, in terms of interpreting the results of assessments and the data itself, that there could be some hyperstability, particularly in the number of the indices that are used, that are concerning.

DR. REICHERT: I remember that we discussed some of that when we were discussing the assessment, but, yes, I agree with you. Anyone else?

DR. SCHUELLER: I just wanted to echo what John said and say that I am concerned about the precedent of this, and I think this is the second meeting that John has brought up rules by which something can be remanded back to the SSC, and I think it's time that that gets on the agenda for us to actually establish something.

MR. CARMICHAEL: The ABC control rule revisions is a perfect place to do it, and so, yes, that would be one of the things to talk about.

DR. SCHUELLER: Well, I think we should add that, and, I mean, John stated a rule such that it could be remanded for economic purposes, but I think there should be some constraint on it, and so this particular species is not under a rebuilding plan, but, if a species is under a rebuilding plan, I don't necessarily want to see something come back to me over and over again, or to this group over and over again, but that's my concern.

DR. REICHERT: Thank you. Anyone else?

DR. NESSLAGE: This is not about this particular issue of ABCs, but, given there is a new assessment coming up soon, I just wanted to go on the record saying that we probably want to take a really -- We, whoever does it, wants to take a really close look at the widths of the uncertainty bounds on each of the parameters that go into the MCBs, because I think that is contributing, in large part, to this big difference between the ABC and the ACL.

That just popped into my mind, because I was looking at the gag assessment, the last update, as an example when I was doing this update, and the difference there is they have much tighter bounds on all of those parameters than anything for golden, and golden may have more uncertainty in those parameters, for instance natural mortality or whatever, but I think, when the workshops are occurring, the folks who are making the decision about the uncertainty in those parameters don't understand the implications of how that's going to roll through into the ABCs.

While I appreciate that they're expressing that uncertainty, and we need that information, at some point, I think the assessment folks need to think very carefully about is it really that wide, because it feeds into the ultimate ABCs, and so just keep that in mind, please, as you're going through the next tilefish assessment. It might be something to really take a close look at.

DR. REICHERT: Thank you. I agree wholeheartedly. Anyone else? Then let's take a look at the action items. Mike has made some notes, and so we have reviewed the updated -- Well, we gave a rationale, or discussed the rationale, for the new ABC recommendation. We discussed the potential risks and benefits, and so I would like to take a look at the projections and see if we can recommend a revised ABC for tilefish based on the 75 percent.

DR. SHAROV: I have a question. These projections are based off the base run of the 2016 assessment, right? Is this what we would consider still at this moment as the best scientific information available that these projections are based on? That is, we are not considering the update that we have not approved?

DR. ERRIGO: No, these projections are not from that revised update, because that was not accepted by the SSC. It's from the original update.

DR. SHAROV: Right, and so I just wanted to clarify, to make sure, that the 2016 assessment -- That is where we start these projections, and that is, in our opinion, it's BSIA at the moment.

DR. REICHERT: Yes, or at least that is my understanding. We had revised the original review recommendations. Thank you. Do we have the numbers that we can then provide to the council?

MR. CARMICHAEL: The number would be the 362,000 whole weight.

DR. REICHERT: We put those numbers in the report. Any other questions or remarks that we need to add to the report? Seeing none around the table, then thank you, and we will move to our next agenda item, which would be the ABC control rule. That is Attachment 11, and Shep Grimes has asked to -- Sorry, Anne. Go ahead.

MS. LANGE: So I guess we have agreed to the council's request to increase the ABC?

DR. REICHERT: Yes.

MS. LANGE: Okay.

DR. CROSSON: I don't have an opinion about moving to the next item, but, before we finish up today, are we going to -- Wasn't it at some point that we were going to see new numbers for the red snapper ABC recommendations? Did we see those already yesterday?

DR. REICHERT: You mean the projections?

DR. CROSSON: Yes, and was there something -- I am obviously misremembering this.

DR. REICHERT: Katie mentioned yesterday that she probably -- Unless I am mixing things up, which is entirely possible, I think Katie mentioned that she will not be able to provide those until after the meeting.

SSC MEMBER: Katie's is black sea bass.

DR. REICHERT: See, and that's why I said I was mixing stuff up.

DR. CROSSON: I meant red snapper. Originally, we had the numbers, and we had discards plus fishing mortality or something like that, and we were going to see actual numbers for the next few years, for the table.

MR. CARMICHAEL: You would be taking numbers from the interim analysis, is my understanding, and there is projection tables there.

DR. REICHERT: Sorry. I did mix up black sea bass and red snapper.

MR. CARMICHAEL: Yes, and so you have them, and then I think Mike intends to type them into the report text.

DR. REICHERT: Yes, and so we will -- Hopefully, later this afternoon, we can go through the report and take a look at that.

DR. NESSLAGE: I was just going to request -- Can you circulate that tilefish summary of the management? That was really nice. That would be great.

DR. REICHERT: Yes, we will make sure that the committee gets that emailed, so that's available to us. All right. One last look around the room before we move to the ABC control rule agenda item. Seeing no hands, ABC control rule. That is Attachment 11, and we have discussed that in a previous meeting, and the assignments are Carolyn, Scott, Fred, Tracy, and Genny. John is going to take us through the control rule, and I mentioned earlier that Shep Grimes was interested in potentially participating, and he had some questions, and so I hope that Shep is on the webinar.

MR. CARMICHAEL: He is.

DR. REICHERT: Shep, we appreciate you joining us via webinar for this agenda item, and so, with that, I'm going to hand it over to John.

ABC CONTROL RULE AMENDMENT

MR. CARMICHAEL: All right. The ABC control rule, since we last talked about this, it's had quite a bit of development, and so, in the fall, we mentioned that an IPT was formed to start turning the ideas that we had for a control rule into an actual management plan, and they have met several times since probably December, when they convened.

The council looked at this document and looked at the ABC in December, and then they looked at it again in March, and so we'll go through what is the current status of the document. It looks a lot different, in terms of the actions and such. If you recall how it looked before, there were a lot more actions in the past, and, in working with the folks at SERO that are the rule-type folks, and working with Shep to figure out what we actually need to say, in terms of the actions themselves, we were able to combine some actions and reduce some things and make some things options which had earlier been stand-alone actions, and that just makes the document a lot easier to follow for everyone and a lot more efficient, in terms of the analysis that goes through it.

All the things that were there are here, and we're looking at some different ways of just presenting it, and so we're down to five core actions. One is the main meat of the meal here that modifies the acceptable ABC control rule, and it goes from the very prescriptive approach that we have to a much more generalized approach that gives the SSC more flexibility to evaluate uncertainty across the range of stocks that you deal with, and it gives the council the authority to set the risk tolerance.

Then it has an approach for determining the risk of overfishing, which will be how the council goes about working with you and the other advisors to decide what is an appropriate risk of overfishing, and then it's an approach for determining the probability of rebuilding success, because you've got to have that to deal with your rebuilding stocks, and then we addressed two of the flexibility provisions of the Magnuson Act, which is phase-in of ABC changes and carryover of unharvested catch.

That is going to affect the timing a little bit to carryover in particular, and I'm not sure if I mentioned that. Maybe earlier, when we talked about it, but NMFS has a working group that is developing guidelines for carryover, and their plan is to have a report done in January of 2019, and so we had hoped to have this document considered for public hearings in December of 2018, but we don't want to go do that and run the risk of being afoul of some of those guidelines, and so I think, when we go to the council with this in June, we're probably going to extend this timeline out some, so that we can make sure that we can incorporate the guidance from the guidelines and keep consistent with the agency recommendations, and so it will make this a little bit longer to getting approved, but hopefully it avoids us having to do an immediate amendment, which is never good, and so consider that timeline optimistic at this point in time.

The council did approve the purpose and need at the March meeting, and it's pretty straightforward. The purpose just is why you're doing it, and we're revising the control rule and simplifying how we address scientific uncertainty and modifying the approaches, and this is just legal language that helps guide the document.

We discussed the management plans to be modified, and so, as we have it now, we did a comprehensive ABC control rule, which changed the ABC for snapper grouper, dolphin wahoo, and I think maybe golden crab was included, and sargassum, in that initial one, and then snapper grouper did a modification a couple of years later to incorporate the ORCS. You guys remember working through the ORCS process.

That was only added to the ABC control rule for snapper grouper, and then we have coral, which currently does not have a control rule, and so we're going to bring all of these stocks together under this framework for the ABC control rule, and we didn't include the coastal migratory pelagics, which is king mackerel and Spanish mackerel, because those are joint stocks done with the Gulf of Mexico, and they're also looking at ABC control rule changes, and so our intent is to, once we do ours and they do theirs, to see what we need to do for the CMP stocks and try to come up with something cooperative with the Gulf to address those stocks' ABC control rules, and so it's hitting the primary stocks that the council manages.

The first action that's addressed is the modification of the ABC control rule. The language has gotten quite a bit simpler over time, as the IPT has worked on it, and Shep has given us lots of great advice on the wording and what we need to include where, which has I think helped this document come along pretty fast, but this is just the gist of setting the ABC.

There is a couple of options, and so, for example, options are just the way of kind of tweaking how the council may respond to different situations. They are something that the council could choose to do or not to do, and so, when they set the overall ABC control rule, there is an option there that they could set the ABC on 75 percent of FMSY, in the case where you couldn't get an overfishing limit distribution, and so this would be like an extra option that the SSC could consider, if you felt that that were a reasonable way of setting an ABC when you didn't have an overfishing limit distribution.

The Option 2 deals with doing the constant value versus an annual value over a given number of years, and it's something the council has been interested in and that they're allowed to do, but they need some cooperation from the SSC. We need to change our rules, because we've always given them as annual values, but if you were to just take annual ABCs, and let's say there is a downward trend, and you average those, if the council tried to set its ACL based on the average, in the backend, where the trend was downwards, that average is going to be higher than those observations, and so that creates a problem where the catch limit would be over the ABC, and so the averaging needs to be done upfront when you set the ABC.

It's something the council would like to consider, and it would be a situation where they would ask upfront, and so it's getting at what John Boreman said of letting you know upfront that we want to do this average of the ABCs, and it could be for up to five years, and so it could be from two to five years for doing the average. Then, because there is risk associated with that, of course, it would require getting both the constant and the annual values evaluated, so they could see what is the risk of overfishing, if the trajectory were downward in year five, if we went with this average.

The hope is that the council would ask for this upfront, so that, when you're considering an ABC, you have those projections, so you can look at the trajectories and understand what the potential risk is, and you may advise against it. You may say set it less than the average, or you may say to set it at -- Maybe not the average for five years, but maybe the average for three years or something.

DR. REICHERT: Do you want us to start discussing this while we are going, or do you want to go through --

MR. CARMICHAEL: I can go with it either way, and I will point out that this is -- Any guidance you have on some of these things now is good, and you're going to continue to see this at every meeting until we get this worked out. This FMP, in particular, unlike many of the others, because ABC control rules have to be set by the council with recommendations from you, you're going to be seeing this at every meeting.

DR. REICHERT: Okay, and so there is one thing that -- I want to open the floor for public comment, because it looks like we may be discussing this during your presentation, and so I'm going to look around and see if anyone has any public comments. Seeing none, then I have another question relative to that point that you made.

I have a difficulty wrapping my head around the timeline, because sometimes it's difficult before -- There is other elements of the ABC control rule that I have kind of this similar concern. Sometimes it's difficult to know whether or not an averaging should be considered until you have the results of the ABC control rule, until you have the results of the assessment, and that's not always the case, and so you mentioned earlier that, beforehand, the council can request or we can consider, or the SSC and the council can consider, to average that, but sometimes that desire may not come up until after the assessment, and so I'm a little unclear about that timing or when that decision is going to be made, or is that flexible?

MR. CARMICHAEL: I mean, I think yes. Like everything we do, it will be flexible, and, in an ideal world, yes, we would know there's a stock that we want to do a fixed over X number of years, and it may be a stock that we've done it many times in the past. It may be a stock where the fishery values stability, and there may be other reasons and the council knows upfront, and, yes, there may be ones where they decide after the fact, in which case they would come back to you and request the analysis and ask that you consider doing a fixed.

That wouldn't be the ideal circumstances, and we hope that we know upfront, but I think that we wanted to get out of the situation of having this done for every stock every time, because that could be extra work if they don't want to do it, and so we'll play it by ear, I think, in some of these circumstances.

DR. SCHUELLER: I have the same thought, because you said we would hope they would tell us ahead of time, but, in my view, the vision of it would be that we would provide some ABC advice and then every time they would come back and say that, and I'm sure that's not going to happen, but maybe the council should consider a priori rules about when they might ask for that type of a scenario. If the percentage change is 10 percent over the five years of ABCs that we've given, is that really warranted for them to come back? I mean, they can set up some a priori rules by which then they would be able to, as John has said, remand something like that back to the SSC for reconsideration.

DR. REICHERT: Thank you.

MR. CARMICHAEL: Then you think a rule tied to perhaps the amount of change would be one way to look at it? Any other ideas?

DR. SCHUELLER: That's just the idea that popped into my head, and I'm sure there's a lot of other options.

DR. REICHERT: The potential socioeconomic impact may be another one, because sometimes, for instance, the percentage may not be that significant, but the socioeconomic -- I am just thinking about something that may be part of that.

DR. BOREMAN: One way to handle constant for five years is to calculate the ABCs for the five years and then pick the minimum and use that as a constant. We tried that with the council, and we did that for one year on golden tilefish. They didn't like that too much, but now we have a method of averaging for three or five years, based on making sure the P* doesn't exceed a certain level, and so my other question is -- It's not related to this, but it's on Option 1, if we're going to stop and ask, and it's just a clarification, just to make sure that -- When you say "acceptable overfishing limit distribution", do you mean the probability distribution of the overfishing limit?

MR. CARMICHAEL: Yes.

DR. BOREMAN: I think that should be made clear.

DR. SERCHUK: I don't disagree with the tenor of the discussion, but it seems to me, when we're dealing with going from ACLs to ABCs, we're talking about uncertainty largely in our understanding of the stock dynamics for the resource. One of the ways that you can reduce that uncertainty is to pick up on the research recommendations, which are basically saying, well, maybe we can get an index here, or maybe we can get better reporting here, or maybe we can do something to better understand the -- To reduce that uncertainty, and I don't see that being addressed, quite frankly.

We talk about, well, gee whiz, that uncertainty creates large socioeconomic impacts, or could create large socioeconomic impacts, and I don't see it feeding the feedback loop, and that's what I am concerned about in all of this. If it's supposed to be a scientific uncertainty, and I realize there is a risk tolerance that goes into all of that, but, essentially, that's what it's supposed to be. You have an OFL, and you go to an ABC, and that buffer is a scientific uncertainty buffer, and I am not seeing anything playing back into that.

DR. REICHERT: I think -- I tried to remember, but I think we discussed that in the framework of our terms of reference, where I believe we discussed that that should be part of that, in terms of were research recommendations in previous assessments by the assessment team and the SSC, were they considered and included. I would like feedback from the rest of the committee, but I'm not sure how we could possibly fold that into an ABC control rule, but I am open to -- I see where you're coming from, because that has always been an issue. We have come up with research recommendations, and then the next assessment comes around, and you look at the research recommendations, and they're a carbon copy of what was provided in previous assessments, and so I am open for suggestions, in terms of how this could potentially be folded into this.

DR. SERCHUK: I don't have the answer, Chair, but I am looking for the feedback loop. I understand, from a council point of view, that, quite frankly, large -- If there are going to be large changes, that's going to be unsatisfactory, but not for the reasons of uncertainty. Those are the reasons that have nothing to do with the buffer, and that may be a consequence that's unacceptable relative to how the resource is managed, and I understand that.

That's what the managers do, but I am just trying to say, well, if we have very uncertain assessments, we can look at different things, but is there ways that, based on the research recommendations, we can reduce that, and, therefore, if we reduce that, we will have a subsequent reduction, one would hope, in any of the socioeconomic impacts, because we would have a better understanding of the resource dynamics.

DR. BARBIERI: Well, I can't think of any way to integrate explicitly what you brought up into the control rule, but, I mean, in a broader sense, every time that we review, and the ones that we reviewed this week, either stock assessments as part of our review, even though the assessment reports usually already come with a set of research recommendations, we are asked here to discuss those key research recommendations, stock monitoring, and perhaps make some stronger points on what is needed for the next assessment.

I think that would be our best opportunity to report to the council and make sure they understand that some of those are recommendations for things that need to be discussed with the Science Center, in terms of including additional data, information into the assessment process, and I know that we have the broader thing that we submit annually to the Science Center, and that now we are prioritizing that and going into more detail, but, because that's a longer list, and it's not tied to the assessment, I think that, through our report, we might be, assessment review by assessment review, and our Chair goes before the council and presents, and that might generate some additional impetus for the council to work with the Science Center in increasing the amount of focus on some of those key research recommendations.

DR. SERCHUK: I think you have a good point. All I'm saying, Luiz, is, yes, the council is asked for research priorities, and they should be prioritized, quite frankly, and we can help do that with the group, and then we need to follow up to see if it got done. If it didn't get done, was there no money or something else came up and so on and so forth, but I think -- Again, I'm looking for a feedback loop here to tie better science with better management.

DR. REICHERT: Fred, John put up -- This is basically the standard of our action items when we review stock assessments, and I think that's where the feedback loop is. That is a partial answer to your question, or maybe a partial answer to your question.

DR. SERCHUK: Sorry, Chair, but I wanted to take it to a higher level. The council submits the research priorities, and we can go back and say -- But the fact is that all the councils do this, and some have very specific priorities. This is our highest priority, and so, if there is funding --

MR. CARMICHAEL: Fred, we do that.

DR. SERCHUK: I understand that.

MR. CARMICHAEL: Every other year, we do that. We prioritize them, and we ask you to help with priorities, and we submit them to the agency, and the council asks the agency to report back to it regularly what's being addressed. I don't know what more that we can do, and then we ask, in the assessments, to give research needs and to prioritize them and tell which ones are going to really affect uncertainty, and then we ask you, when you look at each assessment, that question right there of indicate those most likely to reduce risk and uncertainty in the next assessment. I don't know what higher level we can go.

DR. SERCHUK: I am not asking for a higher level, but, if it's not funded, the question is moot.

MR. CARMICHAEL: Well, that's out of our control.

DR. SERCHUK: It is completely within our control to say the assessment is not any better than it was before, because we haven't been able to address the research priorities.

DR. REICHERT: Yes, we can say that, and that will be reflected in the uncertainty of the next assessment, and so that's where another part of the feedback loop is, and so, anyway.

MR. CARMICHAEL: Then there is another alternative here for major changes in the control rule, and this would be essentially doing the ORCS across the board and then dividing up how the uncertainty and the risk tolerance is addressed, and so it would take the existing tiers, and the SSC would evaluate uncertainty through Tiers 1 and 2, and the council would do a risk tolerance through its process. You get rid of the Tiers 3 and 4, which are like the stock status, and, if you remember the discussion about the MRAG PSA and all that, it would be deleting those parts.

Then the discussion just goes into what we have in place now, and so these two long tables are what we have in place now. One is most, and the others is ORCS, and the only difference is the second includes ORCS. Otherwise, they are exactly the same, and so it's a lot of long, confusing text.

I think, if there's any other thoughts, and I think we had some good guidance here on these about the circumstances for the five-year and clarifying, as John said, the probability distribution, but the whole idea of this is to give you guys a lot more flexibility for dealing with uncertainty and to evaluate it in the way that you think is appropriate. Are there other questions on Action 1? If not, I will go on to Action 2. It gets a little bit easier after Action 1, that's for sure.

DR. REICHERT: John, correct me if I'm wrong, but, in Action 1, Alternative 3 -- When I read it, I felt that it seems to fold the council's risk tolerance and the management uncertainty into one, but I may have misunderstood that one. Does it specify the --

MR. CARMICHAEL: No, the management uncertainty is the separation between the ACL and the ACT. That's where the management uncertainty is supposed to come in. It doesn't fold those two together.

DR. REICHERT: Okay. I understand, but, for some reason, when I read it, I thought that there was --

MR. CARMICHAEL: The council would do a risk tolerance of zero to 20 percent that would be added to your uncertainty that you get from Tiers 1 and 2, because Tiers 3 and 4 are similar now to 20 percent, and so it would be very similar to what you do now, but it would just be taking those tiers out and let the council set the risk tolerance. It doesn't get into the management uncertainty there.

DR. REICHERT: Thanks.

MS. LANGE: If our input is reduced from four tiers to two tiers, will the percentages in those two tiers change, or would we have a reduced amount of reduction that we could recommend?

MR. CARMICHAEL: Under Alternative 3, there would still be the same amount of reduction. You would just have the 20 percent addressing uncertainty, which would be your purview, and then there would be the 20 percent, which had been in 3 and 4, that would transfer over to the council. I mean, clearly, that is kind of a hybrid approach, and I would be surprised if it's preferred to the wholesale changes of Alternative 2, but that's what Alternative 3 would do under Action 1, but the total reduction stays the same.

Action 2 would apply to the council for determining the acceptable risk of overfishing, and so, if there's no action, we would do it by those criteria of the tiers. Under Alternative 2, the council will specify it, which that carries through in all of these, and then, under this one, the council would specify it based on a zero to 20 percent, and it would consider those -- It would consider the types of things that are within those tiers, but those tiers would no longer exist.

This one maps over to that Alternative 3 in Action 1, and then Alternative 3 is probably more where you guys have recommended in the past that we had. The council has biomass levels and stock risk ratings, and this is what we've worked out around this table in the past, and so there is high, medium, and low risk ratings, and then you would look at the stock biomass relative to MSY and MSST.

Then there is some options that kind of tweak it, and so, for example, at the highest risk level, is it okay to be at BMSY, or do you have the highest risk level when you are greater than BMSY, say 110 percent of BMSY? That would be a more conservative approach. Then Option 2 allows some deviation from the default risk levels and gives some flexibility, but it's bound by a flexibility factor of 0.1, and so they could only make a small deviation.

Then they would use expert judgment and new information or recommendations from advisors, such as the SSC, and, of course, there is a reminder that the risk tolerance never ever exceeds 0.5 under any flexibility allowances, changes, et cetera. The Magnuson Act requires that it not exceed 0.5, and so that's a reminder. Then Option 3 deals with unassessed stocks, and it would set a default of starting at the moderate biomass level, unless, for example, the SSC recommended some other alternative. This will make a lot more sense if I roll down to the table, if that's okay.

DR. REICHERT: Yes.

MR. CARMICHAEL: It essentially looks like this, and so you have the council's default risk tolerance, and then you have risk ratings going down here, and so stocks would be rated as low, medium, or high, and then we have, at high biomass, what's the acceptable risk, down to, at low

biomass, what's the acceptable risk. Then the council could deviate from these by 0.1, and so we could take a low risk and high biomass -- If they took Option 1, that would be the biomass at say 110 percent of BMSY or higher, and they could set a risk tolerance of 0.45. On their deviation of 0.1, that means they could go from 0.35 to 0.55, but they can't exceed 0.55, and so, in this case, they can only go to 0.5.

The idea behind this is that the SSC, much as we've done for the ORCS process and such, would work with the council to recommend the risk rating for each stock, and we would know that in advance. You would already have this information, and so, once you know the risk rating, when you do the assessment, you have the biomass level, and then that gives you the risk tolerance that would be used for that stock. Then you get the assessment and you have the information you need to apply the risk rating.

DR. REICHERT: That was kind of what I was alluding to earlier, in terms of the timeframe, and that was a little unclear to me, and so in advance means that we would have, for instance, a workshop, similar to ORCS, where we would determine this for the various stocks, and is this something we would --

MR. CARMICHAEL: Yes. If this rule is approved and we know what this table will look like, then we would convene a workshop of the SSC, and probably bring in some advisors, like we have in the past, and we would ask you to rank the stocks, and then that would go through the council review process.

DR. REICHERT: Another thought I had was perhaps, at times when we review the terms of reference, that could be an option, where the SSC would have an opportunity to do that.

MR. CARMICHAEL: I think it says that. We said this would be another thing that, when you do an assessment, you could reconsider this, and you would be expected to update it and evaluate it.

DR. REICHERT: Okay. Good, because science evolves, and so that may change over time, and so I think that would be -- I personally think it would be good that that is in the ABC control rule, so there is a little bit of clear guidance as to the timeline of this, to avoid making decisions at different points in the assessment and management process, so we do it the same every single assessment.

DR. SCHUELLER: I might have missed a component of what was just said, and so you can repeat it if you need to, but this table and the numbers in it, it seems to me that, before this is finalized, we would want to look at the species and see where they fall and see what the P* values are that we have now versus what they would be given in this table and whether or not the species would fall out as we expect them to, given the uncertainties, and I would hate to see this table to go through and then all of a sudden some species that we think is uncertain and higher risk is suddenly in some category that doesn't make sense with a much higher P*. It seems like this should be done now, or at some point in this process before this goes out for public comment.

MR. CARMICHAEL: I agree, and I think that's one of the things that we would like to accomplish between now and October, and so would you maybe want to form a working group that the staff can work with some of you guys to get input on this, or would you rather that staff just take a stab and bring it to you in October?

I think my expectation is we would build on both the MRAG stuff as well as our ORCS discussions for a number of these stocks, because we did something similar for the ORCS stocks, and so we have a pretty good starting point, but a lot of that probably needs to be dusted off and reevaluated, and so, if there are some folks interested in helping with this, we could have a group to bounce ideas off as we prepare this for October.

DR. REICHERT: My thought is that, rather than a formal workgroup, maybe you guys contacting individuals who may have specific knowledge to help you with that, in an informal way. Then, in October, when we see this again, we can evaluate -- I am not sure whether that would be too late for you, but we can then evaluate this and perhaps, if the committee feels a need for that workgroup, maybe we can make that decision at that point, but I am open to other thoughts. I am looking around the room.

MR. CARMICHAEL: So like carve out time in October that we could discuss the stocks and where they might rank, and we will have a strawman to start with and some justifications and what it's based on, and I think that really will help the evaluation of these alternatives for the FMP, and so it's something we know we need to do, and then I think we would also say that that's not necessarily the binding, and we would want to go through maybe a more robust approach and get more input.

DR. REICHERT: Anyone?

DR. ERRIGO: This is the approach that the council used to help them come up with their risk tolerance, and that's just part of the picture, and then the SSC would apply their part for the uncertainty, and, together, that's P*. Is that right?

MR. CARMICHAEL: This would be the risk level, and this would be applied to the distribution, and so this essentially is the P*. This is the P*.

DR. ERRIGO: Then the SSC does the CVs?

MR. CARMICHAEL: Right, and so another point to consider on this is the range of values, and so it started with the low and high at 0.5, and the council said, well, we probably can't envision where we would go to 0.5. We do have the flexibility, if the planets ever align that some stock is at like 200 percent BMSY, and we really wanted to fish it down, and then maybe we would be okay, and so they could, with their flexibility, but they didn't want to start there.

Some guidance on what you guys see as the values, both going across and down and diagonal, to kind of build some balance, and does seem reasonable? Do you think that low biomass and high risk -- Is 0.2 reasonable? I mean, I don't think we've had a stock that's gone below 0.2, or maybe 0.25. We've had quite a few around 0.3. Most of our stocks are 0.3, 0.35, and 0.4, honestly. Overall, I think this might end up with more range than what we get, which was one of the problems, we felt, with the thing we have. It's so prescriptive that a lot of stocks fall into the same boxes, and we end up with a very narrow range.

DR. NESSLAGE: I didn't want to interrupt the last discussion, because this is maybe to your point and maybe not, but I just want to make sure that -- We'll see where it goes. The risk rating

is the, and correct me if I'm wrong, the council's risk tolerance, how acceptable it is to them that they might end up overfishing, right?

MR. CARMICHAEL: Yes.

DR. NESSLAGE: Your discussion earlier said that they would set that before we -- It would be after they saw the assessment, but before we sit down as an SSC, because I can imagine -- For instance, tilefish, and we just had a discussion about tilefish, but would they have rated that probably as a -- I mean, where would they have rated it if they hadn't seen the assessment versus having seen the assessment, and I sympathize with them, and I want them to have that ability to set the risk tolerance, but I worry about the timing of it all.

MR. CARMICHAEL: That's what we don't want to do. We don't want it to become outcome oriented, and so they would assign the stocks to the risk rating column there as a low, medium, or high, and then the assessment gives them the biomass level. That would get them out of that sort of picking it, and, obviously, they would need to discuss if -- There would need to be reasons other than the biomass level in the assessment outcome that led them to say, okay, while this stock was initially rated as a medium, at 0.45, we want to set this stock though actually at 0.4, and that would be all sort of the advance evaluation that gets done, so that, when the assessment is started, this is known.

DR. SERCHUK: Just another question. How would this fit in with those stocks that are required to have a rebuilding plan that were below the threshold?

MR. CARMICHAEL: That's the next action.

DR. SERCHUK: Would they start then changing the rate of rebuilding?

MR. CARMICHAEL: No, and the setting the rebuilding -- Setting the acceptable level of rebuilding is the next action, and that's set when the rebuilding plan is set, and so then, once the stock is in its rebuilding plan and you set a rebuilding F, rebuilding philosophy, that's in place until the stock is rebuilt.

DR. SERCHUK: (Dr. Serchuk's comment is not audible on the recording.)

MR. CARMICHAEL: No, none of this table would apply, because this is for the not overfished and not in rebuilding stocks.

DR. SERCHUK: I think that should be explicit.

MR. CARMICHAEL: I think it is, because there's a whole separate action that says for dealing with rebuilding probabilities.

DR. SCHUELLER: Back to the risk rating on here, and it seems to me that they should be able to specify that in the terms of reference, or perhaps specify it after the data workshop, if it's like a new species and they don't know what the age at maturity and longevity is or something, but it seems to me that the council could, even in this amendment, list their species and specify the risk rating automatically, so we never have to talk about it again, and not that we never have to talk

about it again, but that we would, in the future, have a risk rating and then, if new information came to light, that could be reconsidered, but I don't think we should be going around the table about whether something is a medium or a high risk rating each time. That just seems counterproductive.

MR. CARMICHAEL: Yes, that's agreed. That's right, and so we would want to do this soon after the amendment is approved. That would be the starting point, and then, if we were doing an assessment -- If we're doing a benchmark assessment and we have new life history information, that would be a time to say is this still consistent with what we thought before and does it affect the risk rating, and so it should be triggered by new information and new insight and not every time, and I agree.

This could be something that is provided -- Like we do now, we provide the management information into the assessment and what's the existing regulations and what's the existing MFMT and MSST basis, and then the risk rating could be added into that, so you go into it knowing, and then maybe a term of reference saying is there anything that has changed, any new insights into this stock, its life history or biology, that would lead the group to just say the risk rating is not appropriate.

DR. REICHERT: Thank you. Go ahead, Shep.

MR. GRIMES: Thank you. I don't want to interrupt discussion of this issue, but my question really was more towards Alternative 2, but I can ask it now, if that's okay with you.

DR. REICHERT: Absolutely. Go ahead.

MR. GRIMES: I was going to ask if -- Perhaps this is similar to the discussion you're having relative to risk rating for the individual stocks, but, if you look back to Action 1, there is a discussion about the council, but it's also touched on in Action 2, Alternative 2, where we're talking about the council then -- You're getting rid of Dimensions 3 and 4, and these are the things that deal with like there is a percent reduction and a productivity-susceptibility for the stock component to that. The way it is now, the SSC will look and say, okay, the stock is this susceptible and it's this productive, and you will make a scientific decision about those factors and then the associated reduction that comes from that.

When we collapse those under Alterative 2, and, in Action 1, it talks about getting rid of Dimensions 3 and 4, but then, here, it talks about Dimensions 3 and 4 again, and there is some more language in this document that talks about addressing concerns with productivity and susceptibility, and so my point is just that, in Alternative 2 then, is the council making decisions explicitly or implicitly about the productivity and susceptibility of individual fish stocks, and I would be very interested to -- If they are, in the SSC's view, is that something that is appropriate to be happening at the council level? If yes, is the SSC going to have input? If they are, when and how?

MR. CARMICHAEL: The council is not addressing productivity, and that's why the Dimensions 3 and 4 are going away, and one of the concerns with the PSA has always been how it mixed things about productivity, which are very scientific, with things about risk tolerance and perhaps susceptibility, which gets a lot more to risk tolerance, and so one of the benefit of getting rid of

that is it removes that problem, and so the council will be specifying the risk tolerance, much as is described, and they will have to give a value of zero to 20 percent, in this case, of their risk tolerance, and there are things they could consider, but they need to consider things that are related to risk.

MR. GRIMES: Okay, and so, coming down a little bit in the document, there is a statement that, for Alternative 2, it represents a slight modification in the existing practices, and it would not address the concerns raised by the SSC regarding the information to determine productivity and susceptibility, and I guess I am confused as to exactly what that means, and maybe there has been discussion from a prior SSC meeting, but that suggests to me that perhaps then those considerations are still embedded within Alternative 2.

MR. CARMICHAEL: I think what you've discovered is that the text here on the description of Alternative 2 was not updated to address the changes in the alternative, where at the last IPT, where we explicitly said those dimensions would be deleted. I would say that Alternative 2 description there on the screen needs to be updated.

MR. GRIMES: Thank you.

MR. CARMICHAEL: Thank you for that sharp eye.

DR. REICHERT: Thanks, Shep. Because there is a lot of alternatives, I think, if we're going back and forth, it would be good if we can indicate what PDF page we are talking about, because sometimes I was looking at an alternative, and it's actually an alternative of another action, and so I think that would help the discussion.

I had a question. Correct me if I'm wrong, but, in the past, we discussed not only the biomass, but the direction the biomass was going into, and that is perhaps especially if the biomass -- If you can move up the page a little bit to that table, under a moderate and low biomass, perhaps the risk is higher if that biomass is going in a downward direction than when the biomass is going in an upward direction, and I remember that, at some point, we discussed that, but I could not find that in the document, and I was wondering if that was no longer considered.

MR. CARMICHAEL: I don't think that's been discussed at this point with regard to this table, but, just off the top of my head, one way I could see the SSC addressing that would be that maybe we put text in here to give you this flexibility. If you're going to say the projections are good for five years, but the trajectory is downward, then maybe give you the ability to base the biomass on where it is in year five.

Maybe you're trending downward, and you're kind of around this midpoint between BMSY and MSST, which is where there is an inflection, and you could say, you know, if the stock is going to be below that midpoint in year five, we should treat it that way, rather than -- We would treat it -- Say, if it's a low stock, we would treat it at 0.4, because, in year five, it's going to be below this midpoint, versus maybe, in year one, it's slightly above it. I think we could put language in there that gives you that flexibility.

DR. REICHERT: I think that would probably be good, because I do believe that speaks to the risk. Obviously, we all know, in an extreme case, if the biomass is taking a nosedive, then

obviously the risk is a little higher than when it's a clear upward trend, and so I think that would be good. I am looking around the table to see if anyone else has comments to that point. Thanks.

MR. CARMICHAEL: That's a good point. We hadn't thought about the timing. You always think you're going to do it like terminal year kind of stuff, but that would be a really interesting bit of flexibility, and so thanks for thinking of that. Anything else on this?

DR. NESSLAGE: I am cringing, because I feel like I'm behind in understanding this. When we talk about the SSC agrees with setting the risk rating ahead of time and only changing that when additional information becomes available, we keep talking about productivity and susceptibility, which is all biological stuff, and at what point does the socioeconomic stuff come into play?

We're not talking about that, and I think that's a critical and important component of the risk tolerance that the council should be allowed to set, and I know it shows up later in the phase-in actions, but not in here, and so at what point does, for instance, the SEP weigh-in on that new information, like changes in the fishery and the market, and there is all sorts of things that could -- Or am I just way off-base and this is only a biological consideration?

MR. CARMICHAEL: I don't think you are, and I think -- About all it says here is risk tolerance values set by the council considering recommendations from the SSC and other advisory panels, and we could say more about the types of things the council may wish to consider. I think that probably would be a good direction to go, and so socioeconomic, of course, and do you have other things that we could maybe think about fleshing this out with?

DR. NESSLAGE: There must be advisory panels for each -- Are there advisory panels for each of the FMPs that include stakeholders?

MR. CARMICHAEL: Yes.

DR. NESSLAGE: Okay. I would definitely write that in there. I think we're missing -- We're focusing, as the SSC, on the biological risk, but there is socioeconomic risk that the council is responsible for, and, if we're not explicit, we're going to be back changing these again in just a few months.

DR. REICHERT: Perhaps the SSC's SEP would be good to get some input.

DR. SCHARF: I am glad that you asked that question, because, for the last five minutes, I've been -- I thought that was the whole reason that we were making this change, is so that the council could incorporate socioeconomic information into this idea of risk tolerance, and so the idea would be that the risk tolerance would change often based on socioeconomic considerations, and so we might have a risk rating that is stock-specific that is based on productivity and some other metrics, and then you would have this biomass scale that would come in after the assessment, but this other piece would be the council's tolerance for overfishing risk based on potential negative consequences, socioeconomic consequences, and so I was confused as to where that came in, and I thought that was the piece that would slide a lot.

MR. CARMICHAEL: Maybe, if we dig into the details of this some in October, it might help us figure out how this is accomplished. I think we want to avoid being as prescriptive as we were

last time, because that has tied your hands too much, but I haven't really thought through the process of the biological considerations versus the socioeconomic considerations beyond just saying, from the FMP perspective, that the council is going to set it considering everybody's input.

The details of getting that input are maybe not the types of things that we want to spell out in great detail in the FMP, because then, if you ever want to change it, you've got to do an amendment, and, Shep, shout out if I say anything that you think there is no way that we're going to put that in the FMP, but I think the best thing we can do is try to pilot this in a way, maybe in October, and maybe then we'll come up with some things that we can list here that would be like the types of information that will be considered include blah, blah, blah, blah, blah.

DR. ERRIGO: This might be the perfect place for the fishery performance reports that we've been putting together for all the stocks that are coming up for assessment or have just been assessed, because they are collecting socioeconomic information, changes in markets, and all that kind of stuff, and so that would be the perfect place for that kind of information, so the council can review it and talk about, oh, gee, there was a huge shift in effort, or the market went way up for this particular species and it suddenly has become higher risk or lower risk.

DR. NESSLAGE: I think that would be great, but can we -- I am still uncomfortable with the wording of the top bullet there. If you could add kind of what you just said, I would feel comfortable, but, if I'm the only one, I can be quiet, but, when it says, "only when additional information becomes available", let's change it to something like "after review of current biological and socioeconomic trends" blah, blah, whatever you want to call it. If nothing has changed, then we keep it.

MR. CARMICHAEL: It might be better just to say that ahead of time, period, and ratings may change when new information becomes available within the fishery or the biology of the stocks that the SSC believes justifies updating the risk tolerance.

MS. LANGE: Do we want to explicitly add in there that socioeconomic data is included, because that's been an issue in the past.

DR. REICHERT: I agree. I think that's a great idea, and I see Genny nod. Remember, when we review the report, feel free to clarify language if you think that's necessary.

MR. CARMICHAEL: Action 3, as I kind of mentioned before, this gets into probability of rebuilding success, and Alternative 2 is the council will specify the probability, considering recommendations from the FMP, advisory panels, and the SSC, and that's very open. They could pick anything from zero to 50 percent, or I guess from 51 to 100 percent, or maybe 50 to 100 percent. They've got to have at least a 50 percent chance of rebuilding, and I'm sure that 100 percent doesn't exist.

That would be a wide-open thing, and it doesn't give them a lot of guidance, and then, in Alternative 3, it ties it back to those risk ratings, and then it would be 80 percent for high risk, 70 percent for moderate risk, and 60 percent for low risk, and then it gives them a 10 percent deviation ability for unforeseen or unique circumstances, and this would be assigned based on the risk ratings that we've already talked about quite a bit, and so this is a similar process. You would have that risk rating, and that risk rating would also be used to inform the probability of rebuilding success.

That, combined with the time in which the council decides to do the rebuilding and the approach which they decide to affect rebuilding, determines the rebuilding plan, and they're in that until they rebuild the stock or the agency decides that they're not making adequate progress and tells them that they need to update that rebuilding plan, but, otherwise, they're in that until they get the stock rebuilt, which means the biomass is to BMSY, and so we end up with situations for stocks, and if you looked at the projections of red snapper, you might have noticed that that thing really -- It increases a lot in a few years, and then it asymptotes out, and so red snapper is one where it could be above MSST in 2024, but probably 2050 or so before it's actually above BMSY. We know that we could have stocks that are in a long time period where they are not overfished, technically, if they were evaluated at that point, but they're still not rebuilt, because they're not to BMSY.

DR. SERCHUK: I certainly agree that that's true if the underlying dynamics in those out years were exactly as forecast, but we've had this discussion many times before that, once you go out beyond three or five years, you're dealing with assumptions on stock dynamics, and so I think it's important for us to realize that those are forecasted with some caveats that may or may not actually represent the reality of those years.

DR. REICHERT: Anyone else? When I was looking at this, I like Alternative 3, because it ties it to the stock risk, but I don't think we are --

MR. CARMICHAEL: I think this one is pretty straightforward. Once we work out how we assign the risk, this one kind of falls into place.

DR. REICHERT: Okay. Thanks. Anyone else?

DR. SCHUELLER: This is just a timeline question, and so when is the council going to specify their preferred alternative?

MR. CARMICHAEL: On this?

DR. SCHUELLER: On all of this whole document, because usually there is a preferred and a recommendation or whatever, whatever the language is, and I was just curious when that is happening.

MR. CARMICHAEL: We would hope that they would do it -- In the original timeline, when they set up to approve for public hearing in December, we would want them to specify preferred alternatives by that point, so the public has a sense. They don't always, and so, with the delay in timeline, it may be longer before they get to that.

DR. REICHERT: In December, you mean the December council meeting?

MR. CARMICHAEL: Yes. Then Action 4 gets into the phase-in, and this one gets a little more complicated. A phase-in is kind of an easy thing to just talk about. There's an ABC change, and, instead of taking it all at once, we're just going to do it a little bit at a time, but it's turned out to be a very difficult thing to specify and spell out in terms of actions and alternatives, because you've got to have criteria for when you allow it, and you've got to have the approach for how you do it,

and you've got to have different criteria for this and the carryover both, and so these become kind of complicated, but the intent is really pretty straightforward.

DR. REICHERT: This has nothing to do with any of this, but I just wanted to point towards the fact that this is Action 4, Sub-Action 5.1, and there was a numbering issue, and so, if we are talking about numbering, that may be kind of relevant, because we need to make sure that we're all talking about the same thing, and I think it was because Action 4 was removed, I believe, and so it's a numbering issue.

MR. CARMICHAEL: It's a numbering issue, right, and so you're looking at a version that now is out for review by the IPT, and so there is some -- Like the thing that Shep noticed and some of these things are being worked on now, but, to get it to you for your briefing book, we jumped a little ahead of the IPT, but, yes, thanks for noticing that, and I will make sure that we fix that.

5.1, this is when the council would do phase-in, and so this a chance for you to give them some guidance and biological circumstances when you think phase-in is not recommended, and so the first one relates to the amount of change, and so, if the new ABC is 70 percent of the existing, 80 percent of the existing, or 90 percent of the existing would be phase-in, and so the idea is that there should be enough of a change that it justifies this complexity. There is going to be socioeconomic consequences, and so, maybe rather than taking a 30 percent reduction of a stock right away, maybe we can phase that in over a couple of years and allow the fishery to adapt. 90 percent, the IPT thinks that's a pretty good upper bounds, because, if the change is any less than 10 percent, then it may not be worth all of the trouble in these things that follow.

Then Alternative 3 is providing some criteria, and, as I recall, this comes from discussions here at the SSC, and you are saying you would only allow phase-in under these particular circumstances, and so, if the biomass is greater than the MSST, you could have phase-in, and so it wouldn't allow phase-in in a rebuilding circumstance, which I think is what you guys explicitly said, and then the Option 2 makes it a little more conservative, and so, rather than just using MSST, it's using that midpoint between MSST and MSY, and that's has emerged in the thinking, because, if you consider if a stock is -- If the trajectory is downward, by the time you get to MSST, you should have had kind of a warning, and you've already got trouble, but, if your trajectory is downward and you respond to that when you're not quite to MSST, your response can be a lot easier and a lot less painful, and so that's why this has kind of make its way into that risk tolerance.

When I first started thinking about it with those risk levels, I said it really doesn't make any sense to change the risk level once you've already gotten to MSST, because you've missed an opportunity. There could be a lot of space in the stock between BMSY and MSST, and, as I'm approaching MSST, I am approaching overfished, and I need to be more conservative, and this is just echoing that language.

Then 5.2 is the actual approach, and the Magnuson Act limits the phase-in to three years, and so these follow with different ways of phasing that in over three years. Year one is going to the overfishing limit, and so you imagine this as we're having a reduction, and we maybe have landings levels allowed that are too high, and we have an OFL level, and so you can never have anything above the OFL level.

In year one, no matter how much pain it may cause, they would need to go to the OFL level. Then in year two, they're going to take a half-step, and so you're going to go halfway between the OFL and the new ABC, and then, in year three, you would go to the original recommended ABC that you had. Then, in subsequent years, you would have revised assessments, and so you would say, okay, what was the consequences of, rather than going to the new ABC that I should have in year one, if I took these half, partial steps that affects the yield down the road, as we kind of talked about for tilefish, and so there will be a need for new projections, and then the council gets an ABC, say for year four, that we know is going to be less than what it was in those original projections, because you caught more leading up to year four.

In the evaluations, we're trying to illustrate to the council what the costs are of this phase-in, and tilefish probably helps them start to visualize what those costs really are. Alternative 2 is a little bit different, but the projections would be done after year two, and so, in year three, you go to new projections, and the real difference between 2 and 3 is when the projections are done, and so it affects the Science Center workload in a way, essentially.

Then Alternative 4 is just a one-year phase-in, and so, in the first year, they would go to the overfishing limit, and then you would do new projections at that time, based on the overfishing limit and the new ABC basis, and that's where they would go in the following years. Do you guys have any other approaches or any other ideas?

I will point out, when it says it may not exceed the overfishing limit, it can always be lower, and I think, at some point, we considered if we should say you've got to go to 90 percent of the overfishing limit or something, but, in some cases, you may have an ABC which is 95 percent of the overfishing limit, and so it kind of becomes a stock-specific thing, but maybe there is some criteria that you want to include in here that may help guide how far you maybe go below the overfishing limit for a specific stock.

DR. SCHUELLER: Has any thought been given to the pragmatics of this? If you have a three to four-year phase-in, the frequency at which they're receiving assessments, is that going to allow for a phase-in and new assessment and restart some phase-in? I am starting to think about how this would play out in reality, and I'm not sure, with the frequency of assessments and how this is set up, that it actually lines up in a way that would work.

MR. CARMICHAEL: Especially with the approach of operational assessments and interim analyses coming up pretty often. You could be a four-year phase-in and then you get a new assessment. For now, maybe we need to get something in there about you need to consider your assessment plans and when your next assessment is coming in when you choose a phase-in approach.

DR. SCHUELLER: I mean, it could lead to a situation where they're sort of chasing down, in a way that they probably wouldn't be happy with anyway, and it might not be as beneficial for them to phase-in as they think it might be if we're doing an assessment and they're phasing in and we do another assessment and it turns out that they had still been overfishing, and so even further they have to drop down, and then they start another phase-in, and I could see a situation where that could spiral into an unhappy circumstance.

DR. REICHERT: So were you thinking about limiting the number of consecutive phase-ins or -- I am just trying to --

MR. CARMICHAEL: Just food-for-thought, maybe?

DR. SCHUELLER: I don't know that I have a good suggestion for this, and I'm not even sure I am -- I understand the want for a phase-in, but there's a lot of other things to weight against it, as far as their long-term harvest versus -- This is a long-term harvest versus short-term harvest needs, and it seems to me that the council should probably have a full discussion about short-term versus long-term and what they really care about more, and I know people tend to care about short-term things, because they're right in front of them, but, ultimately, long term, this could come back to haunt them.

MR. CARMICHAEL: I think we could probably say that Alternative 2, with the longer time to projections and stuff, probably exacerbates that the most. They may want to lean towards sort of Alternative 3 or Alternative 4. They need to consider their assessment timing and how this fits in when they consider the cost of this.

DR. REICHERT: Anyone else to that point or additional thoughts?

DR. SCHUELLER: This is very MSE ripe.

MR. CARMICHAEL: It is, yes.

DR. CROSSON: It's also very economic. I mean, you're trading future gains for current ones, and you have to properly discount those future gains, and so, if you decide to take your harvest right now, you're forfeiting future harvest, and you have to -- Each year that you add on to that, you have to begin to discount for the future, but you're going to be losing those potential gains, and so there is consequences, just like there would be for anything else that you spend money on.

DR. REICHERT: Perhaps, and maybe that is part of the plan, and I think it would be good to, when this is considered, to look at the consequences of that decision, both biologically as well as socioeconomically, and the risks and benefits of the short-term gain over the long-term loss.

MR. CARMICHAEL: The costs in tilefish, as you recall, it was like 100,000 pounds by 2019, and so that really got their attention, and that's why the interim rule went in, and so the cost can be extremely high.

DR. AHRENS: I guess I have two statements. If the catch was going to go up, would there be a phase-in as well?

DR. CROSSON: John Boreman is over there typing, but this reminds me of my brief sojourn on the Mid-Atlantic Council, when the scup numbers came back, and it was like four times B over BMSY, and all of the industry people in the room jumped up excitedly, and the Mid-Atlantic Council phased it in, didn't they? They chose not to immediately go all the way up.

DR. AHRENS: The other point is I imagine -- Let's say we have the stock kind of where we want it at BMSY and F at FMSY, and the stock is now being influenced by something like AMO, and

it's on this kind of decadal oscillation, and so, for ten years, it's being assessed, and it's going down, and so you're kind of chasing that down, and then it turns around and that stock is coming up, and then you're kind of chasing it back up, and so, yes, the concern of kind of this notion of phasing it and chasing is -- That could be an endless thing.

DR. REICHERT: I agree, and I think that largely addresses the point that you brought up, Amy.

MR. CARMICHAEL: On the increases, they can always phase-in increases, and they can do that now, because they would not be setting the ACL at the full ABC that you allow, and so we only need all of this because of the restriction that they can't exceed the ABC, and we have to come up with some process by which you guys agree that they can make these changes in ABC in an efficient way and not do as we did say with tilefish and keep coming back to see if you would consider this ABC.

The goal is to say this is the process, and so, if they decide to go phase it in and you meet the criteria, then this is how the phase-in would work, and this would allow them to say, okay, this was the recommendation, but, under the phase-in provisions, we met the criteria and we've evaluated that this is what we'll do.

DR. AHRENS: I do like the notion of considering where you are relative to MSST in that. I mean, if you're really close to that, then kind of this gradual phase-in may put you in a situation where you don't want to be, particularly if you have strong indications of negative recruitment trends and those sort of things, and so I think something that deals with where you are in that buffer zone is probably a good thing to consider.

DR. REICHERT: I agree, and, irrespective of how the ABC control rule -- What the final text of the ABC control rule is, we still have, as a committee, a role in indicating potential risk to the council, and it may be in black sea bass where the council took a relatively conservative approach, if I remember correctly, after that last assessment, and I think that was in large part because of the uncertainties that the committee and the assessment team indicated, and so there is still opportunities for us to indicate that, and so thanks.

MR. CARMICHAEL: We do have a couple of examples that Erik worked up showing the cost of phase-in and the fishing mortality levels you would get and the MSY and the ABCs, and the cost can add up pretty good, depending, of course, on what the trajectory is and how much of a change you're making, and we'll probably be looking at those and showing some figures and such of what effect it has to go through the phase-in, and that's really what it is. It's a balance of socioeconomic costs, as long as you're ending overfishing.

Then something happened there with 4 and 5, and I forget where we are, but the next one is carryover of unharvested catch, and this is the other bit of Magnuson Act flexibility, and the idea here is -- Really, where it comes from is having stocks that are managed pretty tightly with in-season closures, and perhaps you close a fishery and you tally the numbers and you find out they left some quota on the table, they left some yield behind, they left some fish in the water.

They would like to be able to take that and catch it in the next year, and so that translates into why some of the criteria are like they are. This one has establishing a criteria and specifying the limits

and then developing the process, and the process needs to be a bit more timely than say your normal writing an amendment, because you need to do something like this pretty quick.

If you take the case of like say tilefish, the fishery starts in January, and so you're going to need to make this change pretty quick. If we shut down the longline fishery, and maybe they came up to only 85 percent of their quota, and if it closed in April or something, we should have those final numbers sometime in the fall of the year, and so we then could be in a position to make some carryover into the following year and let them go ahead and catch those fish. Of course, we know, biologically, a fish in the hold versus a fish in the bush and their contribution to productivity and all of that has to be factored into it.

A fish caught next year may not be the same as a fish not caught last year, and so there's a lot of things going on that it's not always just a simple wash and you can catch the poundage, and so that's going to have to be worked out, and so one way we get at that is the criteria of not experiencing overfished and not overfishing.

This one is addressing only if it's had a closure, and so that gets at the idea of, if you've not had a closure, then you have not suffered any consequences of going over your limit. Maybe you haven't caught your limit, and so, if you haven't caught your limit in any of the prior years, it doesn't seem like there is a good reason to go through this to say we'll give you some extra fish next year. If you haven't been catching your limit, you don't need those extra fish, and there is no giving you back what you should have caught last year kind of situation.

Then the other looks at more of a three-year period, and so making sure you weren't over your limit on total for over the three-year period, and so maybe you had one extreme overage, and you were over your overall limit for three years, in which case there may not be justification to let you catch it next year, because you still have some making up to do for past overages, in terms of paying back the stock.

DR. AHRENS: I am glad you brought up the two points that if you aren't catching your limit that you can't carry it over and that you have to figure out how to discount that overage appropriately.

DR. BOREMAN: A couple of points. I would have less heartburn if this was for quahogs, which live for 300 years, versus squid, which live for one year, in terms of carryover. As you mentioned, there is some productivity issues that need to be taken into account, among other things, just population dynamics, but the SSC will have to be really involved with this.

There is the issue of, if you don't meet your -- If you are closed, and I'm thinking about it in terms of coming back to the SSC, because it's going to impact the ABC for the following year, and so do we subtract it from the ABC for the following year, which defeats the whole purpose of this, or the SSC will have to evaluate it in terms of how the projections were done, because the projections normally, usually, assume that the ABC is met or the ACL is met, and, in this case, if it's a closure, the ACL might have been exceeded, and so does that give the SSC the opportunity to revise the ABC downward for the following year and that the projections were not as optimistic? There is a lot of moving parts in this, and some of them worry me more than others, but it's going to be complicated to come up with a simple rule here.

DR. REICHERT: Thank you, John. Anyone else?

DR. BUCKEL: Are there situations where the fishery is closed and then everything is tallied and you realize that you're not over and then the fishery is reopened within the same fishing year? I guess that is --

MR. CARMICHAEL: Yes, that has happened in some cases. It kind of depends on timing, because it takes time to get a rule out there and open a fishery. It took time to close it, but there have been -- If you look at like the ACL quota monitoring, you will see some stocks where maybe it closed in like September and then the agency opened it back up in December or something for ten days or fifteen days or the end of the year, and so they try to do that, but the bureaucracy makes it difficult at times.

DR. BUCKEL: So this is to deal with the situations where they can't, because that's the ideal situation. Then you don't have to worry about this ABC that John just brought up.

MR. CARMICHAEL: Yes, and that would be a good way of looking at it. If you could deal with it in the particular year, that is much preferred.

DR. BARBIERI: I just want to basically echo what John said about concerns that I guess the Mid-Atlantic SSC may have had on this. The Gulf SSC has been struggling with this for quite a while, because of those issues, and trying to understand how you add different stock dynamics and productivity regimes into this process so that you can predict all the possible combinations and permutations of issues for such a large number of stocks, and it's just a difficult one to plow through, and I think that this is one where having some MSE studies conducted that can provide some guidance and give us some scenarios to look at, in a more practical way, might be really, really helpful, because, otherwise, it's just difficult.

DR. AHRENS: My gut feeling on some of those MSEs is it's going to come down to your depending on the fishery and depending on your ability to estimate that catch that's coming in, and so things that are heavily loaded towards recreational fisheries, where you have a high PSE, your ability to say, yes, confidently, our catch was actually this, that's really going to affect those.

MR. CARMICHAEL: That brings up a potentially interesting wrinkle, because the council is also looking at revising the accountability measures for the recreational fisheries largely to better deal with the uncertain data, and one of the things being considered would be getting away from in-season closures based on the MRIP information.

If that happens, and then you chose Alternative 3, and you said it's only going to be allowed if there's been a regulatory closure, then you wouldn't have carryover within the recreational sector, because you're not having the opportunity to shut that down in response to thinking they met it, and so that would kind of get at that data uncertainty. If you're saying, well, here's how we're going to deal with the data uncertainty, and we're not going to close you down, but we're also not going to give you the carryover when it looks like you came a little under, maybe, in a year. Depending on their choice here, that could have consequences.

DR. BELCHER: It just makes me think back to when we were talking about how we applied the P* to the projections. Remember that the additive versus multiplicative nature of what happens

over time, and so, when we're doing those projections, that P* is over the time interval we're looking at and not based on each individual year and how that's affecting the overall probability.

MR. CARMICHAEL: In 6.2, it gets onto limits of the amount of carryover, and so Alternative 2 is essentially what they can do now without affecting the ABC, and that's where they could use the buffer between the ACL and the ABC. Of course, if your ACL equals your ABC, you don't have any buffer there to work with, but, again, that's a choice.

Then Alternative 3 looks at cases where they would be adjusting it so that it exceeds the original ABC which was in place, and it puts some limits on here, and so, if the overfishing limit is unknown, which can happen, of course, then the revised ABC may not exceed 105 percent of the original or 110 percent of the original or 120 percent of the original.

If the overfishing limit is known, you can't ever exceed the overfishing limit, and then, if it's unknown, we're giving some requirements here and tying it back to the ABC, and these numbers came from when we were looking at this for another plan, I think in the dolphin plan, and we looked at what is the typical type of buffer between ABC and OFL, and that is where the realization of tilefish having a higher buffer actually originated. A lot of our stocks do tend to run in the 10 percent range, some up to 20 percent, and most above 5 percent, and so that's where this range comes from. It's based on -- I don't know what you would call it, but it's looking at the stocks that have been assessed, where we have an ABC and an OFL, and what is their range, and so that's this. Then Alternative 4 is a little different approach. It says they would be allowed to carry up to 25 percent of their ACL, which is just tying it back to what you allow them to catch.

DR. AHRENS: Again, I think it would be interesting to consider, given your ability to actually quantify that catch and the uncertainty associated with it, and so I can see instances where you have high PSEs where you would be setting -- If your overage is within the 95 percent confidence intervals of your ability to estimate that catch -- Then it would only be if that overage was significantly outside of your ability to estimate what that catch actually was, which I think, for a lot of the commercial fisheries, we're pretty good.

MR. CARMICHAEL: Yes.

DR. REICHERT: Shep, are you still with us? Just please let us know if you have any comments or questions for the committee. Just shout it out.

MS. COLE: He's off.

DR. REICHERT: He is off? Okay. Because of the timeline, I think we'll have an opportunity to -- One quick clarification, and I may have missed it. Obviously, all the fish that are not caught are not going to survive until the next year, and that's obviously why there is that -- Why it's not 100 percent of that overage is added to the next year, in addition to the uncertainty that Rob was just talking about.

MR. CARMICHAEL: Then the percent would be obviously limited by OFL. You can't exceed the OFL in a year, no matter how much you left in the water the prior year. If you could go up by 10 percent before your OFL and you left 20 percent in the water, you're only going to be able to

go up to the 10 percent that next year, and it's the same with carrying over 25 percent of the limit. That is going to be bound by OFL.

Then the 6.3 is just more bureaucratic, dealing with the approach. We have framework approaches in place, and we're also looking at an expedited approach that actually is very similar, John, to the way the Mid-Atlantic implements regulations after the monitoring committees give their recommendations. That's to be a faster way of getting this in place, because this is about kind of timeliness, and, in some fisheries, it may be important to be able to do this early in the year, particularly if they are subject to closure.

DR. BARBIERI: Just a quick question about -- I mean, how do we take into account sectors? I know that this is an additional step, but just thinking about what Rob just said and there will be differences between commercial and recreational. After we get to that point, where there is an ACL and there is the formulaic allocation there to different sectors --

MR. CARMICHAEL: Carryover is within sectors, and so it's set up so that you can't take an underage from one sector and use it to carry over and increase the harvest of the other sector. It has to be within your sector.

DR. BARBIERI: Perfect. Thank you.

DR. REICHERT: Shep emailed me, and we talked about me asking his question, and one of the questions he had was about process, including SSC review and input prior to implementing regulatory changes to catch limits. For instance, when the SSC reviews an assessment and provides its catch level recommendation, will it explicitly address the possibility for future carryover in subsequent years? If not, will it have a catch level recommendation from the SSC with no discussion of carryover? In subsequent years, when the council seeks to invoke carryover and the resulting ACL exceeds the SSC's ABC recommendations, we may have a problem. The only acknowledgement of this possibility in our records will be the provision in the ABC control rule that discusses this carryover, but there will be no stock-specific considerations of carryover.

DR. BOREMAN: If the council agrees with this alternative that will allow for carryover, then I suggest that it become a standard term of reference for the SSC. When the SSC is providing advice on an ABC, they are also probably asked advice on how would carryover work in this case and would it be something that can be done with this stock or cannot be done, based on how the projections are made and everything else, and so that advice would come right upfront to the council.

DR. REICHERT: Thank you. Mike is trying to type of your remark.

MR. CARMICHAEL: One of the things that's been discussed is what if the stock is in a rebuilding plan, and, in most cases, you would say you probably don't want to carry over, because that could benefit your stock. Now, where this came up was, well, then what if the stock is in a rebuilding plan, but it's between MSST and BMSY, in which case maybe, like I mentioned -- The reason I mentioned the red snapper is because of the projections, and I agree with Fred that there is short-term realities and then there is the long-term projections, but the law requires that we do those long-term projections, and we plan to deal with the possibility that we could be in this limbo of the rebuilding for quite a while, and so the council is kind of leaning towards, you know, if we're

between -- If we're above MSST, even if we're in a rebuilding plan, there may be circumstances where we want to allow carryover.

Now, I think that's something that would be good for you guys to comment on. Maybe if you think MSST is too risky, perhaps that midpoint between BMSY and MSST puts a stock in a place where the council could have some more flexibility and allow carryover, but that would be a perfect criteria to add, if you think something like that has value.

DR. SERCHUK: Potentially, this could be a lot more work for this committee, because, as we see it now, we set the catch limits out three or four or five years, and now we would have to probably go back every year and look at whether there was an underage in any of the sectors, and then we would have to go back and then make a determination whether we could allow a carryover, and so I'm seeing a lot of potential work here, and maybe it isn't, but we are not -- We generally are not in an annual specification process each and every year, but I see this could morph right into that, depending on whether the level of catch relative to the limits that were set.

We do get the -- Once a year, we do look at what has happened to the catches, and some are really grossly underfished, maybe for market conditions and maybe for alternative species and so on and so forth, and so I think the scenario that I am portraying here is not an outlandish one and that we would have to do a lot more work if we agreed that we would be the arbiter of carryover.

MR. CARMICHAEL: The reason we're trying to get the criteria and the process is to avoid that and not make it say, well, okay, here is one and do you want to allow this, and I think that's where -- That's what John mentioned about something you address in the terms of reference, and, yes, we'll add that in there, and then that gives you a place to start narrowing the universe.

Then you're dealing with the sectors, and you may not have to deal with this for any recreational sectors. Of the stocks we manage, there is only a handful, in a lot of years, that actually end up with a regulatory closure. In past experience, the universe is not that great, and then, finally, the idea was that this sets up a process and you set limits by which that ABC change could be implemented without you having to explicitly go through and do that.

That's the intent of this, that you wouldn't have to explicitly do it. It would be, if these situations are met, here is the process by which we would say, for this year, we will temporarily adjust the ABC. There is no practical timing way, I think, to get the data in and run it through the SSC and get that revised ABC and get it implemented. Tilefish is a good example, where there is just no time to do that, which then means your criteria for when you are allowing this to happen becomes very important. This is the last action.

DR. AHRENS: Just a quick comment on that kind of zone between MSST and MSY. I think you have to -- If you're going to consider allowing overages in that range, you really have to consider the uncertainty in those projections and really specifically set a threshold, so that when 80 percent of that probability distribution is above the MSST mark, then you're going to allow it, or does it have to be -- Do you have to be above 50 percent of the difference? I think you have to think pretty carefully about when you're going to allow it.

MR. CARMICHAEL: Do you all think it's worth putting a biomass criteria of when you're in a rebuilding plan?

DR. AHRENS: I mean, there is certainly going to be pressure to. I would defer to the economists on this one.

DR. BELCHER: But it's not like we put it in a rebuilding plan and if it says it's going to rebuild in seventy-five years that we don't assess it again. I mean, it gets reevaluated on -- I mean, right now, we're pretty regular on a three to five-year cycle, and so it's not that we couldn't look at a potential rate of change to then determine if carryover applied.

I mean, if it rebuilds faster than you're expecting it to, then at least it gives you that ability to have that assessment mark, but I still feel like -- It's not like we put it in perpetuity in rebuild and we never revisit it or relook at it. I feel like we have enough opportunities along the way that I don't really know that carryover in a rebuild strategy, in the initial thing, needs to be evaluated. To me, at the next assessment, if we're still in a rebuild, but there's a huge rate of increase change from what we expected it to be, the trajectory is coming up higher, then you might want to consider it.

MR. CARMICHAEL: I think we can accomplish that with -- As John said, is this something that -- It could be in your terms of reference. When you give the fishing level recommendation, you could say that you give an ABC for five years, and you're in a rebuilding plan or something, and you could say we don't believe that carryover should be allowed for this stock, or we don't believe that phase-in should be allowed for this stock during the next five years. Then you reevaluate it at that point, depending on how it's doing.

DR. NESSLAGE: That would make me feel a lot better. I was just looking at our comments from last time, and we said that we supported the action if applied to stocks that are neither overfished nor overfishing, and I guess you get to a point in a rebuilding plan where that might come into play, but, most of the time, I think it would be a really bad idea to have carryover in a rebuilding plan, and maybe I'm alone on that, but I see some heads nodding, but, if we have the flexibility to say that upfront, when we set the ABC, then that would be fine.

DR. REICHERT: Anyone else? John, do you have sufficient guidance from the committee?

MR. CARMICHAEL: Yes, I do. That was excellent guidance, and this thing seems to get a little bit better each time.

DR. REICHERT: Okay. Thank you.

DR. CROSSON: This is I guess just -- It's pertinent to the issue, and part of my brain was kind of sending off little signals that you had heard this in the past, but when Rob was asking about the increase in ABC, and I said something about scup, but, on a management level, the Pacific Halibut Commission has been doing a system for years where they call it slow up and fast down.

They're talking about ACLs, but, when you increase the ACL -- If they have a new targeted ACL, they increase it by 33 percent per year until they hit that target over three years, and then, if they have to decrease the ACL, they drop it by 50 percent per year, and so it's done in two years, and there have been a number of MSE and economic articles evaluating that for stability in the fishery, and it's been shown to be a very effective management strategy, from a precautionary perspective,

and so that's something to add in there, and I can provide some of the literature cites for that, if you want.

DR. REICHERT: Thanks, Scott.

DR. BUCKEL: In our control rule in the past, we've been concerned with double-counting, and we end up with a lower P*, and I'm just curious, from the socioeconomic side, Action 2, there was discussion about allowing an increase in P* because of socioeconomic issues. Then, in Action 4, there is a phase-in of ABC, which both of those would bump up the ABC in that first or second year, and so I just wondered if there's the double-counting of the socioeconomic issues. If folks that are more learned in that area could discuss that, I would appreciate it.

DR. CROSSON: Maybe I will comment on that when we have the report.

DR. REICHERT: But that is a concern, because that was part of the reason why we started this process in the first place, that we felt uncomfortable with some of that. I mean, it's not the entire reason, but it's part of the reason, and so that's definitely something to keep in the back of our minds. Anyone? Okay.

That concludes this agenda item, and I know there's going to be the question of what are we going to do next. We seem to be in this situation more often than not of whether we're going to break for lunch, which I am really in favor, and come back in an hour and finish up the remaining agenda items, or whether we're going to plow on and finish maybe an hour early. Let me take a look at the agenda. We've got the key stocks left, the SEP report of the items that were not previously discussed, and we've got public comment, and then we've got the report and recommendations review. In the last couple of meetings, we have done that mostly --

DR. CROSSON: If you're leaving, we have to acknowledge that John has not reapplied, and so don't let him leave until you acknowledge that.

DR. REICHERT: No, and I was hoping he wasn't completely leaving the room. John has decided not to reapply to the SSC. He's been a member of this SSC for the last nine years, and I want to -- I think I speak for the committee to thank John for his contributions and his service to this committee, and so thank you for that. *(Applause)*

The same is true for Laura Lee and Sherry, who also will not be coming back to the next meeting, and I also want to thank them for their contributions and service to this committee, and so thank you very much for that, and I think we're all sorry to see the three of you leave the committee, and so thank you very much. *(Applause)*

I actually had that later on the agenda, but thanks for alerting me that John was about to walk out of the room here, and so that's what we have, the keys stocks and the report and the recommendations, and, the last couple of meetings, we have done that after the meeting, and I am still trying to make at least a first round of review, so that we can add some -- We can edit the report, where necessary, and maybe discuss some of the stuff that's unclear, and then we have elections, which are critical, and then we can adjourn. My recommendation is to have a one-hour lunch and come back and finish up the agenda. Seeing nodding around the room, then I propose we do that. We will recess until 1:15. Thank you.

(Whereupon, a recess was taken.)

DR. REICHERT: Welcome back from lunch. We are back on the webinar and the recording, and so what we have left, as I mentioned before lunch, is the key stocks plan, the SEP report review, public comment, report and recommendation review, elections, and, actually, we have also some other business that we talked about earlier in the meeting, and so, John, if you would walk us through the key stocks plan, and I don't believe there were any assignments, but it was Attachment 22. With that, I am handing it over to John.

KEY STOCKS PLAN

MR. CARMICHAEL: Okay. Thank you very much. Yes, this is another topic we've been working on for a while, and it seems to have elevated a bit, because, as I mentioned, the Center has some ideas for how to improve SEDAR, and this is one of the things that has made its way into that for regional consideration, the key stocks, and then the interim analysis, which we have talked about quite a few times.

The idea here is we've talked about these key stocks, and we agreed last time that it would be nice to pilot this with some species, to get a sense of how much time it takes and what an interim analysis might look like and how you would handle it, and so you saw the example interim analysis for red snapper at this meeting, and the step hopefully to do here is to consider what species might be candidates for the key stocks in the South Atlantic.

All of this information, we've had this before, and Table 1 just shows you all the stocks that we have assessed, when they were, the age of the assessment, their status, the data year, and then when they're going to next be assessed. We have the NMFS prioritization tool, and hopefully you all remember going through that exercise and assigning stocks to a different priority for stock assessment based on a whole range of criteria. It was a spreadsheet that NMFS developed, and the council said they would like to see the stock list divided into those that are assessed and those that are unassessed, because that's important to how we allocate our assessment resources.

We have done that, and what you have here is the stocks that came up at the top for the unassessed ones, and some of these we're looking at assessing in the future, and others are ones that we need to think about where do they rank in our priorities. Basically, this list is what we asked the Science Center to give us some comment on, the ones that aren't assessed in here, and so, when you come to October, you're going to expect to see a number of these, and, Jeff, knobbed porgy is on there as one to be considered.

Bringing it all together here, this is the South Atlantic's overall stock priorities plan, and this is in the research plan, and we've divided stocks, and this probably goes back ten or twelve or more years, into primary, secondary, and special, and they kind of get to the type of assessment that is desired. The primary species are ones where you're looking at an age-based assessment, and the secondary ones have been identified as saying, well, perhaps survey methods or production models would be appropriate for those stocks, and they're generally lesser landings and less influential to the fishery, or maybe they're something like shrimp, that has its own special assessment needs.

Then we have the special stocks, which are ones that are -- Several of those have no harvest restrictions, or they have major data issues, and they're like red snapper, and we know the challenges with that one. Spiny lobster, with its life history, and golden crab, because it's kind of different to assess one of those than say one of these finfish.

The stocks that are here in bold are the potential candidates for key stocks, and I didn't bold the ones that are assessed by Florida. Those are with an asterisk, and some of those are extremely important, and certainly influential, if not around the whole region, then definitely within the southern part of our range, but, at this point, it's not sure how FWC will approach this key stocks interim analysis idea.

We have relied on FWC to provide the assessments of these, and, when we talked about this at the council, and, particularly when they were presented with the initial idea of these interim analyses for these stocks and getting some type of information every year, or every other year, the first question that the Florida reps had was what does this mean for Florida assessments, and we're not sure we have the resources to do that for all of these stocks on that regular of a basis, and so, at this point, it's kind of an unknown as to where the Florida stocks will fit in, but it would be good, if we can at all, to get an idea from you guys if you agree that those stocks there in bold are the good stocks to consider as our first take on key stocks, if you see some that you don't think belong, or if you see some others that you really think are influential in the fishery.

Recall the idea of this is to capture those stocks that make people decide to go fishing or not based on their regulations or their sense of availability or seasonality or what have you. There are some species that they just catch because they were fishing and they caught them, and there is other fish that are really the targets and the ones that drive the fishery, and that's what the key stocks is supposed to address, and the idea being is that, if we have timely ABCs on these, they're going to kind of set boundaries on our management program, which is going to pay off benefits to some of those stocks that even have perhaps less frequent information. With that, I think I'll pause, and we can get into discussion of these keys.

DR. REICHERT: I think this is something we discussed earlier, and I don't disagree with the primary stocks. It says the assessment goal, and it's a goal, and, at some point, I think it would be good to indicate what's needed to get there, and that may help set priorities, and we have talked about gray triggerfish and the reason why that assessment failed and blueline tilefish and why we went not to an age-based assessment, and there is a couple of other species where I think the data is -- Improving or increasing the data is critical to accomplish that assessment goal, but, as I said, I don't disagree with the primary species.

DR. CROSSON: I guess that's why gray triggerfish is actually the one that's popping out on this screen more than the others to me, and so why is that not considered to be one of the primary ones, when it still hasn't been assessed properly, right? We still have an assessment that failed, and is it back on the SEDAR schedule to try and do another one, or where is it?

MR. CARMICHAEL: Yes, and it's, I forget, but a couple of years out, and it's scheduled to be assessed, and so you're right that we don't have an existing assessment.

DR. CROSSON: But that's a fishery with pretty significant landings.

MR. CARMICHAEL: Yes, I think it probably belongs as one. I just wasn't thinking about it, because it hasn't been assessed, but, once it is, it probably should come into that cycle, I suppose.

DR. SCHUELLER: I just had a question about primary, secondary, and special and what that means, exactly. Why is red snapper in special and not in primary?

MR. CARMICHAEL: Red snapper is in there because of the essential moratorium, and so it has special assessment and data collection changes. These evolved from data collection priorities and then assessment priorities.

DR. SCHUELLER: Doesn't red porgy also have a moratorium?

MR. CARMICHAEL: No, not for fifteen years.

DR. SCHUELLER: It used to, but it doesn't now. Okay.

DR. REICHERT: I have a question to that point. I assume that, at some point, red snapper will be open, and does that mean that species will move from category to category, and is that going to be evaluated regularly?

MR. CARMICHAEL: Yes, species can move, and we evaluate this when we do the research plan every other year.

DR. REICHERT: Okay. Thank you.

DR. NESSLAGE: Does Table 1 feed into Table 2? Do the numbers in Table 1 end up in Table 2, or are they independent?

MR. CARMICHAEL: No. Table 2 is a ranking, and so it's one to thirty-something.

DR. NESSLAGE: I guess I'm just asking because tilefish has a status three, and I think it's two, and does that feed into the prioritization tool?

MR. CARMICHAEL: Three is neither overfished nor overfishing, tilefish, and it says three, neither overfished nor overfishing, and the assessment said it was -- That probably should be a two, overfishing.

DR. NESSLAGE: Just in case it affects your prioritization.

MR. CARMICHAEL: No, I don't think so. It's more of information, but, yes, we'll get that straightened out.

DR. REICHERT: Any other questions?

DR. BELCHER: I was wondering about shrimp being under secondary, because of the annual stock issue with it, and I know survey methods and production models, and the question would be to what goal and how would we use it for managing them. I know the survey methodology is kind of how we do some of that now, because pink shrimp had been the trigger for a while, but I don't

know if that should be under special, just because of the fact that it's annual. We don't have the ABC and ACL requirements for it that we do the other ones.

MR. CARMICHAEL: You mean that's something we could consider moving when we look at this next year? This was kind of a merging of data priorities over time and now trying to look more at the assessment expectations for these different stocks, and it's a bit of a hybrid, but the whole intention was to try and, through the research plan, let the council have an opportunity to say what it thinks are some of the most important stocks.

DR. BELCHER: For that reason, I guess the question would become though, with the shrimp thing, because we did have the discussions about Rick Hart's modeling back in the day, and is the penaeid shrimp really something that we're going to throw into that concern with stock assessment, and that's the only thought I had on that, was I just don't see it as pressing, because it is an annual.

MR. CARMICHAEL: Right, and the biggest distinguishing, when we first did these, was going back to the data underpinnings. The primary ones were ones where the target was to try to get the information for age-based assessments, and so to have age sampling, and then the secondary ones were the ones where we were saying, well, maybe we don't need to go down the time and expense and effort of age sampling, and so think of it in that regard.

DR. BARBIERI: This goes back to the table here, and I don't have a probably with the boldfaced ones. I think that those are spot-on. In terms of the categories being primary, secondary, tertiary, I think I would move black grouper to a secondary category. I mean, I don't think we're going to be able to -- Given the data issues that we faced this last time, and I see Julie Neer there nodding, and the discussions that we've had with the Center, and as you go, we had a data workshop that allowed us to go through a lot of how the sampling takes place and how difficult it is to get that species, and it's not really targeted. That's basically what came out of that.

That's basically something that when they are out gag fishing that they primarily catch some of those then, and I think that -- I mean, at this point, I'm thinking that this would be something that we try to look for indicators, based on life history and abundance, but it's not something that would be worth, in my opinion, typing up assessment people to try and produce a complex model that may not be well informed.

MR. CARMICHAEL: So we definitely wouldn't consider black a key stock.

DR. BARBIERI: No.

MR. CARMICHAEL: How about yellowtail?

DR. BARBIERI: Well, yellowtail is for us, right. It is for us, because it's a high-poundage, mostly commercial fishery in the Keys, and market-driven issues have risen in the Keys. I mean, you see the poundage now that they are landing is super high, and there is like the organic supermarkets, Whole Foods and -- I mean, really, they are getting fish delivered overnight that's super fresh, and it has really increased the price and expanded that fishery, and so I think that would be a key species, but, even within Florida, 95 percent of the landings happens in the Florida Keys, and so it's a very localized type of thing.

DR. REICHERT: Back to black grouper, you were recommending moving that to the secondary species?

DR. BARBIERI: I would, and, I mean, I think that, at one point, there is the ideal think that we would like to do if we had the time and the money, and I've been talking to Rob about this, about some of these broad, philosophical discussions. We are going to have to realize that the task in front of us is huge, and our ability to collect good data on all of the species, and that going to be providing age-based, quantitative-model-based assessments for all these species may not be a realistic expectation.

In this case -- I mean, if you look at black grouper, for example, if you look at the age composition that is coming out of some of the fishery-independent sampling and the landings over time, and you look at sex ratios, for example, from what they are expected to be, and you can see big differences between gag and black grouper, because gag has been fished down, and the sex ratios have been really skewed, while the sex ratios that we have been able to determine for black grouper have not been that much impacted, and we still have a fair amount of older fish out there, and so it's one of those rumble strips to kind of put your finger on your pulse kind of thing, and it's not very quantitative, but considering all the stocks that the Center has to conduct assessments for for three councils, plus HMS and plus ICCAT, it's -- You have to start trimming things down.

MR. CARMICHAEL: Yes, and so we'll review this table and where stocks are in a year, but this was just a way to show you where the potential keys align.

DR. SHAROV: I just had a follow-up question for Luiz on the black grouper. The way I read this table, it's an assessment and data collection priority, and so I am not aware to what extent black grouper is an important species in Florida, but I would guess that it's sufficiently important. Given the issues with the data that the data workshop identified and we were unable to proceed with the assessment, I would think it's an indication of a priority for the improved data collection on this species, and, again, I don't know at what point -- I hope that at least the most recent data that have been collected are species specific, and so, while the desirable outcome, of course, is an assessment that starts in 1950, in many cases, you may start it -- If you have nothing better, then we could start it in 2010, and so I am just curious as to, and I'm not sure -- You know better than anybody else what is the state of the data and what the needs are, but I just wanted to ask that.

DR. BARBIERI: Maybe Julie can jump in at any time and supplement it, since she was there for the data workshop, but I mean we did -- We have done two, I think -- We did one benchmark, and I think we did an update, and then eventually we -- No? Just a benchmark? Then it was so stale that we wanted to do a -- Even the first one, I remember us getting together, the group at the Institute getting together, and saying would this fly and would this have enough data to be informative?

Then that was SEDAR 19, I guess, and that was the first one that -- I mean, the comments that we got back from the CIE and from SSC reviewers were like, listen, this is really borderline, and maybe this is you trying to kill an ant with a sledgehammer kind of thing, and you might save your power for bigger game kind of things.

Then, this last assessment, we started the full commitment to go in and have another benchmark, but, if you dig through the report, and there is a report that I can send you, Alexei, that the

assessment team put together that identifies -- It's such a complex thing, because the fishery is such a boutique kind of thing that, when you think about sampling design and assignments, there is a cost factor associated with the probability of encountering that species to collect hard parts or sex information or size information or whatever, and so, obviously, the rarer the species, the more boutique and the more localized, the higher you have to have your sampling effort to be able to pick up the signal.

In this case, you have to evaluate the tradeoffs. I mean, I can tell you that I would welcome better data, and I get your point, but I am just thinking that -- We were talking at lunch about those budget issues that we are also facing, and so it's just something that you have to prioritize, and this is something that I think we can get indicators to give us an idea of where we are, and that's my suggestion.

DR. REICHERT: Thank you, Luiz. Okay, John.

MR. CARMICHAEL: The other aspect of the key stocks is highlighted there on the right, this bottom bullet, is to review and comment on the data and information needed for this process. Those are the stocks, and what do you guys think is necessary for these interim analyses? We saw the red snapper example, and what would you like to see in an interim analysis? Has anyone thought about it or does anyone have any -- We've talked about it for a little while, about what it might do.

DR. REICHERT: Ideally or at a minimum or all of the above?

MR. CARMICHAEL: Whatever you think.

DR. REICHERT: I would say updated fishery-independent index, age comps, if possible, updated landings and discards.

DR. SCHUELLER: I think it's really hard to put a recipe together, because each of these species has different data sources which take priority, and so some of them, yes, we have a great fishery-independent index and great age comps for a fishery-independent index that we can pair it with and that is providing a signal for the assessment, but, in other cases, we don't have that at all, and so it's more like update the data that provide a signal in the assessment, and it's very general.

MR. CARMICHAEL: That's the concept that we're trying to get at, but how do we get there? Is this something that should become another term of reference within the stock assessment, knowing that you're going to do an assessment, you're going to do operational or you're going to do an interim analysis, and maybe that's the place to say, okay, which of these data -- At that point, you maybe have some information on what it takes to put them together and when you could get them, and then you can evaluate what's informative, and is that a place to maybe lay out that these are the key things to update in an interim?

DR. REICHERT: I think part of it is it's kind of a vicious circle, because the method you use to assess the stocks depends on the data, and so then, obviously, the more data you have, the -- You can use another method to assess the stocks, and, generally, that means, the more data you have, your uncertainty goes down, generally speaking, and so that's where I think we end up with this kind of generic language.

DR. BARBIERI: I was going to ask what is the proposed periodicity for the interim assessments or the interim analyses?

MR. CARMICHAEL: Well, I've got two in the Science Center proposal. One gives you an interim or an operational every other year, and one gives you like an interim and then skip a year and then do maybe an interim and skip a year and then do an operational, and some are like giving you one or the other every year. I think it's going to come down to the resources and getting the data and how much is entailed in doing each one of them, and I don't know it's going to vary in the Gulf and the South Atlantic or what have you. I don't think they've worked out all of those details yet, but it could be as frequently as every year.

MS. LANGE: I like what you said, John, about including it as the terms of reference. That way, for each individual stock, as the assessment is being completed, the people working on it will have an idea of what types of data are needed or which ones are standardly available that would inform an interim analysis.

DR REICHERT: I agree, and I think perhaps we can -- Not now, but in the course of the process, we can check what's currently in the terms of reference and what is in our action items, because I think we are asked, after every assessment, what is needed to improve the stock assessment, and part of that is what's needed to elevate it from one stock assessment method to another, and so I agree with that, and I think there's some language in what we're doing already.

MS. LANGE: Well, there is also an indication that -- You're supposed to indicate when you think the next assessment should be completed, and so that would be whether it's an assessment or an interim analysis and what are the data that are needed to do that or the -- I think it's already --

DR. REICHERT: I really like that idea, and my question to you, John, is, in that structure, that seems like it would take out some of that flexibility, because one of the goals of that new structure is to have more predictability of the process, and so that -- I like that very much, but, at the same time, what they're trying to do is create a little more rigidity, in particularly for the assessment planning and for the data provider planning. Anyone else? John, I realize that this guidance that you're getting from the committee is very broad, and I wasn't sure whether you wanted us to look at the individual species or if that could be done via another process.

MR. CARMICHAEL: No, I don't think so. I think what Amy said summed up kind of the best that I've been able to come up with on this thing, too. It's like it's going to be so unique. For some stocks, the age data is informative, and some stocks it's not. Some stocks are going to maybe really be king on the landings and surveys and, for some, maybe the landings and the age -- I think, to manage the workload, you're going to have to figure out for the stock that, okay, when I do an interim on this, this is what we think is important.

More is always good, but, if you go in there and you say, well, update the indices and update the age comps and update the landings, then you have just done an operational assessment. I think we've got to recognize that. If I update everything, then I have that. That's an operational, and an interim is -- The simplest thing, which we used to do many years ago, would just be update the projections with the observed landings.

What I think we saw in red snapper was to try to take that to next step, and so it was to update the projections with the observed landings and try to bring in the surveys, which may give me something about what the biomass is actually doing, and I think you're going to end up somewhere in there, and it's probably going to take -- If we do a research track and you're building a tool, all of this is kind of after that's built and it's put in place, and considerations are probably going to have to be part of the things you talk about in that research track, to lay the path forward.

Like everything we do, it's subject to change. You never feel like, because we said this, this is how it's always going to be. We know that everything we do can change, and so I don't think we need to get too worried about that either, that I say something during a research track and I say this should be this and update these pieces of information and that I'm doomed if somehow one of them doesn't get updated or what have you. We always do the best we can with what we have, but I don't think that we can come up with any way to write a recipe book for each stock.

I don't think even -- We could sit down and try, but it probably wouldn't be nearly as effective as going through certainly benchmarks, but I think, as we phase this in over time, when we do an operational or standard or update, whatever we call it, that will be something to look at in that stock. It's like, okay, we want to do this and then put this into the interim action period of what things do we look at.

DR. REICHERT: One aspect that I think should be included somehow is the timeliness of the data availability, because we are talking about what data are available, but, if they're not available at the time an interim analysis is being done -- Sometimes the biggest bang for the buck, for instance, is not creating new data, but it's making sure that the data that are available are available in a timely manner.

MR. CARMICHAEL: I wrote down timeliness and the signal as being the two probably important factors to consider for each data source.

DR. BUCKEL: I was trying to think of something that would cross all species here, and we get the percentage of the ACL caught each year, but that's just in a table for that particular year, and it might be nice to see a time series of that for each species.

MR. CARMICHAEL: That would be almost like a whole -- I don't think -- With red snapper, it's a real biological, traditional assessment, and bringing in something about the management, was the ACL and all met, were there accountability measures triggered, that sort of thing, would be a good addition, and I like that as a different kind of source of information, and that made me think then another piece that could be packaged with that would be the fishery performance reports, when it comes to you.

In fact, that might be useful to go to the analysts before they start it. That could be informative to them, and I certainly think the management information would probably also be useful to go to the analysts before they start the interim analysis. It would certainly be helpful for them to know if the fishery closed halfway through the year or something, and so, yes, I like bringing those in and getting it to them so they can look at that when they're doing the actual interim.

DR. REICHERT: Anyone else? John, do you have enough right now, enough guidance from the committee, to move forward?

MR. CARMICHAEL: Yes, we can move forward.

DR. REICHERT: All right.

DR. BUCKEL: I had a quick question for John. The difference between primary and key is that a key has been assessed, or did you say before that a key is something that people go and target?

MR. CARMICHAEL: The ones we looked at for key were ones that have been assessed, rightly or wrongly, and some we might want to bring in. The other thing is key is intended to be the ones that are the driving factors in the fishery. We have fifty-five stocks of snapper grouper, but we know there is probably only twelve or so that are what really are driving the effort of when people go fishing and how long they go fishing and where they go fishing.

That is what we're trying to capture in this, and it's a way of not getting so overwhelmed by the many species we have to manage. It's like, if we can get good information, equivalent to say like the Mid-Atlantic, that has some type of assessment information on every stock every year, and we can't get that for fifty-five species, but can we get it for ten? If so, then our management program is probably better, and so it's kind of a nebulous term, in a way, but we went back and forth. I think Erik farmed it out to everybody at the Center there and asking if anybody had a better word, and we haven't really come up with a better word yet, and so "key" it what it seems to be.

DR. BUCKEL: At least off of North Carolina, I think gray triggerfish has moved into that, because they are more abundant now, and the price per pound has gone up, and so there is targeted trips, commercial and recreational, for gray triggerfish now, which that wasn't the case.

MR. CARMICHAEL: Yes, and I noted that I think we probably should bring gray triggerfish in, and so we want to assess that. The way something like that would work is we would work into the planning schedule when we do the research track and the operational, and then it falls into line.

DR. REICHERT: Thank you, John. Our next agenda item is our Socioeconomic Panel report, and we've already discussed part of that in the wreckfish agenda item, and I am going to ask Scott to highlight some other items on the report and see if there is any remaining points in the report that we need to make a decision on, and I don't believe there is, but, Scott.

DR. CROSSON: Give me just a minute here.

OTHER BUSINESS - DISCUSSION OF PUBLIC COMMENT POLICY

DR. REICHERT: Maybe, in the meantime, and I was going to bring this up under Other Business, but I once again forgot public comment, and this is a meeting where I have felt -- I know that people can raise their hands, and I know this was a request by the council, but I also -- If I remember correctly, this was something that the council was going to review, and, if anyone has any suggestion, in terms of anything we can ask or recommend to the council, in terms of approach of the public comment at every agenda item, because this was a meeting where we were asking, and we knew, because of the people in the room, there were no public comments. Anyway, if anyone has any ideas, I am happy to hear them and let the council know. Seeing none --

DR. BARBIERI: Well, Marcel, are you asking whether we think that this new approach --

DR. REICHERT: If it has worked to the committee's satisfaction.

DR. BARBIERI: I don't know how to define the committee's satisfaction. I mean, I think, to be honest with you, to some extent, I think it is kind of like a bit of an inconvenience. The idea is, if we had -- The agenda, because the agenda is posted ahead of time, and there are opportunities for public comment provided, and so, to me, it's a matter of -- If, every now and then, there are issues, just like what we do during the SEDAR workshops, at the discretion of the Chair, somebody may ask to approach the table and provide public comment. I don't think that we should actually something that is so different for the process of public comment that the council itself goes through. I mean, don't they have a consolidated public comment?

DR. REICHERT: But obviously that's different than what we do, and this was a request of the council.

DR. CROSSON: It just seems to me that we have always, when appropriate, allowed people to come up and informally address the SSC during discussions. We don't formally vote the way the council does, and a lot of our motions are not done according to Roberts or whatever they use, and so it's just a -- I mean, we've always had a very friendly approach to it, and, if people want to go up there and speak to us on an issue, especially if they have firsthand knowledge of it that we lack, then we have always invited it. I am not saying that -- What you're talking about has not usurped it. It's still there, and so it does seem like -- I agree with Luiz that it seems like an odd pause sometimes when we ask this, but it's pretty short, and so --

DR. REICHERT: No, and I don't disagree, but this was the original discussion, in terms of we have always had that, and now it's kind of formalized, and so, okay. Thank you.

DR. CROSSON: But the council doesn't do what we do, right? They don't allow people to just come up and speak to them if they're not a member of the council.

DR. REICHERT: All right. Thank you. Go ahead, Scott.

SEP REPORT REVIEW

DR. CROSSON: The SEP report, I don't want to go over all of it in detail. Some of the items, we have already gone over. The wreckfish review, you all have seen this. The things that were also noteworthy that I don't think I mentioned before were -- I think I might have mentioned that Kari MacLauchlin is working on a report, and, when that comes out, you all really will want to see it, because she's done these species groupings by fishery, and you can really see these changes over the part of the year when you have basically groups of species that are concurrently caught, in which region they are caught, which time of the year they're caught, and, visually, it was very interesting to see it. A lot of members of the SEP really thought it was one of the best illustrations of the nature of the different fisheries in the South Atlantic that we had seen, and so I just would encourage you, when that comes out, to look forward to it.

Some of the stuff about -- We looked at red snapper, and we gave some feedback to the council on the MyFishCount and some of their online questionnaires that they've been working on, and so that was, I think, of value, because a lot of us have experience interviewing people. The other thing that I would encourage you to look at is towards the end of the report, and we're going to be talking on Monday with -- We're going to have this webinar, where we're going to be talking about the SARIMA model, and the SEP looked at the model in-depth when we met in February.

Hopefully the members of the SEP that were participating the most -- I am hoping both Kurt Schnier and Chris Dumas will be on that webinar, because they were the ones that really kind of drove the conversation, but they did a very nice illustration, and Chris Dumas did a really nice illustration in the notes about the SARIMA model, so you kind of visually see it, and he talked about how you would explain it to council members, which is something that Chris is always very good at, explaining statistics to an audience that doesn't have the same background that he does.

I would encourage you, before Monday, to just take a look at that. If you don't have time to do anything else before Monday, I would tell you to take a look at what we wrote up in the SEP report about the SARIMA model and take that with you into our webinar on Monday. That's it. That's all I have to comment. Otherwise, I would recommend that the SSC append the SEP report to its regular report, which is something that we normally do, and I guess is that necessary for me to suggest that?

PUBLIC COMMENT

DR. REICHERT: No, that's what we normally do, but that's a good reminder. Any questions for Scott and the SEP from the other committee members? Seeing none, thank you, Scott. I appreciate that, and, as I mentioned earlier, I thought that was an excellent SEP meeting, and I sat through a large part of that, and so thank you.

Our next agenda item is public comment, and this is our general public comment at the end of the meeting. I am looking around the room, and I don't see any public comments. I have a couple of items for Other Business. Mike Errigo looked at the list of workgroups, and I think most of the workgroups we decided had finished their business, and the only workgroup that Mike Errigo is asking the committee to continue is the bag limit analysis, and so I will hand it over to Mike to briefly remind us where that stands and who the members are.

OTHER BUSINESS

DR. ERRIGO: That was done in relation to black sea bass, which was put on hold a while back because of the upcoming assessment, which has now finally been completed, and the council is going to begin work on an amendment, and probably they will start at the September meeting and putting together -- I don't know if they will have an options paper at that point or not, but we'll start then and go through next year, and so it's actually the perfect time to finalize the analysis for bag and size limit, looking at bag limits and size limits. It's bag limit increases and size limit decreases.

Finally, we have the new assessment, and we're back on track, and that is a priority, and so there is some time for that, and we'll put the workgroup back together and actually start looking at that

again, and so I wrote up a new scope of work, which I will share with the workgroup, and I put that together during the meeting, and so I will share that out with the workgroup members.

They are Eric Johnson, Carolyn Belcher, Robert Ahrens, and Laura Lee, and I did speak with Laura, and she agreed to continue to be on the workgroup after she leaves, as long as those workgroup members are still okay with that, and it shouldn't take much, and I'm looking at two to three webinars. I think that should do it.

DR. REICHERT: What is your general timeline for this?

DR. ERRIGO: The general timeline is to bring it back to the SSC for final review in October, and so, at the next meeting, the SSC will review it.

DR. REICHERT: All right. Thank you for that, Mike. I had one other thing. When we discussed this -- This is usually an SSC meeting where we get an update on landings and also where someone provides an update on the fishery-independent surveys.

Because of the volume of the agenda, we decided to drop that from this agenda, and I just wanted to ask the committee whether -- I think that's still very important information for us to hear at least once a year, especially if we're looking at that in conjunction with whether the landings have reached the ACL, and so I would like to get your opinion. If anyone disagrees with that, let me know.

DR. CROSSON: Especially the landings. I love having that, even if we don't have to look at it as a particular agenda item. I found myself looking for it at least once or twice during this meeting, and then I was trying to go find it on the most recent council meeting, whether there was a copy of it, and so I wouldn't mind even having it just as a reference document at every meeting, if it was available.

DR. REICHERT: That is a good point, and so, even if we feel there is no time on the agenda, at least have that in there as a document, and how about the fishery-independent information? Same thing? Is the preference a presentation, and, if that's not possible, at least have that in the report, if it's available? Okay. Thank you.

DR. SEDBERRY: That would only come at one meeting a year, right?

DR. REICHERT: Well, but I agree with Scott that if it's available twice a year, and we can include it in the briefing book, then do that, because I think -- Correct me if I'm wrong, but the council receives that at every council meeting, an update on the landings, or is it once a year?

DR. ERRIGO: SERO used to give an update at every meeting, and now they put together the landings trends for every meeting, or it used to be. Now, we can do it just once a year, and that's fine. I can put together the landings trends for every meeting, if you would like.

DR. COLLIER: It differs between recreational and commercial. I believe they get the recreational twice a year. The commercial they get, I think, at every meeting.

REPORT AND RECOMMENDATIONS REVIEW

DR. REICHERT: Okay. Thank you. If it's available, the committee would like to see that, and so we'll work on that. The next agenda item is the report and recommendations review, and Mike sent out the notes, and thank you for doing that, Mike. He has received some comments from several members. Based on what you have seen, are there any additions to the report? What is the pleasure of the committee? Would you like to kind of briefly go through it? Are there particular agenda items that you would like to go through, in terms of our recommendations? Anyone?

The timeline for the report, because this was a meeting that was moved up or backwards, depending on how you -- It was later by a week, and so George, Mike, and myself have one week less time to get the report together. Mike or John, remind me of the deadline of the report for the briefing book. When is the briefing book? Is it May 18?

DR. CHEUVRONT: It's Friday the 18th, and it's two weeks from tomorrow.

DR. REICHERT: Okay, and so I am going to propose, if at all -- Please send us any notes that you have as soon as possible, but no later than the end of next week. The problem is, if we get a lot of notes -- The last time, it was really nice, because I got a lot of notes, but the problem is you update it and you send it out, and then people may have comments on the comments, and so you get this iterative process that at some time we have to stop, and so that one week doesn't give us a lot of time to send it back and forth.

DR. SCHUELLER: So you want comments from us by next Friday, which is the 11th? Is that right?

DR. REICHERT: Yes, on the draft report, but preferably earlier.

DR. SCHUELLER: My other question isn't necessarily about the draft report, but it's about the timeline of events as we see it for the black sea bass projections that we requested, and so obviously we didn't get those today, and so they will become available, I would assume, relatively soon, and are we going to have a webinar in order to address that, because I'm assuming we are not going to wait until October to address that topic.

DR. REICHERT: Mike, can you pull the notes up on that report? Is that possible? I thought we had discussed a path forward, in terms of our decision, but let me --

DR. NESSLAGE: I think we decided what we would do with the ABC decision, but, how the report would reflect the alternate shorter period recruitment scenario, is that something we can just tack on to the end of Monday's webinar really quickly? She will have it by then.

DR. ERRIGO: That cannot be tacked on, because it wasn't in the Federal Register notice.

DR. REICHERT: The problem here is -- I am not sure how to approach that, because there is no way that we can get this in the Federal Register if we're going to have a webinar, but the question then becomes -- John, help me out here. Is this a decision that we are making?

MR. CARMICHAEL: On what?

DR. REICHERT: Black sea bass and the projections that we have requested, and we decided a path forward with the ABC, and it is just those recruitment scenarios that the committee felt would be informative, and they will -- We will get those after the meeting, and so, if we are going to review that, there is a couple of different ways -- We can do that via email or a webinar, but there is no way that we can get that before the council meeting, because of the Federal Register, and the question is then can we or should we wait until the next meeting or to a potential next webinar?

DR. SCHUELLER: If those are the options, maybe email is good enough.

DR. REICHERT: Then we can always decide to --

DR. AHRENS: Sorry, but, Amy, were you worried that we needed to add, along with those projections, some comments from the SSC, in terms of interpretation?

DR. SCHUELLER: Yes, that was my thought, is, if there is additional comments after those are available.

DR. AHRENS: We can probably deal with that kind of on email through the report.

DR. SCHUELLER: Yes, and that's what I'm thinking, given the situation.

DR. REICHERT: If that creates a problem, based on the comments, then we can revisit that. Is the committee comfortable with that?

DR. SEDBERRY: Was Katie going to get those to us by Monday, or she didn't really say, did she?

DR. REICHERT: As soon as possible, but she couldn't tell us when.

DR. SEDBERRY: But they should be here in time for us to comment on them and get those comments incorporated into this draft by next Friday, or that's the hope?

DR. REICHERT: That's the hope, yes.

DR. SEDBERRY: Okay.

DR. REICHERT: They will be provided to the committee as soon as they come out, and then we still would need the comments from the committee members by next Friday, because we then only have one week to incorporate everything and send it out to the committee again for that to be on time for the briefing book.

MS. LANGE: I think Katie said she could get it to us today, or possibly Friday, because she was going to do it here, but she just couldn't get access to her mainframe.

ELECTIONS

DR. REICHERT: That's the hope and the expectation, but you never know. Something may come up or something, and so we do that by email, and then we will take it from there. Okay. All right. Elections. Before we do that, I already mentioned that this would be the last meeting for John, Sherry, and Laura Lee. I indicated to Mike, John, and George that I would not be up for election for another term, and I would like to nominate George Sedberry as a candidate for Chair, and I am asking for any nominations from the floor, if there are any. Seeing none, then we will close the nominations, and I am not sure what the most appropriate way is, but do we need to send George out of the room or -- Since there are no other nominations, we elect him by acclamation. Thank you for that. *(Applause)*

DR. SEDBERRY: Thank you.

DR. REICHERT: I will hand it over to George to deal with the Vice Chair.

DR. SEDBERRY: Before I do that, I would like to thank Marcel for his service as Chair of the SSC for the past two years. *(Applause)*

Thank you for your confidence in me in moving forward as Chair, and so I guess the first order of business is election of a Vice Chair, and I would like to nominate Rob Ahrens as Vice Chair.

DR. AHRENS: I accept that nomination.

DR. SEDBERRY: Any other nominations? Then I guess, by the same procedure that I was elected, you are now elected by acclamation. *(Applause)*

Now I have to look at Marcel's notes to see what's next.

DR. REICHERT: We have next meetings, and they are listed in the overview. We have asked -- I think John sent out some information on the SEDAR Steering Committee meeting, and that's our last agenda item, George.

DR. SEDBERRY: Thank you, Marcel. Is there anything else to be brought before the SSC at this meeting?

DR. SCHUELLER: I'm sorry, but I just have one more question. The day notes have been sent out, and I know that we're all waiting for a table in the red snapper document, and is the plan for there to be another email, maybe Monday, with a sort of more full document for review, because I don't want to start reviewing pieces. I would rather get the whole thing Monday or Tuesday and just go through it all at once.

DR. ERRIGO: The day-three notes have all the notes for the entire meeting.

DR. SEDBERRY: The notes that we get today from Mike will have all the notes from the meeting, and so you can ignore the previous two files.

DR. ERRIGO: Right, and so all I did was add on as I went. Then, for tables and such, I will go through and start filling out the tables and all of that.

DR. SCHUELLER: Yes, and I want to review the version with the tables in it. That's what I am trying to say.

DR. ERRIGO: So you want to review the version with the tables. All right. That's fine. I was going to put them into the version after you guys looked at this and I did the corrections. Then I was going to fill in the tables and send it back, but, if you want to review the version with the tables, then I will do that tomorrow and re-send out everything with that.

DR. SCHUELLER: Thank you.

DR. SEDBERRY: Okay, and so that will be the notes from all three days with the tables filled in.

DR. REICHERT: That will include comments that Mike and I have already received from members, and so that's already included in that version.

DR. SEDBERRY: All right. We are adjourned.

(Whereupon, the meeting adjourned on May 3, 2018.)

Certified By: _____ Date: _____

Transcribed By:
Amanda Thomas
May 10, 2018

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