

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL
SCIENTIFIC AND STATISTICAL COMMITTEE

Webinar

January 20, 2023

Transcript

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Attendees and Invited Participants

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Frank Helies
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Shepherd Grimes
Dr. Kyle Shertzer

Additional attendees and invited participants are attached.

The Scientific and Statistical Committee of the South Atlantic Fishery Management Council convened via webinar on January 20, 2023, and was called to order by Dr. Jeff Buckel.

INTRODUCTIONS

DR. BUCKEL: Good morning, everyone, and welcome to the South Atlantic Fishery Management Council's January 2023 SSC webinar. My name is Jeff Buckel, and I will be chairing today's meeting. A couple of housekeeping items, and Kelly Klasnick asked, for those that haven't sent them in, please send him your financial disclosure forms, and you know who you are, if you haven't sent it in. Also, if you submit your time to Cindy, please use the updated timecard that Kelly sent on January 4.

All right. We're going to be following the revised agenda that Judd sent out yesterday, and so a couple of changes, and so everyone is here at 9:00, and so you got that change, from 8:30 a.m. to 9:00 start, but also note that the lunch, on the old agenda, was 12:00 to 1:30, but we are just going to take a one-hour lunchbreak, and so 12:00 to 1:00 for the lunchbreak today, and then the overview is on the website, and we will be following the overview for the action items today. Judd, I guess, next up, is doing a voice recognition.

DR. CURTIS: Yes, that's correct. We'll do a voice recognition on the record, and so I'll scroll down, and, if you just want to start with you, Jeff, and then just go on down the line here.

DR. BUCKEL: All right, and so I'm Jeff Buckel, with North Carolina State University.

DR. SCHARF: Fred Scharf from UNC Wilmington.

MR. ADDIS: Dustin Addis, Florida FWC, stock assessment.

DR. BUBLEY: Wally Buble, South Carolina Department of Natural Resources.

DR. CAO: Jie Cao, NC State University.

DR. CROSSON: Scott Crosson, NOAA Fisheries.

DR. DUMAS: Chris Dumas, UNC Wilmington.

DR. FLOWERS: Jared Flowers, Georgia DNR, Coastal Resources Division.

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

MS. LANGE: Anne Lange, South Atlantic SSC.

DR. CURTIS: I think we're still missing Yan.

DR. LI: I am here. Yan Li, North Carolina Division of Marine Fisheries.

DR. LORENZEN: Kai Lorenzen, University of Florida.

DR. CURTIS: Jeff, Genny just texted me and said she had to reboot her computer, but she had voice-checked earlier.

DR. BUCKEL: Okay. Let's move on to Amy.

DR. SCHUELLER: Amy Schueller, NOAA Fisheries.

DR. SEDBERRY: George Sedberry, South Atlantic SSC.

DR. SHAROV: Alexei Sharov, Maryland DNR.

DR. SWEENEY-TOOKES: Jennifer Sweeney-Tookes, Georgia Southern University.

DR. CURTIS: Carolyn, I see you've arrived, and you've been unmuted, if you want to introduce yourself.

DR. BELCHER: Carolyn Belcher, chair for the council, currently.

DR. WILLIAMS: Erik Williams, Southeast Fisheries Science Center.

DR. CURTIS: Okay, Jeff. We're all set there. Thank you.

DR. BUCKEL: All right. Thanks to all the SSC members for attending today's meeting, and thanks to Carolyn and Erik and others that are joining us today. We appreciate the assistance. Next up is Approval of the Agenda, and so does anyone have any additional changes or questions with regard to the revised agenda that Judd sent yesterday? Raise your hand if you do, and, Judd, if you don't see any hands raised, then we'll consider the agenda approved. It doesn't look like any hands, and I guess you would type those in, Judd, and is that -- Are you tracking the hands raised?

DR. CURTIS: Yes, and Allie is checking the hands raised, and I'll bring up the overview, so we can jot down these notes.

DR. BUCKEL: Excellent, and so the revised agenda is approved. Next up is Attachment 1b, which are the meeting notes from October 2022. Does anyone have any changes or questions regarding the meeting transcript from our October meeting? Raise your hand if you do. All right. No hands, and so we'll consider the October 2022 meeting minutes approved.

All right, and I think next up is public comment, and is that correct? Yes, and so I looked online, about fifteen minutes ago, and I didn't see any online public comment, and are there any members of the public that have signed onto the webinar that would like to provide comments? All right. No hands, and so we will move on into the Item Number 3 on the overview, which is the SEDAR 68 Operational Assessment for Scamp. I just want to remind everyone to please take notes for the section, your breakout group topic, and Kyle Shertzer is going to give the presentation on this assessment, and so you know your topic for the breakout group, and, if you don't, please open that breakout group Excel file and find your topic and keep notes on that, and we will hand things over to Kyle next, Judd, unless you have anything that you want to add.

DR. CURTIS: No, nothing to add, and Kyle is ready to go. I will make him the presenter, and then he should be able to fire away.

DR. BUCKEL: All right. Thanks, Kyle. Thanks, Judd.

SEDAR 68: SCAMP OPERATIONAL ASSESSMENT REVIEW

DR. SHERTZER: Good morning, everybody. We keep calling this the scamp assessment, but, before we get past the title slide, I did want to underscore that this is an actually an assessment of a complex, and it's scamp and yellowmouth grouper, and I will probably use the term "scamp" throughout the presentation, but, whenever I do, I want you to hear "scamp and yellowmouth grouper", and the reason for this was because the two species are so difficult to distinguish, and maybe you can see, from these artistic renditions, that, even for trained biologists, it's tough to tell these two species apart, and so the data that we have were mixed, as containing both of these species, and, early on in the process, it was decided that there would be more error introduced by trying to disentangle the data into just scamp than there would be by trying to assess this as a complex.

Okay, and so these are the topics that I will walk through, and it's some background for this assessment and then the data and the assessment model, and then the results and forecasts, and so, starting with some background, and this is actually the first attempt, in the South Atlantic, to adopt this research track approach of doing a research track assessment, followed by an operational assessment, and the research track started in March of 2020, with a stock ID workshop, and the two primary recommendations that came out of that workshop were to assess the Gulf of Mexico stock and the South Atlantic stock separately, with the council boundaries separating the two stocks, and then, as I mentioned earlier, to treat the scamp and yellowmouth grouper as a complex.

Then, after the stock ID was completed, the data workshop was held, and it was originally scheduled as an in-person workshop, but, because of COVID, it turned into a series of webinars, in April through September of 2020, and then the assessment workshop followed that, starting in December through May of 2021, and the CIE SEDAR review was in September of 2021, and then you all reviewed the research track assessment in October of 2021, and, as a reminder, the goal of a research track assessment was to develop the data, and the methodology, but not necessarily to provide management advice, but more just to develop the methods.

That took us, shortly after the SSC review, to start the operational assessment, and that one began in December of 2021, with developing the TORs and the schedule, and then data was developed during that following spring and summer, and completed by August, and then the modeling and the reporting writing happened in August through December of 2022, and then now here we are at the SSC review, in January, and so I guess one of my main points, in walking through this timeline, is that this is --

One, this was the first research track and operational set of assessments that we've tried to do in the South Atlantic, but, also, that this is sort of textbook, in the sense of the operational is following pretty quickly on the heels of the research track, and the intent there is that we would just be updating data and running the model, and it should be as turn-of-the-crank as possible, but I am

going to show you reasons, throughout this presentation, of why turn-of-the-crank assessments don't actually exist, and some decisions had to be made, and some corrections had to be made, and I will try to highlight those, throughout the presentation, so that you can give extra review to those issues, because those were not reviewed when you looked at the research track assessment. Then, as a reminder, for the operational assessment, now the goal really is to provide management advice.

Now on to the data, and we had three indices of abundance for this assessment, and two of them were fishery-dependent, coming from the headboat logbooks and from the commercial handline logbooks, and those ended in 2009, because of fishery regulations, and so those didn't need to be updated from the research track assessment, but then we had one fishery-independent index of abundance, from SERFS, and that did need to be updated for this assessment. That one combines the chevron trap and video gears and runs 1990 through 2021, but, of course, it's missing 2020, because SERFS was not able to sample during the pandemic.

That did require a little bit of reprogramming in BAM, because it was not a continual time series, but it was sort of minor reprogramming, and the way it was handled is that BAM predicts the index in the year 2020, but it doesn't enter into the likelihood, and so there is nothing to fit, but there is a prediction, and SEDAR 68, the research track, did explore dome-shaped selectivity for chevron traps, but the data favored flat-topped selectivity, and it was also believed that video gear would be flat-topped, and so, because both of the gears were considered flat-topped, the indices were combined, and they were combined using the Conn method, to be fit in the assessment.

This is a picture of what the indices look like, and they're all scaled, here, to the shortest time series, which is the commercial one, during 1993 through 2009, and that's the shortest one, shown in red, and the headboat is the one that starts the earliest, and the SERFS index is the one that extends the longest. In general, there is pretty good agreement among the indices, and you can see the SERFS index is showing a pretty severe decline at the end, which is something that I'm sure we'll talk a lot about in the coming moments, and the commercial indices extended -- They were truncated in 2009, and they did extend beyond this initial drop that we see in SERFS, and so this initial drop does have some agreement among the different indices, and I am talking specifically about this area at the end, the time at the end, of the headboat and commercial index, where they are declining, a little bit, before 2010.

The landings and discards -- Well, the assessment timeframe starts in 1969, and it goes through 2021, and so we have landings and discards throughout that full time series, and the assessment modeled two different fleets, commercial and recreational, and dead discards were pooled with landings, and that was a recommendation that came out of the SEDAR CIE review. Initially, the discards were treated as separate fleets from the landings, but they were, in the end, pooled together, and, here, I am showing the commercial discard mortality rate that was 0.39, with a range of 0.33 to 0.45, and the recreational discard mortality was 0.26, with a range of 0.16 to 0.4.

Just for -- Just so you have this in the back of your head, the dead discards comprised about -- On average, about 1 percent, or less, of the commercial removals. It was a little larger than for the recreational, but generally less than 20 percent.

Here's where I want to highlight some differences between what we did in the operational assessment and what was done in the research track. For the MRIP landings, there were five years that had high CVs, and, by high, I mean greater than 0.5, which is a value that's been discussed as

a threshold for whether MRIP landings could be considered reliable or not, and so, in this assessment, I replaced those estimates with the mean of the nearest two years.

Also, with the discards -- In that case, the majority of the discard estimates had CVs greater than 0.5, and so the way I handled that was to develop a smoothed version of the discards, using a regression spline, and that's what is shown in this plot in the bottom-right, and I have color-coded which of the values had CVs less than 0.5 and which ones had CVs greater than 0.5, but, in general, the trend, I think, is reasonable, and it works on the premise of sort of borrowing across years, and so collapsing frames within MRIP until we can get estimates that maybe are a little bit more certain, and so that's the intent here, but this is a difference that I wanted to highlight from the research track assessment, which just took the MRIP estimates as they were, and, in fact, it used the MRIP CVs for fitting the model, which is also a change that I've made that I will discuss a little bit later.

For this assessment, there were no commercial discard estimates available in 2021, and so I assumed that value was the mean of 2019 through 2020, and so, again, the nearest two years, and, in this case, it just happened to be data point at the end of the time series, and so the nearest two are the previous two.

This is what the removals look like over time, and so the plot on the left, although the Y-axis is labeled as landings, it's actually total removals, and so it's landings plus dead discards, but the general trend is an increase, and then a decrease, and, if you break this out by commercial versus recreational, in general, in most years, the commercial is the dominant source, as far as more than half of the removals are coming from commercial, but that does vary quite a bit, and there are some years where the recreational is the dominant source.

We have composition data, lengths and age compositions, for the commercial, 1984 through 1991, and then there is a preference used for ages, and so, if we have ages in the time block, then we would use the ages, and the time blocks that were used for this assessment were 1991 and earlier and then 1992 and later, and so the division at 1992, and that was because of the twenty-inch size limit that was implemented in 1992, and so we have the commercial length comps in that first time block, and then we do not have any ages in the last year, and so we used the commercial length comps in 2021.

Recreational length comps only in two years, 1978 and 1979, and then we have the SERFS chevron trap length comps, although those were not used in the base model, and they were used in the sensitivity run, and then we have ages for the commercial fleet, 2004 through 2020, and the recreational fleet was 1980 through 2018, and SERFS chevron trap was 1990 through 2019, and I did want to highlight that we had a lot more recreational ages for this assessment than what were available in the research track assessment, and that was because of a reconciliation project that the folks at Beaufort and South Carolina did, and they were able to identify more fish that could be used for ages, going back in time.

Graphically, this is the data that we have and what years that they're available, and so the landings, or the removals, actually, for commercial and recreational, for the full time series, and then you can see how the indices overlap in time, and the length compositions, and, again, we just have some early commercial lengths, and then that last year, in 2021, and then only the two years for recreational, and then age comps throughout, and let's see. I have labeled SERFS here as "CVT", for chevron trap, just because that's where the ages are coming from from the chevron traps, but,

when you see that in the abundance indices, that's actually representing the combined chevron trap and video index.

Okay, and so now we're into some life history information, and the growth is modeled -- There is two separate growth curves in the model. There is a population growth curve, and then there is a fishery growth curve, and that applies to the fishery samples that were taken under a size limit, under the twenty-inch size limit, and one of the things that came out of the CIE review, and was a part of the terms of reference for this assessment, was a mismatch, an apparent mismatch, between age comps and length comps, and part of the problem was that, in the research track assessment, the fishery-dependent growth curve that was put forward is this one that I'm showing on the left, and so we have a population growth curve, the solid line in blue, and the fishery-dependent growth curve, which is the dashed line in green, and it was estimated as having a very negative T_0 , somewhere near negative-six.

I think, during the process, maybe the life history group wasn't comfortable with that value, because it's biologically unrealistic, and so it was -- It was adjusted to be greater than negative-one, and the result, and I don't think, at the time, anybody plotted the population growth, along with the fishery-dependent growth curve, to see that what the effect was was that all of the fish from under the size limit would have been smaller than the population at-large, which is really the opposite effect of what we are using this growth curve for, and so I re-estimated the growth curve and allowed T_0 to be as negative as it wanted to be, because, really, all we're using this for is to model the average size of fish that are taken, and it doesn't necessarily have to be a von Bertalanffy growth curve at all, and we just want to know the average size of fish, of size at age of fish that are taken under the size limit.

When I re-estimated it, we get this growth curve that's on the right, and so the effect of -- What we really wanted here is mostly for these younger fish, that, under a size limit, you would expect them to be larger than the population growth curve, and so we do get that effect, and let me show you how that played out in fitting comp data.

These are comps using the research track growth curve, and the top-two panels are -- Those are from Period 1, and so those are using -- Those are using the population growth curve, before the size limit was implemented, and we have the recreational age comps on the left, and the recreational length comps on the right, and that's fine, and there's no mismatch there, but, if you look at the later time period, 1992, when we implemented the fishery-dependent growth curve -- Now, here, we have age comps being fit, on the left, and these are pooled age comps, and the year that's shown is just the starting year.

We have good fit to the pooled age comps, but the length comps are clearly mismatched, and they're predicting much smaller fish than what's being observed, and that's because of that growth curve that was predicting much smaller fish than in the population. When we rerun this, and we use the corrected growth curve, and I will just jump to the two bottom panels, and you can see that the age comps, the pooled age comps, are fit, and then also the pooled length comps are a much better fit, and we don't have the mismatch between the age comps and the length comps, and so I think that that fishery-dependent growth curve that was used in the research track assessment was the source of a lot of discussion about mismatch between ages and lengths, and perhaps they weren't plotted together, or it wasn't plotted along with the population growth curve, and so people didn't, at the time, recognize that that was the source of the problem.

Moving on to natural mortality, it's an age-based natural mortality that uses a Lorenzen curve that is scaled to the Then et al. estimate, constant natural mortality, and, here, it's only using serranids, and so it's the Then data constrained to serranids, and there are two corrections that I implemented here, and I noticed that, although we have this constant M of 0.155 from Then, and it was supposed to be scaling over ages-six-plus, but the research track assessment, although it described it as six-plus, had actually used zero-plus in the code, and so I corrected that, and then the Lorenzen estimator had been based on a total length whole weight relationship, but the length that was used was in fork length, and so I corrected that, and so it used the fork length whole weight relationship, and so those are two corrections that I don't think should be very controversial, and here's the effect on the natural mortality curve.

The black-solid line was the research track, the mortality curve, and the dashed-blue line is the new operational assessment curve, and one thing that's apparent is that, because the scaling was not correct for the research track, it never even approached the constant natural mortality that it was supposed to be scaled to, and so it was always larger than the constant 0.155 natural mortality, and so that's -- That was just a scaling problem, and that was in the research track, but it's corrected for the operational.

For the spawner-recruit relationship, it's measured as total mature biomass, and so males plus females, mature males plus mature females, because it's a protogynous hermaphrodite, and so that's commonly done for our South Atlantic stock assessments of protogynous fishes. The recruitment is modeled here with a mean recruitment model, instead of the Beverton-Holt model, and the Beverton-Holt model was used in the research track, and this change was made for several reasons.

One was a term of reference that said to examine alternative ways to estimate recruitment without a spawner-recruit curve, and so that's reason number one, but, also, I think there's good reason for making this change, beyond just the term of reference, and one is that it's a stock complex, and it's not just a single stock, and there is not really any mechanistic basis for using a single Beverton-Holt relationship to model recruitment of a stock complex, even if the two individual stocks follow the Beverton-Holt, if each of them follow their own Beverton-Holt relationship, the two, put together, would not necessarily be any single Beverton-Holt relationship curve, and it would depend on the proportions of each of the stocks would determine what that combined Beverton-Holt relationship might look like, and, if the ratio of the two stocks was changing over time, then there would just be a different Beverton-Holt relationship every single year.

Also, with likelihood profiling, it showed that steepness wasn't -- It didn't have good support in the data, in the sense that each of the data sources would tend toward the upper bound, or its lower bound, and so none of the data sources supported a value of steepness that had a well-defined minimum in the likelihood profiling. Either the data source said it should be one or the data source said it should be 0.2 that are the bounds for steepness.

Then, also, there is some amount of recruitment that is coming from the Gulf, we expect, and one of the working papers from the stock ID workshop found that it was about 8 percent of the Atlantic recruits were coming from the Gulf of Mexico, but that model is based only on a single oceanographic circulation model, the SABGOM, and you might remember, from Mandy's presentation about red snapper connectivity, that the SABGOM model showed much lower

connectivity than the other oceanographic models, and we haven't published this yet for scamp, but, when we use the other oceanographic models on scamp, then we see connectivity that can be as high as 35 percent, and so, with all of these reasons together, it seemed prudent to use the mean recruitment model, instead of a Beverton-Holt model. That's probably good place to pause and take questions, if there are questions about the data, because the next section will move into the assessment model.

DR. BUCKEL: Any questions for Kyle? Go ahead, Kai.

DR. LORENZEN: Kyle, you mentioned that we're really looking at a mixture of two stocks, and I was wondering if you can elaborate, a little bit, on what those proportions are and whether those may have changed. I mean, obviously, there's not enough data, probably, to answer that with a great deal of certainty, but I would be interested to get a little bit more information on that composition, if you have that. Thank you.

DR. SHERTZER: It's believed to be predominantly scamp, but, because it's really hard to distinguish the two, and I don't know that we know exactly what the proportions are, but, at least the biologists, who believe they can distinguish them, have told me that it's mostly scamp.

DR. LORENZEN: Okay. Thank you. That helps. Thank you.

DR. BUCKEL: Go ahead, Alexei.

DR. SHAROV: Actually, I have the question of the decisions on the recruitment model, and it's not data really, and so, if you want, we may postpone it until later, after you -- Or I could ask it now.

DR. BUCKEL: Go ahead and ask now, while it's fresh in everyone's minds.

DR. SHAROV: So I understand the challenges that the assessment team was facing. However, I was wondering how the assessment team sort of ended up with justifying the mean recruitment model, where, essentially, when it says mean recruitment -- It assumed some constant recruitment, based on the full time series, the average recruitment of the mean time series, and just random deviations, based on the observed level of variability. However, biologically, obviously, and that's sort of the cornerstone of all stock-recruitment models, that, once the stock size drops down to a certain level, we must see a reduction in recruitment with the stock size, and so that ascending curve must be present there, and you cannot just assume that, even at the very low stock size, we would expect the same level of recruitment, variable around the estimated long-term average.

Of course, having two species combined might substantially -- I wonder, and I didn't see, in the report, to what extent -- I assume that their biology, most likely, is very similar, but I would like to hear the confirmation that sort of the expected elements affecting the stock recruitment are sort of similar for both stocks, and, in other words, like there is no one-to-ten ratio in their biomass, where, with one, one stock went down more than another.

DR. SHERTZER: I don't know that we know the answer to the latter question, and, yes, they're believed to have very similar biology, and, as far as using the mean recruitment model, versus the Beverton-Holt, I agree with you that we do know the one data point at zero-zero, but, using the

mean recruitment model, it's not forcing -- It's not forcing anything to be centered on a mean, and it really is just estimating annual values as free recruitment values, and so, if those values, which are mostly informed by the age comps, and, to some degree, by indices and removals, but, if those values should be lower, or higher, we should be able to estimate that. We should be able to estimate what the values are, despite not knowing what the spawning potential is in that year.

DR. SHAROV: Quickly, and not to drag this, because -- Well, anyway, I will just ask a follow-on. In the absence of a clear, or at least not clear, but some indication, in the data, that a Beverton-Holt or whatever model that accounts for some compensation is likely to be -- For instance, the recruitment model that assumes the increase in recruitment, in proportion to the -- Would it be more reasonable than just the average, or mean, recruitment model? Have you considered that?

DR. SHERTZER: I guess I'm not sure what you're asking, and are you asking if it's more theoretically justified?

DR. SHAROV: Yes. The mean recruitment model essentially assumes independence, total independence, in recruitment of the stock size, right?

DR. SHERTZER: Right.

DR. SHAROV: Right, and so we're just allowing it to vary around the long-term mean, and, you know, obviously, the deviations could vary, and then, obviously, you know, the model will take the deviation of the level of recruitment for any particular year that will shape the rest of the data, the age structure, et cetera, but so it's, essentially, assuming no stock-recruitment relationship, which is trying to say that, for the low level of SSB, probably it's not reasonable. Therefore, it seems to be more reasonable to assume that -- We don't know much, but that the recruitment should be increasing proportionally, roughly proportionally, with the spawning stock size, and whether this idea was given any consideration, or was considered inappropriate, for whatever reasons.

DR. SHERTZER: Well, I guess I looked at it more as we can't really estimate the spawner-recruit relationship, that there's not information in the data to estimate what it might be, and so the mean recruitment model is a way to do it more empirically, without having -- Without having to assume say the value of steepness.

DR. SHAROV: Okay. Thank you. I understand the reason why you did that. Thank you.

DR. SHERTZER: There may be underlying -- An underlying spawner-recruit curve for each species, but we just can't detect it with the data that we have.

DR. SCHARF: Kyle, I had three questions, but they're pretty brief, just clarifications, and you could just answer them maybe one at a time, and so, on the MRIP modifications, when you have CVs greater than 0.5, you said they were replaced with the nearest two years, the mean from the nearest two years, and just to confirm that that was the nearest two years in time, and, typically, is it the year before and the year after?

DR. SHERTZER: Good question. Yes, the two nearest years in time, and three of those values were in the middle of the time series, and so they would have been the year before and year after,

and then I believe that one of those was the first year, and one of those was the last year, and so the nearest two years would have been either the two years after or the two years before.

DR. SCHARF: Okay. Super. Thanks. The second question was just to confirm that -- So there is no -- So there is a gap in the commercial length and age comp data between -- There is no data for the period from 1992 to 2003, on the commercial side?

DR. SHERTZER: That was a case where -- This was following the research track, and the age comps were preferred over the length comps, and so, because we had age comps for most of that period, we used the age comps, instead of the length comps, until that last year, where we didn't have any age comps.

DR. SCHARF: Right, but the commercial didn't have any age comp data in that window, right, and it was coming from the rec and the chevron traps?

DR. SHERTZER: I'm sorry. Which window?

DR. SCHARF: From 1992 to 2003, and so there was length data that goes up to 1991, but then the age data didn't start until 2004, in the commercial sector.

DR. SHERTZER: Correct.

DR. SCHARF: Okay. I just wanted to confirm that, and then the last question was on the spawning potential, and you said that it equaled total mature biomass, and so was that males and females, and, also, you know, I know that -- You've been part of some work looking at, for some of these protogynous species, how egg production might change with size or age, mainly due to changes in spawning frequency, and was that evaluated at all during the research track, in terms of how best to index spawning potential?

DR. SHERTZER: Yes, that was evaluated in sensitivity runs, and how much weight to give males and how much weight to give females, and you're correct that, here, it's the combined just males plus females, mature biomass, but the research track did explore that, and I don't think there was a recommendation that there was anything preferred over what was done here in the operational assessment, but it was explored in sensitivity runs, as far as the effects of giving more weight to females or giving more weight to the males.

DR. SCHARF: Okay. Super. Thanks a lot. I appreciate it.

DR. CURTIS: Next up, we have Jie Cao.

DR. CAO: Thanks, Kyle. I just have a quick question on the stock ID, because I've been working a little bit with the SERFS video dataset, and I believe this dataset has scamp and yellowmouth grouper identified to the species level, and, Kyle, do you know how much uncertainty is there?

DR. SHERTZER: Well, I know that even trained biologists can misidentify them, and I also know that, at least from some of the folks who work for SERFS, that they're pretty confident that they can separate the two, when they're seeing them on video, and so I guess a mix. You know, there

are some biologists who feel very confident about it, and there is some biologists who acknowledge that they just can't tell them apart very easily.

DR. CAO: I just wanted to provide a little bit more information on the conversation, because, based on my results -- I have done some multispecies modeling, and those two species are included in the models, and my results suggest that those two species are showing different abundance trends, and scamp is showing a downward trend, and yellowmouth grouper is relatively stable, and a little bit upward trend, towards the end of the time period, but yellowmouth grouper is a relatively rare species, compared to scamp. Thanks. That's just my quick question.

DR. SHERTZER: Thanks for that.

DR. CURTIS: I am seeing no more hands raised.

DR. SHERTZER: So the assessment used BAM, and most of this is fairly standard across assessments, and so I will just walk through some of it. The formulation here is basically the same as the research track, and it's an integrated catch-age formulation that is fit to the data using penalized maximum likelihood, and it used the Baranov catch equation for fitting the removals. Here, spawning stock is based on total mature biomass, males plus females, and it has an age-based natural mortality.

It's a scaled Lorenzen, scaled to the Then et al. estimate of serranids. The selectivities are flat-topped for the commercial and the recreational fleets and for the SERFS index, and there is two time periods that are modeled for different selectivities in the fleets, and not in SERFS, but 1969 through 1991 is the first time period, and then 1992 through 2021 is the second time period, and those are broken in 1992, because of the implementation of the twenty-inch size limit.

The initial age structure, in 1969, the first year of the model, assumed there was an equilibrium age structure, and it was conditional on an initial F that was assumed here to be the geometric mean of F from these first three assessment years of 1969 through 1971, and the recruitment deviations were estimated for 1980 through 2019, and that first year of 1980 follows what was done in the research track assessment, and it was chosen because of comp data becoming available that would allow for estimation. The terminal year of 2019 was chosen based on likelihood profiling, for the data that we have for this assessment, that I will show in a moment.

The ages that were modeled are one through twenty-plus, although the age comp data that we have are pooled at fifteen-plus. It estimates a constant CV of size-at-age for each of two different growth curves, the population growth curve and then the fishery-dependent growth curve that applied for the size limit, and uncertainty of the assessment is characterized using a Monte Carlo Bootstrap Ensemble approach.

I will highlight some of the modifications from the research track here, and we've already mentioned that it's using a mean recruitment model, rather than the Beverton-Holt model, and that necessitates the need for a proxy for FMSY. If we don't have the Beverton-Holt model, then we need to define a proxy, and so, here, we're proposing F 40 percent, but that's not something that has been determined, and so I guess that's part of what you will need to review here, is whether you think F 40 percent is an appropriate proxy.

The recruitment deviations are handled a little differently in the early part, 1969 through 1979, and then, also, those terminal two recruitment deviations, 2020 and 2021, and so these are outside of the time period where we estimate recruitment deviations, and so the ones that were outside of that 1980 through 2019 period are handled a bit differently here than they were in the research track.

Then the research track assessment did an iterative reweighting of the indices, but, here, I found that that degraded the index fits, and, instead, I set the index weights all to one and then upweighted the SERFS index until it was able to pass a runs test, and I will give a little more information about that, too.

F 40 -- Well, for starters, FMSY is not defined here, and what I'm showing on the right is the curve of equilibrium removals, landings, or removals, in this case, that you get as you increase F, and this is the curve that we would use to estimate FMSY when you're looking for a peak in the equilibrium removals curve, but, here, there is no peak, and there is no maximum, other than it just keeps increasing as you increase F, and so the maximum of this curve is at the maximum F that was explored with just two, and so it's not really defined here, and it's also a very flat response, and so, here, if we were to use F 40, then this shows you where the estimate of FMSY would be, and it's not too -- It's not too different from the peak of the curve, but it's a little lower.

F 40 percent is proposed here, primarily because it's perhaps the most commonly used proxy, and there is some support for that from the literature, for using F 40 percent. F 30 percent was an option, and that's been used by the South Atlantic Council for red snapper, but it's really only appropriate if you have a very, very resilient stock, and that's not likely to be the case for scamp. Even 40 percent may be aggressive, in some cases, and there's a few papers that have looked at that and have identified values up to F 50, up to 50 percent SPR, but we thought that F 40 percent is probably -- It's probably the best proxy to recommend for this stock, but, again, that's something that needs to be reviewed by the SSC.

The next topic I'm going to talk about are these recruitment deviations that are being -- They're out there, and not necessarily estimated, but we still need to get estimated of recruitment, and the way the research track assessment handled this, and this was really just sort of how BAM would handle things, in standard formulation, is that, if we're in this period before we can estimate recruitment deviations, and, if we're in the period after we can estimate recruitment deviations, that they're just fixed to zero, and so the estimates of recruitment would fall directly off of the spawner-recruit curve, whether it's Beverton-Holt or the mean recruitment curve, but we've seen that, you know, especially with these terminal estimates, for many of the stocks that we're assessing in the South Atlantic, that we're seeing low recruitment, and so this idea of just bouncing recruitment back up to the long-term average may be doesn't -- It maybe isn't the best estimate that we can get.

Also, the research track fixed these last three years, and so I looked at whether -- I used likelihood profiling to see how far we could take this, and how many years we really needed to fix, and so, starting with that, this is the likelihood estimate for 2021, and it shows that, you know, it's probably not a high value, but, once we are down below say two, or a little less, than it just continues down, and it goes to the lower bound, but there's really no difference in the response, in the likelihood, for this large range of values, and so it's not really estimable.

We see the similar result for 2020, and so at least 2020 and 2021 were not estimable, from the data that we have, but then 2019 does appear to be estimable, as a well-defined minimum in the likelihood, and so this was the reason why I took the recruitment deviations up to 2019, and so we only have the two years at the end that we can't estimate, instead of the three years at the end that was used in the research track.

Okay, and so what to do with these extra values in 2020 and 2021, and, well, I mean, I guess we could think of them as really essentially being forecasts, because we don't have any data to inform them, and so what I did was I fixed them at the recent average, rather than the long-term average, and so this is consistent, I think, with the forecasting advice coming from the SSC, and also with this finding of autocorrelation in the recruitment deviations, and so you can see the autocorrelation function, in the bottom-left, and the partial autocorrelation, and so I guess I prefer the partial autocorrelation function, and we at least have a very strong recruitment in there, in the recruitment time series, the recruitment deviations, and so I think this supports using recent recruitment to inform these two-year forecasts in 2020 and 2021.

Then that opens the question of what group of years to use, and so these are the recruitment deviations coming from this assessment, and I used regression tree analysis, and change point analysis, and they basically agreed that this clump of years at the end of the time series -- They slightly disagreed on where to start it, and should we start in 2010, or should we start in 2009, and, in the end, I chose 2010, from the change point analysis, because this value of 2009 seems like it was maybe a transition year, and it was more similar to 2008 than it was to 2010, and so, essentially, what I've done is predict the recruitment, in 2020 and 2021, using the mean of the values that are estimated for 2010 through 2019.

For the earlier period, it's -- They're also fixed, but I looked at whether I could apply a multiplier in the long-term average, and if that was estimable, and this is the likelihood profile plot on the right, showing that this multiplier is estimable, and it's pretty close to one. The actual estimate that came out of the assessment was slightly lower than one, but very close to one, showing that these early -- The early recruitment may be very similar to the long-term average.

Okay, and now on to the index weighting, and I did try the iterative reweighting that was done in the research track, and it ended up upweighting the commercial index, which we consider to be the least reliable index, but it downweighted the headboat and the SERFS indices, which I would consider the SERFS index to be the most reliable, and the headboat to be maybe second place, but it downweighted both of those, and they both failed a runs test, and so, instead, what I did was I set the weights to one and then I upweighted the SERFS index until it passed a run test, and that resulted in a weight of 1.5.

The way this gets applied is that the CV that's being input in the data, the original CV, is divided by that weight, and so applied CV in the likelihood would be the original CV that comes out of the Conn method, divided by 1.5, and then, after applying this weighting, all three of the indices passed a runs test, and the effect of this was essentially to put the SERFS index on the same scale as the two fishery-independent indices. The CVs of the fishery-independent indices had been centered on 0.2 for the research track assessment, and the SERFS CVs were a little higher than, and we divided them 1.5, it sort of centered them close to 0.2, and so all three indices are essentially being on equal footing in the likelihood, and then the uncertainty analysis applied a SERFS weight range of one to two.

This is a little more detail on the uncertainty analysis, and we used the Monte Carlo Bootstrap Ensemble approach, and so we bootstrapped the data, where the comp data receive multinomial resampling, and then multiplicative lognormal error on the indices and removals, and then we do Monte Carlo draws on several of the key parameters, or inputs, here, and so one of those was natural mortality, which bootstrapped on the Then et al. data, and also on the value of T_{max} .

The discard mortality used uniform deviations for the commercial discard mortality and the recreational discard mortality, and this was, obviously, done prior to pooling the dead discards with the landings, since we're still modeling removals as that single time series, but the data are then pooled before being fitted.

Then the SERFS index weights are a uniform distribution between one and two, and the model is fit 4,000 times, and I've never seen this before, but all 4,000 converged, and so this is a very stable model, probably in part because the fleet structure is so simple, and then I also ran a jitter analysis, where I changed the initial conditions, or the parameters, that are being estimated by plus or minus 20 percent, and I think I did a hundred of these jitter runs, but, in all cases, the likelihood -- The fit was exactly the same, and the likelihood was the same, as the base run. There was no variation in the jitter analysis, which confirms that this is a really stable model.

A bit more on the CVs that are used for removals, and this is different from the research track assessment, and so I wanted to highlight this, but, for fitting the models, the annual CVs were set to 0.05, and that's to achieve a close fit, for model stability. In the research track assessment, the commercial CVs were set to 0.05, but the recreational CVs were those from MRIP, and some of them were very high, and this can lead to model instability, and I initially started taking that approach, and I was just seeing model instability, in the form of spikes in fishing mortality rate, and some unrealistic behavior in the model, and so I changed that back to a sort of standard approach, which sets these CVs for fitting to be low, 0.05.

However, for generating new time series in the bootstrap, or the Monte Carlo Bootstrap Ensemble, the recreational data did use the MRIP CVs, although I capped those five that were above 0.5, and I capped those at 0.5, because of using the means of the nearest two, and then, for the commercial data, and this applies strictly to the CVs here, and it doesn't say that on the slide, and, unfortunately, I didn't put that, but the values here refers to CVs that the research track stuck with the 0.05 that was used for fitting, and it also used 0.05 for the bootstrapping.

Here, I went back to the data workshop report, and there were state-specific values that were given for CVs, and they are larger going back in time, and they decrease as time progresses, because the sampling improved, and I ended up using the values that were from South Carolina to be representative of the whole, because that's sort of the center of distribution, from commercial landings, for scamp, and also of the population, from the SERFS sampling, and hopefully that agrees with the modeling that Jie has been doing.

The uncertainty in natural mortality in the research track assessment only considered uncertainty in the maximum age, and the maximum age was estimated to be thirty-four, and they used a range of two years, and, here, I added an additional source of uncertainty, and so it included the max age, but it also added this part about bootstrapping on the Then et al. estimates, and so that regression, and that was the same approach that was used for red snapper in SEDAR 73.

The way it works is, by bootstrapping on the data, and re-estimating the Then et al. relationship, the two parameters from the Then et al. relationship, and then pulling those, in the ensemble, or in the bootstrapping approach for uncertainty, pulling those as pairs, so that, if there is any correlation between the parameters, that correlation structure is maintained.

The effect that this change in the uncertainty in natural mortality had -- This shows the Then et al. estimate from the research track, in which only the maximum age varied, and that's on the left, and, on the right, it shows what was used here in the operational assessment, where it uses the maximum age plus a bootstrap, and you can see -- The X-axis are different here, but you can see it's quite a bit -- It's a wider range, and I think maybe a more realistic portrayal of our actual knowledge of natural mortality of this stock, and then, when you use that to scale the Lorenzen estimate, you can see, on the left, that we get a pretty narrow band of uncertainty, if you only consider maximum age, but, on the right, this shows the range of uncertainties, or 95 percent intervals, that we get when we include uncertainty in the Then et al., and so I think the curve on the right is what was entering into the MCBE, and I think it's probably a more realistic portrayal of our understanding of natural mortality here.

This just shows -- These were uniform distributions, but it shows the realized densities of the values that were drawn in MCBE for discard mortality, and it's recreational on the left and commercial on the right, and, similarly, these are the values that were uniform distribution that was drawn for the SERFS index, and it was constrained between one and two, and it's the density parameter that shows it extending outside of the range of one to two for the plot, and that wasn't used in the MCBE fits. This is probably another good place to pause and see if there are questions about what was done for the model.

DR. BUCKEL: Any questions for Kyle?

DR. CURTIS: I am not seeing any hands yet. It looks like no questions at this time, Kyle.

DR. BUCKEL: All right. Kyle, proceed. Thank you.

DR. SHERTZER: All right. Well, as you see the results, if any questions come up about the methods, then we can always go back to that section too, if something comes to mind later. Now I'm just going to run through some fits, and these are fits to the commercial removals, and I apologize for the label of being landings, and this is fish graph coding, and it's actually the total removals, including dead discards, and so a close fit to commercial. This is recreational removals, and it's a close fit to the recreational removals.

This is a fit to the commercial index, and the confidence bands around the data, based on the CVs, and then the residuals, on the bottom. This is a fit to the recreational index, and this was from headboat data, and this is the fit to the chevron trap, or the SERFS index, the chevron trap and video combined.

The next set of plots are the pooled composition fits, and I have put, on the right, that same plot that we looked at earlier of the data availability, so that you can see which years are being plotted, and so the top plot is that first time period, first time block, of length comps from the commercial,

and so that would be this block of years that I am showing with my cursor, and then the latter one is just that year 2021, and so that's another -- It's not really pooled at all, and it's just a single year.

This is the recreational length comps, and so it's just these two years, 1978 and 1979, and this is the commercial age comps, in Period 2, Time Block 2, and then these are the recreational age comps, and the top panel is Time Block 1, and the bottom panel is Time Block 2. These are the -
- These are actually the chevron trap data from the SERFS age comps.

Then the estimates of abundance through time, broken out by age, and there's a bit of an increase that was driven by some recruitment, and then the decrease at the end that appears to be recruitment driven, and this is the same plot for biomass, and then this is the spawning biomass. These are the estimates of recruitment, and so, again, we get this early period, where it's just estimating the scale, basically, as a multiplier, and the mean --

It's really just estimating a single value for these early recruitments, and then, in 1980, we start estimating recruitment deviations, and some good recruitment years that drove the population up, and then, since, really, and the recruitment deviations are shown on the right, but they have all been negative since the mid-2000s, and they have been at their lowest since 2010. Here, these last two recruitment values are set at the mean of 2010 through 2019.

This shows what you might see as a spawner-recruit curve, with spawning biomass on the X-axis and recruitment on the Y-axis. The fact that these early values are falling almost right along the mean, that was not forced at all, and these are freely estimated as a multiplier, and the multiplier actually isn't one, but it's just very, very close to one, but that just fell out in the estimation, and that wasn't something that was forced.

This is the SPR relationship with fishing, and this is the plot that defines F 40, or whatever would be used for a proxy, and we're recommending F 40, but this is the figure that we would estimate the value of F that corresponds to 40 percent SPR, and that would be F 40. This shows the estimated fishing mortality rate relative to -- Well, with F 40, and the F proxy is F 40 here, and so this is the full fishing rate, the apical F, and it's increasing, and then it really just bounces around the proxy, for a lot of the time series, and, in the end of the time series -- Well, the last two years are below the F proxy, and, three years ago, it was above the F proxy. If you break that out by fleet, you can see, on the right here, that most of the F, the majority of the F, is coming from the commercial sector, and the rest is from the recreational.

This is the abundance estimates for, in the top panel, age-one-plus, and the bottom panel is age-two-plus. The gray is the 95 percent intervals from the MCBE output, and the solid-dotted line is the base run, and the dashed line is the median from the MCBE output, and that will stay the same throughout the next set of plots.

This is SSB, spawning biomass, on the top, and then estimated recruitment on the bottom. This is apical F. These are the densities of estimated management quantities, and the top-left is F 40, and the bottom-left is -- It says "L", for landings, but it's removals at F 40. The top-right is spawning biomass at F 40, and then the bottom-right is biomass at F 40, and this is our phase plot, showing all of the MCBE runs, where the fell, in terms of the X-axis being terminal F over F 40, and so whether or not it's overfishing, and then the Y-axis is SSB over MSST, and so whether or not it's overfished, and I should mention that MSST is defined as 75 percent of SSB F 40, and the

crosshairs here are the 95 percent containment of the points, and they intersect at the base run estimate.

You can see here that all of the values, 100 percent of them, are in the overfished category, where SSB over MSST is less than one, and the majority of them, 69.5 percent, are in this quadrant that shows that we're not overfishing, and 30.5 percent are showing that we are overfishing. I guess this is another way to look at those same data, but these are the densities of those status indicators, and the top panel is showing SSB relative to MSST, and 100 percent of the distribution is below one, and so a fairly high certainty of the overfished status, and then the bottom panel shows the distribution of whether or not we're overfishing, and, here, there is a bit more uncertainty in that result of whether or not we're overfishing, and the majority of cases say that we're not.

This table, it's straight out of the report, and I really just have it on here for reference, in case it's needed, but I did want to highlight these parts in yellow here, and so the L F 40 percent, and these other landings values, these are total removals, and they include dead discards, and, also, just to show what the base run and the median estimates were for overfishing and for the overfished status indicators.

Sensitivity analyses, we ran sixteen different ones, and they sort of group into clumps, and the first set of them have to do with natural mortality, high or low, and the next set has to do with discard mortality, high or low, but, also, a sensitivity run that explored increased used of descender devices, and I will give a little bit more information about how that was parameterized in the next slide.

The SERFS weighting was another category, and then a series of sensitivity runs that drop indices, one by one, and then a set of runs that drops the age compositions, one by one, and then there's one that dropped all the length compositions, and there's one that included SERFS length comps instead of the age comps, and then there's one that explored time-varying SERFS selectivity, and that was implemented as just a random deviation around this age at 50 percent selection. A lot of these were developed because -- To address the terms of reference that were asking for exploration to the effects of age comps and length comps and then time-varying selectivity in SERFS.

This is a little more information on the descender device run. Here, you see that there was a change that started in the recreational fleet, in the discard mortality rate, and that started in 2020, and, to configure this run, it required really three key pieces of information. One is the discard mortality rate when descender devices are used, one is what is the usage of descender devices, and then a third one is how much of this current usage is really new mitigation, versus shifting from something like venting.

The first one, we do have some information on the effectiveness of descender devices, from the work that Jeff did, and Brendan Runde did, and they were able to show that survival, when using descender devices versus not, increased from zero percent to 50 percent, and these were in some deepwater sites, and so it may not be representative across all depths that scamp would live in, but it's at least something to grab onto and show that maybe there's a 50 percent benefit, or increase, basically cutting M in half, the discard M in half, if we use descender devices versus not using descender devices.

Then, for the usage of descender devices, there is a report that just came out by Responsive Management, that was I believe commissioned by the Nature Conservancy, that found that about -- These were interviews with anglers from Florida and South Carolina, and they found that about 30 percent of reef fish anglers have used descender devices, and they found that -- The same survey found that there was a preference for venting, but, just to configure this sensitivity run, I assumed that half of that 30 percent was new mitigation, that some of it maybe were people who were using venting prior, previously, but then switched over to descender devices, but half of it is new, and so, based on that, I estimated a new discard mortality rate as being a weighted version of the old one, and so 85 percent of the old one, and so that's half of the 30 percent, and so 15 percent of discard mortality would be -- Would be new mitigation, but 85 percent would -- We would just apply the old rate, and then, for the 15 percent that is new, then it reduces the discard mortality rate in half.

That changes the discard mortality rate, ultimately, from a value of 0.26, in the recreational fleet, to 0.24, and so this record, this run, altered the recreational discard mortality rate, starting in 2020, to go from 0.26 to 0.24.

The next set of slides shows the sensitivity runs, as they're clumped together with sort of the types that make sense to put together, and the first one is the scaling on M, and so sort of what you would expect to see for lower values of M, and you see the higher F over F 40, and lower values of SSB over SSB 40. For the higher M, it's the opposite. I think this also shows that -- This was the range that was applied in the MCBE, and most of the values would have fallen into this range, and so you can see that a lot of the uncertainty in the MCBE is coming from this uncertainty in M.

This shows sensitivity to the discard mortality rate, and so very, very little sensitivity for the discard mortality rate. This shows sensitivity to the weight on the SERFS index, and it does have some effect, especially in the terminal years, of F over F 40, and so this is sensitivity to dropping indices, and so not a lot of sensitivity to dropping the fishery-dependent indices, although maybe some early on, to dropping the headboat, which is where that time series was the earliest one, but quite a bit of sensitivity to the SERFS index, especially in the bottom panel This is the pattern that we see in SSB, and so it's a good thing we have this index, because, if we didn't, we might estimate an entirely different pattern, or have a different, very different, perception of the spawning biomass that was out there.

This is the sensitivity to dropping age comps, and it's not very sensitive to the age comps. This is sensitivity to dropping all of the length comps, and so we only have the age comps, and this is sensitivity to fitting SERFS lengths and dropping the age comps and only having length comps. This is sensitivity to the time-varying SERFS selectivity.

We also did a retrospective analysis, and so this shows the peels, going back, dropping back to 2015, and the top panel is the apical F. At least for the last few years, there's not really any major pattern, and maybe there is some, going back to 2015, or 2016. For recruitment, there's a little bit of overestimation in some of the earlier peels. As we get closer to the terminal year of the base run, that disappears, and, for spawning biomass, there is really no concerning trend in the retrospective pattern.

The summary of the assessment results, they appear to be overfished, and maybe "depleted" is a better word, because this doesn't seem to be driven by fishing, and it seems to be driven by

recruitment failure, and that appears to be a robust result, and overfishing is not occurring in the terminal years, in the base run, or the majority of the MCBE runs, but there were about 30 percent of the MCBE runs that resulted in overfishing.

As I said earlier, the stock status is driven primarily by poor recruitment, and natural mortality is an important source of uncertainty, although the stock status seemed to be pretty robust to the range that was used in the assessment. This pattern of low recruitment, in the recent ten to fifteen years, does raise this, I guess, now regular question of a regime shift, and so I did look into that a little bit for this assessment, and I guess I will go to that in a minute, but, before that, are there any questions, going back to the assessment results or methods?

DR. BUCKEL: Any hands Judd?

DR. CURTIS: We've got Fred Scharf.

DR. BUCKEL: Go ahead, Fred.

DR. SCHARF: Thanks, Kyle. Just a quick question, coming back to the SERFS index, you know, since the assessment results are so, you know, sensitive to that index, and, you know, you had indicated, in the beginning, that the chevron trap and the video survey is -- The data sort of pointed to the same pattern of selectivity, where you had the flat-topped selectivity, or sort of asymptotic selectivity, and so they were combined using the Conn method. I just wondered, when those two indices were looked at sort of separately, did they generally show the same pattern, you know, in terms of the recent years, when you have both chevron and video data, and did they both show the same trend?

DR. SHERTZER: Yes, they do, and, if you want to take a closer look, I could probably dig those up, when we have a break, but, yes, they generally show the same pattern of decline.

DR. SCHARF: Okay. Thanks. I was just curious.

DR. CURTIS: Alexei has a question.

DR. BUCKEL: Go ahead, Alexei.

DR. SHAROV: Kyle, I don't think that I saw a graph, here in the presentation or in the report, that would actually sort of build a temporal change, or a change in time, or the dynamics in time, of the age structure, and, you know, we're saying that this stock is overfished, and so the estimated biomass is low, but overfishing is not occurring. Therefore, you know, if we look at the age structure, we shouldn't see, you know, much of the age truncation between the most recent period and say the earlier time series, and I didn't see any graphs in the report that would, you know, help to see that, and can you clarify on that, because that's important, related to the question of whether we are overfishing or not overfishing.

DR. SHERTZER: Does that graph of -- The bar graph of N at-age get at what you're asking about?

DR. SHAROV: No, because they're in absolute, and you don't see the relative -- You know, relative changes in relative abundance of age groups, and they are -- They're like, you know, piled

on top of each other, and, if you simply, you know, proportionally reduce each of them, or whether they are proportionally being reduced because of just the decline in recruitment through time or whether there is an additional reduction for some ages, and it's hard to -- It's hard to see.

Anyway, not a question, but more like a comment, just for maybe a later discussion, is, of course, the definition of overfishing here, or defining the status of overfishing, is highly dependent on the proposed reference point of F_{40} , and, of course, this is a proxy, and it's not based on the actual historical dynamics, and, therefore, it's subject to substantial uncertainty, and uncertainty in the sense of the population compensatory effects and not in terms of the uncertainty in the data that went into the estimation of F_{40} percent in itself.

DR. SHERTZER: Well, back to your first comment. If there's a particular figure you would like to see that might help, maybe I can try to work on that, if there's a break. For your latter comment, yes, I think the scale of overfishing, obviously, depends on what you choose as a proxy. We didn't build the choice of proxy into the uncertainty analysis, but there is uncertainty in F_{40} in the MCBE output.

DR. SHAROV: All right. Thank you. Yes, I understand that, and you mention here that natural mortality is an important source of uncertainty and the uncertainty of F_{40} percent does include the uncertainty in M , right, through the MCBE process.

DR. SHERTZER: Yes, and, also, any effect of estimation of selectivity.

DR. SHAROV: Okay. Thank you.

DR. CURTIS: Chris Dumas has a question.

DR. BUCKEL: Go ahead, Chris.

DR. DUMAS: Hi. Thanks, Kyle, for a very clear presentation. I've got a question. After the model is estimated, can we do a retrospective run, where we set fishing to zero for the whole time series and see if poor recruitment, at the end of the time series, drives the stock down, to kind of clearly show that it's not fishing and that it's poor recruitment? Is that something that we could do with the model? That's my first question, and that's most directly relevant to the discussion today.

Then I've got two sort of for-the-future questions, and one is, looking back at your two slides where you show the fit of the model over time to spawning stock, and also fit of the model over time to recruits, you had one slide that had -- Right. Both of those, and so, if we took these two and took sort of the central estimates there, and, if we regressed SSB on -- Those SSB estimates, the central SSB estimates, on the dark-black line there, against the central recruit estimates, the dark-black line in the recruits, would that be the implied stock-recruitment relationship in the model, even though the model assumes no stock-recruitment relationship? Those two things look pretty correlated, and so I was just wondering about that.

Then the last thing, looking forward, the third issue, is so the model does multinomial resampling of age and length compositions, and age and length compositions are ordered things, and so I'm wondering if, instead of doing multinomial resampling, if there was something like ordered logit

resampling, or something like that, that would take into account the ordering of the lengths, and the ordering of the ages, and that might give better resampling, other than multinomial, which might not take the ordering into account. That's sort of for a future thing to think about, and that's all. That's all. Thanks.

DR. SHERTZER: Okay. Well, on that topic, I didn't say this, but the probabilities are the original probabilities, the proportions, from the data.

DR. DUMAS: For the multinomial?

DR. SHERTZER: For the multinomial, yes.

DR. DUMAS: Okay, and so it's implicitly taken into account.

DR. SHERTZER: Yes.

DR. DUMAS: Okay. Thanks.

DR. SHERTZER: For your first point, I think this plot that I'm showing here gets at what you were asking about. This is from the base run, and it's showing the points of spawning biomass and recruitment.

DR. DUMAS: Right. That was my second question. Right, but that's -- Okay. Then the first one was is it possible to -- My first question was is it possible to set fishing at zero, for the whole time series, and then see -- Then, if we just plot SSB over time, with fishing set -- With F set at zero for the whole time series, and do we see SSB decline at the end of the time series, due to poor recruitment?

DR. SHERTZER: That's an interesting one. It's possible, and we can do that in BAM, but I would have to reconfigure it to operate more as a simulator.

DR. DUMAS: Right. Just to help show folks, on the SSC and other folks, that, even if fishing was zero, we would still see decline in the stock, due to poor recruitment, just sort of it we think that's actually what's going on, just to sort of emphasize, in a visual way, the effect of the poor recruitment on the stock, even in a case where the fishing is zero, and the poor recruitment is having an effect on the stock.

DR. SHERTZER: I think that's a really interesting suggestion, and, yes, it can be done, and it would take me a little bit of time to write the code and basically take all of the output from the current BAM and feed it back into a model run where recruitment, in each year, is what was estimated before, but not trying to fit to anything, but just really simulating with F equals zero.

DR. DUMAS: Right.

DR. SHERTZER: Then see where we end up, and, yes, that can be done, and it just needs to -- I am not set up to do that yet, and it would take a little bit of time to write that code.

DR. DUMAS: Thanks.

DR. BUCKEL: Are there other hands, Judd?

DR. CURTIS: No other hands right now.

DR. BUCKEL: All right, and so we're over our halfway point this morning, and so we'll take a quick, five-minute biological break, and so we'll start back at 10:58.

(Whereupon, a recess was taken.)

DR. BUCKEL: All right. I've got 10:58. Kyle, are you with us, and are you ready to get going again?

DR. SHERTZER: Sure. Before moving on, just a further thought on Alexei's question, and, Alexei, look at Figure 42 in the report and see if that is what you were thinking of, or if that answers the question that you had about age structure.

DR. SHAROV: Thanks, Kyle. Will do.

DR. SHERTZER: Okay, and so, going forward, this low recruitment bit at the end, we've seen this before, and we always talk about the possibility of a regime shift, and the SSC special committee, I guess, on forecasts talked about regime shifts and mentioned the Klaer paper, and so I did go to this Klaer paper and looked at -- I tried to score scamp relative to the criteria that were put forward in that paper, and they suggested that a score of greater than six, greater than or equal to seven, supports acceptance of a regime shift, and so I went through each of these categories and scored scamp.

For this first category of the observed change in a productivity indicator, the scamp assessment -- I scored it as a one, and we're seeing that it's more than one generation, and we're seeing the low recruitment starting around 2005, and it's very low starting around 2010, and the generation time for scamp is about ten years, and so I think this is a clear one.

For the next category, understanding of assessment model input, I scored it on the last one, that the character of model inputs is well understood, and uncertainty has largely been eliminated, or well estimated statistically, and I don't think it's been eliminated, but, through the MCBE process, I think it's fairly well estimated. If that's being too generous, then I can see an argument for this as the score is a two, that uncertain model inputs have been characterized and plausible ranges have been investigated, but I scored it as a three.

For the next one, understanding of assessment model structural assumptions, I gave it a two, that model changes and key production parameters have been somewhat validated by investigation of alternative model structures, by looking at different spawner-recruit curves, or improved model behavior, such as removal of retrospective patterns, and we didn't really have any concerning retrospective pattern here, and so two seemed to be the best fit for this assessment.

As far as the final category, explanatory hypotheses, at this point, the mechanism is unknown, and so I scored it as a zero, and so, if I add these up, and if I give it a generous three for Category 2, we're right at about a six, and so it doesn't really meet the criterion of scoring seven or above.

You know, I did think a little bit more about this last one, explanatory hypotheses, and we had some thoughts on mechanisms, but we don't really -- We haven't really identified anything, and we do have a current research project going that we hope to say something sensible about a potential mechanism, but we're not quite there yet, and we do have, I think, some evidence that points toward an environmental effect, being that you're seeing this across multiple species, but not all of the species that we're assessing, and so it doesn't seem like it's related to something strange in our models, or something strange in our data sources, or we wouldn't see this low recruitment, and we would see it more across-the-board, since those aspects are similar across assessments, and we're also seeing it in some species that aren't part of our assessments.

Recruitment overfishing, I guess, is a possibility, but, again, we're seeing this in species that aren't heavily fished, and so I think what we're looking at, so far, is pointing towards an environmental effect, but we also don't -- We don't know what that is, and so I also wanted to suggest that the nature of any mechanism would be critical here, because, even if we could identify the mechanism, whether -- What the pattern of that mechanism is would be important.

You know, for example, if it were something about temperatures, a temperature increase, we could safely say, well, that's not going to change anytime soon, and we might want to declare a regime shift. However, if it were something like AMO, that was oscillatory, well, then we could expect recruitment to return to higher levels, when the AMO itself shifts, and so I think that will be important, when we can identify, if we can identify, any mechanism, and what the nature of that mechanism is and whether we want to declare a regime shift or not.

At this stage, I think we're still in this category of it's not, and we can't declare a regime shift right now, but I did want to walk through this, and it seems like this is an important concept that the SSC should think about and whether or not they agree with how I scored this on the rubric. I will pause for questions, but we can always come back to this later, if there aren't any right now. Okay.

Then I will move on to the forecasts, and it's pretty standard methodology for the forecasts that we typically use, and, here, I've done three scenarios. The F equals zero scenario was run for developing a rebuilding timeframe, if this stock is declared overfished, and that uses the long-term average recruitment, and then two F current scenarios that either use long-term average recruitment or recent average recruitment, and these F current scenarios I think can say something, also, about the question, Chris, that you had about whether or not fishing, or recruitment, is driving the stock status.

Some other details, and the new F here would start in 2024, which leaves this interim period of 2022 and 2023, after the terminal year of the assessment, before the new F would start, and, for this period, it applies the average removals from the end of assessment period, the last three years of the assessment. For the scenarios with long-term average recruitment, that return to the higher levels of recruitment were assumed to start in 2023, and I just wanted to highlight this new feature in the forecast, that we haven't really reported, and we've done them before, but we haven't put them into reports before, and that includes predictions of the SERFS index, and we thought that that could be something that would be useful for monitoring, when we get -- We'll have whatever forecasts we might use for setting management, and then we can compare the forecast of that index to the actual observations in the future and see if we're sort of -- If the stock is following what we expect to see.

Here is an F equals zero, F equals zero long-term average recruitment, and the plots on the left show the projection, with the uncertainty in sort of the blue envelope, and the plot alongside the assessment period, and that's the gray, but the top panel just shows F , and that's dropping to zero, and then the middle panel shows how spawning biomass increases, spawning stock increases, fairly quickly, and it increases quickly because of the bottom panel, where recruits are shown to go back to their long-term average.

The plot on the right shows the probability, or the proportion, of the projections that achieve a certain level of rebuilding, and so I'm not sure what the threshold for rebuilding will be, but you can see here that the rebuilding happens fairly quickly, by -- Within ten years, it's greater than 90 percent, or a 0.9 probability. These horizontal lines, at 0.5 and 0.7, are just arbitrary, for reference.

F equals F current, with long-term average recruitment, and so this is a case -- The panels are exactly the same as in the last plot, but even if -- This is showing that, even if F stays at its current value, but recruitment returns to the higher value, then, on the right, you can see the rebuilding would be occurring pretty quickly, to a probability greater than 0.5, within about ten years, and that, if we have F current, with recent average recruitment, then we do not see any rebuilding, and pretty much the stock status says where it is now. These are just examples of the SERFS forecast, with the fit to SERFS on the left, and then the forecast on the right, with the uncertainty, and so maybe this will be useful for monitoring.

This is just to summarize the forecasts. If recruitment were to return to the long-term average, and if that were to happen soon, and, by that, I mean within the next few years, then the stock would be expected to rebuild within ten years, and so, in that case, the rebuilding timeframe would be ten years from whatever year-one is, and I'm not sure what that will be yet. Low recruitment appears to be suppressing the stock, and not overfishing, based on those F current projections, and the SERFS index, and maybe also with some age and length comps, could be really useful for monitoring future recruitment levels, and so that's -- These are the projections that were run in the report, but, like usual, the SSC may need some additional forecasts, and so that would be something to discuss, and let us know what you might need for setting ABC. That was the last slide, and the rest of them are just extras, in case questions came up that they're needed for.

DR. BUCKEL: All right. Thanks so much, Kyle. Lots of great work, and thank you for finding the errors in the natural mortality and the growth, and I think there were a few others, and so, you know, that went through -- The research track went through the SSC review, and the CIE review, and I could see you guys just taking it and running with it, and not looking for more errors, and so I appreciate that you found those, and that's a very robust stock assessment, as you said, and I appreciate all the other additions on this operational assessment.

I am going to open it up for -- We've been doing some questions all along, but, if anyone has any questions on the forecast, or anything earlier, now is a good time to ask them, before we go to our breakout groups.

DR. CURTIS: Alexei.

DR. SHAROV: I was wondering -- Yes, I understand sort of the bracketing approach, and looking at the effects of the recruitment on the rate of the stock rebuilding at the current F or the zero F , but, expecting the discussion of the level of recruitment that, you know, is likely to occur within

the short time period and the long-term period, I wonder why didn't you try to do the forecast for the F being zero and recruitment being at the current level.

In other words, one of the major conclusions here is that the stock is declining because of the low level of recruitment, particularly in recent years, and then we leap into the recommendation from the SSC for the short-term projection and to use the average recruitment for recent years, and then, for the long-term projection, use the long-term projection, and so, if it's more likely for it to be at the current level, what is likely, or at least what the rate of the recovery would be at the current level of recruitment. I am just curious, and why did we not try that?

DR. SHERTZER: Well, I mean, that F equals zero projection was strictly for trying to evaluate the rebuilding timeframe, and, because it didn't appear that there was a regime shift, or that we could declare a regime shift, then those types of longer-term projections would use the long-term average recruitment, and, when it was configured, I didn't know that it would occur within ten years.

DR. SHAROV: Wouldn't the regime shift actually argue in favor of using the current level of recruitment for the long-term, because we have a regime shift, and the result of that regime shift is the lower level of recruitment. Therefore, for the long-term forecast, we should be using not the average recruitment for the full time series, because we don't expect it to return to -- We're in the new regime, and the new regime is a low level of recruitment, and isn't that logical?

DR. SHERTZER: Yes, except the result was that there's not enough evidence for a regime shift, and so, yes, I think, for the short-term, the recent recruitment is the best indicator, and whether or not we use low recruitment for rebuilding timeframes, or for benchmarks, would depend on whether there's a regime shift or not, and, in this case, there was not enough evidence to declare a regime shift, and so I used the long-term average recruitment.

DR. SHAROV: Right. Understanding that, obviously, the recommendation, or the method, that was used to define -- I mean, it's not absolute, and it's sort of an approximation, but it's helpful though, of course, but still not an absolute yes or no, but that's for a later discussion. Thank you.

DR. SHERTZER: I mean, I'm not trying to say that there's not a regime shift. There might be, and it's more that we can't, at this time, confidently say that there is a regime shift.

DR. BUCKEL: Thanks, Alexei and Kyle. Judd, are there other hands?

DR. CURTIS: Chris Dumas.

DR. BUCKEL: Go ahead, Chris.

DR. DUMAS: Thanks. Yes, I had the same question, I think, as Alexei, and that is, understanding that there may not be sufficient evidence for a regime shift right now, we still might want to ask the question of what if there is a regime shift, and what if the recent low recruitment persists? In that case, if we were to reduce fishing, would it make a difference, and so it might be useful to see a projection where we use the recent low average recruitment, and then also set fishing to zero, and, in that case, what happens to the spawning stock biomass?

If the low recent recruitment, with no fishing -- Could the spawning stock biomass rebound, or, with the low recent recruitment and no fishing, would the spawning stock biomass stay low? That answers the question of, if the low recent recruitment persists, does doing anything to fishing mortality make a difference? Would reducing fishing mortality make a difference or not, if we're stuck with this low recent recruitment for a long time? That's something that I would like to know.

DR. SHAROV: Yes, and that's exactly why I asked that question earlier, exactly for that reason. Thank you.

DR. DUMAS: Yes, that's what I thought. Thanks. It just would be doing one more forecast run, just so that we could just see what that would look like, and that's all. Thanks.

DR. BUCKEL: Thanks, Chris and Alexei, and you both are in the breakout group together that's going to be talking about forecasts, and so, if you could capture that recommendation in your breakout group text, that would be great. Thanks. Other hands, Judd?

DR. CURTIS: I've got Scott Crosson.

DR. BUCKEL: Go ahead, Scott.

DR. CROSSON: All right, and so I was looking at this question of whether we should be using recent recruitment or long-term recruitment, and I'm actually going back and looking at our report from last year, in April, where we had the forecast working group that went over this, and so I'm trying to get some idea for what the guidance is from that, because we did have a decision there.

I guess, I mean, my general recollection of this is that we were supposed to be following the length of -- Sorry. When we're setting an ABC, trying to figure out what the length is of the forecast that we're trying to do, and that should be the standard that we're looking at for how far we should go back in recruitment, but is this our formal policy right now? What's the -- I am trying to remember what we actually decided, and I know I was part of that working group, and so I should probably be able to give better guidance, but what is it that the SSC should be doing, based off of the working group recommendations that we adopted?

DR. BUCKEL: That's a good question, Scott, and that's why I sent the report yesterday, so that folks could have a chance to review that before today's meeting, and so, you know, the report provides guidance, and that would be, for setting an ABC, it would be using the recent recruitment, but, for the rebuilding, it's using the long-term recruitment, as Kyle did here.

Now, Chris and Alexei brought up, you know, wanting to see what an F equals zero, with the recent recruitment, what that looks like, just to see this impact of fishing versus recruitment, but that would not be following, right, the report's recommendation, but it's addressing a different question and not the -- Looking at the rebuild time, but, you know, providing more information, and so that's the way I look at that, but others can feel free to chime in.

DR. CROSSON: I missed that email in everything that came in yesterday, and so I need to go back and dig through my emails, to find the one that you sent, and so apologies.

DR. BUCKEL: Other hands, Judd?

DR. CURTIS: No other hands raised at this moment. Any last-minute questions for Kyle? I am seeing none, Jeff.

DR. BUCKEL: Okay. I think the next item on the agenda is public comment. Is that correct?

DR. CURTIS: Yes, that is correct.

DR. BUCKEL: If there is any public comment from folks, raise your hands for Judd to recognize you, please.

DR. CURTIS: No hands raised for public comment, Jeff.

DR. BUCKEL: All right, and so it's breakout group time, and we have close to -- Around thirty-five or forty minutes before our lunchbreak, and are folks okay that we will move forward with the breakout groups, and maybe we'll come back at -- Let's see. What if we did about forty minutes?

DR. CURTIS: Jeff, I have a suggestion, and that's break out for groups and do, you know, our forty-five minutes in our breakout groups, and then, group rapporteurs, if you can send me your notes from your breakout groups, upon conclusion of those groups, I can compile them into the master document over the lunchbreak, and then we can return after an hour Jeff, with the notes all fully compiled and just launch into our discussion then.

DR. BUCKEL: Okay, and so start back at 1:10, and did I do the math right? We'll go until about 12:10 on the breakout groups, and then an hour break for lunch, and then we'll meet back at 1:10.

DR. CURTIS: Yes, that's exactly what I'm thinking, if that sounds good with you.

DR. BUCKEL: Okay. All right, and so, if you haven't already looked, there is a revised Excel file for your breakout group assignments, and, when you go to that Excel file, there are links. Thank you, Judd. There are those breakout group links, and so find your name, and find your link, and go that, and, as Judd mentioned, whoever the rapporteurs are, Judd sent a Word doc for the action items, and so you can fill in the responses for each of those action items on that Word doc and then send that back to Judd, before you break for lunch, and so we will not reconvene, as a full SSC, until 1:10, and so the rest of the time before lunch is in your breakout group, and thanks to the rapporteurs for taking notes, and, as I mentioned in my email yesterday, others in these groups, please take notes as well, so we have a good -- You know, a full record of what went on in the breakout groups. Thank you.

(Whereupon, the SSC went into breakout groups.)

(Whereupon, a recess was taken.)

DR. BUCKEL: All right. I have 1:10. Thanks, everyone, and welcome back to the South Atlantic Council's January 2023 SSC webinar. For folks that are just joining us, we had a presentation, this morning, on the scamp stock assessment, and then we went into breakout groups, to address our action items, and I think, Judd, you have put all of those together in one document for us to review at this time.

DR. CURTIS: Yes, and that's correct. Thank you, all, for the notes, and I have compiled them into our master document, so we can review, whenever you are ready, Chair.

DR. BUCKEL: I think we're ready to do that now, and I am not sure if Kyle Shertzer is back on, but he was able to do the projection that Chris and Alexei had asked for, and I forgot to text him back, after you and I talked, Judd, and so I just did text him, and so hopefully, if it's not on now, he will be able to join us and provide that.

DR. SHERTZER: I'm on, and I had just a couple of quick slides, whenever you want to see that.

DR. BUCKEL: Let's -- Kyle, if you don't mind going ahead and doing that now, before we get into the breakout groups, and I think that would be helpful for the discussion of the action items. Sorry, Judd.

DR. CURTIS: No, and that sounds good to me.

DR. SHERTZER: Okay, and so this is the forecast that I think a couple of you asked for, where the fishing rate is set to zero, and it uses the recent mean recruitment, and so the top-left panel is just showing the fishing rate is going to zero, and the projection -- The bottom panel is showing the recruitment that is at the mean level, and it's the middle panel, I think, that we're interested in, which is the spawning stock and how it's responding, and you do see a bit of an uptick here, because of having fishing set to zero.

If you look at the probability of rebuilding, it's still very, very small, but, by the end of it, there was about 1 percent of the forecasts were reaching spawning stock biomass at F 40, and then I plotted -- You know, just thinking of this as completing this two-by-two experimental design, these are just the deterministic forecasts, but you can see how they compare, and where they are relative to the proxy of SSB F 40, and this is projected SSB for the four different scenarios that have either fishing rate set to F zero, or F current, or recruitment set to the long-term average, which are the recent lower average. This just gives you a sense for the relative effects of those two axes.

DR. BUCKEL: This is great, Kyle. Thank you so much for jumping right on that. We much appreciate it. Does anyone have any questions for Kyle on the projections?

DR. CURTIS: Chris Dumas has his hand up.

DR. BUCKEL: Go ahead, Chris.

DR. DUMAS: Thank you, Kyle. Yes, this is exactly what we were looking for, and so, to me, what this says is that, even if recruitment -- Even if the recent low level of recruitment persists, changing fishing could make a difference, right, and, even if the --

DR. CURTIS: Chris, I think we lost you, unless it's me.

DR. DUMAS: I'm back. Sorry, folks, and so, to me, what this says is that, with the -- Even if the recent low level of recruitment persists, changing the fishing would make a difference right, and

so, if we reduce fishing, the spawning stock would increase, and so the recent low level of recruitment is not a reason to say that we can do nothing about the situation.

If we reduce fishing, the spawning stock would increase, and perhaps not all the way back up to SSB F 40, but it would increase, you know, it looks like roughly half the way back up to that by 2036, and so changing fishing would make a difference, even with the low level of recruitment. Thanks.

DR. SHERTZER: Yes, and that's my interpretation too, and I guess two take-homes, I think, from this. One is that it seems like recruitment is the bigger driver of the two, but, also, even if F isn't as influential as recruitment here, like you said, reducing F from current, which is the green line, even with recent recruitment, reducing F would get you somewhere between the green line and this orange line, and so it would have some effect on rebuilding spawning biomass.

DR. CURTIS: We have Alexei and then Scott Crosson.

DR. SHAROV: To continue on this thought, we made a conclusion that the principal driver is reduced recruitment, but we did not determine that there was a regime shift, at least in using the methodology applied. However, there is a reasonable chance to learn later that there is a regime shift, or not as dramatic as a regime shift, but certainly a change in the reproductive abilities of the complex of this species, which we're not able to identify at this moment.

My point is that, by looking at this orange line for F zero at recent R, it's that there is some probability of the stock changing its reproductive potential and that the SSB F 40 for that stock -- If the current level of recruitment will continue, it will have to be reconsidered and be at a different level, right, and so, therefore, we're at some risk, right now, in developing the advice, and, assuming that the reproductive output is going to be the same as in the past, we might be quite optimistic in assuming the speed of recovery, and so that's something to keep in mind, because we have no clear explanation of mechanism and the reasons of the last ten years of low recruitment, and, therefore, we have no means of predicting whether this pattern will continue, whether they will stabilize at this low, or whether they will switch to like, you know, normal variability.

DR. BUCKEL: Thanks, Alexei. Who was next, Judd?

DR. CURTIS: Scott Crosson.

DR. BUCKEL: Go ahead, Scott.

DR. CROSSON: Along those same lines, if R continues on the long-term trend, instead of the recent one, as long as the F rate doesn't exceed what we have right now, the stock would rebuild within ten years, but, if the R is the more recent R, if we have low recruitment, then it doesn't matter, and neither of these is going to produce a rebuilt stock, in any of the foreseeable future, and I don't know what the slope is of that orange line, but it's probably going to stretch out further than the stock assessment model goes, and so what's the legal obligation for the council, under those circumstances?

DR BUCKEL: I don't know the answer to that, Scott, and I don't know if there's anyone on the call that does know the answer and the legality. Any hands, Judd?

DR. CURTIS: I'm not sure of the legality and the obligations either, and I do have Shep Grimes with his hand up, and so let's see if he can answer that.

DR. BUCKEL: Go ahead, Shep, and welcome.

MR. GRIMES: Thank you. Well, I wouldn't -- I don't think the SSC should be looking now at the council's rebuilding obligations under this. I mean, the question now is using the assessment and setting ABC, but, you know, the obligation of the council, or at least the rebuilding obligations under the statute, are to rebuild as soon as possible, and then the council gets to make the argument over what is as soon as possible.

If you put F equals zero, and you were never going to rebuild, I mean, I'm not exactly sure how that would work out, and I think certainly it would be a tough situation, but I think the easy answer, at least for the council, is that they would need to do something to address their contribution to it, and end overfishing, or accomplish rebuilding, as short as possible, taking into account the factors in the statute. I know that wasn't very clear, or very helpful, and sorry, Scott, but that's all I've got.

DR. BUCKEL: Thank you, Shep.

DR. CURTIS: We have John Carmichael, to that.

MR. CARMICHAEL: Yes, and I just want to say that it seems like this is a situation we've been in before, when you've had the discussion about regime shifts and what recruitment is doing, short-term versus long-term, and I think the orange line just indicates, if that's the condition of the stock, going out another twenty or thirty or forty years, then you would have to be reconsidering the long-term targets for the stock, and where you think it's going to get, as we've discussed. You know, I think that's the issue there, and is the whole regime actually shifting? That would be a discussion that the council would have to have.

DR. BUCKEL: Thanks, John. Any other questions, and then I will give my thoughts, and then we'll get to the breakout. Any other questions?

DR. CURTIS: Fred Serchuk is now with us, and he's got a question.

DR. BUCKEL: Go ahead, Fred.

DR. SERCHUK: Sorry that I couldn't join you earlier, and, if my intervention is inappropriate, let me know, or has already been discussed, but could you take that orange line out to where it might reach the SSB 40, or will it never get there? Do we know?

DR. SHERTZER: I haven't run it out that far, but it looks like it's starting to saturate, and I predict that it would never get that high.

DR. SERCHUK: Okay, and I also thought -- Shep, wasn't there wording in the Magnuson Act, or maybe it was an interpretation, that, if you couldn't reach it in ten years, that you had ten years and a generation time period?

MR. GRIMES: If I can just jump in and respond, Fred, that's relative to rebuilding, your rebuilding timeline, right, and so, if it can be rebuilt within ten years, it has to be rebuilt within ten years. If it can't be rebuilt within ten years, then you get to expand your timeline based on -- There are actually multiple options, but, yes, it's based on the generation time of the fish.

While I have the mic, I will elaborate a little bit, and, as I was thinking more about it, in terms of what the council obligation would be, relative to rebuilding overall, when you have this rebuilding trajectory, you know, and this recruitment issue, it's going to be a very fact-intensive inquiry of, you know, why isn't it -- If F is really, you know, truly equal to zero, why isn't it rebuilding, and are there other fishery management actions that, you know, might be affecting this, or delaying this, and I'm mostly thinking in terms of other stocks, and so it would be -- You know, it would be a fact-specific case-by-case inquiry that the council would have to make, and I just wanted to elaborate on that. Thank you.

DR. SERCHUK: One final question. The spawning stock target here is based on the current dynamics of the stock, and would they change if the dynamics are different now, because of a regime shift, and so it might be lower?

MR. GRIMES: You're not asking me that, right?

DR. SERCHUK: No. I'm asking people that are familiar with this. Sorry, and I didn't mean to direct it at you, Shep. In other words, if we believe there is a regime shift, and we're going to have an extended period of lower recruitment, or recent recruitment, wouldn't the biological reference points change?

DR. SHERTZER: Yes, they would. One of the things that we looked at this morning was working through the Klaer et al. criteria for a regime shift, and it didn't appear that this stock met the criteria that would be needed to declare a regime shift, at least not yet.

DR. SERCHUK: Okay. Thank you. I recognize that I'm Johnny Come Lately here, and so I don't want to go over territory that you've already covered. Thank you for the explanation.

DR. SHERTZER: I think one of the big uncertainties here for defining the timeline for rebuilding is, if it does -- If recruitment does return to the long-term average, exactly when does that happen, and so this forecast with long-term R assumes that it happens in 2023, but, you know, it may not, and, if it returns at all, it may be later than that, which would affect the timeline of rebuilding, and also the timeframe, because, in this case, it does rebuild within ten years, which means that the rebuilding timeframe is ten years, but, if that return to long-term average is delayed, it may be longer than ten years, in which case it would be ten years plus the generation time, which is also ten years, or the rebuilding time plus ten years.

DR. BUCKEL: Thanks, Kyle. Judd, if there's no more hands --

DR. CURTIS: There is one more, and Alexei has been waiting patiently.

DR. BUCKEL: All right.

DR. SHAROV: Really quick, the projection for, again, recent recruitment, this orange line that we're talking about, is based on the current model, or on the current simulation of the recruitment, projection recruitment, into the future, assuming no stock-recruitment relationship, essentially, assuming constant recruitment, at the lower level, with, you know, random variability, and I am not that convinced that we have enough observations, at this low level of the spawning stock, that there is a complete independence of recruitment from the size of the spawning stock, and it is quite reasonable to assume, based on everything that we know about the species, that this could be the range where there is -- You know, that's where you are essentially -- Your steepness is -- The size of the stock where recruitment is really increasing would increase in the stock size.

We simply don't have enough information for that, but that might be one of the reasons that, the way we model recruitment, in the future, for this low recruitment option, we end up with a very slow recovery, when, in fact, there might be, you know, a faster pace, in the case of the presence of a stock-recruitment relationship, and that is, again, you know, something to keep in mind, but it's not possible to identify at this moment, based on the assessment.

DR. BUCKEL: Thanks, Alexei. All right. We still have Spanish mackerel this afternoon, and so I want to get into the breakout group responses to the action items, so the full SSC can see each breakout group's response and add any edits to that, and part of that will be revisiting the projections, where we can finalize the plan for moving forward.

Thanks for getting that Word doc together, Judd, and so we'll start at the top. I will just let folks read what's there, for folks that weren't in this review assessment breakout group, and I will give you a couple of minutes, and then we can talk about any edits for this page. Does anyone have any edits on these responses? Judd, just if you -- No hands, and we'll scroll down. Seeing no hands, we'll continue scrolling. Thanks, Judd. Go ahead, Amy.

DR. SCHUELLER: I am sorry, but you're going too fast for me. Can you scroll back up to the top of this section? I don't know if everybody was done with the section before this, but can you scroll up to the action item? Thank you. Right there. Okay. I was still on the MRIP bullet.

DR. BUCKEL: Sorry, Amy. I didn't get past the MRIP bullet, because I was scratching my head about what this means and whether or not I agree. You know, there is uncertainty in MRIP landings, and folks are concerned about it, and so I think that's what is happening is they're trying to address that by sort of smoothing through it, and I guess I'm just looking for a little clarity on this.

DR. CURTIS: We've got Genny with her hand up.

DR. BUCKEL: Genny, is it to that point?

DR. NESSLAGE: Yes, and I was on that group. I'm not sure the last sentence is worded perhaps as well as we should have, and I think folks were just pointing out the high uncertainty, particularly in the discards, although I think everyone agreed that Kyle handled the replacement well, with dealing with the MRIP landings where the CVs were high.

The uncertainty affecting model estimates, obviously, if your catch is way off, then the magnitude of your estimates would be affected, and I think the management part was where we were talking

about how, if the CVs are really high for MRIP, then, continuing in the future, then it would be hard to monitor the status relative to the ABC, and so just because it affects not just the assessment, but also the council's ability to manage the stock, and so I don't know if that was captured as well as we could have, and we were going fast, but does that clarify it? It doesn't mean that you have to agree, but --

DR. SCHUELLER: No, that's fine, and that makes sense, but that's not what that last sentence says, and that's why I got hung-up on it, and so maybe we can change what that says, or add a little bit. I mean, it's different management decisions, such as the ABC Control Rules, and it seems like what you're intending is it's hard to track the catch when compared to the, you know, catch level that's been recommended, given the high uncertainty, and that's different than -- I guess I read that as we can't set an ABC Control Rule.

DR. NESSLAGE: No, that wasn't what we intended, and I think you can replace, after the "and", with just "monitoring", just as a heads-up to the council, right?

DR. SCHUELLER: Thank you.

DR. BUCKEL: Good catch, Amy, and thanks, Genny. Go ahead, Fred.

DR. SERCHUK: Just a question to somebody that's informed, and do the MRIP landings constitute a large proportion of the total catch?

DR. BUCKEL: Fred, it varied by year. Some years, it was -- Kyle can correct me, and, some years, it was a little over 50 percent, but, in other years, commercial was the dominant, but there were some years that --

DR. SERCHUK: Okay. My point is that, if they're significant, then, of course, it has a major impact. If they're not significant -- But, again, as you said, it may depend on the years. Would that be helpful to point out here, that MRIP landings, in many years, comprised a large proportion of the catch, and, therefore, it would affect the model estimates, just to give the lay reader a little bit more understanding? Thank you.

DR. BUCKEL: I agree with that edit. Judd, did you catch that?

DR. CURTIS: Can you repeat that, Fred? I was multitasking.

DR. SERCHUK: Sorry. Again, I wasn't involved in the discussion this morning, but the MRIP landings -- If they are often a significant component of the total catch, then the model uncertainty, of course, would be very much affected, but, if they're not, of course, then the uncertainty doesn't really play a large portion, in terms of their effect, you know, on the assessment reliability, but, again, as I understand, some years, they can be very important, and, in some years, they're not, because the MRIP landings can be very variable. I'm just trying to make it a little bit clearer to the lay reader, who doesn't, like myself, is not familiar with the fishery dynamics. Thank you.

DR. BUCKEL: Thanks, Fred.

MS. LANGE: Shouldn't that be "decreased reliability"?

DR. BUCKEL: Are folks okay if we scroll?

DR. CURTIS: Amy has got her hand up.

DR. BUCKEL: Go ahead, Amy.

DR. SCHUELLER: I was just wondering if we wanted to -- So this bullet has like two points, kind of. It's discards versus landings, and, in order to make sure that neither of them get lost, I wondered if they should be two separate bullets, just because, when I read that the first time, I just saw the landings part, and then, you know, as you're skimming stuff, and so, yes, that's what I was thinking.

Then, I mean, there was the statement made that we think that the way the uncertainty in the landings values that were greater than 0.05 were handled appropriately, we may want to make some sort of statement about that, that that was addressed in this assessment and handled to the best of, you know, the scientists' ability, or something like that, for the landings, and not for the discard part, but they're combined too, and so that's like making it complicated as well.

DR. BUCKEL: So maybe, on the very first bullet, MRIP landings were replaced, and then a semi-colon and the SSC agreed that this was an appropriate approach.

DR. SCHUELLER: Well, I mean, there were like, what, five years in which MRIP landings CVs were greater than 0.5, right?

DR. BUCKEL: Correct.

DR. SCHUELLER: The time series was, I don't know, several decades long, and so it's a low, lower, probability instance, I guess, and that's all I'm trying to say. Maybe the language is, for the five years in which the CV for landings was greater than 0.5, appropriate methods were used to address the uncertainty, or something like that.

DR. CURTIS: Okay. Thanks, Amy.

DR. BUCKEL: Thank you. Genny.

DR. NESSLAGE: Then I would almost argue that we would take that first bullet and move it out of high, because it's really more the discards that had the consistently high CVs, correct?

DR. BUCKEL: Yes, that's correct.

DR. CURTIS: So would you classify that then down as a medium priority, or down to low?

DR. NESSLAGE: I would defer to our fearless rapporteur, who has her hand raised.

DR. BUCKEL: Yan, go ahead.

DR. LI: I was about to say the same thing as Genny pointed out. We can move it down there. It's either medium or low, and I would leave it to the bigger group to discuss that, and I just want to point out that like, here in this section, we were asked to identify and summarize uncertainty and not, you know, justify it, if it's an appropriate way to handle it in the model or not, and there's a second question, under this section, asking how we think the assessment is addressing those uncertainties, and I just want to keep that mind, that, here, we are not justifying the assessment handling it well or not, but just identify that this is a potential source of uncertainty, and it may be a great, or it may be a low impact, and that's why we had this ranking here.

DR. BUCKEL: Thanks, Yan.

DR. CURTIS: Okay. Are we ready to scroll down to the medium priority?

DR. BUCKEL: There's just an extra word in that very last sentence. The results are heavily relying on this index. Fred Scharf.

DR. SCHARF: Jeff, I just wanted to make mention that our group talked about this as well, and, you know, we thought it was important to note that the SSC, you know, viewed this as a robust index, and so we didn't want it to come across that this was necessarily a weakness, but that the assessment, you know, would be potentially strengthened by having additional data streams in the recent part of the time series, but that this index, you know, is viewed, by the SSC, as a robust fishery-independent index, or at least that was how we discussed it.

DR. BUCKEL: Thanks.

DR. SCHARF: Sure.

DR. BUCKEL: Any folks opposed to scrolling down to the low priority? Go ahead, Fred.

DR. SERCHUK: Thank you, Chair, but what was meant by "instead of empirical trends in biology", and are you talking about changes in size and age composition and these types of things? I am just trying to understand what empirical trends in biology would be manifest in.

DR. BUCKEL: Does someone from that group want to -- Could they answer Fred? Go ahead, Yan.

DR. LI: I remember these items coming from like when we discussed like especially the overfishing status, because the reference point is -- It's 40 percent SPR in this assessment, but it could be 30 percent, or 35 percent, and so there is an arbitrary determination of these reference points, and so this would affect the status of overfishing, and then I remember some argument was brought up of like, instead of relying on arbitrarily-defined reference points, it was mentioned that maybe there's another way to look at some empirical study, empirical trends, based on the biological traits of this species, or the fisheries, that can help us to justify this 40 percent, or 30 percent, and which one is the one here that we should use.

Here, other group members please speak up, if I got this wrong, but, for this item, there is a note that says that further discussion is needed, and we would like to bring this item up to the broader group of the SSC here to decide, discuss, how to frame this and if it should be put under low or

high or medium priority, and, this morning, we had quite some discussion about this item, in the big group.

DR. BUCKEL: Thanks for the clarification.

DR. SERCHUK: Okay. Would it be better to say that overfishing status was defined -- Overfishing was determined based on a predefined BRP, because wasn't that what was done, and then you can talk about how robust that BRP is, in the absence of additional information to verify it, or to confirm it? Sorry if I'm being a picayune here, but I'm just trying to make the lines clearer to someone that's reading the report.

DR. BUCKEL: Fred, in Kyle's presentation this morning, he laid out justification, and, to me, and I don't know that literature, but Kyle cited several papers that have come out, over the years, where the 40 percent is more appropriate for species like scamp, and the 30 percent is only -- You know, folks continue to use it, but those are for species that have life histories that can take a heavier fishing mortality, and scamp doesn't -- You know, they don't have a life history that can, and so I thought it was laid out well by the Science Center, the justification for the 40 percent SPR, and so we would capture that here, that those were based on -- It wasn't just, you know, pulled out of a hat, and it was based on detailed review of the scientific literature.

DR. SERCHUK: Okay. That's helpful, because it may be very robust, based on looking at the review of the scientific literature. Thank you.

DR. BUCKEL: Do we still need to have this further discussion is needed, folks, or do we need further discussion, or how do folks feel about this? Judd, are there --

DR. CURTIS: I am hearing no dissent on it, and we'll strike it.

DR. BUCKEL: Okay. All right. I guess we can scroll on down. Go ahead, Alexei.

DR. SHAROV: Request Number 1 has been completed by Kyle, and we just looked at it ten minutes ago.

DR. CURTIS: Thank you, Alexei. I added some notes there, after reviewing Kyle's slide, after he put together that analysis, and that's basically what those open bullets are representing, is that discussion by the SSC.

DR. BUCKEL: I think this looks good, and I don't know if we need this second bullet following -- That the rebuilding should be based on long-term recruitment patterns, and that's following the workgroup's report that I sent to folks yesterday, and so, with the lack of evidence for a regime shift, that Kyle presented, then the rebuilding -- From that report, the rebuilding would be based on the long-term recruitment, but the ABC would be determined from the short-term, or the recent, recruitment, but then having this language at the bottom is important, given that it was -- The regime shift analysis that Kyle did was getting close to a level, right, and so that's this interim analysis to check on that, and I think that's a really important bullet, and point, to make, and so this looks good to me. How do others feel? Alexei.

DR. SHAROV: There is a small typo in the word “pattern”. Rebuilding should be based on long-term recruitment patterns, and the “n” is missing. I am still -- I am having heartburn, and I am submitting to the recommendation of the SSC workgroup on how to deal with the long-term and short-term projections, but I do see a conflict in there that is, for the short-term, the recommendation is to use recent recruitment, and so, for the first three to five years, we’re using the recent recommendation.

For the long-term, we should expect the -- Project it based on the long-term average recruitment, and that’s a ten-year horizon, or more, and so, for the ten-year period, in one option, we assume a low recruitment for the first five years, and then it’s not clear what’s next, or the option of the long-term recruitment being average recruitment being used for all ten years, and so it’s inconsistent, and I know we’re not perfect, and we have to make some rules, but I think everybody also -- As many have said, we don’t know whether the normal will kick-in in 2023, or 2025, or ever, in the next ten years. I guess, if we could have some sort of -- Maybe a warning placed in here, I would appreciate this, but, if not, then, you know, I will go with the group, but I will still have that heartburn.

DR. BUCKEL: Thanks, Alexei. Does that last bullet, where the interim analysis for checking up on stock health will be important, that bullet, does that help your heartburn, or do you want something stronger?

DR. SHAROV: Well, yes, but, I mean, we’re making rules, again, for obvious reasons, because they help us in uncertain situations, but it’s still -- It’s useful to have some reasoning, some background, some proof, that this rule will be helpful, and I am not convinced, in this case. That being said, it’s important how everybody else feels, and I just wanted to air it, and you might agree or disagree.

DR. BUCKEL: Thanks, Alexei. Any other hands, Judd?

DR. CURTIS: No hands. This might be a good place for me to just mention that, Kyle, one other projection that we’ll need, for the council, is still whatever is decided, what scenario, with the F and the lower, more recent recruitment, versus the average recruitment, and we’ll need analysis done with the benchmark of F at 30 percent, even if the SSC recommends the 40 percent proxy that you’ve used, and this is because we need to include that into any fishery management plan amendments as a no-action item, and so if you can put that on your list as something to run in addition to the additional projection scenarios.

DR. BUCKEL: Kyle, are you still there?

DR. SHERTZER: Yes. I mean, I’m expecting a list of projection scenario requests to be coming down the pike, and I’m not sure why F 30 percent would be the no-action alternative, and I don’t think any proxy has been set for this stock previously.

DR. CURTIS: We currently have a proxy of 30 percent on the books.

DR. SHERTZER: Okay.

DR. CURTIS: Yes, a list of projections will be forthcoming, from Chip, most likely. Thanks.

DR. BUCKEL: All right. If there's no other hands, Judd, I guess we'll scroll down. I was in this group, and so the bullets that are there, that are not in blue, were already provided, and those are things that Chip already includes in the SAFE report, and the blue are additions that were made. We didn't delete anything that Chip had, and we just added to it. Kyle, thanks again for doing those projections with the SERFS index. That will be useful for monitoring. Anybody opposed to scrolling down?

There's a couple of bullets here that would be good to get some feedback on. In the second open bullet, the provide any additional research recommendations, similar to above groups, the lack of indices of abundance after 2009 -- Just having the trap video index -- We had a discussion about, if there are any -- The analysts may know right away that there's no way to get a fishery-dependent index of abundance after 2009, and we thought that, maybe if there's a time period where management regulations have been consistent, that could be considered as a completely independent like, you know, headboat index number two, that is under a different management regime, but there's twelve or thirteen years of data now that might -- There may be a source of another index, but, if that's already been explored and is not possible, because there's been too many regulations that have changed during that time, then we can just strike this, but, if it hasn't been explored, then I guess we could leave it in, because it's just something for folks to look into down the line. Erik.

DR. WILLIAMS: I don't know that it's been looked into specifically for scamp, but, for many species, the regulations -- It's not whether management regulations have been consistent or not, but it's that the regulation prevents a relationship between catch per unit effort and abundance. It basically wipes it out, and an example would be trip limits and bag limits. If they're bumping up against those, then you can change abundance all you want, and it's not going to reflect in the change in catch per unit effort, because catch per unit effort is capped, essentially, because of the regulations, and so my only concern is that phraseology suggesting that consistent management can yield a useable CPUE, and that's not the whole story. It's part of the story.

DR. BUCKEL: Is it worth looking -- Keeping this, Erik, or striking that "if the management regulations have been consistent"?

DR. WILLIAMS: I assume it's been looked at. I mean, certainly this was a research track, and I'm sure they looked into it. I think, for some stocks, we've kind of written it off, and maybe there is reexaminations, but, in most cases, when we sort of write it off, so to speak, it's because it's pretty clear that the management has just destroyed that relationship between abundance and CPUE.

DR. BUCKEL: Okay. Judd, you can strike that bullet.

DR. CURTIS: The entire bullet or just that section about the management changes and consistencies? Do you want to strike the whole bullet?

DR. BUCKEL: I think so, based on Erik's response, and then this other one is Chris had asked about, you know, running the model with F equals zero, and Kyle said that he could, and it would take basically creating a simulation model for BAM, but we wanted to know if this new projection that Kyle did is sufficient, you know to get at that question, where you can see, at F equals zero,

how the recent versus long-term recruitment -- The impact of fishing versus recruitment, and is that enough for you, Chris, or did you want that simulation to be a research recommendation?

DR. DUMAS: Kyle's additional simulation was enough for me, and that answered the question that I had.

DR. BUCKEL: Okay. I think then take this out too. Fred Serchuk.

DR. SERCHUK: My point was addressed by Erik's comment, and so I have no other comment at this time.

DR. BUCKEL: Alexei.

DR. SHAROV: I lowered my hand, but the question that I had was, if we are convinced that there is a significant decline in recruitment, and that is not driven by the fishing, which I am not convinced, but, you know, I don't have any other interpretation, at the moment, and, well, the model says that's what it is, but I was wondering, and, if we are assuming that this is some sort of, you know, environmental effect, or something that drives that low recruitment, it would have to be probably not so much species-specific, and is it worth looking at the --

You know, whether there is similar signals in the other species with similar biology and ecology, because, if it's environmental, if it's some sort of, you know, effect of the climate change, that should have like a universal, or nearly universal, effect on a number of species, and certainly the ones that have similar ecology and biology, and that's a possible research that is relatively easy to address, and it's just simply look at the information for other species and search for drivers, explanations, of what's driving it.

DR. BUCKEL: That one is in there, Alexei, and so I don't think you need to add that, Judd, and so Kyle mentioned, in his presentation, that there is a -- He and others are involved with an analysis of exactly what you're talking about, other species where similar life histories are -- Where you're seeing low recruitment.

DR. SHAROV: Thank you. I totally missed it.

DR. CURTIS: Just to that point, there's a paper that just came out from the Science Center folks that addresses just that, and so low-recruitment issues across multiple different species, and particularly in winter spawners, and that's a paper that I'm thinking that we will review, as an SSC, in our April meeting.

DR. BUCKEL: Go ahead, Wally.

DR. BUBLEY: I just wanted to point out that that is a research recommendation that was already in the report, and so that's why it's not showing up here, because it already showed up in the stock assessment report.

DR. BUCKEL: Thank you. Fred Serchuk.

DR. SERCHUK: Again, this may be naïve, but are there any indications that the age, or size, at maturity, or the reproductive output per body weight, has changed in this species, to suggest that the lower recruitment is being manifested in terms of morphometric issues? Has that been looked at?

DR. BUCKEL: I am not aware of any studies on that, Fred, but I will let others chime-in that are working on those questions.

DR. CURTIS: Fred, I don't know off the top of my head either, but there might be some working papers from the research track assessment that discusses that concern.

DR. BUCKEL: Wally has his hand raised. Go ahead, Wally.

DR. BUBLEY: I figured you were talking about me there, since I mentioned it, but, yes, there's a graduate student that did some work a few years ago, looking at reproductive parameters, and I can't -- I would have to go back to the paper and confirm what it is, but I don't recall any changes over time that were occurring with size, age at maturity, or transition either, being a protogynous species.

DR. BUCKEL: Okay. Excellent job, breakout groups, and I think all these action items have been addressed adequately, and then we have the scamp catch level recommendation, and so that's -- We talked about using the projection, with recent recruitment, and then there's the, I guess, the decision, as a group, of the proxy that Kyle and the Center analyst recommended, was the F of the proxy for FMSY was F 40 percent. Are folks comfortable, as the SSC, with the recommendation of moving forward with that proxy? This is where it would be nice to see the faces, if anybody is still pondering this. Amy, you were the one that I was thinking of that would have the face pondering. Go ahead, Amy.

DR. SCHUELLER: I'm not pondering, but I'm like waiting to see if anybody else is going to talk. I was just going to say that I support the use of F 40 percent, and the reasons that Kyle outlined are what I would use to justify it, given the literature on the topic and the fact that this species has the life history that it does.

DR. BUCKEL: Thanks, Amy. All right, Judd. If there are no other hands raised on this, do you have enough then to fill out the table, or are there any other questions that need to be answered by the SSC to --

DR. CURTIS: I think we're good there, for filling out the table, and then, when we get the next set of projections from the Science Center reviewed in April, we can get catch level recommendations.

DR. BUCKEL: So the other ones that you're talking about are the F 30 percent?

DR. CURTIS: Correct, yes, and I thought there was one with a -- Let me scroll back up here, and it's looking at what the constant F would be to allow the stock to rebuild within a ten-year timeframe.

DR. BUCKEL: Right. Good catch. Anything else? That F 30 percent would be the same -- Do you need the same two-by-two, the two Fs and the two recruitment scenarios, for the council?

DR. CURTIS: I am unclear if we'll need the full matrix of all those projections at F 30 percent, and that's something that we can discuss in-house and send to Kyle, as far as our list of projections is concerned, and Erik has got his hand up, maybe to address that.

DR. BUCKEL: Go ahead, Erik.

DR. WILLIAMS: I wasn't going to address that, and, actually, I see that you guys -- Since you scrolled down, that you've got landings and discards, and I just wanted to make sure that everybody recognizes, and realizes, that what we're calling landed catch here already includes the discards, which is a little different from most species, and we try to separate out discards and landed catch, but, in this one, we are not, and so it's important to make sure that carries through in everything.

DR. BUCKEL: Thanks, Erik.

DR. WILLIAMS: Just to be clear, that's dead discards.

DR. CURTIS: Thanks, Erik.

DR. BUCKEL: All right, Judd. If you have everything you need, I think we're finished with scamp, and we can move on to Item Number 4, the Spanish Mackerel Revised Operational Assessment Terms of Reference, and we have a whole forty-five minutes for this, and we'll go as far as we can. Judd, I think, first up, you have our summary presentation for us, that summarizes where we started and where we are now?

SPANISH MACKEREL REVISED OPERATIONAL ASSESSMENT TERMS OF REFERENCE

DR. CURTIS: That's correct, and so I'm just going to present a summary PowerPoint, and it's up on the briefing book now, and apologies for the delay. It's just to kind of paint the picture of what has happened so far with our Spanish mackerel assessment reviews, guidance from the council, and some next steps that we need to consider, in order to produce an ABC for this assessment, and so, if you just give me a minute to switch gears, I will get that presentation fired up.

DR. BUCKEL: Thank you. Kyle, if you're still there, thanks again for the excellent job on the scamp presentation. It was very thorough.

DR. SHERTZER: Thanks, and thanks for all the great questions and discussion.

DR. CURTIS: As I said, I'm just going to give a quick presentation on the timeline and summary of actions that the SSC has recommended so far with regard to the Spanish mackerel operational assessment, and so the assessment was completed in July of 2022, and, for the most part, this was guided by recommendations from the SEDAR 20 review panel, as well as the methodology of the SEDAR 28 stock assessment, and this included -- The new assessment included the period of 1986 to 2020, and, from the base runs of the model, it indicated that -- As well as the MCBE, this

indicated that the stock was not overfished, and the spawning stock biomass in the terminal year, over MSST, equaled the 1.4, and it was not undergoing overfishing, with a value of 0.74.

This was reviewed by the SSC at our August meeting, and the SSC indicated they had several concerns with the assessment, most notably recreational landings, natural mortality, MCBE distributions, likelihood profiles, growth models, and steepness. At this point, they made a recommendation to the council that this assessment was not suitable for providing management advice, until these concerns were resolved.

This recommendation was taken to the September council meeting. At this meeting, the Science Center agreed to review the recreational landings estimates, and they looked at MRIP estimates and updated them for two waves. The base 78 model was rerun and presented at the October SSC meeting, and this included just the base run, because of time constraints, and there was no MCBE or projection analyses or any new reports at this time.

These next two slides are directly from that assessment rerun, and so you see, on the top here, that we have general rec landings in that top figure, and then dead discards in the bottom figure, and the pinkish line, or the black line indicates the base model, and the pinkish line indicated the updated model, with the new MRIP data, and you see that it overlaps pretty well, and so it did not change the estimates very much, and we saw that in this time series of the stock status indicators as well. It did not change the status of overfishing, nor overfished, and that is indicated down in that table down at the bottom, in those yellow boxes.

The updated MRIP estimates had a little impact on the overall assessment results. However, we still had remaining concerns that needed to be addressed, per the recommendation of the SSC in October, which included still the natural mortality, the MCBE distributions, growth models, and steepness and, at this time, a workgroup was convened and tasked with the exploration and elaboration of these requested changes. That workgroup met in December and went through a list of notes that they had generated, which was one of your attachments for this meeting, but they distilled their findings down, for several key recommendations, that they thought were the most feasible, in terms of the potential workload and timing, for the Science Center to review.

Based on those findings, they generated a new set of terms of reference for the Science Center to review and incorporate into the rerun model, and that's essentially what the SSC, at this meeting right now, is tasked with, is reviewing those terms of reference, so that they can be passed on to the Science Center for a potential rerun to review in April.

In December of 2022, the council made a couple of statements, and they expressed their frustration with the SEDAR 78 assessment and the importance of having accurate catch level recommendations to move forward, and to the effect that they made a motion that they directed the SSC to provide catch level recommendations for Atlantic Spanish mackerel at their April 2023 meeting, either from the updated assessment or using a data-limited approach, and this was approved by the Full Council.

Our action items, for this meeting, are to finalize those terms of reference and to also have some conversation discussing the feasibility of these modifications, in terms of workload and timing. Erik was present in our workgroup meeting, and he gave some good insight into what were the

potential hurdles to some of these issues, and he thought it best that we all discuss this as a group, at this meeting here.

In addition, we wanted to discuss some alternate methods of setting ABCs, if these are not derived from the assessment projections, and so this is just kind of setting the stage for if the -- Depending on how the rerun goes, what the SSC decides to do, as far as recommendations of accepting the assessment, or rejecting the assessment, and then how to determine stock status, as well as ABCs, from one mechanism or another.

Staff put together a nice document, Attachment 4f, that includes not only how to set ABCs when stock status changes, but there's also a full document from NOAA-NMFS that is also one of your attachments, and that outlines the process if the stock status does change, and that's not saying this is necessarily going to happen, but this attachment also included several of our ABC Control Rules as well that could be applied, as well as some other methods for generating ABCs and what has been done in the past with regard to Spanish mackerel.

Previously, coming out of SEDAR 28, the Spanish mackerel assessment, the SSC had deviated from their control rule and recommended using a third-highest landings from the 1999 to 2008 time series for the ABCs, and that's currently what is still on the books for ABC for Spanish mackerel.

A couple of options that I just wanted to explore, and kind of break this down, and so three scenarios that potentially could occur, and so the first is, after the revisions and the rerun is done, SEDAR 78 is accepted, in which case stock status comes from the assessment. We apply the ABC Control Rule, and the ABCs are determined from projections.

A second option is, if the revised SEDAR 78, or the original SEDAR 78, could be partially accepted, where we're generating stock status from the assessment itself, but, similar to what was done in the previous SEDAR 28 assessment, deviate from the ABC Control Rule, and it's determined through a different data-limited method, and just some examples of some options that we've discussed were the third-highest landings, as was done previously, looking at an equilibrium optimum yield, and we're looking at yield at 75 percent of FMSY, and we can discuss some other ideas as well.

The last option is just an outright rejection of the latest stock assessment. In this case, stock status would be to be determined, and it possibly becomes unknown, depending on how the SSC felt about the old assessment, and if it was still robust enough to generate catch levels, using the old assessment, and that's where this NOAA-NMFS procedure comes into play, Attachment 4e. In this case, to satisfy the council's request, and motion, you would need to come up with another ABC, from an alternate method, by deviating from our ABC Control Rule.

Those are kind of three options, and my goal here was just to get a little bit of discussion surrounding these potential options. If we are going -- If the SSC recommends going with a partially-accepted assessment, and looking at generating ABCs from alternate methods, we could have discussion and agree upon what that method might look like, if it's one of those three there or a different method, so that that could be built into the revised assessment and get output for catch level advice.

Just, lastly, this is the amendment timeline, and so review the modifications to the SEDAR 78 and provide catch level recommendations at the April 2023 meeting, and then, in June, the council will review those recommendations and start directing staff to work on an amendment, and then, from there, it falls to staff and the Full Council to generate the amendment, but that was just a quick little summary, to kind of get us all in the ballpark and what we need to do next, as far as generating the ABC and discussing the terms of reference to send on to the Science Center for the rerun of the operational assessment. I think that's it, Jeff.

DR. BUCKEL: Thanks, Judd, and so do you want to start with the TORs?

DR. CURTIS: Yes. Let's start with the TORs, and hammer those out, and that's kind of the focal point of the action item that we really need to get done at this meeting.

DR. BUCKEL: Just to remind folks, there was an action item to review the workgroup notes, but that was just so you have a sense of where these TORs came from, and so the workgroup has already distilled down to these terms of reference to provide to the Center analysts for the revised OA for Spanish mackerel, and hopefully you've already read them, but we'll give you a couple of minutes to take a look, and then, if anyone wants clarification, or wants to add some text, raise your hand. Judd, any hands?

DR. CURTIS: No hands raised.

DR. BUCKEL: Erik, I know you were involved, and I will ask Erik after Fred. Go ahead, Fred Scharf.

DR. SCHARF: Thanks, Jeff, and it's probably -- The timing is good of mentioning Erik, because I was just going to ask if you could confirm that someone from the Center, you know, was involved in the working group and that these additional analyses could be completed and provided to us in April, when the council has asked us to set an ABC.

DR. BUCKEL: Erik Williams was involved with the group, Fred, and so I was just going to check back in on that, because maybe he didn't see the final version of the TORs, and so, Erik, if you want to comment on that question from Fred Scharf, and then I had a second follow-up.

DR. WILLIAMS: Sure, and so the answer is I can't answer that question right now, because determinations of whether we can do a task like this or not has to be put in the context of what we have going on within the Center, and it's -- Frankly, it's above my paygrade. I get to have a say in it, but the final decision, as to whether we would do this or not, is out of my hands, and I can't say for sure either way.

DR. BUCKEL: Thanks, Erik, and so even more reason for us to have the other ABC option, a decision made on what that would be, if we weren't able to get something out of SEDAR 78 that we would -- Another option for an ABC, since we're going to have to have one coming out of that April meeting.

Then the other question I had for you, Erik, was the last part of Term of Reference 3, to evaluate and note in the report any particular concerns or problems with the MRIP data collected in 2020,

and if someone from the workgroup wants to comment on that, and that seems like that's more of a question for the MRIP group, or is that -- Am I missing something there?

DR. WILLIAMS: It is more of a -- For a more precise answer, we should consult with the MRIP. I do know -- I mean, they've given out reports to me, and I've talked to personnel about what happened in 2020, and I know that, you know, one of the things they did was imputation, which, basically, they borrowed samples from 2018 and 2019 for 2020, and they did the same thing in 2021, to a lesser degree, and don't quote me on this exact number, but my recollection, of looking at the data, that the percentage of values that were imputed for 2020 was on the order of 30 to 40 percent, and much lower in 2021, and so that's sort of where it stands, but, yes, to get a more detailed, and sort of precise answer, that's going to have to come from MRIP.

DR. BUCKEL: Thanks. That would be the only suggested edit, that, if there's really not much more we can do there, that we may not need that part of the Number 3, but other members of the workgroup can chime-in, if you feel that you would still like that description of what Erik provided looked into more, but it sounds like that would have to go to -- That would be going to MRIP and not the Southeast Center. All right. If there's no edits, or additions, to the terms of reference, this is what we'll move forward, and so I guess the next step, Judd, is the council will request this revision to the OA?

DR. CURTIS: That's correct. These terms of reference will then be passed onto the Science Center, and they will make the determination if they have time to do the rerun assessment in time for review by the SSC at our April meeting.

DR. BUCKEL: All right. Thank you. The next action item is to discuss alternate methods of setting ABCs, and Judd laid out -- He had a nice slide that provided -- Depending on the outcome of if there is a revision that's possible from SEDAR 78, some potential ways forward to get an ABC, but then, if not, there's a couple of options, right, under the partially-accepted SEDAR 78, or partially accepted revised SEDAR 78, and then, if the SEDAR 78 is rejected, what are some of the other options, and they're listed there in the purple box. First, let's -- Maybe we'll take the middle one.

I think the one on the left, that's what I'm sure most of us would like to happen, and then the one in the -- If it doesn't, then the one in middle, where we take the -- We're accepting the stock status from either the original SEDAR 78, or the revised SEDAR 78, but then we use an alternate method to get an ABC, and are folks comfortable with any of those? We can have some discussion on those approaches. Raise your hands if you have any comments.

MS. IBERLE: I think there's a delay in the Google doc, but Fred Scharf has his hand up.

DR. BUCKEL: Go ahead, Fred.

DR. SCHARF: Jeff, I was just going to ask, and maybe Judd, or Chip, can answer this. If the SSC has any -- If there's a precedent for any of those alternate methods. In other words, when we've used an alternate method in past, has there been one that we've used most often, in terms of the ones that Judd included?

DR. CURTIS: Fred, and so the third-highest landings was used for Spanish mackerel in the previous assessment, SEDAR 28 in 2011, and that's also been a method used to generate ABCs for dolphin in the South Atlantic, and there's a few more that I'm forgetting off the top of my head, and I think Chip has them included in that attachment document, 4f, if you would like to review those.

DR. SCHARF: Thanks, Judd.

DR. BUCKEL: Go ahead, Erik.

DR. WILLIAMS: This is just specifically to that third-highest catch, and I will remind folks that there is some MSE evaluation of that method, and I think it was Caruthers et al., or someone did an analysis comparing that with other data-poor methods, and it performed the poorest of all the methods they tested, or pretty near the poorest, and so just be cautious of that.

DR. BUCKEL: Thanks, Erik, and so one of the reasons for these, just to remind folks, the other two that are listed there, equilibrium OY, or yield at 75 percent FMSY, the reason that the projections wouldn't be used was because of that uncertainty in the recent landings data that Erik just mentioned, and so that would -- To avoid dealing with that uncertainty in the recent years, you wouldn't use the projections, and you would -- But you could still use the assessment to get at an ABC, through those other approaches, and so, if there's some stock assessment folks that have experience with that, it would be great to hear from you and your thoughts on that middle box and some of those options, the partially-accepted. Shep, go ahead.

MR. GRIMES: Thank you, but I had a totally different -- I had a question totally unrelated to that, if you want to --

DR. BUCKEL: Go ahead, Shep, with your question, and we'll answer that, and then we'll come back to this.

MR. GRIMES: I think maybe this is more for staff, but, in terms of alternate methods, if you walk through the ABC Control Rule, and the assessment doesn't do it, don't you just fall down to your next tiers and see what the control rule spits out?

DR. CURTIS: Shep, that is an option, and that is built into the control rule, and, going down from that first tier, then you move into the DBSRA types of analyses, before getting down into the final block, which would be one of these alternate methods listed here. That is up for discussion, if that is an analysis that the SSC wants to see. There is question on who then conducts that analysis, if that's coming from the Science Center or if that's done by staff or an alternate party, and so that would need to be determined.

DR. BUCKEL: Thank you, Shep, for that question and guidance. Amy.

DR. SCHUELLER: I am going to -- Apologies if I'm misremembering, but I think part of the uncertainty, with this assessment, was high catches in 2020 and 2021, and just the uncertainty surrounding those values and whether or not they were truly high catches or not, and so I guess my question is can we get the 2022 MRIP number, because, if it's high, and there is a trend, I think that, you know, that probably helps reduce some uncertainty, but, if all of a sudden, it's low, and

it's back where we had seen other values in the past, then, you know -- It would be helpful, I think, given the discussions we've had in the past. I know the last wave might not be available, and I don't know when it would be, but perhaps it will all be available by the next meeting.

DR. BUCKEL: Yes, that would be something to add to the -- That we could have for the discussion. Thanks, Amy, and, yes, I think that's definitely one of the issues, but there were some others, and, as you pointed out, and I think that was at the October meeting, when we were looking at the data in more detail, and the numbers-at-age and the likelihood profiling for M -- You also thought that, you know, it was worth looking into the higher M, and so that was another issue that was raised by the SSC, and that's captured in those TORs. Genny.

DR. NESSLAGE: I guess I don't see how, if we don't accept the current, or revised, assessment at the April meeting, we could possibly set an ABC, honestly, because, even if someone magically volunteered to run DBSRA, or DCAC, or do any sort of Category 4 analysis, we could probably -- We probably would spend the whole meeting analyzing -- You know, discussing that and whether it's appropriate, and probably making suggestions for modifications, and I don't see how we would meet that, and I would echo Erik's comments about third-highest catch and some of our previous ad hoc methods for setting unassessed stock ABCs. I think our working -- As being inadequate and poor performing, poor performers.

Our previous data-limited working group made that comment, very strongly, and has been begging to get to work on coming up with new recommendations for how to deal with these situations for these stocks, and I don't see this being fast, and so I guess I would highly encourage leadership to try to prioritize the recommendations we have in the TORs for this stock, if they really want an ABC in April. Sorry to be a downer, folks.

DR. BUCKEL: No, that's helpful, Genny, making a statement to that effect, and I think it's important, the prioritization statement. The literature that's shown that the third-highest landings is a poor performer, are there some other -- What data-limited approaches, and are there any, that are good, or better, performers, that the stock assessment community is putting more faith in, or using more, that would guide us? Amy.

DR. SCHUELLER: There was a whole data-limited group report discussing that, and there was that table providing all the different options, and it depended on the available data, and so yes, and we've already -- I mean, that workgroup already presented to the full SSC, and that report was accepted, as Genny alluded to in her comment, and so I guess I also echo her comment, which is like this isn't a fast process, if the -- You know, if we're moving on beyond the SEDAR 78 assessment.

DR. BUCKEL: Are there thoughts by other SSC members on this? Any other hands, Judd?

DR. CURTIS: No hands.

DR. BUCKEL: Go ahead, Genny.

DR. NESSLAGE: Are we putting stuff on the screen, or are we waiting to do that? Are we putting statements up?

DR. BUCKEL: Can you see Judd's screen, where he's typing?

DR. NESSLAGE: Yes, I see it, but are you open to that right now, or do you want me to hold off?

DR. BUCKEL: We're definitely open to it, and so please.

DR. NESSLAGE: Okay. I didn't want to get ahead of you.

DR. BUCKEL: I think he's captured some of the comments that you and Amy made here. Well, we don't have the comment on the report, the data-limited report, Judd, that that exists, and it's not a fast-track process either.

DR. NESSLAGE: No, I don't think the SSC should review the data-limited report. I think the council should recognize that, if we recommend a data-limited approach, it's going to be a much longer process than any revisions to this assessment, is my guesstimate, but I could be wrong, and I am happy to step-down that comment, or retract it, if the rest of the SSC, especially those who are on the data-limited working group, disagree with me. Not some time, but more time than the revisions currently proposed in the TORs. Sorry to be a jerk.

Again, I'm apologizing, but I'm being strong about this, and I think they need to recognize what they're up against when they ask for this, because the same -- We've been saying, for now several years, that the unassessed stocks need some serious TLC, and the old methods we used are no longer considered best available science and should not, in most cases, be used.

DR. BUCKEL: All right. I think I saw John's name up first, but, before we go to John, Genny, let's make sure that Judd captured your comment here, and I want to make sure that that's captured correctly.

DR. NESSLAGE: I don't know, and I would go farther and say that it would likely take more time to accomplish than addressing these TORs, but, again, I would love other people's opinion, and maybe I am being -- Overblowing the situation.

DR. BUCKEL: Judd, maybe, after "older methods used to set ABCs", a parenthetic statement of, "for example, third-highest landings". Genny, does that look good?

DR. NESSLAGE: Yes. Thank you very much.

DR. BUCKEL: Thank you. John Carmichael, please go ahead.

MR. CARMICHAEL: Thanks, Jeff, and I think some care should be taken, particularly given what Erik said about actually just getting this work scheduled, for starters, that there's quite a bit of difference between the time it may take to do the work and the time it may take to get the work on the docket and get it completed and get it to the council, and so, while it may seem like the revisions could not take any more work than looking at data-limited methods, it could be several years, given the SEDAR scheduling process, before this work can be put on Erik's workplan, or whoever is going to it's workplan, and so that's part of the timing concern that the council is quite aware of, and also quite concerned about.

You know, we're using some pretty old information to manage this stock, and it's a short-lived stock. The agency has provided guidance on dealing with these situations, and the council is just asking that the SSC consider that and come up with some type of recommendation. It may be a temporary recommendation that stands until we can do something better, but, you know, the council is in need of getting some type of recommendation that is just not, you know, several generations out-of-date for the stock, and so they are concerned, and they are aware of the issues that you guys are talking about, but, you know, they're up against some other restraints, and pressures, as well.

DR. BUCKEL: Thank you, John. Scott and then Anne. Go ahead, Scott.

DR. CROSSON: Given what John just said, and recognizing all of the different priorities that may have to be juggled with different stock assessments for the South Atlantic, and updates and everything else, I am just wondering whether this is some place -- We're running on a pretty old ABC, as John said, and, given the life history of the stock, that is a significant thing to consider, but I would also want to take a look at whatever the fishery performance reports that the APs are supposed to be doing -- I would be curious to see if there's anything in there, from the fishermen that are involved, either commercial or recreational, showing that there's some problems with this stock right now, and just trying to figure out how high of a priority that it might be to kind of get this done, because my general impression is that Spanish is not under an immediate concern, the way some of the other species are, but I don't know that.

DR. BUCKEL: Scott, I can -- You know, being at the council meetings, and talking with some of the folks involved with the fishery, on the commercial side, they are -- You know, there is evidence that -- There were no descriptions of things going badly, and it was that things were -- You know, they were reaching the quotas earlier in the year, and so they were suggesting that trends were either stable, or the abundance was going up, and so their frustration was that the quotas were based on these older data that they felt were too low, right, and so that's the -- From the commercial industry side of things, they're not seeing bad things on the water, and they're seeing -- The anecdotal information is a stable or positive trends, and others can chime-in on that. If there is no other hands raised to Scott's question, then we'll go to Anne.

MS. LANGE: I agree with what Genny said, and, again, even considering what John mentioned about getting on the schedule, and we've been talking, for an awful long time, about following-up on the original work that was done by the limited-data workgroup, to figure out a system for all the stocks that have limited data, and we haven't really initiated that, and I know it's later on in the agenda today, but, the longer that we delay in setting up a process, or identifying the sequence of methods to use, the more of these stocks we're going to wind up having the same issue with, that, you know, we don't have the data to do an assessment, or the assessment is not approved, and we don't have the alternative, using the limited data.

We're sort of at the point now where we need to come up with something fairly quickly, and we have to use the limited-data version, potentially, since we can't get the assessment redone, or may not be able to get the assessment redone, and I guess I'm just -- I agree with what Genny said, you know, that it may take longer to try to use the systems that we haven't really reviewed as a group yet, and so I kind of went off on a tangent there, but that's my two-cents.

DR. BUCKEL: Thanks, Anne. Scott.

DR. CROSSON: Yes, but, to that point, if we go -- If the DLM Toolkit is used, once we've run the output through our ABC Control Rule, it's going to have a bigger buffer with P*, and so that's something that the council -- I mean, what Jeff said, I think that's a really interesting point, that the fishermen might feel that there's more quota available, biologically, than what they're given right now, but, if we use a DLM method, we may not be able to utilize that, when we give an ABC recommendation, because it's just naturally going to be something that's going to have a higher risk factor.

DR. BUCKEL: Which is more reason for that first bullet, the prioritization of the rerun. All right, folks, and so please read what Judd has. Go ahead, Anne.

MS. LANGE: I would think, for the third bullet, maybe "older data-limited methods", as opposed to "older methods".

DR. BUCKEL: Thanks, Anne.

DR. CURTIS: I am seeing no other hands, Jeff, and, I mean, I feel like this was pretty good discussion revolving around the recommendations of the SSC on what they would like to do, as far as prioritizing the rerun of the SEDAR 78 operational assessment, based on the TORs, because of -- Being real precautionary with using any sort of DLM approaches.

DR. BUCKEL: I agree, Judd, and I want to go back to the -- If there was discussion about the middle box that you have down there, this partially accepted, whether folks are comfortable with the stock status that comes out of SEDAR 78, or revised SEDAR 78, but not comfortable with the projections.

If folks think that that's a possible way to get an ABC, the equilibrium OY, or the yield at 75 percent FMSY, then we should -- That would be a request that we need to put in now, so that it's available in April. If those are not -- If the SSC doesn't -- If that's not a way that we want to move forward, then we don't have to make that request, but I would like to have some discussion on those.

It's loud and clear on the data-limited, and what I'm taking is that that's too long of a discussion to come up with a plan of a particular data-limited method to ask for, at this point, for April, and so I just want to clarify. I guess there's two things there, just clarifying that, as a full SSC, we're not comfortable, at this point, requesting a specific type of data-limited method to get an ABC for Spanish, and the second question I have is related to this getting an ABC out of SEDAR 78, or the revised SEDAR 78, with equilibrium OY, or yield at 75 percent FMSY. No hands, and should I take that as folks aren't comfortable with those two, equilibrium OY or yield at 75 percent FMSY, or is there some support, where we should request that? Go ahead, Anne.

MS. LANGE: I think that, per your recommendation, that we do request it, if it can be done fairly quickly, and that may be all that we're able to get, and we can decide, at the time of the April meeting, whether or not that's what we want to do, but, if we don't ask now, there's no way that they'll be able to get it done, right?

DR. BUCKEL: Yes, and that's my understanding. Thanks, Anne. Genny.

DR. NESSLAGE: Someone should correct me if I'm wrong, and I'm looking back at the Spanish PowerPoint, and the 75 percent FMSY was a standard run, and so, if they do the same set of projections as last time, it should be already set up to just hit go. Whether we want to consider that, in setting the ABC, is another question.

DR. BUCKEL: Thanks, Genny. Erik, can you confirm that these two -- I guess Genny was speaking specifically to the yield at 75 percent FMSY. If you are able to do the revisions to SEDAR 78, would that be part of the output already, or do we have to request that?

DR. WILLIAMS: If it's not in the report, yes, you're going to have to request it, like we do with most any projection analysis.

DR. NESSLAGE: It's on PDF page 173, according to the PowerPoint, and so it was in the report.

DR. BUCKEL: Thanks, Genny. All right. One last chance for you to read, and I will give you a minute or two to read what Judd has up, and please raise your hand if you have any comments or concerns about what we have for Spanish mackerel. Go ahead, Fred Scharf.

DR. SCHARF: Jeff, I just wanted to make sure I understood what we were asking for, here at the bottom, you know, if these were projections that were already in the report, and so, you know, in terms of using one of these alternative approaches, right, the issue we had was with using the new landings, because, you know, the stock status for Spanish mackerel was that overfishing wasn't occurring, but, when we use the most recent landings and the projections, that would push us into the overfishing category in the projections, and so one of the alternative methods, using the third-highest landings method that Judd listed, which has been, you know, shown isn't a robust one, but using that one gets around that problem of the uncertainty of those MRIP landings in the terminal years.

If we estimate, using equilibrium optimal yield, or yield at 75 percent FMSY, do we have to specify that those would be run without those landings data from the recent part of the time series, or only after other adjustments were made, based on the TORs, or both? You know, because the TORs might result in changes in the predictions of F, and so -- But, if they don't, and we include those recent landings, we're going to be in the same place, at the end.

DR. BUCKEL: The stock assessment folks can chime-in, but I think the equilibrium OY doesn't require the -- It doesn't come out of the projections, and so that would be an approach where you're okay with the assessment up until the projections, because of that uncertainty in the recent catch, and so you would get the stock status from the assessment, but then you're also able to get an ABC from some other metric from the assessment that doesn't rely on the projections.

DR. SCHARF: Okay.

DR. BUCKEL: But assessment folks chime-in, that know this better than me.

DR. SCHARF: I think you're correct.

DR. BUCKEL: I either was right or everyone is tired.

DR. SCHARF: I think you're correct.

DR. BUCKEL: Okay, and so, yes, I think that's why it's listed there, Fred, to get away from that reliance on the projections, and so, okay, and I think, if no one else has their hands raised, Judd, then we'll move on to the next item on our agenda. Thanks for the good discussion on this. Our Other Business has a topic that we've hit on already, is the unassessed stocks workgroup update, and, Judd, do you have some updates on that?

OTHER BUSINESS

DR. CURTIS: Yes, and so the council, at their March meeting, is going to be discussing which stocks to focus on, and this discussion hopefully is going to include which stocks are candidates for ABC setting among the unassessed stocks group and then which stocks should be included as ecosystem components, and so the plan is to then, post the council meeting, convene the workgroup, based on the recommendations of the council at the March meeting, and that's all for that.

DR. BUCKEL: Thanks, Judd. Any of the workgroup members have questions for Judd on that, or others? Go ahead, Anne.

MS. LANGE: Do we have an official list of who is on the workgroup? It's been a while.

DR. CURTIS: Yes, I've got the list, and I would have to dig it up, but I will email the members of the workgroup directly following this meeting, after I can dig up the roster. Thanks, Anne.

DR. BUCKEL: Thanks, Anne and Judd. Genny, go ahead.

DR. NESSLAGE: Thanks. Forgive me, and I was still staring at the Spanish assessment when you were giving the briefing there, and so, if I missed this, I apologize, but the TORs -- Are they going to be still prioritizing goliath, or do we not know yet? I am just thinking, with this Spanish thing, maybe -- Have the TORs been set for I guess the working -- They're not called TORs, but they called statement of work, right?

DR. CURTIS: That's correct, Genny, and I'm not sure what stocks they're going to prioritize right now, and I imagine that goliath would be a good candidate to put on that list, but I don't know if any council members want to chime-in here, but we might just have to wait until after the March meeting, for them to make that determination.

DR. BUCKEL: Genny, Judd mentioned that the council is putting together a list of species, and, if I moved on too fast from Spanish, Genny, and you had something that you wanted to comment, please chime-in now.

DR. NESSLAGE: Thanks. I was just looking at the 75 percent, and it's pretty -- Well, I don't want to comment, actually, now, because, if they make changes to the assessment, the answers might change, and so I was going to make a comment earlier, about how equivalent it was to

similar benchmarks that we might be more familiar with using, but I think we need to wait and see how it all fleshes out, and so thank you though for following-up with me.

DR. BUCKEL: Thank you, Genny. All right. If there are no other hands for the unassessed stocks workgroup, Judd, we'll move on to public comment.

DR. CURTIS: All right. Anyone from the public that wishes to comment, go ahead and raise your hand, and we will unmute you, and you can provide your public comment. I am not seeing any hands, Jeff.

CONSENSUS STATEMENTS AND RECOMMENDATIONS

DR. BUCKEL: Okay, and so we'll give one last chance to review the report, and we'll go through that, and then, as you can see, the final SSC reports will be provided to the council by 5:00 on Friday, February 10, and so that's three weeks from now, and so I will -- After we do the review right now, then I will go through one more time and then send out a draft to everyone for comments, sometime either this week or early next week, so that you can get comments back, and I will set a deadline, in that email, for when to get comments back to me. For now, we'll scroll back up to the top and give one last chance for SSC members to review our report.

If there are no hands, go ahead and scroll down, unless -- Somebody raise their hand, if they're still reading, and we can scroll back. Judd, I guess go ahead and scroll, and, if folks need more time, raise your hand, and we'll scroll back. Okay, Judd. Go ahead and scroll, and please raise your hand if you need us to scroll back. Okay, Judd. I think that should be enough time. Raise your hand if you need more time for this.

Judd, I have one item, that's up above, that I'm still -- Maybe get some clarification from someone that was in the group, and it had to do with the -- It was in scamp, with the F 40 percent, what that was based on. I just want our language to be clear there, given what is on the books is F 30 percent, right, and so overfishing status was -- At the bottom of the page there. The overfishing status was determined by a predefined biological reference point, instead of empirical trends in biology.

I guess the part that I want to get clarification -- I feel like the next sentence, the justification for using this proxy was based on detailed review of scientific literature that Kyle presented, that review was, you know, looking at the biology of scamp, right, that there's empirical data on the life history of scamp, and there are some species where F 30 percent, or 30 percent SPR, is okay, but scamp's life history is not one of them, and so I guess that overfishing status -- The "instead of empirical trends in biology", just maybe we could reword that, because the biology of scamp is being considered in that 40 percent, based on Kyle's description in his presentation this morning.

DR. CURTIS: Do you want to say, "using empirical trends in biology"?

DR. BUCKEL: Well, the workgroup members that came up with that -- I don't want to take something away that they were trying to point out. Maybe, instead of "the stock-recruitment-based estimate of FMSY", and is that what they were -- I don't want to take away from what they were trying to -- The point they were trying to make here, but I just -- I do want the council to know that

the 40 percent SPR -- There is justification based on the life history, which you have there in that second -- Go ahead, Genny.

DR. NESSLAGE: I think you can just replace it with “instead of a stock-recruitment-curve-based MSY estimate”, or something like that, and we weren't trying to be weird there, and it was just some phrase that got thrown down as we were quickly putting our ideas on paper, and, yes, we weren't trying to come up with something new there. Thanks.

DR. BUCKEL: Is that -- Do you agree with the second, the adding the --

DR. NESSLAGE: Yes, I think so, but, other members, speak up, if you disagree.

DR. BUCKEL: Fred Serchuk.

DR. SERCHUK: I can accept Genny's comment, and my comment was just, in the sentence after “40 percent SPR”, “a justification for creating this proxy was based on detailed review of scientific --” But I can accept her proposal as well.

DR. BUCKEL: Thank you both. All right. That will be much clearer, and I think it's an important bullet for the council, and so thank you. All right. I don't have any more comments, and I think we're at the bottom of the agenda, unless there are any more hands, Judd.

DR. CURTIS: I am not seeing any hands. Fred Serchuk.

DR. SERCHUK: In Item 7, we usually talk about consensus. Thank you.

DR. CURTIS: Good catch, Fred.

DR. BUCKEL: Okay, and so we've already talked about the timing of the report, when that's due, and so earlier that week will be the deadline for getting the report edits back to me, but be on the lookout for an email from me with a draft of the SSC report from this meeting, and then the next meetings, for the SSC, are shown, and, Judd, I will you take it away, if you have any specific points you want to make about those.

NEXT MEETINGS

DR. CURTIS: No, no points, and just we will have our in-person April SEP and SSC meetings, here in Charleston, and the SEP will be at 1:00 on April 17, and that's Monday, through noon on April 18, and then the SSC will convene at 1:00 on April 18 until noon on April 20, and so just be alert for the meeting orders, and book your travel and hotel reservation and that kind of thing, which will be coming up in not too long.

DR. BUCKEL: Thanks, Judd. Any questions on the upcoming SSC meetings or council meetings? All right. Judd, do you have anything else, before we adjourn?

DR. CURTIS: No, Jeff. I'm all set, and so I will let you close it out and adjourn us.

DR. BUCKEL: All right. Well, thanks to all the SSC members for a great job today, and sorry that we went over a half-an-hour, but enjoy the rest of your Friday afternoon and evening. I also want to thank the council staff and SEDAR staff for their help today, as well as other members from NOAA Fisheries and the Center, and so that was much appreciated, for all the hard work that folks did to make today happen, and I look forward to seeing some of you at the council meeting in March and then the rest at the SSC meeting in April. This meeting is adjourned. Thanks, everyone.

(Whereupon, the meeting adjourned on January 20, 2023.)

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Amanda Thomas
February 10, 2023

Scientific & Statistical Committee Meeting (January 20, 2023)

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Attendee Details

Attended

Yes

Last Name

1

First Name

Webinar Staff

Yes

Addis

Dustin

Yes

Bell

00 Mel

Yes

Brouwer

Myra

Yes

Bubley

Walter

Yes

Buckel

Jeff

Yes

Byrd

Julia

Yes

CARMICHAEL

JOHN

Yes

Cao

Jie

Yes

Collier

Chip

Yes

Collier2

Chip

Yes

Cox

Derek

Yes

Crosson

Scott

Yes

DeVictor

Rick

Yes

Finch

Margaret

Yes

Flowers

Jared

Yes

Franke

Emilie

Yes

Grimes

Shepherd

Yes

Helies

Frank

Yes

Howington

Kathleen

Yes

Iberle

Allie

Yes

Iverson

Kim

Yes

Johnson

Eric

Yes

Laks

Ira

Yes

Lange

Anne

Yes

Lazarre

Dominique

Yes

Li

Yan

Yes

Lorenzen

Kai

Yes

Mehta

Nikhil

Yes

Moore

Jeff

Yes

Murphey

Trish

Yes

Neer

Julie

Yes	Nesslage	Genny
Yes	Newman	Thomas
Yes	Ramsay	Chloe
Yes	Scharf	Fred
Yes	Schueller	Amy
Yes	Sedberry	George
Yes	Serchuk	Fred
Yes	Sharov	Alexei
Yes	Shertzer	Kyle
Yes	Smart	Tracey
Yes	Smillie	Nick
Yes	Snyder	Dave
Yes	Summ	C
Yes	Sweeney Tookes	Jennifer
Yes	Vecchio	Julie
Yes	Wiegand	Christina
Yes	Williams	Erik
Yes	Willis	Michelle
Yes	Withers	Meg
Yes	belcher	carolyn
Yes	lee	laura
Yes	merino	joy
Yes	vara	mary