SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SCIENTIFIC AND STATISTICAL COMMITTEE

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Transcript

Scientific and Statistical Committee

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Attendees and Invited Participants

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Dr. Matthew Vicent
Dr. Erik Williams
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Observers and Participants

Other observers and participants attached.

The Scientific and Statistical Committee of the South Atlantic Fishery Management Council convened at the Hotel Indigo Mount Pleasant in Mount Pleasant, South Carolina on October 22, 2024, and was called to order by Dr. Marcel Reichert.

INTRODUCTIONS

DR. REICHERT: Welcome to the October meeting of the South Atlantic Fishery Management Council's Scientific and Statistical Committee. I'm Marcel Reichert, and I will be chairing this meeting, with Wally Bubley, our co-chair, and, before we begin, I would like to mention that our thoughts are with our colleagues and friends who were impacted by Hurricanes Helene and Milton, and we wish everyone the best and hope that, for all, as much as possible, and as soon as possible, life will return to more normal conditions.

As you may have seen in the briefing book, we have a full agenda. I would like to thank Judd for his work in preparing the briefing book, and our meeting, and several presentations, and I would also like to acknowledge our ExCom, Jeff, Jennifer, and Wally, for their help in preparing this meeting. I would also like to take a moment to congratulate our fellow SSC member, Amy Schueller. She is joining us online, because she will be at NOAA Headquarters this week to receive an award for her work on spatial stock assessment research, and so congratulations, Amy.

I would also like to acknowledge some other key attendees, newly-appointed council members Charlie Phillips and Jimmy Hull, and our South Carolina rep, Amy Dukes. Welcome to the meeting, and also Shep Grimes, from General Counsel. It's always good to see you at our meetings, Shep. Welcome. We also have several council staff members, and a special welcome to Emily Ott. She's our new SEDAR coordinator. Emily, welcome, and it's good to see you here this week.

Before we go to voice recognition, I would like to remind everyone that this meeting will be broadcasted by webinar and recorded, and so perhaps we can start our voice recognition with Alexei.

DR. SHAROV: Thank you. Good morning, everyone. Alexei Sharov, Maryland Department of Natural Resources, SSC member.

DR. FLOWERS: Jared Flowers, Georgia DNR, SSC member.

MS. PACKAGE-WARD: Christina Package-Ward, NOAA Fisheries Southeast Regional Office, SSC member.

DR. SWEENEY-TOOKES: Jennifer Sweeney-Tookes, Georgia Southern University, chair of the SEP.

DR. DUMAS: Chris Dumas, University of North Carolina Wilmington, SSC member.

MR. WALSH: Jason Walsh, North Carolina Division of Marine Fisheries, SEP and SSC member.

DR. CURTIS: Judd Curtis, council staff.

DR. REICHERT: Marcel Reichert, SSC chair.

DR. BUBLEY: Wally Bubley, South Carolina Department of Natural Resources and SSC vice chair.

DR. VINCENT: Matthew Vincent, Southeast Fisheries Science Center.

DR. LORENZEN: Kai Lorenzen, University of Florida and SSC.

MS. MARKWITH: Anne Markwith, North Carolina Division of Marine Fisheries, SSC member.

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

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

MR. GARTLAND: Jim Gartland, Virginia Institute of Marine Science and SSC member.

DR. TURNER: Steve Turner, SSC member.

DR. REICHERT: We have a number of members, three members, online. Amy.

DR. SCHUELLER: Amy Schueller, NOAA Fisheries.

DR. REICHERT: Thanks, Amy, and congrats.

DR. SCHUELLER: Thank you.

DR. REICHERT: Dustin.

MR. ADDIS: Dustin Addis, Florida FWC, stock assessment, and SSC member.

DR. REICHERT: Fred.

DR. SERCHUK: Fred Serchuk, SSC member.

DR. REICHERT: Erik Williams, our Southeast Fisheries Science Center rep. Erik.

DR. WILLIAMS: Erik Williams, Southeast Fisheries Science Center. Sorry I couldn't be there, folks.

DR. REICHERT: It's good to have you at least online, Erik. Thank you. Jie may join us later. All right, and so let's start with the agenda. The first item up is Approval of the Agenda. That's Attachment 1a, and I want to remind you that there were some changes in the recently-posted agenda, and one possible change is I recommend that we move Item Number 14 to the first item on Thursday morning, and that's a potential review of some of the additional projections, if that comes to be, and so, with that, any other questions, or comments, to the agenda? Seeing none, the agenda is approved.

Next up is Approval of Minutes from the August Webinar, and that's Attachment 1b, and I also want to note that the latest version of our August meeting report is included in our briefing book. Any additions, or comments, relative to the minutes? Seeing none, the minutes are approved.

As usual, we have several opportunities for public comment, at the beginning and towards the end of our meeting, and also during the various agenda points, after the presentations, and, before we start our discussion. If I forget the public comments, please remind me. The public also has an opportunity to provide written comments, and I haven't checked that, Judd. Were there any written comments?

DR. CURTIS: I haven't checked yet, but I will check before the break and let you know.

DR. REICHERT: Okay. Thank you. Is there anyone from the public who would like to make a public comment at this moment? Seeing none, all right. Before we delve into our first agenda item, a quick reminder of the assignments. I sent them out last week, and we are really counting on you all's help to write the report, and so our first agenda item, or, actually, the third agenda item is the ABC Control Rule and Stock Risk Ratings. Dustin, Fred, Alexei, and Jeff were assigned to this agenda item.

The associated attachments are 3a, 3b, and 3d. 3c -- It was just mentioned to me that it was a placeholder, and we can discuss the utility of a cheat-sheet later. Judd, I suggest we do the ABC control rule first, and then have questions and discussions on that, and then move into the stock ratings. Do you have a presentation to start it off?

ABC CONTROL RULE AND STOCK RISK RATINGS

DR. CURTIS: Yes, and that was my thoughts exactly, Marcel. Sorry for the late submission on that presentation, but I sent an email out, and it's also now on your briefing book materials. Additionally, the risk tolerance spreadsheet has been updated with some notes that help you define what the score is going to be, when we get to that section, and that's gone through the advisory panel review earlier, or last week, and so the notes are available now. We had the template up there before that.

Then, as Marcel led to, this quick reference document is something that he and I had talked about, and one thing I would like to get from the SSC, after the presentation, is what information coming out of that presentation, or from the Comprehensive Control Rule Amendment, might be helpful, in order to make a quick reference sheet, or a cheat-sheet, for reference down the line, when we're reviewing assessments, moving forward.

I wanted to provide just a quick summary of some of the changes to the new South Atlantic acceptable biological catch control rule and then where the SSC fits in, to give a nice background, and we've got some new members since the new amendment took place, and it's probably a good refresher for all of us, including myself, since we've never actually applied the new control rule yet in an assessment, and we're going to be doing that tomorrow, and so, after a quick overview, and we'll answer some questions on the control rule, and then, as part of the control rule, you'll

see we have to populate the stock risk ratings tabs with SSC input, and scores, and so we'll go through the matrix of scoring for each of the different species that we need to tackle at this meeting.

I will say that, typically, the process is going to be a little less rapid, or forced, I guess, and we're going to try to get these risk ratings done like ahead of time of the start of an assessment, or towards the beginning of an assessment, so that they're ready to go by the time the assessment occurs. Because of the timing of when the amendment was actually finalized, and just the progress of the stock assessments, we're going to have to do this a little bit retroactively, but, moving forward, we'll try to get this done before the assessments actually begin.

Just some background information, and most of you all are very familiar with the ABC control rule and the relationship it has with the overfishing limits. The SSC is the arbiter of the maximum amount of fish that can be annually harvested, and this is done under accounting for the scientific uncertainty and management risk tolerance. It forms the basis of that federal fisheries management. That control rule, you can think of it as a bridge between the science and the management, and, on one side, you have research, monitoring, the assessment, and an overfishing limit that comes out of the assessment.

In the application of an ABC control rule, that accounts for this uncertainty and management risk, and then, from there, you have ABC-based management regulations that are recommended by the SSC to the council, and then the council can then recommend the annual catch limits and any management actions they need to get to that ABC level.

The control rule specifies that we have this decrement from OFL and ABC based on a risk tolerance, or the P*, and, in this case, here's a sample example of a normal distribution of the OFL that would be coming out of the stock assessment output, and that distribution of the OFL is specified by the assessment and the assessment uncertainty, and the steepness of that distribution, or the breadth of the distribution, will somewhat dictate the difference between what that OFL and ABC might be.

If you see, in normal distribution, that it's got a high peak, you might have a risk tolerance of 40 percent, and you're devaluing the ABC from the OFL a slight amount, but, on a wider distribution, that decrement might be much more substantial, because of the additional uncertainty.

In the old ABC control rule, we had -- Based on assessment categories, they were organized into these various assessment levels, and, really, it comes down to either the assessed or the unassessed, and so the first assessment category was an assessment using your age, length, or biomass-based models. You had the various tiers and P* adjustments that I will explain in a minute in Table 1, and the other four were various iterations of an unassessed stock, and methods to address those stocks, and that included DBSRA, reliable landings and life history, and data deficient for DBSRA or DCAC, or an only reliable catch stocks, or the ORCS, or a decision tree method that was proposed by the SSC.

The SSC recognized that there was some limited flexibility for incorporating these additional methods and that there should not be a one-size-fits-all and that the methods recommended, for at least the unassessed stocks, should be tailored towards the data and to the assessment, and this was part of the impetus for some changes in the new ABC control rule.

These tiers for the Level 1 stocks were broken up into four different tiers of assessment information, uncertainty characterization, stock status and productivity and susceptibility analysis, and so the OFL coming from FMSY from the assessment was set at P* equal to 50 percent. The tiers were then each evaluated, and P* was reduced by up to 10 percent for each of those different tiers, and an adjusted P* is then applied to the assessment projections to determine the ABCs.

Here's the summary of the different tiers, and the classifications which lead to the reductions in the percentages the P* valuation, and so we have the assessment information there, anything from a fully-quantitative assessment providing estimates of exploitation and biomass and MSY-derived benchmarks, all the way to, you know, scarce or unreliable catch records, and the uncertainty characterization from complete and all the way down to none.

Stock status based on either the combination of neither overfished nor overfishing, one or the other, or a status criteria of unknown for both of those criteria, and then a productivity and susceptibility analysis, either from low risk, medium risk, and high risk, and this category actually was one that was expanded, and it is now a pretty prevalent part of our new control rule, to incorporate some social and economic considerations into the P* approach.

That sums up the old control rule, which is still in effect for a few of our fishery management plans, namely the coastal migratory pelagics, and that's because it's a shared jurisdiction with the Gulf, and so it's a shared control rule, to an extent, and so it was not included in the Comprehensive Control Rule Amendment that was just passed. The new ABC control rule will apply for all snapper grouper, dolphin wahoo, and golden crab species in their various fishery management plans.

Just a quick summary of what has changed from those previous control rules, and I'll go into some of these in later slides, but there's a new structure and terminology associated with the new control rule. The uncertainty levels, the SSC can adjust or derive OFL uncertainties, and the risk tolerance now, P*, is specified by the council, on a recommendation of the SSC, using the current biomass coming out of the assessment and the stock risk ratings, which you'll see later. Overfished stocks, rebuilding plans take precedence, and this was not necessarily specified before, and so it is now.

The unassessed stocks, as I mentioned, we had four different categories for those, and the SSC now will evaluate the best method to estimate the ABC, and it's not restricted to a set group of methods, to allow that additional flexibility and new data approaches, and it also incorporated phase-in and carryover provisions, which is something that we may see later, and not in this presentation though, but the council has been briefed on those options, and, at least for these fishery management plans, it's now an option for assessment projections.

Part of the changes were introducing new ABC control rule categories, and so you see on the left now that these categories fall 1 through 4, where, in Category 1, the stock is assessed, and scientific uncertainty is adequately incorporated, and the ABC determination comes from a P* applied to the assessment information to derive ABC.

Category 2, the stock is assessed, but the scientific uncertainty is not adequately evaluated, or some assessment outputs may be lacking. In this case, the SSC will adjust that measure of uncertainty, and then the P* can then be applied to the assessment information. Category 3, the stock is assessed, and the scientific uncertainty is not adequately evaluated, and it cannot be addressed by

adjusting the available uncertainty measures. In this case, the SSC, for their ABC determination, will develop uncertainty measures, as necessary, to apply the P* the available assessment information, and, alternatively, the SSC may apply a direct buffer, say 75 percent of the OFL, to the overfishing limit, to derive their ABC.

Then Category 4 is where our unassessed stocks fall under now, under the single category, and there is no formal stock assessment estimate to provide OFL and ABC recommendations through a SEDAR process, or another stock assessment process, and the OFLs and ABCs are developed according to the SSC's Data-Limited Working Group approach, and that's outlined in the amendment document.

Basically, what the new control rule boils down to here is this combination of the stock risk rating, under either low, medium, or high, and the current stock biomass coming out of the assessment, and so you find either what that high, moderate, or low biomass levels are, and you can see the definitions there on what those biomass levels are, and you combine that through the stock risk rating that is achieved through the risk tolerance matrix that we'll go through, and that comes up with the default value of P*, indicated above in those different categories, right, and, if it was a Category 2 or 3, the SSC has some additional flexibility, and leeway, to apply an additional buffer, or an additional P*, based on additional uncertainty measures that they see coming out of the assessment, but these would serve as the default base P* ratings for that particular stock.

Stock risk ratings are based on a combination of biological, human dimensions, and environmental indicators. The descriptions for these indicators are in that template in the spreadsheet, and I didn't want to go into them right now, and some of them are quite lengthy, but we can get some additional detail explained on those, as we move through the spreadsheet, and the process then for --

As I mentioned, we're a little behind, but, moving forward, we're going to get this done in a more timely fashion, ahead of an assessment, but, before an assessment, the SSC, and the AP, will recommend the risk levels for attributes that contribute to the stock risk rating to the council, and the council will review these recommendations from both the SSC and AP and determine that stock risk rating. That rating then would be available for -- By the time the assessment is either started or completed, and, with the assessment output on the current levels of biomass and the stock risk rating, being able to develop a P* projection scenario.

This is the level that we're at for these five stocks that we're going to address today. Before switching over -- Well, let me just -- Before switching over to the matrix, I guess we can answer questions on the new ABC control rule, or its application. Chair.

DR. REICHERT: Any questions, clarifying or otherwise? I had a question, and we talked a little bit about that. It's my understanding that there are kind of two levels of SSC involvement, and it's the stock assessment review, and the uncertainty in stock assessment, and then there is the SSC's recommendations for the stock risk tolerance. In terms of the stock assessment uncertainty, it's a little unclear to me where that comes in, because there is two tables with the percentages, and so this is the stock risk rating. The biomass columns, that's basically a biomass that comes out of the stock assessment, and where does the uncertainty come into play, the uncertainty in the stock assessment, and not in the stock risk rating parts, and does that make sense?

DR. CURTIS: Yes, I think I got you, and so the different categories could then address some of those additional levels of uncertainty. I think like, Marcel, what you're kind of getting at is, if we look at that distribution curve, and so a distribution that is wider, as opposed to more narrow, you're going to have more uncertainty between the OFL and the ABC, with the same P* approach, and so that projection would be coming out of the assessment, or that additional amount of uncertainty surrounding this normal distribution of OFL to ABC, and so you would get an additional uncertainty between OFL and ABC, based on the shape of that, of the OFL distribution.

In addition, we now have some flexibility here in these different categories, namely the Category 2 and Category 3, where, if the SSC feels like uncertainty is not adequately evaluated, or something might be lacking, or highly uncertain, the SSC can adjust that level of uncertainty, the P* up or down, after they come up with that default value from the stock risk ratings and the stock biomass, which is coming out of the assessment.

At this point, it's not explicitly stated, I should say, in the amendment on exactly how procedurally that P* could be adjusted up or down, and that's something that merit some discussion, and certainly we would need some justification, scientific justification, on why the SSC recommends a change in those default values and outlining the various parameters that might be highly uncertain that would be contributing to those decisions.

That's where it's not explicitly stated, and, again, this is part of the additional flexibility and adaptability kind of approach to it, but the drawback is that we don't have an explicit recipe of how you would subtract the percentage, like we did in the previous ABC control rule.

DR. REICHERT: Okay, and so I think, for that last point, I think it would be really useful for us to have another discussion, or conversation, at some point in the near future, so we can apply this consistently, because, if it remains as vague as it is, we, as an SSC, may run the risk that we make one decision in one stock, and then maybe a different decision in another stock, and so it would be good to get some additional guidance, in terms of how we apply that, and, for the Category 3, is that a working group, or is that 4? That's 4, Category 4, and, again, we will talk a little bit more about that on our last day, in terms of the working group, but, again, I think it is probably urgent that we start working with that working group to get some guidance on those, because, at some point, we likely will be asked to provide updated ABC recommendations.

To go back to the first point, if you -- On Slide -- On that one that you just showed, Slide 3, like risk tolerance is 40 percent, and that's, for instance, something that comes out of the stock assessment, correct, and that's an example here?

DR. CURTIS: The risk tolerance, the P*, comes out of the stock assessment estimate of the current biomass and then the stock risk rating value that the council has applied. That would be the P* approach. The distribution is what's coming -- The OFL distribution is what's coming out of the assessment.

DR. LORENZEN: I think this is somewhat related, and so I like the basic idea here to be clearer about the difference between the uncertainty and the risk tolerance, because we've often sort of tried to account for uncertainty by increasing the risk tolerance, and so this seems to be clearer, in that it says -- It disentangles the two, but it's unclear, to me, how that adjustment for uncertainty would be made, and so we have a clear way here of saying how we arrive at the risk tolerance

rating, but it's unclear how you would adjust for, you know, uncertainty that we think is not represented in the assessment, and so, as soon as you move away from the first tier, then, okay, how do you adjust the uncertainty, and is this -- I mean, do you go to a Ralston or something, or what's the idea, and would that be more, you know, clearly specified?

DR. CURTIS: So, currently, it's not clearly specified, but we do have the flexibility to use other approaches, like Ralston, as you suggested, and that was kind of the concept with the revised new ABC control rule, and so certainly that is something that the SSC does need to discuss, on what approaches they would like to use, when we get down into those Category 2 and Category 3 stocks, to account for that scientific uncertainty. Note that the scientific uncertainty and risk tolerance are -- They're more meshed together, under this new approach, where, because you're including some of the stock risk ratings information, which some of it might be more associated with the management risk, that's being combined with some of the scientific uncertainties to develop that P*.

DR. REICHERT: Chip.

DR. COLLIER: Just to build on what Judd was just saying, there was a little bit of concern from staff. As we were developing this, we were trying to develop a new ABC control rule, because the other one specified certain procedures that restricted what could be done in the ABC control rule, and so we didn't want a list, such as the Ralston, as this is going to be how you do it. We wanted to provide the SSC flexibility, and we just need to build the record on why that was chosen in the ABC control rule, and so this provides quite a bit of flexibility to the SSC. We just need to develop the record on why that was the selected approach.

DR. REICHERT: Thank you, Chip. Jim.

MR. GARTLAND: Just so I'm clear on it, on Slide 10, if you don't mind, Judd, what we're looking at -- The one where you had the table. That one. For that, we're looking at, there, basically your max P* under those situations, but almost -- When we get to the uncertainty party, instead of being just a single table, it's almost like an array, right, and like there's a third dimension to it, where you can adjust those based on the uncertainty that we're seeing coming out of this estimate, and that's correct?

DR. CURTIS: Yes, and so this would be the default P* levels for all the different categories, but then, if you decided this would fall under a Category 2 or a Category 3, then, with scientific justification, you can explain what deviance you would like to see in these default values.

MR. GARTLAND: That makes sense, and then I agree with what Marcel said then too, that we need to get some rules for ourselves, so that we're consistent.

DR. REICHERT: Kai.

DR. LORENZEN: So now I'm confused, because I thought we were getting away from adjusting the P* to account for uncertainty, and we should be adjusting the distribution, and we should be adjusting the uncertainty estimate that we're using, but not on P*. That's how I read the table. One thing is the uncertainty in the assessment, and the other thing is how much risk we're willing to take, and this is about the risk and the uncertainty, and so the way I read the original table was

that, if we feel that uncertainty is not fully represented, we would -- In a sense, we would change the shape of that distribution that we're applying the risk rating too, rather than adjusting the risk rating, which is sort of not quite the right way of doing it.

DR. CURTIS: No, you wouldn't change the OFL distribution shape. You would still use that in the default P* values, but then, from that default value, based on additional uncertainties that the SSC sees, you would adjust it, adjust those percentages up or down, and so you would have a smaller or larger P*.

DR. LORENZEN: But that seems to me that it's sort of the wrong way of doing it, because, particularly if you don't have enough uncertainty represented in the distribution, you know, changing the P* isn't -- You know, if you have very little uncertainty in the distribution, changing the P* isn't going to make a big difference, and it's not going to account for the actual uncertainty in the assessment, and so I think -- I was sort of thinking that we were disentangling the two, but apparently not, but I think -- You know, maybe others can chime in, but, to my mind, those are two different things.

One is -- One should represent the uncertainty as well as we can, but then -- So, if we feel that the assessment doesn't represent the uncertainty correctly, then you could switch to something like the Ralston also, which, in effect, gives you a -- You know, an uncertainty distribution that is wider than what we get out of most assessment models directly, but, you know, I would really like to sort of disentangle these two things, rather than trying to, you know, tweak the risk rating, instead of getting the uncertainties straight. Do you see what I mean?

DR. REICHERT: Mike Schmidtke, I assume to that point? Okay. Thank you.

DR. SCHMIDTKE: Yes, and so Kai's understanding is correct, in the sense that the SSC would not be adjusting the P* percentage values. The P* percentage values are something that is the combination of the council's determination on stock risk rating and then whatever the biomass, the relative biomass, coming out of the assessment is, and so the SSC's -- I guess, the place where your discernment comes in would be in adjusting the width of that OFL distribution.

DR. REICHERT: Well, I think that comes back to my very first question, and so, in the new ABC control rule, if -- Let's make very clear that going to -- Where is that table? The table on page 9. If we were talking about a Category 1, and we reviewed the assessment, and we don't see any need to change the uncertainty, then the actual uncertainty in the assessment does not come into play anymore, because then the P* is solely based on the stock risk rating and the biomass, and so there is no introduction of assessment uncertainty.

Why I'm saying this is because there may be, in one stock, a much larger uncertainty than in another stock assessment, and maybe I'm not fully understanding how that comes into play, but how would then the P* be different, because you have a different distribution of OFL, but you don't adjust that if the risk rating is the same, and do you know what I'm trying to say here? I'm trying to wrap my head around that, and -- Because that only comes into play in Category 2, 3, and 4. The SSC reviewed it, and we feel there are elements of uncertainty that are not fully captured in the assessment, but, if everything is captured in the assessment, you still have a chance that, in one stock, that distribution is different than in another stock, and does that make sense?

DR. SCHMIDTKE: Yes, but that would be the case -- Like in the sense of -- Your distributions are going to vary based on the assessment, and the information, that you have available at that time, and it's going to vary from stock to stock. That's just going to be the nature of one assessment to the next, and your determination is whether that assessment is adequately capturing all the different sources of uncertainty that you expect to be captured by a stock assessment, and, if that is captured, then, yes, there's going to be some variation.

It's not going to be exactly the same distribution for all stock assessments, but that -- The message being sent out of that is the P* method can be applied to the OFL and to the distribution associated with that OFL, coming straight out of the assessment, that no change to that distribution needs to be made, and then you apply the P* approach, using the percentage that comes from that other table.

DR. REICHERT: So correct me if I'm wrong, and what you're saying is a percentage of one distribution gives you essentially a different ABC than the same percentage over a more narrow distribution, and that's where the uncertainty in the stock assessment comes into play.

DR. SCHMIDTKE: By percentage, I'm thinking like P* percentage, a percent point in the P*?

DR. REICHERT: Yes, and 40 percent of one distribution is different than 40 percent of another distribution, and that's where the uncertainty in the stock assessment that the SSC is -- It's the task of the SSC to evaluate that, and that's where that comes into play.

DR. SCHMIDTKE: Yes, correct.

DR. REICHERT: Okay. Sorry that it took me a while to get there, but I think, as an SSC, that's -- I think that's important for us, because I kind of got lost in where that scientific uncertainty -- Okay. That makes sense. Thank you. Jeff.

DR. BUCKEL: I was going to make a point for the Category 1. I think it's very clear for Category 1, and it's the Category 2 through 4 where there is this grayer area of how to build that distribution, and it sounds like there's some approaches to do that, and we have flexibility, but I agree with your initial point, for consistency, and then, if we change, because there's -- Right, and there's new information, and there's an updated approach to get that distribution, or to handle uncertainty, and then we -- You know, we update that, based on new information. Thank you.

DR. REICHERT: Thanks, Jeff. Kai. You're good? Any other questions? Jeff.

DR. BUCKEL: One more, and so the management uncertainty -- We used to have the separation of scientific uncertainty, and that got you the ABC, and then management uncertainty, and the ABC went to ACL, and so is that -- The management uncertainty is going to be accounted for here in the -- Solely here? That was a question, the ABC, and we don't have to deal with that language anymore, and is that correct?

DR. CURTIS: So there's still the option for the council to account for additional management risk, or uncertainty, in any difference between the ABC and the ACL. For past assessments, and, Mike, correct me if I'm wrong, but the ABC has been set equal to ACL, for most of the recent

assessments, and so it wasn't accounting for any of that management risk, and so now, with this new approach, it does within the application of the P*, correct.

DR. BUCKEL: Thank you.

DR. REICHERT: Thanks, Jeff. I think I'm going to add an additional opportunity for public comment, because, if we can wrap this conversation up, then we'll go to the risk tolerance, which is kind of a -- It's related, but it's kind of a different topic. Erik. Erik, go ahead.

DR. WILLIAMS: Thanks, Marcel. I just wanted to add to the conversation, and I think, you know, Kai was on the right track that this is a good way to approach separating the risk from the uncertainty. The only thing that I will say is, and this has yet to be worked out, is recognize that the way we characterize uncertainty in our stock assessments is through a rather complicated MCBE process that sort of accounts for uncertainty in all the individual components going into the assessment.

What remains unclear, to me, is how we would make an adjustment to that, because we're very explicit about where the uncertainty is in each of the components, and, if we're saying that the overall final distribution is sort of inadequate in some way, I'm not sure how we make that adjustment in an MCBE process, which is important, because the MCBE process also plays into our projection scenarios, and so it's just a technical hurdle that we'll have to definitely consider, and think about a way to get around, but I do like where this is all headed. I think this is a good framework to work with.

DR. REICHERT: Thanks, Erik. Yes, and I think that's why I think it would be good to have a follow-up conversation to start formulating some ways for us to approach that, and I think where you guys come in is in what the consequences are, in terms of the stock assessment, and providing the projections, and so thanks for that comment. Anyone else? As I said, I would like to add -- Alexei.

DR. SHAROV: Following on Erik's question, I'm thinking that the assessments that employ MCBEs would probably all fall in the Category 1, and the ones that require adjustments are Category 2, and so that says that, in the definition of the criteria, that the uncertainty is not adequately evaluated, or some elements are missing, and so I wonder -- I would like to hear an example of that situation, what kind of stock, or what kind of assessment, would that be, and what type of adjustment, and, I mean, we're dancing around which types of adjustments to the uncertainty we're going to have.

I mean, if it's totally open, and we are going to build the system, through the practical implementation to different stocks, which each of them will have a separate challenge, then I can understand that, but, if we have sort of a theoretical basis, a background, at this point, well, at least conceptually, I would like to get sort of an explanation of, you know, which stocks, or which assessments, are falling into Category 2, and, as Kai was saying, what do we adjust? Thank you.

DR. REICHERT: Judd.

DR. CURTIS: Thanks, Alexei. I'm not prepared to give you any sample assessments at this point, but I think we'll have a list, and, perhaps in April, I think this can be a great topic to discuss, is to

come up with some examples of which assessments that we've done in the past and, you know, applied the old control rules to -- Where those -- Which categories those stocks would then fall under, as an example, and what then options might be for adjustments of those uncertainties and the various approaches that the SSC might recommend.

DR. REICHERT: Alexei.

DR. SHAROV: Again, this is sort of general thoughts, but I think, through this, we're sort of trying to, you know, get the concept and understand, and, obviously, with the first two categories, when, you know, we have some measure of uncertainty around the OFL, the MSY-based calculation, or what is the proxy, and, because there is a quantitative estimate there, I guess the adjustments would also have to be somewhat formalized, and which way I -- Well, I don't know yet.

With the other two, it would be more complicated, and probably, with the combination of sort of general criteria, logical steps, but some guessing, essentially, or an expert-based sort of evaluation to what level of adjustment you might think it requires, but really what it is going to be based on, and, again, I'm thinking that there is a risk of going into subjective evaluation, but maybe it's not so bad, but the rules would have to involve -- For them to be as objective as possible. If somebody has, you know, a better and clearer idea, I would be happy to hear it.

DR. REICHERT: Thanks, Alexei. Kai.

DR. LORENZEN: I can maybe try and conceptualize this uncertainty problem a bit more, because, I mean, every assessment model, obviously, has, you know, uncertainties that we estimate, and it has all these, you know, parameters and so on that we estimate, and then, as Erik described, in the projections, one tries to account for all those uncertainties, and then there are also, you know, components of the model, or structural assumptions, for example, that may not be associated with uncertainties, but really should be, because we're just assuming that there are certain, you know, structural elements that are just a particular way, and then, of course, there are, you know, environmental changes to relationships that we may not have estimated, because that -- So there's often more uncertainty than the model can account for, even if we do a really good job of accounting for uncertainty.

This was, you know, a -- You know, I was sort of in the Gulf SSC for a long time, and we had a different modeling framework, and so it was using SS for assessments, but, typically, SS, at the time, would produce, you know, OFL distributions that were extremely narrow, and we knew did not account for all the uncertainty, and so, even though, you know, they were trying to do that in the model, but there was just more uncertainty than the model, you know, estimated, and accounted for, and I think that's a common phenomenon, which is why, you know, the Ralston approach takes a different approach and looks at uncertainties, or looked at uncertainties, retrospectively, and so saying sort of what did we predict, and what did actually happen, and, from that, derived more sort of generic distributions of uncertainty, typically, associated with stock assessments.

Of course, it did that for the west coast, mostly groundfish stocks, I think, and so you can't easily transfer those sort of uncertainty estimates, necessarily, to our assessments, but, conceptually, you know, it's something -- Or, if you have nothing better, it's something that sometimes we can use, but, yes, the devil is in so how do we make that judgment, whether, you know, the uncertainty is

fully characterized, which would keep it in the Category 1, and, if we say it's not a Category 1, then how would we make adjustments, and so -- Of course, in order to be, you know, transparent, and rigorous, we would have to have some sort of rules that tell us how we would go about that. Thanks.

DR. REICHERT: Thank you, Kai. Alexei.

DR. SHAROV: Last time, maybe, and, to illustrate, I mean, if -- Maybe you don't need this reminder, but, nonetheless, regarding the bell-shaped curve that demonstrates the uncertainty around the OFL, think of this in the perfect situation, and like if -- If we estimated the stock size, and therefore the OFL, with no error, and so the bell curves become so in error that they are really hiding that red line, and so the scientific uncertainty here is near zero, and it doesn't matter which P* you apply, and you get the same -- You get pretty much a very stable estimate of ABC, and vice versa.

If uncertainty is very large, then the level of P* you choose is very important, and, therefore, all the categories that go into the definition of P* become important, and so assessments -- Then, after the assessment, we are, according to this document, going to be in charge as to how wide the spread is, and, depending on which elements, and what process, we devise of those adjustments, you're going to be spreading, or squeezing, this anyway it might go, and so that's the challenge for the SSC, and that's essentially our job to do with the different stocks. Thank you.

DR. REICHERT: Thanks, Alexei. Well, I think it's important for us to see if we can pick up this conversation at one of our next meetings. A couple of things I've been thinking of is a comparison of the old and new control rule, and would that be useful at all? We can probably look at some stocks where we have the information to look and see how our -- What our recommendations would have been, and it may be completely irrelevant, but it may give us some idea of especially relative to Category 2 and 3, and I would like some feedback, if you guys feel that is something useful or not.

DR. SCHMIDTKE: Marcel, I would say that's something that we certainly could put together, looking from older assessments and when we applied the old control rule, for materials at a future meeting, and see how those would compare with what the new ABC control rule approach might produce and what uncertainties might shift that default value, based on SSC discussions, if the SSC thinks that would be valuable.

DR. REICHERT: I think it would be. We can certainly talk a little bit more about that. Erik. Sorry. Fred.

DR. SERCHUK: Thank you. I think, to make this clear, we're going to have to go through some examples, because I get the feeling that we're not all satisfied with accounting for uncertainties and what those uncertainties are, and whether they're large or small. If you miss one year, and your survey vessel doesn't sample, is it -- One decides that, okay, then we're going to -- We have values on either side of it, and so we're going to take the average, and so I'm not really quite sure how -- What uncertainties are coming in here, and I think what we need to do, to make sure we're all on the same page, is have an example, and then we'll all go through the example, to get a better understanding of how this fits into the ABC control rule. Thank you.

DR. REICHERT: Thank you, Fred, for that, and I -- Again, I think it would be -- It, once again, highlights the fact that this should be a very thorough discussion at one of our next meetings, and I don't expect that we'll solve all these problems in one meeting, but we can at least start the conversation. Okay. One last chance to this topic, and, if not, I would like to see if there's any public comments relative to the ABC control rule before we go over to the risk tolerance. Anyone online, or anyone in the room? No hands? Okay. No hands. Thank you.

Let's move to the risk tolerance, and there are a number of species that we were asked to provide a risk tolerance for, and I would like to concentrate on those species, and then, as Judd mentioned, we'll handle other species when they come up for stock assessments. Judd, are you, or Mike, presenting? You'll do that? Okay. Thanks, Judd.

DR. CURTIS: Here is kind of the -- Sorry. This is Attachment 3d, and it's the Excel spreadsheet that you can download, if you want to peek at it yourselves, but I'll keep it on the screen, and so this is part --

DR. REICHERT: Is that the last one or the previous one, because there's an updated 3d, I believe.

DR. CURTIS: Correct. There should be an updated 3d. I also sent it out to your emails yesterday.

DR. REICHERT: But what you pulled up, that was the latest version?

DR. CURTIS: This is the latest version, right. This version has the notes included into this Column L here. As part of the stock risk ratings, right, as mentioned during the presentation, the SSC will review the preliminary scores that were provided at a previous meeting, when the SSC went through all these different stocks and came up with preliminary scores for these species. It's a chance to review the scores, to recommend any changes, and the AP also went through the same exercise, and made their recommendations, and then both of those will be provided to the council in December, and, from there, they'll agree on what values are selected and then, ultimately, what that stock risk rating, either low, medium, or high, will be, and that will inform, help inform, the P*.

Starting with red snapper, and we'll just kind of go down these one at a time, for each of these different species, and so the two biological attributes measured, and these come out of the previous SEDAR assessments, are estimated natural mortality and then the age-at-maturity. In Column B, you have the description of those different metrics, and you'll see that, the explanation that I had mentioned when I was listing them out, and the various criteria for an application of a one, two, three, high, medium, or low score to that particular row, and so, from SEDAR 73, the latest assessment, the constant value of natural mortality was 0.11, and so that would fall under the high category, less than 0.20, and it would assume a preliminary score of one.

Don't get confused with the green shading on the preliminary scores and recommendations. They don't apply necessarily to the low category. Is there any recommendation for a change to the natural mortality, or I guess the age-at-maturity as well? This is for red snapper. Okay. Seeing no dissent, we'll keep those as the previous recommendations.

Moving into the next round of categories, the human dimensions attributes, these descriptions are a little more lengthy, and so we have, under this section, the ability to regulate the fishery, the

potential for discard losses, annual commercial value, recreational desirability, and social concerns. I might, if there's questions on the different categories, might call either Mike or Christina as the experts in the various human dimensions attributes, or Hadley, and I think I saw him sneak in.

DR. REICHERT: Alexei.

DR. SHAROV: Before this, I had a question on the -- I guess you were offering a possibility of giving different weights to those scores, and you currently have one, one, one for -- Do you see what I'm talking about, just under the age of maturity, and there's some sort of weights, and there is no explanation as to what they are.

DR. REICHERT: Mike.

DR. SCHMIDTKE: When you all developed this table, or this worksheet, at that time, you were considering possibly having some different weighting mechanisms for the different categories, and so we put them into the spreadsheet. Ultimately, you decided that you didn't want any differential weighting, and so everything is weighted one, and so there's an equal weight between the biological, the human dimension, and the environmental, if an environmental attribute is identified, but that's how -- That's how they're weighted.

There is the potential, at some point, if you felt, down the road, that you wanted to change that decision, and then it would be easier, from, you know, a spreadsheet standpoint, because we already have it built in, but, right now, the decision that you've made is the biological and the human dimension categories, as well as the environmental, are weighted equally, and so you'll see ones there, and that's why that row is there.

DR. CURTIS: Thanks, Mike.

DR. REICHERT: A quick question about recreational desirability. This is three, because less than 1 percent of the trips report targeting the species. Red snapper is kind of unusual, because there is a very short season, and so, outside of the season, people can't fish for them, and so they don't target them, and so I'm wondering if we should discuss that scoring there, or maybe I have overseen something, and it's actually -- The scoring is based on something else. I would argue, for instance, for red snapper, that it has a very high recreational targeting, but, anyway, I would like to hear from other members or staff. Jennifer.

DR. SWEENEY-TOOKES: I just wanted to reinforce and second what you said, Marcel, that red snapper is -- They're not able to target it much of the year, but, of course, it does not reduce any sort of desirability. The targeting is always the sticky question.

DR. REICHERT: So, in other words, if you would ask this question within the very short red snapper season, I bet you that the percent targeting would be a lot higher, and so that's why --

DR. LORENZEN: Also, everyone wants to go and catch red snapper, right, and so it seems weird to give that a low desirability rating, on first principles. I mean, yes, maybe there is limited targeting, because, you know, there is limited opportunity to target, but, yes, I don't see that -- You know, putting red snapper down as low seems extremely strange.

DR. REICHERT: Jeff and then Anne.

DR. BUCKEL: I'm looking at, in Column C -- In Columns C, D, and E, those cells are -- There's a quantitative -- Like the less than 1 percent of trips, and so I think, if you look at the trips, the 365 days of the year, that's what that is -- Less than 1 percent of the trips are targeting those species, because, for the bulk of the year, they're not targeting, and so if you look at -- There is one million trips over the year, and, if a very small percentage of those are targeting red snapper, based on the MRIP creel, it seems like it's -- There's a quantitative approach there, and it's not something about the day of, what's the desirability, versus the other 363 days of the year. It's a whole year, how many trips, and the percentage, and so, if we follow C, D, and E, then we do the math and see where you fall.

DR. REICHERT: I completely agree, but then, if you -- This attribute evaluates the importance of a species, but to the recreational fishery, and I have Anne and James, but, to that point --

DR. SCHMIDTKE: It may end the conversation, and I put the wrong number. I put the wrong number. If you look at the criteria, the criteria should be a one.

DR. REICHERT: That simplifies the discussion. Does that answer Anne and James' question? Anne.

MS. MARKWITH: Yes and no to my question, and it's just more -- Because we run into this sometimes when we're calculating what we consider a targeted trip, and so my question was more just how are we considering a targeted trip, and is it they caught it, or is they discarded it, or is they went out and said they were going to target it, because you can combine that all in different ways, to get different answers, but his response also makes more sense now.

DR. REICHERT: Chip, to that point.

DR. COLLIER: The way I did it for this analysis, it was prim one, prim two, and landed.

DR. REICHERT: Thank you, Chip. Other comments on the human dimensions attributes? As Judd mentioned, the social concerns, that was something that's -- That was not at all included in our previous ABC control rule, and so --

DR. CURTIS: Apologies, and I was fiddling with the spreadsheet, fighting with Excel, and so are there any recommended changes to the preliminary scores, now that I've established the correct preliminary score, for desirability?

DR. REICHERT: Seeing none -- Christina.

MS. PACKAGE-WARD: I guess it just seems like the social concerns one doesn't really show the importance of red snapper, either with the elements that are included, and so I guess -- I don't know, and maybe that needs to somehow be changed.

DR. CURTIS: Do you have a recommendation on what to change it to? I think Christina is going to come to the table to elaborate.

MS. WIEGAND: So some of the reason that we didn't sort of bump that up from a low rating to a medium rating was the fishery performance report information for red snapper didn't really indicate that anyone was relying on red snapper to make their business work anymore, given the limited season they have for it, and I would say that's certainly does not reflect the sort of salience of the red snapper issue and the importance of what it represents for management, and I wasn't able to listen into the Snapper Grouper AP discussion last week, and so I don't know if they said anything that indicated that that should be moved up from a lower risk rating.

DR. REICHERT: Mike, to that point, and then I have Jennifer.

DR. SCHMIDTKE: No, they reflected kind of the comments that you made, Christina. Basically, they can't harvest the species, and so it's not something that they build their business, and it's not something that they build their trips around anymore, outside of the one day a year, but, for 364 days a year, they're not building trips around red snapper, because -- And they can't rely on red snapper to support their business significantly, and so that -- I think that kind of captures what they felt about it.

DR. REICHERT: Kai.

DR. LORENZEN: It seems to me that, you know, we have to account for whether -- You know, it not being a big component or why it would be targeted also, is because of management measures, or it's because it's naturally, you know, absent, and we don't really capture that.

DR. REICHERT: So the potential, the current or potential, which is another element of that.

DR. LORENZEN: Right, yes.

DR. REICHERT: Jennifer.

DR. SWEENEY-TOOKES: I did want to respond after all. I think Kai nailed it, and so understanding that businesses are not being built on this catch right now, understandably, but that's a result of management, and not a result of choice, and I feel like we're sort of shifting their baseline then of the business model further down than what people are actually experiencing, by saying they're not relying on it now, and there's sort of an assumption that now is okay, whereas I don't know that anyone would agree with now is okay who is running a business.

DR. REICHERT: I'm not sure if staff can comment what the -- When this was developed, what you guys were thinking, in terms of -- Again, red snapper is kind of a peculiar species, in that respect, and whether it's currently on or what the potential is. Mike.

DR. SCHMIDTKE: Especially for the snapper grouper fishery, in the current management environment, it's going to be really difficult to try to parse out the fishermen's choice of fish that they're going after from the management, because there are a lot of highly-regulated fisheries within that management plan, and so they're going to target what they can keep, and management is going to affect that, and so those two issues are going to be interrelated.

I would also say that these scores are not permanent scores, and these are things that are going to be reevaluated with each stock assessment, and so this may be something that exists for the current environment, and that's okay, because, next time we have a stock assessment of red snapper, you all are going to look at this, and the council is going to look at this, and they're going to say there may be a completely different environment, and it may merit a different score at another time, and so do think, when you evaluate this, this is intended to be developed for the now, the current environment, and not necessarily for the forever future.

DR. REICHERT: Thank you. Kai.

DR. LORENZEN: I mean, it's not impossible to ask people how they, you know, rate species, you know, and their preferences, and we just don't do that, and we sort of try and deduct that from information on what they target, or what they have caught, but, you know, it's not difficult, in principle, to do surveys where we, you know, get people's, you know, ratings of how important, charismatic, whatever they find a species, and we do that quite regularly, and it's just not done on, you know, a sort of council level, and so we have surveys like that that we do in Florida, where we ask people things like that, but, you know, it's not impossible to get information that better characterizes how people value particular target species, but we're just not getting that.

DR. REICHERT: Thank you. Anyone else? Seeing no hands, and no one online, environmental attributes, and I noticed there were no scores in there. Mike, I think I read that this is kind of a little bit differently scored than the other one, and so maybe you can remind us how this works.

DR. SCHMIDTKE: Yes, and so this is basically an on-off switch. Is there something, from an environmental standpoint, that merits additional risk should be attributed when evaluating catch levels for this species, and some examples of that are listed, in terms of is it a keystone species within its environment, and so ecosystem importance, or does it do something that has a significant effect on other species in its environment, and is it something that's being affected, and this probably would be more in the negative camp, but is it being negatively affected by climate change, such that the dynamics of that stock would be changing as we're taking a look at evaluating this species, and then potentially other environmental variables.

I know one that's been talked about, from an environmental standpoint, for a couple of species, has been something like coastal development, species that are located kind of in that nearshore area that could be affected by water quality from changes in coastal development and things like that, but, basically, if there is anything from the environment that would merit some extra caution in determining catch levels for a species, then it would get a one, and it would just get like this has some environmental factor, and, if there isn't something of that sort, then it would have a zero, and it wouldn't be included in the average. Not a zero, and it would be a blank. It would essentially be a blank.

DR. REICHERT: James.

MR. GARTLAND: Just thinking about our conversation from earlier, when we were uncertain about how to incorporate other uncertainty into the distributions, one of the uncertainties we talked about was environmental impacts and things like that, and this kind of captures that, doesn't it, because, if we can score the ones, or blanks, as we do, if we feel as though there's uncertainty, due to environmental conditions, we would capture that here, and that would increase the risk score,

basically, on this species, which would impact the P*, and then we wouldn't have to worry about moving the distribution, and is that correct?

DR. SCHMIDTKE: I can see that, in a way. Ultimately, the risk scores are determined finally by the council, but you could recommend that there is some environmental factor that merits additional -- I guess less risk tolerance for a species.

MR. GARTLAND: Got it. I'm still learning to process it. Thanks.

DR. REICHERT: Kai.

DR. LORENZEN: I see that differently, and I think this is about whether a species plays an important role in the ecosystem, and, therefore, we should be less risk-tolerant than we would be with a species that we think does not play a really important role. This wouldn't be accounting for environmental uncertainty, in my mind, and this is about, you know, how sort of ecologically valuable that species is, and, therefore, whether we should, you know, take extra precaution or not, but it shouldn't -- You know, this is not about the environmental uncertainty, and this is about the role that the species plays in the environment, in my mind.

DR. REICHERT: Yes, because, in the old ABC control rule, it -- Specifically, it was whether or not, or to what degree, the environmental parameters were included in the stock assessment model, and I think this is a little different, correct?

DR. LORENZEN: Or maybe I think, when I look at this, this is a little bit -- It's a mixture, I guess, and so it has -- You know, it says species importance in the ecosystem, which is what I was alluding to, and then it's, you know, is it subject to other risks, say from climate change, that are not accounted for, and I do think -- I mean, this does conflate the uncertainty, and the value, to some extent, but probably we should clean it up, so it does only the value part, because I think everything else should go into the uncertainty, which is separate from the risk tolerance. I was trying to separate, you know, the uncertainty that we're dealing with from the tolerance we have for risk.

DR. REICHERT: I've got Mike and then Alexei.

DR. SCHMIDTKE: Yes, and I was going to point out that it is kind of a mixture. I think, and I was not here at this point, when it was developed, but, from what I've read, and Chip may be able to correct if it's wrong, but, from what I understand, basically, when you all developed this section of the attributes, there was not enough information to really specify a high, medium, or low, and there also were such a wide variety of environmental factors that could be affecting a stock that you kind of just lumped it into one category, and, if there is something from the environment that's affecting the stock, or if this -- If overfishing of this stock could have a significant effect on the environment, and so it's kind of the two-way street, then you would assign some additional caution, less risk tolerance, to the stock in that fashion.

It's kind of both, and I think, optimally, like we would love it to be cleaner, and just, at the time that this was developed, there wasn't the information to define it into categories and to parse out something that would be broadly applicable to a lot of different species.

DR. REICHERT: Thank you, Mike. Alexei.

DR. SHAROV: I see a clear reason why there are at least three categories here, and the ecosystem, or the importance in the ecosystem structure, is clearly, you know, important to identify, and I wonder, with red snapper, what are we going to say about this, and I would suggest that maybe one of the objectives -- A way of doing this is looking at the results of the EwE for the South Atlantic, to identify, you know, whether a particular species is, you know, an important element of the energy flow, as a predator, or as a prey, and so I wonder what you think about red snapper in that sense.

Yes, I totally agree with the -- Looking into the future, the separate categories of climate -- Are there alternative effects, because they are going to be probably more and more reported, presumably, and some risks associated with those changes as well will be pointed out, if not quantified, and so I think it's appropriate in there. There are different categories, and I think it's a good attempt to break, you know, a number of the uncertainties related to the ecosystem, to at least three here, and hopefully we'll not have fifteen in the future, but, you know, for now, I think that's appropriate.

DR. REICHERT: Thank you, Alexei. Chip.

DR. COLLIER: Mike was exactly right. When we were developing this, we had very limited information, and, basically, red grouper was probably one of the only species that we had evidence of maybe environmental importance, or ecosystem importance, where they're potentially building nests, where other fish can inhabit, and so we were thinking beyond -- You know, in science, it's hard to prove a negative, and so this was how we were trying to address it. If there are published papers on it, like Alexei said for the top one, and I think that's a really good example, potentially, for climate change.

Trish Murphey just pointed out that maybe we look into the climate vulnerability analysis, and maybe that could inform some of the discussions, and so I think there are some pieces of information that are coming along that could definitely inform these discussions, and the other thing I want to point is, you know, we're doing this for red snapper right now, for the stock assessment that's starting next year, and so this is trying to separate it. We're trying to address risk here, and then the uncertainty is going to be something that the SSC addresses as it begins to set the ABC.

DR. REICHERT: Thank you, Chip. Another thought I had, and, again, this may be not for red snapper, but a scoring creates additional -- Or assumes additional risk, and I can foresee species that may benefit from climate change, and so there can also be the potential reduction in risk, based on some of these environmental attributes, but that may be a discussion, or a conversation, for the future. For now, for red snapper, does the SSC feel that we need to add, or check a box, in any of these? Seeing none, then this is the score for red snapper. Kai.

DR. LORENZEN: I just want to go back to the very top, to the biology, for a second, because I think it's interesting that we end up, you know, based on the natural mortality, and, on the maturity, we end up with opposite risk ratings, which, you know, it's partly there is something weird about snappers in general, and the red snapper in particular, but it also seems, to me, that probably the three rating for the age-at-maturity may be an artifact of it having been derived when the population was very depleted, because then, you know, you get them growing faster, maturing earlier, and

age-at-maturity is one of those things that is very responsive to abundance, and sort of exploitation level, in a sense, and so it's -- You know, this may be influenced by the exploitation status, since that is more than was maybe the intent.

DR. REICHERT: Have we -- I don't want to put you on the spot, but have we seen a change in maturity in recent years? You guys have looked at that, right? Wally.

DR. BUBLEY: The data exists to look at that. It hasn't yet, because we haven't gotten to that point in it, and so maybe that's one issue that some process like this, where we're figuring out the risk rating beforehand, and is this something that we could potentially change, when we go through the process, because that's when those data are introduced, and, if we see that there is an adjustment in age-at-maturity, then we can adjust accordingly, but, as of right now, the data exists, but we just haven't explored it yet.

DR. REICHERT: Fred.

DR. SCHARF: Just to build on what Kai was asking, and maybe this is a question more for Chip, and Mike too, about -- So I had two questions about these biological attributes, and so why was it limited to just these two traits? You know, I assume that this is trying to capture what was in the old ABC control rules, where we had a score for susceptibility and productivity, right, and I think that's what we're trying to capture here, but so there isn't any mention of the growth relationship, like the von Bertalanffy parameters, or longevity, or other attributes that can affect stock productivity or susceptibility, and so why these two only?

Then the other is should our assessment of risk just be based on the estimate itself, rather than any of the uncertainty around the estimate? In other words, like this estimate of natural mortality, is it based -- Is it generated through the assessment itself, or is there independent data to validate that estimate of natural mortality, and so, in other words, sort of how confident are we in the estimate itself, and should that factor into our risk assessment?

DR. CURTIS: I think most of these values are coming directly from the previous stock assessments, right, and, as Mike alluded to, these are adaptable, and you can change them. They're not fixed permanently, and so, if there's new information coming out, either from the subsequent assessment or from other independent literature that you know of, you could recommend those changes. As far as why these two categories exactly, I'm not sure about that, and maybe Mike can answer it, but I think it is related to the productivity and susceptibility analysis that was done as part of the previous control rule.

DR. REICHERT: Mike.

DR. SCHMIDTKE: So the attributes that were initially included in this, from my understanding, were from the productivity and susceptibility analysis. They took attributes from that, and you all put them in here. I think one of the reasons why there isn't necessarily -- Thinking specifically of growth parameters potentially being included here, one of the reasons is because then you kind of get overlap, and a little bit of double scoring. A lot of the times, we're not directly estimating natural mortality, and, a lot of the times, we're doing them based on growth parameters, and so there is the potential, in these biological characteristics, to have some overlap between the different things that are included.

I don't know if Chip can answer more, if there were actual discussions on which of these -- Which biological attributes were included, versus not included, but I know that that's one of the things that I've noticed, as far as, when I look through the assessments, and I see where are these natural mortality estimates coming from, a lot of times, they're coming from other biological attributes.

DR. REICHERT: Alexei.

DR. SHAROV: I think it's appropriate to have natural mortality here, and the maturity, the age-at-maturity. Yes, these are sort of the very basic elements from the productivity and susceptibility, but, obviously, you know, the natural mortality is, you know, one of the basic principles, and related to the maximum age longevity, which could have been included here, but they are related, and so, for low Ms, the species is more susceptible, and sensitive, to the fishing pressure.

Vice versa, the maturity, again, the ability to reproduce quickly, and I don't know if there was -- If any additional elements would be or should be considered from sort of the productivity standpoint, and that would be maybe the frequency of strong year classes, or something related to the recruitment pattern, and that is, you know, that there is some species that are really dependent on singular strong year classes, theoretically, or, you know, haphazardly appearing, and then the population rides on that, versus the others that have more consistent sort of inflow. You never could be perfect, but I think these two basic ones are appropriate, and I see the value.

DR. REICHERT: Thank you, Alexei. A question for staff, I believe, and is -- After the SSC reviews, and approves, a stock assessment, and if the age-at-maturity and estimate of natural mortality has changed, is the intention then to change that in the matrix, kind of automatically, since it went through SSC review, just to -- Sorry, and this has nothing to do with red snapper, and I'm just wondering how that would -- Procedurally, how that would work.

DR. CURTIS: Yes. If we have updates to the biological information, then what would happen is we would -- Because, ultimately, this is a council decision, and so we would update the council that this number changed from the assessment, and this is the new estimate, and so they would then have to make a decision to update, potentially update, the number, according to that new assessment, and, if they weren't doing that, then they would have to give some rationale as to why they wouldn't be updating it.

DR. REICHERT: Thank you. Steve.

DR. TURNER: Do the rows included in this spreadsheet change from species to species, or hermaphroditic stocks, and does some of that information get included in the bioweight?

DR. REICHERT: I don't believe the tables are changing. This is just for -- The same matrix for all species. Chip.

DR. COLLIER: They typically stay the same, or they stay the same for all species, and one of the reasons that hermaphroditic isn't included in there is because, in the setting of the proxies, that could be considered as a reason to change the proxy, and so we're trying to keep risk different than uncertainty and then different than, you know, potential reasons for setting proxies in certain situations. Steve, you don't look happy with that response.

DR. REICHERT: Okay. Any other -- So this brings us to a score of 1.8, in the high category, for red snapper.

DR. CURTIS: For the total, yes.

DR. REICHERT: Yes, the total. I just wanted to wrap this up, so we can move to the next species. Mike.

DR. SCHMIDTKE: One small note clarification, and so, yes, that's the final recommendation for your risk score. As far as the rating that it falls in, the high, medium, and low category, when you all decided how those categories would fall within the scores, you decided that, basically, all of the species that are included in this would be divided up into thirds, and so one-third would be medium, one-third would be high, and one-third would be low. That means that the dividing numbers change, based on the scores of the species, and so, as we enter these, and we're going to go through I think five species today, and so, as these are entered, and these are finalized, the line between high, medium, and low may shift by a little bit.

DR. REICHERT: Fred.

DR. SERCHUK: Thank you, Chair. Is there an area that has not been included in the attributes, in terms of offshore development, either in relationship to the effects of offshore development on sound or on other factors that would be affected by let's say offshore windmills? Some species will be more affected than others, because of it. I'm sure of that.

DR. REICHERT: I don't believe that's a factor that is currently included in our matrix, Fred.

DR. SERCHUK: Okay. I mean, we've included climate change, but, of course, climate change is related to human activity. You know, we are concerned, particularly for marine mammals, with changes in sound in the system generated by windmills, and I'm just offering a suggestion that we include all the other factors that might be important, in terms of the natural resources in the ocean relative to issues that could affect either their abundance or their life cycle characteristics. Thank you.

DR. REICHERT: Mike, I saw you come to the table. To that point?

DR. SCHMIDTKE: Yes, and we kind of have a catchall in the environment, and I think that even human-based effects on the environment would be something that falls under that umbrella, and we can notate it a bit more within that last like other environmental variables category, to just have an inclusion in that description of human-derived effects on the environment, which would include offshore development as well as coastal development, if there are significant impacts on species from either of those factors.

DR. REICHERT: Thank you, Mike. Jim.

MR. GARTLAND: I was just going to say it looks like that could fall in other, in the other category, and that's it.

DR. REICHERT: Thank you. I see Chris and then Alexei. Chris, go ahead.

DR. DUMAS: I apologize, and I've been trying to formulate this thought for a little while, and I need to circle back to the human dimensions categories, if possible, the recreational desirability and social concerns, and so suppose you have a species that starts out in an unexploited state, and so it's a new species, and that species turns out to have -- It's discovered that it has high recreational desirability, and it has high social concern. Society really likes it, and so they really start going after that species, and they start fishing down the population.

Then, as the fish population starts to get smaller, then the percentage of trips reporting that as a target species could get smaller, because, as the population gets smaller, even though the fishermen love it, they will start shifting away from it, as the population gets smaller, and, also, as the population gets smaller, the communities that are highly reliant -- The number of communities that are highly reliant on that species will get smaller, and so, as the fish population that is highly recreationally desirable, and there is high social concern for it, as it is in fact exploited, and it starts to undergo overexploitation, its risk of overexploitation in this system will become lower, which to me makes no sense.

The risk of overexploitation is a one, a two, or a three on here, and so, as a very popular species is fished down, the size of the population is decreased, and so, as it is in fact becoming overexploited, then our risk of overexploitation measure will get less important. It will go from a one to a two to a three, and, to me, that's opposite of what it should do. It's counterintuitive, and I think, if we just go to the public and say we have these two criteria, recreational desirability and social concerns, and we're weighting both of them low for red snapper, I just think the public is not going to get that.

I think, you know, they would say -- The public would say that red snapper are highly recreational desirable, and there's a lot of social concern for red snapper, as evidenced by all the special studies that have been authorized and done on red snapper, and, because of that, because red snapper both is highly recreationally desirable and there's a lot of social concern for it, those factors increase its risk of overexploitation, and, in fact, it was overexploited, although now maybe it's coming back, but those -- I just -- I don't understand the -- The rating mechanism seems to be opposite of what I think would make sense, but maybe I'm misunderstanding. Can anybody help me with that? Thanks.

DR. REICHERT: Mike.

DR. SCHMIDTKE: So, for red snapper, just clarifying, I had put the wrong number in that box initially, and that's what kind of started that discussion, and, when you look at the notes that are identifying these are the attributes that were evaluated, it falls into the high category, and so that's been corrected. It's in the high category for recreational desirability.

In terms of the concept of what you were bringing up, Chris, as far as when a species gets fished down, if a species is highly desirable, or highly commercially profitable, one of the characteristics that I would think would be associated with it would be that, even as it -- Basically, the fishing is not simply going to reflect the abundance of the species.

As it goes down, fishermen are going to put in more effort to be able to maintain their catches of something that is highly recreationally desirable or that has high commercial value, and so, if their catches are starting to go down, and they're starting to turn away from that species, because the abundance is not as high, then maybe it is not as desirable as it would seem, or the management scenario in place at the time has kind of created this environment where there is not the desire for this species, but we have --

We have other species that you will see later on, as you continue to evaluate, where they're going to have a high amount of importance, and one of the characteristics of that would be that the fishermen are going to try to catch that quota, even if, you know, they may not -- Even if they have to spend extra hours to do it, because it's that much more profitable for them, or it makes the trip that much more enjoyable, and so I think that might be a way to think about it in characterizing these things, and how that fits into this scale.

DR. REICHERT: Christina, to that point.

MS. WIEGAND: To sort of illustrate how -- Exactly what Mike just described there, and it fits into the social concerns, and so the counties that we're identifying are identifying proportionally, and it's not that they have enough landings of red snapper, and it's that, proportionally, they have high landings of red snapper compared to the rest of the coast, and so, even if landings, in total, go down, those communities will still pop out, and the reliance indices are actually not species-specific.

We're saying they're highly reliant on commercial fishing, or recreational fishing, and then all of that is sort of groundtruthed based on information that's provided by the advisory panels and their fishery performance reports. There have been occasions, for other species, like mutton snapper, where they come out as a low risk, but, because of a lot of what the AP members are saying, we actually bump that up to a medium-risk species, and so there are sort of ways to capture that concern.

DR. REICHERT: I had Alexei earlier, to that point, and then I have Jim.

DR. SHAROV: My comment, or actually question, was clarification, and a question to the SSC, as to the environmental attributes. I'm confused why we're not rating it. It is -- I see that the AP panel at least rated the other environmental variables, unless that's just another wrong number, and my understanding is that we still have to rate it as to, you know, either low, medium, or high, and is that correct or not?

DR. REICHERT: Alexei, as I think Mike explained earlier, this is a different scoring than the other categories, and so this an on/off switch, and so, if the answer is say high, or yes, then you score it. If we don't feel it applies, then you don't score it, and there is no additional risk. If you score it, there is additional risk, risk tolerance, and did I explain that correctly, Mike? Thanks. Does that answer your question?

DR. SHAROV: I guess yes, and so it is an ad hoc. Okay. Thank you. Sorry for --

DR. REICHERT: No worries. Jim.

MR. GARTLAND: I just want to go back to Chris's point for a second, and so I totally agree with what you're saying. You know, as you fish it harder, it goes down, and your score changes, and it didn't make a lot of sense. I'm wondering if the issue might just be the wording in Column A, right, and so it says "social concerns", and, if we were to say like, oh yeah, it's a low risk in the social concerns, people might have an issue with that, but, in C, D, and E, it's all saying "reliance", right, and so should it be social reliance instead, because, if you fish a stock hard, it goes down, and people stop fishing on it. Because the stock has gone down, the community shifts to something else, and it is less reliant on it now, and would that be a more accurate reflection of what we're trying to measure here, using the term "reliance" instead of "concerns"?

DR. REICHERT: Chris.

DR. DUMAS: But then we could, you know, reduce the community reliance on all species just by wiping out all species, which, you know --

MR. GARTLAND: That's debatable.

DR. DUMAS: Then our risk of overexploitation measure would be low, if we wiped out all the species, which I think is opposite.

DR. REICHERT: Christina, to that point?

MS. WIEGAND: Just a clarification, and I'm sure that Christina Package-Ward might be able to explain this better than me, with her familiarity with social indicators, but, to be clear, it's not reliance on this species, as compared to other species, and it's reliance on commercial fishing as an industry, or recreational fishing as an industry, compared to other opportunities outside of fishing within that community or county.

DR. DUMAS: But, even with that interpretation, I guess what I'm getting to is the current reliance of the community on fishing, versus what the potential reliance of the community could be on fishing, if the fish stocks were healthy and recovered, which could be much higher, even if it's relative to non-fishing industries in the region, and so it's kind of an ex-post versus ex-ante kind of question. Are we saying what the reliance could be, if the stock were healthy, which seems to me -- I don't know, and that might be difficult to assess, but that's a better way to think about it, as opposed to what the current reliance is, which is a function of what's happened in the past, and potentially management mistakes that happened in the past.

DR. REICHERT: Kai.

DR. LORENZEN: It seems to me -- I mean, if it's not species-specific, and we're just talking about the reliance of seventeen communities on fishing, then I don't see why it's in the risk tolerance sheet for this particular species, because it doesn't -- You know, that information is not germane to how we rate the species. I think we're on the wrong track with the reliance anyway, and I think what we want is a measure of how important people find this species socially, and so it's not -- I think the reliance doesn't -- I think it's not a good measure, because it's so influenced by management measures and things like that, but what we want to capture, which was the original, I mean, social concerns, is different from reliance on that species, but I also think -- I mean, if it's

true that the community reliance here is just on commercial fishing, or recreational fishing, then I don't see how that, you know, comes into the risk tolerance for a particular species.

DR. REICHERT: Jim.

MR. GARTLAND: I just got thinking about it a different way. Instead of having it as, you know, the number of communities rating it as low, middle, and high, is it the change in the number of communities that we could use as a rating for low, middle, and high, and so basically the slope, right, what the change has been over time, and that might give you some idea of what your potential could be if things got turned around.

DR. LORENZEN: That's not specifically related to the species, and I don't see how that would influence our risk tolerance for this particular stock.

DR. REICHERT: So I'm not sure if we can resolve this. Jennifer.

DR. SWEENEY-TOOKES: I just wanted to speak to that last point. When Christina explains it, this makes sense, and it might be the beginning of sort of fixing Chris's concerns, but I don't think that the actual wording we have here is echoing what Christina is saying. I think we have a gap between what you're explaining to us and this wording that says it considers a stock of high social concern, and so I think that might be part of where we're, to quote Genny, feeling some heartburn over this issue, is that we're not reading what we're hearing, and so maybe it's just some simple revisions to make this make sense for all of us.

DR. REICHERT: Thank you, and that's what I was going to say. I don't think we're going to be able to resolve it, but one of the things I would recommend is to see if we can -- If it would be good to clarify some of the language in there, to reduce our, quote, unquote, heartburn. Mike.

DR. SCHMIDTKE: Yes, I think we can look into clarifying some of the language. I know, this being the first round for the AP last week, the SSC this week, the council when they see this in December, and one of the things that we're learning, as we're learning, as we're going through the first round, is we learn where the problems are, and we learn where adjustments need to be made, and so I know definitely coming to the council in December, and we'll bring up with them that these are some of the places where the AP got hung up, some of the places where the SSC got hung up, and see what flexibility we have.

When we wrote the amendment, we tried to make this a fairly flexible type of structure, especially -- For like the wording within the risk scoring, I'm not sure that that should be an issue, as far as the amendment itself, or, you know, the management plans, and so there may be some adjustments that can be made, and don't need a larger, more prolonged change, and we just need the council to give the direction for that.

I do want to clarify, just because I needed to clarify with Christina myself, and so there is a species-specific aspect to this community evaluation, and I'm speaking on her analysis, and so she'll have to answer any questions about it, but, from what I understand, she took the top-ten counties, and she identified community at the county level for this analysis, I think mostly out of time, and we would like to get it at a finer scale, but that's where we're at right now, is at the county level, and so the top-ten counties in the region for landings of this species, and then, within those counties,

what is their reliance, in general, on commercial fishing, or on recreational fishing, and so top-ten for commercial, and so there is a species-specific aspect, because you're identifying the communities based on are they landing this species.

Then, within that community, if you have a community that has high landings of red snapper and that community has let's say high recreational landings of red snapper, and that community is also in general highly-dependent on recreational fishing, then that would identify it as a community that has a high reliance on red snapper, and so it's the combination of those two aspect, the landings by county, plus the county's reliance on general commercial or recreational fishing.

DR. REICHERT: Thank you for that clarification, Mike. Alexei and then Kai.

DR. SHAROV: So a general response to Chris's concern over the counterintuitive definition of risk here, with respect to the recreational desirability and the social concerns in the case of the overexploited species, and, on the surface, it seems to be counterintuitive, but, because the evaluation is based on -- We're looking at it from the perspective of what is the risk for, you know, the population being overfished, or not being able to recover, et cetera, and, if the stock is overfished, like red snapper, and the regulations in place, specific regulations, such as seasonal and spatial closures, it would bring it to the point that the species, because of the existing regulations at this point, becomes less desirable, or undesirable, to the point that people are trying to avoid it, because they cannot keep it, because it is say recovering, expanding, and that creates more trouble for them.

From that perspective, even if though the species is overfished, but, because of the current regulation system, it is not desirable, and, therefore, there is a lesser risk from the recreational community to overfish it, and so I see it being logical, and, yes, even though a stock could be at low abundance, but, because of the conditions, the regulatory measures that are in place, the risk could be low, and so that's the way I interpret it, and I think that makes sense here.

DR. REICHERT: Thanks, Alexei. Kai.

DR. LORENZEN: For a change, I just had a clarifying question about the communities. Are these the communities that are in the NOAA community profile, and so these are the --

DR. CURTIS: I believe they are, but Christina is going to --

MS. WIEGAND: They are, and so it's at that community level that's in that, and you're talking about the NOAA social indicators database?

DR. LORENZEN: Yes.

MS. WIEGAND: Yes.

DR. LORENZEN: Okay. Thanks.

DR. REICHERT: Thank you. Wally.

DR. BUBLEY: So I thought I had this, and now, the more that we're talking about it, I'm getting a little more confused, and so the recreational desirability, what Alexei was saying, I kind of understood that, but it's being -- It's not as desirable if it's being held down by regulations at this point, and I grasp that, but, also, trying to think of where this is being utilized, and so what happens if the next assessment for red snapper turns out well? Are we still accounting for that, because that's now going to be released. Those management regulations potentially are going to be released, and so there's more potential for them to be overfished, and how does that come into play with this, because it's more the now, but we're utilizing it for the near-term future, based on that assessment, and so is that a concern?

SSC MEMBER: I kind of worried about that too, because it's not really taking kind of account, I guess, that latent, you know, potential there. If something gets unleashed, all of a sudden, you know, everything changes.

DR. REICHERT: Chip.

DR. COLLIER: For recreational desirability, red snapper is a high now, and it can't go any higher, and so -- But, if things change in the future, yes, we can definitely look into that, and get more analysis done on this, but, as far as for red snapper, it's a high, and I don't see that changing.

DR. BUBLEY: So that's why I had a question then with the language in here, because, based on the numbers that it's giving, it wouldn't be a high. It's saying it's less than whatever percentage of the trips are targeting that species, and they're not targeting that species, because they can't target that species, and so that's where I'm kind of getting confused here, because it's using that strict number.

DR. REICHERT: Kai.

DR. LORENZEN: I just wanted to point that, of course, what we're looking at is, you know, things that will make us be less risk-tolerant, right, and so, if we assess the species as being of high concern, it means we will become less risk-tolerant, which means we will be more restrictive on future red snapper ABCs than we would be if we did not rank the species of high concern, and, you know, I'm just pointing out that this is putting us into an interesting -- An interesting management scenario.

DR. REICHERT: A quick question for Mike. You said the current score is one, right, for the recreational desirability?

DR. SCHMIDTKE: Right. The current score is one, if you look at the metrics that are noted in the notes section, and so, between 2018 and 2022, the annual targeted trips ranged between 5 percent and 36 percent, and, when we look at -- They had an average of 19 percent, and so, when we look at where that falls in kind of our default scoring, that's greater than 5 percent of the annual trips, and so that puts it into the high category, and that was the error that was pointed out earlier, where I had entered it as a three, but the notes had the correct percentages identified from the directed trips, and so we updated that number, and it's a one.

DR. REICHERT: Thank you. Wally, you're good?

MR. BUBLEY: I'm good.

DR. REICHERT: Okay. Christina.

MS. PACKAGE-WARD: Sorry, and I just wanted to clarify about the commercial and recreational indicators and the reliance on dependence indicators are relative measures, comparing across communities, and not across industries, and so it's just within fishing.

DR. REICHERT: Thank you for that. Relative to red snapper, any other last questions? If not, I'm going to propose we take a ten-minute break, and we'll come back at 10:40 to go to the next species. Thank you.

(Whereupon, a recess was taken.)

DR. REICHERT: All right. Welcome back. We are currently on the risk tolerance matrix, and we have done red snapper, and our next species is tilefish, or golden tilefish. Judd.

DR. CURTIS: So same drill, and hopefully we've gotten some clarification on descriptions of the attributes out of the way, and we can just pound through these quickly, and so next up we have golden tilefish, and, starting with the biological attributes, estimated natural mortality and age-at-maturity, and they have preliminary scores of one and two, based on the last SEDAR 56 assessment, respectively, and so any changes to those recommendations, to the preliminary score recommendations?

DR. REICHERT: I don't see any hands up.

DR. CURTIS: Okay. Moving down into the human dimensions section, we've got the ability to regulate the fishery at a two, based on ACL exceeded by less than 15 percent in 2019 and 2020, less than -- Or in 2018 to 2022. In 2019 and 2020, less than 1 percent, and 2022 was less than 1 percent. Potential for discard losses, the previous assessment said characterize discards as negligible, in the notes, and so the risk of exploitation has been assigned a preliminary score of three. Any requested changes to that value?

DR. REICHERT: A quick clarification, and so it's a deepwater species, and so the discards is negligible -- That's because of there is no size range, or very -- That most of the catch can be landed? Sorry, and this is probably in the stock assessment, but --

DR. CURTIS: Yes, and there are no size limits for this species, and, as far as I understand, the golden tilefish fishery is pretty specific. There's a pretty good ability of the fishermen to target, when they're going after golden tilefish, and so they can go there, and they can catch what they are able to harvest, and then they can leave the spot and go fish for something else.

DR. REICHERT: Thanks for that clarification.

DR. CURTIS: Okay. Next up, we have annual commercial value, and it's assigned a high risk of overexploitation, based on a total of greater than 10 percent total revenue, annual revenue, for all years from 2018 to 2022, and it was greater that 40 percent for total trip revenue for the years 2018 to 2022.

DR. REICHERT: Okay.

DR. CURTIS: Recreational desirability, it's been assigned a preliminary score of three, low, and less than 1 percent of trips report targeting this species.

DR. REICHERT: Okay.

DR. CURTIS: Social concerns, it's estimated that, at the county level, most communities have low reliance on this species, with one exception being medium in Dare County and one medium-high in Monroe County, Florida, and so a preliminary score of two was assigned.

DR. REICHERT: Jason.

MR. WALSH: I'm confused. Looking at the rubric, it should be seven to thirteen communities, to get a score of two, and is that -- Am I misunderstanding? Only two communities have medium, or medium-high, and then it gets a score of two.

DR. REICHERT: Christina.

MS. WIEGAND: Just as a note, all of the social concerns are groundtruthed by fishery performance reports, and so, while sometimes it will show that, you know, there aren't that many communities that are reliant on one of these fisheries, if the fishery performance report information indicates that communities are in fact very reliant on these fisheries, that would result in sort of bumping up the score, and so trying to groundtruth the quantitative information with some qualitative information.

DR. REICHERT: Jennifer.

DR. SWEENEY-TOOKES: Which I'm really glad to hear that you are doing, and I wonder if there's a way for us to capture that fact in this overall mechanism we're using.

DR. REICHERT: We can certainly add that to our report, and so, those of you who are assigned, please make a note of that. Mike.

DR. SCHMIDTKE: Just a small note, as you continue to go through these different categories, and, I mean, there is -- I would say that the category definitions in the different attributes are more of guidelines, and this is our base level of information for evaluating this metric, but you all do have -- This is your recommendation to the council, and so you do have a level of discretion. If you know something about this fishery, or you see something, from your perspective, that you think something needs to be bumped up higher, then that is the will of the SSC, and you're able to deviate, to an extent, with, you know, appropriate rationale associated with that, and so I definitely want to just point that out and keep that in mind as you have your discussions.

DR. REICHERT: Or lower.

DR. SCHMIDTKE: Yes. Either way, whichever you all consider it.

DR. REICHERT: Kind of a general question, and so the scoring that's in here -- Does that include potential changes recommended by the AP? Do we have a bracket of that, because it -- I would be interested to see what input, or thoughts, the AP had relative to the scoring here.

DR. SCHMIDTKE: So the AP has gone through this process. I think, initially, we were getting perspectives from the two different groups, so that we could then present each of those to the council, and not necessarily having one influencing the other.

DR. REICHERT: I understand. I still would be interested, because the APs may have a very unique knowledge, and perspective, that could be useful for the SSC to take into account, but I also understand where you're coming from, to see if we can score that independently, and so thanks. So no concerns, or heartburn, over the score of two? Seeing none, the environmental attributes.

DR. CURTIS: Okay. Moving on to environmental attributes, and, again, this is either just a zero or a one, a high or an N/A, essentially, and so any concerns, in the environmental attributes, with the ecosystem importance, climate change, or other environmental variables with respect to golden tilefish?

DR. REICHERT: I don't propose a score there on the first one. We do know that golden tilefish are burrowing, and so they may actually, in their environment, be a key species, but I also know that we have very little information, in terms of other species that may be influenced, or affected, by that burrowing, and so that's why I don't necessarily recommend a change, but that's the only thing that I could think of, in terms of ecosystem importance of golden tilefish. Steve.

DR. TURNER: There's a lot of invertebrate species that work in those areas, as well as some eels that, at least in the Mid-Atlantic area, hot-bunk with tilefish, and tilefish are in the night, and conger eels, I think it is, are in during the day. I think there's maybe some instances of small sharks using the burrows as well, and so there's a lot of inverts that use those burrow walls.

DR. REICHERT: Are you saying that it's significant enough to put a score there, or do you recommend that?

DR. TURNER: Probably not to the species that are of concern to the council.

DR. REICHERT: Any other thoughts? Then we'll leave the scoring as-is for this category. Go ahead, Fred.

DR. SCHARF: Just to clarify, Mike, the way the scoring works for this, if -- So the idea is that we would score a one, or a zero, for each of those three categories, and then what happens to the final score? Is it just a one if any of them are one, and so, if any of those three are one, the whole score is a one? Okay.

DR. REICHERT: Okay. That makes it a total score, if I'm correct, of 1.8, in the high category.

DR. CURTIS: Okay.

DR. REICHERT: All right. The next species is --

DR. CURTIS: The next species, we have blueline tilefish, and, starting again with the biological attributes, estimated natural mortality is estimated through SEDAR 50 in 2019, at 0.13, based on a meta-analysis, and age-at-maturity, from the same assessment, is estimated at 305 millimeters, and so it looks like we do not have a preliminary score for that then. We may need to dig up the growth curve, to find out what age that corresponds to, or there's no age? So no age from that assessment, and so there's no preliminary score for the age-at-maturity, because it's unknown.

DR. REICHERT: So remind me. If we don't know it, and we don't score it, and I know it's in the -- Remind me what happens to the overall score, and it's being ignored or --

DR. CURTIS: I'm not -- I mean, this is one of the places where we identify -- I'm not quite sure what the recommendation is for an age-at-maturity in the case of an assessment where there are no ages being used, and so, in that case, I mean, the default, it seems, would be that it would just be based completely on the natural mortality, as opposed to the age-at-maturity, since that information isn't available.

DR. REICHERT: So this is another example, and, once we see the stock assessment, and there is an estimate of age-at-maturity, then that would be added to the scoring, correct?

DR. CURTIS: Yes, if that were the case, then yes. That could be added in at a later time.

DR. REICHERT: But then, still, if that's not the case, and sorry. Remind me what happens to that score. Nothing?

DR. CURTIS: I think the council would need to make some determination on it, but, I mean, it seems the -- It seems like that would just be based on the natural mortality, and there would just be a blank in the age-at-maturity, since we don't have that information.

DR. REICHERT: Okay. Thanks. Alexei.

DR. SHAROV: Out of curiosity, I just made a search, and, for the enthusiasts of the AI overview, it gave me the answer that blueline tilefish are predicted to reach 50 percent maturity at age-two. I can look for, you know, what the source for this is, but I think you have it right at having it at the medium, right? That's a medium, a score of two.

DR. REICHERT: Wally.

DR. BUBLEY: I think the issue with this is, because of that last assessment, the ages were not utilized, and so anything that is age-based on that last assessment is essentially not present, where they -- Not to mention that they didn't use a full like age-based growth model, and, with some of these, they used some slightly different approaches, and so it didn't come out of the last assessment, and that's why it is -- No ages came out of the last assessment, which is why any age-based parameters aren't there.

DR. REICHERT: Chip.

DR. COLLIER: I was just going to answer your question, Marcel, of what happens if it's blank, and, basically, that score is ignored. The SSC had talked about doing it several different ways, whether it should be the average or the high, and, ultimately, the SSC decided upon just keeping it blank and going with the scores that are known in those categories, and so, when I'm saying "categories", I'm referring to biological attributes and the human dimensions.

DR. REICHERT: Thank you for that clarification, Chip. So we'll leave that blank for now, until we have additional information that may come out of the upcoming stock assessment. We'll move on to human dimensions.

DR. CURTIS: Okay. Moving on to human dimensions, the first attribute is the ability to regulate the fishery, and it was assigned a preliminary score of one, high, based on exceedances by greater than 50 percent in 2018, 2019, 2020, and 2021.

DR. REICHERT: Any comments? No? Then let's move on.

DR. CURTIS: All right. The next is the potential for discard losses, and it's characterized as a preliminary score of three. From SEDAR 50, dead discards was estimated as 3 percent of total removals for both sectors, for at least the southern portion of the stock Any changes to this recommendation?

DR. REICHERT: I see none.

DR. CURTIS: None. Annual commercial value was assigned a preliminary score of two, between 1 and 10 percent of total annual revenue for the years 2018 to 2022.

DR. REICHERT: I see none.

DR. CURTIS: The next category is the recreational desirability, and it's estimated as a preliminary score of three, low. Annual recreational targeted trips range from zero to 2 percent, an average of less than 1 percent, and it changes the recommendation to three. Social concerns, again, estimated at the county level, most communities have a low reliance on this species, and the same communities are dependent on blueline as we saw in golden tilefish, and I'm guessing, Christina, this then also probably has to do with the fishery performance report influence, and changing that to a two. Okay. Lastly, any environmental attributes that the SSC can think of for blueline tilefish that would merit a scoring of -- Is this a typo here? We have a preliminary score of one for climate change.

DR. REICHERT: Yes, and I was wondering what the rationale for that one was.

DR. SCHMIDTKE: So, when you all went through your preliminary scoring for this back in 2018-ish, somewhere around there, you included a score of one for this, and I believe it was because of the range changes for blueline tilefish that have been observed in the landings. There have been a lot more landings coming out of the Mid-Atlantic region, such that, within the last ten years, and kind of coming out of the last stock assessment, they established their own management plan for blueline tilefish, and so there seems to be some changes in the range that could potentially be climate driven, or they could be driven by other, but there seems to be some changes going on with that stock.

DR. REICHERT: Anyone disagree with that score of one for climate change? I am trying to remember back then how we got to that one, and so that means that -- Because of the range change to the north, does that mean that they are declining in our management area, or that wasn't clear? Does anyone have any remembrance, from our discussions way, way, way back? Chip, you have the answer to that question, I know. You were part of the SSC at that time, weren't you?

DR. COLLIER: No, not in 2018. I was working with the council at that point, and so don't blame me. From -- There has always been some landings down in Key West, because they are -- They can be almost caught within state waters, in some aspects of it, at least in south Florida, and so the Snapper Grouper AP talked about that, and we've asked them, in the past, whether or not it seems like blueline tilefish are shifting down from there, and they've indicated that they're not losing abundance in that area. The reason that this is a one is mainly because of that expansion up into the Norfolk Canyon, and potentially further up, but Mike is the expert on that, and he can talk about it much more.

DR. REICHERT: Mike.

DR. SCHMIDTKE: I don't really have any more than that. I mean, as far as I remember, I don't think that the southern portion of the stock -- I don't believe it was overfished, coming out of the last stock assessment, and so I think that -- I don't think we have any indicators saying that they're losing abundance towards the southern end of the range for this species, but we do have indicators that there seems to be some expansion further north.

DR. REICHERT: Amy.

DR. SCHUELLER: What indicators are there that there seems to be expansion further north, other than landings, and so my perception of what happened was that those fish could have been there the whole time, but that they weren't targeted, or fished, but then there was something that triggered the fishery to go ahead and start targeting those fish, and landing them, and so, to me, that doesn't necessarily imply any sort of range shift, or expansion, in the population itself, and it would be rather a change in the targeting of where they're fishing, and so I guess my question is what data are there that suggest that the population, and not just the landings, had some sort of range shift or expansion?

DR. REICHERT: Mike.

DR. SCHMIDTKE: So there are no data, that I know of, as far as directly measuring the population, and it could be an expansion of the fishery. I think one of the things to take into account in the consideration of the landings is looking at other deepwater species that have been targeted in the Mid-Atlantic region, because, if the fleet is going out into -- I know, for at least the waters in Norfolk, golden tilefish are going to be in your deeper water, muddier bottom, further out than blueline tilefish are, and so, if the fleet was going out and catching golden tilefish, with some consistency, in the Mid-Atlantic, which they've had management on that species for quite some time, then, theoretically, a shallower species would have been within the range, within the access, for that fleet, to a certain extent, and so there may have been some changes to the fishery, and there may have been changes to the species, and it really is a source of uncertainty though, because we don't have a direct measure of it.

DR. REICHERT: Steve and then Chip.

DR. TURNER: In the Mid-Atlantic, the golden tile fishery very rarely caught blueline, but they were -- They weren't fishing at the same depths. They were fishing offshore, and so the chance of getting them was quite low.

DR. REICHERT: Chip.

DR. COLLIER: This is just additional anecdotal evidence, but, in talking to people that did submersible work, in particular Jack McGovern, when he did some work up in Norfolk Canyon, blueline tilefish were hardly ever seen in some of the trawl surveys, and I believe they even sent one of the blueline tilefish that they caught to someone else, because they had never seen one in the trawl survey, and now some of the evidence is saying that they are more frequently seen in some submersible work.

Talking with Steve Ross, he's seen them in his canyon work, and he's seen them in quite a few of the canyons, in pretty high abundance, and so that's some of the anecdotal evidence. Unfortunately, we don't have published data on how they differ, and I don't know the exact depths of where those original submersible work -- Where that was done, whether or not it was in depths where blueline tilefish would have been seen, or they were just mainly looking for golden tilefish, which was probably more important up in that region at that time.

DR. REICHERT: Wally, and then Alexei.

DR. BUBLEY: So, because this is for risk assessment, and, if we have a value here, it's high, is range expansion, and not shifting, cause for risk? I mean, it's less risk, honestly, if it expands, because there is potential to have it over a wider area, and so I would -- My recommendation is to not have that value there.

DR. REICHERT: Alexei, before I go to you, Amy was online and had her hand up. Amy.

DR. SCHUELLER: I was just going to say thanks for that, Chip. I think that, and maybe my recollection is wrong, that this may have been driven by some of the experience that Church had, and so, yes, I guess that leads me to the question that Wally just put up of at what point do we put this in here, and, if we do include it, I think our notes should say potential range shifts, or expansion, because we don't really know. We have high uncertainty about it, and no definitive data to make a clear statement, and so I think we need to reflect that in our notes.

DR. REICHERT: Thank you, Amy. Alexei.

DR. SHAROV: Wally stole my -- So I will just say that I agree with him completely, and it's uncertain, but, if it's an expansion, it's a plus and not a minus, and it's a low risk.

DR. REICHERT: Jeff.

DR. BUCKEL: Two points. Under climate change, the description is of stocks that are more likely to be impacted by climate change, and so, to Wally's point, right, some of these are -- You're

going to have an increase, and so it's not more risky, and it's less, and so maybe change that to stocks that are more likely to be negatively impacted, to consider that.

Then the other one is the one that hasn't been mentioned, right, and it's not just on the biology, but this is also on the management, and so expanding up into a different council's management jurisdiction is captured here, and these changes will likely affect stock productivity or the ability of the council to successfully manage the stock, right, because it's no longer in the council's jurisdiction, the South Atlantic Council's jurisdiction, but the Mid-Atlantic's, and so, if we had concerns about that, that this population was not going to be managed well up there, then that would be a reason to keep the one, but I don't have that concern, and I agree with others that, for both the range expansion, or the climate change effect on the population size, and then the management uncertainty, that, for both of those, we can get rid of the one.

DR. REICHERT: Thank you. Anne.

MS. MARKWITH: This might be more of a Mike or Chip question, and this is me not being able to remember some of the blueline stuff, but I agree with Wally, Alexei, and Jeff, but, to Jeff's second point, is there the potential that these landings that we're seeing further north are not from the population further north, but say the fleet coming down for some reason, and fishing off of the South Atlantic, and so then that would affect the stock in the South Atlantic, and I don't necessarily know if that's the case, but you do see it the opposite, where we fish north, and so --

DR. REICHERT: Mike.

DR. SCHMIDTKE: So the landings are coming as far north in the region as -- I know they've definitely got up into New Jersey, and I think they might have gotten up into one or two states further north of that, and so, as far as I understand, they are traveling south. I don't know that they're going south into North Carolina though, because blueline tilefish do occur off of Virginia, and off of Maryland. From what I understand of the fisheries in those states, they're gong directly east, to go after blueline tilefish in those areas, and so it may be still in the Mid-Atlantic's jurisdiction, just kind of in the southern portion, but I don't perceive that they're going past the border and into the South Atlantic jurisdiction very much.

DR. REICHERT: Mike, if I remember correctly, there was some concern that fish caught in North Carolina were landed in Virginia, but didn't they take care of that in the stock assessment? I forgot.

DR. SCHMIDTKE: Well, within the stock assessment, they assessed the stock in two pieces, and so the dividing line for the two pieces was actually at Cape Hatteras, and so, even if there was some interplay across the, you know, north and south of the Virginia-North Carolina border, that was still contained within that northern portion of the stock. Then the question wouldn't necessarily be of the stock status, but then of the allocation of landings within that region.

DR. REICHERT: Thanks for jogging my memory there, and so the recommendation is to remove that one score, and I agree with that. Does anyone disagree? Seeing no hands, then let's change that score to no score, and we talked about the justification for that.

DR. CURTIS: Okay, and so, wrapping up then, we moved the environmental score down to zero, and so it's discounted, and so, actually, that increases the final risk score to 1.6, and it's still under the high category.

DR. REICHERT: Thank you. Our next species, or is this it? No, we have one more.

DR. CURTIS: The next species -- I think we have two more. Mutton snapper, the estimated natural mortality and age-at-maturity were -- Constant natural mortality is averaging 0.11, making it a preliminary score of one, and a 50 percent maturity at 3.7 years. That falls under the medium preliminary score, and so any changes to those preliminary scores? Okay. Seeing no hands, moving to human dimension attributes, the ability to regulate the fishery, the preliminary score was three. There were no overages from either sector from 2018 to 2022, making that a low risk of overexploitation.

Potential for discard losses, a preliminary score of one was applied, a high risk. Using commercial average weight for 2018 to 2022, the discards were over 40 percent of removals for all years, from 2018 to 2022, in the rec sector.

DR. REICHERT: Okay. Let's move on.

DR. CURTIS: Annual commercial value, the preliminary score was a three, between 1 and 10 percent of total annual revenue for all years, 2018 to 2022, and less than 10 percent of total trip revenue for all years, 2018 to 2022.

DR. REICHERT: A quick question. Mutton snapper is mostly a Florida fishery.

DR. CURTIS: Correct. Yes, that's a very Florida-centric species.

DR. REICHERT: So these percentages are over the entire region? Does anyone know that?

DR. CURTIS: I believe it is the entire region. Chip affirmed that it's the entire region.

DR. REICHERT: Okay. Would that come into play if it's a fishery that's predominantly Florida? If you look at the area where the fishery is, it's actually conducted, would those scores change? Would that justify a different score? John.

MR. HADLEY: So a little bit of information on that that might help with your decision is that it is for the region, but it is basically pulling out logbook data for vessels that do land mutton snapper, and so, if the vessel doesn't land any mutton snapper, they're not going to be in that dataset.

DR. REICHERT: Thank you. That helps. No other questions?

DR. CURTIS: Okay. Any changes to the recommendation of a three? I don't see any. Recreational desirability, it's assigned a preliminary score of one, a high. Annual recreational target trips range from 10 to 29 percent of total recreational trips in the region. Any recommended changes to recreational desirability? Seeing none, social concerns, a preliminary score of three, low, less than seven communities highly reliant on the commercial or recreational fishery.

DR. REICHERT: I have the same question here. If the fishery is mostly Florida, the --

MS. WIEGAND: (Ms. Wiegand's comment is not audible on the recording.)

DR. REICHERT: Okay. So that's basically included in that estimate. Thank you.

DR. CURTIS: Okay, and so no changes to the three preliminary score. We have a human dimensions score of 2.2, and environmental attributes, the initial SSC prelim scores were no environmental variable scores, and is there anything to change the environmental attributes? Seeing none, that will stay empty, and the total score then is 1.85, and that is a high risk score.

Lastly, we have yellowtail snapper, also another Florida-centric species. SEDAR 64 was the last estimate, in 2019, and that's another one that they're going to be doing the assessment soon, and natural mortality is estimated at 0.16, using a max age of twenty-eight years, making it a prelim score of one, high. Okay. I am not seeing any requested changes there. A low risk of overexploitation, at three. In Florida waters, 50 percent of females are sexually mature at 1.7 years, which is less than -- Less than the two years threshold, and so that makes it a low, and I see no changes.

All right. Moving on to human dimensions attributes, the ability to regulate the fishery, a prelim score of three, no total ACL overages from 2017 to 2022, making it a low risk of overexploitation. I am not seeing any dissent. The potential for discard losses is also a three. Releases are from shallow waters, and so probably survival from hook-and-line, and so a prelim score of three, low, and any changes to that prelim score? I'm not seeing any.

Annual commercial value, a prelim score of one, high, based on high total annual revenue and total trip revenues. Recreational desirability, that has a prelim score of one, high, and annual rec targeted trips range from 18 to 29 percent of recreational trips in the region, an average of 25 percent, and that would make it a one. Any dissent? No.

Social concerns, thirteen communities analyzed, due to the species range, making it a medium level of overexploitation, at a two. Any changes to that recommendation? Seeing none, a two. That concludes the human dimensions attributes, and, lastly, environmental attributes for yellowtail snapper, and there were no preliminary scores stated before for the environmental attributes. Any SSC-recommended changes to environmental attributes for yellowtail snapper? Seeing none, a final risk score of two, high. That was the final species we had to complete today for the stock risk ratings, Chair, if there's any other questions, or a need to go back and revise anything else.

DR. REICHERT: Any -- So we're good? Okay. Yes.

SSC MEMBER: Back to the social -- I forget what it's called. The social concerns category, and I think there needs to be better documentation, or something, in the rubric about how these scores -- Okay. Cool. Awesome. Thank you.

DR. REICHERT: Any other comments? Let's go, quickly, to the overview. This was basically our task for the stock risk ratings, the tilefish, blueline tilefish, mutton snapper, yellowtail, and red snapper, and so we've done that. We made some comments, in terms of justifying some changes,

or some scores, and we thought it would be good to see if there's going to be some clarification relative to some of the scoring, and we made some notes on that, and do you think it would be good to go over the notes, or do you want to do that later?

DR. CURTIS: Can we do that later? I've got notes down that I wasn't able to capture on the overview document yet, but I can have those, along with any other notes that people requested, including the changes that we just made to the stock risk ratings, and I can do those over --

DR. REICHERT: Sounds good. If those assigned, but also those not assigned, can forward some notes, then we can include that, and we can review those on Thursday, when we talk about the report, and the biggest issue was getting these scorings done for these species. Unless anyone has any questions, I would like to open the floor for public comment relative to the ratings. Anyone online, Chip, raising their hands? No. Anyone in the room? No. Let's see. It is 11:30. The SEDAR Process Update and Key Stocks, we have assigned about an hour-and-a-half. We can either have an early lunch, and then start after lunch, and I see heads nodding, and so let's -- Is that good, Julie?

DR. NEER: Yes.

DR. REICHERT: Okay. I'm -- Are you guys okay with having a one-hour lunch? Is that okay? Yes? So we'll be back at say 12:45. That's an hour-and-fifteen minutes, and would that be -- Is that okay? Let's do that.

DR. CURTIS: I would say you can target that, and I think that's a good idea. I don't know this area real well, and how close restaurants are, and so let's shoot for an hour-and-fifteen-minute lunch.

(Whereupon, a recess was taken.)

DR. REICHERT: Welcome back, everyone. I'm sorry. I think that, tomorrow, we're going to have an hour-and-a-half. There's limited opportunities close by, and traffic is pretty heavy, and so welcome back to the meeting. Our next agenda item is SEDAR Process Update and Key Stocks. Jie, Anne, and Christina are assigned to this agenda item, and there's two attachments, 4a and 4b, and Julie is going to take us through this. Julie.

SEDAR PROCESS UPDATE AND KEY STOCKS

DR. NEER: Hi. For those of you who don't know me, my name is Julie Neer, and I'm the SEDAR Program Manager, and, as we gave you a quick update at the last meeting, what the SEDAR Steering Committee is discussing for possible changes and modifications to the process, and so I'm just going to give you a slightly more formal thing. Unfortunately, much is still up in the air, and a lot of it is still being fleshed out. It's a pretty big potential change, and we've kind of decided that, since we're overhauling, let's overhaul, and so it's going to take a bit, but I'm going to give you where we are to-date and get your feedback on what we need.

SEDAR has been around since 2002. It's been around a long time, and I'm not going to read all of these things, but the tenets of SEDAR, the most important underlying principles of SEDAR, has

always been to produce transparent assessments, timely assessment products, and thorough documentation of the methods and data that was used, so that we could go back and do it again, if we need to, and anyone could look at it. Trying to get all three of those things done in one process is pretty difficult. You're usually sacrificing one for the other two, and that's just kind of the ballgame.

Currently, as I said, SEDAR has been around since 2002, and we've gone through various iterations and permutations and combinations of how things have been run. The current process right now has sort of two options. There's a research track assessment, which is incredibly thorough and transparent, and there's lots of people involved, but it takes a really long time, and it does not use current data, and it does not produce management advice, which is one of the two options.

The other option is what we would call an operational assessment. It's much more timely, and it is an assessment that's built off of a previously-approved assessment, and so it allows limited modifications. The project schedules are shorter, and it also has a bit of reduced transparency, because its focus is on one or two minor topics, as opposed to looking at the assessment holistically, but it does produce management advice, and so that's what we have in place now.

The need for this discussion, with regard to modifications, came from what we have going on now, the research track and operational assessments. They started in 2020, probably not the best time to roll out a new process, but it had been in discussion since 2018, and so it was unfortunate that the first research track data assessment was scheduled to be held here in Charleston for scamp in March of 2020. Needless to say, that didn't happen, but, even so, the underpinnings were in place, but, since it's been implemented, the process has really struggled.

It hasn't really gotten to what we had hoped to achieve with regard to more efficiency, dealing with the data provisions. We thought, when were allowed to not use the most recent terminal year of data, it would help the data providers, and it really didn't work out, because they had to pull the data again for the operational, and so that didn't really play out the way the center had initially envisioned when it was proposed this way, and, overall, the productivity, overall, of the SEDAR process has gone down with this operational and research track approach, and so we're trying to figure out how to improve throughput.

The Science Center began having discussions with the Gulf of Mexico and South Atlantic Council staffs to look at what might be the objectives of a new process, and so they started off by going to the staff of those two councils, because, even though SEDAR functions for three councils, two commissions, HMS, the bulk of the SEDAR work, the bulk of all the SEDAR assessments that come through the SEDAR process, are mostly between the Gulf of Mexico and the South Atlantic, and so they started with the staffs of those two councils first.

They had -- They went to the two different council staffs and talked about what would you want to see in a change, and how would you like to move forward, and what would be the most important aspects of a modification, and you can see there's bullets listed here between the South Atlantic and the Gulf of Mexico, and they're pretty similar. There's topics that are specific to one or the other councils, but, in general, overall, timeliness, throughput, making sure we're doing the right level of review, we're having the right type of assessment, given the data that we have for a specific species, that sort of thing.

The center also put forward their objectives of what they wanted, timeliness and flexibility to handle emerging things, and, again, right-sizing of the assessments, making sure we're not -- By right-sizing, they mean not doing assessment modeling, or data needs, that far outstrip the data that we actually have in-hand, because sometimes we would do assessments or stretch the data farther than it really should have probably been stretched, and there might be other methods to use, and so that's what right-sizing of assessments means.

Between the center and the two councils that were brought into this process early on, the Gulf and South Atlantic, the objectives of changing the process are not terrible disparate, and so, based off of those discussions, at the March 2024 SEDAR Steering Committee meeting, the center, the Southeast Fisheries Science Center, proposed the following main topics to improve the process. Number one was to eliminate the research track and operational assessment approach. Try as we might, it was not helpful. They wanted to recommend eliminating the assessment nomenclature and the scheduled slots, as we're currently using, and they wished to have the councils identify and prioritize key stocks, and find a way to assess the remaining non-key stocks with less-intensive approaches for assessments.

I will go through each one of these in a bit more detail, but, the first one, eliminate the research track and operational assessment approach, that was the one topic that everyone at the committee was onboard with, and it has been implemented, that was a consensus that, yes, this is not work, and it's not helping us, and so we're getting rid of those approaches, and so that one was a big check, we're done.

The other topics are the things that are still up for discussion by various cooperators, and so SEDAR assessment categories have changed over time, and this is with regard to the eliminating the nomenclature. We had -- Initially, SEDAR started with benchmarks, and then we had benchmarks and updates, and then we rolled into standards, which was somewhere in between those two types of categories. We went to this most recent research track/operational assessment approach, and so we've tried, over time, to increase our three goals.

While all categories produced complete assessment products, often, individuals would assign different quality to different categories, and so, if someone didn't like the outcome, well, if we had done a standard, instead of an update, or a benchmark, instead of a standard, maybe the assessment results would be different, and so it's a problem, because people have a tendency to think the most involved is the best, and it's important to know that everything produced in an assessment, with full data -- That's an issue that SEDAR has fought for a long time, and it doesn't help when you have individuals sit at the table and say, well, this is the Cadillac of assessments. We try not to say that anymore.

Starting in 2026, the recommendation is that all projects are just going to be assessments. We're doing an assessment on vermilion, and we're doing an assessment on mutton. We're doing an assessment.

What's important to know about this is that all projects will be called assessments, but not all assessments will follow the same process, which is where the wrinkle falls, and so, for each individual project, the structure of the process will be made up of various components. The last time we had --

The term that I had used was “add-ons”, but it’s confusing, and add-ons are things that you add on once it’s underway, and these are the components that you choose going into the process, and so the issue will be so we’re going to do an assessment on vermilion, and is this assessment going to have a data workshop, assessment webinars, do we need stock ID, do we need an independent peer review, or are we going to have panels, versus topical working groups, and all of those things are up for discussion, and that is one of the potential challenges with getting rid of the nomenclature, because, in the current structure, if you did a benchmark, or you did a research track, you knew you had a data process, or you knew you had an external peer review, or the SSC was going to review the assessment at the end. You knew that going in, and now what’s going to be included for each species is up for debate, and discussion, before we start for every species.

These negotiations will happen, to talk about which components should be included, and they will initially happen between the cooperator and the lead analytic agency, and so the Science Center, for the bulk of the assessments that get done by the Gulf of Mexico and -- For the Gulf of Mexico and the South Atlantic Councils, though the State of Florida does a fair number, and so, if the State of Florida is the lead analytic agency, they would be brought into these discussions.

Whatever component we think we need, and so a peer review, a panel, et cetera, those components should be finalized before we develop terms of reference, and before we set up a project schedule, and so those are like this is what we want it to look like going in, and we’re all on the same page going in, and a final note is that, as the lead analytic agency is the one who is responsible for the final assessment, and defending it, they will determine what the structure of the process will be, and so that’s where those negotiations come back in.

If the cooperator says my SSC says we need a panel to review the whole assessment, and the analytic agency says, I don’t think we do, that’s where those negotiations are going to happen, and, ultimately, a decision will be made of how to proceed forward.

That’s with regard to getting rid of nomenclature means, and so what you see here, with regard to scheduling and slots, because the Science Center has suggested getting rid of slots, and this is what we call the Tetris grid of all the assessments underway in the stock assessment enterprise within the Southeast, and so it’s a lot. You can see that, often, people get focused on we’re only getting X number. Well, across the whole region that the Science Center supports, with some help from the State of Florida, and thank goodness they’re there, or we would be in real trouble, and it’s a lot going on. This is what we would use at the SEDAR Steering Committee.

People would -- Different cooperators would request what species they want, what type of assessment they want, and you see, on this grid, it still says things are listed as benchmarks, or OAs, and then, when you get farther down, there’s no assessment listed, and it’s just the species, because, starting in 2026, we’re not going to have a category assigned, and it’s just going to be an assessment.

You can see there’s a lot of things, and the colors mean different things for the Steering Committee, but this is how we would plan now, and, if you go to the next slide, we focus in on just the South Atlantic portion, and the way it has been thought of in the past is that the South Atlantic team has four slots, four analysts, that can produce assessments for the South Atlantic region. These bullets here on the right are from a presentation that John Carmichael gave the council in September, and

so you have four slots per year, and it's ideal, but it's not always realized, which is true, and, just because you have four stocks underway, it doesn't necessarily mean we're going to get four stocks completed within that year, or even two years, time slots.

Within the South Atlantic, the typical project timing, research tracks were taking two years, and operationals were taking between a half-year and a year, and the prior benchmarks, which recently have been put back into the mix, took about a year-and-a-half, and how we did this method for planning was, three to five years out, the cooperators would say these are the stocks we would like to get on the schedule, and, about three years --

It could just be that these are all the things, and, then, about three years out, you really need to narrow-in your requests of what are your top priorities, and, about two years out, it's finalized, and that's when the Science Center would come back and say you wanted five stocks, and we can do two, given the workload and the things that are rolling over, because they haven't finished, and we thought they would be done, but now they're not, and so that one is going to take longer, and that's when we get this schedule. As you can see, we're finalizing the stocks for 2026, and they were finalized in mid-2024.

That is how we've currently been doing the scheduling, but the Science Center has requested that we modify this a bit. I'll show you their new proposal when I get through one more slide, and so, on the next slide, or, actually, go back for one second. What they're recommending is we're getting rid of this thought process about four slots. There are four analysts that work mostly in the South Atlantic, and there are six analysts that work mostly in the Gulf, and there are two analysts in the Caribbean Branch right now.

The thought is that, if we get rid of those slots, there would be more flexibility, and so, even though you mainly work in one region, there is the potential that they could grab someone from a different region, if need be. We're not sure if that's going to come to fruition, but that has been one of the potential options with this new approach.

They wanted -- The center requested that the cooperators would identify, and prioritize, key stocks. This slide was also stolen from John Carmichael's presentation, with regard to what a key stock is, and the thought of key stocks -- This idea of key stocks has been around for a while. In 2008, it first kind of reared its head, with discussions on which species we could do age-based assessments for, and then it got slightly -- The definition, with regard to key stocks, changed a bit in 2015, with a tech memo about prioritizing stock assessments, a memo that came out from the agency to help deal with the fact that it was finally recognized that not all the stocks that we manage could be assessed in any real timeframe, given the number of them.

What criteria for use by any individual cooperator, with regard to what determines a key stock, is really up to the cooperator, and so, when the Gulf named their key stocks, they were looking at things such as value to the fishery, importance to the recreational and commercial fleets, in terms of the intrinsic value of fishing, as opposed to not necessarily just money, and, you know, they could have an economic value, and they could have an importance of, you know, regional specialty, if it's a species that only occurs in that region, and you could use different things.

This definition of key stocks here is from, like I said, John Carmichael's presentation, and the intent is to represent those stocks that drive the fishery and provide a subset that can indicate the

conditions of the fishery and stocks that are part of a larger complex, and so that was the example of what key stocks are trying to identify, from John's presentation, specifically dealing with the South Atlantic.

This is what the Science Center has produced as a potential new way to use the information on fixed key stocks and fixing that in a schedule, so we know when something is going to be done. Instead of how it works now, where the council would say I want these six stocks, and the Science Center would go, we can do four, and so then you would have those other two that now then -- What would historically happen is we want it all over 2024, and they said we can only do four of those, and so then those two that you wanted in 2024 would perhaps get bumped down to 2025, and we had this kind of rolldown of whatever couldn't be accomplished.

The Science Center is suggesting that they would have a more fixed schedule for these species, and so, if you did tilefish, which is the top row, and you're finishing that assessment in 2024, the next time it would come up would be 2030, for an assessment. In between those timeframes, you see these little boxes that are called "UM", and that means update management advice, and so it's not that you would get no information for six years, but you would get something in between.

What that UM -- How that works, I'll touch on a bit more, option-wise, in the next slide, but this is what they have proposed, and so, since the South Atlantic Council has yet to name their key stocks, which is part of your discussion later, after my presentation, and, right now, they've just listed a whole list of stocks that are all under either rebuilding plans or in some sort of concern by the council, and so they're all on here.

Obviously, the more stocks you list as key stocks, the longer the interval between assessments. The Gulf has picked five or six key stocks, and so they have devised a schedule around this, where they take those five stocks and put them into this set pattern, and they know. What you do see with this is, one, you know when things are coming up, and so that's somewhat helpful for planning, but it also seems to be lacking a bit of flexibility when something squeaky wheel shows up. It's a little more challenging to fit something in here, and so there are pros and cons for this approach, and this is one of the things that is still being discussed by the Steering Committee, as well as does this approach help the cooperators, and it certainly helps the data providers with knowing when stuff is going to happen.

Just so you know, the red means data. It means that data prep is happening, and the yellows mean assessment, and the green squares mean the report is released, and so that does not necessarily mean that it had a peer review or whatever, and that's when the report would be released. If you needed to have an external peer review with CIE, it might take two boxes, and so two quarters, because you'll have three months for the review part and then a little bit longer to wrap stuff up.

This is what their proposed plan is, and they produced a similar approach for the Gulf of Mexico. These schedules, this type of schedule, has yet to be produced for the Caribbean or HMS or any of the other things that the Science Center is currently also part of with regard to producing those assessments, and so that is one of the things that the Steering Committee requested, is are we going to get this for everybody, and not just the two top, and I don't know if it's going to happen or not, because the reality is, like I said, the bulk of the assessments that the Science Center handles -- The volume is really between the Gulf and South Atlantic, and so whether we're going to get this for the other things, and the State of Florida does a lot of assessments for the Gulf and South

Atlantic, because of the joint stocks, and we'll see that in the key stock presentation, and that's a fair number of stocks that they handle for us.

I guess I didn't talk about the -- I am reading this. This is fine, and so the "UM" on the previous slide, what that management, those updated management advice, and this actually touches on both things, but what that means could be anything. It could be an interim analysis, or it could be a data-limited method, or it could be an index-based way to give you updated catch information, landings streams, and so that means, and how that would developed, those UM management advice updates, leaves --

It's up for consideration now, because, especially with regard to the South Atlantic, because you guys have yet to have an interim analysis approach that's been accepted by the SSC, whereas the Gulf has an index-based one, that's been in place for a couple of years now, that they they get regular updates for six or seven stocks, almost annual updates for those, and so there's a bit of a difference, again, between the two regions, and so what that means in the Gulf may not be the same as what it means here in the South Atlantic.

Then the last bullet point on there, potential modifications, was assessing non-key stocks using less-intensive methods, and that comes back to that right-sizing idea of everything may not be able to run through an age-structured assessment process. A lot of our stocks just don't have that type of data available, or the data may be available, but it's not useful for tracking assessments. You might have a lot of information, but it can't track populations very well, for a variety of reasons, and we might have three indices, but we determine that none of them are necessarily helpful for you tracking abundance over time.

How we handle those stocks is up for a lot of discussion, and so this recommendation is the greatest unknown, and the Steering Committee has not had a lot of discussion on this piece of the puzzle yet. There are questions with regard to examples such as what if you had an age-structured model now, and it's determined that that's not a key stock anymore, for whatever reason you decide, and so now we're not going to do an age-structured model, moving forward, and we're going to try something less-intensive, and how does that happen? What do you guys need? What would -- What options would be available?

There is a lot of discussion, in this particular bullet, that the committee has not had a lot of discussion on yet, but I think some of that will come to you guys too, because these are important questions that I think the SSCs need to weigh into, and so, like I said, the possibilities for less-complex assessment approaches, data-limited methods, interim analyses, interim assessments, management procedures, and all of these things might be useful for these non-key stock, less-intensive assessment methodologies.

More information is needed, for some regions, to help determine what appropriate approaches might be useful for the various stocks, and so something like a data triage, or a gap analysis, might be helpful, or model complexity discussions, and I put with the Science Center, because they, again, are the one that does the bulk of the assessments for the South Atlantic region, and it might be useful. The Gulf SSC has received some information along those lines already, and so something like that might be helpful for your discussion, moving down the line, as well.

Discussions need to be held within an SSC to figure out what sort of information you guys will need to be comfortable for providing management advice. If you're not getting the age-structured stock assessments that perhaps you were used to, what do you need that would make you, as a group, feel comfortable in saying we can give an OFL and ABC off of whatever that analysis is, and so there's a lot of discussion, in this little piece here, that has not had a great deal of discussion at the Steering Committee level, and it's something that you guys, I think, should start to think about as well, so that your council representatives to the Steering Committee can feed some of this back to them and bring these issues up.

What are the SSC's roles for this proposed new process? Where would you guys figure into this, and so one of the big things is you will provide guidance on the structure of the assessment, and, specifically, which components do you think we need, and so, when we know we want to do Species X, do you think Species X needs an in-person data workshop, do we need assessment webinars, do you want an external peer review, or do you think you guys would be happy handling the review process on your own, and those are the type of things -- That happens fairly early in the process, and I think the SSC's input to that -- The council will come to you with these are the species that we would like, and you would provide information for specific species, and then the councils would have that information for those negotiations with the Science Center on what pieces of the puzzle, essentially, you think we should have as we develop this assessment process.

You guys would still be involved with recommending data or assessment topics to be included in the process, and so, like we've always come to you when we were developing the terms of reference, and do you know of any new datasets that we should look at, or are you aware of new modeling techniques that might be useful, and, specifically, an important role that you guys fill is the requesting for further analysis from the last assessment, and so was there stuff that didn't get done in the last assessment, but, as we're booting up again to do the next one, things that we would like to make sure get focused and addressed as the new assessment is coming onboard.

You guys will continue to participate in either the topical working group format or the assessment panel format. Right now, those two approaches for involvement are still on the table, with regard to an assessment panel is -- The main difference between those two is topical working groups focus on a specific topic.

You provide your input on that particular topic, but you don't see the overall assessment process until it comes to you, or the assessment panels, which are a little bit more involved, where you see the whole assessment, or we have a data panel, an assessment panel, a review panel, like we had previously with the benchmarks and similar to what we have with the research tracks, and so your participation is still important, at whatever level is determined appropriate for that particular process, and then you guys would always still be involved with reviewing the assessments, whether that is serving on an external peer review panel or being the main review body, depending on what was determined when we set up the assessment.

The level of your involvement in the review itself depends on that, but, ultimately, it always comes to the SSC for OFL and ABC recommendations. That is still part of your control over what happens here, and so just a little hint on next steps and timing.

John Carmichael gave a presentation to the council at the September meeting, talking about key stocks, and a little bit of information with regard to the potential changes. You guys are going to

have additional conversation, after we're done with this, about specifics with regard to what key stocks the SSC might want to recommend to the council for their consideration, and then there's another discussion at the December council meeting, to try and really narrow in and make some decisions with regard to key stocks for the South Atlantic.

In the spring of 2025, the SEDAR Steering Committee is going to meet again to talk about what those recommendations are, to look at the long-term recommendations from the South Atlantic Council, because they don't have those key stock recommendations yet, and they have not come to the SEDAR Steering Committee, and to talk about this non-key stock discussion.

In 2025, I will likely come back to you guys with an update about this right-sizing and non-age-based approaches, and that will probably happen in October of next year, and it could be April, but probably October, when the Steering Committee has a little bit more time to chew on things, and settle on things, and then, as I said, we have this TBD, and we're not sure when the process will be finalized, with all the changes, what's finally going to be recommended, other than the no more research tracks and operational assessments piece, which everyone already said, yes, we agree, and let's move on.

These other pieces are still up for discussion, and it might take a bit of time to finalize all those changes, moving forward, and, hopefully, the plan is for transitioning into how we do the scheduling. That would play out starting with the 2027 schedule, and we have scheduled the 2026 species already, using the existing sort of approach of the big Tetris grid. The goal would be to roll out this new set scheduling process that the Science Center has recommended, if it is in fact agreed that's the way to go, and we would start implementing that approach in 2027, because it does take a bit, eighteen months or so of processing, of us getting assessments up and running, and planning and stuff.

We do need to let them have a fair amount of time, and particularly the age folks need a year-and-a-half to two years, usually, to make sure that they're going to have all the ages up-to-date, because, unfortunately, nobody is able to do real-time ageing. There's just too much to happen, and so that's why we're looking at 2027, which seems really far away, but it's already, you know, October of 2024, and I think that's all I have, and so that's where we are.

DR. REICHERT: Thank you, Julie. There are still quite a few unknowns. Because I'm thinking that our questions, and discussions, may kind of merge, I'm opening the floor for a couple of comments, before we start asking our questions and discussing this. Anyone on the webinar with hands up, Chip? No? Anyone in the room? Seeing none, any questions, clarifying questions to -- Sorry. Go ahead.

DR. CURTIS: Just to kind of set the stage for how we want to answer the questions in the report, if we can keep the questions specific to like the SEDAR process changes, to Julie, for right now, and then we'll talk a little bit more in-depth about the key stocks and get the SSC input on the key stocks discussions.

DR. REICHERT: Okay. Thank you.

DR. CURTIS: So more towards the process changes right now.

DR. REICHERT: Thank you for that, and so I will open the floor. Kai.

DR. LORENZEN: I was just wondering, and so, if you're -- You know, if you end up putting more stocks in the category where you don't use age information and so on, would that also influence the data collection, and so would the agency stop collecting age data on those? Would that affect the data collection, or is it just the assessment?

DR. NEER: That I don't know, and I would need someone from the agency to speak to that. I am not going to put words in the agency's mouth.

DR. REICHERT: Alexei. I assume you have an answer to that question?

DR. SHAROV: Julie, if you were to summarize, on one page, on one slide, what will this process -- What are the principal improvements, or changes, that we're trying to get to in here with this revised process? Would it be possible to summarize?

DR. NEER: Yes, and so the hope is that, by having things a little bit more -- For initial structure, in terms of developing what the assessment process for individual stock will look like, that will allow the overall process to be more efficient, so that we would get more throughput, and so the hope is we're making the assessments be scaled to the appropriate data that's available for the stocks that we need to focus on and provide more timely, regular management for the stocks that are deemed key stocks, that are most important, for whatever rationale you guys determine that makes them most important.

That allows us to also have hopefully some free time to look at other stocks, that are currently not assessed, because sometimes they get punted, because every assessment is taking two years. The hope is that some of these assessments we will determine can be done with a less-intensive methodology, so that maybe they can get more stocks done in a timeframe, and so the overall goal is to increase throughput and more timely management advice to the cooperators.

DR. REICHERT: Alexei.

DR. SHAROV: A quick follow-up, and so I guess the principal reason is to get away from more structured and formalized assessment process and into more flexible, where the key is who defines the flexibility, and, I mean, we -- Like, for example, you know, you talked about the contractor, or the councils, and who defines the terms of reference, and then, based on the terms of reference, the whole structure of the assessment will follow, and it's going be either that small or that big. Okay. Well, thank you.

DR. REICHERT: Fred.

DR. SERCHUK: Thank you. There are a lot of tough questions here, and, as one who has been involved in the past in assessments, the assessment scientists have their credibility at stake if they find out that the stock assessment that they did three years ago, by either monitoring the research survey vessel results or monitoring landings or having feedback from the fishery participants, and they may find out that, well, wait a second, our recruitment estimates were wrong, or we assumed that this was going to happen, and it didn't happen, and I'm sure that anyone who is involved in

assessments actually keeps a handle on that, to the extent that the data allow, some review, informal review.

When the assessments are not reflective, when the events of the future are not reflective of the assessment results, not only do the assessment scientists suffer, but any of the management regulations that were predicated on that assessment also suffer, and so I would assume that any good assessment scientist keeps some measure of vigilance, after the assessment is done and put into practice and management, whether the assessment results, and the management procedures based on those results, are still reflective of the status of the stock.

I wonder whether that vigilance is done, or required, because everybody's reputation, so to speak, is at stake, but I'm thinking that there is -- I have seen other cases here, that I'm familiar with, where we have to assume recruitment let's say over the past three years, and, a year out, maybe the survey results say, wait a second, we didn't get average recruitment for the past three years, which is what we used in the projections, and we got either above or below, and so somebody -- The good assessment scientists I know are, to the extent possible, monitoring their stocks with respect to the data that becomes available on a regular basis.

I think you have to think about including those sort of issues, because you don't want to wait six years to find out that, wait a second, some recommendations we made six years ago were right on, and so, wait, we don't have to worry about it, but some of them could be very wrong, and that creates a credibility problem across-the-board.

I think most people that are involved with assessments do monitor, after the assessments are accepted and put into practice through the management procedures, and they do monitor, to a certain extent, based on whatever data comes in subsequent to that acceptance of the assessment and the management regulations, and they do monitor whether the inputs that went into the assessment have changed, and so I think it -- I think you have to look at, first of all, credibility of the process, and, of course, I know what people are saying, that, well, they're all so busy, but, I mean, if I were involved with an assessment now, I would feel that, well, my credibility is at stake, and you've accepted an assumption in the model that I think we need to validate two years out, or three years out.

Otherwise, we're going to be completely wrong. Sorry if I ran on here, but I think there's a -- We need to think about maintaining credibility across-the-board, and I think that requires some level of ongoing vigilance. Thank you.

DR. REICHERT: Thank you, Fred. Kai.

DR. LORENZEN: So, thinking about this issue of sort of the stocks that are bumped down, right, the ones that we currently have structured assessments for, and I'm thinking, you know, you don't want to throw away information, data, knowledge, that you have about these stocks, by going to, you know, say a data-poor approach, and we know that data-poor means assumption-rich, typically, and so you really would be losing information, and it seems, to me, it's more useful -- You know, maybe not all of those stocks need to be assessed every so many years, and I think we could be quite happy to, you know, use a management procedure to sort of update advice for some of those low-priority stocks for quite a long time, as long as there is nothing cropping up that looks sort of worrying, in which case you might want to go back and do more of a full assessment.

That would, you know, economize, but we wouldn't be throwing away the information that we already have about those stocks, and the other thing I think, you know, I'm a little concerned, and that was also the background to my first question about would this change the data collection, is that it would be sort of a little worrying if it degraded the data collection, so that, you know, at some stage we can't do -- You know, we can't go back.

DR. REICHERT: Thank you, Kai. Jim.

MR. GARTLAND: So, in terms of degrading the data collection, I would kind of speak to that one, and so I don't, obviously, work for NOAA, but I do run several fishery-independent surveys, and we wouldn't probably stop collecting those data until the budget cuts came, and then you would probably be forced to, right, and what are you going to do? The first thing you're going to cut away is the thing that you don't need to feed into an assessment.

Again, I'm not saying it's 100 percent guaranteed that it could happen, but I could certainly easily foresee a scenario where, if you stopped needing age data on Species X, and your budget was cut by 10 percent, or 5 percent, and that's going to be probably one of the first things you cut away to save a few bucks, and then, if you don't mind, I had a second question.

On Slide 9, if you don't mind, you were talking about getting rid of the nomenclature, because, you know, the argument would be, you know, if you did an Assessment Type X, and why didn't you do Y or whatever, and does that just bump that down to that list of bullets on the bottom there then? So like, if you didn't include a data workshop in one in particular, and, if we had a data workshop, maybe that would have made it better, and like are we just moving that argument to another spot, I guess?

DR. NEER: That is a very good observation, and it's something that could certainly happen, you know, and we have had that conversation happen, where we've done an operational, where we only looked at this piece of the puzzle for a topical working group, and then something else popped up, and either we looked at it, we added another topical working group, but then that delays the schedule, which gets rid of your efficiency, or we didn't look at it, and then that caused concerns at the SSC level, the council level, the stakeholder level, wherever, and, yes, that's a very valid point, and I don't have an answer, but, yes, I could see that people can make that -- There's always a qualitative, you know, thought process of people, particularly when the assessment results are not what they thought they should be.

DR. REICHERT: I have a couple of questions. How -- You said that they're still discussing that, and how are the non-key stocks incorporated into the schedule, because, if I look at that slide with the schedule, and that's like a preliminary stock assessment calendar, there is no room for anything but the key stocks.

DR. NEER: So, yes, that has been raised as well. There was some discussions by the South Atlantic staff, and I'm trying to remember if it came up at the council meeting or not, but there was a consideration that perhaps, for the South Atlantic in particular, since there's only essentially four analysts, maybe they only schedule for three analyst time, and then that fourth one is left open for something else, and that could be an approach that an individual cooperator could make. That has not -- That sort of approach I don't believe has been taken up with the Gulf's discussions, but

the Gulf team has six analysts, and the South Atlantic has four, and so that -- You guys might have to figure that in more readily for your discussions of how many key stocks you would recommend, and leaving some flexibility, some white space, as we used to call it in our grid, to deal with the squeaky wheel or something else that comes up.

DR. REICHERT: A related question is, again, if you look at that schedule, depending on what elements are included in the assessment, it can be expected that one assessment takes longer than another.

DR. NEER: Yes, certainly.

DR. REICHERT: In addition to that, you mentioned the squeaky wheel. If we look at history, there is always a squeaky wheel, and so can you comment to that?

DR. NEER: Yes. Well, so this is one of the recommendations, of a more fixed calendar, that's being proposed by the Science Center. I would agree that there is always a squeaky wheel that needs to somehow be accounted for, and, additionally, like you said, their hope -- If you see these assessments with little boxes and, over time, they've gotten shorter. The hope is that the Science Center is doing a lot on their data improvement and provisioning that will hopefully allow data provisioning to take not three quarters, but two quarters, and that, they're hoping, will also make the time slots less, but, if you look at this schedule, and say if you think you need a stock ID process at the front of an assessment, that's another three months that gets tacked onto the length of how long an assessment takes.

Currently, a stock ID process, which we've done via webinar for the last couple of years, is about a three-month process, and so there are places where, if we don't need stock ID, that gains you some efficiency, but, if you do need one, then individual stocks might take longer. I wish I had grabbed the one that the Gulf has, where what they have done with their five or six key stocks, and then they also had an additional block in there for something else, that wasn't a key stock, because they specifically cut their key stocks, the numbers down.

When you get to the next presentation, that Judd is going to give, that's based off of what John had given the council, the South Atlantic has a lot more stocks that are in rebuilding plans and things than the Gulf does as well, and so that will impact your discussions as well.

DR. REICHERT: Thank you.

DR. CURTIS: Alexei kind of touched on this a little bit, regarding the terms of reference, and then, if we're going to, you know, eliminate this nomenclature and have the different components that are specified, you know, I'm assuming that would have to go into the terms of reference somehow, on which components we need a data workshop, we need stock ID, et cetera, and has there been discussion on how that does get incorporated in a term of reference, in a different mechanism, and when in the process that would happen, thinking about planning ahead?

DR. NEER: So the hope would be that all of those decisions, say we need an in-person data workshop, we need a series of assessment webinars, and we're to have an external peer review, the discussion with regard to what components will be included actually happens before the terms of reference are developed, and so there is an understanding, and an agreement, between the

cooperators, and so, in this case, the South Atlantic Council, and the Southeast Fisheries Science Center of this is what this process is going to look like, so then you can develop your terms of reference accordingly.

Like you guys have seen the difference between terms of reference that were coming for a research track, or a benchmark, and they had a whole bunch of stuff about, for the data workshop, you would have this section of terms of reference, and, for the assessment process, you have this section, and so, if you're knowing that you're not going to have a data workshop, and you're just going to have some topical working groups, the terms of reference will reflect that, which is why you need to decide on the process first, and then you develop the terms of reference accordingly, if that makes sense.

DR. CURTIS: Yes, and so it would be akin to the scopes of work that we've been producing prior, and so I just wanted to try to get that on the record, when in the process we would specify what components would go into that assessment.

DR. NEER: Yes, and so I would think -- With the South Atlantic process, what I would assume would happen is the council will say these are the species that we would like to get on the books for 2028, and they would come to you guys and say these are the species that we want to get on the books for 2028, and what sort of process do you guys think is needed, since you are their scientific advisors, and you would probably make a recommendation, and the council would probably take that information and take that back to those discussions with the Science Center, because what we don't want to happen is those discussions to be had in a vacuum, we do the whole assessment under that process, and it comes to you guys, and you're like, why the heck did you guys not do stock ID, and it's critical, you know, and so we need your feedback, since you are the ones who ultimately have to use the assessment to provide management advice early on in the process, or at least that's my understanding, and my thought process, of how it would work.

DR. REICHERT: Thank you. I know, in other regions, they have had like the research track, and do you know how this compares to what's happening in the other regions, and have other regions looked at a similar process, and how has that worked for them? Do you know?

DR. NEER: So, where the research track is being implemented successfully, quote, unquote, is up in the Northeast, but how that works is they have a whole separate assessment team that does research tracks. They don't feed into the management process, or, ultimately, they do, but their job is to do these assessments, and do research, and look at new ways to look at stuff, and there's a separate team from their operational assessments, and they're called management assessments, I think is the term, where they're actually doing the assessments that provide management advice, but they have a whole separate team, and they have different people sometimes who can even pull the data for them for the research track.

That was sort of the model that the Science Center, the Southeast Fisheries Science Center, was hoping to implement, and we simply don't have the resources and stuff to do it, which is part of the reason why, unfortunately, the research track process didn't really work down here in the Southeast.

DR. REICHERT: A similar process to what's proposed here is --

DR. NEER: I don't know if anyone else is doing this in this way. This would not be part of the research track, this format. I mean, we've sort of done it. In the previous versions you knew, when you've had a benchmark, you knew a benchmark had a data workshop, an external -- You knew the pieces that went into a benchmark, and this is just allowing, potentially, to pick and choose the pieces that we think are appropriate for any individual stock, and it's possible that maybe you need a data workshop, but you don't need an assessment panel.

We want to get the data nailed down, but we're not going to really change anything in the model, we don't think, and then we don't need a series of assessment webinars. We're going to do data, and we're going to take it to the SSC for review, and this would allow you to do that, whereas, in the current process, you couldn't do that piece, and so it is going to allow some more flexibility. The question is do you guys like that flexibility, and is it going to be helpful, and I don't think we're going to know until we run through a couple of these and see how it goes.

DR. REICHERT: The reason -- I will get to you, Chris, in just a little bit, and the reason I was asking was because, in the previous structure, the role, and the workload, of the SSC -- We kind of knew what was required of us, and it seems like, in this new setup, that may vary by assessment, and so, in terms of flexibility, it also means that the role, and the workload, of the SSC may -- It's unknown, and it may very likely vary between assessments.

DR. NEER: Yes, and I think this approach is much more analogous to the way we had benchmarks, standards, and updates previously, and so it's just allowing you to choose which pieces you want, and so, if you do data, assessment, and an independent peer review, that is most similar to what we have done in the past with regard to benchmarks. If you are perfectly happy to just update the data, and you guys get it for review, that's most analogous to an update, and the standards were always somewhere in between, right, and we usually had some sort of data workshop, but we focused on certain pieces of the data, or the assessment, and not the whole thing. The standards were in the middle, and so I think this could be a similar approach, where you might have a data thing, but then not actually have say assessment workshops.

DR. REICHERT: Chris, to that point? Then James and Kai.

DR. DUMAS: Thanks. I want to second James Gartland's concern that, you know, debates over the type of assessment, and how one species might have been assessed with one type of assessment, and different from another, and so results may have been different, and that that debate might just roll down to the new components, and I second that concern.

The second thing is that I also think that leaving a slot, or two, open might be a good idea, if we go this route, and we've got some key stocks identified, and they're assessed on a regular schedule, maybe having a slot or two open as wildcard slots, and having the other species rotate through there, unless something -- An emergency situation arises, and then one could be moved up into the wildcard slot.

Then my third point is that, for multi-stock fisheries, there's management dependence, or there could be management dependence, across species that are selected as the key species and other co-located species that are not key species, and that, if we put off assessment of the non-key species that are co-located, and it crashes, and so then, if we have to restrict fishing in that area, because of what happened to the non-key species, then that can affect the key species, and so, to the extent

that we have those co-located species, and that could happen, that's another potential concern with extending the cycle of -- Increasing the frequency, or decreasing the frequency, that the non-key species are assessed. Thanks.

DR. NEER: I know that conversation, with regard to species perhaps being a key stock, and then something happens, and they get sort of -- We have to have a new key stock that becomes more important, and I know those conversations were had a bit by the Gulf Council, when they were picking their key stocks, because they had a similar thing, where they had thirteen or fourteen, and, as I said, I think they ended up with five or six, and the option was, well, key stocks might change in the future, particularly I would say in the South Atlantic, where you have these stocks moving, which is this shifting of areas is not -- You know, there's nowhere to go in the Gulf of Mexico.

They hit the coast, and then they -- So there are different issues that need to be considered by the different regions, with regard to what might cause a change in key stocks. Even if you pick one now, you know, I don't know at what frequency the council may ask you to revisit your key stocks, and is that something they'll want every five years, never, and I don't know, but that is something that would have to be -- Your example of where something else happens, and I like the idea of kind of calling them wildcard slots.

DR. REICHERT: Jim.

MR. GARTLAND: The wildcards work well in baseball, and so I like that, and I may missed this, but like, for those bullets, where you kind of pick and choose, who does the selecting? Would that be -- I might have missed that part.

DR. NEER: So how I envisioned it is that the council will come to you guys. At least in the South Atlantic, the council will come to you, saying these are the species we're interested in, and what components do you, as an SSC, think should be included, and then those conversations will happen between, for the most part, the Southeast Fisheries Science Center and the council staff, and, ultimately, the lead analytic agency is the one who has sort of the final say, and we don't like to call it that, but, ultimately, they're responsible for producing the assessment, and defending the assessment at the end, and so the current discussions are around that they would be the ones who said, okay, we agree with everything, or we agree with this and this, but we don't think this is needed, and then what happens if we don't get that? I don't know, and we haven't done it yet, and so it's hard to say.

MR. GARTLAND: That's okay, and just the reason I asked is I don't know if I know any scientist that would want to do less, right, and so we're probably all going to error to the side of, well, we should probably do all the bullets all the time, right, which it's just something to think about, and so, if there's some sort of -- Either we put rules on ourselves, or there is some sort of checks in place, and they're like, no, you just looked at that not too long ago, and you don't need to look at it again, and I have to do that to myself with stuff all the time.

DR. NEER: That is always one of the things. You know, these assessment schedules are just taking way too long, and I say, this is what your analysts tell me they need, and it's often the analysts who go, you know, we would really like to look at this, and can we stick one more webinar on there, and I go, sure, and then I hear why are these assessments taking so long, and, well, it's

because, like you said, the scientists usually want to do as much as they can, and that's not necessarily a bad thing, but, when you're trying to be timely, sometimes it gets in our way.

DR. REICHERT: Kai.

DR. LORENZEN: I just wanted to speak in favor of assessment categories, because I think, you know, if you have something you know, a benchmark, or an update, or maybe one of the possibilities would be just a management procedure, and so, if we feel that we don't need, you know, an update, that it's fine to do an interim advice thing, but then, at least with every category, we would know what's involved, and I think it's much easier to judge by the, you know, we're good having another update, or just running a management procedure, and then I can see us sitting over there saying, and everyone sitting there saying, well, do we really -- Yes, and the effect will be, yes, let's do so and so on, and I just think there's a lot to be said for the categories, and I'm not sure that we're gaining a lot by this much flexibility. You know, it's like, when I go for lunch, I don't want to have to answer twenty questions about my meal, and I prefer that they have certain things that I can pick, and I think there's a reason for that.

DR. REICHERT: Thanks, Kai. Alexei.

DR. SHAROV: We're talking a lot about the efficiency, or the failure of achieving efficiencies we expected in the previous route, when we had very good presentations, four or five years ago, which were telling us how much the assessments will be improved if we go with the research track and so on, and so it's very interesting to compare them next to each other, but, in the real world, how we up production, and how do we achieve efficiency? We standardize the production, right, and so this is here, and it seems like we're going in the opposite way. We're not standardizing, and we're saying we'll be flexible, and we'll have a single, you know, and unique assessment for each species, according to the needs.

I don't know if this would achieve any improvements time-wise, and maybe, and the other way of achieving efficiency is to cut the corners, to simplify things, and that might be possible, but I think -- Again, standardizing probably would be the most efficient way, even though you don't have to standardize like into two or three forms, or shapes, and, honestly, in my experience with this SSC, and the Mid-Atlantic SSC, and in the past with the New England SSC, and being on the review panels there, I think there is a great value in the so-called management track, or operational assessments, that provide you, relatively quickly, the update on the status of the stock.

I think this would still probably be the best way for key species, and so possibly the way here to improve the efficiency is to automate the assessment process, to the degree physically possible, where you really have an update that would require only the provision of the data for an additional number of years, but no change in how you process your data, and you don't have a data workshop, and you have one or two analysts, or other technical folks, that are providing you with the indices of abundance, or age information, et cetera.

That way, you essentially have really turn-of-the-crank, and that's what we used to call it, which probably, for the council's purposes, would be the most needed information, and, no matter what you call it, the benchmark, or the new assessment, will be a benchmark. You can say it's just another assessment, and it's like I will say this Thanksgiving dinner for me will be just another dinner, right, and there will be just a few additional components, and there will be peer review, of

course, on it, and so, no matter what you say, it's a Thanksgiving dinner, and nothing else, but thank you.

DR. REICHERT: Thank you, Alexei. Julie.

DR. NEER: So that is one of the key things that I think you guys are need to weigh-in on, and that's on Slide 15, Judd, if you could go there, this last bullet of what will the SSC need to be comfortable with providing management advice, and that is one of those discussions where you're like, well, this is a great assessment, but we're not comfortable to change our ABC off of this analysis.

That has happened at the Gulf SSC recently, because, well, you did this, and you did this, but you didn't update this, and so I know it's hard to be -- To have forethought, because you haven't seen those things yet, but that's where -- I think this will be part of the next discussion, when we have a little bit more guidance on how this might play out from the Steering Committee level, and from the Science Center, because they were requested to kind of think about these other stocks, and what do we do if we downgrade a stock, so to speak, or get rid of the age structure, I should have said, and not downgrade, but what level of comfort --

I know it's going to be probably assessment-specific, but that is something for you as an SSC to ponder, and to think about, like I said, probably at -- Maybe at your next meeting, when we have more information, because that is a key component, is we want to make it as streamlined as possible, but we also need -- Because the council would like more timely information, but we need to make sure that, when it comes to you, it's going to have enough information that you are comfortable making management advice and not go, well, we really needed this, this and this. Well, then we need to ask for that upfront. I know it's hard to do without seeing something in front of you, but it is a concern, that we don't want to put the effort out there to do something that you, as an SSC body, are not going to be comfortable acting on.

DR. REICHERT: Chip.

DR. COLLIER: There's two other things that I think that it would be good for the SSC to discuss. One is the catch level projections that you all -- The recommendation that this SSC has developed. It recommends only five years post-assessment, and we're getting ready -- This timeline here is six years between assessments, and so would an update, or a UM, be sufficient, in order to match those projections, and just making sure that the SSC is willing to comment on that.

The other part is, under National Standard 1, it requires an update every two years for overfished stocks. Right now, we have six overfished stocks, and so they would be taking quite a bit of the legwork, potentially, for analysis. Now, the comparison, for an overfished stock, could be just looking at the catches relative to the ACL. However, there can be some concerns for stocks, and, you know, do we want to get assessments every two years for red porgy, and it's been in a rebuilding plan since 2000, and so I don't know how fruitful it would be for every stock, but, you know, those are the guidelines that we're under, and we just wanted to have the SSC comment on those things as well.

DR. REICHERT: I mean, ultimately, or you would like our thoughts now, or --

DR. NEER: I think maybe you should get your key stock presentation first, and then we'll circle back. That might be helpful, but, yes, they need to be discussed.

DR. REICHERT: Okay. Before we do that, I do have a -- It's not a question, and it's observation, but our fisheries are largely a multispecies fishery, and this was something that the council discussed extensively during their visioning process. Given the conversation, and given the schedule, what we're looking at, in the foreseeable future, is a single-species assessment, and resulting single-species management, and so, again, it's not a question, and it's just an observation. I think, as an SSC, we may want to keep this in the back of our minds, in terms of how that affects our recommendations to the council, in terms of management advice. Judd.

DR. CURTIS: I was just going to say that, to Chip's points, some of those are part of our kind of action items, after we've done the key stocks, and so maybe, if there's no more procedural questions, we can go to the key stocks, review that presentation, and then get into the action items and further discussion, if that sounds good.

DR. REICHERT: Yes. Let's do that.

DR. CURTIS: All right, and so Julie hit on a lot of kind of the topics already, revolving around the changing in SEDAR and some of the key stocks discussion, and so a lot of this is -- It will be built upon a presentation that John Carmichael gave to the council at the September meeting, and Julie has already touched upon that a little as well.

You know, this idea of these key stocks, and we touched upon this already too, and there are some that are trying to drive the fishery, a subset, or stocks in a larger complex, and so some of these ones that we just discussed, that Chris was alluding to, right, and we might have some of these co-located species, or something like that, that exist together, and so these key stocks would be ones that represent all those other ones as well.

These discussions are not brand-new, and they've been going on for a while, as Julie alluded to, and she mentioned also that 2015 tech memo of "Prioritizing Fish Stock Assessments" and the realization that we cannot have -- We don't have the resources, the manpower, to assess all the snapper grouper stocks, or all the stocks within our fishery management plans, and so, out of that necessity, there was criteria developed for proposing these key stocks, and the stock might be a Level 1 priority for the council. If it's an age-based assessment, that's most desired.

Again, if we've already got a stock that has been assessed successfully, and this was -- We heard this already around the table. You know, if we've got some clear productive work done on a particular assessment, let's use that and make sure we're not devaluing the current assessment capabilities that we have completely. There never has been that surplus of assessment capability though too, and so, in the interest of providing timely management, some of these things might need to occur.

Some of these assessments have not been attempted, or have not passed peer review, or have not been operationalized, and a couple of examples were the Georgia and North Carolina hogfish, black grouper, which we now do have that management procedure forthcoming, and that is being done by the State of Florida, and goliath grouper as well. That's gone through several SEDARs, but it never passed, and it never amounted to management regulations, and gray triggerfish, which

we'll circle back to when we look at the list of the key stocks, which had gone through a research track, and completed a research track, just recently, but we have not gone on to the operational assessment phase of that, and the SSC has not yet had a chance to review the research track component of that assessment either.

Another criteria, of course, as Jim mentioned, is that stock is overfished, and the rebuilding plan requirements need that regular evaluation every two years, to make sure we're making progress on those rebuilding plans.

With that in mind, currently, the list right now of proposed key stocks amount to fourteen by the Southeast Fisheries Science Center. In the left kind of square box there on the right, you have the Florida FWC-assessed species of black grouper, hogfish, mutton, yellowtail snapper, and spiny lobster. Those are not part of the proposed key stocks for the South Atlantic region, because they're conducted by the State of Florida, and I will circle back around to this list in a minute.

How many key stocks can be supported, and this is the ultimate question, right, and it's a consideration of tradeoff. More stocks equals more time between the assessments, and how much information do we need for each of the assessments, and weigh that against the timeliness of receiving more frequent management advice. That age structure evaluation, of course, that's a significant bottleneck, and it's still pretty unclear how many age-based assessments can be supported on a regular and recurring basis.

One example, from the center, was that included fourteen stocks, with six years between assessments, two completed per year, and possibly increasing to three in the later years, and the SSC -- Of note, and something to discuss too, is that the SSC provides those ABC projections for five years out, per the catch level workgroup recommendations, and so how does that fit into the projected schedule and how frequently that management advice would be provided? Historically, SEDAR planning had targeted around twelve primary stocks, four per year and three years between the assessments.

This is the proposed calendar that we saw in the last presentation already, and we'll come back to that as well, and, again, one thing to point out too is the list of species on the left are kind of what had been proposed prior, but are not necessarily representative of the list of key stocks currently, and so those are just placeholders, as an example, to see how the different data, assessment, and report components would fit in for a list of these twelve stocks, but those are flexible, and those can be rearranged based on the priorities of the council and recommendations of the SSC on what constitutes the key stocks complex.

Historically, the Historic 3 Scenario, I guess, as John had put it, there are four assessments per year, and there's about an interval of three years, and that amounted to twelve key stocks. If you increase that interval to maybe four years, with four assessments per year, you might be able to tackle sixteen key stocks. The proposal for the near-term would look at two assessments per year, on a six-year interval, with twelve key stocks, and the future proposal is potentially increasing that to three, with maintaining an interval of six, or possibly going to more, and the number of key stocks is still to be determined, based on the various assessment needs that the SSC and the council will be discussing.

To keep in mind, right, we have several different FMPs, that comprise fifty-five snapper grouper stocks, two dolphin wahoo stocks, two CMP, coastal migratory pelagic, stocks, and one golden crab stock, and so around sixty stocks total, along with other FMPs, Coral, Sargassum, and Shrimp, that are not included, would not be included, in our key stocks.

Some of the questions that we're looking for the SSC input on are here, and those are also in the overview document, and so we'll circle back down to those in a minute, and then refining these key stocks, and so, currently, you had a list of our fourteen, in that square, that are assessed by the Southeast Fisheries Science Center in the South Atlantic region.

This is fourteen stocks. Dolphin has been dropped from SEDAR, with an MSE underway, and so that amounts now to -- The number comes down to thirteen, but the target, if you recall, is to try to get to twelve, and so what are some other strategies on how we get down to twelve of these key stocks? Can we remove scamp, once it's rebuilt, and, of course, it's undergoing a rebuilding plan, and so that needs to be retained on that list.

Blueline tilefish, a non-age model, more compatible with stock-wide data, and others to be considered too is we had dropped off -- Or gray triggerfish was dropped off from the list, in response to the workload concerns, but, as mentioned, you know, we've had some progress in that assessment, and so maybe we should see that to completion while -- Strike while the iron is hot and get that completed. There has been some desire, from the council standpoint as well, to continue with gray triggerfish. As you've seen, it's an important species for some of the constituents.

Wreckfish is another one to consider, which has gone through a single stock assessment prior, but that was conducted outside of the SEDAR process, and other FMPs, Shrimp and Golden Crab, those need to be considered and what mechanism those would -- What assessment mechanism those would take.

That's the presentation there, and I will leave it here, with the SSC input here, and so kind of tying in now. We can tie it all together with the overall assessment re-envisioning ideas. Does the SSC support identifying these key stocks for regular assessment scheduling, and we've already talked a little bit about that, and supporting the fixed, long-term scheduling of key stocks, and what are some of those foreseeable benefits and drawbacks? What information would guide the criteria for the determination of the key stocks? Is it landings-trends-based, life history information, indices, past prioritization in the research plan, or does it take the form of other criteria, you know, economic criteria, and so what information is needed for the SSC to provide catch level recommendations, and what is needed for a stock health check?

Again, referring to those UM segments, does the SSC recommend some interim analyses be conducted, an updated model, and are there other methods for those UM segments that will help them provide more timely management advice in between a full run of the stock assessments for management advice, and, based on the list of proposed key stocks, is there any recommendations to changing those key stocks, inclusion of other ones, increasing the number, decreasing the number, and that's all interest, or input, that the council is interested in getting from the SSC at this time, before they make some decisions at the December meeting. Chair, I will go back to you.

DR. REICHERT: Thanks, Judd. Any questions, or comments, to the presentation or the questions that Judd put up here?

DR. TURNER: On Slide 7, I see the proposal is two assessments per year, compared to three or four in the past, and what happens to the extra assessment capability?

DR. CURTIS: Not to speak for the Science Center, and good question. I know there's been -- Models have gotten more complex, is something that we hear, and they take more time, and so the whole process is just taking a longer amount of time, and they're unable to then produce as many assessments as they have in the past, and, again, this gets back to the right-sizing of the assessments, and maybe they don't all need to go through a full age-based assessment framework, in order to get timely management advice, but I don't want to put words in anyone's mouth, but that is what we have heard.

DR. TURNER: So that two per year is essentially flexible. Were they to speed up their assessment process, then potentially you would get more assessments.

DR. CURTIS: Yes, that would be the hope is, you know, in the near-term, we're looking at maybe two assessments per year, but then, in the future, we would be looking at three assessments per year, once the process has become streamlined.

DR. REICHERT: Thank you, Steve. Any other questions? Matt.

DR. VINCENT: I will just make a comment that this would provide opportunity to do research for a stock assessment, like basic stock assessment research, because, currently, we don't have time to do that, because we're continually churning over from one assessment to the next, and so, by going to two or three a year, instead of four, this would allow us time to do that sort of research and try to be more climate ready and incorporate that sort of stuff into the assessments.

DR. REICHERT: Steve.

DR. TURNER: So I think that was the promise in the past, with previous revisions, and so don't hold your breath.

DR. REICHERT: Alexei.

DR. SHAROV: So, you know, it's obvious that, no matter how you slice it -- I mean, if we have sixty stocks on the books, with four analysts, we have to moderate our expectations, and so there has to be some sort of realistic understanding of what physically could be done. Yes, there could be some improved efficiency, but probably not that much, and maybe the estimate is already available by the Southeast Fisheries Science Center, as to what there would be for sort of maximum capacity, three-and-a-half a year, or whatever it is, but it certainly will not match sixty.

One other option, you know, is, obviously -- Well, increasing the number of analysts would have been a solution, but that's not in our hands, but alternatives are engaging more partners, like, for example, states being involved. You have the example of the State of Florida running at least five assessments, as we saw, and, you know, I participated in a couple of the reviews, and they provide

an excellent quality of work. That could be expanded to possibly other states, if they have capacity, or help them build the capacity.

The same also relates to -- As far as I know, there was, or probably still is, a NOAA program for building capacity for the assessments, by training graduate students in a number of the universities, and those could be involved in some assessment activities as well, and that's much cheaper, and it's a separate question as to what types of assessments, or what types of analysis, could be done to, you know, maintain the quality of work, but we need to be creative, and that's a possible opportunity to increase the number of the analyses to be completed, and species covered. Thanks.

DR. REICHERT: Thanks, Alexei. Julie, to that point?

DR. NEER: Well, I just want to note that, right now, in the South Atlantic team, we just lost an analyst, who took another position, and he was currently working on cobia, and now he has left, and so now cobia is kind of in a Never Never Land, and it probably won't get restarted until late 2025, or 2026, which is unfortunate, but usually the analysts are not the holdup, and it is still the data is our big bottleneck, overall in general, and the Science Center is investing in new methodologies, and trying to find ways to streamline some of their reporting, and their output, and their SEDAR provisioning pieces, and they are getting better, but that is still one of the big bottlenecks, with regard to scheduling, is, often, it's driven by how much -- By how fast the data people can get us the stuff, more so than the analyst capacity, in most cases.

Right now, it's kind of a unique situation in the South Atlantic, because we lost an analyst, and they're saying that we need two analysts for red snapper, and so, of our four analysts, we have three right now in the South Atlantic, and then, additionally, two are being moved onto the red snapper assessment, which is a large assessment, and I understand, but usually it's more data than an analytic capacity, unfortunately, and it's been that way for quite some time, and the Science Center continues to work on trying to improve that, and they have made some strides, but we're not there yet.

DR. REICHERT: Chris, did you have your hand up? Then Kai.

DR. DUMAS: Thanks. I had a question about the previous slide, with the table with the assessment frequencies, and so do those assessment frequencies, and intervals, do they allow for the UM assessments in between, the update assessments? Just a sidenote that I think we should change the acronym from UM to something else.

DR. NEER: That was the Science Center who put that on there, but -- No one has said it as that, as "um", but I really like that, and so the historic values were before we had these sort of update management things put in there, and the proposed ones -- They're saying how long it would be between full assessments, and so it would be an interval of a fully-run, fully-provisioned, new assessment, and it would be six years, but the thought is that, in between that six years, within that three year, under the current proposed plan, that there would be some updated management advice, which would come to the SSC and the council for consideration. What that piece looks like is still an unknown, especially in the South Atlantic.

DR. DUMAS: But, in theory, this schedule allows for -- It accommodates the UM assessments in between? Okay. Great. My next point was going to be about correlations between the species,

between the key stocks, and maybe that could allow -- Maybe another way to look at reducing the number of key stocks, and like, for example, I saw Spanish mackerel and king mackerel in there, and I know that those are relatively correlated, in a number of ways, and so you might be able to like combine those into one assessment type thing, but I'm not sure, and I haven't looked at the correlations between all the other species, and there was landings, recruitment, and some of the typical things that are important drivers in the assessment.

That might help, and then the third thing would be maybe we could do some simulations to look at to what extent would management advice differ, depending on the frequency of the assessment, to maybe categorize the key species, or all the species, in terms of how often do we need to assess them, and so do some simulations, to see, if we did not have this information from an assessment, you know, as frequently, if we had it less frequently, you know, when would that actually change a management advice decision that the SSC would provide, and maybe that could help us winnow down the list of key species, also. Thanks.

DR. REICHERT: Julie.

DR. NEER: I believe some of that analysis was actually conducted for the Gulf. I know they had looked at that, trying to look at how long between assessments, and I believe it was done for Gulf stocks, and it could have been done for ICCAT stocks, and it was presented at the Gulf SSC, and so I'm not going to say for sure that it was done, but I know that thought of looking at stuff has been proposed, and some of that information is -- But I could be wrong, and Katie Siegfried would have been the one who had done for that Gulf, if it was an actual Gulf, or it might have been, like I said, Shannon talked to me about it, through ICCAT, but that is a worthwhile idea, to perhaps request that information.

DR. REICHERT: Thank you, Julie. I've got Kai and then Fred.

DR. LORENZEN: One thing I wanted to sort of turn a bit more attention to, for what we just discussed, is that, actually, the bottleneck is often in the data provisioning, and so, you know, tweaking the complexity of the assessment will only do so much, and I do recall -- So we did go through a data-limited assessment for a number of Gulf stocks, like five or six years ago, and I remember that it was almost as much work as a non-data-limited assessment, mostly because all the data had to be provided, and it just provided much less useful outputs.

DR. NEER: And, ultimately, only one species, of those six, actually provided management advice, and, for most of the species, it was determined that we couldn't even do data-limited.

DR. LORENZEN: Right, but I do really like, you know, what the Gulf does, is index-based interim assessments, and, of course, that is also work. I mean, putting the indices together on a regular basis is clearly work, but I think those work quite well, and the advantage over doing something data-limited is that you still have sort of analytically-derived reference points, and so on, that you don't get with a lot of the data-limited approaches, and so I think -- You know, if I was to find a way to economize, I think it would be using more of those interim assessment management procedure type things, but not do away completely with the age-structured assessments every now and then for those stocks, and just, you know, run for longer with a management procedure.

DR. REICHERT: Thank you, Kai, and I had similar thoughts, and I think it's good for us to, in our report, highlight the fact that you can change the assessment structure, but, if the bottleneck is the data, then that is something that needs to be addressed, too. Fred.

DR. SERCHUK: Thank you, Chair. I mean, I quite agree. I'm just wondering, if we went back to the assessment scientists, and asked questions about, for example, what would be the most important thing to do to ensure that the assessment that you did two years ago is still a robust evaluation of the status of the stock, and would it be a survey index, or would it be an age composition, and, you know, I think we have to engage the assessment scientists, to sort of get very simple metrics, and I realize --

I understand that the data turnaround, the data processing, is often done by somebody else, but, if you have a multiage stock, then maybe recruitment, annual recruitment, is not a critical issue, but, if you have a short-lived stock, and you said recruitment was going to be good, is there a way that the next survey goes out, or analysis of the age composition, some simple metric that would basically say, look, we're using this simple metric, but we believe, quite frankly, that the assessment that we did three years ago is still a robust representation of the status of the stock. I think we have to engage the actual people that put the assessments together, to say is there a simple way, a simple metric, that you look at to ensure that what you did is still valid. Thank you.

DR. REICHERT: Thank you, Fred. Any other questions, or comments? In terms of species, I cannot not mention white grunt. Given Slide 14, and the information in Attachment 4c, is where they've listed, you know, the annual landings, et cetera, to help guide us, remind me why white grunt wasn't like in the list of others to be considered, with landings of over a thousand pounds annually, and we have an index, age samples, et cetera, and I know there are some complications with white grunt, because it may require two analysts, because of the stock structure, but I just wanted to mention that.

In terms of SSC responsibilities and workload, in that overall matrix, or the table, I think it would be good for us to include the Florida stocks, because, as an SSC, we have responsibilities, and workload, relative to those stocks too, and so maybe not for the Science Center's schedule, but, for our overall schedule, I think it would be helpful to include those also, and so those were two comments I had, and I'm not sure if Chip, or anyone else -- You came to the table, and I'm not sure if you came to the table for a different issue, but --

DR. COLLIER: I'm here now, and so -- In October of 2022, Nikolai presented his work on several simulations, looking at time between assessments as one of the metrics, and so, if you look back in the old briefing books for the SSC, in October of 2022, and then April of 2023, you'll see those presentations, if that would help inform your discussion. As far as white grunt, why that's not on there, council staff were told to take it off there, and so that's why they're not on there. It's, you know, recognizing the workload has been -- We're told, every time, that, you know, we can't increase the workload, and we need to decrease the number of assessments. For white grunt, that would be multiple stocks within the South Atlantic region, and not just along the coast, and so that would be a likely challenge.

DR. REICHERT: I get that, but I was looking at the criteria used for other species, and, if you simply look at the criteria, that would be a species, and so I understand the complications there, and so thanks for that clarification, Chip. Looking at the SSC input, support identifying key stocks

for regular assessment scheduling, and so we've talked a little bit about that. Sorry. Amy, go ahead.

DR. SCHUELLER: Just to --

DR. REICHERT: Chip held up a card with your initial on there.

DR. SCHUELLER: To follow-up on what you just said, like white grunt is not on there, you know, and others to be considered are gray triggerfish, and I'm just wondering if we should have some criteria, put all the stocks on there that are key, and then prioritize them, meaning, instead of taking something off because -- I don't know who told you to take it off, but, rather than taking it off, maybe it should be on the list, but it should be like lower priority, and so, I mean, I noticed these are, you know, numbered, in alphabetical order, when I went through this presentation, and I thought, well, that's an interesting way to do it, because it's -- You know, it doesn't maybe cause some discussion, but the truth of the matter is that these stocks aren't all equally important to the different groups, be it the SSC or the council or the center. I guess I'm -- I would lean toward not removing stocks that we think meet the criteria, but rather prioritizing a list.

DR. REICHERT: Do you mean prioritizing the list including other species to be considered?

DR. SCHUELLER: Well, yes. I mean, you brought up white grunt, and gray triggerfish is there too, and those can have assessments, right, and, just because we haven't done them, it doesn't necessarily mean that they shouldn't be considered, or aren't important, if they have large catches, and available data, but maybe -- I mean, this opens a whole other can of worms, because prioritizing is like going to take forever too, but I hate to see something get kicked off that could be important, and I also understand the limitations of resources, and I get that, and I think there's got to be some tradeoffs, I guess, and the real question is what are the tradeoffs that people are willing to make.

DR. REICHERT: I agree, and I'm thinking about it a little bit, and I think it's probably impossible to do that right now, but I don't necessarily disagree with you that that may be a useful exercise, and I assume that the council has done that, and I also assume that the council may have entirely different priorities than we may come up with. Judd.

DR. CURTIS: I would say I think that would be a difficult exercise to accomplish today. I think what's important for the SSC to discuss is related more to that second bullet, and that might help guide what decisions revolving around the key stocks may be, and that is what information is guiding the criteria for this determination of key stocks.

You know, what's most important, from the SSC's perspective, I think, for including these as a key stock, and putting it on the assessment schedule, with then review with some frequency, and is it landings trends, or is it what -- In addition to the other criteria, the required criteria, of course, like things that are in rebuilding plans and those other criteria that we described earlier, but what are some other -- What is the other information sources that would be most critical to guiding those -- To guiding a potential prioritization of these key stocks.

DR. REICHERT: Wally.

DR. BUBLEY: So, with these, I almost feel like we're going back around in circles, and so some of the thought processes that I have with this is are we were talking about interim analyses, and I agree. I think that's a good approach to take. The one time we looked into doing an interim analysis in the recent past was vermilion snapper, and that kind of went up in flames, because they were looking at using an index-based approach, but that index didn't follow the assessment model very well, and so would it be useful to get some kind of information of what species might be good for interim-based approaches?

Like it seems to get that sort of information first would be really helpful in determining key stocks, and so, if we could prioritize those, assess those, potentially first, and we can just carry those out with interim analysis, while we tackle some of the other species that might not be quite as amenable to an interim analysis.

DR. REICHERT: Thank you. I think that's a good suggestion. Alexei.

DR. SHAROV: Well, to me, defining the key stocks is totally a prerogative of the council, what is important to the council, for whatever reason, because of the most important commercial species, or recreational, or both, or whatever it is. What I see overall in this, working together with the Science Center, is defining -- Once the key stocks are defined, and that is the primary concern of the council, then we could review each of them and try to identify the level of the assessment that the species will require, given its biology and given the level of the data, the level of the detail in the data, and given the exploitation history, and how frequently it needs to be assessed, and could it be assessed with some interim simplified methods, or just using simple indices-based interim measures and such that are, you know, being relatively successfully used, you know, in many places.

Then that could be sort of put together to weigh-in in terms of the here is the overall capacity of the analysts, and here is -- Here are the options for all these fourteen key species that we could have, and that is the dream scenario, where you have a full say age-based assessment for each of them, or a combination of full and then less-intense assessments, or index-based, for the interim years, and so that would, in my mind, be how the optimization could be achieved.

DR. REICHERT: Thank you, Alexei. A couple of things I wrote down, in terms of what information would guide criteria, is would stock status be one of them, and another thing that, besides the ones that are on the screen there, are economic information, and what's the economic importance of that particular species, and maybe that should be included in the criteria, and then I think it's also important to add there the available data, like, okay, life history information, and what does that mean? Is that what life history information is available or in terms of the -- What the life history information is. For instance, in terms of a key stock, slow growth, things like that, and available indices, in particular fishery-independent indices. Those were a couple of things that I wrote down when I was thinking about this. Anyone else? This is relative to the second bullet point. Steve.

DR. TURNER: I think, on an interim -- On at least a short-term basis, you may want to know what's going on with recruitment trends. These stocks that are crashing are of great concern.

DR. REICHERT: Good point. Anyone else? Any other criteria that we should consider? Jim.

MR. GARTLAND: This was kind of, I guess, discussed a little bit earlier, but I'm going to pick this word, and it's not the right word, but like the redundancy, right, and so, if there's -- If a stock can represent more than one, in terms of its trends, life history similarities and things like that, could that be a key stock that could get you information on, rough information on, multiple, from just doing the one? I can't remember who mentioned it earlier, but somebody did.

DR. REICHERT: That's similar to something that Chris mentioned. Anything else? In terms of what information is needed for us to provide catch level recommendations, I don't think -- Versus what's needed for a health check, and maybe you can clarify that a little bit.

DR. CURTIS: Yes, and so, for example, Wally mentioned the interim analysis conducted for vermilion snapper, where the SSC reviewed it, but, because it wasn't tied to the fishery-independent index very well, it was not recommended for us as an interim analysis approach, but maybe you could use it as just a stock health check, but, from there, you're not going to get any management advice, and so, you know, part of the recommendations I've got in the notes then is, for interim analysis, what species would be good candidates for interim analysis, because they are tied closely to the trap data, and which ones would be bad, bad species, bad candidate species, for that, and something like an update model would probably be a more appropriate approach.

DR. REICHERT: Yes.

DR. CURTIS: But that's basically what that bullet was getting at, is what is necessary in order to provide management advice, as opposed to just a health check.

DR. REICHERT: Yes, and I would also say, just to clarify, not just the trap, and we've got the video index right now, and there are some species where a video index will work fine, and trap not, and vice versa, and so, in general terms, that's good. Do you need, from us -- Do you want us to fill in some species there, or are our recommendations, in general terms, at this phase, sufficient?

DR. CURTIS: I think general terms, right now, are sufficient. This gives us some things to chew on, and dig up some of this information for a later discussion, as these key stocks evolve, and, of course, these are not going to be static, right, and these can move in and out, depending on various needs in the assessment. Of course, if something then becomes declared overfished, then it's probably going to be bumped up into a higher priority, as one of these -- We might have to bump off one of these other key stocks, and so that's going to be a revolving door, to an extent, of this list of key stocks, as things change.

DR. REICHERT: Okay. Thank you. I've got Alexei, Chip, and then Chris.

DR. SHAROV: Another basic thought is that, out of these key stocks, a retrospective review of the assessment results could help to identify the well-behaved stocks, the ones that we were able to predict to perform well, and that would sort of save us time, and money, but putting those into sort of the well-threaded path, and then focus more on kind of doing the others.

DR. REICHERT: Thank you. That's an excellent point, Alexei. Chip.

DR. COLLIER: So, in Attachment 4c, under Table 2, it includes a lot of this information for stock status, number of age samples, number of length samples, whether or not there's an index of abundance, and then relative landings, and so, if you're interested in all that information, it's on -- I think it's page 8 or 9.

DR. REICHERT: Yes.

DR. COLLIER: It should be color-coded. There it is. I think the other piece of information that is not included in this is we have whether or not the age methodology has been validated, and whether or not it's been accepted, and so we do have information on all of that.

DR. REICHERT: Okay. I think that's a good point to make, and that's what I meant with available earlier, with available data, but age validation is a good point, too. I think Chris was up next.

DR. DUMAS: So another criteria to look at, sort of following up on what Alexei was talking about, looking at retrospective review of prior assessments to identify well-behaved stocks, related to that would be to look at the volatility of the key assessment outputs over time for the stock, and so what's the volatility of, you know, abundance estimates, catch estimates, landing estimates, maybe recruitment, and I'm thinking, if you had two stocks, you know, with all else equal, if the measurements of one stock were more volatile than the measurements of the other, then I guess you would want to assess the more volatile stock more frequently, with all else equal, and so, you know, looking at the volatility of landings through catch, abundance estimates, and that might also help prioritize stocks.

DR. REICHERT: Thanks, Chris. Anything else? With this, Judd, do you think we have provided sufficient feedback, or do you think there is something else that we need to address?

DR. CURTIS: I think we're good for now. I think we've got some guidance here on discussions, and the idea here is to get this feedback from the SSC, and some of these key points here on the key stocks, and those will be passed along to the council, that requested that the SSC discuss what, you know, some of these criteria would be involving the key stock determinations, and so I think we've got enough to chew on and to report to the council.

DR. REICHERT: Okay. Thank you. With that, let's take a ten-minute break, and let's come back at 3:00.

(Whereupon, a recess was taken.)

DR. REICHERT: Okay. Looking at the agenda, we are a little behind, which is not usual, and I'm not panicking just yet, but let's do the SPR proxies, and that's a presentation by Erik Williams, and then we will start with the black sea bass projections, and Judd will give us a brief overview, and then we have a presentation by Matt Vincent, and we can hopefully do some clarifying questions, but likely we will start the discussion tomorrow morning, and so keep that in the back of your mind. That's kind of what I think we can do today. If we can start the discussion a little earlier, we may do that, but please keep that in the back of your mind, and it will give all of us tonight to mull over what we need to discuss tomorrow, in terms of black sea bass.

With that, Agenda Item 5 is SPR Proxies in South Atlantic Stock Assessments. Chris, Jared, Kai, and Alexei are the people who are assigned to this agenda item, and, as I mentioned, Judd will provide an introduction, and then the presentation is in Attachment 5, and it will be presented by Erik. Okay. Judd, go ahead.

SPR PROXIES IN SOUTH ATLANTIC STOCK ASSESSMENTS

DR. CURTIS: Thanks. This topic is on our agenda because the council requested the SSC review some of the recommended spawning potential ratio proxies for MSY that have been used in the stocks. During the review process from other stock assessments, you know, the proxy had been changed, maybe from an F 30 to an F 40 percent, but the council didn't feel that there was sufficient scientific rationale provided by the SSC for these potential changes.

We asked Erik to put together a presentation on the SPR proxies that have been used in the South Atlantic stock assessments, and the charge to the SSC is to review this presentation and to provide some thorough rationale for the recommended spawning potential ratio proxies, SPR proxies, that are being used in the South Atlantic stocks. With that, I will hand it over to Erik, and, Erik, I can just drive it on my end, if that's all right with you.

DR. WILLIAMS: That works perfect, Judd. Thanks.

DR. REICHERT: Go ahead, Erik.

DR. WILLIAMS: Thank you. The presentation was put together by myself, Kyle Shertzer, and Matt Vincent, and so they've all contributed, and Matt is there at the meeting, and so he can actually help answer some questions that might come up.

The request was worded as follows, and I will try to circle back to this, to sort of hit specifically one some of these points, but, basically, we were asked to put together a presentation sort of on SPR proxies, with consideration for risk of recruitment, growth overfishing, include any references that might have focused on tropical or subtropical species, and sort of address this in terms of fisheries that have a high proportion of recreational catch.

The outline here is going to be to sort of cover some background stuff, and then go through a brief history and science of SPR proxies, talk about the use of SPR proxies in the U.S., and also then mention the National Standard 1 recommendations for SPR proxies.

One thing to recognize is we do sort of have a mandate, of sorts. You know, the National Standards to the Magnuson Act sort of tell us what we need to do, in some cases, and, in some cases, they're very specific. These National Standards are called guidelines, but they do probably carry a little more weight than just a simple recommendation, and the important one here is that, you know, we are still sort of bound to this concept of maximum sustainable yield, in the end, and so that's going to be an important thing to recognize. In my presentation, I'm going to focus on the fact that what this proxies are meant to represent is MSY, and that's the penultimate proxy, is it's one that comes close to matching the actual MSY, if we can't measure it directly.

I will spend a little time on this slide, and this is just sort of going over what is SPR, and how do we compute it, and so on and so forth, and SPR stands for spawners per recruit. The S is really spawning output, and it could be numbers, or it could be spawning biomass, or it could even be egg production, and so think of it as reproduction per recruit, is probably the better way to think of it, and it's computed by looking at, in an equilibrium condition, what happens to sort of the reproductive output, as you go from no fishing to increasing fishing, and that is shown in this figure.

This is an example from the SEDAR 68 scamp assessment, where, when there is no fishing, then, of course, SPR F equals zero is divided by SPR at F equals zero is one. As you increase fishing mortality, then your SPR goes down, and the shape of that curve is how -- It's the rate at which that declines with increasing fishing mortality, and so we -- As you can see, it starts at one, and it goes down, and so those are like percentages, and, in this case, they're sort of indicated as proportions, but percentage is the same thing, because it's scaled to one, and so you can see that it goes down, you know, noticeably more at the beginning, and then it sort of asymptotes out, and that's a common shape, but there are a lot of factors that affect the shape of that curve.

There is fishery selectivity, and there is life history parameters, like natural mortality, growth, and maturity, and, of those, probably the most important is actually the fisheries selectivity itself, particularly whether that fisheries selectivity is occurring before or after the age-at-maturity. As you can imagine, if you're harvesting fish before they even reach maturity, then your spawning output is going to be severely impacted, because you're catching fish before they even reach maturity, whereas the converse -- If the fishery selectivity is largely after maturity, then you've allowed for potentially one or two cycles of reproduction, in which case then you can -- You can imagine that that's a more sustainable situation, and your SPR is not going to decline as rapidly.

If you look at that curve for SEDAR 68, scamp, that curve would move down, as fishery selectivity shifted towards younger ages, and even before maturity, and that curve would move up as you tended more towards fishing after maturity and allowed some reproduction before fishing really took full effect.

The reminder is that the percent SPR should be a proxy for FMSY, and what is MSY based on? MSY is based on a production function, essentially, and, in a production model, that production function is sort of a function of biomass, and it's a relationship between biomass and fishing mortality, and it's sort of age aggregated, but, for most of our cases, what we're really talking about for our production function is a stock-recruit relationship, and so the important thing is understanding, for that production function is what happens to recruitment as we reduce the stock size, and how rapidly might recruitment decline as we reduce the stock size.

If we look at this SEDAR scamp example, I want to point out a couple of things. In this case, in this assessment, we were able to estimate FMSY directly from a stock-recruit relationship, and that's shown by that vertical dashed line, and so, if we look at that value, where it intersects the SPR curve is sort of the SPR proxy that matches FMSY, and, in this case, it's, I don't know, around 52, or 53, percent. Hopefully you can see that.

If we were to assume that the SPR proxy was 40 percent, you can see that, where that curve intersects the 0.4 SPR line, now we're out to a fishing mortality that's out around a little more than 0.4, and so almost double the fishing mortality rate, compared to what we actually estimated from

a stock-recruit relationship, and so I point that out because there is a lot of uncertainty here in what is an appropriate SPR proxy. It may be different for many different reasons, for different fish species, but, also, it's going to largely depend, like I said, on the selectivity that is being imposed, the fishery selectivity that's being imposed, on the fishing mortality, but I will go into more of that hopefully a little bit later on.

Here's a brief history of some of the sort of peer-reviewed literature on SPR proxy recommendations. Really, one of the main ones that gets cited a lot is Clark's original analysis in 1991, which sort of analyzed, for a whole suite of life history and selectivity characteristics, you know, what is the typical SPR that matches a stock-recruit curve assumption, and the MSY that's derived from that, and that came out with a range of between 20 and 60 percent. Of course, that range was largely dictated by the settings that Clark assumed, and sort of the initial recommendation that came out of that was F 35 percent.

Two years later, Clark revised it, and thought that SPR 40 should be a better default. I'm not exactly sure of the basis for that, and it was probably just looking at a different range of life histories and stock-recruit assumptions, to get to that F 40 percent, but then others have sort of tried to follow-up on that work.

Pamela Mace did a paper in 1994, and again recommended SPR 40 percent, and Clark then came back, in 2002, and determined that -- In this case, he actually did look at sort of how SPR was performing, relative to some stocks that we did have an estimate of MSY, and he determined that F 40 percent, for those stocks he looked at, which was mostly west coast stocks, I believe, was too aggressive, and he recommended an SPR of 50 or 60 percent. Martin Dorn, in the same year, used a sort of hierarchical Bayesian analysis to look at SPR rates, and he recommended SPR 50 to 60 percent.

More recently, Harford et al., in 2019, suggested that 40 to 50 percent SPR had the highest probability of achieving long-term MSY, and then there was the most recent paper, in 2020, and I think -- It's the most recent I was able to find, and I'll talk about it in the next slide, but, before I go to the next slide, I just want to make sure that folks understand that there is a direct linkage, essentially, between the percent SPR and sort of the assumption that that makes in terms of steepness or the stock-recruit relationship. There is a direct link, a mathematical link, and so, in effect, when you're assuming an SPR, you sort of are assuming a steepness value, and you're assuming a particular sort of stock-recruit function, and that's been shown by Legault and Brooks and as well as Kyle and I did a paper on this as well.

One of the more recent papers, by Zhou et al., came out in 2020, and they were looking at the RAM Legacy Database. For those who are not familiar with that, it's sort of a -- It's a nice database that collected a whole bunch of stock-recruit data, from as many stocks from around the world as they could get their hands on, and Ransom Myers built the database, and it's been continued, and so it serves as a really good database for analysis like this, that was done, and what they found is that they could estimate MSY, just based on some life history parameters and gear selectivity.

They calculated these SPR values at MSY, and they ranged from about 13 to 95 percent SPR, with a mean of 47, and about 64 percent of the stocks required and SPR MSY that was greater than 40 percent. They also found that faster-growing, low-survival, short-lived, and elasmobranch species generally required a higher SPR to be equal to the MSY value, and then they also added that, when

FMSY is estimated from fisheries that harvest older fish, increasing the vulnerability age by one year leads to about an 8 percent increase in SPR MSY, and that circles back to this important concept that selectivity is one of the most important factors, really, in deciding the appropriate SPR proxy.

This is data from Rick Methot, where they sort of scanned across the U.S. and looked at what proxies are being used throughout the U.S., and this is by management council, and you can sort of see predominantly the one peak is sort of SPR 50 percent, but there is another peak at around 30 and 35 percent, with 40 and 45 percent sort of to a lesser degree, and so it's almost like a bimodal, or even trimodal, distribution. Well, if you count fixed steepness.

You will recall that, back in July of 2023, at a webinar meeting, Rick Methot did give a presentation, shown here, basically reviewing the technical guidance for estimating status determination reference points and their proxies from the new NS 1 Guidelines, and those guidelines sort of were as follows, which is the preferred method, obviously, is direct estimation, to try and estimate that stock-recruit relationship, and estimating the parameters of that curve, but they did go on to say that using priors for one or more of the stock-recruit curve parameters was acceptable, but fixed parameters were ill-advised, and so they didn't recommend fixing any of the stock-recruit parameters.

Then, if you can't have direct estimation, then the next step is to go to one of these MSY-based proxy alternatives, and the other thing that I did want to note is that, also, in the NS 1 Guidelines is the recommendation that the proxy be reevaluated with each new stock assessment.

Their recommendations for SPR proxies, for data-moderate species, is as follows, and they recommend a percent SPR in the range of 30 to 60 percent, with a default of 40 to 45 percent for most stocks, and then, of course, what we're talking about here is an F rate. To translate that SPR proxy to sort of a biomass, then we just have to multiply by recruitment, and so that's how you turn an SPR proxy into an SSB proxy, is to multiply by recruitment.

Again, this is just to reiterate that point, which I already did, which is, if using a proxy, it should be reevaluated each time a new assessment is conducted, because there probably are new perceptions in a stock's productivity, and there also may have been changes in selectivity, and, as I mentioned before, changes in selectivity can change the perception of what is the appropriate percent SPR proxy.

Sort of conclusions from this are the first step is to try to estimate MSY directly, via a stock-recruit relationship. If a proxy is necessary, consider an appropriate level based on stock biology and fishery characteristics, and a good default level would be in the range of 40 to 45 percent SPR. I think that was it, but what I did want to do is circle back to sort of these questions of, you know, what -- One of the requests, from the original request from the South Atlantic Council, was to -- If you want to go back to Slide 2, Judd. Thanks.

It's to consider the risk of recruitment and growth overfishing, and that is really -- It comes down to, you know, that selectivity that I mentioned. Is selectivity occurring before the age of maturation, or after the age of maturation, and that's going to determine whether you're putting recruitment, or growth overfishing, at risk.

In terms of whether there is any indication on tropical, or subtropical, species, that there is maybe a preferred proxy based on that, there doesn't seem to be any indication of that in the literature, at least from what I could tell. Most of these studies are looking -- With the exception of those west coast studies, most of the RAM Legacy Database is looking at stocks overall and trying to parse them into life history characteristics, and see if there's a relationship there, but, in most cases, the relationship is pretty poor, and so it's important to recognize that most of these analyses either make assumptions about the range at which they're going to examine some of these life history properties and selectivity, but, in the end, when you try to drill down into some of the empirical data of estimated stock-recruit relationships, they don't seem to correlate very well with any sort of life history parameter to suggest an appropriate proxy.

To the last point, about recreational fisheries, recreational fisheries are unique perhaps only in the sense of, again, their selectivity, you know, and a lot of recreational fisheries, because they incur -- They occur both inshore and offshore, they probably intersect younger fish in the inshore, potentially, and so, therefore, they might create a selectivity pattern that is actually starting to put some harvest pressure of fish before the age of maturation, which, of course, then is going to reduce that SPR curve, forcing a lower fishing mortality rate that would correspond to the same SPR percentage. Hopefully that all made sense, but I will stop there and take questions at this point.

DR. REICHERT: Thank you, Erik. Any questions, clarifying questions, for Erik? Fred.

DR. SCHARF: Erik, thanks for the presentation. I was curious, based on the reading of the Zhou paper from 2020 --Would you characterize that framework, using life history parameters and gear selectivity, to predict the proxy, SPR proxy, for MSY as being a framework that could be readily applied to the stocks in the South Atlantic?

DR. WILLIAMS: That is a good question, Fred. I would say, one, I am a bit concerned about how good their predictions are, in that sense, and, two, the other thing that comes to mind is they made some simplifications about some of the life history parameters, such as I think they use constant M, for instance, natural mortality, whereas we use an age-varying M, and then, of course, the selectivity, and I think they made some simplifying assumptions about selectivity, and, often our selectivity is a lot more complicated than what they assumed in that predictive model, and so I would be worried about how we would sort of reconcile our differences, and the way we handle those sort of things, and then fit it into their predictive model, that doesn't really have tremendous predictive power, from what I read, and so, yes, that would be my only concern.

DR. REICHERT: Thanks, Erik. Anyone else? I had a quick question on that same slide, the Zhou et al. Fast-growing, low-survival, short-lived, and then elasmobranch species generally require a higher SPR, and, just thinking about that, it almost sounds a little counterintuitive, fast-growing and low-survival and short-lived, and then elasmobranch species are kind of on the other side of the spectrum, and can you comment on that?

DR. WILLIAMS: Yes, that is one of the surprising results from the Zhou paper. They actually indicate that it basically is counter to what they're now calling a common misconception, is that somehow SPR, or let's say steepness, should be -- Should have a higher steepness, or a lower SPR, for our selected species, rather than K selected species, and so, yes, it is exactly counter to what sort of has been what they're saying now is a misconception, with respect to SPR proxies.

DR. REICHERT: Thanks. Alexei.

DR. SHAROV: A couple of questions. Erik, thank you. That was very useful, and, personally, I'm not familiar with the Zhou paper, but question number one is I assume that they simulated the stock-recruitment relationship for -- Not simulated, but probably estimated, for each of these species, or stocks, they used in their analysis, but, as far as I understand, obviously, the database is essentially a compilation of the estimated numbers of age, biomass at age, and fishing mortality, et cetera, which are themselves the products of the stock assessment and not direct measurements, right, and would you think that sort of the quality of the assessments, and the assumptions that are made in each of those, would have a certain influence on the output of the analysis, in terms of the SPR corresponding to the FMSY?

DR. WILLIAMS: Alexei, that's actually a really good potential criticism of that data. You're exactly right that, in most cases, when we're estimating recruitment within a stock-recruit model, it's constrained to some sort of function that we've imposed on it, and so it's really not freely estimated, in that sense, and it's potentially conditioned, and so, yes, you're right that there's a potential bias there, in terms of relying on recruitment estimates that come out of a stock assessment model, rather than sort of trying to independently measure those, which I'm not sure how you would do, other than say a larval survey, or some sort of juvenile survey, that actually measures recruitment directly, but, yes, that's a good point.

DR. SHAROV: Right, and, secondly, do you know if there is -- In general, the SSB 40 percent, and not F, but SSB of 40 percent, would generally fall into the area on the stock-recruitment curve, thinking of Beverton-Holt, that is the -- Sort of the flat-top area, right, where we're not starting falling down along the incline, and is that the case or not, or could it be that, you know, in some cases, this would be 40 percent, where it would be actually on the ascending limb, and therefore would definitely not be a good proxy for SSB MSY, or FMSY as well.

DR. WILLIAMS: I may be wrong about this, Alexei, but I do think, in general, where that lies on the stock-recruit curve is largely determined by that selectivity that's going into the fishery, and, in particular, whether that fishery -- Whether there is selection before maturation or after maturation, and I think that governs a lot of it, and it probably explains a lot of those differences, and so I would hate to generalize, in terms of where SSB 40 percent falls, because I think it's dependent on all those parameters.

DR. SHAROV: But SSB is SSB, regardless of -- I mean, is it of a different quality? I mean, if it's 40 percent of the biomass of the unfished stock, does it matter, or does it not, that you came up to that 40 percent level through a different exploitation pattern or through different selectivity curves?

DR. WILLIAMS: So it's not 40 percent of the unfished stock size. It's 40 percent of the unfished per recruit equilibrium calculation, and it's different, and so that explains some of it.

DR. SHAROV: Yes. Thank you for the reminder.

DR. REICHERT: Any other questions? Chris.

DR. DUMAS: Thanks, Erik. That was great. Very informative. From your reading, especially the Zhou paper, did you see how the relationship between the -- What was the relationship between the recommended SPR and data availability? You said that one of the results, I think from the Zhou paper, was that, for data-moderate species, the default was the 45 percent for most stocks, and what about for data-poor species? Were there any recommendations about how a default SPR should be adjusted for other types of species that are not data-moderate, that might be data-poor, for example?

DR. WILLIAMS: You know, honestly, I don't recall, when they were using the term "data moderate", what they actually meant by that, and I'm guessing that distinguishes from the truly data-limited situations, where you wouldn't even be able to apply an SPR rate, because you don't even have say age-structured information to even do that with. I think that was their distinction, and so, yes, data-limited -- Probably what they defined is you're unable to actually compute SPR, and you don't have all the parameters necessary to compute SPR.

DR. DUMAS: Right. Thanks. That makes sense. Thanks.

DR. REICHERT: Thank you. Anyone else? Steve.

DR. TURNER: Hi, Erik. Thank you. I'm thinking about crashing recruitment, and let's say you calculate, in the terminal few years, what mean recruitment is. Then you can run through the SPR calculations and get your proxy SSB, et cetera, but, five years down the line, if recruitment continues to crash, you really don't know mean recruitment, and so I'm wondering if SSB calculations, or SPR SSB for our calculations, kind of fall apart when recruitment is crashing.

DR. WILLIAMS: Yes, and that's an interesting one. We are actually, Kyle and I and others, are actually working on this very topic, and, actually, it's the counter that's true, and that is that SPR, because it's a rate, a fishing rate, it's sort of stock size independent. In other words, it's controlling the fishing, the overfishing, potentially, and, by controlling the overfishing, if you're doing it well, the biomass and recruitment, in the end, doesn't really matter, because you're fishing correspondingly to whatever the stock size is at that point in time, and so, in theory, it's --

Yes, it's sort of scale independent, because it's just a fishing rate that you're managing, and you sort of ignore the changes in recruitment, but, you know, of course, as you sort of mentioned, if recruitment is actually crashing, and, you know, you worry about how quickly we're able to recognize the rapid change in recruitment, and have management take action to reduce catch levels, because what we're doing, often, is managing a catch level which is scaled up.

It's not a fishing rate, and we're not managing by fishing rate. We're managing by a target fishing rate, but that target fishing rate is translated to an ACL, a catch amount, by an assumption about recruitment, and so, in essence, there is still that tie there, and there's an assumption about recruitment that links that rate to an actual catch value. Hopefully that made sense.

DR. REICHERT: Thanks, Erik. Chip, and then Fred. Steve, go ahead. I saw you thinking.

DR. TURNER: So, five years down the line, the catch level you set -- If you reset it, it probably would be a different catch level, and am I correct about that or not?

DR. WILLIAMS: Yes, and so let's take the example of a declining recruitment scenario, and so the stock is sort of going down at some rate, and you are -- Let's say you're assuming that it's not going down, because you usually assume some sort of level recruitment, potentially, and then the catch rate that you're setting is going to be too high, as you go further into the future, because the catch rate is based on an assumption about recruitment that is already being violated, because it's continuing to go down, and so that's an example of where it would fall apart.

DR. REICHERT: Thank you, Erik. Chip.

DR. COLLIER: Is this one of the reasons why, in past discussions, you were recommending to do kind of an update to the model, as opposed to do an index-based approach?

DR. WILLIAMS: Yes, one of the many reasons. Thanks, Chip, for sort of throwing that in there. Yes, when we start talking about interim approaches, because there is so many potential dynamics going on, by looking at just an index, what you're not recognizing is what's driving that index change, whether it's recruitment, whether it's catch levels, and there's a lot of things that can cause an index to go up or down, that, by focusing on just the index, you're not getting at what is causing it.

You're making assumptions about that, and I think the better approach is to actually just rerun the assessment model with an updated index, and hopefully updated catch levels, and any other stuff. If you can get updated age information, even better, but, yes, that's exactly why you would want to do that, because you want to catch that before it gets too far out of control, so to speak, and, you know, the example I just talked about, that Steve mentioned -- You know, if you've got a declining recruitment trend, you really want to keep an eye on that stock and follow that recruitment trend as best you can.

DR. REICHERT: Thanks, Erik. Fred.

DR. SCHARF: Judd, can you go to the next slide? Erik, out to the right, you know, for South Atlantic stocks, it looks like we've used that practice of fixing steepness quite a bit, and then, in a small number of cases, where you've estimated steepness, and can you just talk a little bit about what informs the fixed steepness, and then, when you estimate steepness, what that process looks like?

DR. WILLIAMS: Yes, and so I think, in the cases where we have fixed steepness, we fixed it based on a meta-analysis, and then we used the distribution of that meta-analysis to sort of characterize the uncertainty around it, and so it's not hopefully as ill-advised as the NS-1 Guidelines sort of stated, where they recommended not fixing steepness. I think, in this sense, we were sort of fixing steepness at a value, but still characterizing the uncertainty around it with our MCBE process, and so I don't think that's -- I think that's a little better.

The question though is what do you fix steepness at, you know, and we did a very limited, admittedly limited, meta-analysis, because we only have a few stocks to work with where we actually have some estimate of stock-recruit relationship or MSY, and so that's one of the weaknesses of that, unfortunately, is just the limited number of stocks you have to work with.

DR. REICHERT: Thanks, Erik. Any other questions? Seeing none, let's do public comment, before we go to our action items. Chip, any hands up for public comment? Anyone in the room? Then let's review the action items. Review presentation on SPR proxies in the South Atlantic and provide scientific justification of the use of recommended SPR proxies in stock assessments and then discuss other approaches to develop sustainable fisheries with a high proportion of recreational catch. Let's take the first one first. With all the caveats, it seems like the 40 percent is a --It has currently a better justification, scientific justification, but I would like to hear from other members of the SSC. Alexei.

DR. SHAROV: I think 40 is the lowest sort of range. I mean, the lowest bound of the range that we have been presented, and so I think one of Erik's conclusions was 40 to 45 percent was sort of the default, but a number of stocks went as high as 50 and higher, and so we probably should say no less than 40, based on the presented information.

DR. REICHERT: I am making some notes here. Jeff.

DR. BUCKEL: While you're on this, but we just saw the scamp, where Erik's team was able to estimate the FMSY, and then Erik showed where the SPR value would be at that FMSY, and it was around -- I think it was an SPR of 52, and so that's -- You know, that's rationale. Erik, I guess that's a -- Now that we're talking about that one, have you done that for other reef fish species, or other South-Atlantic-managed species, where we could see kind of a distribution of those, the SPR at FMSY?

DR. WILLIAMS: I think we generally try to do that. When we can estimate MSY from a stock-recruit function, we try to do something similar to this. I mean, that's what went into sort of the meta-analysis that Kyle and others did, and so, yes, but the problem is that, lately, we haven't had many stocks, and, I mean, I think scamp is the most recent one I can think of where we actually had a good estimated stock-recruit curve. Some of the latest assessments haven't been able to estimate a stock-recruit curve with any sense of reliability.

DR. BUCKEL: Thanks, Erik. I think that example, plus the review papers that Erik compiled in the presentation, all provide strong support for an SPR of 0.4 or higher.

DR. REICHERT: I was just wondering, and, you know, we basically recommend 40 percent as a minimum, and, for some species, it may be higher, 45 or 50, and do we need some additional discussion relative to when those other -- To when those other percentages would be appropriate, or does that depend on the species and the outcome of the stock assessment, or not the outcome of the stock assessment, but the information that we have available? Dustin, go ahead.

MR. ADDIS: I think the consideration of selectivity was a great point, and, knowing what proportion of the stock is vulnerable, you may want to adjust SPR based on that, you know, when you look at age-at-maturity and things like that.

DR. REICHERT: Thank you. Then the second item was discuss other approaches to develop sustainable fisheries with a high proportion of recreational catch. Does anyone have any thoughts on that second action item? Erik, do you have any thoughts, or guidance, in that respect? I hate to put you on the spot.

DR. WILLIAMS: No, it's fine. I've thought about it, and I think it really does come down to the selectivity issue, because, you know, what makes a recreational fishery different from the commercial fishery? Is it the size of the fish, or the age of the fish, that are being captured, or are they similar? You know, in that sense, then there wouldn't be any difference from the recreational fishery, or the commercial fishery, if they have the same selectivity.

DR. REICHERT: Thank you. Amy.

DR. SCHUELLER: I was just going to lend my support for a minimum of 40 percent or above, and a tiny sneak peak of the muton snapper assessment that was just reviewed, and the MSY -- The value associated with that was 40 percent SPR, from that assessment, which will be discussed I think in February, and so I think that lends some support to sort of speak to what Jeff had asked. I guess, back on the notes, it says "from the presented information", and I guess I'm wondering if we should modify that statement, or remove it, and I'm unaware of any additional information that is available to add more support to these statements, but maybe others know of other things that have been done that we should say that we also considered and looked at, and I guess I'm sort of challenging the group, that if there is other things that you are aware of, please speak up about that..

DR. REICHERT: Thank you, Amy. I don't see any hands raised, or people speaking up, and so this is definitely something we'll probably come back to in the future, and so, yes, Jim.

MR. GARTLAND: So I know we have 40 as the lower bound, and that looks good to me as well, and I'm looking at the plot on Slide 8, and it looks like the Pacific Fishery Management Council uses 50 a lot. Is it worth reaching out and asking why? Like under what scenario, or circumstances, is 50 the way to go, and if we have -- You know, it's probably some sort of selectivity life-history-based thing, and, if we see a pattern in why they're using it so frequently, we might see situations on this side where it might be either useful, or not, to implement over here for certain stocks.

DR. REICHERT: I think that's an excellent point. Is that possible, Judd, to see if we can reach out and find out? Fred.

DR. SCHARF: Just to that point, I was thinking the same thing. You know, when you look at that Slide 8, and you see that the Pacific Council uses 50 predominantly, with a little bit of movement, and then the North Pacific uses 35 -- You know, my first thought was that it just related to the groups of species that the Pacific -- It may be just focused on a lot of those long-lived rockfishes in the North Pacific, and it may be some of the more, you know, productive, like sablefish or, you know, walleye pollack, and so they're able to use a lower SPR for those other species, but I don't know, and so it would be good to look.

DR. REICHERT: Thanks, Fred, and I agree. Alexei.

DR. SHAROV: We need to check, but I think that it was just a more precautionary approach from the beginning by the Pacific Council, that they have intentionally selected the higher SPR, but don't trust me, and we need to check, but that's what I recall, and that's my memory.

Regarding the -- You asked about the recreational fisheries specifically, and we didn't talk about it, and I think Erik tried to underline it multiple times in his presentation, that they shape of the

selectivity curve really is important, and, the more you shift over to the older ages, sort of the better, in general terms, it is. That is, you guarantee the reproductive output, but I don't think -- I don't recall seeing any paper that specifically looked at the effect of the recreational harvest, versus commercial.

Usually, we're just facing the beast as it is, and that is that the selectivity curve is being shaped by -- First of all, the lack of regulations, and then the appearance of regulations, and, whatever the minimum sizes are, or slot limits, they effectively define the selectivity curve generated, and I think, overall, it is very difficult to shift it towards the older ages. In other words, because of the nature of the fishery, that you have millions of participants, moderately selective fishing gear, and that is the hook size or whatever, and so lots of discards, et cetera, et cetera, and it's almost unavoidable, right, unless you devise some draconian measures that would be difficult to actually live with and maintain. That would really force you to move the selectivity towards the older ages, and that's sort of that -- I don't know how much of that we could, you know, put into the report.

DR. REICHERT: Thanks, Alexei. Chris.

DR. DUMAS: To follow-up on Alexei's point, I was also thinking about discards, and I'm not sure. Is selectivity including discards, and discard mortality? Okay. So that would be included. A separate point, and could we go back to the slide that shows the SPR graph? Thinking about the difference between going with an SPR of, you know, 40 percent, versus an SPR of 50 percent -- I was thinking about, you know, what if we get the SPR wrong, and what if you're wrong by a couple of percent above or below the SPR that you're using, and what are the implications for the fishing mortality that you sort of allow, and so, if we go with -- I know that the SPR curve is different for each species, but, you know, let's just take this one as an example.

Suppose we're at SPR, you know, 35, percent, and, if you're off, if your SPR, you know, estimate is off by a few percent up or down, that has very large implications for fishing mortality, and that could lead to large volatility, larger volatility, in your management recommendations, and less sort of planning certainty for the fishery, whereas, if you go with an SPR of, you know, 0.5, if you're off a few up or down points, then that is -- The implications for difference in fishing mortality is not as large, and it's much tighter, and so maybe you wouldn't be changing your, you know, fishing regulations as often, if we went with a higher SPR. I don't know, and I don't know if that makes sense or follows through, but I was just thinking that, if the choice of SPR did affect the frequency that you had to change your fishing regulations, that that could be significant for the fishery.

DR. REICHERT: Thanks, Chris. We have Fred, online. Fred, go ahead Fred, if you're talking, we can't hear you.

DR. SERCHUK: Can you hear me?

DR. REICHERT: Yes, we can hear you. Go ahead, Fred.

DR. SERCHUK: Sorry, but I'm just going back to the graph again, and it's clear that, if you look at those stocks that are set at less than 40 percent -- You know, we have two graphs there that have over 60 percent, and we have two bars that are greater than 30 percent, and then we have a little extra on the side. Is that because the species dynamics are different or what? I don't know what

the rule-of-thumb is, quite frankly, when I see that SPR 35 and SPR 30 both exceed thirty stocks. Is there something unique about those stocks or what?

DR. REICHERT: I don't think we know what stocks are included in that graph here. I think this is just to indicate the general distribution in the various areas over what SPR proxies were used. We discussed a little bit about the Pacific, and there was some speculation that those may be like the rockfish, but I don't really think we know, and so I'm --

DR. SERCHUK: The SPR 30, just to the left, is not from the Pacific.

DR. LORENZEN: No, and I think that's probably from the Gulf. We used to have lots of SPR 30, and I'm not saying that it's necessarily based on good judgment, and it's just, you know, what people used to use. This is just plotting, you know, what is in use, and I think we shouldn't --

DR. REICHERT: Alexei, go ahead.

DR. SHAROV: I am betting that this is based on the Mason and Sissenwine paper, where they investigated the F replacement, and they showed that, on average, the stock would replace itself at SPRs of 20 to 30 percent, and that was the range that they published, and, based on that range, a number of councils, or other management authorities, were choosing, for their stocks, the SPR within this range, and essentially subjectively, based on that paper. That's my understanding, or at least, those 30 percent SPRs that I'm familiar with, that's how they were selected.

DR. REICHERT: Thanks, Alexei. Erik.

DR. WILLIAMS: I think Alexei is correct on part of the explanation, and I think the other is that yes, these are legacy holdovers, I think, too. I think a lot of these SPR rates were set years ago, and they have just stayed on the books, oftentimes, and haven't been readdressed, which circles back to the important consideration of readdressing this with each stock assessment, potentially, and I think what you're seeing in the sort of evolution of the literature too is this sort of looking back at the performance of some of these lower SPR rates and recognizing that they really didn't keep the stock at MSY, and so that's part of the other reason why you're seeing this sort of shift from the Clark analysis up to present-day analysis that's going from lower SPR rates to now higher SPR rates, is the recognition that, if you look at the historical performance, the lower SPR rates are not performing well.

DR. SERCHUK: Thank you.

DR. REICHERT: Thanks, everyone. Good discussion. Any other comments or questions? Fred, go ahead.

DR. SERCHUK: I don't have anything else. I forgot to lower my hand, and that's all. Thank you.

DR. REICHERT: All right. That was a leftover. Okay. Thank you. Judd, I think this may address the action items. Anything else for this agenda item?

DR. CURTIS: I think that's good for now. If people think of any other justification to add to your notes, we can include that in the consensus report.

DR. REICHERT: Okay. Let's spend a minute or two just looking at this. Amy provided some feedback, and we can add some of your notes later, and then we'll go over this on Thursday. Thank you. All right. Let's move on to our next agenda item. Go ahead, Steve.

DR. TURNER: So why are we considering an upper bound of 50 percent? I am not sure that it should be bounded on the upper side.

DR. REICHERT: Did we -- Did anyone make that -- Jim, go ahead.

MR. GARTLAND: I don't think we made a recommendation to put an upper bound. It was more to try to figure out why 50 percent was used frequently, for example in the Pacific, which might help us figure out when we need to move north of the lower bound.

DR. REICHERT: Yes.

MR. GARTLAND: That was how I interpreted it anyway.

DR. REICHERT: Yes. Thank you. Jeff.

DR. BUCKEL: Then I thought Erik had excellent rationale for going with higher than -- Or with 0.4 as the minimum, which was that the values that were lower than that haven't been working.

DR. REICHERT: Yes.

DR. BUCKEL: That was excellent rationale for moving away from the lower than 0.4.

DR. REICHERT: At least in a number of examples. Okay. We can wordsmith this later. Okay. Chip.

DR. COLLIER: So I feel like we're going to get asked this as we go out to the public, and the MSY is set at 40 percent, F 40 percent. However, when we're looking at catch levels that the council manages to, it's at an ACL that is quite often a bit lower than the FMSY. Is there any information on how these buffers, this buffering system that we now have in U.S. fisheries, is working, in regard to something like this FMSY proxy, and then -- I don't know where I'm going on this, but, you know, we're not managing to FMSY, and we haven't been for a decade. What we're managing to is the ACL, and the catch level associated with those, and does that make sense, Erik?

DR. WILLIAMS: Yes, and you're right, and I guess -- Yes, and I would have to look into some of the papers and see how recent -- What recent data they used to analyze and whether the sort of ABC buffer system was in place or not, but it's a valid question.

DR. REICHERT: But I don't think we have that information yet, or sufficient information, available. Erik, is that correct?

DR. WILLIAMS: Yes, and we don't have that available right at this minute.

DR. REICHERT: Okay. Thank you. All right, and we'll come back to the report on Thursday, and so, with that, let's move on to the next agenda item, black sea bass. Jeff, Fred, Amy, and Christina were assigned to this agenda item, and, Amy, I know you have other business tomorrow, and, as this has been a relatively long process, and we've discussed the black sea bass for several meetings, Judd will briefly give an overview of where we are and how we got here, and he will also provide some updates from the September council meeting, and Matt Vincent will follow that up with a presentation on the latest projections, and the projections are in Attachment 6b. Judd, take it away.

BLACK SEA BASS PROJECTIONS

DR. CURTIS: Yes, and so I wanted to start by just providing a quick background, and this is taken from a discussion document that Mike Schmidtke put together for the Snapper Grouper AP, but it really outlines the latest kind of requests and where we're at with black sea bass right now, and I know you guys have been involved with several different iterations, and I didn't want to put a presentation together, because Matt is going to cover some of the different requests that we've received, and that the SSC has reviewed throughout the last several of our meetings, but, essentially, at the last meeting, the council decided that they're not going to be required to implement a rebuilding plan for black sea bass at this time, even though it is considered to be overfished.

This is because the status determination criteria has not been updated to the current reference point proxies, and so they're currently based on the 30 percent SPR, and the SSC has recommended that they change that to 40 percent SPR, based on the analysis that was conducted, and so, because these are essentially in different currencies, so to speak, the rebuilding plan is not required to be implemented at this time.

Once those status determination criteria are updated, then the stock would be considered overfished, and the council would be required to implement that rebuilding plan within two years, and so, currently, the recommendation is that the projections are requested to be at FMSY, or the proxy, and, in this case, F 40 percent, as recommended by the SSC, and these would provide the information necessary for temporary catch level recommendations for the council. In theory, if you're fishing below -- Because we're not overfishing currently, and the stock is only just overfished, and really in a depleted status because of low recruitment, theoretically, if we're not overfishing, then we should be rebuilding back towards a theoretical benchmark, even though we're not sure where that is or when we will get there.

Subsequently, once the status determination criteria is approved through this first amendment, then a rebuilding plan will be implemented to address the overfished stock concerns, and so that is where we're at right now. Matt has run a bunch of projections, based on previous requests, that he will present to you, which we can, I guess, decide how much discussion we need to spend on those projection requests, given the different FMSY projection scenario that has now been requested, that essentially kind of trumps all the other ones, because it does not -- All the other F projection scenarios were based on F rebuild, and so that's where we're at, Chair.

DR. REICHERT: Thank you. Matt, why don't you take us through the presentation, and then we can see if we have time to start our discussion today. Otherwise, we'll pick that up tomorrow.

DR. VINCENT: All right. I guess we'll go with that. Judd, do you want to --

DR. CURTIS: Do you want to drive it, or do you want me to just scroll through it?

DR. VINCENT: You can just do it. I'll just say "next". So, there's been quite a few rounds of projections that have been presented, and so we started out -- As Judd already talked about, we found that the stock was overfished, but not overfishing, and pretty much this is repeating all of what he just talked about, and so I think we can just go on to the next slide, and so, in the previous projections -- So the first round was based on the assessment report, and this was based on what was incorrectly called MSY, but it's maximum landed yield, and this got corrected, and then so, in the second round, we attempted to do the projections, where we fit to the 2022 data.

However, this resulted in a very high F in that year, because there is a very low abundance, and a very high catch, and high discards, in those years, and the high F was considered unreasonable, and so this led to the third round of projections, where we decided to separate out the landings from the discards fishing mortality, and the discard fishing mortality was assumed to remain at the last three years of the assessment, and then the landings was refit so that it would to a 70 percent probability of being above the SSB at 40 percent.

Then there was additional requests that were presented in August about attempting to change the minimum size limit, and we had some questions about how to implement that, and that discussion was resolved in the last meeting, where we decided to use the weighting of the selectivity between the landings and the discards, so that it would be based on the last three years instead of the time period from which the selectivity was taken.

The request that was sent in April, and this was the one that is specifically about the minimum size limit, and there was primarily three minimum size limits that were requested, with the eleven-inch, twelve-inch, and thirteen-inch, and then there was also a request for some sort of slot limit, using a maximum size, but, based upon the 50 percent, or 100 percent, probability of being a male, we calculated the 50 percent probability of being a male at already at -- I think it was eleven inches, and then, at the oldest age, they only reach 99.8 percent probability of being male, or something like that, and so we kind of discussed, with council staff, that this probably wasn't a worthwhile projection scenario, and so we didn't develop that one any more. Then the next scenario was a request to have a closed season, and we discussed that at the previous SSC meeting, and I will talk more about that when we present the methods.

Then there was another request in July, where they changed the request, and they wanted to update the ABC and OFL, so that the landings were phased in, and so they requested three different values, a value in 2026 of 68,000 pounds, 61,000 pounds in 2027, and then 54,000 pounds in 2028, and then, thereafter, using the rebuilding F. We ran those projections, and then they also had a question about allocations, about how to subtract off the discards from the ABCs that are sector-specific, and so we'll talk about that probably towards the end of the presentation.

For the most recent request that we received, on I want to say the 28th of September, or something like that, they requested that they would be based on FMSY, and, based on discussions with the

council, we determined -- Or council staff, and we determined that these would be the P* projections, and they requested P* of 30 percent and -- Or P* for the F 30 percent SPR and the F 40 percent SPR, and so we did these at the last minute, and hopefully you've had time to review them all, but probably not.

This led to the ten different scenarios that we'll go through. I'll probably fly through the different ones, and skip most of them, because, well, we'll only end up using one of them in the end, and so all of the scenarios, except for the landings, we did both a long-term average recruitment, which I'm going to term as R zero, and then a short-term recent recruitment, and so the long-term average recruitment was used, for most of them, to determine the F rebuild, with the exception of the P* scenarios, and then we used the recent mean recruitment to calculate what the ABC would be from that, and then -- For the P*, we had two different scenarios, one where we assumed that the -- So D current is the discard mortality would be based upon the current rate of fishing mortality, and we separated it out from the fishing mortality, and assumed that that would remain at current levels, whereas, the one where it's just F 40 percent, we assumed that both the landings and the discards are reduced to that F 40 percent, or increased.

The original projection methods were based on the assumption that management would occur in 2025 and that the discard mortality would be separated from the landings mortality and that the discards would remain at the current rate of fishing mortality. Recruitment was assumed to either be the long-term or the recent average, starting in 2023, and the two different scenarios were based upon those two different recruitment assumptions.

Onto the original OFL scenarios, and you can see that it rebuilds to a 70 percent probability, and we had quite a large reduction in our fishing mortality rate in order to get there, starting in 2026, starting in the top-left, and so I don't know if I want to go through what all of the -- So the figure on the right, the top-left one, is the fishing mortality, and the top-right is the spawning stock biomass, and the middle-left is your removals, in terms of numbers, or that's in terms of pounds, and the one on the right is removals, in terms of numbers. On the bottom, we have -- On the bottom-left, it's discards, in terms of thousands of pounds, and, on the right, it's in terms of numbers.

I don't have the -- I didn't have the MSY value for the landings, in terms of numbers, because it wasn't calculated in the assessment, and I haven't gone back and rerun all of these assessments to get those values, and so that's why that doesn't have the blue and green lines going across.

This is for the ABC scenario, with the lower recruitment, and you can see that it never rebuilds to above the SSB MSY, but this is just the short-term recruitment, or the short-term OFL, or ABC, projections anyways, and you can see, once again, that there is quite a large reduction in the fishing mortality and the removals. However, the discards remain at that consistent level, because of the assumptions that we made in the projections.

This goes on to the next three, and so the methods that we developed for the minimum size limit -- We took the selectivities from the stock assessment, because there were previous time periods that had an eleven -- Or each of the different minimum size limits for different fisheries, and so, for the eleven-inch minimum size limit, we took the selectivity from the commercial pots and the handlines from 2013 to 2021, and then we averaged them together, using the F, the fishing mortality, from the specific sectors, and then, for the discard selectivity, since they were already

combined into a single selectivity curve, we used that value from 2013 to 2021 and just set that as the selectivity in the projections.

For the twelve-inch minimum size limit, the landings selectivity was based upon the average from the recreational and the headboat from 2007 to 2012, and we averaged them together using the fishing mortality for the different sectors, and then the discard selectivity was based on -- It's mirrored between the recreational and headboat selectivity from 2007 to 2012, and so that was what was used, and, for the thirteen-inch minimum size limit, it was, similarly, an average from the recreational and headboat, but the time period was 2013 to 2021, and the discard was for that same time period.

In general, we used the weighting of the selectivities between the landings and discard selectivities, and this was based upon the values from the terminal three years of the stock assessment, as was discussed in the August SSC meeting, and this applied to each of the three different minimum size limit scenarios.

This was for the eleven-inch minimum size limit. As you can see, it doesn't ever reach 70 percent probability of rebuilding. It only got to I think 66.7, or something like that, even when we reduced the fishing mortality for the landings down to zero, and that's why the removals are at zero, but we can see that the discards are quite high for this scenario, based upon that eleven-inch minimum size limit.

This is showing the left figure. It shows the selectivity for the different MCBE values, or each of the black lines, is that kind of cloud, and the green line is the value from the base model, and then the red-dashed line is what the reference points is based upon, and then the figure on the right is the values from the short-term projection, using recent recruitment values, and you can see that removals went to zero for this scenario as well.

This is the twelve-inch minimum size limit, and it's pretty similar. It will look pretty similar to the next slide after it, or the thirteen-inch minimum size limit, but you can see that there's a large reduction in fishing mortality, in order to allow it to rebuild to that 70 percent probability, and I don't really have much else to say, and so next slide.

Then this is the same thing for the twelve-inch minimum size limit. You have the same cloud of points, but you can see that the influence of the weighting is a bit different, and you have a bit more harvest at the larger sizes, or older ages. For the thirteen-inch minimum size limit, it looks almost identical to the twelve-inch, and it uses the same methods, but a slightly different selectivity curve, which we'll see in the next slide. I'm just running through these real quick, and I don't have much to say about them, but, if you have any questions, feel free to stop me, or if I'm going too fast. This is, once again, the selectivity cloud for the different MCBEs on the left, and your harvest, your fishing mortality, and your removals and discards on the right.

Then we went onto the different methodology for the closures in Wave 1 and Wave 2, and so, after discussion at the August SSC, we kind of determined that it would be a closure for black sea bass specifically, and it wouldn't be a closure for all of the fishing, and so we kind of concluded that this would likely -- A closure in Wave 1 and Wave 2 might actually result in an increase in discards, because there would still be fishing for other species, and so we calculated the percent of the landings that occurred in Wave 1 and Wave 2 for the general recreational fishery, and we just used

fish that were captured from three miles out, because it was going to be a federal closure and not a state closure.

We didn't have that depth information for the headboats, and so we just used the landings in the headboats, and this resulted in 13 percent, or 19 percent, of the landings that occurred in Wave 1 and Wave 2, and then we took these percentages and multiplied them by the fleet-specific discard mortality rates and then added that discard mortality rate to the values from the recent discard fishing mortality, and then we assumed that this would be the new discard mortality that would start in 2025.

This makes the assumption that your size structure, or that your discards, are based upon the minimum size limit, because it just assumes that same selectivity, and so it wouldn't necessarily be reflective of what would actually happen, where you would be also discarding the older and larger fish, but it was a simplifying assumption, and so then we then set the fishing mortality that would result in a 70 percent probability of rebuilding, and it's a slightly lower fishing mortality compared to the original OFL scenario. Then, once again, we made the two different assumptions about the recruitment, whether it was the long-term average or the recent mean.

This looks pretty much identical to the original OFL, and there is slightly higher discards, in terms of numbers and in weight, and slightly lower removals, but, in general, it looks pretty similar to the original OFL scenario. Then the same is true of the ABC scenario. It is slightly lower for the removals, and a little bit higher for the discards, but, just looking at the graph, you probably wouldn't be able to tell, unless they were side-by-side.

Now on to the additional, and the next scenario was trying to do the landings with the phase-in method, based upon the values that the council had requested, and so these start in 2026, and so we fit the -- We determined what the fishing mortality would be that would give those landings exactly.

We didn't include any uncertainty in the reaching that management, or reaching that target, and so the figures will look a little strange, because they will hit that value, in terms of the landings, exactly, but we also assume that the discard mortality would be at the same as what was at the -- For the last three years of the assessment, as all of the previous projection scenarios have done, and then, for the fishing mortality, for landings, starting in 2029 through 2034, we set it at the value that had been determined by the original OFL projections that we presented way back in the first scenario, essentially. Then, for this, the recruitment was assumed to be the long-term average, and we calculated what the probability of rebuilding was, based on this.

Based on that, it actually does end up resulting in a 70 percent probability of rebuilding, even with the slightly higher fishing mortality in those three years. As you can see, the removals look kind of strange, because they do exactly fit those three values, and there is no uncertainty in that, and then you have quite a large spread in the uncertainty, based upon the MCBE analysis for those removals, but the discards are pretty similar to what the previous scenarios look like.

Now onto the P* method, which is probably what the council will select, and so this was -- We determined what the fishing mortality multiplier would be that comes from a P* of 30 percent, which was determined, I think, when the assessment was reviewed back in 2023, and so we got a P*, or the F multiplier, for both the F 40 percent and F 30 percent distributions.

Then, based on this, we assumed that management action would start to occur in 2026, and we did a -- Like I said, the two assumptions regarding the discard mortality, whether it would remain at current levels or whether it would scale based upon the fishing mortality from the landings, and then this was two assumptions about the recruitment, whether it was the long-term average or the recent, and so this resulted in four different scenarios.

The first scenario was the P* 30 for the F 40 percent, using the recent fishing mortality, or the discard mortality, and the long-term average recruitment. As you can see, it doesn't ever rebuild to a 70 percent probability of -- It doesn't get to a 70 percent probability of rebuilding, and it's around like 65 percent, I think, and you can see that the discards are below the median value from the F 40 percent, and the removals are very close to, if not above, or, actually, I forget which one is which now, and I think the dashed line, the green, dashed line, is from the base model. I'm going to have to look back into the text, and so onto the next slide.

This is for the same -- It's for the scenario when you had the recent recruitment, and so this is the short-term ABC projection scenarios, and the figure on the left is the predicted survey index for those six years, or five years, and then you can see that the uncertainty in the removals becomes quite larger when you implement the P* in that 2026 value. A lot of it is due to the uncertainty, or the large range, in that F 40 percent.

Then this is for the scenario where you allow the fishing mortality and the discard mortality to scale based upon that F 40 percent. As you can see, in this scenario, the discards are lower, compared to the F current. However, this is quite a lot of uncertainty in those discards, but the removals are actually higher than the previous scenario, because you have that tradeoff between the discards catch smaller fish, versus the removals are the older fish, and so you can sometime have -- At lower fishing mortalities, you can have more removals than discards, at lower fishing mortality.

This is onto the scenario with the recruitment at the recent average, and this is what your ABC would be, I guess for that one year in 2026, based on this assumption, and then this is for the projections for the P* for the F 30 percent, just to be compared to the F 40 percent for management purposes, I guess, and so this is for the scenario where you had discard mortality at the recent average from the terminal three years, and the recruitment is at the long-term average, and this one has an even lower -- Or it has similar probabilities of rebuilding as the F 40 percent.

Then this is the plots for with the recent average for the P* of 30 percent, with F 30 percent at the current levels. Okay. I think I have thoroughly bored everyone. Oh, there's one more, and so this is for the long-term average. This is for the scenario without -- Assuming that the fishing mortality goes down, the discard mortality goes down, as well as the fishing mortality, and so there's one more with the recent average recruitment, and this is for the short-term temporary.

This goes onto the request for the sector allocations, and so the council wanted to try to figure out how to take the dead discards off the top, as they say, of the allocation, and so what I did was I took what the -- Or, based upon the assessment, 28 percent of the fishing mortality is based upon the discards. However, this corresponds to about 69 percent of the dead individuals or 45 percent of the death, in terms of weight, and this is because the discards catch the smaller fish, and so, even

though it has a lower fishing mortality, it actually has a higher impact in terms of the number of individuals and the weight.

In terms of the fishing mortality for the recreational, they account for 99.92 percent of the fishing mortality for the discards, and so, essentially, the commercial fishery doesn't have much of an impact at all, and so, for the original rebuilding scenario, the total yield in 2025 was 715,000 pounds, and so, if we give the 57 percent allocation to the recreational, this would be 428,000 pounds. However, in our projections, the discarded number that is projected, based upon the recent average fishing mortality for the discards, and that selectivity, results in 708,000 pounds, and so this discard projections, for the recreational, which we can pretty much assume will be all recreational, far exceeds what the recreational allocation will be.

We can do the same thing in terms of numbers, which is shown on this slide as well, and those allocations would be slightly different, if you do it based in weight versus in numbers, but, for both of them, the recreational allocation, or the discards, far exceed what the recreational allocation would be. We did the same thing for the P* for the F 40 percent, in the year 2026, and the numbers are different, but it still results in the recreational discards far exceeding what the recreational allocation would be, based upon that 57 percent, and so these -- The allocation in the projections is kind of predetermined based upon what you assume the selectivity will be and based upon the weighting of the landings and discards selectivities and the different fishing mortalities that are provided to them. Since the weighting of the discards, or the fishing mortality -- I lost my train of thought. We'll just leave it at that and go on to the next slide. That's it. All right. Does anybody have any questions?

DR. REICHERT: Thank you. Phew.

DR. VINCENT: Sorry. I tried to get through that as quickly as possible.

DR. REICHERT: Any questions, clarifying questions? I was asking, earlier, and the P* of 30 percent -- That was based on our old control rule, because we did this a while back?

DR. CURTIS: Yes, and so, if I recall correctly, and I can dig up our report that explicitly states what we did, but I believe it was we had looked at the -- We had gone through the old ABC control rule and applied the P* value based on that criteria, and then part of the PSA, or the stock risk rating -- One of the segments that goes into the old control rule had changed, and so that -- Or maybe a couple of components had changed, and so we readjusted based on those values, and it came down to 30 percent, but I can dig up that information, if necessary.

DR. REICHERT: I remember we had quite a bit of discussion on that at the time.

DR. CURTIS: Yes, and it did not change it, or I think it might have been 32.5 percent, and it went down to 30 percent, and it wasn't a drastic change.

DR. REICHERT: Chris.

DR. DUMAS: I just have a definition question. On this slide, is the recreational allocation defined to include landings plus dead discards, and then, if so, is the discard projection -- Is that projection of dead discards?

DR. VINCENT: So the allocation is taking that total yield and multiplying it by 0.57, essentially, and so we took what the total yield would be, and we took that 909, for 2026, and multiplied it by 0.57, and that gives us the 518. For the discard projections, this is the value that's taken from the projections, and this is what -- Based upon the fishing mortality, and the assumptions you made in the projections, that's what the landings, in terms of weight, would be for 2026. Does that make sense? So they're coming from two different --

DR. DUMAS: So the yield is landings, and is commercial and recreational landings combined?

DR. VINCENT: Yes.

DR. DUMAS: Then out of that the recreational allocation is recreational landings?

DR. VINCENT: So total yield is the sum of commercial and recreational landings and discards, and so it's all -- It's total yield, total harvest, total death, essentially, and then the allocation is that, in terms of both landed and discarded, whereas the discards is just the discards, and 99.92 percent is from the recreational.

DR. REICHERT: Any other questions?

DR. DUMAS: So I have the results of all of those scenarios memorized now, but it's hard for me to visualize them, and so, in all of these different scenarios, are the parameters, the input parameters, that vary across the scenarios are P*, F percent, and recruitment assumption?

DR. VINCENT: So, for three of them, the selectivity differed, because of that minimum size limit, and so there was those three, and then there was the P*, which, if you want to scroll back up to like the second slide, that has -- Thank you. Then there is the P*, which have different fishing mortality values, and then you had the closure, which we just added additional discard mortality, and then the landings phase-in, where we fit the F to those 2026 through 2028 landings that were provided by the council.

DR. REICHERT: Alexei, and then I saw Chip coming to the table, but, Alexei, go ahead.

DR. SHAROV: Just a clarification to understand, and, in those 226 scenarios where discard mortality is assumed constant, are you talking about the rate, or the fixed value, in terms of the number of fish, or what is constant? Is it the rate or the absolute amount?

DR. VINCENT: So it's the fishing mortality rate that is held constant.

DR. SHAROV: No, discards.

DR. VINCENT: The fishing mortality rate for the discards, yes.

DR. REICHERT: Chip.

DR. COLLIER: So one of the things that the council was looking for was trying to figure out -- It was to try to do the split of catch before the split of discards and landings, and so they want to say

this is the commercial piece of the pie, and this is the recreational piece of the pie, and then, within those sectors, they would have the discards, and so this is a little bit different than what the council is wanting to do, and I realize that, you know, these discards are taking up a significant portion of what's out there, especially when you look at -- I guess it was the second-to-last slide, maybe, where you were looking at 900,000 pounds, or kilograms, that were -- Sorry.

It's 900,000 kilograms that were potentially available, and 700,000 of them going to the discard projection, and so I understand it's a challenge to separate those, and it's even worse when you look at numbers of fish, where it's 18,000 fish that were possible to be landed, and 17,000, or 1.7 million -- I mean, it's just a very minute amount, in order to potentially be allocated to the commercial fishery, or even to landings, and so it is a minor part, but that's what the council was wanting to look for, is to separate out these two sectors, and, you know, given that 99 percent of the discards are coming from the recreational sector, the commercial sector was a little bit concerned that they were being heavily impacted by that.

The other part I'm just curious on is, you know, the projected discards is 1.7 million dead discards, and how is that relating to the last three years of what was discarded in the recreational fishery? Is this is a lot higher, or is it a lot lower? I mean, it's pretty concerning that we're not overfishing now, but you look at those numbers, and, yes, things are changing substantially.

DR. VINCENT: So I think what the council was requesting would probably be that middle line, where have that forty-whatever, and that would be the allocation for the specific sector, and then, back to your question about -- I will have to look at the numbers, but I think that they are -- Well, the discards in the projections will end up being higher than what currently is in there, because it says that, with the recruitment, or, based upon the long-term average recruitment levels, it says that the population will go back up, and so, as a result, the discards can also go up, but, for the -- I think -- I will have to double-check for what happens with the recent average recruitment. I think that answers your question.

DR. REICHERT: Okay. I'm still trying to wrap my head around this, and so you're talking about long-term recruitment, but we're talking about projections, but our -- Wasn't our recommendation to use the recent recruitment?

DR. VINCENT: Yes, and so the long-term average recruitment was used to calculate what the F rebuild would be, and then, from that, you set that F rebuild in the ABC scenarios for that shorter time period, to calculate what the ABC should be, based upon the recent average recruitment, and, under those scenarios, and I just took a look at it, it seems like the discards are pretty stable under the recent average recruitment, and maybe going up a little bit, because even the average recruitment is an increase over the last couple of years of recruitment.

DR. REICHERT: Anyone else? Before we do anything else, I want to see if there's any public comment, so we can get that on the record for today.

DR. CURTIS: Marcel, before we go there, just so we can figure this out a little bit, so, as you recall, the catch level projections workgroup is the source for making the recommendations on using the different recruitment streams for ABC versus OFL, to use a more recent average for the ABC, the near-term projections, to be representative of current conditions, and then use OFL for long-term -- Or the long-term average for OFL rebuilding scenarios, and I'm hoping that Amy is

still there. Amy, I remember that we certainly -- It was the recommendation for rebuilding up to, you know, your OFL, to use that long-term recruitment, and, if it's not in a rebuilding plan, do you remember if the recommendations were still the same, to use a long-term R zero?

DR. SCHUELLER: Let me pull the report.

DR. CURTIS: I think that was still the recommendation, but I just wanted to verify that as well, because that could help guide the determinations of which projection scenarios you want to see.

DR. REICHERT: Yes, exactly. Well, still, while Amy is looking that up, I just want to give the public an opportunity to comment. Is there anyone online? No? No one in the room? Okay. Thank you. Chip, I saw you coming to the table.

DR. COLLIER: I just want to make sure that, when we're looking for this population, we're not using the rebuild strategy, and we're using preventing overfishing, and so I'm seeing, on the right side of the -- The left screen, on the right side of that, it's saying recent recruitment, and, for short-term ABC projections use F rebuild for long-term, and so we should be using FMSY and not F rebuild. The council has indicated that they're going to address rebuilding in a subsequent amendment, and not necessarily in this amendment, and so what they're trying to do is prevent overfishing.

DR. VINCENT: Yes, and so that bullet point corresponds to the first six scenarios, and so, for the P* scenarios, I did use the F 40 percent, P* F 40 percent, in the recent -- In the ABC projections, and so that separation of those two bullet points just refers to the first six, and then I suppose I should put in a different bullet that the P* was separate.

DR. REICHERT: Carolyn.

DR. BELCHER: Sorry, and it's not to your discussion, but, just because Charlie and Jimmy were interested in this conversation, and they had to pull out for some council training, and, if you're looking for public comment, you might want to ask tomorrow morning, to start out, and I just wanted to make sure, if they had something specific, that you could hear it.

DR. REICHERT: Thank you for that, and we'll start with -- Please remind me tomorrow morning, and we'll start tomorrow morning with public comment, and so thank you. Amy.

DR. SCHUELLER: Yes, and so, if you look at the report for the catch level projections, the short-term forecast for ABC determination are separated out from the forecasts related to rebuilding and benchmarks, and so the rebuilding recommendations were the same as the recommendations related to determination of OFL, and I think that answers Judd's question, but --

DR. CURTIS: Did it specify -- If we're not under a rebuilding scenario, if we would use a particular recruitment regime over another, or was that strictly to rebuilding scenarios that we would use the long-term average?

DR. SCHUELLER: Well, no, and so the rebuilding and the OFL -- They're the same under here. They fall under the same category, the same recommendation, and so forecast using average

recruitment and historic variability. The whole time series should be used as the default condition. That's what it says.

DR. REICHERT: Thanks, Amy.

DR. SCHUELLER: Yes, and the only thing different is the ABC determination.

DR. REICHERT: So, because we are not looking at rebuilding, we are -- Correct me if I'm wrong, but my brain is slowly frying here, and we are looking at Scenarios 7 to 10, realistically. No? Jeff.

DR. BUCKEL: I think it would be set -- Based on the action items, it says set catch level recommendations based on the FMSY proxy values, and then the parenthetic statement says F 40 percent, and so just 7 and 8.

DR. REICHERT: Yes, and I agree. The first thing was we are no longer looking at rebuilding, and then we are looking at -- Yes. Okay.

DR. BUCKEL: It sounds like the plan, if it works out the way it's listed above, is the first thing will be setting this catch level recommendation based on the FMSY proxy, and then a second amendment -- Once whoever declares it overfished, and once that -- Then we'll revisit the F rebuild, but this -- The first action item says review the most recent projection scenarios associated with F rebuild, and characterize uncertainty, and so I guess clarification on that, Judd, and is that just a -- Because there's several in here that do have F rebuild, and just to provide some initial input on that, even though we're not --

DR. CURTIS: You know, Matt had gone through a lot of work to put together those scenarios, and so we didn't want to just kind of wipe them off the table here, and I've got a feeling that they might come back around, once a rebuilding plan is implemented, and so, while it was still kind of hot on people's minds, to get some feedback, if necessary, and, you know, even if we don't use any of the rebuild scenarios right now, we will mostly likely in the second phase of this amendment process, but you're exactly right as well, Jeff, with the catch level projection recommendations coming out of this meeting, and we're looking at really Scenarios 7 and 8, at the F 40 percent proxy for MSY, and it really comes to either the D current or not D current and just verifying that those recruitment regimes reflect the recommendations from the catch level projections workgroup.

DR. REICHERT: Thank you. All right. Well, given the fact that it is almost five o'clock, and I see some very tired eyes here around the table, let's reconvene tomorrow at 8:30, and we can collectively chew on this a little bit, and think about it, and then we can continue the discussion tomorrow morning, and we'll start off with public comment, and so thanks, everyone, for your contributions today, and we'll recess and reconvene tomorrow at 8:30. Thank you.

(Whereupon, the meeting recessed on October 22, 2024.)

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OCTOBER 23, 2024

WEDNESDAY MORNING SESSION

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The Scientific and Statistical Committee of the South Atlantic Fishery Management Council reconvened at the Hotel Indigo Mount Pleasant in Mount Pleasant, South Carolina on October 23, 2024, and was called to order by Dr. Marcel Reichert.

DR. REICHERT: Thank you, Judd. Welcome to day two of the SSC meeting. We will continue talking about black sea bass projections, and as I mentioned yesterday, I'll open the floor for public comment. So, is there anyone online, or in the room, who would like to make a comment?

DR. CURTIS: I've got Tim Griner. Tim, I've got you unmuted. Go ahead.

MR. GRINER: Thank you. Thank you, guys. This is Tim Griner. I've got some questions. You know, concerning the actual uncertainty, in my mind, of the data itself, and, you know, I've heard the discussions about all this uncertainty, and how we need to basically add layers, to be able to add buffer upon buffer, to keep handling all this uncertainty at every step of the way, but what I can't get my arms around, with this assessment, is the uncertainty in the data itself, and, to me, that's where we're going to have some real problems with trying to make management decisions based on an amendment that the data itself that is in the assessment, these outcomes, are just highly uncertain.

When I look at the data from MRIP, and I go through all of these years, beginning with the terminal year and going backwards, none of this data, according to MRIP, should even have been used in the assessment.

There's just too much uncertainty in the data itself, and, when I go back, and I start looking at the data itself, and the outcomes of the data, and especially when it comes to these discards, which, as we all know from yesterday, the discards are what's driving the entire problem of this fishery, that and the premise that we have a recruitment problem, but, when I look at these numbers, I do not see how we could possibly have a recruitment problem, because I'm looking at numbers that say that we discarded 3.5 million individual black sea bass in the estuary, not even in the ocean. That has been continuing for year after year after year, yet we only landed 200,000 sea bass three miles outside of the ocean.

Well, if you look at all of these releases, and add up all the releases from inland, from the ocean, less than three miles, ocean greater than three miles, then you're adding up to six million fish that have been released, individual fish, or greater than than, yet we're only landing a couple hundred thousand pounds.

Well, if you look at the release mortality, where did all these fish go, and where are they now? To me, that's the real uncertainty. It's not that I think that possibly our catch is too high, based on landings and discards. It's where are these fish? If we released all these fish, and they didn't die and we didn't catch them, where are they?

So, you know, I look back, and I heard discussions yesterday about trying to, you know, come up with an SPR that reduces the need to have management decision changes over year after year, and,

well, that is what we're here to do, is make management decisions that have to be changed every single year, if they have to, but I don't think, with this black sea bass, we have our arms around what the real problem is here, and, to me, the problem is the uncertainty of the data itself. I just wanted to say that because it's really -- I'm having a very tough time getting my arms around the uncertainty in this data. Thank you.

DR. REICHERT: Thank you, Tim. I appreciate your comments. Anyone else? Jeff.

DR. BUCKEL: Tim, thanks for your comments. I just wanted to -- Can you hear me?

MS. THOMAS: You're quiet, but --

DR. BUCKEL: All right. I will talk very -- So, Tim, thanks for your comments. One of the -- With the MRIP data, when you look at the number of live releases, when you -- You know, you mentioned the 3.5 million, and, if those were released, then where are they, and one thing that we've learned from tagging black sea bass is that those are not 3.5 million independent fish, because a fish can get caught two, three, or four times, and so that 3.5 million might be a lot lower number of an absolute number of individuals, but they get caught over and over again, and so then you get these -- You know, the high number of live releases, and so I just wanted to point that out for you.

DR. REICHERT: Thank you, Jeff. That's a good point and, actually, yesterday, when we were talking about this, I didn't -- I forgot that. Tim, you want to follow up real quick?

MR. GRINER: Yes, please, and I appreciate that, and I thought about that too, but, when you're talking about releasing six million fish, the percent, and especially the data points of recaptured fish that we have that are tagged, those data points are quite low, actually, compared to six million individual releases, and so, you know, to think that you're sitting there -- Somebody is sitting there in the estuary and catching a fish that's, you know, nine inches long, and catching them over and over and over and over again, I think the uncertainty in that is equally as great.

So, you know -- Well, although I can appreciate recapturing tagged fish, and that's the beauty of these tags, I don't think that we have the data that would support saying that a large amount of the six million individual releases were the same fish over and over and over again, multiple, multiple times. You know, it could be, but we deal in data, and there is no data, really, other than a few data points of some captured and recaptured fish that could be extrapolated to say that there's a large percent of six million individual fish that were recaptured. Thank you.

DR. REICHERT: Thanks, Tim. Again, I appreciate your comments. Any other? Jimmy.

MR. HULL: Thank you, Mr. Chair. Jimmy Hull from -- Fishing out of Ponce Inlet, Florida. I have targeted black sea bass, off of northeast Florida, my entire life, and no longer can we target black sea bass. They're nonexistent. Just there's so few animals there that they have become economically extinct. There's no age classes anywhere. I just don't know how we're ever going to rebuild this back, because there's just no larvae. There's nothing there. It's a big problem. It went from where -- I'm at the very southern end of the range, but we used to make a living pot fishing black sea bass. I mean, no longer. We can't target them, and so it's serious. I just want to make that statement. Thank you.

DR. REICHERT: Thanks, Jimmy. We appreciate that. Tim, go ahead.

MR. GRINER: I think I had my hand raised from before, but Jimmy does bring up an interesting point, and this is anecdotal at best, but, you know, I did just visit the Mid-Atlantic Council meeting, and I spoke with a couple of bass potters up there, and their pots are full, more so than they've ever seen, and they're convinced that their fish are not all their fish anymore.

In fact, we went through some photos that they were sharing with me of the amount of triggerfish that are now being caught by these black sea bass potters. They were having a tough time even figuring out what these fish were at first, because they'd never seen gray triggerfish in these kinds of numbers there. There's so many of them, and they're so large that most of them can't even get in the trap, and they're all around the traps, and so, you know, we talk about regime shifts, and expansions, and, you know, maybe there is a lot more to this than we really do know about, and, again, that's just from what I'm hearing from fishermen from the Mid-Atlantic, but Jimmy does raise an interesting point there. Thank you.

DR. REICHERT: Thanks, Tim. Any other public comments, hands raised online or in the room? Chris.

DR. DUMAS: To circle back around to Tim's first comment, could someone familiar with the stock assessment model just briefly say what is done with the black sea bass recreational releases and discards? Are they fed back into the model? I assume so, and so if we could get the answer to that question, and then, also, for the issue of one fish possibly being caught multiple times, is that somehow accounted for in the stock assessment model, and so if just someone could just briefly, briefly address those two points of Tim's. Thanks.

DR. VINCENT: I'm assuming that's directed at me, and so I guess I'll go ahead and answer. I think the first part you're questioning about is the uncertainty in the MRIP data, and so, in the MCBE analysis -- No, that's not your question?

DR. DUMAS: No, and any fish that are recreationally released and discarded, certainly I guess a fraction of those are assumed to die, discard mortality, and then, those that don't die, those are fed back into the model, correct, because Tim's question was what happens to all those fish that are released and discarded, and so the model assumes that, if they don't die, due to discard mortality, they remain in the population and continue to grow in the next year. Is that correct?

DR. VINCENT: Yes, and so, in the model, we only take out the dead discards, and so we take the total number of fish and then multiply it by a discard mortality, which is about between 13 and 19 percent, depending on the fishery, but, for the recreational, I think it's 16, or something like that, and so that's the -- Only 16% of that, whatever the fraction of released alive, is dead discards, and that's what's taken out of the population.

Then the second question was multiple catches, and so we would just use the number that are dead discards, and so it just multiplies that total number caught, and it kind of just, yes, keeps them alive and assumes that the multiple catch -- Like it doesn't explicitly deal with multiple catches, but the fish could still be alive, because you only have a 15 percent, or 16 percent, mortality.

DR. DUMAS: Thanks.

DR. REICHERT: Anyone else? Okay. Thank you. I want to go back, real quick, to the action items, and then I asked Judd to kind of summarize where we are, and where we need to go from here, and he has graciously agreed to do that, and so we've received the presentations on the history of black sea bass and council decisions and the projections, and we briefly started talking about alternative approaches to allocating landings and discards by sector, but I think we need to continue that discussion today.

We took a look at the review of the recently requested projections, and, yesterday, we discussed that, since the rebuilding is off the table, those projections are, at the moment, not relevant for our discussions, and what we should be looking at is the projections under SPR 40 and a P* of 30 percent, and Judd will talk a little bit more about that, and then, of course, the last action item is make catch level recommendations, and so, at the end of our discussions, we should come up with an ABC for black sea bass that we can forward to the council. Judd.

DR. CURTIS: Right. Just to add on to what Marcel has given you background information on, and so I'm trying to fiddle with these controls at the same time as providing this context, and so we received a bunch of these scenarios that Matt put together, a lot of them based on the F rebuild scenario that was previously requested. As I mentioned kind of in our intro, right, with the council then delaying the rebuilding plan, the implementation of a rebuilding plan, until a subsequent amendment, the council is looking for recommendations, catch level recommendations, from the SSC at the FMSY values.

Based on the discussion from the SSC, and a presentation from the Science Center, the SSC seems like it's landed on F 40 percent as the appropriate proxy for the stock, as well as a 30 percent P* value, which was determined from our February meeting, when we went through the old control rule. It went through a slight adjustment, but we land on 30 percent, which is what Matt produced projections at for ABCs, and then our OFL projections would be at that F percent proxy value.

A couple of questions then, for the SSC to land on an appropriate projections scenario, is the recruitment regime, and are we looking at using the long-term recruitment regime or the short-term most recent average recruitment regime for projections in the future. I will remind the SSC that, based on our catch level projections working group, the recommendation was that the near-term projections should be using the most recent average, because that's most representative of the current conditions and what is probably going to -- What is most likely to happen in the future, in the near future, as far as projections are concerned.

Also, the other item for discussion, that the SSC needs to make a recommendation on, is that discard current, versus the other discard scenario that Matt had presented, and, below, in the overview document, we've got the output from the assessment at the F percent value that serves as your benchmarks-related quantities, and, below, we have a catch levels table for projections for the SSC, the SSC recommended projections for black sea bass.

DR. REICHERT: Thanks, Judd, and, in addition, please remind us -- We were asked for temporary catch level recommendations. Normally, we do five years. Given the delays, and that includes the interim years, and so that means that 2026 is the last year of those five years. I saw, in your table, that you had a longer period there. I also want to remind the SSC that we asked for an update

in 2026, and for an interim analysis, if I remember correctly, and then an update in 2028, or 2029, and so one question I had is, if we provide recommendations for 2026, what will happen for 2027 and beyond, or are we providing more than our usual five-year projections?

DR. CURTIS: So, currently, in the projection table for the ABC values, we only have projections through 2026. Correct, Matt? That's based on the five-year projections out from the terminal year of the assessment, right, as recommended by the catch all the projections workgroup as well. If you recall, from our February meeting as well, I think, when we were setting the -- Or making initial requests for the various changes, the SSC recommended that an interim analysis be conducted in 2027, or 2026, to follow-up on the accuracy of the projections, and then an operational assessment, or an assessment now, potentially, in 2028 and 2029.

DR. REICHERT: So our current request is to make those recommendations through 2026, or should we go past that? I wasn't quite sure, because of the length of our process, and 2026 is year-five or do you --

DR. CURTIS: Well, we currently only have projections available through 2026 for the ABC streams.

DR. REICHERT: Okay, and so that would be our ABC through 2026, and, for clarification, Matt, for the interim years, those came out of projections. You did not update that with actual landings, or did you? Just, just a reminder, a refresher.

DR. VINCENT: Yes, and so they're based on the average fishing mortality, and so they're not fitting to the data at all ,for 2022 through 2025, and s it's just projections, yes.

DR. REICHERT: Thank you. I asked Judd to pull up the projection table for that scenario, the P* 30, SPR 40, and short-term recruitment.

DR. CURTIS: You can zoom in on your screens, if you can't see, if you're on the webinar, and this is Table 15 and Table 16 in Attachment 6b.

DR. REICHERT: So our ABC recommendation that comes out of this table would be -- I can't see that, and I can't pull it up there. Was that the 162,000 pounds?

DR. CURTIS: Correct, and so the top table, for a refresher, is the projections with using a long-term recruitment regime, right, and the bottom table, Table 16, is using the recent average recruitment, starting in 2023, and projecting through 2026, which would be five years after the terminal year of the assessment, and the bottom line, there that has been highlighted, would represent the recommended catch levels for 2026, and that would serve as the catch levels for subsequent years moving forward, since we do not have additional projection years until another assessment is conducted.

DR. REICHERT: Alexei.

DR. SHAROV: Well, before we get to that final point, as I just heard a minute ago, the landings, and discards, for 2022, 2023, and 2024, are projected there from the projection set. Why couldn't those be substituted for at least 2022 and 2023 for actual landings and solved for the F's and, in

my mind, we have to be as close to the actual situation as possible, and those two years could have been approximated more appropriately. There must be a reason, right?

DR. REICHERT: Thank you, Alexi. I think Erik has a -- Erik, go ahead.

DR. WILLIAMS: Alexei raises an excellent point, and I would go even further and point out that, on page 25 and 27 of Matt's presentation, he projected out the index values for that projection, and the index values are already way off from what we've actually realized in 2022 and 2023, and so I think, right out of the gate, one could easily argue that these projections are not useful. They're off, in terms of the removals and they are now -- It looks like they are off quite a bit on the projected index values as well.

DR. REICHERT: Matt, go ahead.

DR. VINCENT: Yes, and I just wanted to make the comment that we did -- So we started out the projections, and, the first round we did, we did fit to the 2022 landings, but then the SSC decided that the F's that resulted from fitting to those landings were too high to be reasonable, but they did match with -- So I did fit another model, to just including the catch data and all the data we have in 2022, and the projections matched the F that was fit to the full redo of the stock assessment, including that terminal year, but the SSC still decided that they weren't going to do that, and so that's why we've gone with these average F projections since 2022.

DR. REICHERT: Any further thoughts on this point, before we move on? Alexei, go ahead.

DR. SHAROV: Yes, and can I ask Matt then -- I mean, could you run your model, inside your mind right now, and like what is your gut feeling, and if you were to -- I mean, it's been two years since -- Well, the terminal year is behind, but, if you were to rerun the model, to update it for two years, would we -- Do you think we would still be facing the same challenge that the stock would seem to be too low for the level of landings, and the F's too high, unrealistically, or would there be some adjustment within the model, and then things will be rescaled, and we'll -- Because something is popping out here wrong, you know, I mean, and I don't want to restart, but, you know, but there has to be -- There has to be some logical explanation. Anyways, thank you for whatever you can say.

DR. REICHERT: Matt.

DR. VINCENT: So I guess it depends on whether you were to include an update of the index or not for past 2021. I think, if you don't include an index, I think it might just have really high Fs, but, if you were to include updating the index as well, it might result in a bit of a rescaling, a little bit of the F, but the updating the index has shown that it's even lower, and catches are still really high, or the abundance is even lower than what it was in 2021, or at about the same level, and the catches still remain very high, and so I think F will still be very high, but not quite as high as what the projections were, because I think the F's, from the projections, were at like three, or something like that, and so it might also rescale the weighting of the different selectivities of your discards, relative to the landings as well, and so that might make the F's not appear as high as what they have to be, in order to -- Based on that fixed weighting, and so the F's in the assessment wouldn't appear to be as high, but the output to the population would be about the same, in terms of removals.

DR. REICHERT: Alexi, go ahead.

DR. SHAROV: Last time I promise, and so, yes, it is very challenging, because there is some problem that we cannot pinpoint. What Matt is talking about with landings. I think we're essentially talking about the number of killed fish and, what, 75, or 85, percent of them are actually estimated discards, and, given the comments earlier this morning, I think it's imperative to investigate, in the near future, if possible, the reliability of our estimates, because I think MRIP is a very solid program. I trust into the statistical principles, and I trust the estimates that are being produced, in terms of the effort, and observed catch, but the estimates that are based on recalls -- They're having some dark side to it yet.

Because most of our catch, or dead fish, are now dead discards, it is a potential source of the problem, and we cannot resolve it at this point, and so, as we were refreshing, and I understand why SSE was forced into essentially following the projections, because this allows us to bypass this technical issue, and the question is then how close to reality we are with projecting these past two years, rather than actually trying to tie them up to the observed data, but yes, it seems that, at this point, computationally, that's probably the only way to go, yes, but the issue of discards is important. I think I would suggest that we do provide the recommendation for this to become a priority. Something with this assessment is not behaving normally, that it should be in terms of the expected elements of population dynamics. Thank you.

DR. REICHERT: Thanks Alexei. Matt.

DR. VINCENT: Yes, and I just want to say that the uncertainty in those discards are included in the MCBE, as we do resample, based on the CVs from the MRIP for each of the years, and so we resample the landings, and then we also resample, or draw from a distribution of the discard uncertainty, or the discard mortality rate that's applied to those live releases, and so we have both those forms of uncertainty that are included in the MCBE analysis, and then pushed through into the projection as well, and that's why you can see that your discard uncertainty -- Your uncertainty and your discard projections is much larger than it is for your removals, because that has been incorporated into both the analysis and the projections, when you use the median of those projections.

DR. REICHERT: Thank you. Erik, I have a question for you. Did I hear you say that these projections should not be used for management advice, the ones that we have seen that Matt ran? I just want to make sure I understood what you said earlier.

DR. WILLIAMS: Yes, and so let me follow up. I think a couple of things here. I disagree with Alexei's assertion that there's something wrong with the population dynamics here. There is nothing wrong with the population dynamics. What is wrong, or what is the evidence is starting to support that is wrong, is our assumptions that we put into these projections are off, and they're off for probably several reasons.

If you look at the recent discard information coming out of MRIP on black sea bass, it's continuing to go upward from the last year in the assessment. If you look at the index value, it's continuing to go down, and slightly down, but still down. It is -- In fact, the 2023 estimate is the historically low value for the index, and we had to make assumptions about recruitment. If we were to put all

this data back into the model, I think the model would easily reconcile what's going on here, and I suspect one of the things that one of the things that's going to come out of it is that recruitment is continuing to drop, and probably drop precipitously, and so I think there's enough changes in the recent data to suggest that these projections are just simply off.

We can't -- We can't, with a straight face, say that these projections should be used for management at this point, because of the recent data that is in front of us that just completely disagrees with the output from these projections, but I do want to say I don't think it's that there's anything wrong with the population dynamics. I think it's all in the assumptions that we've made in these projections are off.

DR. REICHERT: Thanks for that clarification, Erik. I'm going to recommend that we take a quick break, and then we come back in about 10 minutes, and so we'll come back at 9 20.

(Whereupon, a recess was taken.)

DR. REICHERT: Okay. Welcome back. Sorry that that break took a little longer than we expected. Given the significant issues that were raised, and the fact that the status quo is really not a viable option, we'll table the discussion, and we'll come back to this after lunch, and so, for now, relative to the agenda, we'll continue with the golden tilefish assessment. I asked Matt, and he said he was ready to provide his presentation on the assessment. Wally, James, Kai, and Steve and Jason were assigned to the agenda. Wally and myself were members of the topical working group, just as a reminder.

Note that there is the usual long list of action items to address, and so I'm not going through them, but I'm asking others to assist with notetaking as well. The operational assessment report was provided in Attachment 7a, and the terms of reference is 7c, and Matt's presentation is Attachment 7b. Matt, why don't you take it away? I'm not sure if the presentation is available online yet, and so, just for those of you who are looking for it. I'm not sure. Judd is checking.

DR. CURTIS: Okay, Matt. I'm going to make you presenter. You should get a prompt to take control. All right. I think you're ready to go. Take it away.

SEDAR 89: SOUTH ATLANTIC TILEFISH ASSESSMENT REVIEW

DR. VINCENT: Switching gears, we're on to golden tilefish, and so we'll start with some background, move on to the data, talk about the assessment model, the results, and then talk about the MCB with the MCBE, in terms of uncertainty, and move on to our favorite thing, projections, and hopefully the projections, in this case, will be better than black sea bass, but so on to the background.

Tilefish was a little bit different than previous assessments, because we had a topical working group, and the references that were requested -- The first three, or first four, were pretty much the same as what were generally requested to conduct an assessment, and do all the data and diagnostics and stuff like that, and then report the changes, but then the last two were a little bit different, where we had the actual topics working groups.

We did meet, and we representatives from the SSD, the industry, and other people from academia and such, and so there were like five major things that were requested. The first was to try to incorporate the SC DNR, the bottom longline, or the what's been called SADLS, into the assessment, but this was reviewed um by the SSC, and they determined that it should have five years of data before it was included into a stock assessment, and, currently, there are only three or four, and so we did not include the SADLS survey into the stock assessment at all.

Then the second request was to look at hermaphroditism in, or evidence for hermaphroditism in, the South Atlantic, I'll talk about that a little bit later, and then there was looking at evidence for age or size-dependent spawning frequency and spawning season duration, and we fit additional models for that, and I'll talk about that in a later slide.

Then the fourth request was to look at genetic evidence of connectivity between northern and southern socks, and we tried to contact Jan McDowell, and anyone else who was doing genetic stuff, and nobody has any data on that, and so we kind of said, well, there's nothing we can do, and we wrote some rationale about why we did not address this in terms of reference.

Then the fifth request was evidence for potential northward range shift, and we did a thorough literature review as well for this, and there didn't seem to be any evidence of this, or information, in order to determine if this was occurring or not, but the range of tilefish has been from Massachusetts down to Suriname, down in South America, and so we do lie in the middle of the range, and so, if there is a northward shift, it would be probably on the northern boundary, and we've determined that there is a stock boundary at the Virginia-North Carolina state boundary, and they're distinct stocks, and so we don't really have any evidence for a northward range shift for the species. Then the last terms of reference was to develop a stock assessment to address all of these, and hopefully you guys have seen that.

During the process, we updated a whole bunch of things, and the first thing was to update some of the conversion factors from -- We found that there was a logical error in the conversion of lengths, and so they had been using the -- So you can measure total length, in terms of a maximum length, or a stretch length, and South Carolina DNR measures length in terms of a max total length, which is kind of like a stretch length, but they had been assuming that those conversions that SC DNR had, that were from like standard length to total length, weren't a maximum, but as a natural, and the TIP data is based upon like the different total length, the natural total length, and so they were incorrectly using the conversion factor, essentially, and were comparing apples and oranges, but then we looked into this, and updated it, and have corrected that issue.

While identifying this, we also updated and refit all of these conversion factors as well, with the updated data and all the available data from all the different sources for all of the different life history conversions that are shown on the screen. We also fit von Bertalanffy growth curves for the females and the total population.

Then the -- So this goes back to the request for looking at the reproductive output-at-age, and so we fit the maturity-at-age to length, using the logit model, and then converted these lengths to ages, and so we had a maturity at age ogive that was input into the stock assessment. Then we also fit log batch fecundity to a log length model, and this was also converted to age, to give a fecundity batch fecundity age, and then we fit the plateau model, which you see on the screen there, which is fit to the spawning proportion by date, or by week of year, and this allowed us to

give us a spawning frequency at-length, as well as a spawning duration at-length. Both of these were incorporated into the stock assessment model, and so this produced a reproductive output-at-age that we used in the stock assessment to meet that terms of reference.

This figure shows the different reproductive outputs at-age and, so the total reproductive output at-age is given by that green line on the bottom, and it's the product of the maturity, the number of batches, and the batch fecundity, all multiplied together to give that green line.

Then the other terms of reference was requested to look for evidence of hermaphroditism, and Wally and Kevin did a lot of analysis of that, and they found no evidence for hermaphroditism. The evidence was that there wasn't a disparity in age frequency of the sexes, and you would expect to see that if there was a -- Especially at the older ages, or the younger ages, and you didn't see that at all. There was no disparity in the proportions, or frequencies, between the males and females.

Then, additionally, there was no ovarian lumen in the male histological samples that they investigated, as well as no testicular remnants in the female histological samples, but they did find that 1 percent of males did have a -- Whatever that word is, previtellogenic oocytes, but there was no evidence that they were functional, and this is the weakest indication that there may be hermaphroditism, and, since the proportion was so low, there is other common causes that could produce this, and so there was also a lack of transitional individuals, even though they had samples for almost all the months of the year, I think even -- Yes, all the months of the year, and so it didn't meet any of the criteria to be classified as hermaphroditic, and so we -- They determined that there is no evidence for hermaphroditism for tilefish in the South Atlantic.

We already talked about this a little bit, but there was also no data on the connectivity and range shift, and so there was a tagging study that was conducted back, I want to say in the 1980s, and the tagging study found that there's limited movement in the adults, that almost all the recaptures were within two kilometers, after up to one-and-a-half years at large, and then, additionally, there has been stock structure analysis.

It's been a bit limited. There was one study that looked at data from the -- Where was it? Massachusetts, and there was one sample, or two samples, off of South Carolina, and then a bunch down in the Gulf, and there was a bit of conflicting evidence between the meristics, or the measurement of different fish parts, and the electrophoresis gels of the liver.

There has been some changes in the genetic stuff, but none has been conducted since then, and so, in order to suggest a change in the range, you would need to have -- The other option would be that there is a shift of more northern fish, or more southern fish, in the area, but, in order to determine that, you would need to have a historical baseline of what the stock composition was, based upon the genetics. However, we don't have that historical baseline. We don't even know what the current levels are, and so pursuing that northern range shift is not possible for golden tilefish.

As I already talked about, it's in the middle of the range, and commercial fishermen have suggested that there has been no change in where they're catching the fish population, and so we kind of said that there is no evidence for a range shift, or any way to investigate this further.

Moving on to the data, we had two different indices of abundance. The first was the fishery-dependent commercial long line, which happened -- Which ended in I want to say 2009, before restrictions made the index unusable for any time after that, and then we have a spotty time of the MARMAP longline survey, for various years, but that ended in I want to say 2016, and so the last five or six years of the assessment do not have an index of abundance.

This shows the landings. On the left, this is thousands pounds of gutted weight for the longlines and the handlines, and on the right is for the combined recreational fishery, and this is in terms of number of -- Or thousands of fish. You can see that the landings seem to have decreased. They were the highest in the 1980s, decreased in the mid-2000s, and then have increased a little bit in the last decade, but are fairly stable.

We did make some changing to the landings data, so the recreational data is now modeled in terms of number of fish, because it has a slightly lower CV than those in terms of weight, and it seemed to be more reasonable, because that was how the data are collected, and there was quite a lot of uncertainty in the weight. For many of the states, they had to use an average across many years, and it seemed questionable in some cases, and so we just used we just modeled it in terms of number of fish.

Then we -- For the recreational landings, we also incorporated -- We combined the MRIP and the headboat data landings into one, and we -- For the longline data, we also added in an estimate of discards, which have become available, but these estimates were much smaller and not very impactful on the assessment

In terms of data availability, we have landings for the two commercial, the handline and the longline, since the start of the model, and then, for the recreational, it starts in the 1980s, and then we have spotty abundance of indices, and various length composition and age composition, for the various inputs.

Now into the assessment model, and so we made a number of modifications to the Beaufort Assessment Model, and, as we already talked about, we modeled the recreational landings, in terms of thousands of fish, instead of weights, and we also modeled the commercial landings, based upon a gutted weight, using a length-weight conversion factor, which was a little bit different from previously, but it seemed to fit the model a bit better, and make more sense, and we also used the updated length-weight conversion factor, and that was fit to additional data.

We also changed the value of natural mortality, based upon the Lorenzen 2020 inverse length, where the mean value was based upon the Cope, or Hamel and Cope 2022, and then we also -- That'll probably come up in the next slide, actually, and we also coded it up so that we could put in a minimum and maximum age over which to scale that Lorenzen, and included that in the uncertainty analysis, which we'll talk about later.

We also removed a time block selectivity, starting in -- Or that was occurring in 2009, because it didn't improve the fit to the models. However, we did put a time block selectivity in 2020, because there was -- They started catching a lot more younger fish, and there was no older fish that were occurring, or being caught, in the commercial handline and longline, and so we implemented a dome selectivity, and it resulted in a much better fit to the landings, but that will have implications on your reference points and stuff like that.

We also changed the biomass, to be calculated in thousands of pounds, and changed the spawning stock biomass, to be in trillions of eggs, because we changed our reproductive output to be in terms of that instead of -- It was previously gonad weight. We also allowed for estimation of the Beverton-Holt steepness parameter within the stock assessment, and then we changed the terminal recruitment deviates to be starting in 2019, which is much later than the previous assessment, but we did a lot of likelihood profiling, and it suggested that the model was able to do it, because they started catching a lot younger fish in the last couple years.

We also changed some of the constant input values. As I already mentioned, the constant natural mortality was based on Hamel and Cope, instead of a much older paper, and I'm forgetting the authors of that, but we also updated the length-weight relationship, for both the gutted and whole, as I already talked about, as well as growth curves for the population and females. We also put in that maturity-at-age and the reproductive output age that we talked about earlier, and then peak spawning time also was determined from that plateau model. We also incorporated an ageing error matrix, and that was used within the assessment model.

I did a bunch of -- As I already mentioned, we did a bunch of likelihood profiles for the recruitment deviates, to see whether they were well estimated, and you can't see the axis, but so these values are quite high. They're in the twenties to forties range, but, when we move to 2020, the values are in like the single digits, and they're about one or two, and so that was why we determined that 2020 would not be able to be estimated, whereas 2019 is about -- There's a change in about ten likelihood values, and so it seemed like 2019 was the last year of our recruitment deviates that would be able to be estimated by the model, and so 2021 and 2022 were fixed at the -- Well, I think they're fixed at the long-term average.

On to the assessment results. We had good fits to the two commercial landing streams, as well as the recreational landings, and the fit to the indices were fairly decent for the commercial longline, and the runs test for that was good, as well as the runs test for the survey, the MARMAP survey. You can see that there's -- It has a bit of difficulty fitting some of the years, but there's quite a lot of uncertainty in those estimates as well.

Moving on to the fit to the age composition, we have a good fit to the commercial longline. On the left, we have the two different time blocks, and you can see that there is an increase in the younger ages, at age-five and age-six, that weren't in the earlier time block, which is the 1992 to 2019, whereas the bottom block is 2020 through 2022, and, on the right, we have our one step ahead residuals, and we don't really see any patterns that are too concerning.

On to the commercial handline, and, with this one, you can even see that shift even more dramatically from -- That occurs in 2020 of to catching lower, or younger, fish, compared to historically, and the fit to this data seems pretty good overall as well.

On to the fit to the length composition, and there's a bit more uncertainty in this. There's more variability in the length data than the age composition for the general recreational, but, overall, it fits the data fairly well, and there's no real cause for concern in the residuals, and so on to the fit to the age count, or the survey from MARMAP, and we can see that the model is predicting there to be a bit more older ages than are seen in the survey for ages-sixteen and older, but, overall, it seems to fit the data fairly well.

These are the commercial selectivities. As we've already talked about, there is that big shift to younger ages, or ages-five and six are now caught by the commercial handline and the commercial longline, which previously were not, and we have a very domed selectivity, where they're not catching the older fish, which appear to still be abundant in the population, but they're just not catching them. This is the selectivity for the recreational, on the left, and then the survey, the MARMAP survey, on the right.

Overall, this is the weighted selectivity, based upon the last three years of the assessment. As you can see, it's highly domed, and so this assumes that the fisheries are not able to catch the oldest fish, and this could have implications on your -- This will have implications on the management reference points and the ACLs and stuff like that. These are the initial conditions, and they are not really interesting, and so we'll move on.

This is the abundance trends of the -- That's estimated by the assessment model, and you can see that it declines until the late 1990s, and then it has increased through the mid-2010s, and then it decreases a little bit, but it has been relatively stable in the last three years.

This is your spawning stock biomass, relative to the SSB MSY and the MSST. You can see previous assessments have said that the population went below the MSST in the late 1990s, but, in this case, it doesn't appear like it did. It came very close, but this could also be due to -- These reference points are based upon the domed selectivity in the terminal year, and so there is a little bit of that not comparing the same thing as what was occurring at that time.

Then this is recruitment deviates, and we have some variability, but no serious trends to be very worried about. It's a little bit lower at the end of the time series, but, in general, it seems reasonable. Then this is the fit to the spawner-stock recruitment curve, and it hasn't -- I forget what the estimated steepness is. I want to say it's about 0.68, I think, but I could be completely wrong, and so don't quote me on that.

Moving on to the fishing mortality, we can see that the fishing mortality has increased a bit in the last couple of years, and this -- But you can see that there has been a big change in that fishing mortality-at-age, where the oldest ages have dropped off, due to that domed selectivity that was implemented starting in 2020, and you can really see that in the figure on the right, where you then -- You have a higher F, because you have to -- You have a restricted range of ages. You're catching a lot more smaller fish and not exploiting the older fish.

Then this is your equilibrium landings, and it gives your equilibrium fishing mortality rate, which is a little bit above 0.2, and I'll move on to the next one, and this is yield per recruit spawning, and SPR on the right, and so, in this case, SPR for FMSY corresponds -- It's really close to 0.4, which is quite interesting, and so this -- This might be additional evidence for using that 0.4, and so we'll move on to the next one.

This is your phase plot of the status of the stock, and you can see that it is currently above the MSST, but it is really close to being at FMSY, and it's -- I think, in some years, it exceeds it, but, in the average for the last three, it actually lies directly on the line, and so it's like 0.9999, I think, or something like that, and so it's really close to F over FMSY.

This is our likelihood profiles for -- On the left, it is our likelihood profiles of LogR0, and you can see that it's quite well-defined, and on the right is our likelihood profile for steepness. You can see that there the profile is a bit flatter, especially at the higher values, but it does have a minimum, and it seems to be estimated at a reasonable value, and so that's why we included it in the stock assessment model.

Conducting a retrospective analysis, the values for this seem to change a bit, but it's mostly due to that -- By excluding that terminal year, our estimate of steepness changes quite a bit, and it goes to the upper bound, once you remove that terminal year, and I think some of that is due to you have less years for those terminal selectivities, combined together with just removing that last year, which seems to be very informative on that steepness parameter.

This is sensitivity to the natural mortality value, and we tested two different forms of sensitivity. The first was to change the maximum age, and so that is the blue line and the purple -- Or the blue line and the green line, and you can see that -- It's the blue line and the purple line. Sorry. You can see that the higher value results in a higher value at the beginning of the time series, but they all converge towards similar places at the end, and it doesn't seem to have a huge impact on these reference -- Or on the stock status of the model.

We also changed -- The other thing we changed was the age at which -- The first age that was included in the average Lorenzen natural mortality, and we arranged this between five and eight, but it didn't have as big of an impact as that changing the maximum age. That scales the whole natural mortality value. Then this was changing the F_{init} value, and so this was based upon -- The high and low value were based upon the likelihood profiling of F_{init}, and it had very small change in the likelihood, between a value of zero and 0.2, where the base value was 0.01, and you can see that it has quite a big impact on the status, in terms of the spawning stock biomass, and the fishing mortality as well.

Moving on to the growth, since growth in the base model was fixed at 0.5, or negative 0.5, we tested a range between zero and minus-one, and you can see that it doesn't have a predicted -- Or it has variable impact on the status of the stock, and it doesn't -- The base model doesn't fall in the middle, but, overall, the uncertainty isn't very large from this component. Then we also tried different values of steepness, and you can see that this has quite a large impact on the stock status, and it incorporates a lot of uncertainty into the MCBE analysis, and so I'm going to talk about the MCBE analysis now.

We incorporated a lot of different variability into this MCBE, maybe a bit more than has been previously done. We bootstrapped the data, and so we did a multinomial bootstrapping of the age and length composition, and then we also did -- We incorporated multiplicative lognormal error on our indices of abundances and our landings and discards combined, and then we also incorporated -- Or we bootstrapped the natural mortality database that was used in the Hamel and Cope regression, which is the Then et al. database, and we bootstrapped that database, and then we fit the regression, and then use different values of natural mortality for the maximum age, in which to calculate the overall average mean M as well as the scaling of the Lorenzen curve, and we also changed the minimum age for that Lorenzen natural mortality as well.

The F_{init} was drawn from uniform distribution between zero and 0.2, as we previously talked about, and then we refit the growth model to fixing the T0, based upon a value of negative-one to zero,

and refit the growth model 4,000 times for each of the MCBE runs, and then fixed that in the stock assessment model.

We also incorporated uncertainty into the batch fecundity, the number of batches, and the peak spawning time, by resampling using a multivariate distribution of the different parameters and then recalculating these fixed parameters, or the fixed ogives, in the stock assessment and putting it into our model. We also had a variability in the recruitment deviation, recruitment deviates, and that was fixed in the stock assessment, because, when we tried to estimate it, it went to the lower bound, and it seemed unreasonable.

We already talked about the maturity-at-age, and we also incorporated the length-weight relationships, and those were also drawn -- The A and B parameters were drawn from the multivariate distributions, when we refit those conversion factors, and those were also incorporated into our MCBE analysis, which I don't think has been done before.

We also then refit 4,000 models of this. 3,118 converged, and all the others either did not have a positive definite Hessian, or had a maximum gradient that was too large, and so we rejected those models, or had parameters, and I think, a lot of times, the steepness parameter was estimated at the upper bounds, and we also removed those models as well.

These graphs show the different uncertainties that were put into the model. On the left, you have the three different components that make up the overall fecundity ogive, which is shown on the top-right, and then we have variability in the growth curve, which is the middle graph on the right, and then we have variability in natural mortality, which is the bottom-right figure as well. We also have the uncertainty in a whole bunch of different fixed parameters, and so you can look at the different axes, but, overall, it just incorporates uncertainty in a bunch of different parameters that we used in the model going forward.

These are the results of the benchmarks from the MCBE analysis. On the top-left, you have FMSY, and you can see that it's a long-tailed distribution , and some of this is due to that non-linear F_{init}. When you have a higher F_{init}, it seems to increase the FMSY a bit more, in a non-linear fashion, and so that's why you have long tails for both the FMSY and the SSB MSY.

This is the phase plot of the stock status, and so the base model is shown by that black dot, and it's right on that F over FMSY value. However, the median from the distribution is that pink triangle, and that shows that the stock is above F over FMSY, and, based upon the proportion of the -- There's more than 50 -- Well, there's more than 50 percent, I think it's like 54 percent, or 55 percent, that suggest that the stock is overfished, but the base model does not, and so I wasn't sure.

I was kind of vague on whether the stock was overfished or not in the stock assessment report, as a result of that, because I wasn't sure which one -- Whether the SSC used the base model or the median of the MCBE to determine stock status, but, in terms of overfished, the majority of the simulations suggest that the stock is not below the MSST. However, the majority of the projections, or of the stock assessments in the MCBE, and the median, suggest that it is below the spawning stock biomass at MSY, which is shown by the figure on the right.

So these three figures show the stock status for this assessment, and, as you can see, that we already talked about, the stock does not go below the MSST, but it is right at, or slightly below, the

spawning stock biomass at MSY, and F over FMSY is at, or slightly above, depending upon whether you use the base model or the median of the MCBE analysis. This is a table that we'll probably look back at later, but I don't like tables, and so we're going to skip it.

A summary of the assessment results, as we already said, the majority, 74.4 percent, of the MCBE and the base model say that the biomass is below the MSST, or, sorry, is below the target level of SSB MSY. However, 46, or the majority, 54 percent, suggest that it is not below MSST, and so it is not overfished, but a slight majority of the MCBE suggests -- Well, I already said that, that the stock is not overfished, and then the base model suggests that the stock is fully exploited. We have an F that's pretty much F over FMSY, that is essentially one, and the median of the -- 65 percent of the MCBE suggest that overfishing is occurring, and, once again, I'll let the SSC discuss whether it would be determined overfishing or not.

Now on to the projections, and I did two different projections, or, well, three, and so I did projections where the F equals the P*50, which is pretty much -- Well, it is equivalent of doing projections at FMSY. They are the same thing, in this case, and so we have the results here. We can see that there will be a slight decrease in the median of fishing mortality, compared to current levels across the MCBE, in this case.

Moving on to the P*, our P* of 32.5, and so this was based upon the value that was used in the previous stock assessment, and so these are the landing streams, the recruitments, and the probability of over -- Or probability of being above the SSB MSY and MSST, on the bottom-right. All right, and so does anybody have any questions?

DR. REICHERT: Thank you, Matt. Any clarifying questions before we start our discussions? Alexei.

DR. SHAROV: Thank you, Matt. That was a very good presentation, with a lot to observe and digest. I'm sure I remembered everything. I have three questions, if I could, quickly. Well, number one, I applaud this additional analysis on the maturity and fecundity and the depth, the steps, that you went through, but I wonder why. I mean, there are lots of species that have a batch fecundity, and, you know, the seasonality, et cetera, et cetera, and yet, for lots of them, we're just calculating the SSB, the way we traditionally do. Was this done here because of some specific interest and focus on the golden tilefish, or is it just because the data were available, or there was some active member of the assessment team that really wanted this to be done?

DR. VINCENT: It was one of the terms of references that was specifically requested, to look at the maturity-at-age and reproductive-output-at-age, and so that was -- We do have the available data, and so this was to both address that terms of reference, and we did have available data, and it suggested that there was a change in the reproductive output over age, and so it seemed reasonable to incorporate it into the stock assessment, and so that's why we did.

DR. SHAROV: Great. Thank you. I noticed that. I mean, there is a very significant effect, and, I mean, if you were to apply the same sort of correction factor, if I could say that, you know, just a simple maturity ogive that we have of a similar type for so many stocks, and to a much slower increase towards the, you know, the full -- The maximum reproductive output, and that will have a very significant effect on SPR calculations, for example, for sure, and you did have quite a lot of

uncertainty in there, and so that is something new and something to, you know, digest and think about.

I was a little bit confused over the statement on the older fish, and so maybe I missed something. Currently, at least in recent years, you're saying they were not catching older fish. They're not present in the catch, but they're present in the population. How do we know that they're present? There are no surveys. There is no alternative methods of actually saying that they're there.

DR. VINCENT: That's a good question, and so I'm going to go back a little bit to the -- To your comment about the maturity-at-age, and so the previous assessment included a gonad weight, and so it converted the weight-at-age to a gonad weight, and so I did have -- The impact of including the age-specific didn't have quite as much of an impact as using just a -- As using just the weight-at-age, and so it didn't make a huge difference, in this case.

Onto your second question about whether that -- Where I came up with my assumption, or my assertion, that those older fish are still in the population, and so the SADLS survey is occurring, and we do have the data through 2023 or -- Yes, 2021 through 2023, and they do catch a fair number of those older fish, eighteen and and older, and so I did look at that available data. It wasn't included in the assessment, because the review said we didn't have enough years of data, but we did -- I did look at that data, and it suggests that those older fish are still in the population. They're just no longer being caught, for some reason, and it's not clear why that selectivity in that fishery started in 2019 and what has caused it.

DR. SHAROV: The last question, if I could, and so they're starting -- The selectivity curve shifted to the left, towards the younger fish, and they're catching more proportionally smaller fish, and, at the same time, not catching larger fish anymore. Why is that shift? Is there a change in the fishing technique, a change in the size of hooks, or is it the sign of, you know, the age truncation and possibly younger fish more available? What is sort of the presumed mechanism, and, you know, what are the reasons for that shift in the selectivity?

DR. VINCENT: So, as I said in the previous question, I'm not really sure why that selectivity shift has occurred. It just showed up in the data, and there is a very obvious shift that occurred in around 2019, or 2020, and, based on some of the conversations that I've had with some of the commercial fishermen, it seems like they had previously gone out further, and they said that they might be able to target larger fish, or older fish, and so it's possible that they've changed their targeting, based upon -- But I'm not -- This is all speculation.

I don't really have a good answer for it, because if you look at the -- We even looked at the length composition and it seems like it shifts a little bit, but it doesn't have a huge shift, and so it wasn't -- We're not really sure, and maybe -- We're not really sure what caused that shift, but the model did fit the data quite a lot better when we fit that domed-shape selectivity, and so that's why we did include it in the model, but we don't have a great explanation. I'm just as confused as you are on the cause.

DR. SHAROV: Thank you.

DR. REICHERT: Thank you, Alexi and Matt. Steve.

DR. TURNER: On that change in selectivity, was that shown in both? I think that was shown in both commercial fisheries or --

DR. VINCENT: Yes.

DR. TURNER: Okay. Thank you.

DR. REICHERT: Anyone else clarifying questions? Fred.

DR. SCHARF: So, Matt, I wanted to follow-up on the point that Alexi brought up about the using the egg production as an -- You know, as an estimate of SSB, and so the -- I guess I have two questions related to that, and maybe one of them is for Wally, and one's for you, but so there's -- One of the uncertainty plots that you showed for fecundity showed that, once you get out past age-four or five, the, the spread around the fecundity estimates is really big, from zero, you know, all the way up to eight or ten, whatever that scale is.

The question for Wally was do you suspect that that variability, you know, where you have some estimates of fecundity close to zero for really old fish, is due to potential skip spawning, as opposed to any additional evidence that you might have that would support that? Then the question for Matt is how does that uncertainty in fecundity -- Is it the primary driver of the uncertainty in SSB, you know, in your -- In the estimates of stock status, you know, for SSB, relative to SSB MSY, or SSB MSST, and is the primary driver of that uncertainty coming from the fecundity relationship? So, if you took out the fecundity relationship, and you just looked at maturity, you know, mature female SSB, would the uncertainty be much lower?

DR. VINCENT: I guess I'll go ahead and answer first, because -- So, even though it looks like it's really close to zero, it's -- You're still in hundreds of thousands of fish. You're not quite at zero, but I won't -- I don't know anything about the skip spawning, and so I'll let Wally answer that question, but, in terms of that uncertainty -- So, in terms of the actual uncertainty in your SSB metric, it will -- This will have a big effect on that uncertainty in the SSB, but, in terms of stock status, because of SSB over SSB FMSY, that uncertainty will -- In some cases, it kind of cancels out, and so it won't spread to the stock status value as much, but it will -- The overall SSB value will be uncertain, because of this, but your stock status is unlikely -- It will be less influenced, because it is on the top, and it's on the numerator and the denominator.

DR. BUBLEY: In regard to skip spawning, that's something we've been struggling with for years now, trying to identify when it's occurring and what's happening with it. We don't have a very good answer with it, but some of the way that calculate throughout the proportion that are spawning kind of incorporates that. So the way that we account for that is that it's just -- It basically lowers the percentage of the population that's spawning at that point, and so it's just a slightly different way to calculate what's actually spawning condition, what's not, and that will hopefully account for skip spawning, if it's happening, but we don't have a good grasp on if it's happening.

DR. REICHERT: Thanks everyone. Chip.

DR. COLLIER: I'm just wondering, and, since you did change the reference points, how it's looked at for spawning, could that plot be incorporated into the report? I think that's a big change, and fecundity has been shown to have different results, compared to either mature biomass, or even

gonad weight, and so just being able to see what the impact of that change is I think would be important. It sounds like you already looked at it, but just having that graph in the report would be helpful.

DR. VINCENT: So do you -- Are you looking at it in terms of just the -- Because your axes will be different, right, because, if you have a plot of, what, exit age, versus the previous gonad weight, your axes will be different, and so I guess I'm -- Are you -- Do you want it in terms of -- You could maybe do it in terms of -- Where they're both unitless, and they might be comparable, but I'd have to recompute what MSY is for that other index, and I didn't do it in the assessment, and so, in theory, it's possible, but it would take me some time to do.

DR. COLLIER: Yes, and I guess I'm thinking back to -- Nikolai had done it for gray triggerfish, in the recent research track, and it was also done, I think, for either black sea bass or red snapper, and I can't remember which one of those, and so the code might be written for it already, and just looking at kind of what are the impacts of changing between the two.

DR. VINCENT: I would have to refit a different model to it, but it could be done, if -- I will look into it.

DR. REICHERT: Thank you, Chip and Matt. Any other clarifying questions? Alexei.

DR. SHAROV: Just one, I promise. Following on Fred's good question, and while we have this graph here, Matt, looking at the upper-right figure, so that uncertainty, that's the gray funnel of uncertainty, and how do you interpret this? That is that a single line of the fecundity is a function of age, which we don't know where exactly it lies. It lies somewhere there, that it's somewhere within this realm, but it's a fixed line, with no variation, or do you interpret this that the -- For any given year, for any given age, the fecundity might be fluctuating within that range, due to a number of factors, for example changes in growth, or the larger, faster-growing fish are removed by the fishery, and then therefore the fisheries, and, well, that sort of -- It's going to affect the outcome, and so apologies for asking this. This, you know, could be asked for any assessment which you provided us with. Thank you.

DR. VINCENT: So I think I understand the question. The uncertainty in this -- Only a single fixed curve is used in each MCBE run. That's constant across time, and across all the years, and within that MCBE, and so the variability that's shown is the 90 percent confidence interval for each of the different ogives, and so there is, like I said, just one single curve that's applied to each model. I think that's your question.

DR. REICHERT: Thank you. Steve.

DR. TURNER: In terms of the shift in the commercial age comp, I'm wondering if there's anything in the logbook data, or perhaps the TIP data, on depth, or location, which might support, or indicate, a shift in latitudinal, or depth, of the two fisheries, which might be associated with this change in the age comp.

DR. VINCENT: That's a good question. I haven't looked at it. It's a good question. It’s something that I can look into, or get somebody else to look into, but yes.

DR. REICHERT: Jeff.

DR. BUCKEL: Related to that, Matt, to look at the SADLS data, right, to see what the spatial age structure looks like, to be able to link back to what you find from the fishery, and so is there any -- You know, if the SADLS shows that the age distribution is constant, no matter where they set their longline, this whole depth, or latitude, hypothesis wouldn't fit, and so it would be interesting to see if, as you go deeper, there is older golden tilefish. Thanks.

DR. REICHERT: Steve.

DR. TURNER: I would add to that, and maybe there was a shift in the gear they used, the hook size they used, or something like that, and so, anyway,

DR. REICHERT: Thanks. Anne.

MS. MARKWITH: I just wanted to kind of add something to the potential change for the age comps. It might be market driven too, and so, with the cost of gas, and all that, if they can catch them further inshore, and we do see that the younger fish are closer inshore, that might be part of it, too. It might be market driven, particularly if they're getting the same price per pound at the fish house.

DR. REICHERT: Kai.

DR. LORENZEN: Just remind me, and so are all of your selectivities dome-shaped now?

DR. VINCENT: The two commercial selectivities are dome-shaped, but the recreational is still asymptotic, but the amount of catch that they have is minuscule, compared to the other two.

DR. LORENZEN: Which is also sort of interesting, why that would be asymptotic, but do you remember what the previous assessment of the selectivities patterns were?

DR. VINCENT: They were all assumed to be asymptotic, and they assumed a shift, in 2009, for the stock, because there was changes in regulations, but, when we fit the model, it didn't result in much of a change. It wasn't supported by changes in AIC, and so that's why --

DR. LORENZEN: Did you run the current assessment with asymptotic selectivities for the commercial?

DR. VINCENT: Yes, and we started out with just the break, and then just the -- Sorry. Just separating it out in 2020, and then we tested dome-shaped after that, because it didn't seem to -- It wasn't able to catch the youngest fish quite as well without -- With the asymptotic, and the likelihood did improve enough to support those additional parameters for the dome-shaped selectivity.

DR. LORENZEN: Thank you,

DR. REICHERT: Thank you. Any other questions? Fred.

DR. SCHARF: So just a broader question, Matt, related to the MCBE analysis, and this may not be unique to this assessment, and so I just wondered if you could comment on it, maybe broadly, but also for this assessment, and so when you -- All the MCB -- All the median estimates, in this case, are shifted in the same direction. In other words, your, the estimate of FMSY, the median estimate, would suggest a more conservative F to achieve MSY, and the same thing with the biomass at MSY.

It would be -- The median estimate from the MCB would be higher, and then -- Then, of course, then that affects the ratios, at the bottom of the table, that would indicate stock status, right, and so that the median estimates are all pushing towards overfishing, or overfished, status, relative to the point estimates. Is that something that -- I've seen a lot of blue and green lines, the last couple of years, and so I have no memory if this is sort of the -- Is this the typical pattern that the MCBE analysis tends to lean in those directions, or is it -- Is there something unique about this assessment that those estimates tend to, to be in that direction?

DR. VINCENT: Yeah, and usually they tend to line up, in most cases. In this case, they don't quite line up. It's actually kind of a result of this, this one here, the F_{init}, because it doesn't fall in the middle of that distribution, and it does have that wide range in your stock status that -- That parameter has that result, and so I think that is one of the -- It's probably the main factor that causes that difference, and that's why it's -- Its why the median isn't falling in the middle of -- Or falling -- Aligning with the base model, because it's not in the middle of that distribution.

DR. REICHERT: Thank you. Chip.

DR. COLLIER: You had mentioned earlier that recreational landings are low. They're highly uncertain. For some species, it's well over 50 percent. In 2019, it was actually pretty high, and we got a letter of overfishing, a lot of it due to the commercial, or the recreational, fishery, having an unusually high number that year. Did you do anything to treat that number, or you just accepted it the way it was, or was there anything done to treat some of these MRIP numbers that were highly uncertain?

DR. VINCENT: We just used the values that were given to us and incorporated the uncertainty into the MCBE analysis, given the CV that was provided with the MRIP data, and so, yes, that uncertainty was incorporated into that, into the MCBE analysis, but, yes, we assumed it was the best available information we had, and so that's what we used.

DR. REICHERT: Thank you. Anyone else? Steve.

DR. TURNER: Just an ancillary question, for my curiosity. The ageing has been validated, I think, and probably some of the other folks around the table know, and I think -- Am I correct that it's been validated by carbon dating, or other methods? Thank you.

DR. REICHERT: Wally.

DR. BUBLEY: Yes, and so I'm pretty sure it has been validated. I would have to go back and see exactly what methodology it was, and I don't know if it's bomb radiocarbon or some other chemical signature, but I believe it was. It might have been in the Gulf of Mexico, but I would have to go back and look.

DR. REICHERT: Steve.

DR. TURNER: Yes, and, when I worked on tilefish, a very long time ago in the Mid-Atlantic, we exchanged some tissues with the South Atlantic, with Georgia, and they couldn't read mine, and I couldn't read theirs, but I validated multiple ages through marginal increment analysis, and I got people in Woods Hole to agree that they saw what I was seeing, and so I think it's been validated for the Southeast. I think the previous assessment biologist indicated that it had been validated, but I wanted to cross-check. I guess the other question associated with this is how variable are the readings from the test set?

DR. REICHERT: Matt or Wally? Wally.

DR. BUBLEY: Yes, and so I didn't want to say bomb radiocarbon, because I didn't think it was. It's lead-radium validation from Lombardi and Carlson in 2015, I think is what it was, and so that was a validation study with -- Regarding the inter-lab ageing error matrix and what that meant.

DR. VINCENT: Yes, and so thanks, Wally, and so those --So there is quite a lot of variability, and that's why we included that ageing error matrix, and I'll have to try to remember what the proportions were, but, even at the oldest age, it has quite a large spread, across quite a few ages, four to five ages even, and so, yes, there's quite a lot of uncertainty in those ageing, but we try to incorporate it by using that ageing error matrix, and it does have quite a big impact on the assessment, by including it, versus not, but we think it's more reasonable to include that uncertainty in the model than not.

DR. REICHERT: Chip.

DR. COLLIER: For the September council meeting, we had asked the Science Center to provide us a list of species that have accepted ages, validated ages, along those lines, and so I think it needs to be updated, based on the information that Wally just gave, but, in the letter that they had responded to us, they had indicated that golden tilefish were not validated, but they do have an accepted ageing method, and so I'll send it back and have that checked again.

DR. REICHERT: Thanks, Chip. To that ageing issue, Wally? No?

DR. BUBLEY: Yes, and Matt just brought this up, and I think he's right. I think that that wasn't ever a peer-reviewed publication. I think that was from a previous assessment, where that study came up, and so that might be why it wasn't included on that list that the Science Center provided.

DR. REICHERT: Maybe it’s something we can include in our research recommendations. Any other clarifying questions? Seeing none, is there -- Kai, go ahead. Sorry.

DR. LORENZEN: It's just a history question. There was really high catches in the early 1980s, and I was wondering -- Is that when the fishery really started, or would it have been sort of similar before then? You probably don't know, but maybe someone here, people who have been around for longer.

DR. REICHERT: Chip, to that point?

DR. COLLIER: Yes, and I feel like that was probably the beginning of the fishery. The longline fishery didn't really begin until the 1970s, or 1980s, and it likely started in the Gulf of Mexico, and then switched over to the Atlantic side. A lot of this is coming just from discussions with one of our past council members, Laurilee Thompson, where she started in the Gulf of Mexico and then had moved over.

DR. LORENZEN: Thank you.

DR. REICHERT: Steve.

DR. TUNER: In one of the slides, I think with age composition, and perhaps model age composition, or something like that, the very early years are flat, and they're very stable. I was wondering about that. It's the bar graphs. So, I assume this is coming out of the model, and so is there an estimate of M in there, and not in this plot, but in the data? I think the fishery did start back then, with that really high landings and there could be some very useful data, because it was probably collected professionally, and relatively randomly, and so anyway. Thank you.

DR. VINCENT: So this -- The proportionate at-age are fairly constant, because recruitment is fixed at the average value, or at the equilibrium value, I think, because we don't have any age composition information until later in the time series, and so, yes, recruitment is fixed for that entire time period, and so your proportionate at-age will be the same ,because you don't have any recruitment variability, and so it's a model artifact, essentially, because you don't have variability, because you don't have any information in order to estimate the values, and so it's an assumption of the model, so that we can start at a relatively unfished, or lightly-exploited, population, and so we don't really have that information, in order to estimate that.

DR. TURNER: Right, and so that explains those early years that are flat, but, you know, my point is -- A secondary point is the raw data may have some information on them, because I think this was very early in the exploitation history.

DR. VINCENT: At the beginning of the time series, we don't have age composition, and we only have length composition, and I'll have to go back to the beginning, and that's -- It shows the available data, and s this shows the available data. We don't have age composition until the 1990s.

DR. TURNER: Thank you.

DR. REICHERT: Wally.

DR. BUBLEY: So Tracey thankfully sent me this. The Lombardi paper was published. It was in *Environmental Biology of Fishes*, and so I'm not sure why it's not on their list, but just following-up.

DR. REICHERT: Thank you, Wally. All right. Before we go to our discussion, let's see if there is any public comment. Judd, or Chip, anyone online? No hands raised. Anyone in the room that would like to make a public comment? Seeing no hands, before we start our discussion, I'd like to take a ten-minute break, and then we'll come back at quarter to eleven. Thank you.

(Whereupon, a recess was taken.)

DR. REICHERT: Welcome back. Judd is bringing up the document here. As I mentioned earlier, we have the usual relatively long list of action items, and so the first one, unless anyone has any more questions relative to the presentation and the assessment, is does the assessment address the terms of reference that were provided in the briefing book to the SSC satisfaction, and I think they were. Would anyone like to add to that? Jim.

MR. GARTLAND: I was just going to say I think they did a really good job. I think it was in TOR 5, where there were all those sub-TORs, basically, almost like the research bullets, and I think that was done really well.

DR. REICHERT: Thank you. Anyone else? Yes, and we can perhaps add that we were -- That they were done very well, and we can, again, add some language to that effect later. The second bullet point is, is the assessment consistent with best scientific information guidelines and practices, and I think it is, especially given the additional questions that were asked in the TORs, and I think this is an assessment that we are presented regularly, and I didn't see anything, personally, in the assessment that questions the best scientific information guidance. Anyone else to that point? So that would be yes.

The next action item is does the assessment reliably capture past trends in fishery and populations? Anyone want to comment on that, or provide feedback? I think it did. We discussed a little bit of the change in selectivity. I think that was addressed. Anything else from anyone? Chris.

DR. DUMAS: On the previous bullet, we might want to add, also, that many model parameters were updated with the newest information, and so I think that's commendable. On the current bullet, the model also provided -- We saw that it provided good fit to the landings and good -- Pretty good fits to the indices, good fits to the age comps, and pretty good fits to the length comps, and so, in terms of reliably capturing past trends in the fishery, I think the model did well.

DR. REICHERT: Thank you. Anyone else? Does the assessment provide a reliable quantitative estimate of current stock status? I would say yes, and, also, looking at the F-values, I think that's exactly the intention. We are fishing at FMSY. Anyone else? It's interesting to see that this is exactly the intention of management, under Magnuson-Stevens, in terms of especially F, but also the biomass.

There is uncertainty in both the F and SSB, but I think the assessment provides a reliable quantitative estimate of the stock status. We can talk a little more about what the uncertainty -- How we deal with the uncertainty. Matt mentioned the difference between the stock status and the median, and he explained that, and so that may be something that we want to mention here. Anyone else? Chip.

DR. COLLIER: It would be good if the SSC could comment on the change between a fixed parameter that they used in the previous stock assessment and the estimated MSY that was done here, and, in particular, looking at the importance of the final year in trying to get the -- In developing the fits for that FMSY, or the fits to the stock-recruit curve, and Matt can probably elaborate on that a little bit more, but also having the SSC discuss it.

DR. REICHERT: The fixed parameter? Steepness. Okay. Yes. So do you -- Do you think that's a function of the available data that we were able to -- That the model was able to estimate steepness this time around, and not last time?

DR. VINCENT: I don't know if it was attempted to be estimated previously. I think it was just fixed at the median, or the mean, from a Shertzer and Conn paper, from 2009, or something like that, and it is estimated now, and it seems to be driven mostly by that age composition, mostly in the terminal years, based upon the likelihood profiling of it, and, as you can see, the likelihood profiling is fairly flat, and so there is uncertainty, and so that uncertainty is incorporated into the MCBE analysis, and we did have a number of models that were estimated at the upper bound, and so we thought those were unreasonable models, and so we got rid of them. There is a fair bit of uncertainty, but it's included in those being in the mean, or in that MCBE analysis, which I think is more appropriate than using a fixed value that may or may not be right.

DR. REICHERT: Just for my understanding, can you elaborate a little bit more? There were some model runs that were that were hitting the upper bound, and you ignored them, or you deleted them from the -- Because you guys think that that was an unrealistic run.

DR. VINCENT: So, often, for any parameter -- If any of the model parameters hit a bound, we generally remove them, because we think that those models are not well estimating those parameters, and so, in this case, it was steepness, and other parameters, but generally steepness, and so, yes, that's one of the criteria that we generally use to remove models from our MCBE, because we don't think they're a good fit to the data.

DR. REICHERT: Thank you. Jim.

MR. GARTLAND: I'm just trying to remember, and the number of models that you threw out was relatively low, right, and, if so, does that kind of give some -- Lend some credence to the appropriateness of the model and the data going in? You know, if you didn't throw out any, then man, it's golden, but, if you threw out 70 percent of them, that might indicate you have a problem, but, if the percentage is relatively low, we might be in pretty good shape, and is that correct?

DR. VINCENT: So, compared to other previous analysis with MCBE, this was actually high, but, in terms of overall, I think it was -- We removed like maybe 900 of the 4,000, so maybe a quarter, or something like that, and so, yes, it is higher than other analysis, but -- So I think that has some degree, or some bearing, on it.

DR. REICHERT: Chris.

DR. DUMAS: So to me, something that's informative for the answer to this bullet is the graph that shows the stock status, the stock status graph, the four quadrant graph, and can we put that back up? I can never remember the name. The phase plot. That sounds good.

(Whereupon, power was lost in the room and a recess was taken.)

DR. REICHERT: Okay. It seems like we have power. Let’s keep our fingers crossed that we keep having power, and so the afternoon plans, at least for part of the afternoon, is to finish the golden tilefish. Around 1:30, we have Adrian Hordyk, who will give a presentation on the snapper

grouper management strategy evaluation. He may or may not be online right now, but that's kind of a hard stop for us, and so I'm hoping we can get the golden tilefish finished by then.

We have a little bit of leeway, and we'll have a break, and then, after the break, what we'll be doing is a little up in the air. Likely, we'll continue to discuss black sea bass, but I'll get back with you guys, after the break, to see where we are. Obviously, we are kind of a little behind, and we have mixed up our agenda a little bit, and so we still discussing how to move forward with that, and so let's go back to golden tilefish. We were at I think the next action item.

DR. CURTIS: Regarding golden tilefish, the SSC's review -- So the plan is to go through kind of what essentially you were presented, the base model and the MCBE approach, reviewing and making recommendations on uncertainties, and then, once we get to the provide fishing level recommendations, we'll have the SSC go through the new ABC control role, the and stock risk rating that was just applied, and, again, this will be tentative, upon approval of the council in December, but we can come up with a P* that we can then recommend for Matt to run the ABC projections, so that he can have those for tomorrow morning, I believe, assuming no other major changes. That's our plan for right now, so we can get through that for golden tilefish, and then we will move on to the MSE.

DR. REICHERT: Thank you. I think we briefly discussed does the assessment provide reliable predictions for future conditions to support fishing level recommendations, and isn't that part of the projections that we may see tomorrow? Correct? So we'll come back to that when we see the projections.

Identify, summarize, and discuss the uncertainties and review, summarize, and discuss the factors in this assessment. I think they are -- The uncertainty is characterized as we are used to in these type of assessments, and so I think they were well-documented. Does anyone want to comment on that further? Stock status and fishing level recommendations. Steve.

DR. TURNER: I would just say that uncertainty might have been -- Might be broader than in many stocks we've looked at, but that's because the positive outcome of being able to estimate the stock-recruitment relationship, about which there's a great deal of uncertainty in any situation.

DR. REICHERT: Anything else relative to this point?

DR. TURNER: Estimate the stock-relative to derive MSY.

DR. REICHERT: Thanks, Steve.

DR. TURNER: For which -- The others are fine.

DR. REICHERT: That kind of moves into the next bullet point to describe the risks and consequences of the assessment uncertainties with regard to status and fishing level recommendations. I think that's where the phase plot comes into play. Fred.

DR. SERCHUK: Did you mean the -- Sorry.

DR. REICHERT: No, we can hear you, Fred. Fred, you muted yourself on your end.

DR. SERCHUK: Sorry. Can you hear me now?

DR. REICHERT: Yes, we can hear you.

DR. SERCHUK: Okay. We have broader uncertainty, because we actually have an estimate of the stock-recruitment relationship? That it doesn't seem to make sense. I mean, we have the ability of estimating a stock-recruitment relationship, and so why is the uncertainty greater?

DR. REICHERT: Kai.

DR. LORENZEN: My understanding was the uncertainty comes mostly out of that egg production. No? Okay.

DR. REICHERT: Matt, can you turn you your -- Thanks,

DR. LORENZEN: Just to clarify.

DR. VINCENT: A lot of the uncertainty actually comes from the wide range of the F_{init} value, and that causes a lot of the change in that stock status, and so it's that parameter that seems to have a lot of influence, in terms of the stock status specifically.

DR. REICHERT: So then, rather than the stock-recruit relationship, it's the F_{init}, or am I interpreting this wrong?

DR. VINCENT: There is also some uncertainty. I think it's a combination of the two. It's a bit of the estimation of that steepness parameter, as well as the fixed F_{init}, that has a wide range.

DR. REICHERT: Fred, you're still unmuted, I believe. Do you --

DR. SERCHUK: Yes, and I still don't like -- Generally, when you estimate a stock-recruitment relationship, that's a good thing, and so I don't know why -- We need to explain a bit better that, although the stock-recruitment relationship was estimated, it provided a broad range, relative to expected recruitment.

DR. REICHERT: Go, ahead, Steve. You had your hand up.

DR. TURNER: Just a question for Matt, or one of the active assessment biologists. When you do the simulations, the MCBE, or whatever it is, where the stock -- When you fixed steepness, do you investigate a broad range of steepness in that modeling, and so that that might be the difference, but I don't know how that simulation is done.

DR. VINCENT: So, in the current Monte Carlo Bootstrap Ensemble, the MCBE, it's not fixed. It's estimated, but, in other species, where it has been fixed, we use a prior distribution, and I think it's a little bit narrower than what we get from the estimation, but I don't think it's like a huge difference.

DR. TURNER: So it sounds like Fred is on to something.

DR. VINCENT: But I would also say I think that the tails on the MCBE are probably longer, and so, overall, it probably makes the distribution look wider, but it's got like thicker tails, for the MCBE, than it would when you draw it from the distribution, if that makes sense.

DR. REICHERT: Alexei.

DR. SHAROV: Well, just a basic observation. The distribution of the PDF on steepness is, you know, relatively wide, and it's not like very tightly estimated, which Matt, you know, mentioned several times, and so, I mean, yes, it's been estimated, but the -- Well, the median is different from the mean, and the range, the realistic range, is somewhere between 0.4 and 0.8, and, if you would recall the -- Or look at now the available plot of the sensitivity to steepness, there is a huge effect of steepness, potentially the both on the trend, the direction, and, of course, then the ratio to the MSST SSB MSY, and so, yes, it is a significant source of uncertainty. I don't see controversy in this statement that we're making here, and, yes, it's still a good a good thing that it was estimated.

DR. REICHERT: Thank you. Chip.

DR. COLLIER: This is also making me wonder about the retrospective bias that is there. If you're looking, the terminal year, 2022, is much different than the other years, and, you know, should that be part of this discussion, to help fill in the gap that might be there between saying that FMSY is well-estimated, and then this is probably one of the few fish that I've seen a pretty big retrospective bias coming out of the BAM configuration.

DR. REICHERT: That's for one year, last year. Chip mentioned page 129, you said, and it may be good to -- Alexei.

DR. SHAROV: Well, isn't it -- I mean, yes, that's true, or that's correct, but isn't that because we have a new selectivity block for a very short period of time, right. and is that correct? That's what causes it, is you start trimming, and going backwards, and, you, you know, move away from this new selectivity period, and you're in a different sort of fishing regime, and, hence, the jump, or the change in the scale, and, as a result, there's significant retrospective, which -- Well, at least visually, but we don't know for sure whether there is an actual bias or not.

DR. REICHERT: So adding to that statement that it can be explained by the -- Or partially explained by the change in selectivity, is what I'm hearing from you?

DR. SHAROV: Yes, the retrospective bias, to a large degree, could be explained by the different -- The presence of the new selectivity time block.

DR. REICHERT: Okay. Anyone else to that point? Then, the next bullet, we already had one statement there, and it's got risk consequences of the assessment uncertainties with regard to status and fishing level recommendations. That was the phase plot. I'm not sure whether it's here or somewhere else, where -- As I said, I mean, if you look at the at the pattern, and where BMSY is, that is why -- You know, that's how we try to manage, and so that's -- Maybe you can add it to the -- It is what is expected of the management, or the intent of the management. Fred. Fred, if you're talking, we can't hear you. Fred, if you're talking, we cannot hear you. We heard some noise, but --

DR. SERCHUK: Can you hear me now, Chair?

DR. REICHERT: Yes, we can hear you now. Go ahead.

DR. SERCHUK: Okay. Sorry. Can we just go up back up to the issue that I'm a little bit concerned about, and maybe I can wordsmith it a bit better, or at least I'll offer it. How about saying although the stock-recruitment was used to derive MSY, and then these are the other two factors under it, that indicate that we're not completely satisfied with it.

Although a stock-recruitment relationship was used to derive MSY, the F initial parameter has high uncertainty, and there is significant -- I mean we have to -- I applaud them for trying to use a stock-recruitment relationship, and these are some of the shortcomings. Thank you.

DR. REICHERT: Thanks, Fred. Yes, and I think, when we were talking about F_{init}, I think Matt mentioned that that was a significant source of uncertainty, correct? Yes, and so that's what I think we were trying to capture here. Yes, and -- Yes, we can definitely wordsmith this a little better later, and so, Fred, if I think we would appreciate it if you could perhaps add some language there, or provide some language in your notes to that point, and we can come back to this in on Thursday, when we review the report, but thanks for that input, Fred.

DR. SERCHUK: I'm happy the way it is right now, Chair. Thank you.

DR. REICHERT: Okay. All right. That next bullet point, anyone else have any comments relative to that part of the uncertainty and stock status? I think both phase plots basically tell the story. No other comments? Then let's move to the next bullet point.

Are the methods of addressing uncertainty consistent with SSC expectations and available information? I think we discussed this, and the answer is yes. Does anyone disagree? Seeing none -- Well, yes, they are consistent with what -- Because we talked a little bit about that before, and that's usually -- We have, I think, expressed our appreciation for how the uncertainty is characterized in the model with the MCBE and some of the other methods, and so it's consistent with what we've seen, and it's also consistent with what we what we expect, and, given the available information, so -- Fred Scharf.

DR. SCHARF: So just to go -- If you go back up, just to clarify the substantial retrospective bias, and so if we could add “substantial retrospective bias in stock biomass”, because it's one particular part of that figure that Chip was referring to, and, instead of saying page 129, it's Figure 34, just so we’re clear as to what he's referring to.

DR. REICHERT: Thank you for that clarification. Okay. A list, in order of greatest contribution to risk and overall assessment uncertainty, and comment on the effect of those assessment factors that most contribute to risk and impact status determination and future yield predictions. I think, above, in terms of uncertainty, was the F_{init}, and now I forget what the other factor was that -- Was that the uncertainty in steepness, Matt, that number two? Okay, and maybe someone can address, or provide a comment, to the effect of those assessment factors, in terms of risk and impact on status to determination. Anyone? Chip.

DR. COLLIER: I don't know where this would be in there, but the change from gonad weight to expert to fecundity might be a significant source of change here, but it wasn't -- We don't know the results of that.

DR. REICHERT: Yes, it was a change, but this is asking about risk. Fred Scharf.

DR. SCHARF: Yes, but, you know, I had asked Matt about that, and, because the egg production is in both the denominator and the numerator of the stock status, you know, its effect is in both, right, and it's not -- So it's not likely that it would change stock status that much. It would --

DR. REICHERT: Well, I think it's good to capture that, and so -- Matt.

DR. VINCENT: I would actually reverse the order of steepness and F_{init}, because, looking at the graphs of the sensitivity analysis for F_{init}, it has a large impact on the SSB over MSST, but it doesn't have as much impact on the F over FMSY, whereas steepness has a large impact on both of them, and so I would probably put steepness first, and then F_{init} as the secondary.

DR. REICHERT: Yes, and thanks for that reminder, and I agree that it would be good to justify why. I have Alexei. Just one second, Alexei. Then, in the change in spawning, put Fred's comment that it affects -- It's a ratio, and so it affects both, and so the overall effect may not --

DR. LORENZEN: Well, but what one is the -- Yes, one is at F0, and the other -- I mean, it's not the same quantity, and one is at the current fishing, and the other is -- Why am I confusing myself?

DR. REICHERT: Matt is thinking, I think. Fred can you turn your microphone on, please? Thank you.

DR. SCHARF: Yes, and so one is SSB in the terminal years of the assessment, and the other one is SSB at MSY, so it's at the F that --

DR. LORENZEN: Right, and so they're not the same, because they're different fishing -- They're not the same value.

DR. SCHARF: Yes, but the but the egg production is in both.

DR. LORENZEN: Yes, but the egg production changes with the -- I mean, the fishing mortality.

DR. SCHARF: Yes.

DR. REICHERT: I'll go to Alexei and then Chip. Alexei, go ahead.

DR. SHAROV: Yes, and, on F_{init}, I will -- I'm also in support of this sort of change of the order. I would also mention that F_{init} was more influential where you looked at the higher side, and that is F_{init} to be high, and that's where the most of the differences were, and I think it's logical to assume that, at the start of the fishery, the -- You know, the fishing mortality should have been low, rather than high, and so, therefore, even if Matt had investigated the effect of the range, it is logical to assume that the F_{init} would be either the one that the model settled on or the lower one. Therefore, it will be less uncertainty there. If -- Can I offer another source of uncertainty potential, or risk?

DR. REICHERT: Sure.

DR. SHAROV: So I'm not fully sort of settled on the choice and the sort of -- In the level of the support of the choice of the dome-shaped selectivity. I understood that it led to a much better fit to the age structure, but, knowing the overall effect of the dome-shaped selectivity on estimated stock size and SSB, I just wanted to ask if the if the SSE had been has convinced that there was sufficient information present that that -- For the choice of the dome shape, because, if we're wrong,, that would mean significant differences in the estimated population size environments, and, if not, then maybe Matt could correct me. If they did do the flat-top selectivity, and the results were similar, then I guess I would remove my reservation about the uncertainty in the choice of selectivity curve.

DR. REICHERT: Matt, to that point, and maybe other SSC members can chime-in.

DR. VINCENT: So I pulled up a figure, and I showed it secretly to Kai, of --

DR. LORENZEN: I approved of it.

DR. VINCENT: Of one of the previous models that had a logistic selectivity assumption, and it's a slightly lower stock status, but it's very similar. Like it shifts it a little bit, and it's -- It makes it closer slightly below the line, but they end up in very similar places, compared to the dome-shaped selectivity. In terms of the actual reference points, in terms of FMSY, I'd have to look at that, and take a look and see how much that changed, and I don't remember off the top of my head.

DR. REICHERT: Thank you. Go ahead, Kai.

DR. LORENZEN: I was -- I had the same concern as Alexei.

DR. REICHERT: So maybe you, and/or Alexei, could provide a sentence or two to address that concern for the report.

DR SHAROV: Well, I think then, even though we didn't see the flat-top selectivity results, but, you know, I trust that they are the way that Matt described them and so I think I'll just remove that, and not mention it in here, unless you want to.

DR. REICHERT: Well, I think I think it's -- Since you brought it up, I think it's good to mention, if nothing else since we would be --

DR. LORENZEN: We can just say that, you know, there was a sort of a sensitivity run done, and it didn't seem very sensitive to the selectivity assumption.

DR. REICHERT: If necessary, maybe on Thursday morning, when you're showing the projections, if you have them available, we can briefly pop that up, so we can all see that. Thank you. Fred, I think -- Fred has his hand up. Fred, go ahead.

DR. SERCHUK: I just have a small point. Many people that read this are not very familiar with some of the terminology that we use, and so I think it's important, if we want to make things clear,

that, when we use a term like “SDC”, that it's defined someplace, so that even the person that's not familiar with it will have some idea of what it refers to. You know, there are a lot of people -- We’re looking at it from our point of view, but many people read this that are not well-versed, and, when they see an acronym, they may not know what it means. Thank you.

DR. REICHERT: Fred, point well taken, and, when we send out the report, I'm asking all of you to take a look at that and see if there are abbreviations, or other terms, that we that we should explain, or write out, and so thanks for that, and so point taken. Anything else relative to -- Chip, I saw you coming to the table earlier. Go ahead.

DR. COLLIER: Yes, and just the reason that I brought up the idea of the spawning input having an impact, I went back and looked at SEDAR 74, and they did several sensitivities looking at the -- Whether or not it was batch fecundity, or number of batches, or fecundity in a batch, and they found substantial differences in that stock assessment, and that's included in the report, and it's Figures 50 to 52, and so I think those are things to look at when it's trying to figure out -- Or those are what I was looking at when I was thinking, you know, is this change, from egg weight, or gonad weight, to fecundity, and is it having an impact for the stock.

DR. REICHERT: The figures you were referring to were in the previous stock assessment?

DR. COLLIER: Those were from the gray triggerfish stock assessment, SEDAR 74, the research track.

DR. REICHERT: Okay. Yes, we talked about it extensively at that review. Matt, would you -- Can you comment to that?

DR. VINCENT: I can make a figure and -- I'll make a figure, and present it, when I do the projections tomorrow.

DR. REICHERT: Thank you. We really appreciate that. Thank you. I think Nikolai did something similar for gray triggerfish, so thank you. Any other comments, or clarifications? Okay. Anne.

MS. MARKWITH: Sorry, and this may be a really dumb question, but it goes back to the retrospective, and it kind of ties into the dome-shaped selectivity. If we're saying, in the retrospective, that part of that pattern can be explained by the selectivity, and this might just be my misunderstanding, wouldn't you expect at least 2021 and 2020 to be more similar to the base run, and then see the effect in the retrospective, when the selectivities change, as opposed to everything but the base run, and I didn't -- Like I said, it might just be my misunderstanding of the retrospective.

DR. REICHERT: Matt.

DR. VINCENT: So, in terms of that, you only have the three years for the selectivity, and so, if you drop one, then it might make a big change but a lot of the change actually is -- For steepness, it goes to 0.99, in those other models, and so it's kind of a combination of that low time of selectivity and then the steepness jumping up to 0.99 for those other retrospective runs, and so

that's why you have a big jump, and then it's 0.99 for all of the other -- For every year that you peel back.

DR. REICHERT: Thanks for that clarification. Anyone else, before we move to our ABC recommendations, and I'll hand it over to you, Judd, because I think you did some prep work for that.

DR. CURTIS: Yes. Thanks, and so this will be the first stock that we use the new ABC control rule, and, as part of the stock risk rating exercise we all went through yesterday, and I will bring that right here, tilefish was assumed a final risk score of a high value, and so, if you recall, then the high value gets combined in the matrix with, from our ABC presentation, a high value, and, looking at the biomass estimates, it appeared to be a moderate biomass estimate, where the biomass is above the midpoint between BMSY and MSST, making the P* 30 percent, and so, I guess, if there is agreement, the SSC can make that recommendation, using the new ABC control rule and that P* of 30 percent, and, of course, if there is extra uncertainty, there is the option to deviate a little bit from that.

DR. REICHERT: Any comments on that P* estimate? We are, as an SSC, comfortable with that 30 percent? Judd, correct me if I'm wrong, and this -- The risk tolerance, is that -- The council has not seen that yet, and so they still need to approve that, correct?

DR. CURTIS: Correct. This is contingent upon the approval of those stock risk ratings at the council level, or their final listing of the of the scores, after considering AP and SSC input.

DR. REICHERT: Okay, and so, in terms of our ABC recommendations, do we have -- We need to get the projections for that, correct? Yes, and then you can try to run that and present it on Thursday morning? Thank you. That would be great.

DR. CURTIS: Yes, and I think Matt already ran them at a P* of 32.5 percent, right, and that's in the table of projections, and so you can look at those, as a reference, and that might be somewhat close, but he'll run those at a 30 percent P*, and we'll see those and make final ABC potential recommendations. I guess if the -- Yes, let's -- We'll do all projections on those.

DR. REICHERT: The next one is comment on any difficulties encountered in applying the control rule. I would like to refer back to our earlier conversation, when we came up with the risk rating, and I think there's some comments, maybe, in there, and are there any other additional difficulties that we feel we encountered in applying the control? Fred.

DR. SCHARF: So the way we're supposed to apply the new ABC control rule is the council is supposed to select the high, moderate, or low risk, before the assessments, generally, right, but they haven't, in this case, and so do we need to -- Do we need to run the projections, in case they select moderate or low, and we've selected high here, which would lead -- Based on the biomass being moderate, it would lead to 30 percent, but, if the council goes to moderate, or high, should we run those projections now, in the middle part of that table, just so we have them, since we don't know what they've selected yet?

DR. REICHERT: I don't know the real answer, and I would say, as an SSC, let's request the P* of 30, and then let's see if there's a different -- If, after council discussion, there's different P* rolling

out, then let the council request those projections. I mean I'm -- I don't know. Chip, or someone else, do you have any strong feelings about that? That's as easy to do that right now?

DR. VINCENT: I've already run it for about -- I already have 30 percent run, and I've got -- I don't have -- Actually, I've got 40 and 45 run.

DR. REICHERT: Okay, and so that's not an issue. Good. Thank you.

DR. VINCENT: I can throw them -- I will throw them into a presentation.

DR. REICHERT: Thank you for that. Thank you for that.

DR. CURTIS: So, if that stock price rating would change, right, we'd be at medium, and that would be at 40 percent then, and so the biomass is not changing, and the 30 percent, which it is at high currently, and, also, the AP went through this exercise as well, and they landed on a similar stock price rating, in their recommendations as well too, and so, with both the SSC and the AP -- Unless they had drastic rationale for changing it, it probably will land on the high stock risk rating.

DR. REICHERT: Yes, and my question would be, if the council decides to change the risk rating, that that would be coming back to the SSC, or not, but Shep came to the table. Shep, to that point? We would love your input.

MR. GRIMES: Thank you, Mr. Chairman. More or less, and I was just going to point out that, by providing numbers, ABCs, associated with any of those risk ratings, you are, in effect, providing multiple ABC recommendations, which some will be higher, and some will be lower, and so you're saying you're good with all those, right, and I think you should at least be very cognizant of that in advance.

DR. REICHERT: No, and that's an excellent point, and I think, currently, the SSC recommends a P* of 30. If there's a change in P*, then that was my was my question, was whether a different recommendation, or a different choice, by the council, and if that then would come back to the SSC for a review, or not, because that means that the ABC recommendations would change, correct? Chip. Chip is nodding his head.

MR. GRIMES: I would say if you go with status quo. I mean, my point was just that, if you provide numbers for all those, the record that you're just passing to the council is then here are multiple ABC recommendations, and, effectively, you choose, but it didn't sound like that's what you wanted.

DR. REICHERT: Yes, and, no, I don't think that was our intention. Our intention was basically to lighten the load for Matt to have to rerun that again after the fact, and so just to be prepared if there was going to be a change in the council, but that was that was irrespective of the procedure for, you know, changing that P* value, and so we need to be very clear that we are recommending a P* of 30 percent, period. Thanks. Matt.

DR. VINCENT: So, when I looked at that -- Can you pull up that table, the high, medium, and low table, and so, looking at that, it says the moderate is your biomass is above your midpoint. Let's see, and what does it say? Above the midpoint, and between the MSY and MSST, and then

biomass is below the midpoint -- I don't know, and what do you mean by below the midpoint, but the current one is between -- It is between the MSY and MSST, is the current status, and so the wording of this -- Well, I can't -- I don't -- I can't interpret it, right, and like what is above and what is below the midpoint, and I guess I'm struggling to understand what it's saying.

DR. REICHERT: Mike is coming to the phone to give us a clarification.

DR. SCHMIDTKE: So, in the context of this assessment, the biomass is being evaluated as SSB, and that's what MSST is, in the context of an SSB, rather than a true biomass. It's spawning stock biomass, and so what we looked at was the final status determination tables within the assessment report, the SSB MSY, versus the MSST, and, if you take the difference between those, halfway between MSST and the SSB MSY is -- I think it's -- It's like 0.4, or 0.5, trillion eggs, somewhere around there, and the terminal year SSB is I think 0.48 trillion eggs, something like that, and so it is above the midpoint between those two values.

DR. REICHERT: Thank you, Mike. We appreciate that. Any additional comments relative to us applying the ABC control rule, other than some language clarification. Okay. Then provide advice on monitoring the stock until the next assessment, what indicators, or metrics, should be included in the SAFE report to monitor and evaluate the stock. I'm not sure when the five years for SADLS is coming online. Wally, I hate to put you on the spot. At least a couple -- At least two years more? We are in our second or third year?

DR. BUBLEY: This is the -- It started in 2020, and so this is the fifth year of collecting, but that first year had a lot of change being made, and so this most recent year will be year-four, but we'll see what ends up happening, because, the last couple of years, you know, we've -- We haven't completed all of the sampling.

DR. REICHERT: So that was something that I would think of. Once there's sufficient data in SADLS, that would be something that can be included that hasn't been included thus far.

DR. CURTIS: Just to clarify this section here, and like all these indicators are things that we are applying on the standard metrics that we're looking at monitoring as part of the SAFE reports, until the next stock assessment is conducted, and so, really, the idea here is, in addition to all these bullets that are currently on the screen, what are some other metrics that would be handy to be monitoring before the next assessment that the SSC can think of.

DR. REICHERT: I have Jeff and then Chip.

DR. BUCKEL: So this whole business with the dome shape, and are those big fish gone, or are they still there, and so the SADLS survey suggests that they are still there, and so monitoring the size distribution from the SADLS survey, to keeping an eye on that each year, to make sure that we don't have a size truncation issue.

DR. REICHERT: Chip.

DR. COLLIER: Yes, and I'll try to get information from the recreational fishery. as well as the commercial fishery, on size distribution. Maybe the size distribution for the commercial fishery -- It just might be -- This fish is often put into different size categories, when they're sold, and so

maybe just looking at those size categories could be one thing that's done a little bit easier, but, if we go up to the recreational data, Judd, just requesting that we remove that CHTS from this, and I hope we don't go back to that, although it doesn't have much of a difference for this species.

DR. REICHERT: Jeff.

DR. BUCKEL: I agree with Chip, and so I was just focused on the SADLS survey, but then you're going to go up there and put the sizes from recreational and commercial fisheries. Great.

DR. REICHERT: Jim.

MR. GARTLAND: (Mr. Gartland's comment is not audible on the recording.)

DR. REICHERT: Anything else? Steve.

DR. TURNER: Down where we were a minute ago, the SADLS survey, I think you want to watch -- Look at the size distribution, but you also want to monitor the catch rates. If we saw a sudden decline in catch rates, it would be concerning.

DR. REICHERT: Chip.

DR. COLLIER: Matt can correct me if I'm wrong, but we had something in there for -- Scroll up. "The trend in abundance that was included in SEDAR 89", and so what I would suggest is to just remove that, because there's no index of abundance, right, and just replace that with "SADLS".

DR. REICHERT: Yes, which is listed below.

DR. COLLIER: Or is there an index of abundance in the recent time period that that would be informative?

DR. VINCENT: So there's nothing new since -- There are abundance indices in the assessment, but, yes, they all stopped in the previous assessment, and so there's nothing new since then. Yes, SADLS would be the one that you would look at.

DR. REICHERT: Okay. Anything else that we can think of? Okay. Can you scroll down, Judd? Are there changes in the research recommendations? Were there -- I tried to remember the one that we were talking about earlier, and I'm drawing a blank, but are there any additional research recommendations, and, for the research recommendations included in the report, which are giving the best bang for our buck? I forgot if the long-term -- If the survey was in the research recommendations or not. I know that it was in one of the previous ones, but we have SADLS now. Any additional research recommendations, or what research recommendations would reduce risk and uncertainty? Any thoughts? Steve.

DR. TURNER: Do we reiterate the information on trying to determine the source of the change in the selectivity pattern here?

DR. REICHERT: We can certainly include that, and that's additional. I don't think that was in the previous one, and so that would be additional, the next bullet point.

MR. GARTLAND: I think that's already in 2b, on page 35 of the report, to investigate potential mechanisms for the domed selectivity that started in 2020.

DR. REICHERT: Okay. Thank you. Sorry, and so that's not an additional one, but it's already in the research recommendations, and so that was that was good, that first bullet point.

DR. TURNER: Bringing the SADLS survey online is also in the previous?

DR. REICHERT: It is, or, well, what do you mean with online? It is ongoing, and we are just waiting for the number of --

DR. TURNER: To bring it into the assessment.

DR. REICHERT: Okay. 2a, and so that's -- I think that's also, in terms of where it would likely reduce risk and uncertainty, is having that index available, yes, the SADLS index, the availability of the SADLS index. Alexei.

DR. SHAROV: A detail on this, and this was considered today as a primary source of information on the fact that the larger, older fish are present in the population, and they're -- For some reason, they're not being targeted, or not available to the fishery. Hence, we have this dome-shaped selectivity, and so it would be also useful to analyze if there are any differences, in terms of the spatial distribution of where the fishery operates, versus where the survey operates, or any differences in fishing techniques or in the materials and the size of the hooks, et cetera.

Why is the commercial fishery, which is efficient, always, by definition, better than the research survey, not catching an older fish, and the research survey does, and are there any material actual explanations to that that we could take into account in the future?

DR. REICHERT: Yes, and I would actually broaden it and basically explore the differences between the size distribution in the fishery and SADLS, because there could be a range of reasons why that is. Thank you. Wally.

DR. BUBLEY: Just to add along with SADLS index availability, it's already in here as one of the research recommendations, but also the age compositions that go along with it.

DR. REICHERT: Thank you, and I think, in terms of priority, the availability of the SADLS index probably would make the biggest change in the uncertainty, I think. Okay. Anything else for new research recommendations, or additions, here? Steve.

DR. TURNER: I'm bothered by that second bullet there, that it's sort of limiting to geography, because there's multiple effects, and I think Anne pointed out there could be economic effects. There's a whole range of things that could result in selectivity of smaller fish over larger fish.

DR. REICHERT: This broadens it a little bit. Thank you. Okay. Any new research recommendations? I didn't have any to add. Anyone else? Seeing none, then I think our next bullet is provide -- Sorry, Matt. Go ahead.

DR. VINCENT: Marcel, during the discussion about the age validation, you had said something about possibly that's a reason -- A possible research recommendation, and I don't know if you want to put that in there or not, but just a reminder.

DR. REICHERT: Thank you for jolting my memory, and I think that was before Wally mentioned that there was that published paper, and so I'm not entirely, or have forgot, and I'm not entirely familiar with that paper, but that's why I -- There is information available. I think it's always good to get more information, but we have now a published paper, and so thank you, and absolutely that was the one that I couldn't remember. I mean, we have an age validation study, and so, Chip, relative to that point, or another point?

DR. COLLIER: Maybe along the same lines of that one, and it was something that was discussed at the topical working group. Previously, the stock has been differentiated based on some protein analysis, as well as some morphometrics, and so maybe another review of the stock structure of golden tilefish along the Atlantic coast.

DR. REICHERT: Thank you. That's an excellent point, and I would even go further and say investigate, further investigate, the potential of stock structure, rather than a review, but yes. Fred.

DR. SCHARF: It's in here already. There's a bullet in here already to collect data to investigate stock structure of tilefish in the Atlantic Ocean through a multifaceted approach of genetics, meristics, diet, and --

DR. REICHERT: Yes, and that was under the first bullet point. All right. Christina.

MS. PACKAGE-WARD: I'm assuming these are recommendations for the stock assessment folks, but could we suggest that like a social scientist talk to fishermen and ask them why they're selecting a certain size fish, or even, like Jennifer had just suggested, have it be a topic of an AP or something, to ask them why they're --

DR. REICHERT: Yes, and that's under the under the second sub-bullet below --

MS. PACKAGE-WARD: Yes.

DR. REICHERT: All right, Judd. We can add it here, too.

MS. PACKAGE-WARD: I guess wherever it fits, and if I'm not sure if the research recommendations are just things that we're asking from the stock assessment folks or --

DR. REICHERT: Go up one. Investigate potential differences between size distributions, for instance, involving a social scientist to ask for -- Surveying, yes.

MS. PACKAGE-WARD: Informally.

DR. REICHERT: Again, just, if you are a social scientist, we can wordsmith this later, and maybe Christina can provide us with a sentence. Thank you. All right. Let's go down to provide guidance to the next assessment, addressing its timing and type, and this is something that comes back, pretty much, in in every stock assessment, and I think -- Maybe Julie can comment, and I think

that depends on the new structure of the SEDAR stock assessments, but, generally, we say another stock assessment in five years, and the type -- Since we have a new assessment, the type may be irrelevant, but one of the things that I would suggest is to investigate the utility of the SADLS index, to include SADLS index, and so that may require a working group, or something like that. Julie.

DR. NEER: I'm sure there'll be much discussion with regard to what component should be included in this next assessment. It is currently on the SEDAR schedule for 2027. I lied. That's not on the schedule at all.

DR. REICHERT: So remind me. Is golden -- It is a key stock, currently, right, or not? Yes. Someone says yes. Okay. All right. Well, I still think we could suggest an assessment in five years, and we'll see where this falls out. Chip.

DR. COLLIER: So, given some of the discussion on research for stock structure, it might be good to have a stock ID workshop, if new information is available. I feel like, and Matt can probably speak to this more, but it feels like the data is pretty good. We might not need a data workshop. It seems like it's been fairly consistent from year to year, or from assessment to assessment, sorry, and then, as far as the assessment workshops, I would leave that up to the SSC.

They've seen how the model has been performing, and whether or not they feel like it needs to be reviewed, and then, as far as a CIE, I -- As far as staff, I don't know if it necessarily needs a CIE. We're just adding in the SADLS survey, and maybe a different stock structure, but I would leave that up to the SSC to maybe chew on, think about those components, and, you know, right now, it's fresh in your mind. A couple of years from now, it's not going to be fresh in your mind, and it might be new folks, and so however we can start building the story I think would be appreciated.

DR. REICHERT: Thank you, Chip. Excellent point. I agree with you that, given what's on the on the screen now, I would be comfortable with an SSC review only, and not necessarily a CIE review, but, depending on additional elements, that that may change. Jim.

MR. GARTLAND: When you're talking about the stock ID workshop, I think I remember reading that -- Isn't Portenoy's group in Texas working on some genetics of golden tiles right now, and so maybe it would be worth holding that until after that paper comes out and passes -- Assuming it passes peer review, and then, you know, do it at that point, and then we would have something work on.

DR. REICHERT: Yes, and I think this is a potential, list of potential, actions, or approaches, rather than something we should definitely do. Okay. Anything else? Steve.

DR. TURNER: I'm trying to get familiar with this sort of approach, and did we discuss -- I think we discussed potential sources of uncertainty in the assessment, and, if so, can we go back up to that? What I'm thinking about is lack of indices for the recent years. I think that's a substantial source of uncertainty.

DR. REICHERT: Yes, and that's where SADLS would come in. Again, to --

DR. TURNER: Just any indices, indices of abundance, for recent years.

DR. REICHERT: I don't necessarily disagree, but I think, other than a fishery-independent index, because of the management, and the relatively -- And the closures, and it may not -- I'm not sure how feasible it is to get a fishery-dependent index, especially in recent years, included, and we talked about the fishery-independent indices. I mean, SADLS is what we have, and so do you have any suggestions, in terms of what else we would like to see included?

DR. TURNER: I think the title here is sources of uncertainty in the assessment, and not in the future, and, since this is a source of uncertainty, I'm not advocating something in the future, but I would be happy to discuss that.

DR. REICHERT: Sorry. I misunderstood you. I thought you wanted to add that to the -- To below, but, as an additional source of uncertainty, yes, I agree but -- So I misunderstood. Okay. Thank you. Sorry about that. Okay. I think we've completed what we can complete right now. The filling in of the table will be done after the projections, correct?

DR. CURTIS: Yes, that's correct, and so, now that we've made a P* recommendation, Matt can produce those projections of P*. Here, you have the output, Table 3, from the SEDAR report, just for your reference, and then, Thursday morning, once we have those projections, we can fill out the table here of criteria and OFL recommendations and ABC recommendations.

DR. REICHERT: So these are --

DR. CURTIS: I'll adjust that on the table.

DR. REICHERT: Okay. All right. Thank you, everyone, for a productive discussion, and we will come back to our report, and maybe do some -- Add some additional notes from folks, and do some wordsmithing, tomorrow, and so, with that, let's move to our next agenda item, the Snapper Grouper Management Strategy Evaluation, and we have Jie, Anne, Jennifer, and Steve are the folks that were assigned to this agenda item. We've seen the results of the MSE in previous presentations. This version, I believe, will be used by the council to develop management. Jennifer.

DR. SWEENEY-TOOKES: Sorry. Yes, we right now we do that, because we have Adrian online, and then -- That's why I said earlier that we'll talk a little bit about how we switch the agenda items, but, yes, thanks for reminding me of that, and, before I hand it over to Adrian, this presentation can be found in Attachment 9a, and I will give Judd an opportunity for a brief introduction to this agenda item.

SNAPPER GROUPER MANAGEMENT STRATEGY EVALUATION

DR. CURTIS: Okay. Thanks. As Marcel already said, this management strategy evaluation, or MSE, has been an ongoing process for several years. The SSC has seen several iterations, and has helped provide some guidance, as far as the model inputs and uncertainties that Adrian has been developing. This also has gone to the Snapper Grouper Advisory Panel, several times, to get their input on what management options they might like to see, and they just saw the final product last week, and so this is --

While it's not going to be the end of the MSE, this is essentially kind of the final iteration, under the contract that we had produced for it, but there is you know movement going forward to utilize this method, or this model, for additional management options, going forward, and so part of the questions that you'll see at the end, in your action items, is what other questions, or topics, could be answered using this MSE approach, or what other elements would you like to see incorporated into this MSE, if we should further develop it. Chip, did you want to say anything else about MSE at this point? No, he's good, and so, Adrian, I've got you unmuted on our end, if you'd like to test your audio.

DR. HORDYK Thanks, Judd. Can you hear me okay?

DR. CURTIS: Yes, we've got you, and I will go ahead and make you the presenter, so you can drive on your end.

DR. HORDYK: Okay.

DR. CURTIS: All right. You should be able to take control.

DR. HORDYK: Great. Just confirm you can see my presentation.

DR. CURTIS: Yes, and we've got your title slide, and we've got you coming in through audio. All right.

DR. HORDYK: Okay. Great. Good afternoon, SSC, and thanks for this opportunity to present an update on the MSE project. Like Judd just mentioned, this is essentially the preliminary results that we've developed so far. I've got quite a lot of information, and material, in this presentation. A lot of it is material you've seen before, and so I'll go through it reasonably quickly, and we can always go back, during the discussion, and revisit anything that you may have questions on.

The main thing that's new here is the results, the updated results, in Section 5, and some of the discussion in Section 6, and so I'll just start with a bit of brief background. The overall objective of this project was to develop a framework for comparing the expected performance of different management approaches for the snapper grouper fishery, and the approach that we've used is management strategy evaluation, MSE. We've talked about this in the past, at our meetings in the past, and I'm sure many, if not most of you, are familiar with MSE, and so I won't spend any time now talking about the details of it.

The main thing is there's a couple of important components. One is the biological properties of the fish stocks, and the characteristics of fishing fleets that exploit them, and these are described, and these are characterized, in an operating model, and so I'll talk about the operating model in a minute, and then the there's management options that you want to consider in the MSC and how the performance wants to be -- How you want to summarize the performance to present the results, and so I'm going to basically touch on each of these points really quite briefly.

We've had consultation with stakeholders throughout the project. Like Judd mentioned, we had a meeting with the advisory panel last week, and we've had about three or four of them throughout the life of this project. We've met before with this group, and we've had meetings with the council,

and we'll come to present these final results to them, essentially a version of what you're seeing here today, at the end of this year, and we've had a couple of public scoping meetings throughout the project, to ask the public for their perspectives on various aspects of this project.

The specific aims of this phase of the project was, one, to develop the MSE framework, and so we needed an MSE framework that was flexible enough to be able to deal with the complexities of this snapper grouper fishery, and then the second aim for this project was to use this framework to build operating models for three key stocks and to evaluate rebuilding potential under a range of different management options and to explore how those management options perform under a range of different core uncertainties in the knowledge of the system.

Then the last thing we want to do is just essentially explore the tradeoffs between these different management options, to try and determine which approach is -- Which approaches are more favorable, are more promising, and could do with a more focused research effort.

The outcomes of this project, first, is to evaluate the suitability of the MSE framework, and so the first outcome would be an MSE framework that's able to do the sort of simulation modeling that's required for this fairly complex fishery, and then we want to quantify the expected stock dynamics under a range of uncertainties, like I mentioned, compare alternative management options to see which ones are more favorable, which ones are more promising, and use that information to provide guidance to the council, and other stakeholders, for areas to prioritize for further research.

We've talked, in the past, about some of the technical details. It's been developed, this framework has been developed, as an R package, based on the open MSE framework. The technical specifications are available on this home page, this project home page, that describes the R package, and it has some articles about how the operating models are built and so on, and so, if you're interested in those details, have a look at that website, and, if you want to have a chat with me about any of it, I'm more than happy to do that over email, or on a call, but, in this talk, I won't go into any of those details.

The operating models, and, last time we spoke, we had red snapper and gag grouper as part of this analysis. Since then, we've added a third species, the black sea bass. These three species were all chosen because they were overfished, and been assessed to be overfished, and they're recognized as fairly high-priority species.

There's four fishing fleets that these stocks all have in common, or three that they have in common, and then the gag stock is also exploited by a dive fishery, and so the dive fleet is included in the gag operating model, but I'm not going to present the results. It's relatively small, and it doesn't have any discards, and so I'm not going to include those in the results, but, basically, the model has, for each of these stocks, a commercial line fleet, a recreational headboat fleet, and a general recreational, which represents the public fishers, and the framework can set management actions, either fleet-specific or stock-specific or both, and so you can set, for example, size limits, or catch limits, by stock and/or by fleet.

What I've done so far is all the management actions, which I'll talk about shortly, are applied the same uniformly across all the different fleets, but it does have the flexibility to do specific management on different fleets, if that's something you wish to explore.

I've talked, in the past, a lot about how we built the operating models. Essentially, what we've done is just imported the most recent stock assessments for each of these stocks, and imported them into the MSE framework, and then confirmed that our operating model, the fishery dynamics in our operating model, match those with the assessment, and so it's taking the base case run from the assessment and just reproducing those exact dynamics within the MSE framework. We refer to this as our base case operating model. It has these three stocks in them, identical to the assessment.

We've developed five different sensitivity tests, or robustness operating models. I'll talk a little bit more about these later on, and I think we have mentioned them in the past, but these are the core uncertainties that were identified for these fisheries, and we've built operating models that explore those uncertainties. Like I said, I'll get back to them a little later.

The stock assessments didn't have any spatial structure to them, but we've added that spatial structure in our operating models, and so we've superimposed spatial structure on top of the fishery dynamics that have been estimated in the stock assessments, and we've talked about this quite a lot in the past. I've had a lot of useful feedback, a lot of useful information, from the SSC in the past on this.

We have six areas in our model, three geographic regions and then two depth zones, and so each geographic region is split by a nearshore, which is less than 100 foot in depth, and offshore, which greater than 100 foot, 100 to 300 foot. They're those solid and dashed lines on the plot on the right.

We assumed -- We set recruitment for age-zeroes, and it all occurs for each stock in the nearshore region, and then the age-based distribution, and the movement matrix, is calculated so that the biomass distribution for each stock in the terminal year matches the distribution from a -- It's predicted from a VAST model that's been applied to the SERFS data, and so the table on the top shows you, for each stock, the red snapper, the gag grouper, and the black sea bass, what the VAST model, that was developed by some colleagues, was -- It predicted the relative distribution of the stock by area and depth, and so, for each stock, those numbers will sum up to 100, and it shows the percent percentage of the stock in each -- As predicted in each of these areas, the six areas, in the terminal year, in the most recent year, and then, in the model, we solve the spatial distribution of the fishing effort, so that the overall F, the aggregate F, in any given year matches the assessment, and so, essentially, we've added this spatial structure on top of the operating model, and then ensured that it still matches the fishery dynamics predicted by the assessment model.

I've got three slides here showing the distribution by age for each stock. This one shows the red snapper in the terminal year, the last year of the assessment, and the numbers there are the age classes of one to twenty, on the X-axis is the depth, the nearshore and offshore region, and then the Y-axis is the three geographic regions, and these numbers just show, for each age class, the fraction of the stock in each of the six areas. I won't go through any of this in detail right now. I've just included it in case we want to come back to this later on and talk about it in more detail.

You can see here that, for example, for age-one, for red snapper, about 80 percent of the stock is in the nearshore region in the center area, Georgia to Cape Canaveral, and then, as they age, the fish tend to move offshore, but the regional distribution doesn't change a lot. This slide is showing the gag grouper, and this one is the black sea bass, and, like I said, I won't go through this in detail now, but we can perhaps revisit these later on and discuss them in more detail.

Management scenarios, we developed a set of different management scenarios, quite broad management scenarios, to try and evaluate which approach is most promising, and so we have to, for each management -- For each simulation projection, we have to decide what the fishing mortality is going to be in the projection years, and so, for this analysis, what we've done is we've set what we call status quo, and so we've fixed the F, the fishing effort, and fishing mortality in the projection years to be the geometric mean for the last three years.

It's essentially the same thing that gets done in the assessments for some of the projections. It's just saying status quo -- It's saying that, if fishing effort was frozen right where it has been for the average of the last few years, and it stays like that in the future, over the next twenty-year projection, what would happen to the fishery? What do we expect would happen to the fish population, and so this is what I'm referring to as status quo, or SQ.

Then we developed a series of modifications to the status quo management, and so, essentially, the fishing mortality is always frozen at that level, and then we add additional management actions, or management options, on top of that in various scenarios, and so there's four different things we looked at. One was a full retention policy, and that meant that all the fish that are caught are retained, and so there's no discarding at all. For red snapper, that would mean essentially there's no closed season for fishing, or for retention, and the fish can be kept.

Something important here to note is that this assumes that, for example, the red snapper -- That if the fishing season was removed, and they're allowed to keep them all year long, that the fish dynamics don't change, that the targeting behavior, or the fishing effort, doesn't change. That may or may not be true, but that's the assumption we're working with right now. It's essentially converting fish that are currently being discarded to being retained, but nothing else is changing.

The second one was to add a minimum length limit, and so I've got listed there that's different size limits for the three stocks. Gag and black sea bass both, I believe, already have a twelve-inch minimum size limit, and so adding this size limit doesn't really make a lot of difference for those two stocks, for this size, but, for red snapper -- I believe it had a size limit in the past, and it doesn't currently, and so, when we add this minimum size limit management option to the red snapper, it does have an impact. The fish below the minimum legal length are discarded, and they suffer from discard mortality.

Then I have two spatial options. One is called nearshore, and that means all fishing effort, for all the fleets, is shifted towards the nearshore region, or shifted to the nearshore region, and, for offshore, all fishing effort is moved to the offshore region, shifted towards the offshore region.

Like I mentioned, these are sort of fairly extreme scenarios, management scenarios, and so we're not necessarily proposing these as something that would be considered for management, but what we're trying to do is sort of map out the various space of the management options, to look at what approaches have the most potential for rebuilding the stock, while maintaining tradeoffs, in terms of catches and discards and so on, that would be satisfactory, or acceptable, to the stakeholders.

We looked at every combination of these different management options, and so we start with -- We've run a projection with status quo, and then another one with status quo and a full retention policy, another one with status quo and a minimum size limit, and so on, all the way through to

the last one, where we have a status quo, full retention policy, a minimum size limit and all fishing efforts move towards the offshore region, and so these twelve different combinations include, or twelve different management options, include all the different combinations of those four management types.

One thing we were asked to add, and I believe it was suggested at this, the last time we met, and we met virtually, and was suggested to explore some more levels in the reduction in effort for the general recreational fleet. It's noted that, particularly for the red snapper, it's the fishing mortality from the recreational fleet that has the largest impact, particularly on the discards, and so we're looking at, again, sort of a hypothetical scenario of what would happen if the effort for the recreational fleet was reduced by some degree, and so I looked at eleven levels here.

100 percent means it stays unchanged, and so 100 percent is -- These are all relative to the current, so 100 percent means it's unchanged, reduced by 5 percent, and so down to 95 percent, reduced by 10 percent, and so it's down to 90 percent of what it currently is, all the way down to reduced quite dramatically, down to 5 percent of its current level.

In all, this gives twelve, this combination of twelve management options, and eleven levels of the reduction in recreational effort, and it results in 132 different management scenarios, and so a lot of different options. It's been noted that these management actions, particularly things like reductions in recreational effort, occur to all the fleets, and so they affect all the stocks at the same time. Some things, like a size limit, you can set, obviously, for a specific stock, and it doesn't impact something else, but shifting -- Because these stocks are obviously mixed, reducing fishing effort, or moving the spatial distribution of fishing effort, will affect all the stocks at the same time.

Summarizing the results, just, for this presentation I've kept it fairly simple. I've got the projection plots of the biomass, and the landings and discards, and I've also got a table showing the probability of rebuilding under each of these scenarios.

For rebuilding, the rebuilding target is based on the information that's in the assessments for the reference point, and so it's set for essentially BMSY, or a proxy of that, and so, for red snapper, it's defined as the spawning biomass that corresponds with a fishing mortality rate that reduces the SPR to 30 percent, and so ,for red snapper, the rebuilding target year is 2044. For gag, it's 2032. For black sea bass, I believe it's not currently under a rebuilding plan, but there has been some analyses that show that the stock could rebuild within ten years, and so I've set it to be the same as the gag, in this analysis, but, like I say, that could change, if it needed to. Then I've also report the probability of the stock rebuilding above the MSST as well, which are essentially 0.75 of the rebuilding target.

This plot just shows the historical spawning biomass. Essentially -- This is coming from the MSE framework, but it's essentially exactly the same as the assessment, because that's where it came from, and it's showing the stock status relative to the rebuilding target, and then I've got, in the dotted line, the MSST, and so, according to the assessments, these three stocks, in the terminal year, currently are well below both the rebuilding target and the minimum spawning stock threshold, and so this is essentially where the populations get projected from.

All right, and we'll shift to the results. This plot shows the results for all 132 management options for the base case operating model, and so I'll just briefly describe what's here, but I'm not going to

go into the detail of it, but just so you know what it's showing. On the X-axis is the relative effort of the recreational fleet, and so the furthest to the left is one, and that means it's unchanged, that the recreational effort stays the same as it currently is. As you move right on the X-axis, the recreational fleet is -- The effort is being reduced by 5 percent in each cell.

On the Y-axis is the combinations of the management options, and so there's twelve of them there. Starting at the top, the status quo, and, as you move down, there's status quo with full retention, status quo with a minimum legal length, and so on, until you get to the bottom one, that twelfth one, which has the combination of everything, including -- Well, let's look at the last two. The last two are a combination of everything, with the eleventh one being fishing effort moved to the nearshore, and the twelfth one, the bottom one, fishing effort moved to the offshore.

The values in each cell are the probability of rebuilding to the rebuilding target by the target year for each of these stocks, and they're color-coded with red, the more red color, indicating a lower probability, the zero, and white at 50 percent and the increasing blue, increasingly darker blue, as the probability approaches one.

I guess the first thing we can kind of see, in this plot, is under -- Let me go back to this one. You can see, in the top row, the status quo, and there's a lot of red there, and so the probability of rebuilding under the status quo, if fishing effort was essentially going to stay where it is now, it's a fairly low probability of rebuilding.

What I'm going to do in this presentation is just focus on four scenarios, and so, one, which I've highlighted here in green, is just a status quo, with the fishing effort for the recreational fleet staying as it is. Then, in that red color, is same as status quo, but now with fishing effort reduced down to 35 percent, and I've chosen that one because that's the first scenario, under the status quo management, where the probability of rebuilding of the red snapper approaches 50 percent.

The third one is the status quo scenario and moving fishing effort to the offshore region, and, again, I chose this one because, for red snapper, it was the first management option that had a fairly high probability of rebuilding, and then the fourth one is the same, and the fishing effort is moved to the offshore region, but there's a full retention policy, and so, essentially, for red snapper, this is removing the restriction on -- The restrictive fishing season, and it’s allowing fishing to occur all year long, or retention to occur all year long.

This time series plot shows, for each of the stocks, the -- In the green there, the median and the 25th and 75th percentiles of the spawning stock biomass relative to the rebuilding target. In the top-left of each plot is the probability of rebuilding and above the -- To the rebuilding target and the probability of rebuilding to the minimum spawning stock threshold. You see, for red snapper, that the prediction is that, under current effort, the stock will continue to have a gradual decline. It doesn't rebuild.

For gag grouper, it's staying -- It's a slight increase in biomass, but it stays relatively flat, and well below both of those rebuilding targets, and, for black sea bass, it’s something quite different. You can see, under the status quo, on the current fishing effort, the stock seems to -- The prediction for the stock is that it rebuilds reasonably quickly. It's got above a 50 percent probability of rebuilding above the minimum spawning stock threshold, but, by the target year, which is indicated by the vertical dashed gray line, there's still -- There's about a 15 percent probability of rebuilding above

the target, and so the value of one on the Y-axis, and you can see the median value cuts -- It sort of starts to flatline in the projection period, and so it doesn't -- It doesn't continue to rebuild up to the rebuilding target.

This plot shows the landings and the discards for these, under the same status quo management scenario. In the solid line is the landings, and in the dashed line is the discards, and you can see the landings and the discards more or less follow the trajectory of the biomass. For red snapper, the biomass is gradually declining, under this scenario, and so the landings, and the discards, seem to follow the same trend, and you'll see something similar occurring with the gag grouper and the black sea bass. The proportion of the discards to landings stays fairly similar for the red snapper and the black sea bass, because nothing's really changing in the management of those things.

What I've done here is I've just split that plot out by fleet, and so there's the three fleets in the columns, and then the three species, the three stocks, in the rows. It's a little hard to see in this plot, and so, in this next plot here, I just zoom-in from 2020 through the projection period, and so the gray is the historical, and then you can see, in the green, the predicted median landings and discards under the status quo management scenario, and so, for the other management options, which I'll show later, I'm going to show the landings and discards this way. There's your plot showing the predictions from -- With just the plot truncated to 2020 onwards.

What I'm going to do now is step through these other three management options and show similar plots, the same plots, and so this is the second scenario I wanted to look at. This is where the status quo of the recreational effort has been reduced to 35 percent of its current level.

In this plot, the dashed black line is the median from the status quo scenario, what I just showed you in the previous plot, and so this is the comparison, the comparison of the green to the black in each of these, and the black dashed line, in each of these plots, is the impact that this reduction of the recreational effort is having, is predicted to have, on the stocks, and so you can see it's quite dramatic for the red snapper. Like I said, that's why I chose this particular value to show, because it approaches 50 percent probability of rebuilding to the target level by 2044.

There's less of an impact, but there is some impact, less for both the gag and the black sea bass, but you can see the probability of rebuilding is increased from what it was in the status quo scenario, but, particularly for the gag grouper, it's still well below the -- The median, at least, is still well below the rebuilding target. For black sea bass, you can see the stock has rebuilt quite a lot higher. Like it's now -- The median is starting to approach the rebuilding target, but it has about a 25 percent probability of being there by 2032, and so that's that vertical dashed line, and it's still quite low, but, after that time, the stock continues to rebuild, and it doesn't quite -- At least on average, and the median doesn't reach the rebuilding level, but it's significantly higher than it was under the scenario where the recreational effort stayed at its current level.

This plot shows the landings and the discards under this scenario. Probably the main thing to note here is, for both the red snapper and the black sea bass, there is quite a marked reduction in the discards. There's a reduction in the landings, of course, as well, because the effort for these recreational fleets has been reduced quite significantly, and so the landings will be reduced proportionally, but the discards are also quite a lot lower.

You can see, for the black sea bass, the landings for the recreational fleet are predicted to increase, to decrease initially and then increase over time, and remain -- The discards will remain about the same, and quite a lot lower than they were, relative to the landings, and so the proportion of the stocks that is discarded, dead discarded, is quite a lot lower under this scenario. For the other, the commercial and the recreational headboat, the landings are a little higher than they were under the status quo scenario, because the biomass is rebuilding, and, for those fleets, the landings will increase proportionally.

The third management option I'm going to look at is where the fishing effort is moved to the offshore region. Here, you can see it had quite a marked impact on the red snapper, and it's above a -- It's more than a 50 percent probability of rebuilding, and a very different trajectory compared to the status quo, and something similar for the gag grouper and the black sea bass.

In these plots, the median is well above the rebuilding target for all stocks. You'll notice the probability of rebuilding for gag grouper, and for sea bass, is about 30 percent, and so it's less than 50 percent, and that's because of that cutoff year that's being used, 2032, for both those stocks, but you can see it doesn't quite rebuild, on average, by 2032, but, after that, about five or so years later, it's predicted to have a greater than 50 percent probability of rebuilding.

Again, this plot shows the landings and discards, and so, here, the effort for the recreational fleet has remained unchanged, and it still stays at the current level, but, again, you can see quite a dramatic drop in the discards, and so, looking particularly for the red snapper, on the top right-hand corner, you see the discards, which historically were significantly higher than the landings, are now, throughout the projection period, predicted to be slightly above or very similar to the landings, and so they are reduced quite a lot from what they were in the status quo.

For black sea bass, it's also a dramatic drop in the discards, the dead discards, and it's predicted that the actual landings will be significantly higher than the discards, towards the end of the projection period, and so the last one I'm going to look at under this section is the same management option, where the fishing effort is moved to the offshore region, but there's a full retention policy, and so fish can all be retained, and there's no discarding.

Essentially, this plot looks quite similar to the one you just saw. The probability of rebuilding is a little lower, because, of course, when the fish are being discarded, for example the red snapper, if there still is that limited fishing season, any fish that are caught and discarded -- Only a proportion of them die from discard mortality, whereas, if you have a full retention policy, and, again, assuming that the fishing behavior, the fishing pattern, doesn't change, then those fish are no longer discarded, and some survive, but all are retained, and so they're all killed, removed from the population, but it still has a reasonably high probability of rebuilding.

The main difference is, and I'll jump over to this plot showing the landings and discards, is that the discards go to zero. Everything that was previously discarded is now converted to landings, to catch, and so you'll see an increase compared to the previous scenario, increasing in landings, and essentially no discards.

Okay, and I mentioned these sensitivity tests a little earlier, and we did five of them. The first two would look at the different values of the natural mortality rate, and we based these on the sensitivity tests in the assessments. The third one was to look at what would happen if we reconditioned an

operating model, and reran the assessment with the removals, and so the landings and discards for the recreational fleet reduced. There's been some hypotheses that perhaps the values that have been -- The records that have been entered and used in the assessment were overestimated, by perhaps as much as 40 percent, and so this was raised as a potential concern, and so we reran the assessment model, where we reduced the removals for this fleet by 40 percent. It's bolded, because I'm going to look at that one in a little more detail in a second.

The fourth one was effort creep, and so we looked at what would happen if the effort for the recreational fleet increased in the projection years. Rather than just staying flat, like I showed in the status quo scenario, what happens if the effort increased by -- We're using a value of 2 percent per year, and that can either be from increased more fishers, and, in this case, 2 percent, the fishery increasing by two percent per year, or increased catchability, better technology and so on, or some combination.

The last one is to look at recruitment, what we call recent recruitment, and so, in this sensitivity model, we simulated recruitment deviations, recruitment pattern in the projection periods, based on the most recent recruitment and recruitment that's predicted by the assessment models just in the last ten years, and so that's also bolded, because I'm going to look at that. These two are probably the ones that are the most interesting results, which is why I'm presenting them now, but, if you're interested in any of the details on the other ones, I can certainly provide them to you.

This plot shows the results of the stock assessment model under the scenario where the recreational catch and landings were -- Sorry. Landings and discards were reduced by 40 percent, and so, on the left is the base case, and this is the assessment, and on the right is this scenario, this sensitivity operating model. You can see the biggest -- Which is probably not a surprise to many of you, that the biggest impact that this change has is it predicts a smaller stock, and so, if you look at the stock in the first year, the line in the first year for each stock, that's essentially the prediction for the unfished spawning stock biomass, and you can see here, on the right-hand side they're all lower than they were, than they are, on the left, and so this model is predicting that the stock is smaller, that it's a smaller stock. When it was unfished, it was a smaller stock then under the base case scenario.

In this plot I've just standardized them again to the rebuilding target, and so now the rebuilding target is a value of one, and you can see there are some differences, but, particularly in the terminal year, the predictions, in terms of the stock status, the stock relative to rebuilding target, are essentially identical, and so it doesn't have a lot of impact on the predicted stock dynamics, the stock status. It just essentially makes the stock smaller, but the stock status remains more or less the same.

This plot is just showing this rebuilding scenario from under the status quo management for this sensitivity run. Like I said, quantitatively, it's a little different than the base case operating model, but, qualitatively, it's the same result. It's showing the same thing, that the red snapper stock is predicted to continue to decline under the status quo management, and you get a similar pattern, for the gag and the black sea bass, as what we saw under the base case OM. What this tells us is that this uncertainty, while it may be an important uncertainty for various reasons, it doesn't impact the results of this analysis. It doesn't change the relative performance of the different management approaches.

The second sensitivity test that I want to just touch on is the last one, Number 5, which is recent recruitment, and so, here, the projections use the generated recruitment deviations from the most recent ten years for each stock.

For red snapper, in the last ten years or so, the recruitment deviations have been higher than average, and so this continues, essentially, for in the projection years, under this scenario, for red snapper, and so, here, the spawning stock biomass is still declining, but, if we made a comparison between this and the base case operating model, you'll see it's more optimistic than the previous run, where there's -- The recruitment deviations were generated from the entire historical period, and so, essentially, they were -- The recruitment deviations had an average of one, whereas, in this scenario for red snapper, they're more positive. The average is actually positive. They have a higher than average recruitment throughout the projection period.

It has a positive impact on the stock, of course, but it doesn't -- The model predicts that, under status quo management, you still get the same sort of qualitative result. It doesn't increase the probability of rebuilding to anything significant.

For gag grouper and the black sea bass, the recent recruitment has been a lot lower, and it has been predicted, been estimated, to be a lot lower than the average, and so this is continuing into the -- Under this scenario, it's continuing in the projection period, and you see quite a dramatic difference, particularly for the black sea bass, which was predicted, under the base case operating model, to increase quite quickly in biomass, and, here, it stays flat, relatively flat, or maybe a slight decline in biomass.

This plot here just shows the same information that I showed earlier for the base case, but this is now for this run under the scenario where the recruitment is sort of less favorable, particularly for the gag grouper and the black sea bass and their projections, and you can see, you know, essentially, none of these management options will rebuild the stocks to the target level by that target year in this scenario.

An important caveat here is exactly -- It's that the results depend a lot on how we define the recruitment in the projection years, and so what this is assuming now is that for the next -- For this twenty-year projection, the recruitment, for the gag and the black sea bass, it's always lower, on average. On average, and so it has some variability on it, but, on average, it's lower, and it stays more or less the same as it has been in the last few years, what it's been estimated to be in the last few years.

You can have different -- Of course, you can have different scenarios, or different hypotheses, for what that actually looks like, and one thing to perhaps consider is, if it's really true, for these stocks, that recruitment is now significantly lower, and it will be significantly lower in the future than it was in the past, that may represent something more like a regime shift, or something has quite systematically changed in the system, so that the stock abundance, the magnitude of the stock, might have reduced.

If that's the case, then that might be a reason to revisit the reference points, because, if the stock -- If recruitment really has changed, and it's not going back to what it was, then that may be an argument to change the reference points. If that was done, of course, these values would change, the probability of rebuilding would change, if the reference point changed, and so that's something

to be aware of, whenever you play around with sort of systematic changes, and time varying changes, in the projection period, is that, if we use the historical -- If we use the old sort of reference points, but the future is markedly different, then it may not be a fair comparison, but this is an area for lots of discussion, and I just wanted to point that out, that, of course, these results that are shown here depend on, one, the assumptions, in exactly how we generate those recruitment deviations, and, secondly, what we use as the reference points.

Okay, and a couple of discussion points. I'm just going to touch on each of the management options, just briefly, including the ones that I didn't go in more detail. Status quo, we talked about in a lot of detail already. None of the stocks have a high probability of rebuilding to the rebuilding target. Black sea bass has the highest, and it has a 50 percent probability of rebuilding to BMSY for 2032. The other two, not so much.

The general result of the status quo analysis is that rebuilding requires a reduction in fish mortality. To increase the probability of rebuilding, we need to reduce fish mortality, and/or increase the spawning output, and, by that, I mean reduce the fish mortality on the immature fish, or increase the reproductive potential, and so we saw that, particularly for the red snapper, where we reduced the effort for the recreational fleet, reduced the overall F by quite a lot, the probability of rebuilding was a lot higher.

When the fishing effort was moved, for all these stocks, towards the offshore region, and away from the nearshore region, where the juvenile fish mainly are, particularly for the red snapper, then that -- Even at the same level of fishing effort, that would increase the spawning output, reduce the impact of the reduction in spawning potential, and increase recruitment, and so that also had an impact on rebuilding and so some combination of these two approaches is required to increase the probability of rebuilding for these stocks.

We talked about this in detail already, the scenario where reduced recreational effort has the biggest impact on the red snapper, and not so much on the gag, predominantly because the commercial line fishery appears to have a larger impact on that stock than the recreational fleet.

A full retention policy leads to a short-term increase in landings, because fish that are currently discarded get converted to landings, but, overall, by itself, a full retention policy reduces, or decreases, the probability of rebuilding, and, like I mentioned before, that's because, before, those fish were discarded, and some of them survived, and, if you keep them all, of course, they're all dead and removed from the population, and so, without a reduction in fishing effort, or something else, it actually has a negative impact on the stock.

There are some other options that could be explored in this sort of scenario, for example aggregate bag limits, where you set a bag limit for multiple species at once, and, whenever the bag limit is met, fishing has to cease. That could be something that may have some promise, particularly because this aggregate bag limit approach can protect -- It has the properties of protecting some of the more vulnerable stocks.

It requires a fair bit more work to develop that. It requires data on the probability of releasing, given the catch rates by species, and so that may be something to explore in the future. We can also explore more the seasonal diet models, look at more of whether the different closed seasons have an impact.

This requires a model to predict changes in the fishing effort and the distribution by season length. We spent a bit of time in this project looking at that, but we haven't been able to develop a sort of defensible model to do that, but, I mean, that's really the crux of the issue. If we want to start exploring some of these more specific management measures, like particular season lengths and everything, we need to have a model that predicts how fishing effort will change with these changes in management, which can be quite difficult.

Minimum size limits aren't very effective. I think we've seen these sorts of results from other studies as well, without a reduction in discard mortality, at least. They have some impact, but, if there's still a reasonably high discard mortality, then a minimum size limit is just causing a significant fraction of those fish just to be thrown back and then die, once they're in the water.

The spatial fishing effort had sort of the most promise in this analysis. Shifting effort to the offshore region had the largest increase in rebuilding. Like I mentioned, the largest reason for that is because it's shifting fishing mortality from the younger fish to, in most cases, towards the older fish, and so it increases the spawning in the outpour, and it also reduces the fish mortality on a fraction of the stock.

Some other things that could be explored is different assumptions for the spatial distribution of the fish stocks, and the fishing fleets, and perhaps you could have different spatial regulations by region or depth or fleet. Of course, we could look at -- I've got fairly coarse areas now, but that could be looked at in more finer resolution, though, of course, that would also require more data, and a finer resolution. If you have more areas, you need to be able to define, and describe, how the fish, and the fishing fleets, are distributed across those areas.

Sensitivity tests, the biggest thing, the one that was the most different, that had the biggest impact, was the last one I showed you, the recruitment pattern. What we predict, or what we assume, the recruitment pattern will look like in the future has a big impact on the probability of rebuilding. This probably isn't surprising, but that's -- The recruitment's a big drive in rebuilding, so, if you assume a scenario where the recruitment's sort of fairly negative, fairly pessimistic, in the future, of course, the probability of rebuilding is going to be a lot lower.

For all the other scenarios, the quantitative results were different, but, qualitatively, the results were exactly the same, in that reducing the recreational effort had the biggest impact for red snapper, and for the sea bass, and moving fishing effort towards the offshore also had the highest -- Within each scenario, it the highest probability of rebuilding. Okay, and so thanks. I realize I went on for a fair while still, but thank you for your time, and I'll hand it back to the chair for questions and discussion. Thank you.

DR. REICHERT: Thank you so much for that overview. Any clarifying questions at this point? Jim.

MR. GARTLAND: So, first of all, really good presentation, and thank you. Just a quick question. When you have a minimum size limit, and full retention, that's full retention above that minimum size limit. Everything below it still has to be released. Is that correct?

DR. HORDYK: Yes, that's right. Yes, that's right.

DR. REICHERT: Anyone else? Jeff.

DR. BUCKEL: Yes, I echo Jim's comment. Excellent presentation. It was very clear, and thank you for that. I think I missed it, and the definition of nearshore, versus offshore, and was that a depth? Okay. Someone just told me 100 feet.

DR. HORDYK: Yes, it's defined as 100 feet, yes.

DR. BUCKEL: Okay, and, on Slide 22, you had the gag minimum size as twelve inches, and it's twenty-four inches. I don't know if that was just a typo, or if that was in the model, but just to let you know that the gag is -- The minimum size limit is twenty-four inches.

DR. HORDYK: Okay. I need to --

DR. REICHERT: Jeff, what slide was that?

DR. BUCKEL: Slide 22.

DR. HORDYK: So, okay, and I will need to check whether that's a typo in my slide or if I really did set it in the model as twelve inches, and it just wouldn't have an impact, if the current one is already twenty-four inches, and so it's just redundant, but thanks for raising that. I'll check it, and make sure it's corrected, if it's wrong in the model.

DR. BUCKEL: Then the other -- I guess it would be a different management strategy, but I noticed, on Slide 38, if you want to go to that slide, and so this was on several of the gag grouper slides, and so, as the stock rebuilds, the commercial -- You know, you see this increase in the commercial landings, and they go above the recreational landings, and, often, the council, right they --

I'm not sure what it is right now, but, often, it's like a 50-50 percent allocation, and so I don't know if that could be -- Like if there could be some cap put in, where the commercial doesn't go over the rec, to see how that impacts the results, but, again, you've done a lot of different management strategies. I hate to put something else in there, but I'll let others comment that are -- That deal with the allocation, that are on the council, but that is just something that stuck out to me, that I don't know if that would be allowed, just to go up, without some cap, but, otherwise -- Those are just the comments I had. Thank you.

DR. REICHERT: Thank you, Jeff. Anyone else? Fred.

DR. SCHARF: Adrian, for the shift in the fishing effort, from inshore to offshore, and you indicated that it was probably mostly due to essentially reducing F on a fraction of the stock. I just wanted to confirm that there wasn't any difference in the discard mortality between below 100 feet or above 100 feet.

DR. HORDYK: No, I don't have -- It carries the same.

DR. SCHARF: Okay. Thank you.

DR. REICHERT: Chris.

DR. DUMAS: Thank you for a great presentation. In the status quo offshore scenario, what happens to --Maybe I just missed it, but what happens to the inshore effort? Is the inshore effort moved offshore, or is the inshore effort simply dropped from the model?

DR. HORDYK: This assumes that the effort is moved to the offshore, and it's the same with the nearshore. Just all the effort is moved, and so the total effort stays the same. Something that's maybe worth thinking about, especially for those familiar with this stock, is that, particularly for the red snapper, the selectivity curve, for the recreational fleet, is really dome-shaped, and it's to young fish, particularly for the discards, and so, while the effort stays the same --

Essentially, under this model, if the effort of the recreational fleets moved offshore, the effort stays the same, but, essentially, the catchability is much lower, because of that sort of large dome shape, and the big peak in the dome is all focused on the young fish, which are predominantly in the nearshore region. I'm not sure if I explained that well, but the effort stays the same, but now they're sort of -- According to the model, they're less -- The same effort will catch fewer large fish than they would if they were young fish.

DR. REICHERT: Alexei.

DR. SHAROV: I have a question about the operational models. There is a little bit of information here, but certainly not enough. As I understand, the population dynamics of each species, or each stock, is described according to the recent stock assessments, but I would like to hear how the recruitment was modeled.

Was there any stock-recruitment relationships used, or you assume just a level of recruitment, such as, you know, a recent one, or long-term, et cetera, or are the population numbers then allocated to the areas, according to the proportion that was shown, regardless of the stock size, and that is there was no movement, and have you sort of simulated each of the stock independently of the other? There is no interaction, in terms of the effect of the fishing, or the fishing fleet, you know, and that simulating this is a multi-species fishery, and, also, any connections among the stocks, or relationships, such as predation? I assume not, but I still would ask. Thank you.

DR. HORDYK: Thanks for those questions. In the past, I have presented some more information on the operating models, but I didn't want to get into too much detail today, but I'm glad you raised these things, so I can talk about them. For recruitment, the base case just imports the assessment, and so the historical stuff is exactly the same as the assessment.

For the projections, for the recruitment, what we do, under the base case scenario, is we get the predicted stock-recruit, or the recruitment deviations, that have been estimated with the assessment, and, essentially, the standard deviation, and the autocorrelation of those values -- We use that to generate lognormally distributed autocorrelated recruitment deviations for the projections, the idea being that the recruitment in the projection period will have the same statistical properties as those in the past.

For the movement, yes, and so what it would be is -- Essentially those -- There isn't a lot of movement between areas. There's the movement, and there's an age-based movement, and the fish move -- You know, they're distributed by age, but there isn't a lot of geographic movement. I have that -- You can essentially see it in those tables that I showed earlier on, and I can look into that in more detail.

Particularly for the spatial management options, the results depend, of course, a lot on what you assume the spatial distribution of the fishing stocks are, and so we've got essentially one scenario here. There isn't a lot of regional movement in these ones, and it's just a nearshore-offshore movement, or ontogenetic movement, but certainly there's a lot of other scenarios could be explored.

There are no -- These stocks are -- It's a multispecies model, in the sense that they're all in the same MSE, and it's just a multistock MSE operating model, but, currently, I don't have any biological interactions in the model. We could include them, and we've discussed them in the past, but we just haven't included them now, and we haven't decided -- We haven't proposed exactly what those interactions would look like.

The main one that we have is that the -- I generate the -- I should have mentioned this earlier, with the recruitment deviations, and so I generate them from a multivariate lognormal distribution, and so it includes the correlation between stocks, and I can bring up a plot of that, if you're interested in me showing that, but, basically, it predicts that the recruitment deviations are correlated across these stocks, and so that's a sort of interaction, but not in the way that you're talking about, like predation and so on, that, if there's a higher biomass of one, it will increase natural mortality of the other or something. We can do all those sorts of things, but it just hasn't been done now.

The fleet interactions occur in the sense that the fleets will fish in the same areas and the same -- You know, they basically will take a catch of -- You know, if you reduce fishing effort on a certain fleet, or move it offshore, it will impact all three stocks at the same time, but there are -- But there aren't any -- We don't have sort of any other modeled interactions. I think those are your questions, but thank you for raising them, and that was great information.

DR. SHAROV: All right. Thank you.

DR. REICHERT: If I may follow up, and again, nice presentation, nice overview. It was very good. In Slide 14, and this is relative to recruitment, you mentioned the recruitment pattern is based on the ten most recent years. Correct me if I'm wrong, and maybe I misheard, but you said, just now, that recruitment was based on the assessment model. Then, as a follow-up on that, and, again, you may have mentioned that, but was recruitment calculated over the entire population, or was that calculated for each depth, range, or each region?

DR. HORDYK: Yes, I haven't mentioned either of them, and so, for the base case scenario, essentially for the recruitment deviations, we assume -- We just assumed that, essentially, the statistical properties of the recruitment deviations, and so deviations from the average, in the projections will be the same as the past, and so it's having the same -- It's taking the past values, as those were estimated for the assessment, and so it took the values estimated by the assessment, calculated the statistical properties of those, and then used that model to generate them forward.

In this Slide 14, Model Number 5 there, this is a change, because now I've just done that same process, but I just used the recruitment deviations from the most recent ten years, rather than the whole historical period, and then, the last question you asked about the recruitment, no, it's calculated -- It's stock-wide. The recruitment is stock-wide, and so it calculates the entire spawning biomass, in any given time step, across all areas, and it calculates the expected recruitment from the stock-recruit relationship, and then it applies the recruitment deviations, the stochastic variability of those, and then it distributes the recruitment according to their movement metrics, which is these figures, essentially. I'm sorry for jumping through there, but I'm just trying to find those movement --

So, here, it puts the recruitment -- This is -- I don't have it showing from age-zero on here, but, essentially it's going to age-one. and so it calculates the recruitment from the overall spawning biomass, and then it moves all those recruits to however the distribution is defined, and so, here, for red snapper, they're essentially -- They're in the nearshore region, and 80 percent of the recruits go to the central region. I hope that answers your question.

DR. REICHERT: Yes. Okay. Thank you. I appreciate that. Thanks. Any other clarifying questions, before we go to the action items and the discussion? Any hands? Anne.

MS. MARKWITH: I just -- I wanted to follow up on the nearshore and offshore, and make sure I understood correctly. Som when you're calculating -- So, the one you showed us with the offshore scenario, that assumes there's no effort anymore in the nearshore, and is that correct?

DR. HORDYK: Yes, that's what it should be right down here.

MS. MARKWITH: That may be overly optimistic, only because of fishing behavior and knowing state regs are different. I don't know if -- Was there ever any consideration of allowing some proportion of effort, even with that shift offshore, to remain in the nearshore?

DR. HORDYK: Yes, and so that's something that we could -- It certainly could be explored. Like, at this point, what I was just trying to do is just sort of look at these extremes, in these different dimensions, to see which have the largest impact. These aren't necessarily being proposed as like viable management actions, but these results show that sort of moving effort towards the offshore has an impact.

I agree that like, in reality, that's unlikely something to be implemented, and is sort of unlikely to happen, and so we could explore that, in these different scenarios of, you know, moving some fraction of the effort towards the offshore region, or the reverse, and so on. We haven't done that yet, and it can easily be done, and we just need the scenarios to -- A proposed scenario to be looked at.

I think a bigger issue, maybe, that requires a fair bit more work, would be really to develop a stock dynamics model, because, for example, if we moved -- Just hypothetically, if there really was a regulation that said all fishing effort had to move to the offshore, you know, greater than 100 foot, right, just hypothetically, like this model assumes that everyone who's fishing today is just going to move, just going to do that, but, of course, like you said, that's unrealistic, and so we need some sort of fleet distribution, fleet dynamics, model to predict how the fleet will respond to different management actions.

That applies to all of these things, actually, but particularly for this spatial management. We don't have that right now, and so we have to make these sort of fairly crude assumptions about if all the effort moves one direction or the other, or some fraction of it, but sort of a bigger question is what would really happen, and would some fishers, you know, leave, and go somewhere else, or -- You know, there's a whole multitude of questions there, and to develop a model that can predict how the fleet will respond to these management actions could be valuable, but like I said, it probably starts with a chunk of work.

DR. REICHERT: Thank you. Any other questions? No hands raised. Jie. Jie, go ahead.

DR. CAO: Thanks for the presentation. I just want to follow-up on the recruitment issues. I think that was on Slide Number 14. You had all the operating model scenarios. For the last one, Number 5, the recent recruitment, you said you calculated the statistical properties based on the most recent, the ten most recent, years, and so I have a question. By doing so, are you basically assuming that a regime shift occurred, and, if that's the case, does it make more sense to calculate the reference point based on that as well? I might have missed that, but I was wondering if that's something you explored in the simulation.

DR. HORDYK: Yes, and so that's what we did. We calculated -- Essentially, the average, like I said, particularly for gag and black sea bass, the average recruitment in the last ten years, according to the assessments, has been quite a lot lower than one, right. and so it's been negative recruitment, lower than average, and so, in this scenario, we've kept that in the projection years, but you're 100 percent right that, if that was really true, that, for the next twenty years or whatever, the recruitment is going to be significantly lower, and it's persistently lower than the previous average, then that would represent probably a regime shift, like something's changed in the stock.

If that was really true, then that would -- You probably suggest you should recalculate the reference points. We haven't done that here, because we haven't necessarily defined it as a regime shift. You know, as soon as you start messing around with these different sort of scenarios for recruitment in the future, there's a million different things that it could look like, whether it's a regime shift or whether it's just a lower-than-average period for ten years or whatever, and these are all different things that could be considered.

We haven't done that right now. I think you're right that, if it really was regime shift, you should probably recalculate the reference points, and it would look different. We haven't done that now, and mainly because -- Well, one, we haven't had enough sort of time to explore that in full detail, but, secondly, because it opens up a whole can of worms about how exactly you define recruitment, how exactly you determine whether something is a regime shift, or it's just like an extended period of lower-than-average recruitment, and if and when you should recalculate the reference points, but I totally agree with you that any sorts of results -- The interpretation of results for those sorts of scenarios needs to be sort of really carefully considered, particularly in respect to the reference points that you're using to interpret them. Thanks for that question.

DR. REICHERT: Thank you. Anyone else? Anyone online, Chip? Chris.

DR. DUMAS: On Slide 44, the sensitivity analysis to reduced recreational removals, and maybe I missed this, but I don't understand why reducing the recreational removals doesn't affect the spawning biomass, pretty much, in later years.

DR. HORDYK: So the assumption here was that we've reduced them for the entire historical period, in this case, and so that's just reduced the whole lot. I think you're right that, if there was a reduction at a certain time, from some year, mid-year onwards, you would expect quite different, but it's reduced the whole time period, and so that's one.

The main thing is, I think, because, for a lot of these stocks, the recreational landings are fairly high, reducing them -- Essentially, when you reduce the catch, the magnitude of the stock is estimated, and, essentially, the information for the size of the stock, that's used for the assessment, is the catches, the magnitude of the catches, and so reducing the catches without changing the sensitivity patterns or anything, can have -- Essentially, it can reduce the estimate of the fished stock.

I actually expected to see something a little different here, given that, particularly for the red snapper, the discards are so high, and the selectivity is focused on, for those stocks, or for that fishery, it's focused really on the young fish. I expected to see that be really different, but, of course, when you put it into an assessment model with just -- The catches are only one part of the data going into it, and there's indices and so on, other things, and they're all -- Size compositions and so on, and they're all trying to make sense of it all, and it's hard to know exactly why you get the result that you do, but it is fairly common that, if you reduce the catches, it just reduces the estimate of the size of the stock.

Like I said, I expected it to be a little different, because we're only reducing the catches for one fleet, but, essentially, what I did is just change those data in the model, and reran it, and this is what it predicted, and I assume it's because of some of the other data are telling the story more strongly about the actual trajectory in the stock dynamics, particularly the indices.

DR. DUMAS: Thank you.

DR. REICHERT: Kai.

DR. LORENZEN: I just wanted to add some explanation here. I think this is the scenario where it's basically looking at the idea that the MRIP overestimates the recreational catches, and so this was to see what -- You know, if they were actually 40 percent lower, then what the effect of that would be.

DR. REICHERT: Anyone else? Jeff.

DR. BUCKEL: One question. On the green shading, and that's showing the distribution around the median, I assume, and sometimes that green shading is above the MSST, but there's still -- You know, it's not a probability of equal to one, and so is that like a 10 to 90, or 20 to 80, credible interval, or something like that? I'm just curious what that error is.

DR. HORDYK: Yes, and so the solid line is the median, the 50th percentile, and then the lower -- The lower on the shading is the 25th , and the top is the 75th, and so, essentially, if the top of the

green shaded area like touched the rebuilding line, you have a 25 percent probability of rebuilding. Then, if the bottom of the green shading sort of was above the rebuilding line, at the point of the vertical grey line, then that would be a 75 percent probability. Does that make sense?

DR. BUCKEL: Yes. Perfect sense. Thank you.

DR. REICHERT: Anyone else? Before we go to discussion, and the action points, I hope -- Adrian, thanks again for your presentation. I hope you have an opportunity to hang around, because, when we are discussing this and our action points, we may have some additional questions for you, but I hope you're able to do that, but, again, thanks for your presentation and answering the questions we had. I would like to open it for public comments. Do we have anyone online? Haley Stephens. Haley, go ahead. If you're talking, we cannot hear you.

MS. STEPHENS: Hi, can you hear me?

DR. REICHERT: Yes, we can hear you now. Thank you.

MS. STEPHENS: Thank you. My name is Haley Stephens. I'm actually a member of the Snapper Grouper AP, and so this was my second time seeing the presentation, and I think that it was wonderful. It was very informative, and I just wanted to take a quick moment to appreciate recognizing the recreational headboat separately in these model scenarios, and just a quick public comment to say, you know, as we move forward, to discuss potential management measures, I think it's worth pointing out that, in all the scenarios highlighted, the recreational headboat is shown to have very low fishing effort, in addition to very low impacts on the particular stocks highlighted. Thank you so much for your time.

DR. REICHERT: Thanks, Haley. Appreciate it. Any other public comments online, or from the room? No? No hands and no one online, and so thank you for that. So I'd like to move to the action items. I think Judd is trying to bring them up on the screen. Review the model for the snapper grouper management strategy evaluation and discuss the data inputs and uncertainties in the operating model, the management options and performance metrics, results, and future iterations of the MSE process.

I've heard a couple of suggestions for potential future iterations. One was the allowing some fishing in the nearshore, because of the fishing in state waters, and I believe the other one was a level of species interactions. I think Adrian actually mentioned that, and I think there was a third one, but I forgot which one that was, and so let's go to the action options here on the screen. In terms of the operating model, does the model appropriately characterize population dynamics for the black sea bass, gag, and red snapper? I will open it. Any comments, or remarks, on that? Jim.

MR. GARTLAND: I think that will be yes, since they're based on approved stock assessments. It's pretty straightforward.

DR. REICHERT: That's the operating model. Anyone else? Are we satisfied with how some of the data was used, or inputted, recruitment, et cetera? Seeing no hands, the second bullet point is does the spatial structure seem appropriate for the three species? I think we commented on that in a previous review, and I think Adrian actually made some changes to that, the regional, as well as the depth regions, spatial structure. Based on our previous discussions, we felt that that was

appropriate, after some of the changes were made. Looking around the room, any comments, or remarks? Are the fisheries represented properly? Steve.

DR. TURNER: Going back to the first bullet, does the model appropriately characterize, I'd like to open this for a little discussion. I'm a little --

DR. REICHERT: Steve, can you move a little closer, or turn your mic on?

DR. TURNER: Sorry. I would like to open this for discussion, rather than enter something right now, but I'm a bit concerned that the ten-year history, for at least black sea bass, and I don't know about gag. Because we see the continued decline in recruitment, I'm wondering whether the modeling here is optimistic, and whether some bias, or some proclivity to the smaller, the lower stock recruitment, might be introduced, but I don't know what the rest of the panel thinks of that.

DR. REICHERT: Jim.

MR. GARTLAND: It could be incorrect, but I thought that was accounted for in the scenarios, where some of the scenarios had a recent ten-year recruitment. The initial scenarios, I think, just used the assessment model, which used the long-term, I believe, and so I thought they were both captured, but the shorter-term recruitment captured as kind of a management strategy option.

DR. REICHERT: Yes, and that's why I was asking this question earlier. The recent recruitment pattern, based on the ten most recent years, that was one of the sensitivity tests, and so I think the operating, and, Adrian, please correct me if I'm wrong, but the operating model still assumes the recruitment from the assessment model, which is, more often than not, or probably in all these instances, the long-term recruitment. Adrian, is that correct, or am I mischaracterizing what you guys did?

DR. HORDYK: No, that's correct, and I think that's probably the reason why, for the black sea bass, you're seeing quite a marked -- Under the base cases run, quite a marked increase in the stock, because basically the recruitment goes back to average fairly quickly, when it has been -- When it appeared to be lower, but it's exactly as you described.

DR. REICHERT: So, in that respect, I think Steve's point is well taken, that, in terms of recruitment, in particular for black sea bass, the base model may be optimistic, given what we know now of the population, correct? I see people thinking. The base model is using average recruitment, but --

DR. TURNER: Long-term average recruitment.

DR. REICHERT: Sorry?

DR. TURNER: It's using something like long-term average recruitment.

DR. REICHERT: Yes. Adrian, I know you mentioned that in one of the sensitivity tests, and that's why you addressed it, and have you guys discussed potentially changing that for the -- Well, you can't really change that for the operating model, because that's the equivalent of a stock assessment model, where you use the long-term for the model, and then the short-term for the

projections. Okay. That may get a little complicated there. Sorry, and I'm just thinking out loud here, but go ahead, Adrian.

DR. HORDYK: Can I make a comment? Yes, you're right, and, at the moment, we haven't explored anything else in what we've seen here, although, like I mentioned, there's lots of things you could, but the comment I just wanted to make was that, in terms of the -- I think it's super important for a stock assessment, if you're as a stock assessment, to project a particular -- For example, calculate actual quantitative values for predictions of rebuilding and so on. It's important to get it exactly right.

In an MSE context, what we're trying to do here, the main thing we're kind of looking at -- It's very difficult to make quantitative predictions about what will happen in the future, that the probability of rebuilding will be this, because, of course, it depends on lots of different things, which we don't know, but what we're really looking for is comparing like different management actions and whether they have the same quantitative result, qualitative probability.

So, in some ways, it's less about the actual prediction, in terms of the probability of rebuilding, and it's more does this particular management action -- Does the moving fishing effort offshore, or introducing the size limit, does it have the same expected result? Does it increase the probability of rebuilding under these different scenarios? I'm not sure if it's clear what I said, but, in some ways, it's a little challenging, or dangerous, perhaps, to interpret the quantitative values from an MSE as actual predictions, because, of course, it depends on exactly what's going to happen, and we don't know.

DR. REICHERT: Yes, I think that's -- Thank you for that. That's -- In other words, you're basically looking at it on a relative scale. Is A doing a better job than B, rather than looking at the actual numbers.

DR. HORDYK: Yes, exactly.

DR. REICHERT: Well, and I think that is important to point out for us, also, because people may be looking at this and saying, well, we should be doing this, because it shows that we can rebuild, like in the black sea bass, for instance, and forgetting about the fact that you're talking about a relative scale. Jim.

MR. GARTLAND: Just briefly, for MSEs, one of the things I've always been told is they're really good at telling you what won't work, right, and so that's kind of a different way of thinking about it. It's not like, hey, which one of these is going to get us where we want to go. It's, hey, which of these options should we avoid like the plague.

DR. REICHERT: Yes. Thanks. The next one was are the fisheries represented properly? Jennifer.

DR. SWEENEY-TOOKES: Sorry, and I wanted to backtrack, also. I don't know if this is the appropriate place, or if it goes further down under management options, but Anne's point about inshore, offshore, not having any control over state waters, and this is a concern about space, and so we need to make sure it is represented in here somewhere.

DR. REICHERT: Thank you, and I was going to bring it up when -- Like in suggested other runs, but that's probably a good point to make here, because that's a -- Yes, that's an uncertainty, but -- Especially, I would say, fishing in inshore waters. Steve.

DR. TURNER: I think that might go under the first bullet of does the model appropriately characterize population dynamics, but we might want to say population dynamics and the social situation, and it's not the regional management entities.

DR. REICHERT: Yes, or maybe under -- Maybe under are fisheries represented appropriately, and that -- You know, that's where management -- In some instances, management in state waters is different than in federal waters. Yes, I would specifically mention here state waters and federal waters, because sometimes the regulations are different, and, again, let's not forget to come back to that when we're talking about suggestions for additional runs.

Does the model address key uncertainties, difference in M, reduced recreational removals, effort changes, and recent recruitment? I think we mentioned the recent recruitment, especially in terms of black sea bass, so that may be a point to make. We've mentioned that above. Black sea bass, recent recruitment, especially in black sea bass, is something -- That was something that was brought up. Anyone else relative to this bullet point? Maybe, as a placeholder here, and then we can wordsmith recent recruitment. Chip.

DR. COLLIER: Maybe to spark a little bit of conversation, but Adrian had modeled a bit, or tried to model, effort changes in the recreational fishery, by looking at a 2 percent increase per year. In different assessments, they have used random walk to change effort, and they have used constant effort, and so I'm just wondering if this 2 percent effort change is within the realm of what you all think is occurring in the fishery, or what you've seen in other stock assessments, as potentially appropriate.

DR. REICHERT: Does anyone have an estimate of population growth in coastal areas? I mean, that's the only thing I can think of, in terms of potentially see whether that's realistic. If you assume that more people live at the coast, it means more people go fish. Other than that, I -- Anne.

MS. MARKWITH: Could you look at number of rec licenses by state, or something like that, to get at that too, because I think that would be a driver, because just the sheer volume of licenses.

DR. REICHERT: Yes, the trends in recreational licenses, and that's a good point. Kai.

DR. LORENZEN: I don't know about the other states, but I think, for Florida, the 2 percent would be probably an underestimate.

DR. REICHERT: Chip.

DR. COLLIER: Another possibility might be looking at vessel registration, trying to figure out if that would be useful or not, but coastal county vessel registration.

DR. REICHERT: Trends in rec licenses and vessel registration. Yes, that would probably be a better measure than population increase in the area. Erik is online. Erik, go ahead.

DR. WILLIAMS: Just to comment on this particular item, and so I think there's potential for effort changes in two ways. One is increase in overall volume of effort, which would come through an open-access fishery with an increasing population, but there's also effective effort, which is an increase in technological advances that make catching fish easier, and that has certainly happened over the years. How much that continues to go into the future is certainly up for discussion, and that's been estimated to be between zero and 4 percent per annum, by some other studies, and so just to put that out there.

DR. REICHERT: Thanks, Erik. That's a good point. It's an increase in catchability, right?

DR. WILLIAMS: Yes.

DR. REICHERT: So it's not just an increase in effort, but an increase in catchability, or change in catchability. Thanks. Anything else? All right. Let's move to -- Sorry, Jeff. Go ahead.

DR. BUCKEL: Yes, and we didn't quite -- It says does the model address key uncertainties, and I think the lead would be, yes, because not only did they address uncertainties in the original that we saw, but then we asked for other sensitivities to be done and they've addressed those, and so, with the differences, the low and the high M, and the effort changes. Thank you.

DR. REICHERT: Thank you. I think it would be good to indicate that we -- Again, we made recommendations in the past, and they were addressed. I think it's good to mention that, and then we can add the additional uncertainties that may want to be explored here, and so thanks. Okay. Let's move on to management options. Were the management options appropriately included in the projection, the results, analysis? I think so, and, again, in the past, we've seen this, and we made recommendations.

Of course, there's always additional management options that can be explored, but I think, in terms of what we thought at the SSC, in the previous meetings, what we consider the most important, or critical, management options were explored. Jim.

MR. GARTLAND: I was just going to say there's 132 of them. I think they did a very thorough job.

DR. REICHERT: Exactly. Maybe given the -- What was it, 130?

MR. GARTLAND: I'd say given the full factorial design, right, of different ideas and then different levels of effort.

DR. REICHERT: Then should dynamic management options be considered for use, instead of static management? Anyone want to start answering that question. Jennifer. Yes?

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

DR. REICHERT: That's a good point. I think Jie brought that point up during the question period earlier. Jim.

MR. GARTLAND: I don't know if it would be for this project, but, maybe for down the line, for the future, to consider not only dynamic management options, but dynamic responses from the people participating in the fishery, right, the behavioral aspect of it. That's probably, I think, one of the hardest things to nail down, but it probably could have a big impact on how successful, or not, some of these management scenarios could be.

DR. REICHERT: Thanks. Seeing no more hands, let's move to the performance metrics. Are the performance metrics evaluated appropriately? Anyone want to comment on that? Dustin, go ahead.

MR. ADDIS: I just wanted to clarify what Jim was saying. Are you referring to compliance?

MR. GARTLAND: More along the lines of if -- In this scenario, for example, where effort is assumed to move offshore, does that really move all effort offshore, or is there a reduction in effort offshore, because X number of boats don't want to run offshore, or can't afford to run offshore, things like that.

DR. REICHERT: Does that answer your question, Dustin?

MR. ADDIS: Yes, but, now that compliance is on my mind, maybe that's something that can be looked at.

DR. REICHERT: You mean in terms of compliance to closed areas or compliance to any of the scenarios?

MR. ADDIS: Really, any of them.

DR. REICHERT: So that would be another point there, the level of compliance. I would like to, when we get to the final report, explain a little bit the changes in effort offshore. Like you mentioned, Jim, not everyone may want to go offshore, and so they just don't go fish, and so that -- Not 100 percent of the effort will move offshore, and vice versa. If you close offshore, would then more people fish inshore? People say, well, that's where I'm going, and I'm not interested in fishing nearshore, and I think that's probably a lower possibility than the other way around. Okay. Anything else?

Performance metrics, and we started that. Has anyone formulated a reply, or a recommendation, there? Do we feel that the performance metrics were evaluated appropriately? Anyone disagree with that? Seeing no one disagreeing, that we feel that they were appropriately evaluated. Why did we feel that? Well, I mean, this is one of those yes, and then -- Yes, but what, and what we are basing this on, and so maybe the sensitivity tests, or what were some of -- Why do we think that it was appropriately evaluated? Jim.

MR. GARTLAND: For the performance metrics, I think they hit the key pieces, which is would it allow the stock to get near where our targets and thresholds are, right, and so that satisfies it from the council side, and then what does that do for landings, basically landings, which satisfies the fishery side, right, and so I think it covered -- If one or the other was missing, I think we would need to recommend that other one be included.

DR. CURTIS: Can you rephrase that there, Jim, so I can capture that?

MR. GARTLAND: I'll do the best I can. The idea was the performance metrics evaluated basically stock status, relative to targets and thresholds, roughly, and it also quantified landings for three different fishery sectors, which is a rough estimate of the value to the fishery over time, right? If it's going up, that means that that management strategy could be more valuable to the fishery than if it were staying the same or going down.

DR. REICHERT: Again, we can -- Please help us.

MR. GARTLAND: You could say it like as a rough measure of value or something, or approximate measure of value.

DR. REICHERT: Thank you. Fred, and then Wally.

DR. SERCHUK: Thank you, Chair. I think we're being a little bit too harsh, quite frankly. The fact is the MSE started with a bunch of assumptions, based on the performance of these stocks, and then it shifted things, in terms of different shifting effort, and a number of different scenarios, and it didn't profess to be that this is all the scenarios.

My feeling is that a great job was done, and some of the things indicate that, wait a second, you know, if we're going to have to do rebuilding for this stock, here's the area where it would be most effective, and so on and so forth, and I'm thinking we're overlooking that, because I think a lot of simulations were done here, based on using recent data. Could it be done better, with more data, or looking at different assumptions? Of course, but the fact is I thought this was a very illuminating exercise, and, in some cases, given all of some of the -- Using the current conditions, some of the stocks don't get rebuilt.

Now that you could say, well, okay, incorrect assumptions were done, but I think they've used some very good assumptions here, or a variety of assumptions, to test whether there can be rebuilding, or where it would occur, or which stocks it would occur, and where fishing effort needs to be displaced, and I think, in that sense, we're missing the big picture. Thank you.

DR. REICHERT: I don't disagree with you, Fred. So, under what bullet do you think we were a little harsh, and where should we adjust some language, and can you provide that language? Fred, if you're talking, we can't hear you.

DR. SERCHUK: I mean, you just can look at some of the sensitivity analyses that are here. If recruitment doesn't improve, nothing's going to improve on these stocks, and that -- To move effort offshore, you may have some improvements, and there are several other things that were looked at here. I understand you can always do a better job, but fact is there are so many simulations that were done here, based on looking at current data, and seeing how management could change, to try to get rebuilding, and what the effects of different changes in effort reduction and landings and discards, and, you know, I think we're overlooking, at least from my point of view -- It's good to point out how the model has uncertainties, but the point is I think some of the directionality of these results are very important. Thank you.

DR. REICHERT: Steve.

DR. TURNER: Maybe we need to state that at the beginning.

DR. REICHERT: Yes, absolutely, and, again, I mean, we also rely on you guys to provide some of the language, and I agree, and I mentioned that before. We are very good at pointing out where the holes are, but sometimes we forget to comment on the work, or the positive work, that's been done. I thought we had a comment in that earlier, and, again, Fred, I realized that your comment is a general one, but, you know, and maybe not now, but maybe you can point out under what bullet that goes well, or provide some language to address that, but, if we go up, we can probably add a sentence, at the beginning, highlighting the amount of work and how valuable this work is, and we can add some language, and then you guys can review it tomorrow, when we provide you with the model, with the report.

DR. SERCHUK: I think, from my point of view, I think what was done wasn't all inclusive, but I think -- You know, I'm very -- It illuminated a lot of things for me, in terms of, you know, what the prospects are, given status quo, given effort reductions, given changes in where areas are being fished. I think those were all illuminating, and I'm saying, sure, they're not all the scenarios that could be done. Different scenarios could be provided, and different assumptions could be put in place, but I'm very satisfied that -- You know, for preliminary MSE results, I think this has been an excellent job. Thank you.

DR. REICHERT: Thank you, and I think most of us fully agree with that. Jennifer.

DR. SWEENEY-TOOKES: Just to add to that, for the record, looking back at my notes, at least the first four to five comments directly mentioned how great the work was and how pleased we were to see it, and so I do hope that's communicated. I think the SSC has done a nice job of saying that today, but we can always add more language.

DR. REICHERT: Thank you. Wally.

DR. BUBLEY: I just wanted to add to Jim's comment, when talking about landings and relation to the benchmarks, but then it also has discards in there as well, and that's a big -- Obviously, we've been talking about that a lot recently, and so I think it's good. I'm glad they included something like that in the performance metrics.

DR. REICHERT: Thanks, Wally. Next to the results, and is the model appropriate as a basis for developing management recommendations? I think so. I think it's also good to point out that, especially as Adrian pointed out, the relative nature of comparison of management strategies is really useful, in terms of where -- Of what could potentially be an effective management strategy, and I think Jim pointed that out, what will likely not work as well. Any additional comments relative to that? Seeing none, the next bullet point is discuss which strategies could meet the goals of reducing discards and rebuilding black sea bass, gag, and red snapper. All right. Steve.

DR. TURNER: Thanks. Under recent recruitment of sensitivity analysis, neither gag nor black sea bass can be rebuilt under any management scenario.

DR. REICHERT: Those are the strategies that do not meet the goals. The other -- Wasn't it in the presentation that effort reduction is most likely needed? Jeff.

DR. BUCKEL: Then, for red snapper, the offshore -- Moving effort to offshore for -- Gag was moving to the nearshore, I believe. So those were, I think the top two that stuck with me, and there may be others. That's for red snapper. Gag, not using the recent recruitment, and then, for black sea bass, they were all red, even with the recruitment that Adrian described, and not recent recruitment, but the approach that he used.

DR. REICHERT: Can you repeat that one? I think Judd is trying to catch up with his notes here. Adrian, please speak up, if you feel that what we characterize here is incorrect relative to the model results that you just presented.

DR. HORDYK: So the only thing is just, in that bullet point you're currently on, it was -- I only explored -- We only explored the reduction of effort for the recreational fleet, the general recreational, not for everything.

DR. REICHERT: Jim.

MR. GARTLAND: Just keep in mind too that these are -- Because these are relative numbers, if you look at the black sea bass, they are all red, but the lighter red ones include offshore, right? So it would probably be, for red snapper, moving effort offshore. For black sea bass, relatively moving effort offshore, and so it's not saying that it can't rebuild them. It's just saying that probably. So, of those, the best chances are the pink ones, right, and those are all offshore ones.

DR. REICHERT: Fred.

DR. SCHARF: Yeah. I don't really have a particular strategy, but I'm just wondering if there's -- If there's a place for just some language that, you know, we start to begin to think about some creative solutions to try to reduce catchability within the recreational sector. You know, I mean, you can't write this down, but I'm envisioning people fishing blindfolded, with straight barbless hooks, with no bait, right, but when you think about, historically, you know, what we've done in most of the commercial industry, most of the regulations are designed to create inefficiencies.

Yet in the recreational fishery, right, what's happened -- You know, as Erik pointed out, it's that there's been this exponential increase in catchability, because of electronics and other things, and so, you know, maybe there's some ways that we can, you know, think creatively about ways to try to get a handle on catchability.

DR. REICHERT: Okay. All right. Jennifer. I can, I can come back to you.

DR. SWEENEY-TOOKES: I'm just thinking with what Fred just said, and I'm thinking about deer season, right, and bow-and-arrow season is longer, right, than other seasons, because the catchability, whatever the correct word is, is so much lower, and so, yes, that's a great idea, Fred, to think really creatively about that.

DR. LORENZEN: I think this is the point where the social scientists can step up and provide us with solutions.

DR. REICHERT: Okay. Let's move on to future MSE. What studies could be explored? I think we mentioned two, in terms of effort shift from nearshore to offshore, to allow some fishing in nearshore. I think, Anne, you mentioned that.

MS. MARKWITH: Yes, and just allowing for some proportion, whether it's for gag, the portion -- Some proportion staying offshore, or, for sea bass and ARS, some proportion staying in the nearshore, because -- To add on to the point about, you know, some people just aren't going to run, gas prices, et cetera, there's also the interactions people have with these species without meaning to, because they're fishing for something else that might be a state species, and so there's going to be some form of removal, regardless, and we would just have to figure out how we would want to proportion that out.

DR. REICHERT: The other one was, and I think, Adrian, you mentioned that, to add species interactions. I'm not entirely sure how that would be included, but that's mostly my unfamiliarity with the inner workings of the MSE modeling, but you mentioned that. There was a third and I forgot which one that was. Jeff.

DR. BUCKEL: I have a note here. This may be the one you're remembering, but, as Adrian mentioned, the reduction in effort is recreational effort alone, and so, for gag, as the recreational effort, the landings, were capped, they stayed level, but the commercial went very high above the recreational catch, which the council would probably -- If they kept the 50-50 allocation, or something similar, would not allow that to happen, right, and it would say, okay, well, if this 35 percent reduction in effort results in this landings for recreational, then that would be the landings for commercial, potentially, and that would be a question for the council folks. If that's true, then that could be put into the strategy, but if you -- I only saw for gag, and I didn't look at the others, but it could be for other species as well.

DR. REICHERT: I think the other one I was thinking about was the recalculation of reference points. Did we discuss that earlier, Adrian?

DR. HORDYK: Yes, and that was for the scenario where you had the -- What you might call a regime shift in the recruitment. Yes, that's been raised before, the recalculation of reference points and it's a question which I'm not sure the answer. We can certainly explore it, but it's something that I'm not sure who makes that decision of whether the reference points are going to be recalculated or not. It's easy to do in the MSE, but is that what's going to really happen in reality? I don't know, but we can explore that.

DR. REICHERT: Thanks. That's, to my memory, what we discussed. What's the next piece of information to integrate into future MSE, to the future MSE? Any one of those above? All of them? There's some additional information. I think -- Again, you know, I'm not sure if that's part of information, or part of modelling, is that species interaction, some of the stuff that we mentioned above, and I'm -- Again, that's -- I'm not sure how, but, of course, if we can integrate Ecopath and Ecosim, and social and economic information, additional species, et cetera, then that -- I think that would be extremely helpful. My question is to what degree is that possible, or feasible? Chip will come to the table and tell us all about what's feasible and possible.

DR. COLLIER: Well, I think a lot of things are feasible and possible, if there's sufficient money. So let's say you get one, and which one do you all think would be most important to try to incorporate into it?

DR. REICHERT: My answer to that is additional species and species interactions, but people may -- Okay. One-and-a-half.

DR. HORDYK: Chair, may I make a comment?

DR. REICHERT: Sorry. Adrian?

DR. HORDYK: Just a comment. I'm not sure whether this needs to go in as a point here or not, but something that I think could be really valuable for this, an MSE framework like this, is information on exactly predicting how the -- It's very difficult, but for how the fleets will behave, particularly the recreational fleet.

For example, we -- We haven't looked at it right now, but we can model ACLs with the allocation, and so what if the catch limit was set, the catch, the TAC, or the ACL, was set to some number with a, you know, a dynamic MP, that uses data and so forth, and the commercial is quite easy, in the sense that you can just assume that they're going to try to catch the TAC, because that's what they can sell, but the question is how do you model how does the recreational fleet behave under those sorts of scenarios, and, you know, if they're allowed to go fishing more, if the season is opened up, for example, how would the fleet respond, and that's a part that we don't have in the MSE, and it's essentially a separate model that can be incorporated into it, but it can be really important.

This is one of the reasons why, right now, I've just frozen the fishing effort at a constant level, because we need to assume something, and obviously it's not going to freeze, but how will it respond to these management actions is a really big question. I don't know how exactly that can be answered, and it's a bigger project than just, you know, a quick-and-dirty thing, but it could be really valuable for trying to actually answer these questions about which management action was most valuable. Thank you.

DR. REICHERT: Thanks Adrian. That’s very useful, and, Judd, maybe you can move that to the next bullet point. Chip, one and one, and I think we can add more, so I would still -- I would still recommend additional species and species interaction. Anyone else? Steve.

MR. GARTLAND: I think Jim mentioned compliance.

DR. REICHERT: Kai.

DR. LORENZEN: You know, some sort of measure of angler satisfaction and social and economic information, and that ties in with the responses to management actions.

DR. REICHERT: Chris.

DR. DUMAS: I just have a small extension to the first bullet and that would be -- You know, which says recreational fleet responses to management actions, especially inshore and offshore closures, as the MSE indicated that that could be important.

DR. REICHERT: Thank you. All right. Steve.

DR. TURNER: I think compliance and that first bullet are very similar.

DR. REICHERT: Yes, they are related. I think the first bullet point is probably more -- A little more comprehensive than compliance alone, but I agree. Okay. Jeff.

DR. BUCKEL: Just to add to Chris's add-on, especially inshore and offshore shifts and season length changes, and so that was something that Adrian just mentioned about how would the behavior as you change this season.

DR. REICHERT: Thank you. Okay. This was the last bullet point. Anyone have any last comments, or questions? With that, Adrian, again, thanks so much for the work, not just by you, but you and your team. I really appreciate the presentation and the overview, and thank you so much.

DR. HORDYK: Thank you. Thank you all for your feedback, too.

DR. REICHERT: Chip.

DR. COLLIER: Well, not only thanking Adrian, but also thanking the SSC. You know, this is part of how the South Atlantic SSC handles complicated analyses. We provide it to you multiple times, and I know it seems redundant, but it gives you a chance to really think about the model, the information that's going into it, and then hopefully we get a good product at the end, like we did with this one, where I felt everybody was comfortable with the results. There weren't any red flags that came up at the last minute, and so thank you all for your patience over the years, as this thing developed, and I thank Adrian for coming so many times and talking with the SSC. I think it worked out with a good product for everyone at the end, and so thank you.

DR. REICHERT: Thanks, Chip. Okay. I am going to first warn you that we may have to go a little past five o'clock today, and so I'm going to suggest a ten-minute, which may become fifteen-minute break. I'm going to talk with Judd and Wally, and maybe some others, about black sea bass, and the other agenda items, and see how we can fit and resolve this, in terms of the agenda. I'm not -- Thinking about the black sea bass. Let's come back at 4:15, and then we'll let you know what we are going to be doing the rest of the afternoon and tomorrow. Thank you.

(Whereupon, a recess was taken.)

DR. REICHERT: Okay, let's get started again. I talked with Judd, and with Wally, and we decided, especially since John is unavailable tomorrow, we'll do the SEFHIER. Then we will move to mutton snapper, and the other species, and then yellowtail. Then we'll end with kind of where we are with black sea bass. I don't expect extensive discussion today, but at least we'd like to provide you guys with something you can chew over overnight, and then we come back to that tomorrow. So, John, take it away.

SOUTH ATLANTIC FOR-HIRE REPORTING MODIFICATIONS

MR. HADLEY: All right. Thank you. I have a brief sort of background presentation, to kind of tee-up the discussion and go over with the Social and Economic Panel reviewed at their meeting earlier this month. After that, I'll hand it over to Jennifer, for the summary details of some of the recommendations from the SEP, and then there are a couple of discussion questions for the SSC that are included in your overview.

Anyway, so, again, just some brief background information.

What we're discussing is the Southeast For-Hire Integrated Electronic Reporting Program, or SEFHIER, and so this is a program that was launched in January 2021, and it covers the three major finfish fishery management plans of the South Atlantic Council, and so Snapper Grouper, Coastal Migratory Pelagics, and Dolphin Wahoo, and it essentially implemented electronic reporting requirements for all for-hire vessels, where each vessel is required to report each for-hire fishing trip.

Trips must be submitted weekly. There is a did-not-fish provision, where, if the vessel was not active that week, that would need to be reported as well, and did-not-fish reports can be submitted up to thirty days in advance.

Sort of the problem statement, and the issue that hopefully will be addressed, is that there's overall low compliance with the program since it's been implemented. Based on a presentation from the Southeast Regional Office, overall, 83 percent of permanent vessels reported at least one time in 2023, which looks pretty good on face value, but when you really drill down into the details of it, many vessels are not meeting all of the reporting requirements, and so they're missing -- For example, they're missing the timing of the reporting. They may not be reporting weekly. They may not be submitting did-not-fish reports, or they may not be submitting all fishing trips.

When you look at the overall reporting compliance with each one of the provisions that I've detailed earlier, approximately 37.4 percent of vessels were assessed to be meeting all reporting requirements of the SEFHIER program throughout the year, in 2023, and so the National Marine Fishery Service has provided guidance on this, and feedback to the council. At the June 2024 meeting, it was noted that the for-hire logbook data cannot be used at all for management, due to low compliance and lack of validation.

The agency provided a list of recommendations, including requiring logbook submission prior to offload of catch, implementing a dockside survey to estimate misreporting and nonreporting, requiring a hail-in and hail-out provision, so a declaration/pre-landing combination submission prior to the trip, require landing only at approved locations, and changes to the weekly did-not-fish reports if fishing does not occur.

In response to this, the council reviewed this feedback from the agency and passed the motion to start a SEFHIER -- An amendment to improve the SEFHIER program, with a focus on incorporating actions that can be taken in the near-term, without an amendment, and so, essentially, actions that don't need a regulatory change, including additional outreach.

The amendment considers actions and alternatives being considered by the Gulf Council, who is also working on their own for-hire reporting amendment, and hopefully there will be some consistency between those two sets of requirements, and, also, considering actions that modify reporting frequency, hail-in and hail-out, landing locations, and no-fishing reports and validation surveys, and so that's sort of that list that the agency mentioned in their letter to the council.

Fast forward a little bit in time, to the recent September council meeting, and it was noted that NMFS cannot validate the logbook until compliance improves, and so, essentially, you have this logbook data being collected, but it cannot be used until the compliance goes up.

The council requested feedback on several items that would be necessary for validation to occur, and then they also outlined the potential actions that they want to implement in this amendment, and so, overall, the tentative timeline kind of take-home point here is that this is very early in the process. As far as this amendment moving forward, it's likely going to be on the council's workplan over the next couple of years to develop, but we wanted to come to the SEP, and the SSC, to get some initial guidance for the council to consider.

Very quickly, some of the measures being considered in the amendment right now, and these are likely to change after the December meeting, because the council is -- The South Atlantic Council is trying to maintain some consistency with the Gulf Council, again kind of moving -- Those two amendments moving parallel to one another, but, generally speaking, the council is considering a change to the reporting frequency, to require daily instead of weekly reporting, including a trip notification, and so implementing a hail-in and hail-out provision, requiring landing at approved locations, and so, essentially, the vessel would have to land at a pre-approved dock, or boat ramp, or any location to offload customers.

Additionally, require participation in a validation survey. Currently, any participation would be voluntary, and so, essentially, this would make it mandatory as a condition of the permit, a-d there may be changes to the did-not-fish reports.

Last, but not least, the council is also considering changes to the economic component of the logbook, potentially moving from a census, and so it's the economic information is required for each logbook submission, to a sampling approach where some, but not all, vessels would be required to provide economic information, such as charter fee, fuel usage, and fuel cost, and that's really been -- Of all the portions of the logbook that have been -- Or all areas of the logbook, the economic questions have been the portion that have received -- That's received really the most notable pushback from stakeholders, and so, you know, changing that to a sampling approach may decrease the reporting burden.

Additionally, again, trying to keep the South Atlantic requirements in line with the Gulf requirements. The Gulf is considering a sampling approach, rather than a census approach, and so the council wants to keep those two regional potential requirements in line with one another.

We'll get into some of the answers from the SEP, but what was asked of the SEP, at their meeting earlier this month, was information on incentivizing -- Recommendations on incentivizing reporting, changes to the economic component of the logbook, what are some of the tradeoffs of moving from a census to a sampling approach, looking at what would -- Looking at different areas,

such as reporting burden, incentivizing logbook compliance, administrative burden, and application of the results.

The use of logbook information in relation to compliance, and so what would be a target compliance rate, and could you use the use the data for different purposes, depending on a different compliance rate. The importance of consistency across regions. Again, I mentioned that the Gulf Council is considering their own for-hire reporting amendment. Additionally, Highly Migratory Species is developing. An electronic for-hire reporting requirement, and there are several vessels that have South Atlantic permits that either have the HMS permit or may be operating outside of the South Atlantic region.

Based on the previous information, approximately 26 percent of all South Atlantic for-hire vessels are operating in another region, either in the Gulf of Mexico or are homeported in another region, I should say, either the Gulf of Mexico or the Mid-Atlantic or New England regions, and so that consistency aspect is something that the council is probably going to want to keep in mind as they develop or change their own for-hire reporting requirements.

Then last, but not least, there is sort of a catchall. Are there any other items that the SEP would recommend the council consider at this point, and is there any additional information that the SEP would like to see moving forward, and, again, this is likely to be reviewed several times. This is one of multiple times that the SEP will likely be asked for feedback, and so, with that, I'm happy to answer any questions on the background information that was presented. Again, I'm going to turn it over to Jennifer here, in a minute, to go over the summary responses from the SEP. Then, at the very end, we'll go over the two discussion questions for the SSC.

DR. REICHERT: Before we do that, let me look at -- Fred, Jennifer, and Jared were the people assigned to this agenda item, and Jennifer provided the SEP report, so that should be available to you to look at, but Jennifer, you had a couple of slides. Sorry, Fred. Go ahead.

DR. SCHARF: John, you said that you guys had asked NMFS for some guidance on how high compliance needed to be. Have they responded to that yet, or no?

MR. HADLEY: No, not yet and so that was a response -- Or that was requested for the upcoming December meeting, and so, presumably, the agency would be presenting on that the first week of December, during the South Atlantic Council's meeting.

DR. REICHERT: Thank you. Jennifer, go ahead.

DR. SWEENEY-TOOKES: This topic engaged us for a good amount of time in our webinar this month, but we were presented with those questions that you just saw. So, if you'll go to the next slide for me, I'm just going to try to quickly summarize, with my eye on the clock, the things that came out of those questions, and those discussions, and so we were presented, first, with that question that John showed you about the several sticks, or requirements, and not many carrots, or incentives, and asked us for how to better incentivize for-hire reporting compliance.

Really, the first reaction SEP had was, well, what outreach has been done for the for-hire industry, to explain the program, and to explain why this was important, and alleviate any concerns they had, and there really hadn't been much, that we had been told. We shared, amongst the crew, that

the industry really has concerns about the intent of that data gathering, what will result from those data collection efforts, and we really suggested more engagement with the industry, to identify people who are reporting, and to understand their motivations and then increase transparency to charter captains on why this data is being collected and how it will be used.

Rather than simply labeling this as noncompliance, instead really invest some effort in identifying the specific barriers to compliance, and why are people not doing this, and then identifying some relevant strategies to increase compliance, and so ask people why not and see what can be done then to lessen their concerns. We repeatedly urged transparency in the process, and in the outreach efforts, to lessen their concerns about data usage. This came up quite a lot.

There is a lot of concern about where the economic data goes, particularly that the IRS could have access to this sort of information, and members of the SEP repeatedly reassured everyone that the IRS does not have access to Fisheries Science Center data, and vice versa, but there are definitely some for-hire economic concerns about government overreach, about the potential for sharing of that information, and the type of information that is being asked for in those surveys. There really needed to be more confidentiality and explanation of what the information was used for, to try to estimate net revenue on trips, to complete economic effects analysis, and these things that could be used in relief contexts.

We also mentioned that outreach efforts might really do well to include the information that the industry needs, sort of a baseline economic measure to go from, in the face of disasters, and, for example, in the context of the BP oil spill, it was really helpful, for fisheries who had reported their past business expenses, to be able to identify and improve losses. Management can only take for-hire losses into account if revenue is being captured somewhere, and so this could potentially then be of use to the for-hire industry for any future disaster declarations.

Other members suggested that maybe a potential solution to these issues around government mistrust could be remedied by working with a trusted neutral third party, someone that's trusted by fishers, and we also really questioned why compliance was markedly higher in the Gulf, and we were told that there were several reasons, and I think you mentioned these earlier, John, but just to reiterate, the cost of not reporting is losing the permit. Stakeholders had been brought into the program, and worked with as ambassadors to the industry, and they had to report prior to offloading their catch, and there were really strict validation surveys, and so those were some of our responses to incentivizing reporting.

We also talked then about sampling method, and we discussed some of the known sampling methods that had been employed in studies on commercial and recreational fisheries. One suggested method is to first determine the smallest subgroup of the target population, and then, once you determine that smallest possible group that needs subsampling, that can then lead us to how large that overall representative sample needs to be.

There's ample literature on sampling methodologies on this sort of thing, tools for determining representative sample. I will say many of the SEP economists especially said researchers are often surprised by the true sample size needed to achieve a 95 percent, or 90 percent, confidence interval, and that determining the sample size is not often the challenge. It's usually generating enough valid responses to be statistically defensible.

We did point out too -- The SEP mentioned that NMFS has never dictated a particular minimum sample size, or sampling methodology, and this is really left up to researchers' judgment, and so there's not really a great easy answer here.

We did note that subsampling does not occur within the for-hire sector, with respect to their permits and the fisheries they operate in, and so that, again, shows us it's not a cohesive whole. Another point that was made was that NMFS utilizes sampling of both active and inactive in the coastal logbook program, to better determine how vessel owners are utilizing their available capital, and so this is something to keep in mind then, as we go forward. Council staff did explain to us that their goal is to produce robust sample sizes, of course, while also trying to minimize the regulatory burden level.

The range of trips to be sampled, there really isn't a set percentage of trips. There's no magic number, right? Rather, we recommended that accepted sampling methodologies be used to determine the percentage needed to yield the desired confidence intervals, and using standard survey sample approaches, for example, considering the smallest possible subgroup, for example, the states, shooting for a 5 percent margin of error for each of those, and scaling up, but again, it might be really surprising at how large this sample could be, and, also, we really recommended trying to generate accuracy similar to the logbook program.

The NMFS approach of gathering economic information from the commercial sector could really be a lesson in how to do this well for for-hire, and the examples given by the SEP were completion of one survey per year, and then being exempt the following year, a target of 20 percent coverage of the fleet, questions about a typical trip, instead of specific trips, to try to capture variable costs, and an annual survey to capture their fixed costs, and we did definitely recommend that active and inactive vessels be sampled separately, similar to the logbook program.

Strengths and weaknesses of the sampling -- I'm sorry. The census versus sampling methodology was, of course, that randomization will reduce overall reporting burden, but this can also incentivize nonreporting, because of this infrequent contact, and so sampling itself might actually create greater administrative burden, due to the follow-ups and the reminders that are necessary, and often needed, with sample surveys, and the coastal logbook program sampling might give us some insight on whether sampling affects the census reporting aspect of the program.

The SEP concluded that census is more appropriate ,if not necessary, for landings. Census data on landings would provide more useful information for management purposes, and that sampling practices would be more appropriate for economic data collection, and so, while census data will give far better data, there's a need for additional compliance consequences, in order to facilitate those responses.

Almost there, and target compliance rates, and, again, there's no magic number, right? Any compliance rate can be valid, if it's determined that that sample is representative, and this can be determined by doing nonresponse checks, to determine if those responses that were received are markedly different than those checks, but there definitely needs to be a validation methodology in place to determine what rates could be sufficient, and that response rates, as John mentioned at the beginning, are far less important than the accuracy of the data being reported, and whether or not truthful information is being submitted, versus simply just submitting anything in a report, just to be able to renew a license.

There was a question, and a mention, of observers on vessels, and all of the problems, right, that go along with that suggestion. The SEP noted that logbooks and dealer reports, which are both at the census level, are used for regulatory analysis, and people tend to trust the commercial landings data far more than the data that is sampled from recreational fleets.

Another individual did bring up that, if the council does not make landings mandatory for all, then we should expect more pushback on this in the future, and then the final question was about consistency across the for-hire reporting requirements, and so we really suggested starting with what was similar about the Gulf and the South Atlantic and then looking to the Mid-Atlantic.

Of course, there's also that divide between the Mid and the South Atlantic, with Woods Hole responsible for one, and Miami responsible for another, right, and so we're really sort of in the middle here, and it was noted that the agency is working on better integration across that divide, especially with regime shifts, and blueline tilefish being an example, where the differences in data collection made management cooperation really difficult.

That being said, reporting requirements between the Northeast and the Gulf don't necessarily need to have compatible methodologies, but the South Atlantic and the Gulf probably need to be the most consistent, and so we sort of said, well, let's be as consistent as we can, and let's drive towards consistency. Let's start with the Gulf, and, of course, having reporting requirements that are in sync would be in the best interest of all the councils in the future, and really support the development of a system that would allow for more effective data compilation, and so I think that's all I have, and I would like to stop there.

DR. REICHERT: Thanks. Thank you, Jennifer. Yes, a thorough discussion at the SEP, and looks like you gave it a lot of thought, and came up with really good recommendations there. Let's do some clarifying questions. Then we go to public hearing and discuss our action items. I saw a hand with Steve and Kai and Alexei. Kai.

DR. LORENZEN: I wanted to give a little bit of context to this Gulf question, because I remember, from the Gulf, that actually a lot of the charter-for-hire people were very much in favor of the electronic reporting, and, in fact, asked for that for a long time, and the council was slow to give it to them.

I think there are real incentives there, because there was sector separation, and so they were separating the charter-for-hire from the general recreational sector, and, at the same time, the general recreational sector, at some stage, had a really big buffer imposed, because of the uncertainty in the reporting, and so electronic reporting, for the charter-for-hire sector, was seen as a way of providing better data, getting, you know, your own share of the recreational allocation, and potentially moving towards an IFQ system for the charter-for-hire sector, and so I think there was a lot of, you know, incentive to try and comply, and report, and eventually reap some benefits from that. I think maybe that's a link that is sort of missing here.

DR. REICHERT: Thank you, Kai. Steve.

DR. TURNER: You mentioned a strict validation survey. I was thinking about the word “strict”, maybe “robust”, or “very active”, but I don't think they do compliance in the validation surveys,

but I guess that would be a question for you. Do you know if they do compliance in the validation surveys?

DR. SWEENEY-TOOKES: That would be an excellent question for one of our SEP members, who is not here, but he was very enthusiastic about the validation surveys. I would be happy to pass that along, unless Jason has better memory. Jason, my vice chair, is here as well. Do you have any memory of -- No, I won't put him on the spot, and, yes, we definitely had a member that was very enthusiastic about validation surveys.

DR. REICHERT: John, to that point?

MR. HADLEY: I can maybe add a little context to it. I don't really have a great answer for you, but in the Gulf, they were able to implement the validation survey, one of the reasons being they did have vessel monitoring systems, and so VMS, and so they could tell if the vessel was away from the dock or not, and so that makes the validation part a little bit easier.

That part actually was one of the deciding factors, I would say, in why it -- Why the whole reporting system was rejected by a federal court, but that was one of the things that the Gulf had, in addition to the context that Kai added as well, and there was sort of an industry we-want-this perspective from the Gulf, but they did also have a VMS provision, and so they were able to validate that data, and that was one of the major differences between the South Atlantic requirements and the Gulf requirements, but, as far as validating it in the future, a lot of these action items that the South Atlantic Council is considering is aimed at, or geared towards, the ability to implement a validation survey, and so the hail-in and hail-out provision, offloading, timing of reporting of the trip, and catch, and that sort of information is building towards the ability to validate the logbook information.

DR. REICHERT: Thank you, John. Alexei. Sorry. To that point, Jennifer?

DR. SWEENEY-TOOKES: To that point, and, actually, Jessica is on the webinar as well, and so she might be able to answer this question far better than I could.

DR. REICHERT: Okay. Jessica.

MR. HADLEY: So, Jessica, you're self-muted, if you wanted to add anything to that at this point.

DR. STEPHEN: How about now? Can you hear me?

DR. REICHERT: Yes, loud and clear.

DR. STEPHEN: Woo-hoo. I finally figured out the technology. All right, so a little bit about the validation survey in the Gulf. What we did is we used a mark-and-recapture style survey methodology, and we did the sampling weight, using our landing location data and kind of emphasis on where people were, and so we used those landing locations. They more heavily used to weight the sample size, and what we did is we had state members, who were involved in the survey, go out to the sampling sites, and they would ask certain questions, and that would be able to help us validate the landings, and somewhat the catch.

The landings were a little bit easier to validate, because you could see the fish there, and we did interviews directly with the captains, and we looked at everything that was done overall. What we would then do, and we never quite got to it in the Gulf at the end, was using the comparison of the mark-and-recapture to look and make estimations of how much misreporting, or underreporting, was occurring, and we would use those to get to your final landings estimates for the different species, as we were moving through.

I want to point out that the survey validation was not related to the VMS. VMS was a separate type of validation, to determine if people were going out and when to expect the logbooks, whereas the survey validation was going in there to groundtruth and do the estimations for underreported and misreported catch. I'm happy to answer any other questions about the survey.

DR. REICHERT: Thank you so much. Steve, and I still have you on the list, Alexei. Steve, to that point?

DR. TURNER: To my original question, and so I don't think there was compliance associated with the validation survey, or was there?

DR. STEPHEN: So there was, to some extent. We did have a requirement that, if they were intercepted, they had to answer the questions, and so there was a requirement in the regulations. It wasn't a voluntary survey, and so, when we were looking at that -- When you think about compliance, compliance is a really broad general term, to mean a lot of things, and so if -- The point was that we would intercept them after the logbook was submitted, since they had to turn in their logbook prior to offload, and, by that mechanism, then we could compare if they were telling us truthfully, and so more of the accuracy compliance of the reporting, in comparison to what we did when we intercepted them. There was a lot of other types of compliance that we also looked at, whether you are doing your declarations, landing at your approved location, submitting your logbooks, and then the timeliness of doing all of that.

DR. REICHERT: Thank you. Alexei.

DR. SHAROV: So, in June 2024, NMFS informed that the for-hire logbook data cannot be used at all for management, and so I wonder -- For the reasons of low compliance and lack of validation, and so I wonder -- Were those logbook data used prior to 2024, and 2023, and before that? Then, considering that the best case scenario, looking at the schedule that we saw, probably improvements are made, and are approved by the public and the council, they will go into effect somewhere in 2027.

Will the program, the current program, continue, meanwhile, through this time, and why is 37.2 percent of compliance a bad number? I mean, if we'll look at the MRIP data, for example, we're intercepting a much smaller percentage of the private rental boats, and yet we rely on this information, and, in many cases, the PCs are very decent, if not really good, and so anything on that, as a clarification, I would appreciate it.

DR. REICHERT: John.

MR. HADLEY: Absolutely, and so I'll tackle the questions in order. The first point, the first question, the logbook data hasn't been used in analysis for management, or used in management,

and so, you know, it's a fairly new dataset. 2021 is incomplete, and then 2022 and 2023 will be the first full year datasets that you have, but it hasn't been used in management previously. The second question -- I'm sorry, and if you could remind me, very quickly.

DR. SHAROV: Will the program continue?

MR. HADLEY: Yes. Thank you. So, as far as I know, the plan is to continue the requirement, and to continue collecting information from the for-hire logbook, and for-hire captains, and so it will continue indefinitely. There's no sunset provision, or anything like that, in there. Then the last question -- That's something that I would pose back to the SSC for discussion, and that was one of the -- That was some of the information that we were hoping to get from the -- That we did get from the SEP as well, and, you know, that 37-ish percent compliance rate, and whether or not that would be acceptable, or is there any sort of use of that information.

DR. REICHERT: Jim.

MR. GARTLAND: I could be wrong, but wouldn't part of the problem be that like, for the MRIP, the percentage is lower, but it's collected with the design, random stratified or however, whereas, in this case, the people who report -- There could be some biases. Maybe they all have blue boats, and I don't know, and pick something, and so -- The reason I mentioned this is, you know, in the Northeast, on the commercial side, there's a study fleet program, which has this very small number of boats, but the data have proven really useful, because I think of the way in which the boats were selected, and so I think I agree with you. I think you can have pretty low sampling rate, and really high-quality data. It's just a matter of how the participants are selected, whether selected going forward that way or selected with each round of sampling. That's my --

DR. REICHERT: Thanks, Jim. No more questions? Fred.

DR. SCHARF: John, is there -- Do you guys have a sense for what the compliance rate has been in the Gulf?

MR. HADLEY: I am not sure what the compliance rate was. Currently, it's not in place, because it was set aside by the federal court, but, before that was done, I'm not sure what the rate was, but Jessica does have her hand up, and she hopefully can help with that.

DR. REICHERT: Jessica.

DR. STEPHEN: Yes, I can help with that. I don't have the exact numbers in my hands right now, but we had compliance rates somewhere between around 70 to 80 percent compliance, and, again, "compliance" is kind of a generic term that would be whether they were submitting a report or not, and, when we talk about it, we need to be a little bit more clear about submitting anything, submitting on time, et cetera, but we had a significantly higher rate of compliance within the Gulf, and we used the survey to -- It would then allow us to estimate the noncompliance to it.

DR. REICHERT: Thank you. No more questions? Let's move to public -- Jennifer.

DR. SWEENEY-TOOKES: Actually, I have a question, to confirm. John, am I correct, or are we correct, in understanding that all of those wonderful things Jessica described weren't part of the

rollout, and the implementation, in the South Atlantic, or did I misunderstand that? I mean, she mentioned a lot of different outreach efforts.

MR. HADLEY: So there was a large outreach effort in the South Atlantic, as part of -- In helping with kind of here's the new program, here's how to use it, some of the kind of troubleshooting help, so to speak, and helping people get used to the reporting requirement. There wasn't the validation side, that Jessica mentioned, in the South Atlantic, and so it was a little bit different.

DR. REICHERT: Thanks, John. Public comment. Are any -- Jessica, go ahead.

DR. STEPHEN: I'm sorry, that was me. I forgot to put my hand down. Sorry.

DR. REICHERT: Okay. Anyone else in the public with hands up? No? Anyone from the audience in the room? Seeing none, there's no public comment, and so let's look at our action points. Judd, maybe you can pull them up, if you don't mind.

Review proposed modifications for the SEFHIER program and discuss what data, and other information, would be useful for the SSC to review and provide management advice, and so is there information in the program that can still be used, such as evaluating management alternatives, providing improving understanding of the fishery, filling in assessments, assessment unknowns? Yes, and that was a question I have, and so, what we what we currently have, I assume that that's what this is intended for. Correct, Judd?

DR. CURTIS: Yes, that's correct, and so, if the program is not going to be providing management advice, or used in stock assessments, as indicated, are there other aspects of the program that could still be used for these things, management alternatives, any understanding of the fishery, et cetera?

DR. LORENZEN: I mean, it's difficult to say, unless we review what's in the survey. This is a very difficult question.

DR. REICHERT: Yes, I also had a hard time coming up with an answer to that question. Jennifer, I hate to put you on the spot, but did the SEP have --

DR. SWEENEY-TOOKES: That's what we're trying to determine at this moment. I actually don't recall that we looked at it during the SEP either. That wasn't presented at that time, and we did not get more information, but I like to echo Kai's comment that, without seeing what's in there, it's really hard to answer that question.

DR. REICHERT: Jim, did you have your hand up?

MR. GARTLAND: I did. The only thing I was thinking we could do, without seeing what questions are there and what information is there, could we use the responses to figure out why the people who complied were in compliance, and use that information to help improve compliance with other folks? You know, what were the -- What was someone's incentive to respond, and then is that different from those who didn't, or was it the same, but we just didn't communicate well enough? You know what I'm saying?

DR. REICHERT: Jennifer.

DR. SWEENEY-TOOKES: That's exactly right. That's what we said in the SEP, is why is it that some people responded and others did not? What was it that made those people respond, but Christina just noticed that, actually in Attachment 8a, we do have a short list of the types of things that are in this report, and so I don't know if you have that handy. It's things like trip start and end date and time, trip start and end location, vessel and captain ID, number of fishermen and crew, method, with general categories like troll, bottom, spear, drift, hours fished, primary depth fished, and general location, target species, number of each species kept and released, and the economic component had charter fee, fuel used, and fuel price per gallon. Again, it's Attachment 8a, if you need to look at it, page 1 and 2.

DR. REICHERT: Wally.

DR. BUBLEY: I guess some of this too is where was the noncompliance occurring, because that might affect some of this as well. Is it they were reporting it a day later, or a week late? That's probably not as big an issue as if they weren't reporting anything, and that might be part of the concern, and so I think that's a question, that we would need to get some ideas of what's actually happening.

DR. REICHERT: Thanks, Wally, and, thinking about that, there may be regional differences. If the noncompliance was kind of randomly distributed over the entire coast, then that may be less of an issue than if there were hotspots for noncompliance in particular areas, but, in terms of evaluating management alternatives, improving understanding of the fishery, and filling in assessment unknowns, in terms of the current information, I think some of the social and economic information may still be useful to evaluate a fishery. Am I right with that, Jennifer? The current program, and, I mean, there's still useful information in there.

DR. LORENZEN: I mean, I would presume yes.

DR. SWEENEY-TOOKES: Yes, and anything is better than nothing.

DR. REICHERT: Everything is relative. Anything is better than nothing.

DR. SWEENEY-TOOKES: But, without context though, that does also make it really hard to come to any conclusions from that.

DR. REICHERT: Wally.

DR. BUBLEY: Just to clarify, I used the word "where" and not -- Specifically, I meant location-wise, but there were three modes of that compliance that were reported here, and so it's timing of the reports, submitting the did-not-fish reports and reporting for all the for-hire fishing trips, and so that's the component that I was trying to get as well, is which one of those, if any -- Was it spread across all three of them, or was it any in particular that was causing the noncompliance, and that could affect utility of some of the data as well.

DR. REICHERT: Jennifer.

DR. SWEENEY-TOOKES: But, also, keeping the geographic location. I think that was an excellent point as well, even if that's not what you meant.

DR. REICHERT: I'll wait for you to finish. Again, I mean, please help us completing the report. Okay. What information would be useful for the SSC to review if the data are used for management? One of the things is, you know, the compliance. Steve.

DR. TURNER: One of the differences between the SEFHIER in the South Atlantic and the Gulf is that the Gulf requires reporting prior to landing onshore, and that supports the validation process, whereas the South Atlantic requires weekly reporting, and so that, if someone were interviewed, validated at the dock, they might report, or report something different, if they're reporting after the fact, and so the requirement for reporting before the validation is critical. That may be difficult for some reporters to swallow, but that's one of those pieces that makes the Gulf approach fairly strong.

DR. REICHERT: Christina.

MS. PACKAGE-WARD: Could we change the wording about the social and economic information to say that it could improve the understanding of the fishery? I mean, like, I think we need to see what it is, and maybe it could be used more in a qualitative manner, rather than a quantitative manner. We need context, and then I was also just going to note that I think the Gulf and the South Atlantic are different, in that the South Atlantic is open access for permits, and the Gulf is limited, and so that's a big difference, too.

DR. CURTIS: Sorry, and could you say that again, Christina?

MS. PACKAGE-WARD: That the Gulf -- In the Gulf, the permits are limited, whereas, in the South Atlantic, they're open access, and so I think that can affect people complying, if you're going to lose your permit, instead of if you can just get another one.

DR. REICHERT: Thank you. Steve.

DR. TURNER: That second bullet, timing of reporting rates may affect level of compliance and affect -- My words aren't right. Affect the efficacy of the validation program, or impact the efficacy of the validation program.

DR. REICHERT: Kai.

DR. LORENZEN: Just to point out, again, I mean, I think it depends on what question you want to ask, right? I mean, it's not the data, as such. It's the questions. What questions do you want to ask of that data, and so I'm finding it difficult to -- We have to have general statement on this. I was wondering, actually -- I mean, when you did reach out to the people here in the South Atlantic, I mean, was there something that they were told would be an incentive for them, or was it just here's a new federal survey, and you've got to do it, or was there something that was provided to them as an incentive, other than they had to do it?

DR. REICHERT: I think that relates to the carrot or the stick that you mentioned earlier, Jennifer, but -- John.

MR. HADLEY: I wasn't directly involved in the outreach, and so I don't have a great answer for you. I do know that there was a lot of pushback on the economic questions, and asking why do you need this information, and what do you use it for, and the response was that it could be used for situations as explained earlier, such as relief from natural disasters, and then also better economic information on how fishery management changes may impact the for-hire fishery, and so that was some of the feedback there, but as far -- That's not a great answer to your question, because I wasn't involved specifically in the outreach efforts, but there was a little bit of that back-and-forth.

DR. REICHERT: Thank you. Jessica.

DR. STEPHEN: I can speak to this a little bit as well. We did work with S&T, and the MRIP group, to put out some documents that kind of explained what the program was. It wasn't per se a carrot exactly, as in you get something from this, but explaining why it was important to report what the potential benefits down the road, and, particularly in the South Atlanta program, it's more of a down-the-road, could be for it.

In the Gulf, we were able to be a little bit more exact, because we built a more robust program there, where we felt that the data could be used at a sooner pace, due to the validation survey and the other components we were using there.

With respect to the economic questions, I do want to note that recently we have actually started to get some requests for the economic, or for the logbooks, including the economic questions from fishermen who were impacted by Helene, which, as you know, kind of stretched over a little bit there to the South Atlantic side, and so I think some people are starting to see what the benefits are of having that data, particularly now that the for-hire sector is specific within the disaster declarations that come from the government, whereas, before, they weren't specifically listed, and so it made it a little more difficult to get disaster funds. That would be one of the points we would push as a carrot for the economic questions, and your ability to get to that data, and show exactly what you lost by not being able to fish.

DR. REICHERT: Fred.

DR. SCHARF: So, just as a general point, I think we need to denote that we clearly need a validation study to evaluate whether those that are complying are complying in a way that's accurate, and so we need to assess bias that way, and then, coming back to Jim's point about another potential source of bias, if those that are complying are not truly representative of the industry, of the fleet, we have to -- We need a way to make sure that those that are reporting are actually representative of the fleet, and both of those deal with bias, but just two different sources.

DR. REICHERT: Thank you. All right. I think this was our last action item. Thanks, everyone, for some good discussion. Let Judd finish his comments there, and, John, thanks for that overview, and, Jennifer, thanks for your overview of the SEP discussions. Judd, we'll move to mutton snapper and yellowtail. I think that's a relatively short agenda item. Let me pull that up, real quick. I had to -- Yes, we didn't have assignments, and so, Judd, take it away.

MUTTON AND YELLOWTAIL SNAPPER SSC REVIEW

DR. CURTIS: Okay. Thanks, Marcel. I put together some slides, that are mostly just informational, that I'll run through to describe how we plan to attack the mutton and yellowtail snapper assessment review plan for these stock assessments that are upcoming. So just a little background for them, and so SEDAR 79 is the latest southeastern U.S. mutton snapper. The last assessment before SEDAR 79 was SEDAR 15A, an update in 2015.

For SEDAR 79, we completed a full data workshop in 2023. Assessment webinars took place earlier this year, and the review workshop was in September 2025, or sorry, September 2024, this year, and it just concluded recently, and that was a full review panel with three SSC, spanning both the South Atlantic and the Gulf of Mexico, SSC members, and then three CIE reviewers. That final assessment report has been submitted to the cooperators, as of October 8th. SEDAR 96, southeastern U.S. yellowtail snapper, is also ongoing right now, and the framework for this particular assessment is a little bit different than the mutton snapper.

We do not have a full data workshop, assessment workshop, and a review workshop for this stock assessment. That's because the last assessment was a little more recent, SEDAR 64, and, during that time, there was a data, assessment, and review workshop all completed, in 2020. Subsequently to that, there was an interim analysis conducted in 2022 to provide updated management recommendations.

Then, as part of SEDAR 96, in lieu of the full data, assessment, and review process, which was deemed still fresh enough from the last SEDAR 64 assessment, but we did hold a recreational landings topical working group to integrate the Florida State Reef Fish Survey data into the assessment, and this assessment report is still being worked on. It's scheduled to be completed sometime later this year, maybe by December 2024, or early next year, and so logistics for a joint review.

Both these stocks are single stocks spanning the South Atlantic and Gulf of Mexico Council jurisdictions, and so, as such, it necessitates a joint South Atlantic and Gulf of Mexico SSC review, and so with a component from each South Atlantic and Gulf of Mexico SSC, and so the proposed approach would form a subgroup representing both the South Atlantic and Gulf of Mexico regions, as has happened in the past for these joint reviews.

A lot of this information came through conversations between the staffs of the Gulf of Mexico Fishery Management Council and the South Atlantic staff, and we kind of came to these recommendations. The Gulf had offered to host the meeting in-person, at their council office in Tampa, Florida.

This would take place during the time when the Gulf SSC had been scheduled to meet, or part of their time when they are scheduled to meet, on Tuesday, February 25th, all day, and then Wednesday the 26th, in the a.m., and the Gulf would then continue in the p.m. on Wednesday, and Thursday morning, to continue any of their needed business, but the South Atlantic representatives could then head home. As such, each council just coordinate travel authorization with their SSC members, and that's just administrative things there.

In deciding what the subgroup composition would look, like the Gulf Council office can host about twenty-eight people around a table, and it's probably around this size. A subgroup of SAFMC SSC and Gulf of Mexico SSC members, and we'd be looking for ten to eleven SSC members from each council, and so more or less half, and they've got about the same number of SSC members on their SSC as well, and so getting an even representation from both would be critical. Two council staff members, including myself and likely Ryan Rindone, and then two council members as well, yet to be named for attending this subgroup and joint review.

Mike Allen, who is the current Gulf of Mexico SSC Chair, has offered to be the joint subgroup chair. He is also part of the review panel, along with Amy and Alexei, for the review workshop for mutton snapper, and so he's familiar with this review panel for mutton snapper, and that assessment, as well as -- He's from Florida too, and so he's familiar with these species.

Some of the other procedural logistics too, and so, because the stock jurisdictional allowance primarily falls within the South Atlantic region, that dictates which control rule would be used, and so the South Atlantic control rule would be used for providing the ABC recommendations. Of course, we've just gone through it for the first time, and so there would need to be a little bit of preparation, in a briefing book form, and probably a presentation, similar to what I gave to you all this morning, or yesterday morning, to the Gulf SSC members, so that they can be brought up to speed on our new control role.

Previously, there was some issues with applying the control role, and providing an adequate scientific uncertainty buffer surrounding the OFL, and so the SSCs would have some leeway to discuss this approach, and this, of course, is built into our new control role as well, where we can use alternate recommendations from a P* approach, and just recommend a straight buffer, such as 75 percent of MSY.

That could all be discussed, or will all be discussed, at the joint meeting, and so operating under consensus, as we do here. The Gulf, if you all don't know, operates similar to how the councils operate. They make motions, and then they vote on those motions, and pass or fail those motions. In this case, because we are the administrative lead, we would operate under our consensus, and so similar as we do here. This, of course, does not mean that there's unanimous agreement, right. and minority reports can be drafted, and this is this can occur here as well, and it's not specific to this joint subgroup.

Most importantly, the decision had been made that this subgroup body will represent all their respective SSCs and all the final decision-making, so this can then be presented to respective full SSCs at a subsequent meeting, but no changes to those recommendations will be considered, and so the subgroup is essentially the final body making the management recommendations, or the SSC's recommendations, to management for the joint stock. If you are interested, and have heartburn, or concern, over subgroup making decisions without you being present, I suggest you join the subgroup, so that you're part of that decision-making body.

A couple of other just procedural elements to consider, right, and this was brought up -- I think Alexei brought this up during the review workshop, that we need to ensure that there's a transparent recruitment of the SSC members participating in the subpanel of the board, to avoid any perception of cherry-picking for the review, and, of course, any Standing SSC member is welcome to volunteer for that subgroup, and these will then be approved by -- These members will be approved

by the respective councils at the next council meeting. For the South Atlantic, that will be at their December meeting in Wilmington.

If more than eleven SSC members volunteer from a particular region, the council chair and executive director for that council will make the final selections, and then, as I mentioned, right, this procedure I presented to you, and subgroup membership for volunteers, SSC volunteers, will be presented to the councils, to the South Atlantic council in December, and so that's the procedure, and an outline, and action items here are to discuss any -- Discuss the plan, and the process, for the review, and if any SSC members have heartburn about this process, and then recruit ten to eleven members from the group to participate in the subgroup for the review. I can go over the logistics, and the timing, as well, if we need to do that before people start raising their hands.

DR. REICHERT: Thanks Judd. A couple of questions. This is going to be in Tampa in February, and the storms have not impacted that schedule, or location? Good. Thank you. Then SSC members that have been involved in either assessment previously can become a member of the review, correct? I just want to make sure that we are not we do not need to eliminate anyone who' has been previously involved. Julie is sticking up her thumb, and so everyone on the SSC can volunteer to participate in this assessment.

DR. CURTIS: Yes, that's correct, and so we had members for the mutton snapper review panel, and those people would still be eligible to serve as reviewers on the subgroup. Actually, probably they would provide some great insight to the subgroup, if they were there.

DR. REICHERT: Thank you. Any questions? Anyone having any heartburn with the plan laid out? I don't see -- Dustin, go ahead.

MR. ADDIS: I mean, because this assessment's coming out of my group, out of FWC, am I eligible to be on this subgroup for the review?

DR. REICHERT: Good question, Dustin, and I think I know what the answer is, but, Julie. Julie will come to the table for clarification.

DR. NEER: That would be fine. It's just as if you were sitting here, and you're wearing your SSC hat, not your FWC hat, when you sit at this table, and so you could certainly serve on that subgroup, as part of the review group.

DR. REICHERT: Thank you, Julie.

MR. ADDIS: Fair enough.

DR. REICHERT: Okay. That sounds like a yes, but any -- So no questions, or heartburn, and so I think the next item is recruiting volunteers. Is anyone interested and available to participate? We need quite a few SSC members, and we can come back to this tomorrow, when we are talking about the working groups, if you are if you want to think about this a little bit. Judd.

DR. CURTIS: I'll say this meeting will be taking place of any winter/spring webinars that we typically would have from the South Atlantic. We've got two stock assessments to review, and so the subgroup would meet, and that would serve as our winter/spring webinars. The next time that

the full SSC meeting would be in April, and so you're not -- We don't have two -- There's not double assignments for SSC meetings, or commitment from South Atlantic SSC members, and this would be your commitment for the spring/winter.

BLACK SEA BASS PROJECTIONS (CONTINUED)

DR. REICHERT: Okay. Thank you. So, think about this, and we will definitely come back to this when we discuss our SSC working groups. We may do some lobbying tonight and tomorrow. Okay. We have one remaining item, and I'm not planning on having extensive discussion about that, and that's the black sea bass, or our favorite topic for this meeting, and let me pull that up, real quick, for me.

I prepared some notes, and I'm largely going to read this, and then we can decide what to do, and so here we are. We are essentially asked to provide an ABC for black sea bass for 2026, while the council is working on an amendment. Erik's comment that we should not use the projections for management recommendations potentially considerably changed the way we should approach our recommendations to the council.

I would like to mention that I was very disappointed that the statement came during this meeting. Although we were aware of the uncertainties and caveats in the projections, the fact that we shouldn't be using any of the provided projections came as a surprise, at least to me.

I think the information leading to this recommendation is not new, and, if we would have known before the meeting, we could have used our preparation and meeting time more efficiently to develop recommendations, based on the information, rather than on the provided projections, but here we are, and so the first question, for the SSC, is does the SSC agree with Erik's recommendation? What we can take into account is that, since the terminal year of the assessment, the fishery-independent index has continued to go down, and I would like to refer to the SERFS trends report that was provided in February to us.

While landings continue to decrease, I believe there are other indications that projections assumptions were not holding true, and so, if we do not agree, we need to carefully justify that decision and provide an ABC based on the provided projections, using SPR 40 percent and then a P* of 30 percent and recent recruitment. I also realize that there may be concerns for this option, and Shep Grimes may comment on that.

I don't want to put him on the spot, but, if the answer is yes, the question then is what are our options? One question can be does Erik, or others at the Science Center, have suggestions as to what the SSC can use to base their ABC recommendations on for 2026? We also have an option of no action, until we have additional information and guidance to base our recommendations on. Another option is to provide an ABC recommendation using our old ABC control rule as a guidance, and we discussed this a little bit, and we have, for instance, the ORCS approach, or an ORCS-like approach. We have not used the ORCS approach in a long time, and I expect that many members of the current SSC may not be familiar with this approach at all, and so we need some time to explain the approach and prepare information to apply this approach.

We can also deviate from our ABC control rule, and we have that option, and come up with a method to provide a placeholder ABC for 2026. In this case, we need to be really careful, and clear, to explain our rationale for our recommendations, and perhaps we can look at what we dealt with with Spanish mackerel. No matter what we do, I expect we need considerable time and discussion, and formulate, and justify, our approach and our recommendations.

Finally, and this is something we've said before, and, given the recent fishing pressure, it's unlikely that recent fishing is repressing the population, at the moment. This is also indicated by the fact that the most realistic scenario showed that rebuilding is not likely anytime soon. The SSC has been on record pointing that out, that something else is going on, and whether we call it a regime shift, or anything else, and so, with that, I just want to provide that to the SSC and see where we can go from here. Erik.

DR. WILLIAMS: Thanks for that, Marcel. So, just to be clear, my resistance to using these projections is coming from just a point of personal point of view, and that is because I was caught off-guard, not realizing that actually the SSC was planning to set an ABC at this meeting, and, to give you a little background on why I was surprised that this meeting is where the ABC was going to be set, it's that we have been working on modifying these projections, ad nauseum, right up until -- Less than a month ago, we got another request from the South Atlantic Council to do another set of projections, and so this has been an ongoing process, and I wasn't sure that we had iterated yet to a final solution.

As you point out, there are still some issues that remain with these projections, in terms of assumptions that we have made, and what complicates this further is, you know, the management action that we're looking at is not going to go in place until 2026, and so we have a very long interim period here with these projections, with a terminal year in the assessment of 2021, and management not going in place until 2026, and we've been discussing these projections for such a long time that, lo and behold, information has been rolling out, and that information is starting to suggest that we're off on these projections, off to a point where I personally believe that they're probably not useful anymore.

That is for some of the reasons you stated, such as looking at the latest SERFS index, looking at the latest estimates of discard removals from MRIP, and things like that, and the way we may be modeling recruitment. I think we're just off, and I don't know that -- You know, if we're off in the early part of the projections, and we're really just setting a catch level in 2026, we may be way off by 2026, if we're using biased projections, and I think, right now, we have enough indicators to think that the current set of projections are biased, potentially.

That's where all the concern comes from. I understand that -- I don't want to hold up management, if management really does need an ABC at this point. I think there's probably enough, with all of the information we've given out, given the stock assessment, given the original F rebuild ABC scenarios, and all those scenarios, and there's something within all of that to sort of suggest a path forward, and, you know, as you said, it's going to be a precise number that comes from a single projection. It's going to have to be a heavily-caveated sort of discussion and recognition of some of the problems that we're seeing, in terms of assumptions we've made for these projections, and an ABC based on that, potentially, if that's the desire.

The better solution, if we have the time, and, again, I don't want to hold up management, but, if we have the time, it would be to go back and fix some of these things that we know. and as -- Like Alexi pointed out, let's put in the most recent removals, and actually use those in the projections, because we now have at least two years, and probably, by the time we circle around to this, we may even have three years of data to put into the projections of realized data, and so that's where my comments are coming from.

DR. REICHERT: Thanks, Erik. I really appreciate that, and that clarifies some things a little bit, and I don't necessarily disagree with you, and I think that's what the SSC has been struggling with, because, as I said, you know, we are aware, as an SSC, of the uncertainties, and the assessment reports always clearly lay out that projections are highly uncertain, and the further you -- The further you project out, the more uncertain they become, and so we are aware of that, and we appreciate that.

As I said, I also appreciate you providing some guidance, in terms of where to go from here, and that, I think, comes back to what I said earlier. I feel that, at this point, we need some additional discussion, additional time, and maybe additional analyses, to see how we can best provide recommendations to the council.

One question I may have, for the council, is what is the council expecting of us, as an SSC, in terms of an ABC recommendation? If indeed there is -- If this recommendation is for 2026, then indeed I would say we potentially have some additional time, and, if we have that additional time, and we can, because of that additional time, come to the council with a much better recommendation, then I would be strongly in favor of that. Carolyn came to the table, and hopefully she has some guidance for us for that. but, again, Erik, I really appreciate your reply to our concerns.

DR. BELCHER: Maybe not so much guidance, but as far as there is not a compelling time clock, and so there is time for discussions with the ABC. There's not -- Again, you're not in a situation where we found ourselves with Spanish mackerel, and so it's not the same, in that sense.

DR. REICHERT: Okay, and so, in that respect, I would highly favor tabling the providing management recommendations to the council and see if we can come up with a plan that addresses our concerns and the valid concerns that Erik brought up, in terms of using the projections.

What I like to do is for all of us to kind of mull this over a little bit, and then, maybe early tomorrow morning, we can come back to this and formulate a recommendation to the council. Any objections to that? All right. Again, Carolyn, thank you. Erik, thank you so much for your feedback on this, and, with that, we'll come back tomorrow at 8:30. Thank you.

(Whereupon, the meeting recessed on October 23, 2024.)

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OCTOBER 24, 2024

THURSDAY MORNING SESSION

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The Scientific and Statistical Committee of the South Atlantic Fishery Management Council reconvened at the Hotel Indigo Mount Pleasant in Mount Pleasant, South Carolina on October 24, 2024, and was called to order by Dr. Marcel Reichert.

DR. REICHERT: Good morning, everyone. Welcome to the Thursday part of the Scientific Statistical Committee of the South Atlantic Fisheries Management Council. Judd and I talked a little bit. Are we good to go?

DR. CURTIS: Yes.

DR. REICHERT: Judd and I talked a little bit about the remaining agenda items, and so what we're going to do today is at least have a break before 11:00, so we can check-out. We'll start with a report of the SCS, or the national SSC meeting, and then we have an update on the -- That's Agenda Item 11. Then we have an update on the Precision Working Group. That's Agenda Item 12. Then we'll go to the tilefish projections. That was Agenda Item 14.

We'll have our black sea bass discussion, which is a continuation of Agenda Item 6, and then we'll discuss the SSC working groups, which is Agenda Item 13, and then Other Business, public comment, and our report review and the scheduling of the final report, and so that's the -- It's kind of a change in the agenda. If anyone has any objections, let me know. If not, I'm going to hand it over to Judd. There is no assignments for this agenda item. I do ask you to make some notes, especially because there are some action items here. Judd.

SCIENTIFIC COORDINATION SUBCOMMITTEE MEETING REPORT

DR. CURTIS: Thanks, Marcel. So, as you all know, we convened the 8th national workshop of the Scientific Coordination Subcommittee, SCS-8, or colloquially known as the national SSE, at the end of August of this past year in Boston, and so, for those who don't know, this is a gathering of SSC members from all the different councils nationwide, to come together to talk about kind of some higher-level topics, with the hopes that it trickles down into regional action items.

It was a pretty effective meeting, I thought. We had representation from the South Atlantic, with myself, Marcel Reichert, our chair, Jie Cao, who provided a case study for the Sub-Theme 1, and Andrew Ropicki, and he's a member of the SEP, provided a case study for Sub-Theme 2. Kai Lorenzen, and then also we had Matt Damiano, who is from the Southeast Fisheries Science Center, that presented a case study for the Sub-Theme 3, and so we'll kind of go over that. This is a report that was synthesized from the -- Kind of the steering committee, and the organizers, from the SCS-8, and it distributed to staff members to provide updates to their respective councils and SSCs.

Then I'll go through this, and just touch on some of the kind of the summary items that were discussed, and some of the concerns, and then move into kind of the exercise of coming up with actionable items on a regional level, and so this was a point that was really driven home by the steering committee, and members of the SCS-8 delegation, as they really wanted to come up with these actionable items, on a regional level, that can be implemented, and what kind of timeframe

we're looking at to do that, and so we'll ask you to come up with some of those at the end of this presentation.

Just the overarching goal is this actionable guidance on how best to support councils and the management of fisheries, and specifically with the application of ABC control rules, considering the changing environment.

We've heard a lot about climate change influencing the distribution of fisheries, shifts, truncations in distribution, et cetera, and this goal, and kind of the motivation for this meeting, and topic, was really built upon the kind of previous recommendations coming out of the SCS-7 meeting in Sitka, Alaska, where they started discussing some of the environmental concerns, and environmental indicators, that could then be incorporated into stock assessments and then some of the challenges that the SSCs had been challenged with in applying ABC control rules in these changing environments. So this was building upon that, to come up with some other ideas and, again, actionable guidance on how to address these concerns.

Kind of a framework for the three sub-themes was looking at kind of tactical decision-making for ABC control rules and strategic decision-making, and that kind of represented Sub-Theme 1. The Theme 2 was social science, and how that could be integrated into either ABC control rules, how you can associate that as far as management risk into the control rule process, and then catch levels, and then, thirdly, it was the ecosystem and how to integrate more ecosystem information, and that is increasingly becoming more influential for certain stocks, along a lot of different coastlines.

So the agenda at-a-glance, and, on Monday, we arrived, or Monday was the first day of the session. and we began with a context-setting exercise, where a member from each of the SSCs went through the current ABC control rules, and summarized them, discussed some of the challenges in their application, and then, after that, we broke into kind of a discussion forum, to kind of synthesize some ideas and identify common challenges and potential steps moving forward.

Sub-Theme 1 was in the afternoon, and this was advances in ecosystem science and assessment to form ABC controls in a dynamic environment. Tuesday, we moved on to the application of social science to achieve the management goals, Sub-Theme 2, and then also Sub-Theme 3, adaptation of reference points, control rules and rebuilding plans in changing environments. Wednesday was a day of synthesis, breaking off into our respective regional groups to come up with the actionable outcomes and items and next steps for each of the -- For all the different members of the delegation.

The initial context setting, reviewing the full range of ABC setting approaches, and what struck me is there's a wide variety of ABC control rules being applied nationwide, right, and so the mechanisms are different across different regions, for their particular needs, but a lot of the challenges boiled down to, you know, data limitations, both availability and quality, and this is very much echoed especially with kind of the more data-poor regions, so to speak.

Stock assessment, there's limited integration of the non-stationarity concepts in stock dynamics and the shifts in species distributions. There are some areas that are starting to explore how to implement these non-stationarity into their ABC control rule, in the face of these species shifts, and then, also, how does this affect these reference points and how to define these in these changing environments. As we've seen with low recruitment in the South Atlantic, some of those benchmarks may never be achievable again, and so what do we do now, under the guidance from

either the national SSC, but then also considering, you know, the regulations from MSA that we're bound to.

Some of the recommendations coming out are fundamental basic research is still needed to address a better understanding of the climate impacts, and even just to establish baseline data for a lot of different regions, right, and, in some areas, it's hard to plan for climate impacts when you don't have the basic data needs to address what's currently going on in the environment. Then, also, some analytical advances, and so continue advancing the climate impacts into assessments, through like environmental indicators, and don't forget the empirical assessments and determining reference points.

Some additional challenges are challenges in scale, a mismatch in spatial scales, rigidity, right, and so allowing flexibility in control roles, such as the implementation of phase-ins and carryovers, and, as I presented in the first day, right, we recently went through a new ABC control role to integrate phase-in and carryover provisions and allow some additional flexibility into our control rules. Then testing these control roles too, and so this was a big topic of conversation is, how does -- What is the control role performance, either historically or projected to be in the future, and so simulation testing, through either MSEs, to test for, you know, this robustness to climate and ecosystem changes, was something that was discussed that is a necessary step, but it also represents a significant challenge, moving forward.

Some of these recommendations coming out of the ABCs is proactive actions, building flexibility into the FMPs, and then how -- Again, how to evaluate that performance on how ABC controls are performing currently, and then also moving forward into these dynamic environments.

Sub-theme 1, we summarized some of the initiatives and products that are ongoing, and some of these were things like the CEFI, the Climate Ecosystem and Fisheries Initiative, which we received a presentation from, the State of the Ecosystem Report, or ecosystem status reports, and how frequently these are being delivered to councils and SSCs, and there was a wide variation in the delivery of these reports too, and so we saw our first iteration in the South Atlantic a couple of years ago. Some regions have yet to receive one, and others are receiving them annually, and so that, obviously, creates some complications on standardization and, you know, how you can respond to ecosystem effects.

Ecosystem and socioeconomic profiles, fisheries ecosystem plans, and then SAFE reports, and information on climate in SAFE reports, were some other mechanisms talked about for initiatives and products that we can use for identifying these climate change issues.

Identifying other modeling platforms that can use ecosystem and climate info, we saw some -- A few case studies from the Northeast Region that involved their Woods Hole Assessment Model, or the WHAM, that was able to integrate some ecosystem indicators into their stock assessments, to provide additional information, and then using a risk tables to characterize ecosystem considerations as well.

Some of the challenges, again, are the regional difference in data availability, the model types available at their disposal, and various tools such as the SOE, which is the Status of the Ecosystem reports. Capacity limitations seem to be a pretty universal challenge in providing, you know,

assessments, and timely management, both in human resources and in funding, and so that's something we're always striving to do, is how to do more with less, essentially.

Ad hoc uptake, and so some routine use, but often ad hoc use in decision-making has to occur, as we're kind of seeing today a little bit, or this meeting, I should say, combining scientific uncertainty buffers and levels of risk, and so a couple of recommendations there is this consistent availability, expanding data collection with partners, integrating LEK, local ecological knowledge, and a commitment to more even distribution of these resources. Then more strategic guidance coming from up-top revisions to risk policies and reference points and use of risk tables and phase-in approaches.

The second sub-theme revolved around the socioeconomic, pr social and economic, excuse me, availability to integrate into assessments, and as far as the ABC control rules were concerned, and so this -- Instead of having a keynote speaker for this section, we had a round-robin similar, to what was done in the opening session with the ABC control rule summary, and members from each of the different council SSCs provided a brief presentation on how the councils are using social and economic information in applying their ABC control rule.

This varied widely across the different regions, from some areas having no separate risk policy, some areas using P* approaches without any social and economic metrics, or only if those inform any biological knowledge. Risk and ABC setting narrowly focused on biological risk, and a lot of places were under the process of revising their either ABC controls or their risk policy to include socioeconomic data.

I will say that's actually somewhere where we seem to be maybe a little bit ahead of the curve, where we've got actually probably the largest social and economic representation of our SSC of any of the regions. The mechanism, through the stock risk ratings, integrates a lot of that social and economic information, and that is something that's being directly applied into the ABC control for our region, and we received quite a few questions about that and how that's been going. I said, well, stay tuned, and we're just starting it, but the concept was there that -- Or there was a lot of interest in that concept from the South Atlantic approach, and so that was encouraging.

In setting ACLs, or TACs, by councils, the use of more socioeconomic data. Again, in the absence of a lot of biological data, some of these regions turn to, you know, more qualitative data and local ecological knowledge to inform assessments, or to groundtruth them, and some of the SSCs, as far as the social and economic representatives, are involved in reviewing these economic models and impacts in the stock assessment process and then in the ABC control role process.

Challenges, and, again, you'll see a common thread here amongst all these sub themes, is these regional data differences and the social and economic context. You know, it's hard to get information on fishery participation, the demographics, who's involved in the council process, crew costs, shoreside support, et cetera.

More capacity limitations, and a lot of regions stated that they had few scientists working on any fishery social science issues. In particular, there's a few more economists around, but social scientists seem to be hard to come by, and some other concerns with data confidentiality, limiting descriptions and availability to collect data. PR, or was it PRS?

MS. WIEGAND: PRA.

DR. CURTIS: PRA came up several times, as a hindrance for at least staff collecting any survey data, which made it difficult to assess some of the information on a social and economic level. Some of the recommendations then is to more formalize the use of this information, be more engaged, respond to public testimony, foster relationships and trust, and I think this was a really critical component here, in that, you know, we see engagement from a lot of the public, at either council meetings, providing their testimony through stakeholder engagement meetings, the port meetings that South Atlantic at least just conducted, but, you know, having that information presented to the SSCs was something that was talked about, having SSCs have more engagement in the public testimony and seeing and hearing what's going on on the water from the stakeholders.

More coordination is needed amongst the different regions, specific to social and economic concerns, and so, like I said, we're a little bit above the curve, which is great, and there had been talk about convening, you know, almost an SEP, a national SEP, at some point, to share some of these ideas, and so hopefully we can develop that, and that can be a great opportunity to coordinate amongst the national SEP delegations and share some ideas.

Some of the additional challenges again, are an ad hoc uptake, and there's lack of consistent on-ramps, both in scale and timing and in the roles, and so the roles -- How SSCs can consider reviewing socioeconomic info without getting into policy considerations outside their purview, and so this was something that was discussed quite a bit is, you know, when you're looking at a lot of social and economic information, on an SSC level, does that encroach upon the council's purview for providing like the management input or the APs function as a stakeholder input, and so is there a dividing line there? Can they all be integrated, but still maintaining the active from the SSC or an SEP?

Moving on to Sub-Theme 3, adapting reference points, control roles, and rebuilding plans to environmental change, we received a few case studies on -- We four examples where this was actually occurring. There was performance testing of these various council control rules under climate change for Pacific sardine and bluefin tuna, and there were examples of reference points being changed to account for changes in climate and ecosystems, and this was a few case studies coming out of the Northeast and the New England Fishery Management Council.

A common thread between some of those topics, and recommendations, were redefining these recruitment stanzas, and so the recruitment may not -- The recruitment time series may not be the same as it was thirty years ago. As we've seen in the South Atlantic, over the last ten years, for certain stocks, we have a very different recruitment regime entering the fishery than we did previously, and so redefining those stanzas for projections may lead to a better projections moving forward.

Reference point changes informed by observed ecosystem or stock life history changes, and so, again, the concept of these dynamic reference points was discussed, and how we can implement these under MSA, in attempts to rebuild these stocks or -- Encourage rebuilding or prevent further overfishing, and what are some solutions to address those concerns, and then lastly -- I forget which case study this applied to specifically, but those mechanisms, or perceived rate of climate influence on stocks, varies across regions.

Nationwide, it was brought up that some areas of the country may be less receptive to the concept of climate change influencing their stocks, and so even just starting those discussions can sometimes be difficult, much less implementing them into a stock assessment and coming up with management recommendations.

Some challenges in adapting these reference points are, you know, we don't have as much biological, climate, and socioeconomic data to understand how the complex ecosystem changes are influencing these stocks. As I mentioned before, we often lack just the basic fundamental data to get stock assessments and provide management advice in a timely fashion, how do we address this as we move forward into trying to predict what ecosystem changes might occur due to climate change.

A big challenge was the process rigidity, right, and the current fishery management plan framework and council procedures cannot be that flexible, or flexible enough, to allow rapid changes that are being witnessed, and if they're accounted for in stock assessment advice, and so some of the recommendations here are to identify what information is available to begin understanding these ecosystem and productivity changes.

This, of course, varies widely across different regions, as their capacities are drastically different, and so some areas are much ahead of the curve than us in this area, and have a really fundamental understanding of what their ecosystem and environmental indicators might be driving some of their productivity changes, and some others do not, and so trying to standardize this across regions is certainly a tall order, but a goal nonetheless.

Another recommendation, to kind of solve some of this process rigidity, is start up some additional conversations with respective councils. Are current FMPs, risk policies, and council procedures capable of allowing changes, and, if not, what is the path forward to achieve this, and so I'll add in here that the national SSC meeting is followed up by kind of a national managers meeting, essentially, that happens next year, and so a lot of the topics talked about on the scientific level then trickle down, the recommendations trickle down, into the next stage that talks about how to implement some of these either process changes, these conversations that have happened at the national SSC level, into the council level and in the FMP framework, and so that'll be going on in 2025, where they'll further discuss, and I think trying to come up with recommendations to address the process rigidity will be front and center for that meeting. That's a summary of kind of the various topics and what we covered.

The final kind of stage of the meeting, on the third day, was to come up -- Was to provide a synthesis and a discussion of these final ideas and then provide some actionable guidance on a regional level, and so I'll just read these bullets here to summarize. Given very real limitations in data, capacity, and our understanding of ecosystem change and fish and fishery impacts and funding, how do we do more with what we have right now? It doesn't seem to be an SSC lottery, or a science center lottery, coming down that's going to fund everything eternally forever, and so how do we do more with less?

What action can we take in our specific regions to address some of these concerns, and are there national level policy changes that need to be made to enable these actions? We had several NOAA representatives, from the national level, from Washington, D.C., in attendance, and so a lot of these were discussed and hopefully she takes these back to Washington, D.C. to talk about some of these

things, especially in the rigidity of the framework that might need to be addressed to enable some of these actions for moving forward.

After a synthesis, we broke off into our regional groups and began working on council-specific actions, and so we broke in a group, and we had a template to follow that had basically the audience for what this would be, what the action item would be, timeline, from urgent to near-term to strategic, what that process might require, what partners and resources would be involved, and then how we plan to bring this home to -- From the SCS-8 delegation down back to the regional SSC level, and implement these actionable items and so some of the selected ones, just across the board, that I wanted to highlight, or that were highlighted by the planning team, and I'll highlight now, are just the data-poor regions, to collaboratively explore alternative management frameworks and data collection schedules and methods to overcome existing barriers.

Again, leveraging those existing ad hoc groups to consider alternative management pathways, develop these working groups of managers and scientists on changing reference points, in response to climate change, and advocate for more frequent stock assessments, to ensure availability of more timely data that would allow dynamic management, building these conceptual models of the management process, constraints for making changes to management in a rapid way to respond to climate change.

Conducting these MSC processes to develop management systems, time-varying reference points, and to explore the performance of the ABC control rules, investigate use of dynamic harvest control rules and dynamic reference points as they relate to rebuilding plans, and I'll highlight that as one that our region kind of picked out for us to explore as a regional actionable item. Expand the application of tools used to gather socioeconomic data, obtain and integrate local ecological knowledge, and identify and implement appropriate vehicles to provide socioeconomic and community information at appropriate levels.

To follow up, the SCS-8 delegation is producing a final report, expected to be done before the end of this year, and so we'll certainly circulate that amongst all the SSC members, and SEP members, when that becomes available. We're in the process now of presenting these outcomes to our own SSCs, and, through the meeting process also, communication among the various SSC staff coordinators has taken place. We've developed kind of a plan to follow-up, early in 2025, to kind of share the progress on action items and develop additional action items for us to do on a national level.

This presentation, an iterative version of this presentation, was provided at the CCC meeting, I think earlier this month, and so all the council executive directors have seen a version of this presentation, and now all the SSC members will have seen this presentation as well. They're currently in the process of developing what the theme might be for the SCS-9. It seems like the Gulf of Mexico is going to play host to that meeting, but we still have some time, of course, because that's not going to happen until 2026.

Let me just finish this, before we go into questions, and so some of the actionable items for the South Atlantic region, that we developed at the national SSC meeting, that we wanted to touch upon, I'll present here. This was the action item template that we were provided with, and so we were supposed to come up with an action item, identify the audience, timeline, what the scale

might be, the prioritization of this action item, process, partners, resources needed, and next steps involved.

Action Item 1 that we developed was to investigate the use of dynamic harvest control rules and dynamic reference points, and, of course, this ties into rebuilding plans, or I think, as someone put it, not rebuilding plans, to increase flexibility and adaptability, especially with regard to inclusion of social and economic factors, and it's extremely relevant for some of our snapper grouper stocks that are experiencing recent low recruitment. Matt Damiano, from the Science Center, presented a case study on this low-recruitment issue and some of the potential avenues forward for addressing this in the context of using a dynamic harvest control or dynamic reference point ideas.

That's still being explored at the Science Center, currently, as well as a topic that we can address on the SSC level, and so an audience would be, you know, councils, APs and stakeholders. The timeline, this would be a short-term timeline, kind of a more immediate priority of ours, for the South Atlantic region. Some of the process changes are we have to come up with a concept analysis for this, assessment improvements and changes, and management action, and, also, I would say the flexibility within the kind of the management framework to be able to apply something like this. If we're thinking about rebuilding plans, there's certain elements attached to a rebuilding plan that are required, and those may need to be adjusted, if we're going to use some of these approaches.

Partners involved in a project such as this would be the Southeast Fishery Science Center, academic researchers, the SSC, and council. Resources needed would be manpower, or capacity, and data, and so some of the next steps identified are we could invite a presenter from some of the other council SSCs for case studies and the use of dynamic reference points, where they've used that, as a proof of concept design, and so some of the SSC members from the Northeast, and, in particular, that gave case studies where -- I think winter flounder was one example, where they're using -- They've identified some of those environmental indicators that could be driving the either recruitment changes, or stock productivity changes, and implementing a dynamic reference point to address those concerns.

Then, also, viewing -- The Southeast Fishery Science Center would continue working on that, on the workgroup progress on the dynamic reference points and low-stock recruitment and engaging with SSC in their ongoing work, so that we can all get on the same page and hopefully come up with some solutions that are possible for implementation of a dynamic harvest control role, or dynamic reference points.

Action Item 2 was exploring trade-offs between timeliness and complexity and stock assessment models for providing management advice, and I think this was something that was pretty cosmopolitan across a lot of different regions. The additional climate and environment changes might create this additional complexity, which may result in longer periods between management advice, and one way that we could address this is to getting more frequent assessments, maybe not as necessarily as complex, but less complex models, to provide more timely management advice that are more resilient or adaptive to any changes in the climate that are occurring.

This, of course, tradeoff is, with the uncertainty, it may be mitigated by more timely management recommendations, and so, again, you'll see -- I won't go through all these again, but we have the audience, kind of a timeline scale, prioritization, process, partners, resource planning, and next

steps that are currently ongoing are I think we're revamping that SEDAR process, and identifying some of the key stocks, and just determining what the frequency between assessments might be, and what the tradeoff is with how many key stocks and how frequently they are being assessed.

Conducting a data triage for both the assessed and unassessed stocks, and we're currently waiting on unassessed stocks, developing unassessed stock ABCs, and so that's something that will be done through, you know, more data-limited approaches, but potentially those could be more adaptable in the face of climate change. Then exploring other analytical methods to provide more timely management advice, such as the unassessed stocks workgroup, that we'll hopefully convene once we have some data streams for those unassessed stocks.

A third action item was evaluating the climate-driven changes in species distributions, and this is something that Jie presented on for his case study in Number 1. In his paper, he explored some of the centers of biomass for various species, and how they've significantly changed over the last decade. One of them certainly was black sea bass, and it's still unclear whether these are due to any spatial changes in productivity or actual shifts in distribution, and so further exploring some of these species distribution changes and the mechanisms behind them.

Again, the audience timeline scale prioritization are there, process, partners, resources, a lot of commonalities there, more funding, more resources needed, and steps that we can take is, you know, include more funding for research of this nature, and some of this funding is coming down the pipeline, in the form of these CEFI. The council actually just put out an RFP to address some of these concerns with climate-driven species distribution changes, and then list these in the research and monitoring priorities because those then get moved up the chain, so to speak, as far as priorities for this regio, and can help with funding opportunities.

That's all I have right now. I'll take any questions on topics that happened at the SSC meeting, and, also, our delegates that were present there, feel free to add in anything, if you have some additional information and part of the action items -- We've seen a couple of the actionable items, and, if anyone's got any burning ones, at their forefront of their mind right now, we can kind of list them down in our overview and notes, but I encourage you to take away kind of that template and start thinking about some other ideas that we can implement for the South Atlantic region, as far as these actual items.

DR. REICHERT: Thanks, Judd. Yes, I personally -- I really enjoyed the interaction with members from SSCs in other regions. It always is interesting to see how other SSCs function, besides the very interesting presentations and the data and information that was provided. It's interesting to see how other SSCs function, how their ABC controls are similar or differ from what we are used to.

For us, it was -- As Judd mentioned, it was a little bit of a challenge, because we just started using, or actually today, at this meeting for the first time, using a new ABC control rule, and so that was a little bit of a challenge there, because we don't have a lot of experience yet with our new ABC control rule. I really enjoyed the meeting, and so I open it. I open the floor to questions. Anyone have any questions, before we move to public comment? One question for you, Judd. Is it the intention to prioritize these action items, or are we not there yet?

DR. CURTIS: I think that's up to the discretion of the respective SSCs, and so, you know, within our South Atlantic region, we can absolutely prioritize those, if we thought that would be the right approach. My thought here was just to get additional items down that were, you know, hot, burning topics, but, if we want to prioritize those three that we have too, that's an option as well.

DR. REICHERT: Thank you. Anyone else have questions, or clarification? Fred.

DR. SCHARF: So Judd, would any of the presentations by the folks at the meeting be available to look at? Like, did they post any of them on a website?

DR. CURTIS: Yes, that's all available. Great question, Fred. If there -- I can share, or I did share the agenda with you all, and that's in your materials, in your briefing book materials, 11a, and so, if you want to look through the various case studies and I can send -- Let me ask the steering committee if I can share the link to kind of their main folder of presentations first, but I think those will be -- Yes, those are shareable, certainly. Chip says they're on the Regional Fishery Management Council's page already, and so they're available, and so we'll send that around.

DR. REICHERT: Was that your point, Alexei?

DR. SHAROV: Yes, I had the same question, and so, while I was listening, I searched, and that's on the New England Fisheries Management Council. All the presentations are there, and even recordings of daily meetings, and I could have -- Thank you. We can listen, you know, in our own time and space.

DR. REICHERT: Yes, and I also want to mention that it was really well-organized. The whole meeting ran relatively smoothly. All aspects, I felt, were really well-organized, and especially the providing summaries, and notes, and they were almost instantaneously available for us there, and so it was very, very well-organized. Any other questions, or comments? Kai.

DR. LORENZEN: I can we just add a little bit to that. I think, Judd, you gave a really good summary, and I think there are some good actionable items for us, that, you know, reflect our needs that have come out of it. I felt the meeting itself -- It was interesting. I thought there was sort of a bit of -- There were sort of two tracks.

There was very strong NOAA representation, obviously, and a lot of emphasis on their climate products that they sort of want the regions, and also the councils, to take up, and I felt there was -- On the side of the SSC and council representation, it was more -- We mostly deal with problems quite close to the ground, that include, you know, issues with, you know, the quality of data and assessments and so on, and responding to, you know, changes that we observe, and so I felt there was sort of a little bit of a two-track thing going on in the meeting, but I'm pleased that, you know, we've ended up with action items that I think are very relevant to what we're looking to do. I also think, you know, there were some really good sort of tools that were discussed, in terms of, you know, adapting to dynamic changes.

The only other thing I would mention is so there was quite a bit of discussion about the, you know, the social and economic sort of aspects, and I think there's a recognition, particularly among the social scientists, that, of course, one of the real impediments, I think, is not just lack of data, but it's the fact that there's a really sort of implicit, or explicit, hierarchy in the National Standards, and

we really prioritize National Standard 1 over everything else, and so it's not just lack of information, but it's really the way we, you know, we weigh different criteria, and different considerations.

I think the other thing that I thought was interesting is I think sort of an expectation, from the higher-level NOAA folks who were there, and the presentations, was the idea that perhaps we would become more precautionary in the use of control rules, in the face of sort of uncertainty about climate change, and I think, on the SSC and council side, I saw relatively little desire to go that way.

I think, you know, we're trying to manage with, you know, the changes that we're seeing, and that -- Sometimes that may even lead to less-precautionary, perhaps, approaches to -- You know, at what stage do you give up trying to rebuild something that will not be rebuildable, and things like that, and so I think that was interesting. Anyway, I'll stop here, and I just wanted to share a few more observations from that meeting. Thanks.

DR. REICHERT: Thanks, Kai. Go ahead, Judd.

DR. CURTIS: Thanks for mentioning that. I think that's a really good point, and, you know, as we integrate more and more elements, into either stock assessments or the ABC control rule, right, we're adding additional complexity, right, but that should not necessarily make it more precautionary, and we have a real challenge not to do, that just innately, and we've kind of seen that already within our own control rule. If you start including those environmental indicators, then it actually changes those things drastically, even though we don't have that much information, and so, yes, thanks for bringing that up.

DR. REICHERT: Yes, and I agree, Kai. Two observations. One, you know, when we were discussing the different levels of assessments, you know, if you go to perhaps less-complex models, there's always a tradeoff, because that is likely to increase the uncertainty, but, if that results in more timely information -- So there's that tension there. Another observation, and I'm not sure if you agree, Kai, is it's interesting, and I've noticed it at previous SCS meetings also, that there is kind of a -- The dichotomy seems to also be driven by how data-poor, or data-rich, the regions are.

That was not just -- I have just not noticed that at this meeting, but other meetings also. What regions are able to accomplish, both in terms of their assessments and the inclusion of socioeconomic data, social and economic data, largely depends on what is available, and, for instance, if you're talking about the Pacific Islands, they're dealing -- And the Caribbean, they're dealing with entirely different issues than, for instance, the Northeast and the Northwest.

DR. LORENZEN: That's right. I think Alaska is sort of the relatively few stocks, a lot of data, and they're really bringing in a lot of, you know, climate information into the assessments themselves, whereas, you know, we're lucky if we can muster the data to do a decent assessment, but yes.

DR. REICHERT: Thank you. Any other questions? Jennifer.

DR. SWEENEY-TOOKES: I actually just had a comment that I -- I don't know the institutional history of how we developed an SEP, sort of separate, and separate under the SSC, but just wanted to give credit to the development of that, to the council and the council staff, and all of their work in making sure that we do prioritize socioeconomic, social and economic, data, and so, yes, just a shoutout to you all for the hard work on making sure that this is a key part of the way that we do things in the South Atlantic. Thank you.

DR. REICHERT: Thank you, Jennifer. Jeff.

DR. BUCKEL: Given the topic of climate change and the shifts in distributions, we ran into the issue of having to deal with two different councils with blueline tilefish, and so NOAA provided a document, that we reviewed in the last year, on how to deal with that, and I think we were fairly critical of that. Did that topic come up at all, or -- You know, in terms of the action items for our region, that, if there's a roadmap for the next time, right, if this is going to continue to happen, where we have species that move northward, that then we have to work with the Mid-Atlantic Council, for example, and if that was discussed at all.

DR. CURTIS: No, Jeff, I do not believe it was discussed at the national SSC level, though I do recall having several side conversations about that, and noting that our SSC had reviewed it, but were quite critical, and that the document exists, but I don't know. It wasn't discussed at the national level, at the table.

DR. REICHERT: The only thing I remember is that it was mentioned as a complexity in all of this, but I don't -- I agree that that wasn't extensively discussed. Chip.

DR. COLLIER: Scott Crosson gave a presentation of that issue at the previous SSC, national SSC, meeting, and so I think it was discussed at that one, and they were changing up -- It was more looking at ABC control rules with this one, and so there was -- Judd, you might remember the topics from the previous one a little bit better than I do.

DR. REICHERT: Chip, that was the blueline tilefish example, right?

DR. COLLIER: Yes.

DR. REICHERT: Okay. Thank you. So let's see if there's any public comment. Chip, any hands raised? No? No one in the room? Thank you. Judd, any specific action items, other than asking the SSC to review this and think about potential additional action items? Should we prioritize that? Is that not necessary at this point? Where are we going, and how do we go forward with this, to make sure that we are not just mentioning the action items and then leave it at that? I saw Chip coming to the table. Chip, go ahead.

DR. COLLIER: I just wanted to mention that we are working on Action Item 3 already. We have an RFP out looking at species distribution changes, mainly looking at changes in essential fish habitat, and maybe fishery changes, just to let the SSC know, and I know Judd sent that out through email, but also just making sure that, if you didn't get it through email, that that is an RFP that's out right now. The funding for that came through the Inflation Reduction Act. The councils had a notice of funding that went out through NMFS and NOAA.

All the councils applied for a portion of that funding, and we're working through that, to develop some a request for proposals, in order to work on some of the climate change issues that have been brought up here, and some additional ones that have been suggested, and so we're going to have a couple more come out, I hope, and so continue to look for those, and if you have any questions, please let me know, or Judd know, or Laura Klibansky, who is our climate change coordinator.

DR. REICHERT: Thank you, Chip.

DR. CURTIS: I put that request for proposals up on the screen. I did send it out to you all through your emails as well, but it's on the council's website, under News and Announcements, if you need to look it up.

DR. REICHERT: Thank you, Judd. Is there anything that we need to go through, or discuss? I suggest that we'll come back to this, in one of our future meetings, to see where we are and how we can move the action items forward.

DR. CURTIS: I think, just as long as the SSC recommends, as a whole, that they approve those existing actionable items that were developed, and I encourage you all to think of additional ones. I think the prioritization of them right now is unnecessary. They're kind of already self-prioritizing. As Chip mentioned, one is already off the ground, and the center is also working on some of those low-recruitment issues and the dynamic reference points, and so some of those are already ongoing.

DR. REICHERT: Thank you. Any other discussion, or comments? Well, thanks for that overview, Judd. Let's move to the next agenda item, Number 12, SSC Precision Threshold. Let's see if Vivian is online too.

DR. CURTIS: It might be Erik.

DR. REICHERT: Jim and Fred were assigned.

DR. CURTIS: We don’t see Vivian online, currently, and so let’s move to the next item, and we’ll contact her, to see if she can become available, and if you want to move on to tilefish.

DR. REICHERT: Okay. Matt, would you be ready to do that? Do you need a couple of minutes? No? This is Agenda Item 14. A reminder that Wally, Jim, Kai, Steve, and Jason were assigned, and, again, Matt, thanks for running these projections, and so do you need to -- Okay. We are currently working on giving Matt control, so he can give us the presentation on the screen here. Thanks, Matt.

SEDAR 89: SOUTH ATLANTIC TILEFISH ASSESSMENT REVIEW (CONTINUED)

DR. VINCENT: All right, so here's some more additional information for tilefish. One of the things that was requested to look at was how the egg reduction at-age made a change to comparing what was done in the previous assessment, which was gonad weight. As you can see, it doesn't really make much of a difference. It has some difference in the beginning of the time series, but it doesn't influence your SSB, or SSB MSY, at the end, and it has no impact for the entire time

series, for F over F MSY, and so it didn't make much of a difference for this, but I just wanted to show this, so everybody could see it.

I did a comparison of the logistic model, versus a domed model, and so the comparison that I had showed Kai yesterday wasn't a direct apples-to-apples comparison, because the logistic model on that one didn't have the ageing error. Now, in the figure shown on there, it does have the ageing error included, and you can see that it does make an impact on your SSB and your F over FMSY, but, looking at the values of it, FMSY is almost doubled in the domed model, versus the logistic model, or logistic selectivity. However, in terms of FMSY, it's only about a 10 percent difference, and, for your SSB, MSY, and MSST, you have a slightly -- You higher values for the logistic model, compared to the domed model, and, in terms of F over FMSY, it's about doubled of those values.

However, when we look at the diagnostics, on the left, you have your domed model, which is the model we ended up looking at, and so really what we want to look at is those bottom two figures, where we have -- The bottom two portions of the figure on the left and the right, and on the left is the domed, and on the right is logistic. You can see the logistic model is consistently overestimating all of the ages-twelve and older, and it's not fitting that data accurately, whereas, on the left, it seems to fit that data quite a bit better, and this is for the commercial handline, or commercial long line, sorry, and then the same was true of the commercial handline.

It's not quite as bad of an overfit, or overestimation, in the older ages, but, in general, it's still -- For most of the ages, it overestimates it, using the logistic model, and so that was the rationale for why we chose the domed model, domed selectivity, over the logistic, because it fits the data quite a lot better, but it does have big impacts on your model output.

On to something completely different, and this is the table that you'll just copy and paste into your things, I think, but I did have a question about like where uncertainty was incorporated into management advice, and it seems like almost all of the steps -- The status determination is determined based upon just the base model, and then the ABCs generally have used the deterministic projections, with no uncertainty in recruitment or anything like that, based upon the base model, and then the P* criteria also seemed like it was using the base model, and so it seems like the only place where uncertainty is actually being incorporated into management advice is when you determine your multiplier of your fishing mortality that gives that P* value for FMSY when you do those deterministic projections for the base model.

This kind of has implications for tilefish, and so, on each of these steps, if you use the uncertainty of the MCBE, it results in a different conclusion, compared to if you use the base model, and so, on the left, we have the base model, and, on the right, we have the median from the MCBE, and so, starting from F over FMSY, the base model is not overfished, maybe. I know it's at one, essentially, so it's fully exploited, I would say, but, if you look at the median from the MCBE, it's overfished. Both the base model and the median from the MCBE suggest that the -- Sorry. I was speaking incorrectly when I was talking. F over FMSY is overfishing, and not overfished. Sorry. I'm trying to correct that.

In terms of overfished, neither the base model nor the median of the MCBE are overfished, but the median for the MCBE is very close to being overfished. In terms of the P-* determination of what that was, given the table that we were looking at yesterday, they said that you calculate the

midpoint between the SSB MSY, and MSST, and you get different values, depending on whether you use the base model or the median, but, in comparing the median of the -- Or the value from the base model to that midpoint, the SSB is above the midpoint, but, if we compare the median of the MCBE, that value is actually below the midpoint of your SSB MSY and MSST, and so this would result in different P* evaluations, based upon that table, and so I just wanted to point this out and get some thoughts from the SSC about that, and, as a backup, I did the P* 20 as well, just to put it out there. Okay, and I'll open -- I'll leave it for questions.

DR. REICHERT: Fred.

DR. SCHARF: Can you go back to the slide -- Keep going. There. Can you walk through that again?

DR. VINCENT: Okay, and so, currently, I think the status determination of whether it's overfished or overfishing has been using just the single base model, and then the ABC determination -- So the value we get from the projections is based upon just the deterministic projections, using the base model, and so it doesn't have any variability in any of your data sources or the recruitment, and then the P* criteria, so that talking about the table that Judd presented yesterday with the high risk and the high medium, or like the above those things, and they had calculated that based upon values from the base model that is in the table in the assessment report.

For the uncertainty in the MCBE, this is -- So you get the distribution of your FMSY, and then that is your OFL value, or you use that to calculate a scalar, and you determine what the scalar of FMSY is. That is then multiplied by FMSY to give the F that you use in the projections, to determine the ABCs for the deterministic, and so that's the only place that the uncertainty in your MCBE is actually used currently in the management advice. The alternative would be, at each of the steps, you could use the median from the MCBE analysis to determine what the status is, what the P* criteria is, calculations of that, over or under, and the ABCs, and you would use the median in that table.

DR. REICHERT: Any questions, or thoughts? We -- Correct me if I'm wrong, but we use deterministic value.

DR. CURTIS: Yes.

DR. REICHERT: Okay. Erik.

DR. WILLIAMS: I was just going to give a little background on this, and I think you said it, Marcel. I mean, we typically use the deterministic value. This whole idea came up as early as SEDAR 4, and we were talking about whether we should use the medians from the MCBE or whether we should use the base run and just use the MCBE to characterize the uncertainty around the base run, and I think the problem, when you go with the medians, is things don't line up.

In other words, they're not -- The results of each item that comes out of that, when you're choosing the median, they don't necessarily line up, so that FMSY wouldn't necessarily get you to the SSB MSY median. Those medians wouldn't line up, because they're not based on one single model. They're based on a median of a bunch of models, and so that was one of the main reasons we steered away from using medians, but I think you said it, Marcel. We tend to stick with the

deterministic and just use the MCBE to characterize the uncertainty around the base model, and, in this case, it's asymmetrical, in some of the distributions, which is not unusual, and it just -- You deal with this difference then, or this difference becomes more evident.

DR. REICHERT: Thanks for that clarification, Erik, and correct me if I'm wrong, and so -- Of course, when you are close to overfished, or overfishing, or not, I assume that it's also more likely that, if you use the other approach, you will just move the needle a little bit where -- As a result, the stock status may change. Is that correct?

DR. WILLIAMS: Yes, and I think that the delta completely -- The delta between the median and the base run is completely determined by how asymmetrical those error distributions are when it comes out of the MCBE. You know, if they're very symmetrical, they're going to be right on top of each other, and there's minimal difference, but, in this case, you're seeing a little more asymmetry in that output, and, therefore, your median and mean, or median and base run, differ.

DR. REICHERT: Thanks. Matt.

DR. VINCENT: So that's the table that you need. I think I sent it to Judd, but I'll send it to Judd, so he can copy-and-paste it into that table.

DR. REICHERT: Okay, so these are -- So this is what, Judd, you can use to fill out our table?

DR. CURTIS: Yes. Right, and so, as Matt kind of mentioned, right, with -- The MCBE is used to gauge additional uncertainty in the projections, moving forward, and then the application of the P*, and so we went through the exercise, and we came up with a P* of 30 percent, right, and one thing I think would be good for the SSC to discuss then, is given the uncertainty with the MCBE runs, and the median values, where they land, is if any additional scientific buffer should be applied to the P* for the additional scientific uncertainty. Another option also would be then to recommend to the council that, you know, they potentially include some additional management risk into their determination when you -- In their ACL determinations.

DR. REICHERT: Thank you. Before we do that, the landings weight is in thousands of pounds?

DR. VINCENT: Yes.

DR. REICHERT: Okay, and then the numbers are also in thousands of fish?

DR. VINCENT: Yes.

DR. REICHERT: Okay. Thank you. Okay. Any thoughts on providing some additional advice, or recommendations, to the council, in terms of buffers and risk?

DR. CURTIS: Marcel, before you go there, I will say, you know, during our ABC control role discussion, right, we talked quite a bit about how those adjustments to the default P* ratings would be made, and we didn't really land on any kind of conclusion, at this point, and that needed some further information, justification, test of performance, and so just -- I'll leave that there.

DR. REICHERT: Alexei.

DR. SHAROV: In principle, you know, following what Erik sort of described and supported today, I think that using the base model deterministic approach is probably, you know, the appropriate way to go, but the MCBE results do provide a measure of uncertainty, and the council could use it in defining sort of the risk tolerance.

I would add one thing to this, which I spoke of yesterday. I was concerned about the fact of the selection of the flat-top selectivity versus dome-shaped, because dome-shaped always gives you much more biomass, and, in many cases, people argue that this is unseen cryptic biomass, and so we talked about this yesterday, that there is some information that indicates that, in this case, it could be appropriate, but it's not -- There is no hard evidence, and so, for that reason, there is a risk associated with the selection of the fleet selectivity curve.

If it were, in reality, actually flat-top, then the numbers would have been different, and so I'm not suggesting reverting this, and, obviously, we stay with the assessment results, as they stand, but this adds a bit of additional consideration on the side of the caution, and so I cannot quantify it, but, you know, I would say that at least should be mentioned to the council, that we might be a little bit over optimistic with the current predictions.

DR. REICHERT: Thanks, Alexei. Anyone else? Fred. Jeff. Sorry.

DR. BUCKEL: I agree with Alexei, and so, you know, we set the risk at three, and the AP had set it at three, but the council still has a -- They've got the final say, and so that language that Alexei just had, and what we've discussed before, should be captured, that we strongly -- You know, the risk should remain at three for setting the P*, and then we also talked about keeping a close eye on both the SADLS survey and the size structure of the landings, to, you know, not just put this away and revisit it in five years or something, but each year check the -- Monitor those data for -- To confirm that the dome shape is correct, especially given what we just saw today, that it's a completely -- The status would change if it was a flat-top selectivity.

DR. REICHERT: Thank you. Chip.

DR. COLLIER: Matt, did you provide an OFL for a domed-shape selectivity model and a flat-top selectivity model? I'm just wondering if the current catch levels from this P* would be still buffered below what would be coming out of a flat-top selectivity.

DR. VINCENT: So, no, I did not do projections for the OFL with the flat-top selectivity, but, in that table, I do have the MSY value, and it's about 10 percent, and so you have -- For the domed, it's 545, and, for the logistic, it's about 500, and so it's about a 10 percent reduction. I would assume that your P* projections would be similar to that, and would probably be about a 10 percent reduction from that as well, but I did not specifically do those projections.

DR. REICHERT: Thanks, Matt. Anyone else? Kai.

DR. LORENZEN: Just as a comment, we talked about, the other day, about sort of uncertainty that may not be fully reflected in the uncertainty distribution that we're getting out of the model, and I think this is one of those, because we have -- We have two alternative structural assumptions, and this gives us the uncertainty, given the assumption that the dome shape is structurally correct.

DR. VINCENT: In theory, you could incorporate that uncertainty into your MCBE, and have the two models, and draw them randomly.

DR. LORENZEN: Exactly.

DR. VINCENT: Then include that in the projections as well, but it wouldn't be -- If we use the deterministic projections, then you can't really do that, because you'd have two different --

DR. LORENZEN: Exactly, but I just think -- You know, because we talked about so when do we think that it may not fully characterize the uncertainty, and this is a case like that, and, yes, there are ways of doing that, but it would mean incorporating both assumptions.

DR. REICHERT: Okay. Anyone else? Judd, is this what we need to fill in the table?

DR. CURTIS: Yes, I believe so. We've got the P* projections, and we've got still the P* 50 percent representing the OFL from the report, correct?

DR. VINCENT: Sorry?

DR. CURTIS: We've got the OFL values as well, representing P* 50 percent, from the report -- It's in there, right?

DR. VINCENT: Yes.

DR. CURTIS: So, yes, we've got enough to fill out the table now.

DR. REICHERT: At this, Chip?

DR. COLLIER: (Dr. Collier's comment is not audible on the recording.)

DR. REICHERT: Chip, you were asking what table that is? Matt.

DR. VINCENT: I'll have to check, but, yes, I'll send you an updated report that has these, the 30 percent as well, and I'll send that with this presentation.

DR. REICHERT: Thank you, Matt. That's it for this agenda item, Judd?

DR. CURTIS: Yes, that should cover the tilefish. Thanks, Matt, for running those additional kind of sensitivity analyses. I think that's really helpful, and kind of -- I like this approach of being able to break this up from the base model review, and then the projection review as well too, if the SSC agrees with that, but I thought that was a beneficial approach, to explore any additional uncertainties or sensitivities that could be done overnight.

DR. REICHERT: Thank you. Mike, go ahead.

DR. SCHMIDTKE: Sorry, and just one more thing related to the new ABC control rule being applied for this stock, and so one of the provisions that was set up in the new ABC control rule is,

when you specify the ABC, that the SSC would advise on whether that ABC should be set with the potential for carryover, should underharvest of an ACL occur, and so that's a recommendation that the council may be looking to the SSC for, whether this ABC recommendation comes with the ability for carryover to occur, and this stock would be eligible, from the standpoint that overfishing is not occurring, and it's not overfished.

The council, if they wanted -- If you all recommended it, and they wanted to actually pursue a scenario where carryover could occur for this stock, they would have to change their accountability measures. They would have to adjust those, because, right now, there is no post-season accountability measure that would reduce harvest, if there is an overage, and that's one of the conditions that's also a requirement of carryover, but that's something that they could do potentially in an amendment, if that's something that they wanted to pursue. I guess the question to you all would be should this ABC recommendation come with the ability for the council to carry over underharvested ACL, if they fulfill the other requirements that would be required by the control rule?

DR. REICHERT: Do you need an answer of the SSC now? I have a hard time wrapping my head around the consequences of that decision, and I'm not sure if other SSC members feel the same way, and so that's my question.

DR. CURTIS: I think, timing-wise, I don't know that we necessarily would need the answer today, if you're not prepared to kind of comment on it, but then we can at least throw it out as this is something on your radar, and we can bring it up with the council, that golden tilefish kind of checks these few boxes of the carryover potential, and, if they don't want to pursue it further, then it wouldn't need to come back to you, but, if they are interested in pursuing it further, then it would come back to you, and we'd ask for your feedback on it.

DR. REICHERT: I like that approach. We can get a little bit more information, and, in particular, looking at the consequences of that recommendation, or decision. Kai, I saw you had your hand up.

DR. LORENZEN: Yes, and just my recollection is that, you know, if you allow carryover of underages, you also have to carry over overages. You have to do that symmetrically.

DR. REICHERT: Mike.

DR. SCHMIDTKE: Yes, that's correct. One of the conditions of carryover is that it has to be a stock, and sector, for which there is a post-season accountability measure, such that, if they overharvest, then they would be reducing the following year. Right now, golden tilefish does not have that condition for its accountability measures, but the council could put that in. If they wanted to pursue a carryover type of regime, then they could put that in the same amendment that sets this ABC in place.

DR. LORENZEN: Yes, and, I mean, this is, obviously, my personal opinion, but I think, you know, that's okay. As long as you have both in place, that should be okay, but I think this is maybe a bigger SSC discussion than we can have right now.

DR. REICHERT: Yes, I would -- Especially if this ends up not being an issue, or an ask, and I think, if that's okay, we can table this to one of our next meetings, if the timing is okay. All right. Thank you. Go ahead, Jeff.

DR. CURTIS: I think one thing -- Mike, don't leave yet. One thing that I foresee the council might want to discuss too is also just having a constant catch scenario over the projection timeframe, right, and so that's the stability in the fishery, which is usually a desirable effect, and so that was requested by the council, and that would then also come back to the SSC, just to approve the ABC constant catch scenario over the next projection cycle.

DR. REICHERT: Okay. Mike.

DR. SCHMIDTKE: Yes, and good point, Judd. That's something that the council could also request, in terms of -- It would just be another projection run, in which, instead of allowing the landings to vary over the projection timeframe, they would be at a constant level.

DR. REICHERT: Thank you. All right. Thank you, everyone. Let's take a ten-minute break, so we can check out of our rooms, and see if Vivian is available online. So we'll come back at -- Let's say 10:00, or 10:05? 10:05. Erik.

DR. WILLIAMS: Just real quick, I was going to say that I checked with Vivian, and she's not going to make it, and I'll give the presentation.

DR. REICHERT: Okay. Thank you. Let's do 10:10, so people have a little extra time to check-out.

(Whereupon, a recess was taken.)

DR. REICHERT: Okay. Let's get started. Our next agenda item is Item 12, the Southeast Fisheries Science Center Precision Threshold Working Group. Jim and Fred were assigned, and Erik is going to give that presentation, correct, Erik?

DR. WILLIAMS: Yes, that's correct.

DR. REICHERT: Okay, go ahead, Erik. Thanks for jumping in here.

SEFSC PRECISION THRESHOLD WORKGROUP

DR. WILLIAMS: No worries. This is a very short presentation. As you may recall, because we've been trying to keep you all updated on what we've been doing with this group, this group has been working since 2023, and so it's a long-term project, and what we're dealing with is how to sort of manage these highly imprecise estimates that come out of the MRIP survey.

Some of the initial questions we asked are what are viable alternative estimation methods that we can use when a precision threshold is exceeded how would we use these methods in a standardized way across the Southeast region, and how would we make sure that we maintain consistency in between the estimates that might get used in the stock assessment and those used in management,

and so here's sort of a quick bullet list of some of the meetings and workshops we've held over the years.

Our most recent workshop was held September 23rd, and, to let you know, without going into the details of these bullets, we are iterating pretty closely to wrapping this thing up, in the sense that we have sort of agreed upon some methods and approaches that we will use. We're in the process of writing up the documentation on that, and now the next step is for us to figure out how to get it reviewed, because I think it's going to be important to have this reviewed, by probably a panel of independent experts, and so then our next steps are, by early 2025, and date still to be determined, complete that documentation, prepare the terms of reference, and assemble a review panel, and so, if all goes as planned, you will see this in 2025 sometime, hopefully, and I think that is it.

DR. CURTIS: This is the last slide.

DR. WILLIAMS: There it is. Okay. I guess I'll give just a quick little insight as to where we're headed with this. You know, where the methods seem to be focusing is on sort of aggregating strata within the survey, at appropriate levels, to sort of get to a point where you've reduced your PSE, or CV, below a threshold, and the area that we're focusing on is actually smoothing the catch rates, and, in smoothing the catch rates, that's a very -- It's an internal calculation, and so this is going to end up being a process, or a method, that's not going to be readily sort of available in a public setting.

It's going to have to be computed internally, with some scripts, probably by MRIP staff, and by people that have been trained by MRIP staff, and so it is going to be a little cumbersome, in that sense, and so that's one of the things we're going to have to work out, is how do we make this more accessible, how do we make this more standardized, in making sure that everybody's looking at the same numbers, working with the same numbers, as I mentioned before, that go into the assessment, and also are used by management, and so I'll stop there.

DR. REICHERT: Thanks, Erik, for that overview and update. A couple of questions. Are you guys looking for SSC involvement in that review process?

DR. WILLIAMS: We probably will be, yes, so one of the questions we're having is what should that review panel look like, and, yes, we have strongly emphasized that we should include SSC involvement in that.

DR. REICHERT: Okay. Thank you, and do you already know how many SSC members you are thinking of? Is that to be determined?

DR. WILLIAMS: Yes, that's to be determined, but I would -- Yes, I would be -- Anything you can put forth, in terms of how many staff you would like to see on this, that's fine. That would be great, to have that in-hand.

DR. REICHERT: Okay, and then I assume that, at some point, we'll see a presentation of the findings, whenever the review and the report and the documentation is completed, correct?

DR. WILLIAMS: Absolutely. Yes, absolutely.

DR. REICHERT: Okay. Thank you, and so we'll add that to our working group discussion, to see if we can find some people that are interested. Do you have any idea about the timing of the review already?

DR. WILIAMS: No, and I think that's going to be determined at our next meeting, which is -- I think they've tentatively scheduled it for February of 2025, and I think that's the meeting at which we're going to decide all of this, and so I suspect you'll get a reach-out from us after that February meeting. I think it's February or March, and so don't hold me to that exactly, but it's early 2025.

DR. REICHERT: Thanks, Erik. Any other questions, or comments? Fred.

DR. SCHARF: Erik, do you have any sense of whether the review panel, that process, is going to be, you know, sort of a multiday process, or do you think it would be just sort of a one day sort of webinar kind of process?

DR. WILLIAMS: That's a good question. I suspect it might be multiday, but -- Yes, I think it would have to be, because some of these methods are pretty in-depth, and it's based on a lot of simulation modeling, and so just -- You know, my sort of quick view of the complexity that we're dealing with is it's probably is going to require a multiday review panel.

DR. REICHERT: Thank you. Alexei.

DR. SHAROV: Erik, very briefly, what's the composition of the workgroup? I mean, who are you guys, and how many species have you looked at?

DR. WILLIAMS: Good question. I may get this wrong too, but let's see. We've got three, or four, people from the Southeast Science Center, and we have some people from the Regional Office, and then several MRIP staff, and I think that's it, at this point, and we have -- We did, early on, propose lists of species that suffered from, you know, high PSEs, or even spiky data, to put into the simulation, and, offhand, I'm trying to remember some of the species.

We included tilefish, blueline tilefish, snowy grouper, some of the deepwater, and, obviously, they suffer from really low sample size, and high PSEs, but then we also did include some others that weren't so bad, like black sea bass, or some others, just for comparative purposes, and so, yes, there was a number of species that were simulated, and looked at, in developing the method, and the composition is mostly NOAA staff, essentially.

DR. REICHERT: Thank you. Anyone else? Okay. Thanks, Erik. Do we have any public comment? Any hands raised? Seeing none, anyone in the room? Seeing none -- Judd, go ahead.

DR. CURTIS: Thanks, Erik, for the update, and I'm keen to see what the final product looks like. Kind of in addition to Alexei's question, with like the species looked at, you guys are focusing mostly on assessed stocks, at this point, and is there a plan then also to start looking at these methods and applying them to the unassessed stocks? I ask because, as you're well aware, we're trying to get an amendment done with some of the unassessed stocks, and that's going to go through an SSC workgroup approach, to recommend appropriate models, and so I think getting the SSC involvement in the review panel for this will be critical, not only for the assessed stocks, and the

smoothing mechanisms for that, but then also for unassessed stocks, going forward, as we work towards that amendment.

DR. WILLIAMS: That's a good question, Judd. I think the way to look at this is we're just using those species as sort of test species, but the end product is going to be a generic approach that should be able to be applied to any species.

DR. CURTIS: Okay. Thanks.

BLACK SEA BASS PROJECTIONS (CONTINUED)

DR. REICHERT: Thanks, Erik. We appreciate the update, and we're looking forward to the final report. Okay. Let's move to our next agenda item, and that is the black sea bass continued. Let me scroll a little bit. I mentioned, yesterday, something for the SSC kind of to chew on last night. A reminder that Jeff, Fred, Amy, and Christina were assigned to this agenda item. As you can see from our overview, the council requested that we provide an ABC. That was our last action item on this agenda item, which was Number 6, I believe.

Also, given what I mentioned yesterday, I think our first order of business is deciding if the SSC agrees that we cannot use the provided projection as the basis for our ABC recommendations. Erik, go ahead.

DR. WILLIAMS: Thanks, Marcel, and I'm hoping to sort of help set the stage for further discussions on this, and I appreciate that we're having further discussions on this. You know, if there's an apology needed, in sort of the dramatic fashion in which I sort of made comments, and suggested we shouldn't use these projections, I just want to clarify where I'm coming from, and I think I can summarize the issues in two main points, and I would like the opportunity to do that.

The first is this projection is unique, in the sense that it's got four years of interim years in it before the management action year is kicked in. That's unusual. It's a large amount, and so we worry about propagation of error, right, and we already know that projections have a large amount of error, and that error gets propagated forward, but, in this case, I'm a bit concerned about the potential propagation bias, and we're already seeing signs that the projections are biased.

Those signs are coming from the fact that our projected index values are almost twice what the realized values are in 2022 and 2023, and we're also seeing the MRIP value, the realized MRIP value, in 2022 is much higher than what the projection shows, and so I worry about the error that that introduces early into that four-year interim projection and how that error propagates forward.

Now you may disagree with me, and that's fine, and recognize that, okay, that's acceptable. My personal gut instinct on that is that it's a little much, and we probably should make some adjustment, if we have time, which circles back to my comments yesterday about I don't want to stop the management process, because we could make some adjustments, or agree that that's an acceptable level of bias, and just move on with the projections in hand, but I do think there's an opportunity -- If there is an opportunity to make them a little better, I think we should do that.

That's point one, and, if the SSC thinks that that error is not concerning enough, then we have what we need, right, and we have projections in-hand, and you can go forward with that, but the other issue, that we really didn't have a chance to discuss, that also I would like to discuss, is the fact that this stock is clearly at historically low values.

It is overfished, although it has not been declared officially overfished, and I would be concerned that, you know, just because of a sort of bureaucratic official declaration of it being overfished, that we don't go down the path of addressing the fact that this stock is at historically low levels, and case-in-point is, if you look at the P* 30 percent, using F 30 percent, that actually would call for an increase in fishing mortality in the management year, which, on the face of it, makes really little sense for a stock that is at historically low levels, and so I think there's a concern there to be addressed.

I would even go as far as to say that, after our discussion about SPR proxies earlier in the meeting, that we have a path forward, that we probably should just use F 40 percent, and probably look at rebuilding scenarios, rather than P* scenarios, but, again, you're free to disagree with me completely on that and move forward, if necessary, but those are the two things that sort of popped up to me, and I would hope that what we can walk away from, from the Science Center, is, if we need to redo some projections, is some clear guidance on exactly what should be changed, or should not be changed, and then we can sort of hopefully iterate to the final solution for these with just one more step. Thanks.

DR. REICHERT: Thanks, Erik, and you may have mentioned it, but I'd like to -- I'm still trying to wrap my head around this. This is that you mentioned earlier that there are ways, or potential ways, to, quote, unquote, fix this or address this. What would your suggestion be to provide us, as an SSC, a better -- Or an alternative for providing ABC recommendations to the council, addressing the issues that you brought up earlier, you know, the fact that there's a mismatch between the projected and realized index, MRIP, et cetera? What do you recommend? Does that make sense?

DR. WILLIAMS: Yes, that makes perfect sense, and there's three solutions to that, in my mind. One is you go forward with unadjusted, just take the projection values for what they are, from what we've done with the analysis, but you caveat that with all the discussion we just had, all the noting that there's a potential bias here, noting the problems and how these projections might be off.

The other would be, since we have talked a lot about, in an interim analysis, making adjustments to ABC based on index values, well, in this case, we have a projected index value, and a realized projection value, and the difference between those we could use as an adjustment factor, and so that would be another path to go, and, of course, the third one is make some changes now and go through another iteration of rerunning the analysis and getting better projection estimates, and so there's three options as I see it.

For your Option Number 3, are you talking about making adjustments to the projections or rerunning the model with additional years of data? What do you think is --

DR. WILLIAMS: I think that's to be determined, based on what data we would have and what might be necessary, and, you know, one of the things that concerns me, which may have been forgotten, or overlooked, is, in the stock assessment, the last two years of recruitment were fixed

at an average, and so they weren't estimated, and it might be that, in order to get these projections to line up more with the actual realized index values, that we might actually even need to adjust those recruitment values, but that's yet to be determined, but, yes, and so I think that answers the question.

DR. REICHERT: Then, and I know this may be a difficult question to answer, but, realistically, if we as an SSC, and we can discuss that, but, if we as an SSC would recommend making the adjustment, and either rerunning the assessment or looking at projections, or any other suggestions you guys may have. Realistically, is this, in terms of personnel and time, something that could be realistically accomplished? Again, I know that that's not -- That those decisions may need to be made elsewhere, but I want to make sure that we are not requesting something that may be unrealistic, in terms of whether or not we can get it accomplished.

DR. WILLIAMS: Right, and that's a very pertinent question. I can't directly answer it, because the request that would need to come, in terms of redoing the analysis, would involve some data provision, potentially, and other parts of the center that I cannot speak for at this time, and so I can't say for sure whether -- How quickly that would be doable, but I would think that this is a high priority. I mean, this is a stock that is in clearly struggling conditions right now, and so I would think the center would prioritize this as an important issue, but, yes, I mean, that's exactly the issue. It’s a tough thing to answer, because do we go down the route of actually modifying these projections, and trying to incorporate recent information, or do we just stick with what we got, make some adjustments perhaps, or just cap it heavily and move on.

DR. REICHERT: Thank you, Erik. So I think -- This hasn't changed, and I think the first order of business is for the SSC to discuss, or decide, whether or not to use the current information that we have in front of us, the current projections, or if we are uncomfortable doing that and recommend not to do that. Jim.

MR. GARTLAND: So I don't know that I would be totally comfortable going forward with projections as they are. I mean, we talked about the error, and the bias, and I totally agree with all that, but if you look on slide -- Right there. Slide 25, and I think I remember somebody said, yesterday, that the 2023 index was the lowest in the time series. The projection has the index going the wrong way, meaning that we're wrong, and we're getting wronger, and so it would seem, to me, that Options 2 or 3, that Erik outlined in his comments just a minute ago, would probably be the better way to go, but that's me.

DR. REICHERT: Thank you. I mean, you may remember what I mentioned yesterday, that we had several options, and I think the three options that Erik mentioned, that I highlighted yesterday. I'm glad Erik provided some additional information, and some additional detail, on what that would entail, and so Chip came to the table.

DR. COLLIER: Two other things to consider, when trying to set the ABC for the stock is, one, the council was requesting really a division, before it goes into catch, or landings and discards, and they wanted to look at maybe total yield that can be separated between sectors. I think the council has been pushing for that, and I believe that's the direction they want to go with managing this fishery, and so we would need an ABC that is doing that, at least for them to look at, and the other part of that is maybe considering the way that discards are being estimated in this.

Right now, going back and looking at the time series that was included in SEDAR 76, they estimated of discards in 2026 would exceed what was there for almost every year. There's one year that it's not exceeding it, and so it seems like the level of discards is a lot higher than it's ever been, even though, as Jim just said, the stock is at its lowest level, or one of its lowest levels, and so those aspects are a bit of concern, on how the discards are treated, and maybe considering other ways to estimate the percent of discards, or how discards are going to change in the future.

DR. REICHERT: Any other thoughts? Jim.

MR. GARTLAND: This is just a question, I guess, a follow-up from yesterday too, and the council said that there is some time, because these are 2026 numbers, but is there an estimate of how much time? Like is it three months, six months, eight months, because that might also drive, somewhat, what we can recommend. Like, when you said, you know, what can be reasonably accomplished, the timeline, I think, is going to have it -- It will play a big role in what options are on and off the table, I would think.

DR. REICHERT: Yes. Thanks. I'm not sure if Chip, or Judd. or anyone else, or-- I hate to put you on the spot. I think the complication is -- Or a council member. I think the complication is there needs to be an amendment to adjust -- To change the SPR, and the 2026, or our ABC recommendations, would be part of that amendment, and then following that would be maybe some additional information, and an update, but then we can start talking about a rebuilding plan, because it can be declared overfished. Am I correct here, or am I incorrect, or missing something? Chip.

DR. COLLIER: No, you're correct. We haven't started the -- Well, we've initiated the amendment, we haven't gone to scoping for this, and so there's not -- Have we initiated the -- Because there are timelines with NEPA now, right, and different parts of -- Depending on what type of analysis is needed for it, that kind of dictates on how long it can take. Is that right?

DR. SCHMIDTKE: I'm not the NEPA expert, and so I would have to consult one as far as the different timelines, but we have -- The council has initiated the amendment, and they've not gone to scoping. They've kind of held off on scoping, awaiting an ABC recommendation, because they wanted to -- If they're going to ask for folks' input on how to manage, they kind of want to be able to give an idea of this is the overall picture of how it's changing, going from, you know, the previous ABC to what the new ABC would be, and then what are the ways --

Getting feedback from the public on what are the ways, how do we get there, and so the aspect of there is time comes in the form of there is no two-year statutory deadline to put in a rebuilding plan, but I would also say that the council has expressed concern about this stock, and there is a sense of urgency to need to respond, and so, yes, that's not a great answer, and it's kind of conflicting information, but that's what's been said to this point.

DR. REICHERT: Okay. Kai.

DR. LORENZEN: But am I right that -- I mean, a rebuilding plan will be coming, right, eventually, and so, I mean, this is a sort of a stop-gap, and, you know, in that context, my sense is -- I would, you know, make an index adjustment to these projections and run with it, and so it's the Option 2 that seems, to me, is both practical and -- You know, we'll get this potboiler for now, and then,

you know, we can revisit other aspects of the projections when we need to deal with rebuilding projections.

DR. REICHERT: Yes. Okay. So I want to go back to the first question, because I want to make sure that we have consensus. Do we have consensus that the SSC feels that, given the issues that were brought up, not just today, but yesterday, that we should not use the projections? Does anyone disagree with that, that the projections that we currently have on the books, that we should not use that for our ABC recommendations? Do we have any -- No one disagrees, and so I think that's a first decision that we're making.

So then we have options and, as I mentioned yesterday, we have an option of doing an interim analysis, as Erik suggested, or making adjustments, you know, either rerunning the assessment model or projections. We also have an option to -- For instance, as I mentioned yesterday, looking at our ABC control rule and looking at other options, like an ORCS or an ORCS-like approach.

I don't think that's a good path forward, but I just wanted to mention that, and then any other deviations from our ABC control rule, and so, since we agree -- I agree with -- I think it was Kai who said making -- You know, looking at an interim analysis, based on index values, because we have that index value, and it's readily available, and so that that may be an option for us to get some information in a relatively short period of time, and it allows us to make that interim, or stop-gap, ABC recommendation to the council for that. 2026 is one year, so the council can move forward, and that will also give us time to further discuss the issues with the black sea bass population and the assessment. Does that make sense? Does anyone disagree with that, because that's what -- I think, Kai, you provided that as a recommendation. Mike.

DR. SCHMIDTKE: For the one year that the stopgap is anticipated to be placed, that one year is expected to be 2026. Is that correct?

DR. REICHERT: Well, I think I'm the wrong person to ask. That's my -- It's my understanding that that was being asked from us, and maybe Judd, or someone else, can address that. From the get-go, it was my understanding -- But that had to -- That had to do with the fact that we generally provide five years, and, you know, we were using -- Because this was not going to be in place until 2026 because of the amendment development, and so that meant that through 2025 were interim years, and so, thinking about that, perhaps we could provide an ABC recommendation for -- Well, 2025 is too late anyway, right, but we could consider -- If the council -- Well, that's a question for the council, in terms of what they need from us, timing-wise, whether it would just be 2026 or whether that would also include 2027. I don't know the answer to that. Judd.

DR. CURTIS: Consider that the recommendation from the SSC is to not provide catch level projections beyond five years. If we start including additional interim years, with the same data going into the current model, and just adjust it, we can only provide a projection for 2026, and not beyond. If the model updates some of the data, and so some of those interim years use observed data now, then we can project a few more years into the future, but we're a little bit bound by those projection recommendations of five years from the terminal year of the data.

DR. REICHERT: Wally.

DR. BUBLEY: Does that apply if we end up taking an approach that's similar to like an interim analysis? Is that a concern, because we are sort of making these adjustments on the fly, and so it's not just the five-year span at that point.

DR. REICHERT: Yes, and, to that point, I don't think we've ever used an interim analysis for management advice, and so that's kind of a new procedure for us, and so, right now, I would say let's at least look at 2026. When we have more information, we can perhaps decide if you're comfortable providing recommendations for 2027. Mike.

DR. SCHMIDTKE: I mostly brought this up just from a timing standpoint, just knowing the amendment development timeline that's going to go into the current amendment, which would be putting in kind of that stop-gap measure for 2026, but then, if there is an interim analysis that's going to update the catch levels, we would then have to follow that up with another amendment to change those catch levels, and so just making sure that the timing can work out. That interim analysis, and that advice coming out of it, would need to be to the council probably by the end of 2025, in order to get that in place for 2027, and to make that 2026 stop-gap an actual one-year type of measure, as opposed to having it prolonged into 2027.

DR. REICHERT: Yes, but do you mean that that would be a separate amendment, or do you think that the council would still like to include these ABC recommendations in the amendment that will address the SPR? Do you know what I'm trying to say?

DR. SCHMIDTKE: It would be a separate amendment for the interim analysis results. The status determination criteria would be in the current amendment that's being developed, the one right now, and that would also include your 2026 stop-gap ABC recommendation. Both of those things would be addressed in that first one, and then any interim analysis results would have to come in a follow-up amendment, but, just the way that the timing is looking right now -- Like I know that there's going -- You know, once the current amendment would go through, that would change the status to over fished.

There would be a letter, and they would have to develop a rebuilding plan, but that likely is going to be in place probably right at the time, if you get interim results, right at the same time that you're getting interim results at the end of 2025, and so there may be some interesting timing there to figure it out, but I just wanted to kind of point out that there are some timing concerns to make sure that this 2026 stop-gap year doesn't go into 2027, or have some awareness that there may be some bleed-over into 2027.

DR. REICHERT: But so, the stop-gap 2026 year that you just mentioned, would that be part of the first amendment?

DR. SCHMIDTKE: Yes.

DR. REICHERT: Okay, because, if we have this, we can -- Then that would be followed up with the second amendment that addresses the rebuilding.

DR. SCHMIDTKE: Yes.

DR. REICHERT: Okay. So that's -- So you would -- Kai.

DR. LORENZEN: I was under the impression that we could get the sort of interim analysis in the 2026, the first ABC, and that --- You know, then that would be followed-up with something that would be, you know, a rebuilding scenario, and amendment, and so if we can't -- I think, you know, if we can't get an interim analysis to inform the 2026 recommendation, I think we're kind of stuck. I mean, then we'd have to run with the projections as they are, because we can't -- You know, Option 3 would be a bigger lift than the interim analysis.

DR. REICHERT: The reason I'm trying to be very clear about that is because, if I'm looking at this, as you said, the development of that, and let's say the rebuilding amendment, just to wrap our heads around whatever that's going to be called, the rebuilding amendment, and that may actually, as you said, it may bleed into 2027.

That's where my original question was coming from. If we have this analysis, to avoid us having the same discussion, like sometime in 2025 or 2026, because we need to provide something for 2027, and that, from the get-go, we are not just looking at 2026, but also to 2027, just to cover our bases, in terms of if the timing of that rebuilding amendment bleeds into 2027 and cannot be implemented until 2028. Does that make sense? I just want to avoid having to rehash this entire conversation sometime in late 2025 or 2026. Mike, and then Judd. Erik, I saw your hand up, and so we'll come back to you in just a second, okay?

DR. SCHMIDTKE: No, and I agree with that concern, and possibly that, as a backup plan, in the sense of whatever stop-gap analysis, having the knowledge that this could potentially be in place for 2026 and 2027. That's not the goal. We hope to, you know, have it changed faster, but having the knowledge that it could end up being that. I think, while you all are discussing, in terms of like the interim analysis, and what potential plans are, I might have to do some thinking, and emailing, on what are creative ways that we can get the different actions that need to be done in the right timing, but I don't know that I have that plan formulated in the moment right now.

DR. REICHERT: Thank you. Judd.

DR. CURTIS: If the approach is as we've sort of discussed, to tie, you know, this interim analysis to the index values, and presumably we could then project that and tie it to the index values for 2027, moving forward, and it wouldn't be as difficult, if we had, to continue that stop-gap measure, if it was not available.

DR. REICHERT: Erik. Sorry that you had to wait a little.

DR. WILLIAMS: No, and this is good conversation, and good discussion, and so I just wanted to make sure we talk about, if we do add additional data in these interim years, and that can include removals as well as index information, then I think that does extend that window of the, quote, five years. How far, you know, maybe that's up for judgment, but I do think it does extend that, and so I don't think -- If we do use some interim data, yes, we could look at going into 2027, or maybe even 2028, depending on how many years of interim data we include.

The other thing I'm just concerned about, and I know this is a management timing issue, but, you know, if we're going to put out a value for 2026, but then immediately turn around and do a

rebuilding plan, I think all indications are that the rebuilding F is going to be lower than the 2026 value.

Why would we not, just out of the gate, consider a rebuilding schedule? I mean, we could do both, and maybe then that could be considered at that time, but it just seems like there's an opportunity here to take advantage of a management action that heads off what we know is going to be coming down the road immediately after that, and why not take advantage of that?

DR. REICHERT: Yes, and perhaps that would make sense, but I don't have a real answer about that. That may need a little -- I'm also not sure if we, as an SSC, would be the right body to make that decision, or recommendation, and so that may be a conversation for another time, or another body. I don't necessarily disagree with you, but thanks for -- In terms of the, you know, if we can include additional years, then we can extend the timeline, and that may give us a little bit more flexibility, if the timing requires us to go into 2027. Any other -- Fred.

DR. SCHARF: I just wanted to mention, and I think -- I mean, ideally, right, if we had the data for 2022, and 2023, to rerun new projections, with those two years of data added to the model, that would be ideal. I'm looking at Matt, but I'm not looking at his facial expression, and I'm just looking at him, but I think the other thing to remind us of is that I think that would give us the opportunity, also, to reapply the ABC control rules, and, right now, black sea bass is sitting at medium risk, right, and low biomass, which gets us P* of 30 percent, but it could be based on those new projections, you know, and we hadn't really evaluated the environmental score, right, which right now is a zero for black sea bass.

If that changes to a one, it pushes them into a high-risk category, which, if it's still low biomass, puts us down at a P* of 20 percent, and so I'm assuming that there's flexibility, in the ABC control rule, if we run new -- If we add new data and run new projections, but I don't know.

DR. REICHERT: As a reminder, we used the old ABC control rule, and so a decision that we will have to make is whether we stick to the old ABC control rule or we apply a new one. Judd.

DR. CURTIS: The report from February explains the rationale the SSC made to justify the P* approach, and we did use the ABC control rule, the old ABC control rule, initially. We did, however, make an adjustment to that risk rating, from a medium to a high, based on the new stock risk rating tool, and so it was kind of a hybrid approach, in a sense because the SSC had agreed that the stock does appear to be at a very high risk, and so that helped set the P* using the old control rule. Now, if we applied the new ABC control rule, with those same status criteria, it might change it as well, and so that would be an exercise we'd have to go through.

DR. REICHERT: But then the first question is should we apply the old or new ABC control rule, and that may be a discussion that may take a little more time than we have today, unfortunately. I want to go back to our decision, in terms of what we, as an SSC, would like to see in order to provide catch level recommendations to the council, and what I'm hearing, from you guys, is that an interim analysis, based on the index values, may be something that gives us that information, that can be perhaps done. I may need to ask Matt, or Erik, that, in a relatively short period of time.

The only concern I have with that is that this would be the first time that we're using an index, an interim analysis, to provide management recommendations, and so we may need some discussion,

in terms of how to do that, but, if anyone on the SSC feels have heartburn, potential heartburn, over that -- Steve.

DR. TURNER: I'm very concerned about being so far from the last ageing data. I think this is a solution we have to move forward with. I think we're stuck, but I'm new here, and so maybe we aren't, but I am very uncomfortable with this analysis, at this point, and I get concerned that, once we reach the end of the data, the 2024 data, if that's what's put in, or the 2023 data, that now we're going ahead, and I think we'll see the model bring the estimated population back up, just as it has so far. That's an absolute guess, and so I think we may be in the same conundrum, that we're looking at odd patterns, that we don't really think might exist, two or three years in advance.

I think we're forced into this situation, but I, sitting now, will have very little faith in what we get out of it. I'm very concerned about what we're going to get out. I like the idea of using an index, but we're a long way from the ageing data, and the model, as it exists right now, wants to increase the population, which we think probably is not going to be the case, and so I'm suggesting the model will do that, after the end of the index and landings data, and so all we're doing is buying a year, or two, but then we're still going to have a very similar problem, is my guess. Thank you.

DR. REICHERT: Thanks, Steve. Before I go to Erik, Wally, you can address that, in terms of age data. There may be additional age data available, but I let Wally answer.

DR. BUBLEY: Yes, and so, I mean, depending, I guess, on the approach that we want to take, for the fishery-independent survey, the index, the fishery-independent SERFS index, the ageing data is available through 2023, and I don't want to promise 2024 yet. We just got it, but, because we don't have to process those, and we read them whole, those go a lot faster, and they're relatively easy to read, and so that data may be available, if there was a need to use.

DR. REICHERT: Erik, and then Jim.

DR. WILLIAMS: There's a confusion here, and I want to make sure we're all clear on this. We're not proposing doing interim analysis, in the sense of using an analysis that's based purely on the index. What I would call it is an enhanced projection analysis. Basically, what we would do is continue with the framework of the projection code, which includes the stock dynamics that come from the assessment, but what we would be doing is fitting to new data, and so we would allow -- So, for instance, you can do this in a step-wise fashion.

If all you have is additional removals, well, if you incorporate those into your projection analysis, that allows you to update fishing mortality estimates in the years that you have removals. Now, if you would bring in an index, and age data, which is great to hear, Wally, then we can estimate recruitment values as well, and so that's what I would consider this, is an updated projection, or an enhanced projection, method that uses -- That takes full advantage of whatever data is available to us at the time that we'd make the run, and I think that's a better platform.

I would even go as far as to say this idea of doing an index method, independent of the assessment, is fraught with some potential issues, because you're disconnecting, in a sense, the dynamics that you've sort of laid out in the assessment, and estimated, and suddenly you're jumping to just an index adjustment, and those are, more often than not, probably not going to match up exactly, and you're going to run into problems with that, which is why I really prefer this notion of just an

extension of the model, of the assessment model, and an enhanced projection method that allows for some parameter estimation, based on the new data that you're feeding into it, and hopefully that makes sense to folks.

DR. REICHERT: Thanks, Erik. I see Steve nodding. I assume that means that that may address some of your concerns.

DR. TURNER: Yes.

DR. REICHERT: Thank you. Erik, just to make sure, and, Alexei, we'll come to you, that is still kind of considered your second option you mentioned earlier in your comments, correct?

DR. WILLIAMS: No, and I think that's my third. That was my third, which was basically pull in new data and rerun a projection method. I think the second one I recommended was take what we have in-hand and make an ad hoc adjustment, based on the index, which would be kind of in line with what you just described as an interim index analysis method.

DR. REICHERT: Okay, thank you. Alexei.

DR. SHAROV: I totally agree with what Erik says, but my initial thought, half-an-hour ago, when we talked about three options, I thought that would be probably the best to recommend, Option 3, where, to the extent possible, to make the analysis come as close to the stock assessment update, through say 2023, or 2024, if the data and time allow for this, but understanding that there could be limitations, and some sort of simplifications could be done, but, effectively, it would be -- This would be just, you know, some components of the same forward projection model, and that's I think what Erik essentially described.

DR. REICHERT: Thank you. What I'm hearing is that the SSC recommends, if at all possible, to do these what I'm calling enhanced projections, like Erik explained just now, using new available data, and provide that to us, so we can use that to base our ABC recommendations on. Jim.

MR. GARTLAND: I just wanted to be clear, and I think I understood what Erik said, and so not all data types have to be available, in order to make this work, because I think I heard somebody say, yesterday, that the fishery-dependent ageing data take longer to have become available. It happens a lot, and I just want to make sure that's not going to be a sticking point.

DR. REICHERT: Erik, can you -- Sorry to put you on the spot.

DR. WILLIAMS: No, and that's a very good question, Jim. That's exactly -- We would work with the data we have, and then handle the pieces that we aren't able to update -- We would still handle and, and you know, we would be able to even include uncertainty in those, and things like that, but, yes, it's going to be sort of a tapered loss of data, as you go further in time, is the way to think of it, but at least taking full advantage of everything you do have in hand.

DR. REICHERT: Thank you. Anyone disagreeing with that recommendation? Then so we will put that in our report. Anyone -- Carolyn, please.

DR. BELCHER: I don't want to add a layer of complexity to this, but I do want some folks to think back to what happened with Spanish mackerel. I mean, the good news is that we're not compelled under a timeline that -- You know, where, before, we were getting this little bit of squash between what felt like the council's ask and not recognizing the fact that we were starting on a clock, right? This one, we don't have the clock, but my question still comes down to what if this can't be done, and so just for you guys to think about that. I don't disagree with the idea that there's ways that we may be able to work forward, but what if this can't be done?

DR. REICHERT: Can't be done in terms of timing, workload, data availability, or all of the above?

DR. BELCHER: Whatever the letter comes back to the council and tells us, whether or not the commitments can be made or not, and that's kind of what happened with Spanish. There was a lot of really good ideas brought forward, and we were like, yes, but, unfortunately, it's not going to be done, and so just putting that on the table for you guys to think about.

DR. REICHERT: Okay. I guess we go back to the drawing board and look at our other options. I mean, I know that that's a timing issue for the council. I'm not sure how to answer, or address, that question. The only thing I can think of is, although that, you know, may add to the timeline, is can we -- Would it help to provide a scope of work? I'm not sure how to do that, if we were to do that. I think Erik laid out exactly what would be done, and so I don't really think that would make any difference, or speed the process up, and I think that would probably only slow the process down. I think Erik laid out clearly what needs to be done, and what can be done, and that's not a question I think we, as an SSC, in terms of workload, or other considerations That we, as an SSC, can decide, or comment on, right now. Does that make sense? Okay, and so that's our recommendation. Any other comments, or questions? Steve.

DR. TRUMP: Please read the recommendation.

DR. REICHERT: The recommendation of the SSC is developing a, quote, unquote, enhanced projection method using updated index values, updated age data for the index, updated catch data, and I would add any other updated data available, and provide catch levels for 2026, and possibly later years, to kind of make it a little more -- So, again, I'm going to ask Erik if this captured what you were proposing and what you think is feasible.

DR. WILLIAMS: Yes.

DR. REICHERT: Okay. Thank you.

DR. WILLIAMS: I would go -- You know, if you would give me a second to jump on a soapbox, I would go as far as this should be the model we start to work towards with all of our stocks, and that is that we set a date at which the ABC needs to be set, which is always sometime after the terminal year of the assessment, and we grab all the interim data we can to enhance our projection analysis, because we are getting close to the realization of rapid turnaround of our data, and we should be incorporating that.

I mean, what Wally said was fantastic to hear, that they are keeping up with age data. They are turning around index values very quickly, and we're getting close to being able to turn around all the removal estimates very quickly. Let's take full advantage of that in our projections, and not

deal with these guesswork interim years that we often have to work with in our projections, and so I really hope that people recognize that this is the model we should be trying to strive for, going forward, with all of our stocks.

DR. REICHERT: Thank you, Erik. Steve, this is clear? Again, please provide notes, and, if we need to do some wordsmithing, we can do that during our report development. Also, the clearer we can get, the more easy my job will be, in December, to present this to the council. Alexei.

DR. SHAROV: I want to ask the SSC, and Erik in particular, how likely is it, you know, given that the particular effort will be made to get the data available, and what's the probability of actually having enough information to do them all on update, because -- The reason I'm asking is that, no matter how you enhance your predictions, you're going to be in, you know, in an enhancement prediction scenario, and you will be starting still with the January 1st of 2022, the results of the current assessment, and projecting them forward.

While the --- You know, if the updates are made at least through three years, for example, and the model is run, you know, completely, but, you know, in exactly the same formulation, but it would provide us with the updated numbers-of-age for the terminal year of 2023, where there would -- There possibly could be some rescaling, and the values for fishing mortality, and the numbers will certainly change for the most recent years, and that will bring us, you know, much closer.

That is, in other words, we said we'll substantially improve the starting point, compared to the ad hoc projection forward, but, based on, you know, some components, and not like putting together holistically through the assessment model, and so is there any chance of just doing the assessment update and then projecting through 2026, 2027? Thank you.

DR. WILLIAMS: I'll jump in if that's okay, Chair.

DR. REICHERT: Absolutely.

DR. WILLIAMS: Alexei, thought through, like a true stock assessment scientist, and you were actually -- It's like we're reading each other's minds. Yes, that's where we'd like to get to. I mean, I think that's our penultimate goal, is get to the point where we can pull in recent data and actually rerun the full assessment. A projection is really just kind of an extension of the projection, but you're right that it would be better to take that next step, which is, as I said, the penultimate step of actually just rerunning the full assessment model with the updated data. Again, I think that should be our goal. We may not get there right away, but, as long as we sort of recognize that that's a good goal to strive for, I think we're headed in the right direction.

DR. REICHERT: Thank you. Any additional discussion? Seeing none, I think we have our recommendation, Judd, and I'm a little -- I'm not sure if we need additional public comment, but we have, at the end of the meeting, a public comment, and so we'll fold that into the public comment at the end of our meeting. Judd.

DR. CURTIS: I just having a sidebar conversation and talking about the recommended catch levels, the SSC recommended catch levels, and so this is now the SSC's recommendation. If you recall though, we did have an ABC OFL recommendation on the books, based on the F rebuild scenarios, and so it'd be good for the SSC to just explicitly state that this is the new

recommendation, their new recommendation, and that replaces any previous recommendations that were put forth.

DR. REICHERT: Can you explain that, because we are not providing an ABC recommendation. We are providing a method recommendation.

DR. CURTIS: Right. You're providing a recommendation, and this would replace any previous recommendations relating to catch levels that were previously recommended by the SSC.

DR. REICHERT: Mike.

DR. SCHMIDTKE: Trying to help clarify, this is something related to Magnuson. If the SSC puts forward an ABC recommendation, like you all did, and I think it was probably about, what, a year, or a year-and-a-half ago, something like that, but, however long ago it was, when you put forward your original ABC recommendation, based on the assessment and the originally-run projections, that set of projections --Basically, the council is then beholden to those numbers, unless there is another recommendation from the SSC that supplants that, and we're just noting, for the purposes of following Magnuson, what the council is required to abide by, the recommendation that you're making right now would supplant your previous ABC recommendation.

DR. REICHERT: Shep. I would love to have you addressing this.

MR. GRIMES: Thank you, Mr. Chairman. So I guess, in talking to you, Judd, maybe I wasn't entirely clear. I mean, once you have that new ABC recommendation, consistent with this process for developing it, then that will supplant the past ABC recommendation that you have. I don't think, at this point, you're ready to just walk away from that, unless you are, which I guess you're free to do, but, until you have that new recommendation, I would say what you have on the books -- It's there, and it will be binding, unless this group, you know, effectively rescinds it, I guess, which seems a little odd.

DR. REICHERT: Judd.

DR. CURTIS: Those ABC recommendations were based upon the F rebuild scenarios though, and so, if the council is not undergoing a rebuilding plan, at this time, those ABC recommendations would not be valid for this first aspect of this first amendment process.

DR. REICHERT: Shep.

MR. GRIMES: Well, I would not go so far as to say they're not valid. I would say that they're more conservative than-- They're based on a more precautionary approach than needs to be the case now, because we have not declared the stock overfished, because we don't have the new SDC in place. I don't know that I would want to go as far as saying they're invalid. I guess the concern is that the council is going to want to move forward with implementing an amendment that's going to have the new status determination criteria in it that will be used to declare the stock formally overfished, right, and, maybe in that, they want an ABC, and that ABC will be higher than the last ABC that you got, because it was based on rebuilding, right, and, well, when we get that new ABC, that will supplant this, I guess, and that's how I would envision it playing out.

DR. CURTIS: Okay. So ignore what I said earlier. We do not need a new recommendation, at this point, to supplant any previous recommendations.

MR. GRIMES: Unless you're ready to provide it, which you're not, right?

DR. REICHERT: Well, that's why I was confused, because we are not recommending an ABC. We are recommending a process, but I do realize what you said, and correct me if I'm wrong, that any previous recommendations -- It will still be on the books, is what you're telling us.

MR. GRIMES: Well, I think the point here was just to be clear. If we go back several years, I know in the case of red snapper, we had a conversation of no new ABC recommendation was provided, but your old ABC recommendation was still there, yet it did not play out that way in interpreting the record down the road. We said, oh no, you have no ABC recommendation, and didn't address the fact that there was a prior one on the books. This is different, in that you're standing by that ABC recommendation, I presume, until you change it based on this new approach.

DR. REICHERT: Yes. Is that clear to the members? Okay. No problems with that. Okay. Thanks for that.

DR. CURTIS: I just wanted to stir up everyone's brain one last time.

SSC WORKGROUPS AND SEDAR PANELS

DR. REICHERT: Exactly. Like at the end of the meeting, as if our brains weren't stirred enough, I think. Anyway. Okay. Thanks. So we're clear. This is it. Carolyn, or anyone else, this is -- Does the council need anything else? I think this is a clear recommendation, and thanks, Erik, for your feedback. I think that helped a lot, and, with that, I think we can move to our next agenda item. This is SSC Workgroups. I asked the members to kind of look at that and be prepared to potentially volunteer. There's no assignments. The attachment is 13, and we will continue to see that. I would normally ask for updates from the working group chairs. I don't think there was any working group activity. Judd, correct me if I'm wrong, and so I don't think the updates are relevant. Judd, I'll hand it over to you. The Attachment 13 is the overview of our working groups.

DR. CURTIS: Thanks. So, as we had hinted at at a previous meeting, we're going to try to keep more regular updates of workgroup activity. As Marcel mentioned, there hasn't been any workgroup activity since the last time we met, and so there's nothing really to report from the extant work groups. We do have a few tasks ahead for populating workgroups moving forward, and one, of those, of course, is that subgroup for the yellowtail and mutton snapper review, SSC review body, that will take place in February.

In addition to that, we have -- You can see that I've added a blueline tilefish subgroup, and this is not to be confused with the other form of a subgroup. We might need to come up with a different nomenclature there, and so this -- The idea for this subgroup is going to be a joint subgroup between staff, the Science Center, and some SSC members, to come up with a strategy on how we're going to review the blueline tilefish assessment, when it comes out, and so, currently, the blueline assessment is Atlantic-wide, and there's a difference in how the SSCs operate.

In the Mid-Atlantic, they do not go through the process of reviewing the assessment, as we do in the South Atlantic. They merely -- They have a technical body that does the review, and then, by the time it gets to the SSC, they declare it BSIA and set the catch level -- They apply their ABC control rule and set the catch level recommendations.

Because of this differential functioning of the SSC bodies, we need to come up with a strategy on how to do that, and so part of that would -- Part of the members for that group would be -- It would behoove you maybe to be familiar with the review assessment process, as we get closer to the end, but it's mostly a strategic kind of planning group, at this point, to figure out how we're going to tackle the eventual review process for blueline tilefish. Any questions on that, and/or any members that are interested in joining that blueline tilefish subgroup at this time?

DR. REICHERT: So let's start with that blueline tilefish. Anyone interested? What's the timeline for that?

DR. CURTIS: Good question. That would be -- We're having another meeting with Mid-Atlantic staff, and the center, I believe in early November, and this would probably begin at the start of next year. We would start having, you know, just webinar meetings to start discussing how the process would unfold.

DR. REICHERT: So these would be webinar meetings, and do you will foresee an in-person meeting, or that's difficult to say?

DR. CURTIS: That's difficult to say right now. Probably not for right now. I would anticipate maybe three two-hour webinars over the course of the next six months.

DR. REICHERT: Okay. Anyone interested in participating in this workgroup? Jim.

MR. GARTLAND: I would be interested, if you think I would be useful.

DR. REICHERT: We have a number of members who were unable to join us this morning, and so we -- Maybe we'll do some lobbying and see if there's other folks available and interested in joining this workgroup. Unless you want to continue with the blueline, I suggest we move to mutton snapper and yellowtail snapper.

DR. CURTIS: That’s fine. As always, upon, you know, the review of your report, and for -- Well, we can’t ask the members that aren't here, but, Marcel, maybe in your -- When you send out the report, after our edits, just mentioned that we are looking for subgroup memberships for a few of these things, and so, upon your report review, please decide if you would like to volunteer.

DR. REICHERT: I would like to mention that Fred Serchuk has volunteered. Alexei mentioned he was interested. He mentioned Amy Schueller. I'm not sure if she's online, but, Alexei, I assume you talked with her, or were in touch with her.

DR. SHAROV: Yes, and I don't want to speak for Amy directly, but, at the end of the peer review, we discussed the future steps, and this meeting was brought up to our attention. I think we both expressed an agreement in being part of the SSC review, since we've spent quite an amount of time in learning the assessment and reviewing and going through it.

DR. REICHERT: We'll pencil her in. I was a member of the mutton snapper data workshop, and so I'm -- I wouldn't mind being part of this group. Anyone else interested, or available? Fred.

DR. SCHARF: So, just to clarify, is this the big group that you're talking about for the Tampa meeting in February?

DR. REICHERT: Yeah, this is the combined review with the Gulf of Mexico. We were asked to provide about ten members, and so there's a heavy delegation of our SSC. Jim raised his hand. I assume that means that you're interested and available. Dustin.

MR. ADDIS: Yes, I'd like to be here.

DR. CURTIS: Okay, and, just as a reminder too, this would take place Tuesday, February 25th and Wednesday, February 26th, in the morning, in Tampa, Florida.

DR. REICHERT: Dustin had his hand up, and then Fred Scharf raised his hand, and so we have seven people now. Jim, go ahead. Yes, Jim. Fred, Alexei, Amy, Marcel, Jim, Dustin, and Fred. Okay. We may -- Thanks, Steve. You were at the mutton snapper, correct?

DR. TURNER Yes.

DR. REICHERT: All right. We need some more folks. We'll probably -- Jeff.

DR. CURTIS: Great. Thank you, all. I think that's a great start. Maybe get one or two more people, and I think we would try to hit ten, and ten, or eleven, was the target, and so we'll let people know, if there's anyone else that's not at the meeting currently that wants to join, that they be welcome to put their name in the hat.

DR. REICHERT: Okay, sounds good. Go ahead.

DR. CURTIS: I was just going to say that that really concludes the business that we needed to accomplish for the workgroups and the SEDAR assignments.

DR. REICHERT: Well, except for the fact that, you know, there's like the Ecopath, Ecosim, Ecospace has three members. We could do with one more, and we need a chair. Regime shifts, we could do with two more, and we need a chair, and the MSY proxies and reference points -- We could use some more members, and we need a chair, and so, even if we can't make the decision this meeting, I would really like you to start thinking about that, who is willing to function as chair of the various working groups and who is interested in joining. A question I had is you had, above the joint work group with the Gulf of Mexico for goliath grouper. I had a -- Can you explain that a little?

DR. CURTIS: That was a joint work group. This was formulated a couple years ago, when the State of Florida announced they would be opening up a limited harvest of goliath grouper, and so there was a desire to form a joint workgroup to look at any data that might be coming out of that project. It hasn't really amounted to anything at this point, but we've populated it, and, really, that's just as a placeholder to note that that is the body of Gulf SSC members that are part of that, but

that would be part of the -- That is part of the data-limited unassessed stocks work group that is populated by the South Atlantic members.

DR. REICHERT: In terms of any of these working groups, do you foresee some action? We talked about the action items from the national SSC meeting. We had some other agenda items today, at this meeting, that may address, or overlap, with some of these working groups, and, if not, we can discuss that next meeting, but I want to avoid that we go through this list every meeting and then say there's no update, or no activity, and so, if there is going to be activity, that means, of any of these working groups that need additional members, then I would like to see if we can populate that working group and select a chair, and, again, we don't necessarily need to do that now, but I just want to make sure that we don't do that after the fact. Thank you.

DR. CURTIS: I think given the guidance, you know, from the report of the national SSC meeting, and some of the other documents that will be coming down, and reports from others, you know, we talked about getting these groups together. We don't have a specific, an explicit, charge at this point, just yet, and so I think it might be still a little bit premature.

Keep in mind, as Erik mentioned during the threshold precision group too, we'll probably be looking for some SSC members to join a review panel for that body, when they're ready to go, and probably, if they're having another meeting in February, then, maybe by April, they'll be ready to start enlisting SSC members to participate in the review panel of that as well. As we're developing some of those actionable items from SCS 8, I'll start thinking about what tasks SSC members might be able to fill and start coming up with, you know, scopes of work for workgroups, like the regime shifts, MSY proxies, et cetera.

DR. REICHERT: Thank you, and it would be good, maybe, to add that review in here. Then, if we go to the next page, in terms of SEDAR panel membership, are we good here, or -- I assume the review for red snapper -- That's too far away. We have plenty of time to fill in those blocks, and black grouper doesn't start until 2026, and so the list here is -- We don't need any additional names there.

DR. CURTIS: Correct. Yes, we're good on the SEDAR panel memberships for now. The next one to populate would be the -- It probably likely would be the red snapper review panel, but that's still going to be a year-and-a-half out.

DR. REICHERT: Thank you. Jennifer.

DR. SWEENEY-TOOKES: Sorry, and I'm coming a page late, and I was trying to catch your eye. I have a question, actually on the first page, about the Ecopath, Ecosim, and the regime shifts. Do I misremember that we discussed perhaps combining these, and reassigning these to different type of work, in light of our discussion with Carolyn? Was that during an ExCom, or during the last webinar? So do we want to try to recruit new people, or chairs, or do we want to leave that alone for now, until we make those shifts?

DR. REICHERT: Judd, can you --

DR. CURTIS: I think leaving them alone, right, was the decision of the SSC at our August meeting. That was a full SSC meeting, and recommendation, until we have some more guidance

and explicit direction, and so I would suggest just leaving them intact, as-is, and not blending them together, at least for now. That might change in the foreseeable future, and so no recruitment at this point.

DR. REICHERT: Thank you. Any other questions, or volunteers? Okay. Seeing -- Jared.

DR. FLOWERS: I will go ahead and throw my hat. I'll join Ecopath and regime shift, both of them.

DR. REICHERT: Thank you. Do you have a suggestion as chair, for a chair?

DR. FLOWERS: Not yet. Talk to me later.

DR. REICHERT: Thanks, Jared. I appreciate that. Okay. No other comments, or questions? Public comment relative to this agenda item? Seeing none, let's move to our next agenda item. Thanks, Judd, for that overview and your work on that. Other Business, we have a review of the Stock Assessment and Fishery Evaluation, or the SAFE reports. This is not a review at this meeting. Chip was going to provide some information there, correct, or is it Judd? Chip, the review of the SAFE reports.

OTHER BUSINESS - REVIEW OF SAFE REPORTS

DR. COLLIER: Yes, and I'm still working on those. It has been a heck of a year, and so we're continuing to work on the shrimp SAFE report, dolphin wahoo and golden crab SAFE reports, and what we would like to do is just send them to you all for review, provide comments on how they could be improved. You know, these are not going to be, -- In my view, these are never going to be really final documents. They don't need to be approved. It's for your information, it's for the advisors' information, and it's for the council's information.

What we want to do is have a document that we can put a year on and say we completed it for that year. Two years later, we're going to update it, and so, you know, maybe, as you're reviewing it, think of it in those lights. What would you like to have in the next review, and then what needs to be corrected for this one, and so we'll be sending it out to the SSC, to gather comments, and then we'll present them to the council in December.

DR. REICHERT: Thank you, Chip, and so, just to be clear, you're basically asking us for a, quote, unquote, desk review. If necessary, we can discuss if that can come to an SSC meeting, but, at this point, you're asking us to take a look at it and provide comments to you, rather than discussing it at the meeting, just to make clear, correct?

DR. COLLIER: That's correct, and you guys did look at the snapper grouper SAFE report, and provided a lot of comments on that, and it's going to be based on that. However, data differs amongst the species, and the FMPs, and so there might not be as much information for these other stocks, or fishery management plans, as there is for snapper grouper.

CONSENSUS STATEMENT AND RECOMMENDATIONS AND NEXT MEETINGS

DR. REICHERT: Thank you. Is there any other business, any other other business? Seeing none, this is the last opportunity for public comment during this meeting. Is there anyone online? Seeing none, is there anyone in the room who would like to make a public comment at this point, relative to any of the agenda items we discussed in the last couple of days? Seeing none, okay. Thank you.

Next on the agenda is a consensus statement and recommendations review. Let me confer with Judd, real quick, about this and see where we are here. Probably, as a function of how this kind of -- How the meeting developed, and Judd and I just talked, and it may be good to just have you guys provide your notes to Judd. Please copy me. Judd will then draft the first draft. I'll take a look at that, and then send it out to the SSC, rather than going through the consensus statements, because there's a lot of information that's currently not captured in Judd's notes, given the nature of the meeting. The only thing I want to discuss about the report is the timeline. Remind me, Judd, when this needs to go to staff for inclusion in the briefing book. I think we have a little bit more time than last time, but I just want to make sure we're not missing any deadlines.

DR. CURTIS: Yes, and we've got more time than the August meeting, fortunately. Three weeks from the end of this meeting is our target for providing the final SSC report, and that aligns well with the briefing book deadline for the next council meeting in December.

DR. REICHERT: When is that?

DR. CURTIS: That's the first week of December.

DR. REICHERT: But I mean the deadline would then be two weeks?

DR. CURTIS: Friday, November 15th.

DR. REICHERT: Is the deadline?

DR. CURTIS: That's when we'll provide the SSC report.

DR. REICHERT: Okay, and so that's three weeks before the council meeting. Okay. Then that means that -- Judd and I will talk about that. I will try to get the draft to the SSC on November 1st. give you guys a week to provide comments, and back to us on the November 8th. That gives me a week to include all the comments, and I would like to get a little time to see if there needs to be some consolidation with different comments, but I'll let you know, and I'll discuss with Judd, if there are considerable differences in notes. Then I'll get back to those members who are involved in those notes, or those agenda items, and then we'll provide the final draft on November 18th. I think that's feasible. Okay. The 15th, and so get the first draft in on the 1st, comments back to me on the 8th, and then providing the final report on the 15th. Clear as mud? Okay. All right.

Then the next meeting, the mutton snapper and yellowtail review, is going to be in lieu of our winter/spring webinar. I just wanted to mention, if anything comes up, and in particular relative to black sea bass, we may get in touch, but, right now, and, Judd, correct me if I'm wrong, but we are not scheduling a winter spring webinar, and so our next meeting will be the in-person April meeting, correct?

DR. CURTIS: That's correct. Pending any immediate action on something like black sea bass that might require emergency webinar action, the February 25 to 26 in Tampa subgroup will fulfill our winter/spring meeting for the SSC, and then the next time we'll meet in full is in April, back here in Charleston, or in Charleston, and not Mount Pleasant.

DR. REICHERT: Okay. Thank you. Any last comments, or questions? If not, thank you, everyone for your -- Chip, go ahead. Tim, if you're speaking, we can't hear you. Tim, you're self-muted on your end.

MR. GRINER: How about now?

DR. REICHERT: We can hear you. Thank you, go ahead.

MR. GRINER: Thank you, guys, for such robust deliberation this week. I think that was great. I really enjoyed it, and I did want to just end by highlighting the importance of that national SSC meeting. I think some great things came out of that, and I just want to kind of end by highlighting the importance of the items of the bullets in that Sub-Theme Number 3 and the importance of Action Item 3. I just kind of want to throw that out there as a parting thought. Thanks again, everybody.

DR. REICHERT: Thanks, Tim. I appreciate your comments here. Anyone else? Again, thank you for your contributions and willingness to be flexible in addressing the various agenda items. Safe travels, and we'll see you in April, if not sooner, and we adjourn the meeting.

(Whereupon, the meeting adjourned on October 24, 2024.)

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November 18, 2024

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