SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SCIENTIFIC AND STATISTICAL COMMITTEE

Webinar

July 28, 2021

Transcript

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Dr. Chris Dumas
Dr. Churchill Grimes
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Other attendees and/or participants are attached.

The Scientific and Statistical Committee of the South Atlantic Fishery Management Council convened via webinar on July 28, 2021 and was called to order by Chairman Genny Nesslage.

INTRODUCTION

DR. NESSLAGE: Good morning, everyone. Welcome to the July 2021 meeting of the South Atlantic Fishery Management Council's Scientific and Statistical Committee. My name is Genny Nesslage, and I am faculty at the Chesapeake Biological Lab at the University of Maryland Center for Environmental Science and chair of this committee. Thank you, all, for making time today, and hopefully you can see the agenda on your screen and you have access to the briefing book. There were a few last-minute additions, and so I would encourage you to go on there and grab the last-minute files.

We'll start off with introductions with the SSC, and then we'll go to staff. We need to get everyone to say hello on the record for voice recognition, and I would like to go in reverse alphabetical order, because I am excited and pleased to announce that we have a new member, Jennifer Sweeney-Tookes, and she's been with us on the SEP for some time, and she is now joining us here on the SSC, and we're thrilled to have her. Jennifer, would you mind giving a little introduction, and so we'll start off with you?

DR. SWEENEY-TOOKES: Of course. Good morning. I'm Jennifer Sweeney-Tookes, and I am, as of Saturday, an Associate Professor of Anthropology at Georgia Southern University, which is about an hour inland from Savannah, and I am a cultural applied anthropologist. I do research in the South Atlantic, in South Carolina and Georgia primarily, and I also have done fieldwork in Barbados and the Caribbean, and I recently worked on lionfish in the U.S. Virgin Islands. I am both excited to be here and disappointed, because I means that I am replacing Tracy Yandle, who is a friend and a close colleague and one of my key research collaborators, since she has left us to move to New Zealand, and so excited, but a little sad, and so thanks for having me.

DR. NESSLAGE: We are thrilled to have you. We're sad to lose Tracy, but we're thrilled to have you, and congratulations on your promotion. That's fantastic.

DR. SWEENEY-TOOKES: Thank you.

DR. NESSLAGE: I'm so excited for you. I'm going up this year.

DR. SWEENEY-TOOKES: It's so much fun.

DR. NESSLAGE: Yes. all right. Then let's -- Welcome, Jennifer. Let's go in reverse alphabetical order then. Alexei, do you mind kicking us off? Just give us your name and affiliation, for the voice record.

DR. SHAROV: Sure. Alexei Sharov, and I'm with the Maryland Department of Natural Resources, Fishing and Boating Services, and I'm an SSC member.

DR. NESSLAGE: Great. Fred Serchuk. Just go on ahead, and everybody go in line.

DR. SERCHUK: Fred Serchuk, SSC, NOAA Fisheries, retired.

DR. SEDBERRY: George Sedberry, South Atlantic SSC.

DR. SCHARF: Fred Scharf, UNCW, SSC member.

DR. LI: Yan Li, and I'm with North Carolina Division of Marine Fisheries.

MS. LANGE: Anne Lange, SSC member, NOAA Fisheries, retired.

DR. LANEY: Wilson Laney, SSC member, U.S. Fish and Wildlife Service, retired, and, also, NC State University, adjunct in the Department of Applied Ecology.

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

DR. GRIMES: Churchill Grimes, retired from the NOAA Fisheries and a member of the SSC.

DR. FLOWERS: Jared Flowers, SSC member, and I work for the Georgia Department of Natural Resources, Coastal Resources Division.

DR. DUMAS: Morning, folks. I'm Chris Dumas, and I'm a Professor of Natural Resource Economics at UNC Wilmington.

DR. CROSSON: Scott Crosson, and I'm an economist with NOAA Fisheries in Miami.

DR. CAO: Jie Cao, SSC member, faculty member at NC State Department of Applied Ecology.

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

DR. BUBLEY: Wally Bubley with the South Carolina Department of Natural Resources.

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

DR. NESSLAGE: All right. Thank you, all, very much. Chip, do you mind introducing yourself, and then we have -- Perhaps you wouldn't mind introducing our newest staff member, and we're very excited.

DR. COLLIER: Sure. I'm Chip Collier, and I work with the South Atlantic Fishery Management Council, as staff. I'm the Deputy Director for the Science and Statistics Program. We also have Judd Curtis on the line with us today, and Judd just recently started with the South Atlantic Fishery Management Council, and he's going to be taking over duties of running the SSC meetings. He was hired on as the quantitative fisheries scientist. Judd comes to us from Texas A&M University Corpus Christi, where he worked in the Harte Institute, where he worked on a variety of topics, including some descending device issues, especially for red snapper. If you dove into some of the work done in SEDAR 73, I am sure it cited some of his work that he's done in the past, and so we're excited to have Judd on. Judd, if you want to say hi to the group.

DR. CURTIS: Thanks for that introduction, Chip, and good morning, SSC. I'm looking forward to working with you all, and I'm looking forward to meeting you all in-person, hopefully for the next meeting that we have live.

DR. NESSLAGE: Welcome, Judd. We're very excited to have you onboard.

DR. CURTIS: Thanks, Genny. I'm glad to be here.

DR. NESSLAGE: Great. Do we have -- Is that all for introductions, Chip? Are we good there, I believe?

DR. COLLIER: We have two council members online. We have our Chairman, Mel Bell, and we also have Spud Woodward.

DR. NESSLAGE: Great. Do we know if Steve will be joining us as well?

DR. COLLIER: I am not positive if Steve is going to be able to make it today.

DR. NESSLAGE: Okay. All right. Well, we're thrilled to have the two of you, Mel and Spud. Okay. With that, I will move on with our introductions section of our agenda. We need to take a look at the agenda here and approve it, unless folks have anything they would like to suggest changes to, and are there any suggestions from the SSC regarding changes to the agenda? If I am hearing none, I will consider it approved. No hands raised, and the agenda is approved. All right.

The next item of business is to review and approve our minutes from our April/May meeting, see Attachment 1. Are there any edits to the minutes? If so, please raise your hand. If I don't hear any suggestions, we will consider the minutes approved. No hands raised. All right. The minutes have been approved. Thank you, all, for that.

Moving along, the second item on our agenda is to solicit general public comment, here at the beginning of the meeting. please note that we will be taking public comment after each of the presentations, periodically throughout the meeting, as well as there will be an opportunity at the end, but, if folks have anything they would like to say upfront, this would be the time. Please raise your hand, and we will call on folks.

PUBLIC COMMENT

DR. COLLIER: In order to speak today, or to provide your public comment, what you can do is you can actually go into the webinar control box, and you can click on the microphone. Currently, it's going to be muted for all, but, if you click on this little button that looks like kind of a turkey, it should be green right now, indicating that your hand is down, but, if you would like to raise your hand, click on that button, and your hand will be raised.

At that point, I will unmute you, and the system will notify you that you have been unmuted, and then click on that microphone button, and it should turn red, or it should turn from red to green, indicating that you're unmuted. If you don't feel comfortable talking, or you're having issues with the microphone, you can always type a question into the question box. I am not seeing any hands.

I am going to go to the comments section of the meeting, and let me pull that over and see if there's any comments today. There's been a couple of comments that have been provided. Those are available for you guys.

During the red snapper season, wasn't the sex of the red snapper recorded, and snapper with eggs, males, and the size difference between the two, and this would be awesome time to record this and for the past five years, or as long as you required this. Talk about missing the bus. This was a lot of info that was missed out on.

The next comment is our fishery in central east Florida, Jacksonville through Brevard County, really needs to be looked at for red snapper again, and you cannot catch red snapper here, and it doesn't matter where you go, or even how deep anymore, and they're everywhere. It's just such a downer to go offshore and spend all the money on bait, gas, food, and time searching, only to catch red snapper that you can't keep.

I am all for conserving and preserving species for future generations, and I am also not saying it's open season, but to restrict us to three days a year is horrible, yet the Gulf gets months. At some point, I have to ask myself, is it even worth it to go? It sure makes it really hard to pass what I have learned off to my children when I know I spend all the money and there is no reward, or minimal at best. Out of ten drops, you may get one other keeper fish, and it's severely disheartening, and, finally, hard to explain to the children. I only ask that we get the same shot as the Gulf to catch them. Sincerely, Jason Lyndell. Those were the comments that were provided through the public comment form, and that's available on your briefing book page.

DR. NESSLAGE: Thank you very much, Chip, and there's no hands raised at the moment?

DR. COLLIER: Still no hands.

SEDAR 73 RED SNAPPER ASSESSMENT PROJECTION REVIEW

DR. NESSLAGE: All right. Well, just know, folks, that there will be other opportunities throughout, and so keep that in mind. All right. Then we will move on to our major agenda item, Number 3, which is red snapper. Our primary goal today, as I'm sure you're well aware, is to make final recommendations regarding the red snapper ABCs.

I have a little bit of a preamble here, because I want to -- I think we have a lot of difficult decisions to make today, and I would like to try and do this in a somewhat orderly fashion, if we can, and so I have a proposed plan of attack, and I would like to describe it first, and then we can launch into today's business.

Basically, what we're doing to do is start off discussing the descender device usage questions, and so we'll begin with a presentation from Julia Vecchio on the descender device usage, and we'll then ask her questions, listen to public comment, and discuss our concerns regarding the assumptions used in the assessment and the projections and see whether or not we believe they have been addressed. This, I think, will help us narrow down the projection scenarios that we'll be sorting through later, and so we'll be basically deciding is a 75 percent rate a reasonable assumption or not, and so that will be the first discussion.

Next, I will give you a bit of an introduction and some background on the projections we requested and the extras that we received, and we'll go through those with Kyle Shertzer, who did a lot of work preparing those, and we'll ask him questions, listen to public comment, and then I'm going to suggest that tackle our decisions in the following order, and I will review this later, but I want to give you a heads-up, so you have an idea of what I am thinking.

We have several decisions to make, and we'll have already discussed the descender device usage assumption. The next thing I would like to tackle is recruitment time period, and that's a huge discussion that we're going to have to revisit here, and we'll tackle that first.

Then I would like to go to the issue of the two-step process that Kyle had suggested, and so this will be -- We will have to decide do we feel comfortable reallocating discards to landings, and is that an assumption that we feel is justified, and then, depending on our decisions with those first three questions, or decision points, that will automatically decide, in many cases, what the remaining decisions would be regarding discard mortality and our F definition or not, and we'll have to discuss those, and so, depending on the discussion goes, that may just basically narrow down our options.

Hopefully you got a copy of the table that I provided you that we'll pull up later, and we'll go through that, to try and keep us on track and focus the discussion, and, again, I will remind you, as we go through this and we get to each step in the discussion. Are there any questions about that plan from the SSC? Fred Scharf.

DR. SCHARF: I am sorry. Did I have my hand up? I don't think so.

DR. COLLIER: It did come up, and, when you were speaking, your microphone stayed red, and so I will keep my eye out for you, Fred. If you have any questions, just go ahead and type something in the question box, because I don't know what's going to be happening with you today. It looks like you're the chosen one.

DR. SCHARF: Okay. Thanks, Chip.

DR. NESSLAGE: Phantom hand-raises. All right. Seeing no questions, then one other thing I would like to cover before we begin.

DR. COLLIER: Genny, just one second. Right when we went away from public comment, there was a hand that came up, and I was wondering if you wanted to give the gentleman an opportunity to speak.

DR. NESSLAGE: Sure. Go ahead.

DR. COLLIER: All right. His name is Adrian Martinez. Adrian, you should be unmuted.

MR. MARTINEZ: Hello. My name is Adrian Martinez, and I'm a tackle store owner in Merritt Island, Florida. I own a store called Handler Fishing Supply, and I'm also an unlimited reef permit holder, and I just wanted to comment on the fact that -- I've seen this a lot in the public comments that happen on Facebook posts, but one of the things that I wanted to draw attention to, and you

guys may have covered this, because I slid into the webinar a little bit late, but I understand the whole big picture of what's going on and why the seasons are so short and stuff, because what we're doing is not really a season, and it's just giving us the discards in the form of a season, but the problem is that, for multiple years now in a row, we have put that during a primary spawning aggregation time.

This was a discussion that I had with someone on Facebook, and then we had direct messages in regards to it, and I cannot remember her name, but I believe she was in South Carolina, but I just wanted to draw attention to the fact that it's literally the worst time of the year to do that, if we are going to continue to do that, just for the sole reason that every fish that we're cutting open is loaded with roe, and they're ready to spawn, and one of the things that she brought up, when I was discussing it with her, is that she felt that the research showed that red snapper do not get together in spawning aggregations, and I have been commercial fishing my entire life, and I can assure you that they do.

They get together in very, very large groups, and it usually happens around the moon, around this time. I saw them approximately a week ago, and every single spot that I went to had over a thousand pounds on it. You can look at your machine, once you've been doing this long enough, and realize how many fish are underneath your boat, and, usually right after that, they will dissipate, and then they will spread out and end up in smaller quantities on each spot, but I really feel like that's something that hasn't been paid attention to directly, and, believe me, I want red snapper to be open more than it is more than anybody, but I think that it's being opened -- Precisely on the few days that they should not be open is when it's been open.

She cited economic concerns, because of the weather and wanting everybody to be able to participate in it, but, I mean, we haven't really cited economic concerns when it came to closing it, and so I think that it makes more sense to put -- If we are going to continue to have these smaller seasons like this, to put it in a time that everyone can sort of agree that that's not a time where they're regularly spawning. I mean, I'm talking about 100 percent of the fish I gutted last week were filled with eggs or filled with like very, very, very swollen testes.

I think that that's something that really needs to be brought attention to. The discussion of whether it should be open full time, you guys are well aware that I feel that it should be open more than it is. I don't know what the answer is, but I definitely do not think that it should be open while they are getting together to spawn or while they are spawning, and I noticed, last year, at the end of our season, all of the fish had already released their eggs, and they had already --

So, when I was gutting fish towards the very end of the season, I noticed that they had already finished, and that's something that we've been for years, even before they were closed, and so I think it's pretty safe to say, at least on the east coast of Florida, from Brevard to Jacksonville, all of the fishermen that I know, that I spoke to, all concur that they were seeing the same thing, loaded with eggs, loaded with eggs, and, historically, over the years, we've always found these huge wads of red snapper in July, and so that's the main concern that I have, is that, if we're going to continue what we're doing, to do it at a different time, maybe earlier in the year, in May, concurrent with when people are going grouper fishing anyway, and they're catching them, because you can't avoid them at that time of year either.

Then, also, I do believe that we need to come to a point of some allowable harvest, but I realize that that requires a lot of scientific research backing that, in order to reverse what's already been done, but the main thing that I think that I wanted you guys to try to acknowledge, and maybe focus on looking at, was the issue with the spawning time, and thank you for listening to my comment, and I appreciate it.

DR. NESSLAGE: Thank you. We appreciate your comment, and we weren't scheduled to discuss the timing of the mini-season, or any season, at this meeting, but I believe our Chair, Mel, is listening in, and perhaps, if that's something he would like us to address, or discuss, at a future meeting, that he will task us with us doing so, and so thank you for bringing that to our attention. We appreciate it. Chip, any other comments, hands raised?

DR. COLLIER: Fred Serchuk has his hand raised.

DR. NESSLAGE: I meant public.

DR. COLLIER: Then no other hands. Sorry.

DR. NESSLAGE: Great. Okay. Then back to questions about the plan. Fred Serchuk.

DR. SERCHUK: Thank you, Chair. I have a question, and maybe you can remind me. I know we're going to be heavily involved today with projections, but can you remind me when the next assessment of red snapper has been scheduled for, because the projections, of course, go out over twenty years, but we will, presumably, have a benchmark, or I don't know what they call them now, assessment in the future, and so, whatever decisions that we make today, it will probably be most appropriate for the next four or five years, but can you tell me when the next assessment for red snapper is scheduled?

DR. COLLIER: It hasn't been, and we have a proposal so far, a request for a research track assessment for red snapper to begin in 2026, and that's going to be after the current research that's going on for red snapper in the South Atlantic region, and some of the work is going to be doing, I think, close kin analysis, and there might be additional resources out there to do some additional sampling, and so we're trying to hold off until we get that new data, that new data stream, available, and it would be ready for use for the new research track assessment, is the thought process, for 2026.

DR. SERCHUK: Thank you.

DR. NESSLAGE: I will be reminding folks, later, that we're talking about setting short-term ABCs, and so we would likely be looking at revisiting this discussion somewhere around 2028, which is why, in the summary table that I sent around, I was showing comparative metrics for 2028 as kind of a goal, or a reasonable timeframe, in which we might be reconsidering ABCs in the future, and so, yes, please keep in mind that, although Kyle had to run out the projections to 2044, because he had to calculate the probability of rebuilding, that we are setting short-term ABCs here, and I will remind you all of that later.

There is one other thing that I would like to remind everyone of before we launch into the discussion here, and it's just meant to -- It's partly because we have some new folks onboard, and

just as a good reminder for everyone, as we start talking about ABCs, and I would just like to review the SSC's charge.

Please keep in mind, as we're discussing things today, that we are responsible for recommending ABCs that account for scientific uncertainty and that management uncertainty is the purview of the council. Chip, do you mind pulling up that slide? Thank you. Chip is going to briefly review this concept, and we've seen this slide before, but it's worth revisting. I apologize if this is old-hat for some of you, many of you, but I want to make sure everyone is on the same page before we begin, and so please, Chip.

DR. COLLIER: Thanks for bringing it back up, and Genny is absolutely right that there is two real big things that came up, and this was presented to you guys, most of the SSC, in April of 2021, as part of the ABC Control Rule presentation, and it's important to remember that risk, and that's used to denote management risk, and that's under the purview of the council, and so considering certain things like SPR levels, and that is a risk that the council can do, as part of their management risk, but there is other things that come under uncertainty.

Uncertainty is used to denote scientific uncertainty, such as uncertainty from the assessments, and this is under the purview of the SSC. What we're considering here as part of the uncertainty is the buffer between the OFL and the ABC, and that is an uncertainty, and that is a scientific uncertainty. With some of the ABC Control Rule that the SSC is currently using, there is some mixing of the two, and so it does make it extremely difficult, but we're trying to just remind you guys to just take a step back and try to think are we talking risk or are we talking uncertainty, and try to think of these in those terms.

If you're providing guidance to the council on risk, they will listen to you guys, as far as the guidance on the risk, and maybe some recommendations that you have, but you guys are there to really talk about the scientific uncertainty and really trying to figure out what scientific uncertainty is there in the assessment and provide recommendations based on that.

DR. NESSLAGE: Great. Thank you, Chip. Wilson, questions on that?

DR. LANEY: Thank you, Madam Chairman. I think Chip just answered it, but I will reiterate it anyway, and he said, and it's my understanding, that, even though our purview is the scientific uncertainty, we can, if we deem to do so, provide advice to the council about management risk as well, correct?

DR. COLLIER: Go ahead and take it, Genny.

DR. NESSLAGE: Well, I will try, and you can correct me if I'm wrong, but, yes, we are always welcome to provide advice and recommendations to the council, but, at the end of the -- We can include any and all of that in our report, but our duty today, our actual charge, is to make sure that we're accounting for scientific uncertainty when we're setting the ABC, and so any additional uncertainty that is related to management, that the council might want to take into consideration, we can warn them about, and that's where ACLs come in, and that gives an additional opportunity for an additional buffer for management uncertainty, but our scientific uncertainty should be setting that buffer between the OFL and the ABC. Wilson, did that answer your question?

DR. LANEY: Yes, ma'am, it does. Thank you.

DR. NESSLAGE: Thank you. Fred Serchuk.

DR. SERCHUK: Thank you, Chair. This relates to a risk level, and can you just remind me -- When the rebuilding schedule was accepted by the council for 2044, I understood, and, if I'm wrong, please correct me, that that was a 50 percent probability of obtaining the rebuilding target in 2044, and is that still the case, or am I just misinformed?

DR. NESSLAGE: That is still the case, and we have recommended a higher probability of rebuilding, 67.5 percent, but that has not been adopted, and so we are -- Our responsibility at this meeting is to set one that will achieve that rebuilding plan.

DR. SERCHUK: Of 50 percent?

DR. NESSLAGE: 50 percent in 2044, yes.

DR. SERCHUK: Okay, because many of the tables that were presented do a good job of providing the probability of rebuilding at different percentages, and I think we should pay attention that, to 100 percent and to whatever percent that the council is currently using, and that's just my suggestion. Thank you.

DR. NESSLAGE: Agreed, and, when we get there, I'm going to pull up a table that will look at that very closely, and so excellent suggestion. All right. I don't see another hand, and so I'm just going to reiterate and give you all a heads-up that I'm going to pay particular attention to the direction of the discussion today, and, as a warning, I may take a bit heavier-handed approach than I usually do, if I think we're straying into discussions of management risk, and ask that we turn that into recommendations rather than -- Then refocus on setting on the ABC, and so I encourage everyone to participate and share your opinion, but please don't be offended if I follow-up and ask you to clarify or justify.

In particular, one thing that I noticed at our last meeting that I would like you to pay attention to is use of terms like "conservative" or "aggressive" that we tend to throw around a bit colloquially, but they can have particular meaning for folks in the fisheries management realm, and so, if you find yourself wanting to use those terms, I would ask you to take a moment and think hard about whether you can be more specific. Tell me what exactly about the biology of the beast or the assessment or the projections or the data that makes the concern you're raising an issue of scientific uncertainty, and so help me to try and justify our decisions at each point as we go along.

I recognize that that line may get blurry at times in our discussion, because some of these assumptions that are used in the projections have both scientific and potentially management uncertainty associated with them, and we need to highlight that, and, as Wilson said, and Fred, put that in our report, but, when we're talking about actually deciding on what projections to use to set the ABC, we need to be thinking about scientific uncertainty, and I appreciate your patience with me today. Are there any other questions before we dive into this agenda item?

I am not seeing any hands. All right. First on our agenda here for red snapper is the issue of descender device usage. At our last meeting, the SSC had several questions about how the

assessment panel landed on the decision of 75 percent anticipated usage of descender devices in response to the new requirements to have those devices onboard that went into place I believe in the summer of last year.

Julie Vecchio has kindly agreed to come to our meeting today and give us a presentation to shed some light on this topic, and so, Julie, are you ready? Do you we have a presentation lined up and ready to go here? I believe that a revised version was put in late materials as well, so folks can follow along at home.

DR. COLLIER: That is correct. There was a revised version, and so, Julie, I'm going to make you a presenter right now.

DR. VECCHIO: Okay.

DR. NESSLAGE: Thank you so much, Julie. Go ahead, once you're ready.

DR. VECCHIO: All right. Good morning, everybody. Thanks for having me. Hopefully this a good primer, sort of pre-coffee presentation, and it doesn't stretch too far, and so I will be giving you sort of an overview of Working Paper 15 from the SEDAR 73 that was submitted. The title of that working paper was "Utility and Usage of Descender Devices in the Red Snapper Recreational Fishery of the South Atlantic".

Our primary question with this working paper was what, if any, mortality reduction could be expected by the increased use of descending devices in the South Atlantic red snapper fishery, and so, obviously, this is a pretty big question. We do have a variety of historic data sources that we use to try to get at this question, and I will walk you through how we did that. All of the data that I'm going to show, except for a couple of small exceptions, are collected by the FWC fishery-dependent monitoring program on the east coast of Florida, and so this is pretty much all east coast South Atlantic data from the State of Florida.

To start with, we're all familiar with sort of the duration of red snapper season and some of the issues that that incorporates, and so FWC has a directed sampling effort at red snapper fishers along the east coast of Florida during the open red snapper season. We have people who are at the main boat ramps who are asking questions of those fishers who are coming back from their day on the water, and so these are dockside interviews during the South Atlantic red snapper open season, and these occurred from 2013 to 2020.

The data that I am showing here are all from anglers who reported targeting or harvesting red snapper throughout that time during that fishing day, and these are the major fishing depths that they said that they spent most of their time at, and this is over 4,700 total interviews, and they, of course, answered in feet, and we converted it to meters, just to stay consistent, and so over half of our anglers in Florida are fishing in the twenty to twenty-nine-meter bracket.

We also had an ongoing year-round at-sea data collection of for-hire fishing vessels, and these are headboats and charterboats, and this has been going on on the east coast of Florida since 2012, I'm pretty sure, and there was very little data collected in 2020, for obvious reasons, but, generally, it's ongoing. These at-sea observers are riding along on these for-hire vessels and watching what's happening in the fishery, and they are recording location, depth, species, size, the disposition, what

happened to those fish once they came onboard, and, in cases of most major fisheries species, the release condition of those fish, and a variety of parameters regarding the release condition.

Here, these are individual fish discards from that at-sea survey, and you can see that sort of 85 percent of headboat fish are discarded in the twenty to twenty-nine meters, and then charters are kind of splitting their time between twenty to twenty-nine and thirty to thirty-nine meters.

What this survey also allows us to do is, when the at-sea observer is kind of coding the fish that are going back over the side, and so, in data analysis, we can group these into sort of categories of how it seems that fish was doing when it was released, and so we had three different categories, which are good, and basically they were not treated for barotrauma, were thrown back over and were observed at the surface swimming strongly toward the bottom. Then vented, and those were fish that were vented, but were observed swimming strongly toward the bottom, and fish that were impaired.

That category is a little bit of a catchall, including any fish that was deep hooked, observed to be bleeding, had really severe barotrauma, like exophthalmia or something like that, and so, now, we can take a look at the fish that was released in each of these categories in each of these depth bins. If you look at the row of numbers at the top, those are total numbers of fish within each depth bin, and so, obviously, just like we saw a moment ago, most of our fish are coming from that twenty to twenty-nine meters and thirty to thirty-nine meters depth bin.

Then the bars represent the proportion within that that ended up in one of each of these three categories, and so, in our shallower depths, we have 30 percent or so of fish that are in that good category, and no interference at all, and then another 50 or 60 percent that are vented, and that proportion increases as you get deeper. In our deepest depth bin here, over sixty meters, we have a high proportion that are impaired, but, with a total number of only twenty fish, that is only representing about ten fish or something, and so, again, it's almost 7,000 individual observations of red snapper that were released on the east coast of Florida.

The vast majority of these fish were actually tagged using conventional tags, over 6,000 of them, and, for SEDAR 52, which was the latest Gulf red snapper SEDAR, a working paper was prepared where they looked at -- They used a proportional hazards model to look at the likelihood of recapture of fish in each one of these categories for the Gulf and the Atlantic separately in Florida, and so these are numbers for the Atlantic coast of Florida, using the good category as sort of benchmark, and vented fish were 70 percent, 70.5 percent, as likely to be recaptured, and impaired fish were 46.5 percent as likely to be recaptured, and, again, this is all included in Working Paper 9 from SEDAR 52.

Within that working paper, then what they did was create a depth-dependent mortality estimate, and, using this equation, and I don't know about you, but I don't like just looking at equations and figuring out what they mean, and so I'm going to step you through it, but, essentially, what we have is a group of fish in the good basket, and those have a certain chance of survival. We have another number of fish in the vented basket, and those have a different chance of surviving, and then another number in the impaired basket at each depth range, and those have a certain chance of surviving.

That gives us -- One minus survival is mortality, and so that gives us a mortality at each one of these depths. This is all old stuff, and it was not directly at our question, but it is good background, and so our question was actually what happens when some of these anglers start to descend some of their fish, and, of course, we know that, approximately a year ago, this became the rule in the South Atlantic, and so we explored what would happen if some of these treated fish were potentially moved into a separate descended category.

We don't have data from the fishery, because, on for-hire vessels, the use of descenders previous to this time, previous to 2020, was relatively rare, but what we do have is some biological studies that occurred in the Gulf of Mexico, and so what we did is we investigated -- We used studies from the Gulf of Mexico that were doing biological studies, and we looked at the difference in survival within each study between fish that were descended and fish that were vented or fish that were descended and fish that were a priori not treated in deep water, which we used as a proxy for our impaired fish.

Fish that were descended were 5.4 percent better more likely to be recaptured, or more likely to survive, than fish that were vented, and fish that were descended were 21 percent more likely to be recaptured, or survive, than untreated or what we used as a category of impaired fish.

Now, to our equation, we can add these extra categories of fish that were descended, and, again, using my sort of basket analogy here, we have our good basket, our vented basket and now we're adding a descended basket and an impaired-plus descended basket, and so improving the condition, theoretically, of fish within each of these categories.

We can estimate what would change within the fishery by moving proportions of fish out of one basket and into another, and so 25 percent, 50 percent, 75 percent, and then 100 percent of fish moved into those blue baskets from the two red ones. Again, this means that the vented and impaired red baskets are empty, but the good basket does not change at all.

Here is our chance of survival within each basket, and then probably, as you might expect, we probably see the patterns that we might expect. Mortality at-depth increases as you get deeper, just because of the higher proportion of the fish in those reduced conditions, and mortality decreases as you move fish from one basket to another, and so you have the highest proportion of mortality with zero fish in descended categories and the lowest proportion with all of your fish in those descended categories, rather than the original categories.

This is nice, but also not exactly what the SEDAR process needs, and so we are able to calculate a single value from this based on percentage of descender use for each of the fisheries separately. We have the headboat fishery with a set of values, overall mortality, and the charter fishery with its own set of values, which are only slightly different. We are using the charter fishery, since they're fishing in a relatively similar manner and in a pretty similar depth range, and they can be used as a proxy for the private recreational fishery.

Now, of course, one of the bigger questions here is, well, what proportion of people are actually doing this, and we have a small amount of historic data to add to the conversation here. During the red snapper season, the dockside interviews in 2018 and 2019 included a question about what sort of barotrauma mitigation people were using, and 800 anglers answered this question, and they had released fish, and they indicated what type of barotrauma mitigation they were using. Out of

800, only about twelve indicated that they were using a descender, and 65 percent were venting their fish.

During a similar time period, Georgia had a carcass drop-off program, which also included catch cards for anglers to complete. Thirty-five of those people released fish, and 63 percent indicated that they had used a descender while they were fishing.

We have very, very preliminary data now from 2021, and this is just entered, and we just finished entering it yesterday. The question about barotrauma mitigation did return in our survey, and we took it out for 2020, just to limit interactions, face-to-face interactions, with fishers, and these are the data -- These are the very preliminary data from the 2021 survey. We have 587 angler trips that reported releasing red snapper, and 34 percent indicated descending, 37 venting, and 28 percent surface release.

It looks like our numbers stay consistent with our historic data, in terms of the depth ranges of total numbers of fishers who are fishing in the majority of those times in those different depth ranges, and so most of them are fishing in the twenty to twenty-nine meters, and our proportion of descended fish basically increases at each ten-meter increase.

This leads us to where the SEDAR report ended, and I was not involved in that conversation, but I just wanted to put this up there, just as a background to where we are, and these were the time blocks that were decided upon during that discussion, and so there we are. Thank you.

DR. NESSLAGE: Thank you Julie. I really appreciate that. Excellent presentation, and we appreciate you revisiting all of these data, and providing some of the preliminary data as well, and so, at this point, I would like to open up the floor to the SSC for questions for Julie. I don't think I can see the hands-raised. We have to switch presenters back. Sorry, Julie.

DR. VECCHIO: That's fine.

DR. NESSLAGE: It would be easier if we were together in person, but -- Yan, go ahead.

DR. LI: Thank you, Julie, for the presentation, and it's very informative, and thank you, Genny, and my question is, for the slide where you showed the total discard mortality, the overall natural mortality, against the percentage of descender use, that paragraph, and, first, I would like to confirm that the mortality here is a proportion and not instantaneous mortality, right?

DR. VECCHIO: Yes, that's correct.

DR. LI: Okay. Then, looking at the -- Even the 100 percent use of descender devices, do you think the decrease in the natural mortality is huge enough to make a difference? Like, when you're starting from zero percent descender use and go all the way up to 100 percent, it's 0.06 decrease in the natural mortality, in terms of proportion, and so I'm thinking, is that expected like this, or we are expecting the reduction should be more?

DR. VECCHIO: I think all of these are a pretty conservative estimate, in terms of survival, and so they're actually maybe a little bit of a high estimate, in terms of total mortality, for a few reasons. First of all, there isn't -- 100 percent of the fish moving from a vented basket to a -- From a vented

category to a descended category really only represents a third of your total fish within that depth range, right, and it's only an increase of 5 percent for that third, and then your impaired fish are another 10 percent, or something like that, and so you're not really moving a ton of fish. You're not really improving the mathematical condition of a ton of fish, and so I think that's why this estimate comes out relatively close together. Does that make sense?

DR. LI: Yes. Thank you. For later discussion for the SSC, I just would like to get a sense that -- Because, later, the SSC needs to discuss how the use of the new information and the use of descender devices would affect the projection and how we believe the projection, how much we trust the projection, outcomes for management use, and so we need to know -- But I would like to get a sense, from your point of view, like this is greatly improved or it's okay, and so thank you so much.

DR. VECCHIO: It's okay, and there's another place, actually, that this is a pretty conservative survival estimate as well. One thing that I didn't touch heavily on is that we don't have great estimates of fish in the good category, their survival. The estimate that we use, the number that we use, actually comes from a modeling paper that -- It's from Campbell from 2014 or 2015, and that did take a look at a variety of different studies, but was the mean estimate for fish being released at forty meters, which is kind of the top of our depth range, in terms of most of the fish, at least in Florida that are being caught, and so I think that, in reality, probably a higher proportion of fish are actually surviving these encounters when they're released in that good condition, but we don't have direct data on that, exactly.

DR. NESSLAGE: All right. Yan, were you done?

DR. LI: Yes, absolutely, and thank you, Julie. All the information is very important. Thank you.

DR. VECCHIO: Thank you.

DR. NESSLAGE: Thank you both. Wilson, go ahead.

DR. LANEY: Thank you, Madam Chairman. Julie, did you all by any chance collect data on the type of descending device being used, and is there -- Do we have any insight at all into the types of devices being used and whether or not any one device may be effective than another device?

DR. VECCHIO: Within the fishery survey itself, within the dockside survey, no, and it was a general question. I think that some of the biological studies out there have used different devices, but I can't really -- I don't think that anybody has actually compared device to another.

DR. LANEY: Okay. Thank you.

DR. NESSLAGE: All right. Jeff, go ahead.

DR. BUCKEL: Two points that I just wanted to clarify for everyone, and Yan had mentioned natural mortality, but the M is catch and release mortality, just to clarify that Y-axis here, and then Julie answered the question, and I had raised my hand before she talked about it, but just to point out, again, that that zero percent descend line, that already has a mitigation in effect, where people were venting fish before the descending rule, and so there's several studies now that show that

venting and descending give very similar results, in terms of mitigating the barotrauma, and so you wouldn't expect --

Because there were so many fish already being vented in that red line, a high proportion being vented, you're not getting a big benefit from the descending here, because it's -- The fish are already provided that venting to alleviate the barotrauma, and so that's just reiterating what Julie said in a different, but, Julie, excellent presentation, and thanks for all your work on it, including the 2021 data. Thanks for putting that together so quickly. That will be really helpful.

DR. VECCHIO: Thank you.

DR. NESSLAGE: I have a question, if you don't mind. Could we look at that 2021 data slide again, really quickly? This is great, and we appreciate you pulling those numbers so quickly. I guess my question is then, based on what you said and what Jeff just said, there's kind of a transfer, you're anticipating, I guess, is that folks may be -- The folks who may have previously vented now may be descending, and the survival is maybe a little bit better, but not hugely improved, and is that a good summary of -- Maybe a layman's summary of what you said?

DR. VECCHIO: Yes, I think so, I think, especially the way that we worked through it here.

DR. NESSLAGE: So, if you add up the orange and the blue bars, you anticipate that it will largely be the same, the total either vented or descended? Do we anticipate greater use of either of those approaches, given the new policy that's in place? I don't know if you can even speak to that. Are you seeing greater participation? Because the descender devices are now required to be onboard, but they're not required to be used, correct, and so you're anticipating -- I guess, are we anticipating then an increase in the usage, because the total here doesn't add up to 75 percent.

DR. VECCHIO: What I am seeing, in terms of how this translates into what we did in the estimations, is around 50 percent of people that were venting are now descending, and that's within one year of the rule. Does that make sense?

DR. NESSLAGE: Yes, and so there's kind of two things going on. There's folks who vented that are now going to descend, but, within the deeper depths, where we really care about them doing something, are we anticipating, given the new requirements, that there's going to be an overall increase in either venting or descender device usage, right, because having it onboard is one thing, and actually using it is another, and so can you speak to that, with the data that's been collected?

DR. VECCHIO: I could not at the moment. I could do a similar thing with the historic data, looking at it into depth bins, but I haven't done that, and so, in terms of like the vented versus the surface, because, obviously, very few people were actually descending prior to the rule change in Florida, but I could make this same graph relatively quickly, but I don't have that at my fingertips right now.

DR. NESSLAGE: That's okay. Thank you. I appreciate it. Alexei, go ahead.

DR. SHAROV: I wanted to ask if we could flip, one or two times, between the preliminary 2021 and 2020, just to see the difference, and then I have a question.

DR. VECCHIO: We have no data for 2020, and the question was eliminated in 2020, to reduce those face-to-face interactions, and so this is 2019 and 2018.

DR. SHAROV: Okay. Then can we get back to this graph? Thank you. I was wondering -- There seems to be an overall increasing trend with the increasing depth, I mean usage of the descending device, but is there sort of any information or interpretation or reports available from observers? What guides the anglers to use the descending device? Are they trying to sort of apply a descending device more when they're fishing in the deeper areas, that they follow this logic, or how is the selection being made of whether to vent the fish or use a descending device, or do we know anything about that?

DR. VECCHIO: I don't think we know that. Anything that I say would be total speculation.

DR. SHAROV: Right, but, if we look at the graph, apparently there is a clear pattern there with the increase in the percentage of the fish that were descended, right?

DR. VECCHIO: Right. I mean, if I had to guess, I would say the people who are fishing deeper maybe are better informed or have more access to better information or that kind of thing, but that's total speculation.

DR. SHAROV: They're more conscious and concerned about the effect of the -- Okay. Again, I am not forcing it onto you, but, in terms of the depth areas covered by those trips that were observed, how representative are they, the depths that are covered during those trips? Are they generally what we have for the overall South Atlantic, or at least for Florida?

DR. VECCHIO: It seems like, based on the data that we do have, and, again, you have dockside intercepts that are asking people a question about their fishing day, and those are the private anglers and at-sea observers who are observing directly individual fish being caught and released on those for-hire vessels, and it does look like that fishing depths are very similar -- Proportions of fishing depths are similar between the charter fishery and those individuals who are returning to the dock that day.

DR. SHAROV: Okay. Sounds good. Thank you.

DR. NESSLAGE: All right. I think Chip had his hand up next. Do you have something to bring up, Chip, a question?

DR. COLLIER: Yes, a couple of points. One is from the MyFishCount data, and it matches very well with what Julie has displayed here. As you go into deeper waters, they tended to use descending devices more often than in shallow waters, where they were not seeing signs of barotrauma, and fishermen indicated that they weren't using a mitigation treatment.

The other thing is, in regard to Alexei's question, there's been a lot of outreach that has gone on, either through the council office or through FWC, and also with the South Carolina Wildlife Federation, in order to inform people when to use some of these descending devices or mitigation treatments, and hopefully that's helping, and this is an encouraging graph that's being displayed right now, where it definitely seems like the outreach is showing signs that people are listening,

and they are using some of these mitigation treatments in order to reduce the impacts of barotrauma.

DR. NESSLAGE: Great. Thank you, Chip. All right. Continuing on with clarifying questions, Jeff.

DR. BUCKEL: This is to Alexei's question about the increased usage of venting and descending as you get into deeper water, and, Alexei, you can tell from the fish, and it's got outward signs of barotrauma, and then you make a call on just tossing it back, and so, in the shallow water, you don't see -- There's a lower percentage of fish that have barotrauma, and you can just throw them back in the water, and they can swim down on their own. As you get deeper, you can tell that this fish isn't going to be able to swim down, and so you either use venting or descending.

When you get to deeper water, and some of this is the larger fish, the venting is more difficult to get -- Sometimes it's more difficult to vent the larger fish in the deeper water, and the descender is an easier way to go, and it just saves -- It prevents a lot of handling time, to try to get the air out by venting, and it's just faster to descend them, and so that may be why you see more descender usage in the deeper water.

DR. VECCHIO: I don't know how much this has related to outreach, or how many people have actually seen it, but, in Brendan's presentation a few weeks ago, where he showed some of those fish with really severe barotrauma at the surface being descended and just looking really good, I think that kind of -- The footage is relatively convincing to people that this is actually a pretty good idea for them.

DR. NESSLAGE: Great. Thank you both. Fred Serchuk.

DR. SERCHUK: Thank you, Chair. From my perspective, it seems that it would be important to know either the science distributions or the relative quantities of caught fish at each of these depth intervals, so we could have an idea of whether there are significant population effects going on. For example, if the deeper fish -- If the larger and older fish are in the deeper water, and, therefore, perhaps comprise a significant component of the spawning population, that, in itself, would indicate that, in the larger depths, use of descending devices would have important population effects not only on the survival of the fish, but on the reproductive -- The subsequent reproductive output of the population.

On the other hand, if there is little size segregation among the depths with fishes, then it seems to me the most important thing would be to concentrate on those depths in which most of the fish are caught. Again, I am not very familiar at all with the nuances of red snapper biology, but I think, from our perspective of stock impacts, not only in terms of number of fish, but of the size and composition and the reproductive condition, it would be important to know whether there are disparate effects across the depths because of either size segregation or reproductive differences in the fish across the depths, and I think that's something we have to discuss. I realize there's a rule in place, which is a good thing, but we have to translate these results, quite frankly, into what we think about overall population mortality. Thank you.

DR. NESSLAGE: Well said, Fred. Chip, go ahead.

DR. COLLIER: There was a working paper done, I think for SEDAR 24 or SEDAR 25, and I get those two confused, and it was a red snapper SEDAR, and I just can't remember which number it was, but they were looking at the size distribution of red snapper among different depths, and there was an indication of not much of a difference between shallow water and deep water, and they had segregated the fish into two different bins, either large fish or small fish, and, at that time, a twenty-inch fish was being considered a large fish.

I think our perception of what is a large fish, a large red snapper, has likely changed, due to the changes in the population size, but just the information that was presented back in that 2010 paper indicated that there was not much of a difference between shallow and deep, and what had happened was it seems like there is -- I guess large fish are everywhere, but it's just there is fewer smaller fish out in deeper water.

DR. NESSLAGE: Thank you, Chip. Bev, is there something you would like to add, to clarify?

MS. SAULS: Chip, I just -- We're working on a manuscript right now with these same data, and I just looked at that. I looked at the distribution of fish in those same size classes and same depth bins as that paper, and we saw the exact same thing in the discarding in this fishery, is that we see both large and small fish in the shallow depths, and, in deeper depths, we only see the larger fish, and so it's very similar.

DR. NESSLAGE: Thank you for clarifying, Bev. All right. I am not seeing any other hands for clarifying questions at the moment, and so I would like to take this opportunity to open the floor for public comment, if there any questions based on the presentation before the SSC begins our discussions about this decision point. I will look to staff to alert me if there are hands raised. No hands. All right. Thank you.

Okay. The decision point we have here is whether or not we feel the assumption of 75 percent descender device usage in the projections is justified, scientifically, or we feel comfortable that it's not so uncertain that we should not be making that assumption. Now, I will remind you that that was the recommendation and decision of the assessment panel, and, if we are to deviate from that recommendation, we need to justify it very thoroughly and provide an alternative that is well justified with scientific information.

I will just say that we do recognize that trying to estimate the impacts to the population level of this recent change in the management and angler behavior is hard to do, and so we appreciate your efforts, Julie and everyone who has been involved, but now we have to make the hard decision of if is this a reasonable assumption, with regard to the scientific information that's available to us, and so I will open the floor to the SSC to begin that discussion. If you are in favor of continuing to, or I guess adopting -- I guess not -- How do I want to say that? If you're in favor of adopting, or using, the assessment panel's recommendation of 75 percent, I would like to hear that, with a justification, and, if you are not, I would like to hear your argument as well, with a recommendation for an alternative. Yan, go ahead.

DR. LI: Thank you, Genny. I am looking at the slide from Julie's presentation, where it shows the proportion of anglers using descenders, and, on the tables, if you compare Florida versus Georgia, and we see the descended portion from Florida is 1.5 percent, and, from Georgia, it's 63

percent, and both numbers are lower than the 75 percent that was suggested, and so I'm thinking -- I don't know.

I don't have a number, and I am just thinking do we want to use this information to guide us to justify the use of the suggested 75 percent? Is it good information that we can use to justify the 75 percent descender device use? If this is the information we have, based on the rule to make decisions based on scientific information, then this is the numbers we have, and it looks like both numbers are suggesting that it should be lower than 75 percent. I don't have a number now, but I am just thinking that, based on that table, those two tables, 75 percent might be a little bit higher than what is actually happening, if we deem that information as something we can use to support our decision. Thank you. Sorry it's not very helpful.

DR. NESSLAGE: No, and this is a tough decision, and I sympathize, and I appreciate you putting that on the table. I was going to say something, but I'm going to let the SSC speak first. Wilson, go ahead.

DR. LANEY: I see Yan's point, and my question is though, given the 75 percent relative to the two lower values on the graphic, is it reasonable for us to anticipate that, given ongoing outreach and increased outreach and additional studies, and Jeff Buckel may want to speak to this, additional studies that are taking a look at -- Continuing to take a look at the benefits of descending devices, and maybe comparing one device to another, perhaps, but is it reasonable for us to anticipate that that number will continue to increase?

If the answer to that is yes, then 75 percent may be a very reasonable assumption, again, given the other assumptions that I just made, that the outreach will continue and that anglers will respond and continue to adopt the behavior that we all believe will benefit the population, the red snapper population, and the human population. Actually, it's both populations.

DR. NESSLAGE: Good point, Wilson, and I just noticed, in the 2021 information, that, if you add up the vented and the descender device percentages, you get 71 percent, and so the assumption we would be making with sticking with the 75 percent, that's close, but the assumption is that, over time, all the ventless folks will go to descender devices, and is that, essentially, what we would be -- I guess that's a question for Julie. Is that essentially what we would be making, or there would be additional?

DR. VECCHIO: No.

DR. NESSLAGE: Right. The way you did the calculations, it was --

DR. VECCHIO: It was only fish -- So the 75 percent represents 75 percent of fish moving from one bucket to the other and not total barotrauma mitigation.

DR. NESSLAGE: Right. Okay. Just to clarify.

DR. VECCHIO: Yes, and so that's what all of those percentages represent, is just fish moving from one impairment category to a different impairment category and not total fish being treated for barotrauma.

DR. NESSLAGE: Gotcha. All right. Thank you.

DR. VECCHIO: It's tough.

DR. NESSLAGE: Yes. I sympathize. All right. Let's keep moving here, and I believe -- Hopefully Wilson had his opportunity to speak there, and I think Wally is next.

DR. BUBLEY: Thank you. I just wanted to point out, with Yan's comment, looking at the Georgia and Florida information, that was prior to descender device use being required, or not use, but having it onboard, and so those numbers aren't really as useful, I think, for looking at projecting things into the future, and all we have is the preliminary data from 2021, and so, I mean, basically, we're going to have to use some commonsense, I think, here to decide if 75 percent is there, or slightly decreased, and, I mean, I think the lowest would be something like 50 percent, because we do see some --

Even from the preliminary data, we see some increases in descender use coming from both surface release and from the venting. You're expecting -- It's trending in the right direction, and, as -- I think Julie was the one who mentioned it, but showing some of those videos of what descender devices uses -- When that information gets out there, that might actually spur things as well.

DR. NESSLAGE: Thank you. Great point. I am imagining Bev wanted probably to comment on the previous question, and is that correct, Bev? If you want to, go ahead and jump in.

MS. SAULS: Thank you. I just wanted to point out that all of the body of research that we've done with the at-seas observer data and the tag recapture modeling that we've done in Florida points to the fact that those fish that are caught in shallow depths and don't have any visible signs of impairment or barotrauma already have a very high survival rate.

I don't think that you necessarily want to see anglers start descending those fish, and I think it's a positive sign that you already see a high proportion of those fish in shallow depths being released without any mitigation, and so what Julie's analysis has done is we have assumed that those fish that do not have a need to be vented also do not have a need to be descended, and so that's why she kept all those good fish in the good fish basket.

All we're trying to do is evaluate, if angler behaviors change, and they shift from venting those fish that need it to descending them, what is the conservation benefit, and I don't think an outreach message necessarily should though target shallow-water discarding and trying to get anglers to descend those fish, rather than releasing them quickly at the surface, because all of our research shows that those fish already have a high survival, and trying to add any kind of mitigation to that may even increase their mortality, if they're being held out of the water longer, so they can be put on a descender device, and so I just wanted to point out that that's kind of a key finding of all of this work, is that the majority of discarding is occurring in shallow depths, and a large portion of those fish at shallow depths are already in pretty good shape and without the need for any mitigation, and your outreach message really is beneficial for people fishing, or discarding, in those deeper depths, where those larger fish are being released, and you do see more barotrauma.

DR. NESSLAGE: Bev, then a follow-up question. If the 2021 preliminary data is showing almost half of the shallow-depth fish being either vented or descended, could this actually backfire and create more mortality?

MS. SAULS: No, and, I mean, we already see that some of those fish in shallow depths are being vented, and I think you're seeing that some now, instead of vented, are being descended. I don't think that has really changed from what we have previously seen, where we still see some venting and mitigation needed in those shallower depths, but you just see more of it in the deeper depths.

DR. NESSLAGE: Okay. Thank you. I believe Wally spoke, and let's go to Anne next.

MS. LANGE: I want to reiterate what Wally said, that the information that was provided, aside from that last slide, was from prior to the requirement for the descender devices, and so we shouldn't be stuck on that part, but I think, also, to Jeff's point that the venting is pretty much a successful -- I may be misstating this, Jeff, and sorry, but the success with venting, and I think the 75 percent may be reasonable, or is reasonable.

DR. NESSLAGE: Great. Thank you, Anne. George, go ahead.

DR. SEDBERRY: I agree with everything that's been said. I agree with Yan and then with Wilson's additional comments that it seems reasonable to think that the use of descender devices might increase with additional outreach, and we might get to 75 percent. I am really still just not sure how we get from the great studies that Julie presented, and a very nice presentation, but how we get from that information and that data to a 75 percent total barotrauma mitigation, and I just don't see a real hard connection there that allows us to use 75 percent.

I agree that we can possibly get there, that things can improve, and there can be increased usage, and I just don't see where that number came from, and maybe I missed something, and so, if somebody could clarify, in a few sentences, how we got from the data that Julie presented, which is really fantastic, to 75 percent total barotrauma mitigation, that would help me anyway.

DR. VECCHIO: Yes, and that isn't what it was. It was the actual number from this working paper of 75 percent of fish moved from one mitigation category to another, and so I don't know if Chip still has the presentation up.

DR. SEDBERRY: When you said that earlier, I said, well, a lightbulb went off.

DR. VECCHIO: If you go back to the blue bars. This is where we're talking about, is, to come up with these numbers, I calculated it out by depth, and then I basically added each depth bin together, by numbers of fish in each category with each treatment at each depth. Does that kind of make sense?

DR. SEDBERRY: Yes, it does make sense.

DR. VECCHIO: Okay, and so that is what -- As far as I understand, that was the decision, and that is the representation of the 75 percent, is this value of 75 percent of barotrauma treatments moving from one category to the other.

DR. SEDBERRY: But that's not necessarily the same as now having total 75 percent barotrauma, or 75 percent total barotrauma mitigation.

DR. VECCHIO: But the table from the report uses this value.

DR. SEDBERRY: Okay.

DR. NESSLAGE: Just to clarify, Julie, then you basically were exploring the what-ifs.

DR. VECCHIO: Yes.

DR. NESSLAGE: You changed percent descender use at these kind of round numbers, 25, 60, 75, 100, and folks on the panel seemed to think that the 75 percent over time, in the future, will be reasonable, and is that a correct characterization of what happened?

DR. VECCHIO: Correct.

DR. NESSLAGE: If that's the case, then 0.23 is your overall discard mortality rate.

DR. VECCHIO: Right, for the private, and, if you go forward a couple, there is the table from the report, and so the 0.23 in the general rec going forward, and so that's where that number comes from.

DR. NESSLAGE: Excellent. Thank you. Scott, go ahead.

DR. CROSSON: I have a clarifying question, because I didn't quite -- I am making sure that I am following this correctly, and this is for Julie or for council staff or anybody else, I guess, that was heavily involved with SEDAR 73, but all of the studies that were in Julie's presentation were done during the red snapper three-day mini-season and then applied to the other 362 days of the year that red snapper is closed and is caught as a bycatch species, along with other fisheries and other species in the snapper grouper fishery, and so you just took the same numbers and applied them to the rest of the year, because that's the big concern I have with discards, and it's not the mini-season, but it's the other portion of the year, the vast majority of the year, that red snapper are being hauled up.

DR. VECCHIO: Right. Understood, and so the at-sea values -- These are at-sea values from at-sea observers throughout the year. This is open season, mostly closed season, for red snapper, and these are encounters of individual red snapper in the east coast red snapper -- Sorry. In the east coast for-hire reef fishery individual fish going back over the side, mostly outside of the season.

DR. CROSSON: Okay. Thank you.

DR. VECCHIO: These are the numbers that I applied each of those survivals to.

DR. CROSSON: I'm sorry, but, in the interviews that were done with the private anglers, as part of the intercepts, they were done here also?

DR. VECCHIO: That was entirely in-season, intended to catch people who were targeting red snapper.

DR. NESSLAGE: Scott, does that answer your questions?

DR. CROSSON: It answers my question, and not necessarily my concern, but okay.

DR. NESSLAGE: Understood. Are we good to move on? I will take that as a yes. Wilson, go ahead.

DR. LANEY: Thank you, Madam Chairman. I have another question here, and maybe Jeff would be the best person to answer it, or Julie, and so, in all of this discussion and analysis, have we considered anywhere the scientific uncertainty associated with the venting practice itself? It has been noted, I think, in the information provided to us, that, in order for venting to be successful, it has to puncture the air bladder and that, generally speaking, at least my perception is that you're more likely to hit your venting target on the smaller fish and that, on the larger fish, you might accidentally puncture the digestive tract or puncture the liver or puncture some other internal organ.

While I think most of us tend to think of the use of descending devices as very effective, and, unless we get predators zooming in somewhere between the surface and the bottom, there's a high likelihood of survival when you use a descending device, and can we make the same assumption with venting?

It seems, to me, that there's a lot of other variables involved in venting, such as the amount of training that the venter has had and the size of the fish and so forth and so on, and so is that something we need to factor into this discussion as well? It sort of gets back to Fred Serchuk's original question about size distribution, and I think we answered that one successfully, but I am wondering if we need to factor in some other level of uncertainty with respect to venting itself, and I would have no clue as to what sort of value, if any, that would be, or how we would even approach it.

DR. NESSLAGE: Jeff, is that something you can address, or should we look to --

DR. BUCKEL: I would let Julie and Bev have a stab at it first, and I can add my thoughts. Since is their study, they can give their thoughts, and I would be happy to chime in, if I feel that I need to.

DR. NESSLAGE: Great. Okay. Julie, let's see if you have something you would like to say regarding this.

DR. VECCHIO: Here's my stab, and Bev can add to this, but, when we have our values sort of recapture likelihood, and using that as sort of likelihood of survival, those are average values from hundreds of fish, several hundred recaptures, in a variety of sizes, and so you're kind of -- While I think that there probably is some amount of difference by size, within the context of a conventional tagging study, and even within the context of a more focused sort of acoustic study, you are getting a variety of sizes of fish, and your value is going to kind of average out the status of the fish in the different sizes, and I think that's just constraints of -- Research constraints.

DR. NESSLAGE: Thank you. Bev, do you have anything you want to add to that?

MS. SAULS: Yes, I do. The value that we're using for survival, or mortality, whichever one you want to call it, for the vented fish is actually coming from observations within the for-hire recreational hook-and-line fishery, and so it incorporates all manners of venting by mates, crew, whoever, and so I feel like that's already -- That's in the estimate, and you see that we have error estimates around that relative survival rate, and that's incorporating all of that variability that we've observed within the fishery.

DR. NESSLAGE: Thank you. Judd, something you would like to add to that?

DR. CURTIS: Thanks, Genny. I just wanted to address a couple of points, based on some things, and I thought I would just add a couple of cents. I think Wilson mentioned just that a venting technique can be often very detrimental, and Steven Scyphers had a great paper showing that location of venting was not always in an accurate spot that would be helpful for release, and it actually incurred more mortality, and so that's one thing to keep in mind as you transition over from venting into descending.

The other thing, I think to address a point that you made, Genny, that, in the shallower waters, where mitigation is not necessary, and maybe it was Bev that mentioned it, it actually can be more detrimental than just quickly releasing the fish, as there is other considerations, such as handling time and all those other components that go into an overall discard mortality estimate, and so, oftentimes, when no mitigation is necessary, getting them back in the water is the best for survival.

Lastly, based out of some -- Looking at that curve, in I think it was just the usage of descenders and venting that was presented by Julie, there is some work done by Karen Burns, some stuff that I had worked on and then some other anecdotal things that I have seen from fishermen in Texas, that you see this catastrophic decompression, where the swim bladder is actually bursting, at around like fifty-five to sixty meters depth, and, in that case, there is not really any mitigation methods that are going to be beneficial. That's just one thing to consider in that discussion, as you're moving into deeper waters and what might be the best mitigation methods, and so thanks, and that's just my two-cents that I wanted to add.

DR. NESSLAGE: I appreciate that, Judd. All right. Yan, go ahead.

DR. LI: Thank you, Genny. If you can see me, I am scratching the table, and so, back to Judd's point, I feel like, right now, we are discussing two questions. First, do we still support -- Are we still supporting the use of 75 percent, and, if yes, why? I feel like this number, based on Julie's, comes from what-ifs, and so that means there is great uncertainty associated with this number, and look at the table. If we do not look at the table from Florida and Georgia, and that is back to 2018 and 2019, if we are not looking at this table, and then we look at the table from 2021 preliminary data, descending device use is 34 percent, and then, of course, this is data we have.

Then, right now, the projection is using 75 percent, and we need to justify why 75 percent, given what data we have, and then it looks like it's based on what-ifs, and why not 85 percent? Why not 55 percent? Why does it have to be 75 percent? We have to justify that, if we decide to use 75 percent, and then we can say it's because we believe, in the future, because of increasing outreach,

and it's going to increase the use of the descending devices and that has some support for that argument and how much increase that would be, would be expected in the future, and so we need justification for that range of increase in the future too, to support the use of 75 percent.

The second question I feel like we will be discussing is, if not 75 percent, then what would be the number that the SSC would suggest, and, given the uncertainty in the future, I don't know if there's a possibility to use a range, as a suggested range, instead of a pre-set number, and it has to be 75 percent, and can we suggest like, for example, 50 percent up to 80 percent, a range, and can we do that?

Plus, this table here, the use of 75 percent starting in 2021, given the discard mortality is 0.23, and then there's a range there, and so this range -- What kind of uncertainty is being covered within this range? I heard earlier comments about it's coming from observations, and so does this range cover the uncertainty regarding the percentage of use of descending devices in the future? Does this range cover other parts of uncertainty? I am thinking, if this range can cover the uncertainty regarding the percent use, descending device use, in the future, is there support to use the 75 percent? That's all. Thank you.

DR. NESSLAGE: I heard a question in there, and I don't know if Julie wants to address that, and I think I might know the answer, but does the range there -- Does that include -- That does not include uncertainty in the 75 percent, and that's, if you assume it's 75 percent, this is the uncertainty, based on the data, and is that correct?

DR. VECCHIO: Yes.

DR. NESSLAGE: We can get really deep into this. Okay. That's a good point, and the other thing that, as folks are deliberating, to keep in mind that Yan reminded me of is that, as I mentioned before, we're responsible for scientific uncertainty, but recall that we can always recommend that the council be more conservative, in the sense that they can account for management uncertainty with regard to how that descender device requirement is actually implemented and how much outreach is conducted, et cetera, if they want to be more, I guess, conservative. If they want to account for more scientific uncertainty, or I guess -- No, that's not true. I'm not even saying it right myself. If they want to account for implementation uncertainty, which is a management risk concern, they can always incorporate that into the ACL. Did I say that right in the end, I hope? Fred Serchuk, go ahead.

DR. SERCHUK: Thank you, Chair. I wanted to follow up on the comments that were just made by looking at this table. I am not convinced, and I don't want to be a Debbie-downer here, but I am not convinced that, if you compare the mean values between Block 3 and Block 4 that they would be statistically significant. I mean, the ranges almost entirely overlap, and they are slightly wider in Block 3 than Block 4, and I think we're really looking at minute differences here, and perhaps non-statistical differences, particularly when we are unsure whether 75 percent is the right level.

Our job is essentially to point out certainly statistical uncertainties for when numbers that look different may not be statistically different, and I have a sneaky suspicion, given the ranges that are up there, that there is little difference between Block 3 and Block 4. That doesn't mean, from my

perspective, that the use of descender devices should not be encouraged. I think that they do have an impact, and, at this point in time, I'm not really quite sure what the level of the impact is.

I look at these ranges, and, at the present time, I don't see a very large difference, and that, to me, suggests that the efficacy of these devices hasn't been in practice long enough to say that there are significant differences between Block 3 and Block 4, and I think that's the question we have to wrestle with. That's the uncertainties that the SSC is tasked to illuminate, and I am not convinced, personally. I think we're arguing how many angels fit on the head of a pin by trying to look at the empirical differences that we have now between 25 percent and 75 percent. Again, sorry if I appear to be a Debbie-downer, but that's how I see the situation. Thank you, Chair.

DR. NESSLAGE: Thank you, and I think we have -- This is a very important decision point, but we have even bigger and more impactful decision points coming up, and we're already at almost 11:00, and so I would ask folks to start thinking seriously about wrapping up this decision, and so let's hear -- Chip, did you have something that you wanted to add or an interjection here?

DR. COLLIER: I just wanted to point out that, if you guys are going to go with something different than the 75 percent that was recommended by the SEDAR panel, you guys have to provide a strong justification for going against what was recommended at that assessment panel. If not, just -- I mean, you can mention the uncertainties associated with it, and maybe, in the next research track assessment, we can begin to address some of these issues, but continuing to look at a range of potential descending uses -- I think we need to go forward with management and really begin to address some of the other probably more pressing issues.

DR. NESSLAGE: Well said. Alexei.

DR. SHAROV: Thank you. To me, there are at least two questions here. In terms of the percentage of the use of the descending devices, my understanding is 75 percent was an educated guess of future use. The actual data that we have so far for 2018 and 2019 in Florida is 1.5 percent, and Georgia was somewhere like sixty-something, and the preliminary 2021 is 34 percent, and so none of the data points that were observed comes even close to the best guess of 75 percent, and so 75 percent, from that perspective, doesn't seem to be justified and supported by the data.

The second question is what do we apply it to, and, in that sense, I am still not clear, and can we please take a look at the graph, and someone can -- We've looked at it recently, with the field observations on the status of the fish that were in a poor condition and vented and then in a good condition, and there were like three colors, and can we take a look one more time at that?

DR. COLLIER: Yes. There you go.

DR. SHAROV: Yes, this one. So far, what I have heard is that the vented fish have a good survival, comparable to that of the descending device, and so, in that sense, the application of venting -- The venting will be applicable only to the red colored, the components of the bar graph, which, for most of the depths, are a very small proportion, right, and so it would seem that, overall, that that would be not significant, and that's probably why Fred noted that there is very little effect when you compare the options.

However, it seems to me that venting could be replaced with the descending devices, and that's what I think I've heard as well, because, particularly with the bigger fish, venting is not easy to do, and then there is increased risk, and so I don't know if, in the calculations that we have, there was some sort of expectation of the replacement of venting with the descending or not, and, if not, but we expect that some will start doing this, because of the increased use of the descending devices and a reduction in the previous time of handling, et cetera, I don't think we have any sort of model at the moment or an estimate of what percentage of venting will be replaced with the descending device. At least I need to get a good understanding of what descending will be applied to what proportion of the fish. Is it the ones that are colored in red here or the yellow ones as well?

DR. VECCHIO: In this estimation, we were changing the status of fish in both in the red and the yellow category, but the improvement in red fish was much greater than the assumed improvement in yellow fish.

DR. SHAROV: All right, and so, as for the forecast of what the percentage of the use will be, I would say good intentions and optimistic view of the responsibility of anglers, and, I mean, it is quite possible, but there is no way to sort of evaluate or guess correctly how many will actually comply, and so there is very high uncertainty in that.

DR. VECCHIO: Yes, and I want to reiterate again that the number in the table from SEDAR 73 is coming from just moving fish between these baskets, and so 75 percent of fish that we observed being vented would be upgraded slightly into the descended category, and it's not saying that 75 percent of all anglers are descending all fish. That isn't what that estimate is trying to get at.

DR. NESSLAGE: Alexei, do you feel your question has been answered?

DR. SHAROV: Well, yes, the question is answered, but it seems that there is -- There is a lot of uncertainty in here. In other words, the choices are still subjective here.

DR. NESSLAGE: Agreed, and I would ask folks to keep in mind that there are a lot of subjective decisions in assessments and projections, and so the question is, is this so egregious that we need to go against the decision of the panel, because that's a big move here, and, if that's the case, I would really like the discussion to start moving towards what do we recommend instead, if that's the case. I, personally, would prefer that we not go against the panel, unless we believe that the uncertainty is so great that it might provide ABCs that would not achieve the rebuilding plan, frankly, which is our goal here today. I'm going to take comments from Yan and Wilson, and then we're going to take a quick biological break, and then I would like to come back and finalize this decision, and so, Yan, go ahead.

DR. LI: Thank you, Genny. Chip, do you mind going back to the table? I would like to add a comment to Fred Serchuk's comment and Alexei's comment. Here, those Blocks 3 and 4, and 25 percent goes up to 75 percent. However, as Fred Serchuk pointed out, the two discard mortalities, the two numbers, statistically are not significantly different, and so that helps me better understand what's going on here, because those ranges are not including the descending device usage uncertainty, and so, if that uncertainty is incorporated, then we should be expecting to see a wider range there in the projection, and it's just a comment. Thank you.

DR. NESSLAGE: Excellent. Thank you. Wilson.

DR. LANEY: Thank you, Madam Chairman. Julie has pointed out, multiple times, that the 75 percent refers to the number of fish that are moved from one basket to another basket and not to the percent of anglers that are actually using descending devices, and so I just think we need to make that point very clear in our report, so as to not confuse the public, and, if you look back over our discussions here, in looking at the table of the 2018 and 2019 data that shows the percentage of descender device use, being well below 75 percent, you're comparing apples and oranges, and those two things really don't compare, and so I think we should just make that clear, and I just agree with everybody else. The amount of uncertainty that we're dealing with here is considerable.

I think, personally, that we defer to the panel, in this case, and acknowledge Fred's point that there isn't a great deal of statistical difference here between Block 3 and Block 4, and I don't think we -- As you have already noted, Madam Chair, we could spend the rest of the day discussing the uncertainties and how to resolve those, and I don't think we're going to get a better number.

DR. NESSLAGE: Thank you, Wilson. I appreciate that. Well said. I will call on Kyle, and then we'll take a quick break.

DR. SHERTZER: I just wanted to comment on those ranges of uncertainty. We actually didn't have information for the Block 4 ranges, and so those values in Block 4 are assumed to be the same as the ranges from Block 3, and so don't go too far down trying to infer statistical difference, but, that said, you can see that the point estimates themselves are not greatly different, and so, although it's true that the assessment panel was faced with making a decision with very coarse information, and we don't know that 75 percent is how it's actually going to play out, but the actual point estimates don't differ greatly, and so the assessment did think that, for Block 3, it was not zero percent, and probably less than 50 percent, but that, going forward, given the amount of education that the council was promoting, we did think that there would be a large increase, but we just didn't think it would go all the way to 100 percent. Now, what that percent actually is, we don't know, and so there certainly is uncertainty in the percent, but the amount that it will affect the point estimates of discard mortality is not substantial.

DR. NESSLAGE: All right. Thank you, Kyle. Let's take a five-minute biological break, and we'll come back and take Fred's comment, and then let's wrap up this discussion, okay, and so everyone think very carefully about your opinion on this subject. Thank you.

(Whereupon, a recess was taken.)

DR. NESSLAGE: Folks, it's 11:05. If you haven't raised your hand, please do, if you've returned.

DR. COLLIER: Several people have returned, and it appears my keyboard has stopped working, and so let me go get a battery, and I will be right back.

DR. NESSLAGE: All right. In the meantime, Fred Serchuk, are you back on? Would you like to comment at this time?

DR. SERCHUK: I would, Chair. Here is my recommendation. Although I was the one that I pointed out that I didn't think there was any statistical difference between Blocks 4 and 3, and, personally, I would have preferred to average the estimates in those two cases, because of the

uncertainty, I don't think it's going to make any difference, any significant difference, in the long term, and so I suggest we move forward with the recommendation from the panel beforehand and that we don't tinker around with this any more, and I think we've spent more time on it than we should have, although I think the discussions have been illuminating. Thank you, Chair.

DR. NESSLAGE: I am so glad you just said that, because that was going to be my strawman recommendation as well. I hope that the folks who are in the breakout group for this topic have been keeping good notes, because I think we've raised a number of serious concerns and highlighted the uncertainties that the group who pulled this together already is well aware of, I'm sure, but shedding some light on how they might be impacting the ABCs is something that we need to be clear on in the report, but I am going to ask the group, and does anyone object then to the proposition that we adopt the recommendation of the review panel?

Is anyone seriously concerned with, or does anyone have an alternative suggestion that they can't live with the panel's recommendation? Speak now, although I guess we're -- I don't know whose hands are raised, and so let's try to just do it in an orderly fashion. If you have something you would like to say, speak up, and we'll try to do this.

DR. COLLIER: I am back. If everybody that had raised their hand in order to signify that they're back, you can just go ahead and lower them, please. Then I will make do, and I'm a little freaked out right now, because it appears it really was the entire keyboard that went out and not just the batteries, and so we'll get it worked out.

DR. NESSLAGE: At a critical juncture, and that's great. It's always something like that, isn't it?

DR. SHAROV: Your computer melted because of our discussion of the percentages.

DR. COLLIER: It was so heated, yes.

MS. LANGE: Genny, I just wanted to reiterate what Kyle had said, based on the discussion during the meetings of the panel, and it was -- 75 percent was a value that we looked at, because, again, as Kyle said, we did not assume that there would be 100 percent compliance with the descender devices, but we assumed that there would be an increase over time, and, at the time we were doing it, we didn't have any information relative to 2021 or 2020, which, again, is when everyone said there wasn't sampling done.

The 75 percent was -- Also, as Fred had indicated, there isn't a really great difference between the 25 and the 75 percent compliance, and so we were trying to get at something that we would look at into the future, assuming that there would be an increase, and so I stick by what we had indicated as the projection of 75 percent.

DR. NESSLAGE: Excellent. Thank you, Anne. Well stated. Does anyone object? I would love to hear as well from folks who haven't spoken on either side of the issue.

DR. LI: Genny, can I say something?

DR. NESSLAGE: Please. Go ahead.

DR. LI: First, I support your strawman for this item, and I agree that -- Well, first, I have concerns, and I think the uncertainty should be wider, and also should be considered. However, I agree to keep using this number, because, as Kyle mentioned, this number -- The outcome, projection outcome, is not that sensitive to this percentage number, and so I feel more comfortable of staying with 75 percent. Thank you.

DR. NESSLAGE: Thank you. It looks like we've got a keyboard again. Excellent. Thank you. Scott, go ahead.

DR. CROSSON: A couple of comments. I accept what you're proposing, because I agree that the results are -- The difference between the two results is not particularly important, although I do, again, think this whole idea of actually using that as a standard is odd, because, normally, I think you should be making the decision and then looking at what the results are.

The second thing I wanted to add though is I don't -- I just want to make it clear that I don't consider this to be a precedent for all of the other fisheries in the snapper grouper fishery, because this issue is probably going to come up over and over again, and so I feel like the committee has not had its final say on this.

DR. NESSLAGE: I agree with you completely, and I think we need to make clear in the report that there is considerable uncertainty, scientific uncertainty, in this rate, and that it needs to be more fully informed for the next assessment and that any other assessments coming forward -- Really, we need better information than this to make such a decision, ideally. Let's make sure we include that in our report. Wilson, go ahead.

DR. LANEY: Okay, Madam Chairman, and just to restate it again, Anne just referred to it as a compliance rate, which says, to me, that, when you say 25 percent and 75 percent, you're talking about the compliance rate of anglers and complying with the -- Actually, the rule is you just have to carry it, and you don't have to use it, and so is that what we're talking about here and not the 75 percent transfer of fish from one basket to another, as Julie explained to us? Again, the report needs to be crystal clear as to whether we're talking about 75 percent of fish moving from one classification to another, versus 75 percent of anglers complying with the requirement that they carry a descending device.

DR. NESSLAGE: Agreed completely. If we could go to that fifth bullet there and just make it very clear that we need to explain that well, when we're reporting to the council, and we need to be very careful about how we speak about it here, and hopefully we won't be speaking about it too much longer. Good point, Wilson. Anne, go ahead.

MS. LANGE: I am sorry, Wilson. I misspoke, and I was not implying compliance in the legal term. What I was meant was that whether people would actually use the devices or not, and we were assuming that likely 75 percent of anglers, who all will have the device onboard, about 75 percent of them would be using it and not that they were complying.

As far as the difference between the moving from one category to the other, this 75 percent is totally unrelated. This was not part of -- I think, Kyle, if you can correct me, but we were just looking at just projecting how many people -- What percentage of anglers would use, would be

likely to use, the devices in the future and not associating that with the analysis that Julie presented. They are two separate 75 percents.

DR. NESSLAGE: All right. I am going to look to folks who were on the panel and who know this issue well to help write this section of the report, to make sure that we're being very explicit. All that being said, does anyone object to moving forward with the panel's recommendation in the projections? Last call. We'll all have a chance to review the report and make sure that our concerns are very strongly and clearly stated. All right.

Well, I appreciate, Julie, your presentation, and, Bev, your contributions and all the work that you've done. Thank you for letting us pick your brains and question you this morning and for your time. This is something that I think we really needed to kick around, as a group, and understand better, and so thank you very much. I appreciate it.

DR. VECCHIO: Thank you. Thanks for having us.

DR. NESSLAGE: All right. That was just one of the many decisions we have to make today, folks, and strap in, and put your seatbelts on. It's not quite lunchtime yet. At this point, we need to transition to a couple other decisions regarding the projections. I would like to take a moment, if we could, to -- Do you mind pulling up the table, Chip, that I created that summarizes Kyle's work, and I will get to you, Kyle, in just one second, but I would like to just alert, or orient, the SSC to the table that I sent around that kind of compares the different options, and it's essentially an extension of Kyle's Table 2, and maybe I will wait until we have it on the screen. Sorry to put you on the spot there, Chip.

DR. COLLIER: No problem.

DR. NESSLAGE: Kyle, I am going to walk people through this summary table, because I think that your report, which I will ask you to kind of introduce in a moment, has all the gory details, and it's very thorough, and this table will hopefully orient people to kind of an expanded version of a summary that you did in Table 2. If you look in Kyle's report, which is Attachment --

DR. COLLIER: Kyle's report is Attachment 5. Attachment 5 is the report, and Attachment 6 is the presentation that he will be providing today.

DR. NESSLAGE: Okay. I would like to go through this really quickly, so that people can use it as a cheat sheet for themselves as he goes through his presentation, if you don't mind, Kyle. Basically, what I have done here is taken his Table 2 and tried to start narrowing down our decisions, and so he ran a whole bunch of different scenarios, as we requested, but what I've done here is hidden the scenarios where F rebuild leads to overfishing, which I think we agreed, at the last meeting, was not something we were able or willing to consider, and then, also, I've hidden the columns, the scenarios, where the probability of rebuilding by 2044 was less than 50 percent, which I felt didn't address the rebuilding plan, and so I didn't think we would want to consider that. We could talk about that later, but I'm assuming there won't be too much objection to that, and that still leaves us with a number of different options.

I have also added in here, just for comparison, the 2028 projected landings and discards in numbers, the deterministic run numbers, just as a relative comparison, so folks can see what the

impact of these assumptions are, and, if we proceed through discussing recruitment, then reallocation, and then whatever is left with this, regarding the discard mortality F definition, these options will slowly fall off the table.

In fact, at this point, we can now hide Scenario 2 and Scenario 9, because we've agreed that we will at least accept Block 4. Whether we go with a mixed approach or not, we can discuss in a moment, but I'm hoping this will help us laser focus the discussion, and so you can reference this table as Kyle is going through, but, before we jump into that, I just want to give you a little intro and explain what has happened between our last meeting and this one, so you will understand what Kyle is presenting.

Between our last meeting and this meeting, we had the June council meeting, where I reported our discussions on red snapper and the decisions to-date regarding the projections, as well as our requests to Kyle. At our last meeting, we had extensive discussion about what recruitment assumptions should be, and we also asked for information -- Or for the formation, excuse me, of a working group to revisit our general decision-making process regarding what recruitment scenarios should be used in given situations.

At that June council meeting, I presented all of that, and the council did approve the formation of the working group, and we'll be talking about that later today, but that group won't have done their work in time for today, obviously, and we need to set this ABC, at least for the short term, and so just keep in mind that that's ongoing, in case you had a question about, well, what happened about that.

Also, note that, at that June council meeting, as I'm sure Kyle will elaborate, we were asked, by the council, to consider a recent longer ten-year average recruitment in the projection scenarios, and so you'll see that he is going to be providing some of that information.

I would also add that, although it wasn't explicitly stated at the council meeting, there was really not much interest, I perceived, in pursuing our recommendation of probability of rebuilding greater than 50 percent, and we had gone through our decision tree and come up with 67.5, and that is their decision to make, and it's their call. The way Magnuson is set up, they get to call the shots regarding rebuilding plans, and so I -- When we met after the last meeting, I asked Kyle not to pursue projections that specifically achieve 67.5 percent. You will see some of them do, or exceed that, in the ones that he ran, but I specifically did not ask him to pursue those.

I wanted Kyle to make the most of his limited time and not pursue projections that might not be considered by the council, and so that was my executive decision, a decision on my part, and I will take full responsibility for that. If you're upset, feel free to reach out to me, or speak up, or give me hell on the record, but, all that being said, we have a number of options here, and Kyle is going to go through them, and then we'll discuss, in the order of recruitment, reallocation, and whatever is left, and so, at this point, Kyle, do you feel ready to give us an overview of what you've done?

DR. SHERTZER: Sure.

DR. NESSLAGE: Great. Thank you.

DR. SHERTZER: I will comment on this table too that each of the projection scenarios sort of come in pairs, one using F 30 and one using F rebuild, and so, if you choose one of these scenarios for an ABC, probably an F rebuild, or, if you did choose an F 30 for an ABC, then there should be a corresponding scenario that would be for OFL, and so, if you chose an F rebuild, then the corresponding scenario, using F 30, would be OFL. If you chose an F 30 scenario for ABC, then I guess it's the same scenario for OFL, and OFL would equal ABC.

DR. NESSLAGE: Yes.

DR. SHERTZER: These are the topics that I wanted to cover, and we've been speaking mostly about the forecasts so far, but there was another topic that came up during the council meeting that I'm going to take a short detour to discuss, which are different levels of spawning potential ratio and their potential for use as a proxy for MSY, or FMSY, and then I will get into the forecasts.

DR. NESSLAGE: Wait, Kyle. Okay. Do you mind skipping that for the moment, because we have that next on the agenda, and I feel like that's going to really derail the ABC discussion, at the moment.

DR. SHERTZER: Sure.

DR. NESSLAGE: Do you mind coming back to it?

DR. SHERTZER: Not at all. I only have a handful of slides about that, and so we can certainly come back to it.

DR. NESSLAGE: All right. I appreciate that. Thank you.

DR. SHERTZER: All right. Forecasts. Between the SSC and the council, there were sixteen scenarios that were identified. Originally, there were twelve that the SSC wanted, but, as Genny mentioned, we dropped the ones that had a 0.675 probability of rebuilding, and so that left eight scenarios done that the SSC was interested in, and those all used the long-term average recruitment level, and then the council was interested in seeing those same scenarios, but with high recruitment, and so, in this case, the high recruitment is based on a geometric mean of recruitment from the last ten years of the assessment, and so 2010 through 2019. Then we have the different approaches to release mortality that I will go into a little bit more detail about.

Just as a reminder, for the recruitment, the long-term average used the average from the full assessment period, and that's about 437,000 age-one fish. If we use the ten-year average from the terminal years, then it includes sort of this period of very high recruitment that we saw at the end of the assessment, but it also includes some of the low values, and so I think the idea behind ten years was that it included maybe a full cycle of the low and high recruitment, but the average there is 718,000 age-one fish, and so it's a bit higher than the long-term average.

Then the release mortality, and we've been discussing this with Julie's very nice presentation, and just as a reminder, and for reference, I have it in this set of slides too, and Block 3 were the discard mortality rates at the end of the assessment, and then the assessment panel recommended using the reduced levels for the forecasts, which were in Block 4.

One thing we didn't talk about before was the commercial discards, and I just wanted to -- I think we discussed this during the last review, but I wanted to reiterate that we didn't have any information on reductions from the commercial fleet, and so this reduction from Block 4, from Block 3 to Block 4, assumes the same proportional reduction from the recreational fleet applies to the commercial fleet.

For the forecasts, and, basically, there's three different approaches, and one is that the benchmarks and release mortality are all -- Well, based on Block 3, but I think we've already maybe struck that one from consideration, and then there's the idea that the benchmarks and release mortality are all based entirely on Block 4, and that was the approach that was taken in the assessment report, and so, for that one, the benchmarks need to be recomputed, so that they're different benchmarks for the forecasts than the ones that were used for the assessment period to gauge stock status.

Then there's this what we're calling a mixed approach. I think, before, we may have called it a two-step approach, but this is where we have the benchmarks that are based on Block 3, and then the idea, going forward, is that discard mortality is reduced in the forecasts, but that we're still comparing stock status to the levels that we would see at the end of the assessment period in Block 3.

I wanted to give more information about the mixed approach, because this was the one that we just talked about very briefly during the last SSC review of the red snapper assessment, and it was very new then, and so part of the intent, I think, of this meeting is to review that approach a little bit more thoroughly, but, for here, there are four different scenarios that apply the mixed approach.

They either apply a fishing rate of F 30, or F rebuild, and that's from Block 3, but then they apply the reduced Block 4 discard mortality. Then there's the option for, when you apply the reduced discard mortality, whether or not to take any savings in the mortality and reallocate those towards increased landings, and so whether or not to do that is sort of the second decision, and so, between these two-by-two design, that's the four scenarios, and then I will give a little bit more details about the application.

Each of these bullets here is for one of the four, and the idea of F 30 with no reallocation, in that case, is just -- It's really just a straightforward application of F 30, and then so forecasting at that fishing rate, but then applying the reduction in discard F applied to the F 30 level, and so this isn't actually a two-step approach at all. It's a single step, which is why I dropped that terminology of two-step and just called it a mixed approach.

Then the F 30 with reallocation is similar, but, here, we apply the F 30 level along with the reduction in discard F, but then iteratively increase the F towards landings until the probability of rebuilding equals what we saw from the F 30 Block 3 forecast, and so to get back to the same level of rebuilding that we would see from that original forecast, and, in that case, it's not necessarily going to achieve a F percent probability of rebuilding, but that's because it's F 30 used for OFL and not for ABC.

The next scenario is the F rebuild with no reallocation, and so this actually is a two-step approach. In this case, this is -- The first step is to compute F rebuild, based on Block 3 conditions, and then to take that F rebuild and apply that in the forecast with the Block 4 reduction in discard F, and then, for F rebuild with reallocation, it's sort of the same thing as the previous one, except, again,

we iteratively increase the F applied towards landings until, in this case, F rebuild equals 0.5, which was the council's desired probability of rebuilding.

A little bit more about the application, and so, in sort of the standard projections, where we apply F 30 or F rebuild without the mixed approach, that F is allocated into landings and discards, as determined by the selectivities, and, here, I'm showing the selectivities on the right that are being applied here, and these are from the assessment time period, and this is -- The top one is the selectivity, average selectivity, applied to discards, and the middle panel is the average selectivity applied to landings, and, when you add those together, then you achieve sort of the aggregate selectivity applied to mortality that would peak at one, and that happens at age-three.

In the usual forecast, we just take our projection F and multiply that by the selectivities to compute the discard or the landings selectivity at-age. In the mixed approach, it adjusts those values, and so the F that would be applied towards the discards is the same F, but then it's multiplied by this M_D, this multiplier, and so that's the reduction in the discard mortality, and then, for landings, then we also multiply the F times this multiplier, and so, in the case of the discard multiplier, it would be less than one, and, in the case of the landings multiplier, it would either be one, if we're not reallocating to landings at all, or it would be something greater than one that we would have to solve for to achieve the rebuilding level.

This proportional reduction, the way we computed that is the ratio of the Block 4 discard mortality relative to Block 3 discard mortality, and so it's just the proportional reduction, and remember we're applying this across an ensemble of models, and so this is applied several thousand times, and so I'm denoting that with the i, and so, for each of the iterations of the ensemble, we have a different ratio, and that's based on those uncertainty values that we looked at in the discard mortality table.

I did want to point out that these proportional reductions are based on discard mortality proportions, and so, the way that they're being applied here, it's an approximation, because we are applying them to an instantaneous rate, and, if you look at how good of an approximation it is, it turns out to be a very good approximation for lower F, and, as F increases, the two approaches would deviate from each other, the proportional versus instantaneous rate, and, for Fs lower than say 0.2, it appears to be a pretty good approximation.

The way the Block 4 and Block 3 discard mortalities are computed, that's the D_4 and D_3 in this equation, and that's the F weighted average across fleets, and so we had the three fleets of headboat, general rec, and commercial, and we weighted those by the discard Fs, and those are geometric mean Fs from the terminal three years of the assessment, to weight to have a single discard mortality that corresponds to the weighted average selectivity that I showed in the previous slide, but just to point out, again, and we've talked about this before, that almost all of the discards, dead discards, are coming from the general recreational fleet, and so that weighted average is heavily dominated by the general recreational fleet.

The plot at the bottom is showing the distribution of the multiplier, this M_D, across all of the ensemble runs, and so it does range from around 0.6 up to close to one. In the base case, that's the horizontal solid line, and it's a reduction of around 88 percent or so, 0.88, and then the vertical dashed line is the median from the MCBEs, and so this is the range of uncertainty that we achieve in the reduction in discard mortality across the ensemble.

Then some of the other less exciting details about the forecasts, and the new F in these forecasts start in 2022, and so that's a little -- That's different from what was in the assessment report, and I think, there, they started in 2023, and so we have this interim period from the terminal year of the assessment, which was 2019, up until when the new F starts, and that's a two-year period of 2020 and 2021, and, here, it applies an average landings from the end of the assessment period. Then, for the scenarios using the Block 4 discard mortality, that reduction was assumed to start in 2021.

This is a summary of the different scenarios, and this was pulled out of the report, the projection report, but they're divided up by what defines them, which is the recruitment, and the first eight scenarios use the long-term mean, and the second eight scenarios, 9 through 16, use the higher value for recruitment, the last ten-year mean, and then they're defined by whether they're strictly Block 3 discard mortality or strictly Block 4 discard mortality or whether they apply the mixed approach, and then they're further defined by their F, which is F 30 or F rebuild, and then whether or not we reallocate the savings in mortality from discards to landings, and that only applies to the mixed approaches.

I thought I would show just an example set of results, and this is from the Scenario 8 that used the long-term average recruitment mixed discard mortality, and it applies the F rebuild, and it reallocates to landings, and so these plots are also in the report, but the top panel shows F through the assessment period and then into the projection period, which starts here in 2020, and, here, the F rebuild is -- The horizontal blue and green-dashed lines are the benchmarks, the F 30 from the base case, and that's the blue-solid, and the dashed-green is the median from the ensemble, and so here are -- The F rebuild is pretty close to F 30, and I think it was about 98 percent of F 30, and then the second panel down shows spawning biomass, again through the assessment period, and then forecasted, and the bottom panel here shows recruitment, where, in doing the forecast, it's all the long-term average.

Then the panel on the right shows the probability of rebuilding and then sort of how, over time, the number of cases that are rebuilding in each year, along with the cumulative percent, and this was an F rebuild scenario, and so it's, by definition, reallocating F towards landings to achieve 50 percent rebuilding in 2044.

This is the same scenario, and, just to give you a little bit more glimpse into just the projection years and how it corresponds -- How the values correspond to current values, but the top panel is F, and the terminal F from the assessment was at about 0.46, and so you can see that this is a bit of a drop to end overfishing in 2021, to get below F 30, and the corresponding landings, in this case, there was about 416,000 landings, as an average -- Pounds of landings, as an average, at the end of the assessment period, and you can see here that the forecast -- Because we're reallocating savings from dead discards into landings, the forecast doesn't deviate largely from current, but it does increase to something that's a little bit higher than what the current level of landings would be.

Then here is probably the more important plot, the most important plot on this panel of this page, which is the dead discards in the projections relative to the current. The current level is over 2,322 thousand pounds, over two-million pounds, and you can see that, at that level, the projected dead

discards is much lower than what the current level is, and so this is not all due to the use of descender devices and a reduction in discard mortality.

This requires the corresponding reduction in fishing mortality rate, which, again, is, in this case, largely devoted to the dead discards from the general recreational fleet, and so, to match the assumptions of this scenario, the dead discards from outside of the mini-season would need to be reduced substantially.

Just to summarize the results, and not everything here I talked about, but it's in the report, but, if recruitment remains high, and so these high-recruitment scenarios that we have, rebuilding is expected to occur relatively quickly, and potentially within ten years, and some of those scenarios that I forecasted with high recruitment required capping F rebuild, because it was possible, at least mathematically, to have F rebuild higher than F 30, if recruitment was much higher, and that's because the F 30 is based on the long-term average recruitment, and so, if recruitment stays very high, it's possible to have an F rebuild higher than F 30 and still have a 50 percent chance to rebuild by 2044.

However, we were informed, by General Counsel, that that's not legal, and that F rebuild has to be lower than F 30, or the applied F can't be higher than the threshold, than the limit, and so, in these cases, I capped F rebuild at F 30. Then I think a big take-home message here is that the descender device usage helps, but, alone, that's not sufficient to match the level of discard mortality that's in these forecasts, and it also requires reductions in the annual discard F.

I think sort of the key decision points here are what to do with recruitment. Do you go with the long-term average from the full assessment period or the average from the last ten years, for short-term forecasts, and is the more recent past a better indicator of the near future? Discard mortality, again, I think you struck Block 3 from this list, but whether to use Block 4 or the mixed approach, and then, if you do go with the mixed approach, then whether to reallocate mortality reductions from the descender devices toward the landings.

That's my last slide here, and I've got a lot more slides, but they're all tables and figures from the report, in case you wanted to focus in on any scenario in particular, if you just wanted to have the numbers in front of you.

DR. NESSLAGE: Great. Thank you very much, Kyle. This was a lot of work, a lot of details, and we greatly appreciate what you've done here. We have a little bit of time before lunch, and I would like to see if we can get clarifying questions completed, and maybe some public comment, and then break for lunch, and we can start making our decisions when we return, and hopefully that works for everyone. Let's start with clarifying questions for Kyle. Is that a new hand, Fred?

DR. SERCHUK: I had a question before Kyle's presentation, and it related to the summary tables that you had prepared, and it goes back to the reason that I asked earlier on about whether the rebuilding target was 50 percent of the -- When you had a 50 percent probability, and let me raise it now, and, if it's not right, I will raise it again later.

I have a couple of concerns. One concern for our report is, Chair, that I think we need to put in a table of what the status indicators currently are, in terms of SSB 30 percent, whether there is a rebuilding target, and so on and so forth. It's not clear, from our report, what the actual numbers

are for those sort of things, and that suggests a helpful -- I think it will be helpful to interpreting whatever we decide.

Second of all, I think it's important not only to talk about rebuilding to 2044, but I think we ought to talk, in these projection tables, about when the rebuilding target is met, and not the rebuilding year, because my feeling is, if the last ten years that have been used for the recruitment projections are indicative of what we will see in the near future, and they include, of course, an average of both very high and very low points, this stock can rebuild probably, with some of the scenarios using the most recent recruitment, by 2027, or 2028, and that's the reason I asked, earlier on, when the next assessment will be done, because my feeling is the stock productivity now is very much different, in terms of recruitment, than it was when the reference points were selected.

The fact is that I think, if the stock rebuilt by the next assessment, the councils would have a lot more flexibility in going forward than waiting for another ten years after that to have 99 percent assurance of that, and so that was the reason that I suggested, and that I am suggesting, is that we put another row in the table about when the stock will be rebuilt, the year in which rebuilding will occur, at 50 percent probability.

The bottom table, the bottom part of that table, for example, says 0.999, and I suggest we have another column in there about when 50 percent rebuilding will occur, because that's what the council has selected, and that's the reason I asked, earlier on, was that the council's decision.

DR. NESSLAGE: I am going to stop you there, and someone correct me if I'm wrong, but my understanding is that the council is interested in ABCs that will assure that they will achieve 50 percent rebuilding by 2044, and they are not looking for a more aggressive rebuilding schedule, and so I might cut you off there --

DR. SERCHUK: If you take the long-term mean, you will be there. I can't understand why the council would not want to know when they can rebuild the stock.

DR. NESSLAGE: They can know, and we can point that out, but --

DR. SERCHUK: Okay. That's all I'm asking.

DR. NESSLAGE: Okay, but that cannot be a criteria for our decision regarding the ABC today.

DR. SERCHUK: No, but it could be a decision the council could make when it selects one of the scenarios.

DR. NESSLAGE: It could. I am telling you it probably won't be, and so I don't want to spend too much time on that, and not to be aggressive, but I warned you that I was going to be aggressive today.

DR. SERCHUK: That's fine.

DR. NESSLAGE: We need to stay on track. Okay. Other questions or comments for Kyle? Uh-oh. My being aggressive has caused people to shut down, and I apologize. I'm really not a mean -- I'm just trying to keep us all on track here. Alexei. Go ahead.

DR. SHAROV: Thank you. Kyle, could you explain -- It was quite confusing, because, for each scenario, you have a graph with the number of cases recovered, scaled out of 100, where the actual range on the Y-axis is ten or twelve or whatever, and I am confused. Then the cumulative curve as well, and can you explain this better, please? What does it show?

DR. SHERTZER: You can think of that as just percent that recovered in that year, of the scenarios that were run, and so of the ensemble projections, and then the blue line is the cumulative probability.

DR. SHAROV: Okay, and so these are percentages. For example, I am looking at Scenario 13, in the year like 2021, and there is like 6 percent of the runs that actually achieve rebuilding in that year, and is that correct? Is that right?

DR. SHERTZER: Right.

DR. SHAROV: All right. Got you. Well, then it's -- I don't understand, and I am sorry. Therefore, the number of cases is declining as we're moving into the future, right, and we're supposed to get closer and closer to the rebuilding status of the stock.

DR. SHERTZER: Yes, and, I mean, it's out of those that have not yet rebuilt, and so more rebuilding earlier in that scenario, and so there is fewer left that need to be rebuilt, as you go through time.

DR. SHAROV: Okay. Well, I guess, I'm not going to stall the meeting because of me not following this, and I will just spend extra time on this one. Thank you.

DR. NESSLAGE: All right. Well, Alexei, studying --

DR. SHERTZER: Alexei, think of it as the distribution of the years when rebuilding occurred.

DR. SHAROV: Got it. Okay. Thank you.

DR. NESSLAGE: All right. Good. Jie, go ahead.

DR. CAO: Thank you, Kyle. I just have a quick question regarding the high-recruitment scenarios, and do you have an idea how often you see F rebuild exceeding F 30?

DR. SHERTZER: I think in all of those cases it did. With the high recruitment, in all cases, F rebuild could exceed F 30, and so I capped it at F 30.

DR. CAO: Thanks, Kyle.

DR. NESSLAGE: Great. Thanks. Fred, go ahead.

DR. SERCHUK: I have no more comment, Chair. That was left over.

DR. NESSLAGE: Okay. My apologies. Are there other questions for Kyle? If no one does, I do, and I may have asked you this one already, but it would be good to have everyone hear the answer, Kyle. Regarding the discard mortality approach, the mixed versus non-mixed, is there -- If you're going to assume a different discard mortality pattern going forward, as we've agreed with the panel we should do, and so Scenarios 4, 5, 7, and 8, for instance, is there any reason why we wouldn't want to use the mixed approach?

It seems like the technically correct version, to me, and, in other words, I would -- I don't understand why we would think that Block 4 alone would be the appropriate approach for treating the projections, given that assumption.

DR. SHERTZER: Well, I agree with your sentiment, and I think the only reason that you might consider the Block 4 only would be if -- It would be a very technical one, which was, if you wanted the benchmarks to match the forecasts, and so, in that case, it's very much apples-to-apples, when you're looking at rebuilding, that you're comparing the current circumstances, and, by current, I mean future, the Block 4 circumstances, to what would be Block 4 benchmarks.

Whether that is appropriate or not, I agree with your sentiment that it probably isn't -- I mean, often, that's something we strive for, is to have that consistency, but, in this case, where the management going forward is attempting to address this issue of discard mortality, it seems like this is a case where you want to base stock status on prevailing conditions, so that future -- The benefits of future management are sort of compared to the current conditions.

DR. NESSLAGE: Great. Thank you. I appreciate that. Jeff Buckel.

DR. BUCKEL: Thanks. Kyle, the reallocation of F from discards to landings, I had always been thinking about that as the reduction in discards because of the increased use of descenders, and so is it just that, or is this additional -- This large reduction, as you mentioned in your summary slide, that this reduction in F discard is not going to happen just by the increased use of descenders, and it's going to take more management measures, or additional management measures, and so is the reallocation that total that is going to lead to the reduction in F discard, or was it just the reduction in F discard due to the descender usage? I assume it's the former, but I just wanted to check on that and clarify it.

DR. SHERTZER: Yes, it's the total F, and so, if F is reduced down to the levels of the projections and then we reduce based on discard mortality reductions, reduce the discard mortality, then we can increase the F towards landings and still achieve that previous level of rebuilding, and, like I said, it's not -- It's based on the total F that has to be reduced to get the discard mortality down from current levels.

DR. BUCKEL: Thanks, Kyle.

DR. NESSLAGE: Thank you. Alexei, go ahead.

DR. SHAROV: I changed my mind, and I lowered my hand.

DR. NESSLAGE: Okay. Thanks. Fred Serchuk, go ahead.

DR. COLLIER: He had lowered his hand as well.

DR. NESSLAGE: Okay. Other questions from SSC members regarding Kyle's presentation and the projections he had run? Chris, go ahead.

DR. DUMAS: Thank you. To follow-up on Jeff Buckel's question, if the discard mortality needs to be reduced by more than what would provided by the descending devices, then what are examples of some management measures that could reduce that discard mortality? I apologize for a question from an economist, and so I'm not sure, and so could you folks give me some suggestions of management measures that could reduce the discard mortality in addition to the descending devices? Thanks.

DR. SHERTZER: I think that's a very difficult decision that the council is going to face. Based on what we're seeing with the MRIP effort, it seems, to me, like there has to be some substantial reduction in overall effort from the general recreational fleet, especially given that it's a mixed-stock fishery, but, how that gets achieved, I think that's sort of the council's domain.

DR. NESSLAGE: Well said, Kyle. Other questions from SSC folks? All right. While we have a pause here, then I would like to open the floor to see if there is any public comment regarding these projections and the material that Kyle has provided. This would be the time, before we start making our decisions and have our deliberations this afternoon. Great. No hands raised. All right. There will be another opportunity for the other agenda items as we proceed through, and so keep that mind.

At this point, do you mind pulling up my crazy summary table again, Chip? I just want to make sure, at this point, we kind of understand what some of our options are, before we break for lunch, so we can mull them over and everyone can think about how they feel each of these addresses the concerns that we might have and what might be the most appropriate approach for moving forward regarding setting the fishing level recommendations.

We have taken off the board as well the Block 3 scenarios, and I am going to lobby heavily that we drop the Block 4 ones as well, and maybe we can make that decision right now, unless maybe I am missing something, but I would like to simplify the discussion. If anyone is strongly in favor of let's say Scenarios 4 or 11, regarding discard mortality, please speak up now, and I would be happy to entertain that. I don't want to be heavy-handed, but I also want to try and move the discussion along and focus on scenarios that we think are the most reasonable. Alexei, go ahead, please.

DR. SHAROV: I have a question for you, Madam Chair. Would you give your arguments as to why you want to drop the Block 4 scenarios? Thank you.

DR. NESSLAGE: Sure. I think -- I won't say it as eloquently as Kyle, but I feel like, if you're going to change the management approach and discard mortality assumptions in the projections from what was done in the assessment, you shouldn't be comparing the -- You should be using the same assumptions in the benchmark calculations, and that seems consistent, to me, and I understand why people might, at face value, look and see and think, oh, you want your assessment calculations, benchmark calculations, to be the same as your projections, but I don't think,

technically, that is the most appropriate approach. Again, I'm not saying it as well as Kyle did, but does that answer your question, Alexei?

DR. SHAROV: Let me try to clarify. So Block 4, essentially, differs only in the sense of how discard mortality is calculated right, accounting for the use of the descending devices, and, as a result, using the different estimated discard mortality rate, correct?

DR. NESSLAGE: No, and it's how the -- I guess probably the label is a bit -- Basically, the mixed approach, and correct me if I'm wrong, Kyle, has to do with how discard mortality is treated in the benchmark calculations and not what discard mortality assumption is included, correct?

DR. SHERTZER: Yes, that's correct, and so, for the mixed approach, the benchmarks are based on Block 3 discard mortality, and then the forecasts are based on Block 4 discard mortality. The ones in this table that are labeled Block 4 have Block 4 discard mortality, but they also have benchmarks that are based on Block 4, and so the reason that may not be desirable is because it's sort of a moving goalpost, and managers put in a management measure of descender devices, and then it may be some concern that that shifts what the targets and limits are, relative to the prevailing conditions when those management measures were put in place.

DR. SHAROV: If I could, we are trying to maintain the F 30 percent, which is the level of fishing mortality with a given selectivity pattern, selectivity at-age, that will keep the fishing pressure such that we have 30 percent of the spawning potential in the stock, and we're improving the survival of the fish that are being released, and so we're essentially changing the -- The selectivity will also change, and we're not able to measure that at this point, but we're changing still the fishing mortality overall, the value that will be applied in these new conditions, and, in other words, the F will have to be slightly different when the discard mortality is different from Block 3.

They seem to be -- Well, you would have to calculate reference points according to the conditions that you will be working with and then, with the twenty-four years, we will be using the reduced discard mortality rate, because of the descending devices, and so, to me, it seems to be more logical to use Block 4, but I guess that's all that -- I thought that the Block 4 is more consistent with the projection itself and how the fishery will operate.

DR. NESSLAGE: Okay. Maybe this won't be as easy of a discussion as I had thought, and I have opened up a can of worms, and so I might have to go back to my original plan, but let's hear from Fred first, and then we will regroup. Go ahead, Fred.

DR. SERCHUK: Thank you, Chair. I thought we had just got finished, before the break, saying there was little difference between Block 3 and Block 4 and that we probably didn't think they were significantly different from one another, and that was at least my interpretation of it, and, for the sake of convenience, we said, okay, let's go on with what had been selected by the review team, which was Block 4.

If you look at the F definition, there is no significant difference between any of the values between four and fourteen, and they are all about 0.21 to 0.22, and so there is no difference there either, and, if you look at the long-term, there is little difference in getting to the rebuilding target by 2044 in any of those, and they all meet that criterion, and, if you go further into -- There is little difference in the catches that would come out, and so I am thinking that these are very small

differences that we're looking at, in terms of the landings in 2028 and the discards, and so I don't see any pronounced differences, apart from the values in the first four rows of the table and the values in the last three rows of the table, other than the recruitment that's been used, which has an effect upon the rate of rebuilding. Am I missing something here? Thank you.

DR. NESSLAGE: No, and I think that's well said, Fred, but I don't know if Kyle wants to -- Did you want to add anything to that, Kyle? It was more of a statement than a question.

DR. SHERTZER: No, and I thought that was a good summary.

DR. NESSLAGE: Alexei, go ahead.

DR. SHAROV: I agree with Fred that that's true, but then we can raise the question of why did we put forward fourteen scenarios, and we didn't have a priori knowledge of what the results would be, and it's an excellent result, but the differences are that small. We would have been in a much more difficult place if there were significant differences, and we would be then arguing more about which logical choice of options is most appropriate for this or likely to happen. Logically, I thought that the reference point periods correspond to the parameters of the fishery that we're expecting to be there for the period of the forecasts, if we are concerned how the stock and when and how soon the stock will recover.

In terms of the overall result, yes, we can sort of collapse this into the combined recommendation, pointing at the practical differences, with -- Well, with the exception of the recruitment, obviously, but, since we initially selected different options with the different combinations, that's what we have to review, and we reviewed it. Thank you.

DR. NESSLAGE: Thank you, Alexei. Okay. We're coming up on 12:15 here, and I don't see other hands raised, and so what I'm going to suggest is if we could take a half-hour lunchbreak, since we still have a lot to go through, and, when we come back, we have -- I would like to tackle the discussion, go back to my original plan of tackling the discussion and talking about recruitment and the alternative recruitment option that the council has asked us to consider. Then we'll talk about the reallocation issue, because, if we -- If I understand it correctly, it might be a moot point, if we go with the reallocation of discards to landings, and so let's go in that order when we return, and let's come back at 12:45. Chris, something that can't wait, or is this to that point?

DR. DUMAS: This is quick. I just wanted to point out, in response to Fred Serchuk's last comment about little relative difference among the scenarios, that there is one important difference between Scenario 7 and Scenario 8, and that is, under Scenario 8, compared to Scenario 7, the landings are 30 percent greater in Scenario 8 compared to Scenario 7, in the year 2028, and so that's a large relative difference in landings, but the tradeoff for that is the probability of rebuilding is lower in Scenario 8 compared to Scenario 7, and that difference in probability of rebuilding I think is significant, right, and so, in Scenario 7, you have lower landings, but you have a 0.77 probability of rebuilding. In Scenario 8, you have 30 percent higher landings, but your probability is reduced from 77 percent down to only 50 percent, and so that's an interesting contrast to consider. Those are differences. Thanks.

DR. NESSLAGE: That's a good point, Chris. Thank you. All right. Let's reconvene, and have a great lunch, and I will see you all back at 12:45. Thank you very much.

(Whereupon, a recess was taken.)

DR. NESSLAGE: I appreciate you all coming back so quickly. Do we have Kyle back? That is the big question, because I have questions for Kyle.

DR. SHERTZER: I'm back.

DR. NESSLAGE: Great. I was looking at our plan forward here, and chatting a little with council staff, and do you mind bringing up the table again? Kyle, I need you to help me understand, so I know what we're doing moving forward here. Tell me about the difference between Scenarios 7 and 5. Did I do something wrong, or -- Those should be the pair, right? You were talking about the F 30 and F rebuild pairs, and they have similar assumptions, but the landings for the F rebuild are higher than the F 30 percent, or am I misunderstanding?

DR. COLLIER: I am just going to highlight the two, so they really pop out in your brain.

DR. NESSLAGE: I am just thinking through the discussion of we'll have to set the OFL, and then, if we want to add additional uncertainty, set a catch level relative to that, and the OFL, I assume, should be an F 30 percent option, but, if the F rebuild that pairs with that ends ups with higher landings, if I read your tables right, which I may not have, does that mean we can't -- How does that happen? I don't think we can do that. Is that correct?

DR. COLLIER: Just a bit of correction here, and I'm looking for Scenario 5 in 2028, and it is showing 26,000 fish.

DR. NESSLAGE: Okay, and so this is a -- When I updated the table to 2028, I missed -- Are they both 26,000 then?

DR. COLLIER: I am looking at Scenario 7 right now, and they are both 26,000, and that's correct. Looking at the poundage, it's 370,000 in 2028 for Scenario 7, and I am scrolling up to Scenario 5, and the poundage is 373,000, and so the OFL here is greater than what the ABC recommendation could be, and so there would be a buffer about 3,000 pounds.

DR. NESSLAGE: All right, and so it's a rounding error on the landings side, but, when you get to the actual pounds, you see the difference. All right. Sorry for the confusion there. Okay. Let's go back to the -- Church, do you have a question regarding that?

DR. GRIMES: No, I do not. I just have my hand raised because I am back.

DR. NESSLAGE: Okay. Thank you. I propose that we tackle the decision, and that's kind of the options that are above the line versus below the line here. In essence, what the long-term recruitment assumption should be, and so we had decided long-term mean, but I would like to -- Because the council has asked us to revisit that decision and look at an alternative -- Is it possible to bring up that other slide? Thanks, Chip. If you look in the other slides, the PowerPoint that Chip circulated --

DR. COLLIER: Is this the one you're referring?

DR. NESSLAGE: Yes, and so, just to rehash our last discussion, if I can put in a nutshell, regarding recruitment assumptions and the projections, we had said, okay, in the recent past, we have, for other species that had let's say abnormally low recruitment, like red porgy, red grouper, black sea bass, we had deviated from our normal MO of using either basically average recruitment or recruitment coming out of the stock-recruitment curve, which is, essentially, the average, and said we're going to use a recent period of recruitment to reflect this kind of new regime of lower recruitment.

Then, when we got to red snapper, we had the opposite problem, and a good problem to have, but a problem from a decision-making point of view, because now, if we assume average, it's not terribly representative of the most recent years, and so we had said, well, that may be true, but the stock is rebuilding, and there's a lot of uncertainty in recruitment, as you can see in this time period, at the end lower-bottom-right graph here, and there have been -- Excluding that last point, because that's not a real point, and that's just a projection, and there are six really high in the last few years, three in previous years, and, prior to that, there were spikes as well, and then some lower estimated recruitments in the more recent years.

We had said there's a lot of uncertainty, and we weren't comfortable going with the assumption of recent recruitment, and that's where we landed it, but, if you could go to the next slide, part of our discussion also centered around, but we didn't have these graphs to look at, the issue that Jeff Buckel raised of the recruitment deviations, and I don't know, Jeff, but would you like to just rehash the point you -- Not rehash, but summarize the point you wanted to make with these as well?

DR. BUCKEL: Sure, Genny. Thanks. I think, in our discussion in the spring about this, there were -- I was a proponent of going with more recent years of red snapper recruitment, the higher recruitment scenario, because we had set this precedent with these other three species, and one of the responses -- I think there were several folks that felt that the recruitment, low recruitment, was for ten to fifteen years, and so I didn't have these plots in front of me, and I thought, well, that is a good argument against going with the higher recruitment, but then, when I went back to help with the report writing, and there was the ten to fifteen years, and I went back and looked at these recruitment deviations, I saw that, for example, for red porgy it's less than ten years, and black sea bass is similar.

I mean, you have -- There are some that are hanging around the average, but then it's whatever, six years for black sea bass, for example, and so, anyway, I thought it was similar -- The deviations were similar to red snapper, and so that argument didn't hold, and so that's when I looked at recruitment relative to RMSY, and that ten to fifteen years did match that issue, but it didn't for the recruitment deviations, which made me think, well, maybe other members of the SSC, if they saw this, they would be more comfortable with a more recent -- A higher recruitment scenario for red snapper. That's it, in a nutshell. Thanks for the opportunity, Genny.

DR. NESSLAGE: I appreciate that. We had that kind of follow-up discussion after the meeting, and so, at the council meeting, the council asked -- They understood our argument, but they asked us to consider perhaps not the super recent recruitments that had been used in the initial set of projections, but a longer time period of ten years of the most recent recruitment, and that would

include some of the higher values that we've seen and some of the lower values that we've seen, and it kind of fits this last period here that you see on the lower right.

Those are the -- At that point, Kyle did, as you can see in the report, run projections with the alternative recruitment scenario of a ten-year mean recruitment as well, and so that's why you see that in the report, and that's where we stand, and we've been asked to consider, and I would just say that, as a preamble, we do have the responsibility to recommend an ABC, or a catch level, that we believe accounts for the scientific uncertainty, including uncertainty in estimates of recruitment, but we aren't bound to follow the council's recommendations, and so we were asked to consider this, but we can decide whatever we feel is most scientifically justified, but, whatever we do decide, we need to be very clear and thoroughly justify it, and so please help me with that as we go through our deliberations and report writing.

With that, I would like to open up the floor for discussion about what folks -- If folks still feel that the long-term mean captures better the scientific uncertainty in recruitment estimates or whether folks would be feel that the ten-year mean adequately captures that as well, because, before, we had been presented with -- What was it, Kyle, and maybe the most three years were the recent recruitment?

DR. SHERTZER: I think it was the full block of that terminal six years, that full set of the highest recruitment at the end.

DR. NESSLAGE: Right, and so it was just the highest values. Here, we're getting some of the high -- If you go to the previous slide, that will bring us back to -- That was the previous runs that we've been showing, and the new runs will include some of those lower ones where the pointer is now, and so hopefully that clarifies it, but, if there's questions, let us know, and I will open the floor for discussion. What do folks think? Jeff, go ahead.

DR. BUCKEL: I think, in the spring, Fred Serchuk had good arguments for going with something that was higher than the long-term mean, because, knowing in the next three to five years, where the ABCs are going to be applied, and it's not going to be this whole projection period, but just in the next three to five years, before the next assessment, that the recruitment -- It's very low probability that it's going to drop to that long-term mean.

Fred had suggested something maybe 75 percent of the recent period, which I think last ten-year mean gets somewhere close to that, probably, because it's got six of the high years, but then several of the low years, and so I think this last ten-year mean matches what is likely going to happen with recruitment over the next short-term period before the next assessment, and so I think -- If I had those recruitment deviations for the other three species in front of me back in the spring, I would have probably continued arguing with Fred for the higher recruitment, and so I guess my vote would be for the last ten-year mean.

DR. NESSLAGE: I will accept that, but no voting. Well stated. How do other folks feel? Thank you, Jeff. Alexei, go ahead.

DR. SHAROV: Well, there is probably -- It is possible that we have an increased level of recruitment in the past ten years, but we will know better in the next ten years, when we will accumulate more information on those year classes, and there could be probably significant

adjustments, or maybe not, but, even if this was the case, we have no model, no model that would, with a modest reliability, predict the future recruitments, and, without understanding the mechanisms, and not being able to predict the expectation of the good luck continuing, assuming that there is some process, which we cannot define, but it's actually real, but we don't know what it is, I don't think that's a reliable policy.

What we do know, to the best that the assessment model allows us to, is the overall variability of recruitment in the past, for the whole past that the period of the assessment covers, and, again, since we have no studies, no models, that would suggest the impact of certain environmental factors, abiotic or density dependence, or the effect of particular predators, or whatever it is, therefore, we're essentially looking at this as a random process with an application to -- I guess with the addition of the simple Beverton type stock-recruitment relationship, and I think there is no other option than the use of the long-term mean for projections and the variance that we have measured for the full time series until the time that we have a better model that would help us to describe and predict the recruitment better.

Alternatively, I would say I agree with you if you promise to bet your house, all your assets, on the increased recruitment being around the ten-year average of the recent period, and I don't think anybody would agree to that, and so that would be just an example of the fact that we are not able to predict, and we don't have a good predictive model yet. Therefore, I don't think that we have any options to choose.

DR. NESSLAGE: All right. I appreciate that. Thank you, Alexei. Fred Scharf.

DR. SCHARF: I agree, and, I mean, it's pretty clear that this is really where the rubber meets the road, right, and this is the most important decision we have, because, if you look at the scenarios above the line, when we assume long-term mean recruitment, then other decisions about discard mortality, whether we use Block 3 or Block 4 or mixed, or whether we reallocate landings, savings from discards, using descenders, into landings, those decisions matter.

If we assume the higher recruitment, those other decisions don't matter, and we rebuild quickly, within five or six years, or at least have a 50 percent probability of rebuilding within five or six years, in all of those cases, and so the recruitment question is the biggest one we have, and I think -- I mean, when I look at the red snapper data, what I see in the recent period -- Obviously, we have some high recruitment, but, if you look over the last fifteen years or so, it seems like what we've entered is sort of a new regime, or a new period, with a lot more variability, where you have some periods, some high-recruitment events, three years or so, in the mid-2000s, followed by another five or so that were well below average, in the late 2008 to 2012 period, and then, beginning in like 2013 or 2014, we have six years of very high recruitment again.

You're seeing a lot more variability in these periods of high and low recruitment than you were seeing earlier in the time series, which is a little different than what you were seeing in some of the other species, and we also have a precedent for using low recruitment when we see recent low recruitment, and I thought we also had some -- There was some evidence from the fishery-independent surveys that they reflected these higher catches in those surveys, in addition to the model-projected recruitment, and so the model-predicted recruitment, and so I think the ten-year average, because it encompasses six high years, as well as those three or four lower years, captures

some of the more recent uncertainty, and so I am comfortable moving forward using this more recent ten-year mean.

I think we just need to look at the fact that we've also changed, in terms of uncertainty in this fishery, in terms of recruitment, and I'm not sure if that's captured in the projections, in terms of how recruitment is drawn in the projections, if the more recent higher amount of uncertainty is built into that.

DR. NESSLAGE: Kyle, can you address that question, please?

DR. SHERTZER: What's the question exactly? Is it how is the recruitment uncertainty built into the projections?

DR. SCHARF: Yes, and so, if you look at the last ten-year mean, I would assume that the standard deviation around recruitment is larger than it would be for the long-term average, and so is that incorporated in terms of how recruitment is sort of drawn each year in the projections, or is it just a fixed number?

DR. SHERTZER: It's not just a fixed number. It's built-in in a couple of different ways, and so the first level would be at the ensemble level, and so which iteration, and that mean would be different across each iteration, and so, for any particular replicate, that mean would be at a fixed value, but then, also, the recruitment variability in the stochastic recruitment is drawn from that same ensemble, and so the sigma R would differ across each of the runs, and that would determine the year-to-year variability in any particular projection, and so I guess the two levels, and the first one is what's the mean recruitment that differs across all of the ensemble iterations, and then the year-to-year variability would differ within any -- The year-to-year recruitment would vary within any particular projection run, and then those are all put back together to show the uncertainty in those plots. Does that get at what you're asking, Fred?

DR. SCHARF: Yes, and I just wonder what informs those. In other words, the year-to-year variability, how is that constrained in the model? Is it based on the observed recruitment, or at least the output recruitment, from the stock assessment?

DR. SHERTZER: That variability is the sigma R, which is estimated within the assessment run, and the sigma F would vary from run to run, but sigma R is -- Even for the runs that are based on the long-term average, the sigma R is the variability from the full time period, but, I mean, even for the runs that are based on the last ten years for the average, the sigma R is based on the full time period, the variability.

DR. SCHARF: So it's not based on just that most recent last ten-year period, and it's based on the full time period?

DR. SHERTZER: Yes, that's right. The year-to-year variability is.

DR. SCHARF: Okay.

DR. NESSLAGE: Thank you, Kyle. Fred, does that address your -- I appreciate you sharing your thoughts, and does that address all your questions?

DR. SCHARF: Yes. Thank you.

DR. NESSLAGE: Fabulous. All right. George, go ahead.

DR. SEDBERRY: I support using the ten-year recruitment scenario. It seems to me that the difference between the long-term and the ten-year recruitment is a reflection of the management restrictions, pretty severe restrictions that have been put in place, and the industry going along with those restrictions, and it resulting in higher recruitment, and so the management that we've used in the past has given us a positive result that we should carry forward into management in the future, and so I would support the ten-year recruitment average.

DR. NESSLAGE: All right. Thank you, George. Scott, go ahead.

DR. CROSSON: What George said was very well put, and so I am still thinking on that one. Could you please go back to the other slide for a minute, the one that Jeff had, where he was showing the different species and the time periods we had chosen? The 2020, can you help me out? I thought the terminal year for red snapper was 2019, and why is 2020 there?

DR. SHERTZER: You can ignore that point. It's just a forecast year, and it's not actually estimated, and you can see it falls right in line with that earlier time period in the 1950s through 1970s, and so it's being pulled back to the long-term average mean, but it's not actually estimated.

DR. CROSSON: Okay. Thank you, Kyle.

DR. NESSLAGE: Was that all, Scott?

DR. CROSSON: Yes, and I just was getting confused of like what ten-year period we were looking at, which ten years, and so it wouldn't be the 2020 datapoint, and it would be the 2019 backwards.

DR. NESSLAGE: Absolutely, and I think the exact years -- Kyle, my screen is freezing up.

DR. SHERTZER: 2010 to 2019.

DR. NESSLAGE: All right. Thank you. Okay. Fred Serchuk, go ahead.

DR. SERCHUK: For all the reasons that have been pointed out by the preceding speakers, except for Alexei, I would go along with the ten-year period. Thank you.

DR. NESSLAGE: Thank you. All right. We haven't heard from -- I don't want to force everyone to speak, but, if you haven't had a chance to speak yet on this topic, I would really appreciate hearing from as many folks as possible, and, just because the last four or five people have been in favor of one, it doesn't mean that you can't argue, and so feel free to speak your mind. Anne, go ahead.

MS. LANGE: I concur with George and Fred, especially based on George's comments, and so the ten-year. Thank you.

DR. NESSLAGE: All right. Thank you, Anne. Other folks we haven't heard from. Eric, go ahead.

DR. JOHNSON: I support using the ten-year recruitment as well. I think it -- With the idea that the other three were sort of, I guess, more risk-averse, because they were going down, and so the projections were less, but I think the same rationale sort of applies here, and I think we can go with the last ten-year, would be my recommendation.

DR. NESSLAGE: Thank you. Wally, what are your thoughts?

DR. BUBLEY: I'm just kind of echoing everything else at this point, because, even in those lower years that we have, they're kind of -- If you lop off the very end high points, they're still kind of line, the baseline, of what those earlier years were, and we don't really even have any of those really low years that we've seen in some other ones, and so, I mean, I'm in favor with the ten-year approach as well.

DR. NESSLAGE: All right. Thank you. Church.

DR. GRIMES: This discussion reminds me of something I read a long time ago, that recruitment was the holy grail of fisheries science, and so I guess this is helping to demonstrate it, but, based upon the reasons that most everybody has stated, I think the last ten years is a reasonable approach to take.

DR. NESSLAGE: Agreed. Someday, maybe someone will find the holy grail.

DR. GRIMES: Probably not, actually.

DR. NESSLAGE: Right. Thank you, Church. Dustin, go ahead.

MR. ADDIS: I think I kind of side with Alexei's points. We don't have a recruitment index, and we don't have any evidence of a fundamental shift in red snapper recruitment. Statistically, we would need more data points to calculate the true mean of a dataset and that's sort of what is in my mind. We had a period of low recruitment between 2010 and 2012-ish, and let's just say we'll have another period, in four or five years, of recruitment that low, and there's no telling. There is no stock-recruitment relationship in the model, and these are all my thoughts.

DR. NESSLAGE: Those are all very good thoughts, and they are serious questions that we should bring up, and, well, I won't say anything yet. Scott, go ahead.

DR. CROSSON: To my non-stock-assessment brain, I tend to interpret recruitment in these types of models as demonstrating how the fishery is responding to whatever regulatory and environmental factors are present, and it's not something that you directly observe, but it's something that you infer from how the fishery is performing, and I agree with what George said. The best explanation I can come up with is that the serious restrictions that have been placed on red snapper over the past decade are having a positive effect on the species, and so I'm willing to go with the ten-year.

DR. NESSLAGE: Thank you. Anne, go ahead.

MS. LANGE: I must have forgot to put my hand down. Sorry about that.

DR. NESSLAGE: Vestigial hand. The questions -- We don't quite have consensus yet, and there is definitely a leaning towards the ten-year being people's preferred option. I would ask folks to think about, and potentially consider, commenting on -- We're going to have to describe, in the report, how the ten-year average adequately captures uncertainty in recruitment, because we argued before that the last three years didn't, and so is the value of 718, versus 437, justifiable? We're going to have to be able to explain that, and so think on that, and, while we're thinking, Wilson, go ahead.

DR. LANEY: Thank you, Madam Chair. I can see using either the ten-year or the long-term average, and I guess I'm comfortable with both. I tilt toward the ten-year average, I think because of the point that George made about, obviously, if you are applying severe management measures to the stock, which has been done, and it certainly appears that the stock is responding to those severe management measures, as long as those remain in effect, then you could reasonably expect that that value that was generated during the period when those management measures were in effect should continue into the future.

However, I think, as Eric noted, there is all this environmental uncertainty, and there is no guarantee, and Alexei asked us to bet all our assets on it. Well, I don't want to bet my assets on it, but I think that, as long as the council sticks to conservative management, which they have, then the ten-year scenario is acceptable to me, but, again, stressing that I see the arguments that Alexei and Eric made as well, and I am ambivalent.

DR. NESSLAGE: I appreciate that, Wilson, and I think some of our counterparts -- Someone who has been on the New England SSC tell me, but I'm pretty sure the Mid-Atlantic uses recent recruitment for all of their projections, and I'm just curious if folks on the -- I know several of you have served on the New England Council, and I would be curious what you all have experienced, and I don't know, off the top of my head, but, in the meantime, let's hear from Chris.

DR. DUMAS: Thanks. If we're looking at -- If we want a method to use across different species, so we could be consistent in these types of decisions across species, we could look at a time series, a time series method, and look at what lag lengths are significant, and then go back in time that number of lag lengths. If the time series model of recruitment says that lags are significant five years back, then we could look at the last five years, and the lag links that would be significant would differ from species to species, but we would be using the same method to determine how many years back to look, and we would use the same method to determine the number of years back, and the method would be the same across species.

When it comes to justifying our decision of lag length, how many years back to look, that's one method that we could use, use a time series model. There are different types of those, but that's something that we could do, and, if no lag lengths are significant, then we could use the long-term mean, use the long-term mean. Thanks.

DR. NESSLAGE: I think that's a great suggestion, and I hope -- I am writing it down for the working group to work on, and I don't think, at this point, the -- My understanding is the council did not want to wait until the working group finished those recommendations to see what the cross-

species recommendations would be, which would probably be deliverables in April, and so I love your suggestion, and I hope that the working group will do exactly that, but I don't think we will -- Unless someone corrects me, from the staff or council, I don't think we'll have the time, or the opportunity, I should say, to do that at this point.

That's not to rain on anyone's parade, but I love the idea, and I hope that we will have the opportunity to pursue that in the next few months, especially given that we really need to come up with something that works across species and makes sense, so we're consistent. Alexei, go ahead.

DR. SHAROV: Thank you, Madam Chair. Just to reiterate your very important question that you posed for the committee, and that's exactly what I wanted to ask, is you have to explain why, arbitrarily, we are reducing the level of uncertainty by selecting the ten most recent years to represent future variability in the recruitment, where this ten years is only a subset of the full time period and the full PDF function. You clearly would see that by doing what you are proposing to do, and you are arbitrarily reducing the level of uncertainty and the expected, obviously, for the predicted recruitment.

Then, therefore, the consequences of this choice would be quite significant, considering that we are projecting forward to twenty-four years, two-and-a-half decades, and, therefore, in my mind, as much as I want it to be a higher continuous level of recruitment, it is a quite risky judgment at this point, and so these are a couple of additional arguments that I wanted to bring to your attention. Thank you.

DR. NESSLAGE: Let me see if I understand what -- I think I understand what you're saying, but I am wondering if we want to start jotting down some of our thoughts, regardless of what we decide on, and these are themes that keep coming back up. No matter what recruitment we decide is appropriate to use in the projections, these are being modeled forward in time to determine the probability of rebuilding, and that is one of the considerations we have to keep in mind, that this is a stock that's undergoing a rebuilding plan, and it's overfished and overfishing is occurring, and so we need to -- When we talk about scientific uncertainty, we need to think about how certain we are that these recruitments will stay at that recent ten-year average and achieve that rebuilding plan, right, and is that kind of where you're going, Alexei, with the latter part of your comments?

DR. SHAROV: Yes, and so we are understating the uncertainty in the future recruitments by selecting only a ten-year period to portray future recruitments that we are predicting.

DR. NESSLAGE: So I guess what I'm saying -- I am trying to tease apart -- I think people are largely feeling comfortable or feel that the ten-year average captures recent variability in recruitment, but then the question becomes can you project that forward, and is that adequate to capture what might happen out through 2044, in order to estimate the probability of rebuilding, right, and that's kind of what you're saying?

DR. SHAROV: Yes. Given what we know of what the stock was capable of overall for the full time series.

DR. NESSLAGE: Okay. I just wanted to make sure that everyone is understanding what you're talking about here. Fred Serchuk, go ahead.

DR. SERCHUK: Thank you, Chair. We do know there's been good recruitment in the past, in the recent past, for this stock. That recruitment is going to -- It's still not finished contributing to increases in biomass in the stock, and we're fortunate that we have a number of very high recruitments that are still contributing, via their growth and via the restrictions in the fishery, to increasing stock biomass.

I agree with Alexei that predictions that go out for twenty years are highly uncertain. They are highly uncertain no matter what, and this is the reason that we have operational assessments and that we have benchmark assessments that go on that are scheduled before the twenty-year period is over, simply because no projections that I know of are robust for much longer than ten years, and you're lucky. My feeling is that the methods that we're using for ten years are consistent across all the management forums, scientific forums, that support management that I know of, particularly if it looks like there's something different in the recent years than earlier in the time series.

We should be looking at -- This is the reason that I asked earlier on when was the research track assessment scheduled, and the answer I received, I think, was 2028, according to the current planning, which means that we'll have information probably on recruitment in the fishery probably through 2026, and so we should be asking ourselves, with respect to the impacts on recruitment, will the recent recruitment that we've had, and we know have had, because we've seen it retrospectively, still be contributing to the stock in a meaningful way over the next five to six years, and my answer, my feeling, is absolutely yes, and so I think it's --

I think the ten-year recruitment is appropriate, and I think those good recruitments that come in from using the ten-year average, and applying it stochastically, are not going to be felt until much later on, because we know we have good recruitment now, and so I see no reason, no reason whatsoever, to go to long-term recruitment when the past ten years have generally been twice as high as previously, and it will have very little impact in the next five or six years, and so my feeling is to go with the ten years. All projections beyond ten years, for any stock, are going to be highly uncertain. Thank you.

DR. NESSLAGE: Well said. Thank you, Fred. Wilson, go ahead.

DR. LANEY: Thank you, Madam Chairman. Feel free to call me out of order here. I was going to ask -- Go back and ask Chris about his suggested lag analysis, but, if you think that's an unproductive topic, I will defer the question, and I can talk to him offline about that.

DR. NESSLAGE: I might ask you to wait and see, and, perhaps, if we have time at the end, we can have a broader discussion, because we do have the working group task on the agenda, and that's still just a draft, that statement of work, and so that might be the time to bring that up, if you don't mind tabling for the moment.

DR. LANEY: Okey-doke.

DR. NESSLAGE: Don't forget, and don't let me forget. Thank you. Anne, go ahead.

MS. LANGE: Just looking at one of the plots that shows recruitment scenarios over the long time period, if you look at the distribution, over 80 percent of the early years, prior to 2010, are within

the range of the recent years, and so we're only looking at four or five points that are less than any of the more recent values, and I don't see any reason not to use just the recent ten years.

DR. NESSLAGE: Excellent. Thank you. Okay. We don't have complete agreement, but I would say that I am hearing most of the committee leaning towards ten years being an option to adequately characterize -- It characterizes enough of the scientific uncertainty, at least, for setting our catch levels between now and 2028, when all sorts of things could change, given we'll have a new count, and probably a research track assessment, et cetera, and so I guess I will call on Fred Scharf in a moment, but I would ask -- I hate to put folks on the spot, but, those who aren't supportive of the ten-year option, if you would be willing to compromise or perhaps consider it with very strongly-worded caveats in the report, and I will let you think on that while we hear from Fred Scharf. Go ahead.

DR. SCHARF: Genny, just a broad sort of question, or request, and can you clarify exactly how the projections affect, sort of explicitly affect, our Fs and our setting of ABCs moving forward? In other words, are we locked into F30? Because, if you use F rebuild to 50 percent, and we use the high recruitment, it changes the F rebuild, right? It increases F rebuild from like 0.2 to 0.4, based on the previous scenarios that Kyle had run for us. In other words, if we use the high recruitment, there's a 50 percent probability that the stock is rebuilt in five years, and so how does that -- In terms of our protocol, how does that factor in, exactly, to how we set the Fs that we use and the ABCs that we set in this next recent period?

DR. NESSLAGE: Right, and so I think -- I am going to look to council staff, but my understanding is if -- Well, we wouldn't know if we were rebuilt until we do the next assessment, correct, and so, if that next assessment is coming somewhere in the realm of 2028, these ABCs, as I understand it, would stay in place, unless the council reconsiders F 30 percent, or the rebuilding timeframe, in the meantime, at which point we would be asked to reconsider. Chip, is that correct? Am I characterizing that properly?

DR. COLLIER: That is correct, and, if you guys want to review how things are going along for red snapper, you can always make that request, and you can revise your catch level recommendations throughout the time period. It is a bit more challenging in the South Atlantic than in the Gulf of Mexico, and they typically have some interim analyses that are being done in between stock assessments, and we don't have that for the South Atlantic, and so I believe the Beaufort team is going to be working on that, and hopefully we're going to have it in the future, and so maybe, in some of these discussions, you guys might want to suggest that, if interim projections are done, this could be something to look at. It could be a very short list, maybe one or two items, to look at to see how the stock is doing and seeing if the catch level recommendations -- If you guys are still comfortable with the catch level recommendations that you put forward.

DR. NESSLAGE: Right, and so we would probably be looking for some indication of recruitment, since that's what we are most concerned about, and so we'll have to think about what that might be, and thank you for that, Chip. Fred Serchuk, or, first of all, Fred Scharf, did that answer your question?

DR. SCHARF: Yes. Thank you, Genny.

DR. NESSLAGE: Thank you. Fred Serchuk, go ahead.

DR. SERCHUK: Thank you, Chair. Can we go back to the table that you prepared that lists different scenarios for a second? I am not understanding the comment -- The scenarios that use the long-term mean and the scenarios that use the last ten mean all use an F of about 0.21 or 0.22, and am I mistaken?

DR. NESSLAGE: No. I don't think so.

DR. SERCHUK: So I guess I don't understand the previous comment. Under either case, you're applying the same F, in terms of the rate, and the only difference is in terms of the incoming recruitment, or the recruitment series that you're drawing from. One is the long term, and one is the last ten years.

DR. NESSLAGE: Right, and it's the actual landed --

DR. SERCHUK: I understand that, but the Fs are no different.

DR. NESSLAGE: What are you raising? I am just confused, and I'm not trying to argue, but what are you actually raising the question about?

DR. SERCHUK: I thought the previous comment was the Fs are going to be different under the two scenarios, but it looks to me like the Fs are exactly almost identical.

DR. NESSLAGE: No, the Fs end up being pretty much the same. It's all a matter of what those -- What the anticipated landings and discards will be.

DR. SERCHUK: Yes, and the other question I would ask, particularly to those people that are familiar with the fishery, is, is there any indication that there is any less young fish around than has been in the recent past? I mean, that is, are there observations that recruitment is still as good as it has been over the past three or four or five years, in terms of what they're seeing in the water? Thank you.

DR. NESSLAGE: I'm not sure who could speak to that. I don't know that the Beaufort Lab has analyzed the most recent information, or the survey trends, and does anyone in the group know? Raise your hand. Wilson, do you know?

DR. LANEY: No, ma'am, but I think Marcel was on the call earlier, and I think he could probably answer that question. Someone speaking earlier alluded to the fact that the fishery-independent time series, and I think Wally is going to answer it, but I think the answer is yes, but I will let Wally answer it.

DR. NESSLAGE: Good idea. Let's hear from Wally.

DR. BUBLEY: All right, and so the issue is the most recent past, and, obviously, this year is still ongoing. 2020 was kind of a wash, in terms of our regular survey efforts, and so the only information we have is from 2019 previously, and so we don't have really anything new to add over the past two years, unfortunately, because of that, and so I can't say anything other than that,

in 2019, there were smaller, younger fish there, but, due to the pandemic and most recent years still ongoing, I don't have a general conclusion for that.

DR. NESSLAGE: Can I just follow-up with a question, Wally, and maybe you're not the right person to answer this, but you would know who -- Maybe it's Marcel, but is an annual update of the index doable?

DR. BUBLEY: Yes, and we present that every year. That is that trends report that we present, and so, yes, the thought is we would have that ready after the season is over, so we can look at where it is in relation to the previous years.

DR. NESSLAGE: Thank you, and, Kyle, the estimates of discards at-age, is that something that -- Is that a huge lift, or is that something that might be doable on an annual or some sort of regular basis?

DR. SHERTZER: Well, we get discards at-length, and a lot of that is provided by the State of Florida, and other states, from the headboat observer program, and we did have some commercial observations in this last assessment too, and so I think, as far as using those for monitoring in the future -- I don't know what they have from 2020, but, going forward, I think those will be available.

DR. NESSLAGE: Great. Thank you, because that would give us -- That has given us an idea, in the past, of these -- What catches are of these younger, smaller fish, at least. Okay. Alexei, let's hear from you.

DR. SHAROV: Just very briefly, while we're looking at this table, if we assume the average level of recruitment is up in the last ten years, and, for different combinations that were considered, there is a 100 percent probability of rebuilding by 2044, right, and it's 0.999, and doesn't that feel like too good to be true, when you compare this to the recruitment level for the full time series, which encompasses this ten-year period as well?

Given the different sub-options, you have a much lower probability of rebuilding, in some cases below 0.5, and mind you that it's based on the probabilities that you have for like a thousand cycles of the trajectories, while, in reality, we'll have only one realization, the actual realization, for each year, and, to some degree, for each following year, it will be dependent on what happened in the previous year, and they are not independent in that sense, and, whatever we predict the actual trend, it certainly will be different from what we're predicting, but, nonetheless, just look at this, and doesn't that -- It makes you pause and think.

Are we being too optimistic with selecting a ten-year -- The last-ten-year period for the recruitment expectations that we're predicting, based on that? I think it's quite instructive, in terms of incorporating uncertainty and our understanding of what recruitment variability for red snapper is and will be.

DR. NESSLAGE: Alexei, I will comment on that, and I actually thought about not even putting those numbers in that table, just because I think we discussed last time that, assuming that recruitment would extend out to 2044 is ridiculous, and no one here -- I don't think, and maybe I'm wrong, anyone on the committee would agree with that. It's more that he had to run those numbers out, and that's just the way the analyses go, but, as has been pointed out before, any of -

- Well, many of these scenarios will get us to the probability of rebuilding in 2044 of 50 percent. It's a matter of what might actually be achievable in the next ten years, and, actually, less than that, to be honest, because, I guess, what is it, and 2028 is not that far away. I wouldn't even look at those 0.999, and I don't even consider -- Personally, I don't even consider them realistic.

DR. SHAROV: But the ABCs that we will be recommending will be dependent on our choice.

DR. NESSLAGE: But we're not going to let them go out that far, right? I don't know, and I'm sorry that I'm arguing with you, and I should stop. Let me put my chair hat back on and call on Fred Serchuk.

DR. SERCHUK: As I said before, any long-term projection that goes out to beyond ten years has lots of uncertainty, and so I would agree with Alexei, and that was one of the reasons that, earlier on, I indicated that it would be nice if the table, particularly for using the last ten-year means, would indicate when it would be a 50 percent probability of reaching the rebuilt target.

I can tell you, having looked at the data, that, for Scenarios 9, 11, 13, and 14, which were previously in the table that the Chair put out, the probability of being at the rebuilt level of 50 percent is attained in 2026 or 2025 in all of those ten-year mean projections, and, to me, that says, well, gee whiz, we're now projecting out not twenty years, but we're projecting out a much shorter period, using the high recruitment that we know already exists in the fishery, and that seems reasonable that stocks could rebuild at a 50 percent probability of being rebuilt in four or five years.

Other people on the SSC have noted that as well, and so that's why I am very confident, not in the 0.999, but, if you look at the 50 percent levels, the 50 percent probability of being rebuilt, that could happen as quickly as five or six years, and I think the council would very much like that to happen, quite frankly, and so that's why I suggested that perhaps we include that in the table. Thank you.

DR. NESSLAGE: Okay. Since we're looking at this table, could we possibly un-highlight 5 and 7 again, now that you have corrected my mistake, and, again, let's hide the ones we've already -- Just for my sanity, but the ones that are off the table.

DR. SERCHUK: Chair, if I may, those would be 2026 that would apply to all four below, the 50 percent probability of being rebuilt.

DR. COLLIER: So it was Scenarios 9, 11, 13, and 14? Is that correct, Fred? Genny, which other ones did you want marked out, or hidden?

DR. NESSLAGE: The 9 is out, and I think those are -- I am just looking at mine, and so 15 and 16 are essentially just 13 and 14, right, because you had to cap them, Kyle, at F 30 percent?

DR. SHERTZER: Yes.

DR. NESSLAGE: All right, and so this is really what we're looking at, unless we manage to come up with something different, but I think this is more than enough to look at at this point. All right. We're at an impasse here, and we need to come to consensus. I will remind folks that consensus doesn't mean that everybody is happy, but everybody can live with it, and one way to try to live

with it is to have your voice heard in the report, and so I'm going to look to folks who are not supportive of the ten-year mean options and ask them, is there anything that we can add to the report of warnings, monitoring plans, revisiting our decision in X number of years, or annually, and we could go crazy and have this discussion every year, if you really want to, although, Jeff, it's all you in a year.

We have to come to a decision, and management needs to move forward, and so I'm not hearing anyone changing their mind. If we can't come to consensus, we're stuck with the current ABCs as they stand, correct, Chip?

DR. COLLIER: I mean, I -- If you guys don't come to consensus, you guys can provide what you think is a reasonable range, and it sounds like there are two reasonable hypotheses that you guys could put forward to the council and have them select which one is most appropriate, given their level of risk. If you guys can't decide, based on the scientific uncertainty, you put forward both of them and say these are two reasonable options, and we cannot make a scientific decision based on those, and let the council make a selection based on their risk tolerance for it.

DR. NESSLAGE: Thank you. That may be where we go. Let's hear from Anne, and then we may table the recruitment discussion for a moment and go to the reallocation discussion, which should be just as much fun, if not more. Anne, go ahead.

MS. LANGE: I was wondering if we can do like a minority report, or would that be considered voting?

DR. NESSLAGE: No minority report. Sorry.

MS. LANGE: All right. Based on what you had said before though, if it was -- And what Chip just said. If we go forward with what the semi-consensus is, with the caveat that there is a concern about -- Well, whatever the consensus position is, just to explain, again, like Chip said, the range of options.

DR. NESSLAGE: Yes, and we may have to go there, and I think you're right. It looks like -- John Carmichael, is this a procedural thing? Do you want to bop in?

MR. CARMICHAEL: I did, if I may, and it's just procedural, and I'm just following up with Anne. I guess, to give a little perspective of how the consensus has been viewed and the history of minority reports, it's always been recognized that there may not be 100 percent agreement and happiness on every recommendation, and so the intent of doing this consensus, as opposed to voting, has always been so that the council sees the full range of opinions and concerns.

You may be in a situation where you have knowledge that the majority of the committee felt that this was the appropriate recommendation, and these were the reasons, and then you could note that there was another group of members that felt that, for these other reasons, this was the appropriate recommendation, and I feel like you have the reasons there in both directions there with those points, and it may be just a matter of summarizing.

I know saying majority may -- Some people may say, well, that crosses over the line, and we might as well have been voting, but I think it's a little different than giving something where you say,

you know, it comes down to seven to eight, or six to ten, or whatever it may be in a formal vote. While that is really, hopefully, avoiding formal minority reports, the opportunity has always been there to say, well, some people really felt like this was the more compelling argument, and these are the risks, and to really just make sure that the SSC consents with how the issue is presented in the report, in that the full range of opinions is reflected.

DR. NESSLAGE: Thank you, John. I feel that's where we're headed. I appreciate you clarifying. Scott, go ahead.

DR. CROSSON: I just wanted to state that, although my preference is for the ten-year period, I think it's acceptable to use the longer time period, and so, if the members that are right now in the minority feel that strongly about it, then, yes, I will go along with the longer time period, but I just think this committee needs to make a decision, and we need to make one ABC recommendation, and I don't want to send anything to the council that's not perfectly clear on what we think the ABC should be for red snapper, and so I don't think that the conclusion following this should be that we can't come to a decision and we have to revert to whatever the existing ABC is.

I think this committee was -- Unless I am misinterpreting, or misremembering, I believe this committee had decided on the longer-term time period, originally, when we met in our spring meeting, and so, if we can't agree on ten years, then we should go with the longer time period and just be done with that, and I don't think we need to get too far into this, and that's just a procedural preference that I have.

DR. NESSLAGE: I think we weren't given -- We were given the three-year or the long-term average, and so folks really didn't like the three-year, but now there seems to be this intermediate option, and people really tend to like intermediate options, and so I think that's why this is happening, but I get what you're saying. I am not excited about offering a range either, but, given some of the -- Honestly, many of these are very similar, and so, depending on where we go with our next decision, it might not be the end of the world if we give them a range, because it will be very, very close, depending on how the rest of the afternoon goes, but we can --

DR. CROSSON: I will have a hard time with providing a range instead of a clear ABC, and so that's another question for consensus, and I just want to put that out there.

DR. NESSLAGE: Well, I think we know where the range will end up, and so it's really just passing the buck, and so I agree with you that it's probably best that we don't. Alexei, go ahead.

DR. SHAROV: I think what Chip described as an additional explanation of a possible way forward is a great way to go forward, because the results -- Even the mid-term projections are highly dependent upon assumptions that are being made here, and we have -- We will only know about the final outcome in the future, whether we were right or whether we were wrong, and I feel it's --

I am generally always willing to compromise, but, here, I think it is critically important to inform the council of the risks involved or the assumptions that we're making by using the different sets of projections, and the consequences are rather different as well. For the completeness, the analysis, and for the review by this committee, in this case, it would be important to describe both

scenarios for both the long-term recruitment level and the most recent ten-year recruitment level, and I think that would be the best and the most honest solution.

DR. NESSLAGE: I am so confused now. I apologize, but, briefly, what are you proposing? I got lost.

DR. SHAROV: I just repeated what Chip had suggested, that we describe two scenarios, right?

DR. NESSLAGE: Yes, and Scott says he's not going to let that happen.

DR. SHAROV: Essentially, you have the forecasts that are based on the long-term and the ten-year-period-based recruitment level, and, therefore, it's based on these two scenarios, and we will provide the accompanying risks, probabilistically and qualitatively as well, and which one is risk-averse and which one is probably risk-prone, or which one is more precautionary and which one is not.

DR. NESSLAGE: So you're arguing that the assumption about recruitment then is a management risk, which I am not super comfortable with. I feel our inability to predict future recruitments is a scientific uncertainty.

DR. SHAROV: Well, it is, but we're not quantifying the uncertainty that is involved here when we're cutting off a period which we're using for the future recruitment predictions.

DR. NESSLAGE: All right. I see you writing that, Chip, but I'm not sure we're there yet. Fred Serchuk.

DR. SERCHUK: Thank you, Chair. I am concerned that we haven't been consistent with how we've handled recruitment that we have seen in other stocks, but, more importantly, I think our credibility is going to be undermined, quite significantly, if we go with multiple scenarios, and I thought that -- I wasn't counting, and I wasn't adding it up, but I thought there was a significant number of SSC members that thought the ten-year recruitment scenario was appropriate.

That was a scenario that the council asked us to look at. Then, when we've looked at it, we said, yes, that seems more reasonable than the three-year, the short-term, that we did, and it includes both high and low points, and we thought that was a reasonable way to move forward, and I think it is. It's consistent with how we've handled previous stock assessments, when we always have to worry about recruitment, and this is also buttressed by the fact that we believe that, because we're going to have a research track in 2028, that we can't go far wrong in recognizing that we have had high recruitment, and that high recruitment is still going to be in the stock, even up to and including the last terminal year that will be considered in 2028, and those are things we know.

I think we're really underselling our credibility if we put multiple scenarios or we go back to a scenario that includes the entire time series. Sorry, but I have been in this situation before, and I think, if we go with anything other than a single recommendation, although we can point out some of the uncertainties in our comments, I think our underlying credibility is just going to be shot. Thank you, Chair.

DR. NESSLAGE: I agree with you, Fred, and I feel -- I really wish we had the chance to get the working group to provide recommendations for us before we had to make this decision, but we have not been granted that, and so I think we need to provide an ABC, and, if the council would like to revisit those, after seeing the recommendations of the working group for multiple species, then perhaps that's the way to go. Chip, go ahead.

DR. COLLIER: I just wanted to give kind of -- Describe what happened at the council meeting, more or less, and this was a big discussion. The council recognized that the SSC wasn't comfortable with that short time period that was provided, and the Science Director kind of gave some guidance to the council and had indicated that a ten-year period was used in the Southeast for projections of other stocks. It's not always used on the Atlantic side, but it is something that is used in the Southeast Fisheries Science Center, and so that was one of the reasons that that ten-year time block was used by the council, and it just so happened to encompass variability in the overall recruitment time series, and so it wasn't just a random pick, but it was suggested by the science staff.

DR. NESSLAGE: Thank you for that clarification. That helps, Chip. All right. I am going to take Alexei's comments, and then I think we need to break from this and talk about reallocating landings to discards, and so, Alexei, go ahead.

DR. SHAROV: Sorry. I just didn't put my hand down. I don't have additional comments.

DR. NESSLAGE: All right. At this point, we haven't heard from absolutely everyone, but I agree that the majority of the group is leaning towards the ten-year option, and I will take the fall for it, but I don't think that we should be providing a range, and so we can -- If someone -- I think we should continue with the discussion and complete all the rest of our decisions, and, if we have an epiphany about recruitment between now and the end of our discussions today, given that it's already two o'clock, then we can decide differently, but I think it looks like we are leaning towards the ten-year option, with major caveats and concerns listed in the report, as John and Chip pointed out that we can do.

All right, and so I would like to talk about reallocating discards to landings, which has a big impact, and so that is -- If we pull up the scenarios, at this point, we're looking at Scenarios 8 or 14, and this is where Kyle is iteratively going through and saying, okay, if you reallocate landings to discards, or, excuse me, discards to landings, here's what you get. I would like to entertain discussion about the process. How do folks -- This is one of the ones that is a super gray area as well. This has management risk associated with it as well, but I would like to hear a bit about what people think about the methodology, from a scientific point of view. Are folks supportive of this approach, or would we like to take these off the table and concentrate on ones that don't reallocate discards to landings?

DR. COLLIER: Genny, just for clarification, should I hide the long-term mean, if the focus is on the last ten?

DR. NESSLAGE: I think so. I am not happy that we can't come to a clear consensus, but I feel we have to move on at this point. We could spend the next month talking about this, with no clear information to elucidate what our decision should be. Alexei, let's hear from you.

DR. SHAROV: Thank you, Genny. I would like to ask Kyle to help us. I want to know, either in units of fishing mortality or in absolute numbers, how much will be allocated from discards into landings, if we say let's do that, and how much of the additional reduction in fishing mortality we're looking at, in terms of reducing the overall mortality to be either F 30 percent or F rebuild. Do you understand what I'm asking? Is it clear, or should I clarify what I'm asking?

DR. SHERTZER: I think I understand the first part, which you can look at a comparison of the tables that have reallocation versus the ones that don't have reallocation, to see how much it affects, or how much the increase in the actual landings is.

DR. SHAROV: Kyle, what I'm looking at is you mentioned, and it's clear to everybody, that we need a significant reduction in fishing mortality, right, and you said earlier that we'll need a significant reduction in discards in order to reduce F, and just getting the descending devices will not do the job, and so we need to reduce significantly F, by whatever value that would be, and I wonder whether this required reduction is substantially higher, that savings that we will get from reducing discards because of the descending devices and reallocating this to the harvest, while, in fact, that could be reallocated towards a required reduction in F overall.

DR. SHERTZER: Maybe, to try to tease those pieces apart, to get at just the descender device savings and effects on landings, then you would compare the two tables that have allocation, reallocation versus no reallocation, but, to get a better indication of how much the overall reduction would have to be, I think you would have to compare sort of the forecast years at the beginning of the forecast to the current levels. I don't think it's straightforward to allocate the reduction in discards completely from the reduction of F to the reduction from the descender devices, just looking at the forecast results, the tables.

DR. SHAROV: But reallocation, when we talk about reallocation and reduction in discards, that is due to just the use of the descending devices, right, and these are the savings that we're considering to reallocate and nothing else?

DR. SHERTZER: Right.

DR. SHAROV: Let me give you an example. Say, for example, if that reduction is, for example, 0.05 of F, and we -- That's what we were killing, right, as a result of the discards that were not surviving, and now we'll be saving those fish, and they will be alive, but they are part of F, and then we say, well, they used to be part of F, and, therefore, the fish that were just decomposing, now we can turn them into the actual landings, and, therefore, landings then increase, and this would be good for anglers, but say, if it's 0.05, but, if, overall, in order to stay at the target F of F 30 percent, 0.21, we have to reduce the fishing mortality from 0.5 to 0.21, by 0.3, and that would be still a huge challenge for the council, how to do that. Is reallocation of this small amount needed, while we actually have a much bigger, still a much bigger, problem of reducing F overall? That is the question.

DR. SHERTZER: I mean, I think you've hit on the most important challenge here. All of these projections are assuming that the overall F has been reduced.

DR. SHAROV: The terminal year F was about 0.5?

DR. SHERTZER: 0.43 or something like that for the three-year average at the end.

DR. SHAROV: Right, and so we have to reduce it by 0.2 or so. The savings that we get in reducing the dead discards are very minor compared to this.

DR. NESSLAGE: It's a good point, Alexei. Chip, to that point?

DR. COLLIER: The council recognizes that they're definitely going to have to address some of the F issues, and they are looking at red snapper, not just in a single action or a single amendment, but it's likely to be a combination of amendments, in order to get all this stuff through, and so I think you guys have made the note that they definitely need to consider things to change the F, and the council is going to be working on that, as far as some of their management decisions going forward, but, if you guys could focus on what issues come up here, as far as the scientific uncertainty associated with the recommended OFL or ABC or rebuilding catch series, that would be greatly appreciated.

DR. NESSLAGE: Thank you, Chip. Others on this issue of reallocating discards to landings? Is anyone strongly opposed to this approach? I will rephrase it that way. Wow. All right.

DR. COLLIER: Sorry. It's me being slow.

DR. NESSLAGE: I thought we had actually come to a decision quickly on something. That's crazy. Wilson, go ahead.

DR. LANEY: Not opposition, Madam Chairman, but a question. If I am understanding all of this correctly, if we are reallocating discards to landings, does that mean, given the existing surveys, would that increase the data stream available to us for future assessments?

DR. NESSLAGE: I am not following. Why would that be?

DR. LANEY: I may be totally misunderstanding this whole discussion, but, if we are actually on the ground finding a way to reallocate discards to landings, in actuality, wouldn't that increase the number of red snapper available for generating biological data and improve our future assessments, or am I just totally misunderstanding the whole discussion?

DR. NESSLAGE: You're talking about MRIP and the Florida surveys and not the fishery-independent surveys. That's what you meant, right?

DR. LANEY: Yes. Correct.

DR. NESSLAGE: Okay. That's where I got confused. I'm like what does that have to do with -- Okay. I am following you now. Yes, that might give us more information about what is being caught, but I would assume, unless -- Kyle, am I wrong? Am I not thinking this through properly?

DR. SHERTZER: I think that's right, and the increase isn't very large, but maybe 20 percent or so more landings, and so more fish, more samples.

DR. NESSLAGE: Assuming that they're intercepted, right?

DR. SHERTZER: Right.

DR. NESSLAGE: Okay, but the headboat has its own set of -- Its own survey system, correct, reporting system.

DR. SHERTZER: Yes.

DR. NESSLAGE: Okay, and so that should -- Well, either way, they report discards pretty reliably, and is that correct?

DR. SHERTZER: They report discards.

DR. NESSLAGE: Okay, and so that does answer your question, Wilson, or is that making your point stronger?

DR. LANEY: Well, it answers my question, and, I mean, if that is perceived by the SSC and the Center as a benefit of this approach, then maybe that's a further justification for using it.

DR. NESSLAGE: I see where you're going, and that's a great point. Thank you. Any other points, while you have the horn? Then let's go to Fred Serchuk.

DR. SERCHUK: Thank you, Chair. Is the alternative for discards to landings discards to increase the stock? I mean, we've just spent quite a bit of the morning talking about devices that will increase the survivability of fish that are caught and subsequently returned to the water, and do you consider those discards, and, if so, isn't the idea of the descender devices and other ones that will return fish to the water to increase, or at least keep the size of the stock contributing the increased size of the stock? I am not really quite sure what is the alternative here.

You want to reduce the discards, but, by reducing discards, you want to increase the landings, but, if you reduce the discards, by returning fish live to the water, doesn't the stock benefit? I am not really quite following what the alternatives really mean. Could you be a little bit more specific? I am, quite frankly, confused now.

DR. NESSLAGE: Kyle, do you want to tackle that?

DR. SHERTZER: I don't think you're confused, Fred. I think you described it accurately. The fish that are surviving, because of reduced discard mortality, are either going to go back into the stock and still be swimming and reproducing, or some of those could be caught, and so, the case where there is no reallocation, those fish are going back into the spawning biomass. In the case where there is reallocation, some of those fish are being caught.

DR. SERCHUK: Okay. My concern is, for a stock that currently is classified as overfished and overfishing is occurring, it seems to me that we should give the benefit to the stock, until we have signs that there has been considerable progress towards rebuilding the stock. Thank you.

DR. NESSLAGE: That goes counter to the recruitment argument though. We should be saving that recruitment as an escapement policy and essentially being -- I think that's inconsistent, and so help me understand how you think it's consistent, Fred. I am not trying to --

DR. SERCHUK: It's consistent because we're fishing at a very low fishing mortality level that is allowing fish that enter the stock to contribute to the fishery over a longer number of years, and that is the reason why the stock can be rebuilt so quickly if we look at the scenario that we've had for high recruitment, or higher recruitment, in recent years. We're not fishing it at a very high level. In fact, again, the levels would be the same whether we used the long-term mean or we used the last ten years, 0.21. I don't understand why that's inconsistent with how we were treating recruitment.

DR. NESSLAGE: Chris, go ahead.

DR. DUMAS: Right, and so comparing -- Just looking at the three scenarios on the screen, 11 and 13 and 14, Scenario 14 is clearly the best, because it has better landings, and it's not inferior in any other metric, right, and so, I mean, for this information, and so, if we're questioning whether or not Scenario 14 is the best, there has to be some other -- What other metric do you guys have in mind? That's one question. In other words, another way to say that is what's bad about Scenario 14. That's one question.

The second question is about how do we achieve the lower discard mortality, and my understanding is that using descending devices alone is not sufficient to achieve the lower discard mortality assumed in these scenarios, and so what else would we actually be doing to reduce the discard mortality? If it's reducing landings, then we can't be increasing landings in Scenario 14, and so what other management measures can be used to reduce discard mortality? Are you guys thinking -- I don't know. What other actual in-the-field actions could be taken to reduce discard mortality other than venting and descending devices?

DR. SHERTZER: It's total discard mortality, which is the product of the discard mortality proportion times the number of discards, and so I think you're talking about that proportion aspect that descender devices and venting address, but then the other piece of that is the total number of discards, and I think that's probably the part that needs to be addressed, by reducing the total discards throughout the year.

DR. DUMAS: Right, and how would that be done? What are some of the possible ways that total discards throughout the year could be reduced, other than descending devices and venting?

DR. NESSLAGE: We would have to close seasons. You have to get people off the water.

DR. DUMAS: Right, but, if you choose that, and if that's the method, then we cannot do Scenario 14, right, because, in Scenario 14, we're allowing them to increase their landings, and so, if we're getting them off the water and decreasing catch, then we cannot be increasing landings, right?

DR. NESSLAGE: It's counterintuitive.

DR. SHERTZER: Not necessarily. Right now, they have the mini-seasons, and the mini-seasons could be expanded, and it's more the discards occurring throughout the rest of the year that's the issue.

DR. NESSLAGE: But would they have to reduce the overall fishing season, but expand the mini-season, to achieve this? Isn't that what Chris is asking, really? Otherwise, this is unrealistic, I think is what I hear him saying, and am I wrong?

DR. DUMAS: Yes, Genny, you're right, and that's what I am saying.

DR. NESSLAGE: Okay. I am hearing some concerns with reallocating discards to landings. What does Alexei think?

DR. SHAROV: The only way to do this, as everybody knows, is to stop fishing. Because red snapper are everywhere, it's going to be an incredible challenge to reduce the fishing mortality, which is mostly discards, by half, and, as the stock is going to be rebuilding, as we project it to rebuild, there is going to be more and more discards, in absolute value, and it's going to be an impossible challenge, and, unfortunately, or fortunately, we're not asked to calculate what that would look like, in terms of the numbers, but it is clear the stock will be growing, but we will be forced into either the F at the F rebuild at F 30, or 0.2, and this would be an incredibly difficult task to complete.

In our projections, we are totally ignoring this, because it's not part of the charge, but that will be the problem that will come up, and it's there, and so, if we want -- If the committee wants to sort of understandably help anglers and reallocate the fish that we used to just kill as a result of the discarding, and it would be still mortality, but a useful mortality, and in the cooler rather than on the bottom of the ocean, and, yes, that's possible, but it's just a tiny problem compared to the fact that we will still have to reduce the fishing mortality by half. I guess I am not opposing reallocation, but we still have to remember that there is a greater challenge beyond that.

DR. NESSLAGE: That's well said, Alexei. Thank you, both you and Chris and Fred. I guess I would look to staff, and I hate to say this, but we can elaborate, in our report, on what this will imply, what any of these ABCs will imply, but, at the end of the day, is it our charge to worry about how it gets implemented? I am not trying to reduce the importance of these concerns that folks are raising, but, also, I feel like that might not be our purview to worry about. Am I correct? I am looking to staff. We set the landings, and they have to figure out a way to make it work, right?

DR. COLLIER: That's correct. You guys have the guideposts, and then the council operates under those guideposts.

DR. NESSLAGE: As painful as it might be. Okay. Thank you. Anne, go ahead.

MS. LANGE: Well, I'm just wondering how you determine how much of the discard gets reallocated, and would allowing landings of what normally would be discarded incentivize people targeting red snapper, and would that increase the mortality by directing more?

DR. NESSLAGE: Right, and so, relative to the other two options that are on the board, this one would incentivize higher landings, but I think what Alexei was pointing out is we're going to have reduced landings, period, just from what's currently on the books, and so I don't think they will notice that relative difference, but may I am -- Do you see what I'm saying, as in this won't -- If we went from Scenarios 11 or 13 to 14, they might notice, but, given we're going to be going from something much higher to lower -- Does that address your concern, Anne, or am I way off-base in understanding what you're trying to say?

MS. LANGE: No, and I think the problem is mine, because I don't understand how the actual reallocation goes. Is it just saying if the fishery is open, or, if you catch red snapper, don't worry about throwing it away, or how does that work?

DR. NESSLAGE: Kyle, I think you need to re-describe the Scenario 14 again, please.

DR. SHERTZER: The F rate that is applied here, the 0.21, then is distributed between the discards and the landings, and the discard rate is decreased by that ratio of Block 4 to Block 3, and so those are sort of the fixed values based on the ensemble results and the uncertainty that we had in the discard mortality table. Then the next step is to increase the multiplier on the landings F until, in this case, the probability of rebuilding in 2044 was 0.99, which equals the probability of rebuilding from just the analogous scenario without the reduction in discard mortality, and so the F equals F 30 forecast. It doesn't really explicitly model how it's done, in terms of mini-seasons or not mini-seasons.

DR. NESSLAGE: Anne, does that help?

MS. LANGE: I will wait for other people to ask questions. Thank you.

DR. NESSLAGE: Clear as mud, right? All right. Let's go to Jeff for the moment.

DR. BUCKEL: I guess this has been a good discussion, and folks have brought up some great points, and so we need to reduce F, and, like you said, by around half, and so that can be done partly, only partly, with descender usage, and then there's this other unknown management that is probably going to be related to effort, and so some reduction in effort, and then the descender.

The council may -- It may be more difficult to reduce effort, right, and so they may want to use that reduction in F due to the descender to help reduce F from, just approximate, 0.4 to 0.2, and so there would be no reallocation right, because that's going to be an easier thing to do to get that reduction in F, and it's only partial, but at least it's partway there, and so there may not be as much of a need for reduction in effort, and those are all management things, and so I think making that clear in our report, that one of the reasons -- I like the idea of reallocating, because that is incentive, as others have mentioned, to use descender devices, but, at the same time, we've got this -- There has to be this large reduction in F, and it may be an easier management thing to at least get part of that from the use of descenders, which would mean not reallocating, unless I am missing something else, and I think those would things to be made clear to the council for their decision-making.

DR. NESSLAGE: So to make a bullet point -- Tell me if I'm wrong here, but you would basically be -- By reallocating, you might be reducing the benefit of the increased use of descender devices, and is that what you're saying, or did I miss your point?

DR. BUCKEL: That's it, and I'm just summarizing some of the things that have been brought up by others.

DR. NESSLAGE: It's an important point to make them aware of. Thank you, Jeff. Chris, go ahead.

DR. DUMAS: To follow-up on what I think Jeff was saying, if we use descender devices, and that decreases discards, then we do not need to reduce F by as much, and we may not need to reduce it by half, and we might not need to -- We could reduce it by less, and reducing F by less is, in a way, reallocating, right, and you're allowing the fishermen to catch more fish if you don't reduce F as much, right, and so a smaller reduction in F is a reallocation.

DR. COLLIER: We might not want to call that a reallocation, and it might be a shift from landings to discards, but that allocation discussion is a whole other ball of wax that the council is going to deal with.

DR. DUMAS: My other point, my original point, was going to be, if we do reallocate any of the discards that are reduced by descending devices, then the amount of reallocation could be limited to just the amount of discards that are prevented by the descending devices, and so, if we reallocate just to discards that are prevented by the descending devices, then, that way, it would not be taking away from anything else. Thanks.

DR. NESSLAGE: Thank you, Chris. Other folks we haven't heard from, if you could weigh-in on this, and I would greatly appreciate hearing from more of the SSC. Maybe you don't have an opinion. Okay. I am not hearing a huge overwhelming support for this approach, and is that -- I feel like folks are bringing up largely cons, and so maybe, the folks who have spoken so far, if you could elaborate. I am feeling like people are sitting on the fence on this one, maybe. A little clearer direction here would help. Jeff, go ahead.

DR. BUCKEL: So two points. One, just to clarify the bullet, I think, that was made from my comment, it said shifting discards to landings, instead of landings to discards. I guess the other part of my point was just maybe the next bullet, and that's that this is -- The council can reduce F, and this is one way -- The descender device usage allows it to get partway there, with this reduction in F, and so that would be their decision, either to reallocate it to landings, which wouldn't get you the reduction in F, but, if all the descender device savings doesn't go to landings, then that helps you with that reduction in F, and so that's a choice.

Maybe -- I know this whole mixed strategy came up at the last minute, and maybe Kyle can let us -- The discussion of why to look into that, was that to -- Was some of the justification the idea of an incentive for descender device usage? I guess I'm just thinking about there had to -- You knew that, okay, we're going to have reduce F, because we're overfishing, and so I'm curious as to where the idea for reallocating some of the mortality savings from the descender device usage and putting that to landings in this overfishing scenario, and so was there a thought on -- I guess what the justification was for that, Kyle, would be helpful.

DR. SHERTZER: I mean, that was the justification, was just realizing the benefits, in terms of landings, and so it doesn't go towards rebuilding, but, instead, it shifts those benefits towards

landings, and it does increase the level of landings by about 20 percent, if you do it, relative to not doing it, but, still, the bigger issue, right now, is overfishing, and the F over FMSY was 2.2 or something like that, and so the fishing rate is more than double what it should be, and almost all of that is recreational discard mortality, and, if you compare Block 4 to Block 3, it's a reduction of about 11 percent, and so it does help, but it's not enough to end overfishing, just based on discard mortality from the recreational fleet.

DR. BUCKEL: Okay. Thank you.

DR. NESSLAGE: All right. Let's hear from Scott and Alexei, and then I think we need a biological break, and so, Scott, go ahead.

DR. CROSSON: I just wanted to -- The page that is our consensus document, could you flip back over to that, please? On the top there, that top line about reallocating -- Allocation is a whole different argument that is going on in fisheries, and so let's just call it -- Thank you.

Then, in terms of what -- I find myself very much in agreement with Jeff, and, as Kyle stated, the need to have some sort of reduction in effort, and there's only a few ways that that can be achieved, and you have to either limit access to the fishery, and that would include for the recreational sector, since that's the primary issue that's going on, or you need to do some sort of temporal or geographic regulations, and those are the only options that I can think of.

The fact that the descender devices will help reduce F and help get you partway there should be looked at as a good thing by the council, and so the idea of shifting some of the discards over to landings I don't think helps get them in the direction that they want to get, and that's all.

DR. NESSLAGE: Thank you, Scott. Alexei.

DR. SHAROV: I don't know if I need to repeat that point, but it's obvious that we're reducing the number of dead fish because of the reduction in discard -- The total number of dead fish because of the discards, and so we'll save one-million fish. If we were fishing at the target fishing mortality, then that one-million fish could have been directed to the landings, but, because we need to reduce the overall F, and say reduce the number of dead fish by twenty-million, that one-million fish that we saved is not helping much, and the managers will still be looking at ways of reducing the fishing mortality and finding somewhere the savings for those twenty-million fish, and so I think we probably should -- Logically, we certainly should not consider this allocation, or reallocation, because it's just going to be swallowed up by a much larger charge of reducing the overall F.

DR. NESSLAGE: All right. Thank you. I am going to propose that we take a break until 2:55, and I'm going to be a slavedriver and keep us going, because we still have a lot to discuss, and I would ask that, when we get back, that anyone who might support this speak up. Otherwise, I think we're going to move on. Thank you, all. See you in a few.

(Whereupon, a recess was taken.)

DR. NESSLAGE: I asked, before the break, does anyone have reservations about moving on and eliminating Scenario 14 from consideration, and, if you do, if you would like us to consider it, speak now. Last call.

DR. COLLIER: I just lowered everyone's hands. If they have a question --

DR. NESSLAGE: Raise your hand again, because we probably missed you. All right. I am not seeing any hands, and it sounds like there's not a lot of support for this. That leaves us with -- We have these two remaining scenarios that were run, and Alexei had this -- I am talking about 11 and 13 here. The only difference is that the discard mortality -- How it's applied. 11 assumes Block 4 benchmarks, and the projection scenario is exactly the same. They match, and then the alternative is the mixed approach. Alexei spoke very eloquently in support of the Block 4 option earlier. Alexei, are you still onboard with that, and what do others think?

DR. SHAROV: Genny, I thought it was more logical, but, looking at and comparing the results, the expected landings, the differences are insignificant, and so I am not going to insist on using Block 4. If it was about the purity, then probably I would be fighting, but, at this point, I am certainly willing to go with the majority on this.

DR. NESSLAGE: All right. Thank you, Alexei. How do others feel? What are your thoughts on the matter? Are there strengths or weaknesses of the mixed approach? Wow. I have worn you all down. I apologize. This is tough stuff. Is there anything that Kyle can say to elaborate to help people make up their minds? Would it help to reiterate it, really quickly, or do people just not have an opinion, or do we just not understand it? Let's be honest. I don't want us to adopt something we don't understand either. We need to understand this, folks.

DR. CROSSON: I will go on the record that I am still not 100 percent understanding.

DR. NESSLAGE: Thank you for being the brave one, Scott. I thought that might be what was going on here. Kyle, could you spend just another minute or two refreshing our memory? I don't want this to be a me decision.

DR. SHERTZER: I will try. The approach labeled Block 4 has the benchmarks that we computed to be consistent with the Block 4 discard mortality, and then the Block 4 discard mortality is what's applied in the forecasts, and so, in that case, the benchmarks are internally consistent with the forecasts. The mixed approach has benchmarks that are computed from Block 3, which is the terminal years of the assessment, and so, in a usual setting, that's where we would end, and we would have our benchmarks from the end of the assessment period, and we would use those forecasting, but, in this case, the mixed approach -- Well, we had this change, or expected change, in discard mortality, due to increased use of descender devices going forward, and so the mixed approach would apply the benchmarks from the assessment period, but then use the discard mortality from Block 4 into the future.

When you talk about F 30, or SSB that relates to F 30, the main difference is that the mixed approach uses those values from the assessment period in Block 3, and the Block 4 approach recomputes those values for the projections.

DR. NESSLAGE: Great. Thank you, Kyle. Did I just cut you off, or were you --

DR. SHERTZER: I don't know if that clarifies it, but that's essentially the distinction, is whether the benchmarks themselves are coming from the assessment period or are the ones that are being sort of the future benchmarks, and, by future, it's now, because we're past the terminal years of the assessment.

DR. NESSLAGE: Yes, which is why I was in support of that, but I think maybe there was some confusion.

DR. SHERTZER: I think the mixed approach has some justification, in the sense that we would usually base benchmarks on prevailing conditions, and so the -- The premise for rebuilding would be based on current conditions, and, in this case, we have this change in the future that we know, or we expect, to be coming with the increased use of descender devices that we're trying to account for in the projections, but we're still comparing the -- Or the rebuilding is still based on the prevailing conditions during the assessment period.

DR. NESSLAGE: Excellent. Thank you for that, Kyle. Let's hear from Fred Serchuk.

DR. SERCHUK: Thank you, Chair. I heard the arguments, and I think it's six of one and half-a-dozen of another. Earlier on, we decided to go with the Block 4 approach, and I think I can go with the Block 4 approach. Thank you.

DR. NESSLAGE: I don't know that we decided to go with the Block 4 approach. We decided not to go with the Block 3 approach. Does that change your mind? I am not trying to change your mind, but I just wanted to be clear.

DR. SERCHUK: No, and I still would like the Block 4. I think that's fine. Thank you.

DR. NESSLAGE: Okay. Thank you. Are there others? While we're waiting for SSC members to mull it over, John, would you like to comment?

DR. WALTER: Thanks, Chair. One of the reasons behind not using the shifting the benchmark is so that a fishery that invokes a positive management measure isn't then put into double jeopardy of a shifting goalpost, and so this is something that we'll probably need to consider, and it might be, here, even though the implications are not that extreme one way or the other, the precedent is that fishery would be measured according to its prevailing conditions, and then, as management does things to improve the situation, it isn't then further penalized by a moving goalpost, and that's where it's actually rather important to at least have some --

The measure at which the fishery is evaluated is by the prevailing condition, so that it doesn't just move that goalpost further away, and it's kind of the Charlie Brown pulling it away from -- If something, a positive management intervention, is done, and that's why that particular parameterization -- That's what it does by that mixed approach, is it allows you to be measured by what your current conditions are, which will then improve the fishery, and the management should improve the fishery in the future. Thanks.

DR. NESSLAGE: Just to make sure I understood what you were saying, you're saying the mixed approach doesn't provide the double-whammy, or the negative --

DR. WALTER: That's right. The mixed approach says it doesn't change the benchmark in the future, moving the goalpost further away.

DR. NESSLAGE: Right, and so that's a positive.

DR. WALTER: In the sense that it rewards a fishery for actually -- And management for an intervention, rather than putting it kind of in a double penalty.

DR. NESSLAGE: Yes. Well said. If I am in the minority on this, I am happy to let it go, but how do folks feel? We're only heard really from Alexei and Fred Serchuk, and there is nineteen of us, and so there is sixteen more. I guess minus Amy, and so fifteen of you who have not weighed-in, and what do you think? Jeff.

DR. BUCKEL: Thanks. Now that I understand it a lot better, and thanks to Kyle and John, I see the logic behind the mixed approach, and so I vote for the mixed approach, or I can't vote. Sorry. I support the mixed approach.

DR. NESSLAGE: No, I'm not letting you vote, but I appreciate you speaking up. Thank you, Jeff. Others?

DR. CROSSON: I accept that logic, and so I don't want to penalize a fishery for responding, and I think red snapper has responded.

DR. NESSLAGE: All right. Thank you. Chris.

DR. CROSSON: After the additional explanation, I also accept the mixed approach.

DR. NESSLAGE: Excellent. Thank you. Fred Serchuk.

DR. SERCHUK: Hearing the explanation, I will also accept the mixed approach. Thank you.

DR. NESSLAGE: Thank you. Anne.

MS. LANGE: Thank you, John, for the extra information, and I agree with the mixed approach.

DR. NESSLAGE: Thank you, Anne. Eric.

DR. JOHNSON: Same, and I will reiterate what the last three folks have said, and I support the mixed approach as well.

DR. NESSLAGE: All right. Now Alexei is offline, and we don't know what he thinks. Does anyone, other than Alexei, who we haven't heard his final opinion on, support the Block 4 approach over the mixed approach, having heard the Center's explanation? Have we heard from Alexei, or did he just drop off, and it might be an internet connection thing?

DR. COLLIER: The webinar is just showing that he's offline, and that's why I had written that up there, given his concerns with the discussion.

DR. NESSLAGE: Thank you. Okay. Let's hear from Yan.

DR. LI: First, I support the mixed scenario, and I remember, if my memory is correct, I remember Alexei's points about those two scenarios, and he said something like these two scenarios, given the differences are small, and he's fine with either one.

DR. NESSLAGE: That's true. He did say that. Thank you for reminding me. What do you think, while we have you online here?

DR. LI: Genny, are you asking me?

DR. NESSLAGE: Yes. I want to know what you think.

DR. LI: I support the mixed.

DR. NESSLAGE: Sorry. Did you say that, and I totally missed it?

DR. LI: Yes, and I said I support the mixed.

DR. NESSLAGE: All right. Thank you. That being said, I am not hearing anyone, at this point, crying for the Block 4, in which case --

DR. COLLIER: Well, I will say that Alexei is back online now, and so he probably missed a lot of the discussion, but, Alexei, it sounds like the group is recommending the mixed approach right now. If you have any issues with that, raise your hand, and maybe you can express them.

DR. NESSLAGE: Go ahead, please.

DR. SHAROV: I am just so happy that I am in the same boat with Fred, and we'll just get together and drink later, but I guess Fred and I are pretty friendly guys, and so we'll probably compromise on this and go with the group.

DR. NESSLAGE: He bailed and left you. He came over to our side while you were gone.

DR. SHAROV: Okay. Then now I oppose.

DR. NESSLAGE: Basically, just to summarize very quickly, John Walter got on and explained that the mixed approach doesn't really double-penalize the fishery for any advances or management measures they put into place that might improve the performance of the fishery, or sustainability of the fishery, and so folks were supportive of not penalizing them for a shifting baseline, basically, and so folks, along with Kyle, gave us a little bit more technical description of what was going on, and I don't know how much you heard and how much you didn't, but you had said earlier that you didn't mind too much if we went with the mixed, and so are you still of that same mind?

DR. SHAROV: Yes, and I'm okay with that. I think that Number 4 is more consistent, and Kyle confirmed that it's more internally consistent, and the differences are small, and there is not much

of a change. There is no moving target, and -- It's really low, but, if the group believes that that's what they are in support of in this case, I would go with that. Thank you.

DR. NESSLAGE: I appreciate that. All right. So, we may have settled on Scenario 13, correct, with serious reservations from a portion of the SSC regarding the recruitment assumptions, which I will look to everyone to help me to characterize in the report, so that it's clear to the council what our deliberations and our concerns are, and I hope that the breakout groups will do that as well.

Chip, help me out, and make sure I say this right. At this point, this OFL should be set at the F 30 fishing level, right, but then the ABC typically includes a buffer to account for scientific uncertainty. Now, in extreme cases, data-limited situations, it's my understanding that it can be equal to the OFL. The ABC can be equal to the OFL, and I'm not even sure we call this an ABC, and it's really a catch level for a rebuilding stock, and so my terminology may not be quite perfect here, but we do need to -- If everyone is in agreement, my understanding of where we are this moment is that the OFL will be set using Scenario 13, but we still have to set a catch level.

The question is do we want to add a buffer, and, if so, how much? We thought we were almost done with this discussion, but we're not. This is weird, and this is where I always get confused, because we're in a rebuilding plan, and so we had gone through our decision tree before, but that leads, of course, given it's in a rebuilding plan, to a probability of rebuilding, which is a recommendation, and that has been not accepted, and so we do though need to set a catch level, and the question is do we want to add an additional buffer, and, if so, how much, and I guess I have never been in this situation leading the group before, and so I guess I'm going to look to staff, maybe. What have we done in the past, for folks who have been around for a while? Sorry to flounder here, but I want to make sure that I don't go off the rails with regards to policies and procedures.

DR. COLLIER: I might reach out to a friend and call on John Carmichael to provide some guidance on this. It is a bit difference, because the catch scenarios are a little different, and so, with this projection, there wasn't an accompanying projection at F rebuild, correct?

DR. NESSLAGE: Well, there was, but it was higher than F 30, right, and so it's not possible. It's not acceptable. Is that right, Kyle?

DR. SHERTZER: Yes, that's right.

DR. NESSLAGE: So that's where I don't even know what we do in this situation.

DR. COLLIER: Are there any thoughts on ways to get a -- There's Fred.

DR. NESSLAGE: Before we go to Fred, is John Carmichael offline?

MR. CARMICHAEL: No, I'm here, Genny, and I was trying to look at the tables and understand the challenge we're facing. Am I right -- Did you say ABC based on Scenario 13?

DR. NESSLAGE: OFL, right?

MR. CARMICHAEL: Yes, the OFL based on Scenario 13, because that's F 30. Right.

DR. NESSLAGE: Right.

DR. COLLIER: The accompanying run would be Run 15. Is that correct?

MR. CARMICHAEL: Yes, and I've got to go somewhere else for those tables.

DR. COLLIER: It should be Attachment 5.

MR. CARMICHAEL: I've got you. It's capped at F 30, and so I guess they would be the same, if I'm reading this correct.

DR. NESSLAGE: Yes, and so do we then not set or have a buffer, in this case? I have never encountered this before. If you want time to think, I can go to SSC members. Would you like that? Sorry to put you on the spot.

MR. CARMICHAEL: Yes, and, I mean, it is definitely a challenge. I think you guys have built a really good record about the next few years, versus the next twenty years, and what you're trying to accomplish, and so I think all of that is very strong, but it's just a matter of this slight wrinkle, and perhaps there doesn't end up being much of a buffer, in which case I think that would be -- That's just how it works out in this case.

DR. NESSLAGE: All right, and so there's no -- If that were the case, there's nothing -- We're not doing anything incorrect, procedurally?

MR. CARMICHAEL: No, and there's -- I mean, any of these scenarios, as mentioned pretty early, when Chip was comparing that one scenario, where we made the correction on the table, and the difference was 3,000 pounds, and I think we all recognize the realities of what this whole series of projections is showing, and the great uncertainty that's associated with it, and just trying to project something like this out four years, which we're required to do, but the SSC has certainly had plenty of discussion about how difficult and unlikely it is, and don't put all your eggs in that basket, for sure, and so I think, given all of that, you could just say that you ended up at the same level.

DR. NESSLAGE: Thank you, John. Let's go to Fred Serchuk.

DR. SERCHUK: I am not sure we need a buffer here, because I think the F 30 is the more conservative rate that we would otherwise choose, and, based on our current formulation, the stock is going to be rebuilt, even under F 30, almost eighteen years earlier than the current regimen of 2044, assuming all of our assumptions are correct. Thank you.

DR. NESSLAGE: Right. Okay. Thank you. Scott.

DR. CROSSON: I'm sorry, and I'm not following at all. Why don't we apply -- I don't understand what the situation is and why we don't apply the ABC Control Rule after we've determined an OFL.

DR. NESSLAGE: Because we're in a rebuilding plan, we applied -- We did this at the last meeting, and we applied the ABC Control Rule, and we got the 17.5 percent buffer, but, because

it's rebuilding, we then add that to 50 percent, to get the probability of rebuilding, and that's my understanding of our decision tree, so that we wouldn't -- We don't normally then -- We don't add a P* buffer to this.

DR. COLLIER: That's correct. In a rebuilding plan, it's based on the projections for the rebuilding, is what the catch stream is based off of, and so that's what the ABC is equivalent to, as opposed to the ABC Control Rule.

DR. NESSLAGE: Because we're in a rebuilding plan, we're not following our normal ABC decision tree process, and is that clear as mud, Scott?

DR. CROSSON: Yes, I think I follow.

DR. NESSLAGE: Cool. Okay, and so Fred has said he's comfortable with the Scenario 13 as both OFL and the catch level recommendation -- For setting both, and that we don't need to add an additional buffer. Does anyone disagree, and let's hear -- Or let's hear if you agree with him. I would like to hear from a few folks. I would like to hear from everybody, but I will take a few more voices. Basically, does this run adequately characterize, or incorporate, all of our major uncertainty concerns? Anne.

MS. LANGE: I agree that we do not need to have a buffer, given that this is rebuilding.

DR. NESSLAGE: Thank you. Others? Jeff.

DR. BUCKEL: I agree as well.

DR. NESSLAGE: Thank you. Because I'm going to have to explain this to the council, and we have to explain this in our report, and maybe Alexei is about to say the same thing, we discussed there being significant uncertainty in recruitment, and, yes, we were fine with the ten-year option, and do we just basically -- Do I explain this as we believe the ten-year mean captures -- And the procedures that Kyle uses when doing the projections, given that it incorporates variability across the time series of recruitment, that that captures our uncertainty in recruitment, and, therefore, we don't need a buffer, and that was one thing that we spent a large portion of the day talking about it, and so I think we probably need to explain, in the report, what might be a question, and I will look to Alexei, and maybe you were going to comment on that, or something else, but go ahead.

DR. SHAROV: Thank you, Madam Chair. You are a mind reader. You should be forecasting business, and, yes, that's exactly what I wanted to say, and probably, in my mind, the ABC, based on the long-term recruitment level, should have been -- I mean, the value should serve as an ABC, as opposed to the -- Not opposed to, but paired with the OFL, which would be based on the other recruitment stream, but we've been through this discussion, and I will do my best in writing all the caveats and warnings, but, conceptually, yes.

In the current position, we are underestimating the level of the uncertainty, and using the full time series recruitment stream would have been a more complete evaluation of the uncertainty for the projection, and so I am not insisting on this becoming an ABC, and I understand the logic of what the group is selecting, but this is a caveat which needs to be covered in the report.

DR. NESSLAGE: I would agree, Alexei, and, even though it may fall on deaf ears, I think we can still recommend that the ACL not be set at the ABC, or the catch level recommendation that we provide, and for that exact reason, and I don't know. We'll see what folks think. John Carmichael, go ahead.

MR. CARMICHAEL: Thank you, Genny. I think one point you may want to consider putting in here too is that the council has already indicated that it's comfortable with a high level of risk in this stock, because the rebuilding plan that's in place now is based on an F rebuild that is 98 percent of FMSY, and so you're starting with a set of parameters that are very close, and really pushing the line, in terms of ABC, up against the OFL.

That's the approved rebuilding strategy, and so that's something that the council has said, and they made it clear that they're comfortable with it, and that's why you get such a close relation between the F rebuild and the F 30 percent and all of these different scenarios, and so, to some extent, I think acknowledging that is helpful, in terms of the SSC's situation, and then I think, as Fred pointed out, you look at the potential for much sooner rebuilding if recruitment should continue to be high, which says that this does a good job of addressing the risk of not rebuilding the stock within the prescribed time.

Clearly, that risk is very low. The question is the year-to-year, and the council has already accepted the high level of risk of overfishing year-to-year, and you're providing something that's consistent with that, with a number of caveats about the risk of that to the stock and if recruitment doesn't continue as it is longer into the future.

DR. NESSLAGE: Well said. Thank you, John. Is that a vestigial hand up for Alexei as well, or did you have more to say? All right. Then I don't want to belabor it, but this is the last, I guess, opportunity. If anyone has concerns about us essentially setting the catch level recommendations and the OFL equal to the results of this Scenario 13, speak up now, but everyone please help me to make sure the report is clear with regard to the risk that's being -- And uncertainties that are being accepted when we do this, should the council follow our recommendations here.

No hands. All right. Wow. We made it. Thank you. That was a difficult discussion, and I'm sorry that it wasn't easier, but I appreciate everyone's engagement. Scott, are you going to throw a wrench?

DR. CROSSON: No, and I don't know if it's just going to be piling on, but, that statement about significant uncertainty in recruitment, I don't know -- I mean, it's not just a question of making OFL and ABC equal to each other, and making OFL equal to ABC equal to ACL be considered an especially risky decision, and I wouldn't mind putting a sentence in like that.

DR. NESSLAGE: Yes. That is what we are likely to see. Okay. That seems a very reasonable addition to the report. Anything else on this topic? Otherwise -- Am I missing something, Chip? I think we can move on to the SPR discussion.

DR. COLLIER: I think we're good to go on to that.

DR. NESSLAGE: The breakout groups and folks can help me to elaborate on these points later. All right. Kyle, do you still have the energy to walk us through those couple of slides that you had

ginned up regarding alternative SPR levels that the council would like us to talk about? Basically, they're interested in hearing more about what the scientific uncertainty and the risk there is associated with primarily lower levels of SPR, and so I think you had pulled up some of Katie's work from SEDAR 41, and is that correct, or did you do new analyses here?

DR. SHERTZER: They are revised analyses, and it's similar to that work, but based on the current assessment.

DR. NESSLAGE: Okay. Thank you. Go ahead.

DR. SHERTZER: Just as a reminder, right now, we're using SPR 30 percent as the proxy for FMSY, and, during the council's last meeting, they had some discussion about that and were sort of curious about other proxies, and I think they were just looking for some more information, or more guidance, from the Science Center and the SSC on appropriate values.

What was asked for from the Science Center was to provide yield per recruit plots, which I don't think those were in the assessment report, and fecundity-per-recruit plots, which were in the assessment report, but it did not show those values relative to different proxies. Then a second part of that request was to examine the distribution of FMSY conditional on the parameter estimates from the stock assessment and on a beta distribution of steepness that was derived from meta-analysis.

These are the per-recruit plots, and the top one is the yield per recruit, and the vertical lines are the F proxy that would correspond to 20 percent, 30 percent, or 40 percent, and then also on here is Fmax, which is defined by this yield-per-recruit curve, it's the F that provides the maximum yield per recruit, and so where that curve peaks, and I guess the take home, I think, from this top panel is that the curve of yield per recruit is fairly flat along the range that we see these proxies, and so there is not a big difference in yield per recruit between F 20, the highest rate of fishing, and F 40, which is the lowest rate of fishing, and the yield per recruit is similar across these values.

The bottom panel is spawning potential ratio, and that is the curve that defines F 20, F 30, F 40, and so those are the F that corresponds to 40 percent SPR is F 40, and likewise for F 30 and F 20, and that also shows where Fmax is on this curve.

Then the question of how do different levels of SPR relate to FMSY, and you can think of this sort of in two different directions, and one would be to consider the values of steepness and then ask what is the distribution of FMSY, based on those values of steepness, and where in that distribution did the various proxies fall. Then you could also go the other direction, which is assume that the F percent, F 20 percent, F 30, or F 40, assume that that proxy is exactly equal to FMSY, and so it's doing what we want it to do, and then, if that's true, then what is the implied value of steepness that makes that equality true?

I think the key to this is that there's a -- If all else is equal, meaning all the other parameters are the same, R zero, selectivity parameters, and everything else that's going into this is the same, then there's a one-to-one relationship between steepness and the SPR level.

Here is the distribution of FMSY conditional on the steepness from the beta distribution, and, again, this is -- All of the other parameters are being held fixed at the levels from the base run of

the stock assessment model, and then we're assuming a Beverton-Holt spawner-recruit curve, which we didn't use in the assessment, and, instead, we had just the mean recruitment model, which is equivalent to steepness equals one, which is the maximum of the range of steepness.

What this plot is showing is that steepness, given the beta distribution of steepness at FMSY, the distribution ranges from around 0.05 up to around 0.2, and it has a peak of around 0.16, which corresponds probably most closely to F 40. Fmax is near the high end of FMSY, and F 30 is a little bit beyond, a little bit higher than F 30, and then F 20 is quite a bit outside of the range of FMSY implied by this distribution of steepness, and so what this is suggesting is that the proxy that we're using F 30, and I know we're not supposed to use the word "aggressive" today, but I will just say that, according to this, it is not risk neutral.

Then this is implied value of steepness, and so, if we assume a particular percent SPR equals FMSY, what is the implied value of steepness, and, for a pretty wide range of percent SPRs, up to thirty-something percent, it implies a steepness of one, but it starts to decrease at F 40, F 50. If we look at the mode value of steepness from the meta-analysis, it's about 0.84, and that would correspond to a 38 percent SPR value.

That's a bit higher than what Katie found in her analysis from SEDAR 41. There, it was something around I think 27 percent SPR, and, here, the differences are largely the selectivities that we're seeing in this assessment tilted more towards discard mortality, which is far more younger fish than the overall selectivity, but we also have different natural mortality and different fecundity, and so there's a number of things that are going into these calculations that would affect that result. I think that was it for these slides.

DR. NESSLAGE: Thank you very much, Kyle. Let's start with questions for Kyle about what he has presented. Alexei, go ahead.

DR. SHAROV: Thanks, Kyle. That was very interesting, and there were some things that I kind of was expecting to show up. Did you compare, just out of curiosity, what are the estimated proxies for FMSY for the other councils that are sometimes -- They are also sort of conditional on assumptions on assumptions being made, and then, in other cases, where the stock-recruitment relationships were better defined, or actually estimated, and so is there any support from other regions for a particular range or value for the FMSY proxy?

DR. SHERTZER: I think, nationally, it's tending closer to the F 40 percent more, or even a higher SPR, in some cases.

DR. SHAROV: Right, and that's exactly the case. I just wanted to bring this up.

DR. NESSLAGE: Other questions for Kyle?

DR. SHERTZER: I guess this was largely motivated by whether something more like F 20 percent might be a better proxy for red snapper, and these analyses don't really support that.

DR. NESSLAGE: Thank you. Fred Scharf, go ahead.

DR. SCHARF: Kyle, was there any particular reason that they started with F 30 as sort of the default for red snapper? I am just trying to remember back and as to how that choice was made.

DR. SHERTZER: I am not sure why exactly F 30 was chosen. I mean, the history of it was that I believe it was SEDAR 24, and F 40 percent was put forward by the assessment panel, by the CIE reviewers, and then by the SSC, and I believe the council overturned it, as a council decision, and went with F 30, and it may just be because that was one of the values that was in the report, and so that was the value that they went with, and I don't think it was based on any particular analysis at the time that suggested that F 30 was an appropriate value. I guess that's probably the history of it, is just that that was a selection by the council.

DR. SCHARF: I was just wondering if there was evidence of really high steepness, above 0.9.

DR. SHERTZER: Only in the sense that, when we run these assessments and have tried to estimated steepness, it tends to go to the upper bound, and so, if that's true, if steepness is at the upper bound, then that could justify the higher percent SPR, and maybe that's what that was based on in the past, and the Gulf Council has used something in the 20 or 26 percent, I think, and so maybe that motivated the South Atlantic Council as well, and I'm not sure, and so I think those findings that, if steepness is high, close to one, then the more aggressive SPR is justifiable. If steepness is something that is just unknown, then I think these analyses sort of address that.

DR. SCHARF: Thanks.

DR. NESSLAGE: A quick question, Kyle. In the last SEDAR, when Katie had done something similar, they had explored a different F percent, and I think it was like twenty-seven-something percent, and it's in our background materials for the meeting, and was that something -- I barely remember, and that was when I first started, and was that something specifically that we had recommended or the council wanted to explore?

DR. SHERTZER: I think that came out of Katie's analysis, and similar to the plot that's being shown now, and so, if you were to use the SEDAR 41 results, the selectivity and natural mortality and fecundity, and recreated this implied steepness, then I think the 27 percent corresponded to a steepness of 0.84, and so I think that's where that value came from.

DR. COLLIER: That's correct.

DR. NESSLAGE: But, because those estimates have changed, it's now much higher implied steepness at a similar SPR?

DR. SHERTZER: The other way around, I guess. For that value of steepness, it's a higher SPR.

DR. NESSLAGE: Am I saying it wrong?

DR. SHERTZER: Well, I mean, it's the same -- It's this one-to-one relationship, and so the question was what value of SPR corresponds to a steepness of 0.84, where that value comes from the mode of the meta-analysis.

DR. NESSLAGE: Before, that was more like -- That's where the 27 percent came from. I see what you're saying. Okay. I am following you now. Thank you. All right. Are there other questions from the SSC? Alexei.

DR. SHAROV: Well, I don't know exactly what -- We could figure it out, but probably there is no need at this point, but why it turned out to be 0.27 back then, because, really, the differences in the selectivities, et cetera, should not matter much, or probably should not matter at all, because it's all about MSB, essentially, regardless of what the selectivity curve is, and, as long as you end up with the 20, 30, or 40 percent of the spawning potential, that's all that matters, and it doesn't matter how you actually eliminate fish out of the population.

Regardless, yes, we affirmed that the recent assessment is the best scientific information available, and this analysis is based on the best information available, even though it is based on the -- It's a meta-analysis, and it's based on information borrowed from other species, but it does seem to make sense and agree with the analysis completed for lots of other species in different regions, and that is sort of making it much more convincing, and so I think what we see here is probably the best state of knowledge at the moment.

DR. NESSLAGE: Thank you, Alexei. All right. I am not seeing any more hands. I would like to take a quick moment to see if there's any public comment on this issue, while we have Kyle to answer questions, in case they come up, but is there any public comment?

DR. COLLIER: If anyone would like to make a comment, please raise your hand or write a comment into the comment box. If you raise your hand, you can do so by clicking on the control panel, and it should be the third button down, and it should look like a little turkey, and it should be green right now. I am not seeing any hands.

DR. NESSLAGE: All right. Thank you very much, Chip. Okay. I think it would be good if we got a few thoughts on down on paper, and I think this shouldn't -- Just before we go to breakout groups, just to make sure everybody is -- It sounds like everyone is onboard, but I want to make sure we're thinking something similar.

Just very briefly, it sounds like -- I think Kyle said it very well, that there's not a lot of support, based on this meta-analysis, for SPR levels lower than 30 percent, and does the SSC disagree with the sentiment there, based on what you've seen? Maybe we want to elaborate that the applied steepness is just too high, unrealistically high, given what we -- Despite the high recruitment we're seeing and early maturity, it still doesn't seem to make sense, given the biology of the animal, and I am just throwing out draft wording here to keep the ball rolling, because we're coming up on 4:00, but, please, folks, if you disagree, speak up. The breakout groups can elaborate, but I just want to make sure -- If that's the general sentiment, but, if folks disagree though, this is the time to speak up. Alexei, go ahead.

DR. SHAROV: Well, I wonder if the committee would be brave enough to actually suggest that the analysis completed suggests that a more appropriate FMSY proxy is closer to F 40 percent or, specifically, based on the meta-analysis, it's F 38 percent, and that's just as a matter of fact of what we've been presented. You can always blame it on my jet lag, that Alexei went crazy.

DR. NESSLAGE: What happened to you in Russia, Alexei? Yes, and so that's definitely -- I mean, it's what we're seeing here, and it's not that we're recommending they switch to it, but just that that's what the results of the analysis indicates. Fred, what do you think of that?

DR. SCHARF: I was going to say something similar, but for a different reason, and that is that, when you look at the -- They ask specifically for the yield per recruit plots, and, when you look at the yield per recruit plots, you don't really see a reduction in yield if you go to an SPR of 40 percent, as opposed to 30 percent, and so, in other words, you have a more risk-averse fishing policy, but you get the same yield, and so it's another reason to support a more conservative F target, and I think that's something that we could mention, certainly.

DR. NESSLAGE: Excellent point. Others?

DR. COLLIER: Alexei, is your hand up again?

DR. SHAROV: Just a comment. The yield per recruit, and, actually, really, the shape and the value depends on the selectivity values, while the SPR should not, and so that's a distinction, but, anyway, that's all. I will stay quiet.

DR. NESSLAGE: All right. I think -- Fred Serchuk, go ahead.

DR. SERCHUK: Thank you, Chair. I don't doubt the conclusions or the facts that are represented here, but I am wondering, if what we write here is correct, might not the council come back and say, okay, if you really believe that, why didn't you give us some projections with the F equal to SPR of 40 percent?

DR. NESSLAGE: I didn't think we were allowed to. They set the rebuilding.

DR. SERCHUK: Then is this all moot?

DR. NESSLAGE: This is like separate from what we did earlier, which is why I asked to put it last.

DR. SERCHUK: I guess I think it will be confusing, Chair. They're asking a question that perhaps has no relationship, but it says "red snapper", and then, if we believe that the appropriate level should be higher than a 30 percent level, would it not follow that it's implied that, well, if you don't believe that F 30 percent SPR is the appropriate level, and you think it's more like F 40 percent, what does that mean relative to how we handle the results of the assessment?

DR. NESSLAGE: It would mean a lot if we had the control over the rebuilding plan, but we do not, according to Magnuson, and so we're bound to give them catch level recommendations that address their rebuilding plan, and their rebuilding plan, right now, is built around F 30 percent, which is partly why they're asking, is that still what we think the best -- But, yes, we have to set that ABC, and, if they want something different, they will come back and ask us again, but not today.

DR. SERCHUK: Okay, and so, if I understand you, and I am not trying to be a devil's advocate, we're giving you what you asked us to give, although we don't think it's appropriate.

DR. NESSLAGE: Yes.

DR. SERCHUK: Wow.

DR. NESSLAGE: Welcome to Magnuson.

DR. SERCHUK: Well, I mean, why are they asking it then? I just don't understand it.

DR. NESSLAGE: Because they were curious if they could go lower than 30 percent, is my understanding, and I think it's clear, from this, that we would not recommend they go lower. What they choose is ultimately their decision, and is that correct, Chip?

DR. COLLIER: Yes, and the current use of SPR right now in place is the F 30 percent, and one of the reasons that the council wanted to discuss this is the lack of the stock-recruitment relationship and what kind of impacts this is having for this population. Usually, when you're looking at changes over time in the population, you're getting slight increases in landings, or even dramatic increases in landings, and, for this, in all actuality, when the population rebuilds in 2044, there is not much benefit to the overall stock, as far as recruitment levels coming back to the fishery, changes in productivity, or anything like that. Everything is pretty much at a level for a number of years. It's basically, after the first couple of years, everything is pretty flat, and that was a concern going forward.

DR. SERCHUK: Okay. If you think that makes sense to the council, when they read the report, that would be fine with me. Thank you.

DR. NESSLAGE: Thank you, Fred. John Walter, go ahead.

DR. WALTER: On this topic, on the proxies, one of -- At least the Science Center feels that this should really be within the realm of a scientific decision and that it should be determined by the science, and then the risk of achieving that should be then the council decision, and so there should be a separation of the science, which determines what a stock can handle, and then the risk is the risk of not failing to achieve that, and so that separates those two lanes. We have been wanting to see those decisions made, at least to the extent they can be, by the SSCs, weighing, as much as they can, in on that particular aspect. Thanks.

DR. NESSLAGE: Thank you. Jeff, go ahead.

DR. BUCKEL: Thanks. Just to that first bullet, if the SSC members agree, we can be stronger and say there is no support for SPR levels lower than 30 percent. I hate to leave "not a lot" and an opening there.

DR. NESSLAGE: Good point. Anything else, Jeff, at the moment?

DR. BUCKEL: That's it.

DR. NESSLAGE: Okay. Excellent. Yan, go ahead.

DR. LI: Thank you, Genny. I have a couple of comments here. First, going back to the comments that Alexei raised earlier, Alexei, correct me if I misheard or misinterpreted your comments, and I remember Alexei made a comment about saying this is a meta-analysis incorporating species in other regions, and this could be the best information available now, and is that right, Alexei?

DR. SHAROV: That is what I said. If I am wrong, then, Kyle please correct me.

DR. LI: Maybe we can consider adding a bullet point here, because the SSC is being asked to make comments on the scientific risk, and so I am thinking that maybe we can provide this as one bullet to support the results from the analysis is the best science available now, and so this is my first comment.

Then the second comment is I remember Kyle mentioned that Katie did earlier analysis with different selectivity and different natural mortality assumptions and fecundity assumptions, and so she came out with the 27 percent instead of the 38 percent here, and so I'm thinking that maybe, as the uncertainty, or risk, maybe we can consider adding a bullet point under this item here saying the results may depend on other parameters, such as selectivity and natural mortality or fecundity. Kyle can correct me about those points, those items. That's the second comment.

The third comment is I am looking at the items listed here, and so the first is there is no support for SPR levels lower than 30 percent, and then we have a bullet under that right there saying that the implied steepness would be too high, and then I feel like the remaining points listed under here should be independent and like not under there is no support for the SPR levels lower than 30 percent, but the first bullet should be -- The others should be independent and like parallel with the first one.

Also, my last comment is I am thinking, looking at "the analysis recommended an SPR of 30 percent", and I'm not sure if it's worth our attention to change the "recommended" to "suggested", because the SSC did not recommend, and we just discussed, and Genny clarified, that we are not recommending SPR, but just the results suggest this is the best, and that's to avoid some confusion. That's all. Thank you. Thank you, Chip.

DR. NESSLAGE: That's great. Thank you, Yan. All right. I think this might be a good time for us to do our breakout groups. I believe we have three breakout groups, one group assigned to review the language and see if we've captured the major thoughts having to do with the descender device usage, the second having to do with projection configurations, and then the third having to do with this SPR discussion.

I have volun-told Jeff, Wally, and Yan that, if they don't mind being rapporteurs and taking notes, and I think perhaps Chip will send around, right now, the document he's been putting up on the board, if you don't mind, Chip, and then, folks from the public, if you're interested in joining us on any of these breakout groups, please use the links that are provided, and I believe that usually staff will throw them in the chat as well. Feel free to join us and listen in. The groups will just make sure that we have captured the major points, so that, when we go back to write our report, we've got it all down there and no one forgets.

Then we will reconvene and review these on this main webinar link. I am looking at the time, and it's now 4:04, and so why don't we try to -- I know we're running out of time here quickly, and

let's try to do this quickly reconvene maybe at 4:30, if we can, and so hopefully we've gotten most of the major points, but let's look for anything that's missing that we discussed at length that is not well captured in the notes so far. Chip, am I missing anything?

DR. COLLIER: I think you have it covered well. I have sent the document to the SSC members, and so it should be in your mailbox, and I am trying to post these things into the chat, but, unfortunately, it's not letting me type in the chat right now.

DR. NESSLAGE: While he's doing that, let's everybody head on out to your breakout groups, and we will reconvene at 4:30 to review the results. Sound good? All right. Thank you, everyone.

(Whereupon, the committee went into breakout sessions.)

DR. NESSLAGE: Given the late hour, I believe we're just going to finish up reviewing these consensus statements, and we can do our other business in October. Chip, how are we going to handle the catch level projections workgroup statement of work? Is that something we can do over email as well?

DR. COLLIER: I think we could potentially do it over email. The big thing is just letting the SSC know that that workgroup is out there and that they sign up for it, and so having them -- It might be good to have them volunteer through email, and, that way, we can have it in an official report when we give it to the council in September.

DR. NESSLAGE: Okay, and so I will solicit folks for that in the next week or so, if that's okay with you, and that will go in the report?

DR. COLLIER: Yes, I think that would be good, and then the next part that was there was -- It was -- I'm drawing a blank. It was the ACL recommendations, or, if the SSC members would want to comment individually, what they can do is they can provide comments to the council. The council would be taking public comments, and they can provide those, as a member of the public, at their September meeting. That way, they can get them incorporated into their comments to the National Marine Fisheries Service on that topic.

DR. NESSLAGE: Fabulous. Thank you. Do you need a minute to collate what you received? If so, we could do some public comment, maybe, or what are you thinking, Chip?

DR. COLLIER: I think I just got it done, and so we should be good.

DR. NESSLAGE: You are amazing, absolutely amazing. Okay, folks, and so let's -- Again, we're not wordsmithing too much here, and we want to make sure that all the major points we agree on and nothing major has been left out, so that all we're doing, in the next week or so, is wordsmithing, but not changing the content, and so please keep that in mind as we review this. I would look to the workgroup rapporteurs to lead us through what you're recommending here, and so I think first it's Jeff.

DR. BUCKEL: That's correct. I guess the big change was moving all these sub-bullets up underneath the discuss bullet, and then the other one was clarification of what the 75 percent was, since there was confusion about if that referred to 75 percent use of descenders on all fish versus

what it was, based on Julie's description for Block 3 and Block 4, which is the 75 percent descender usage on the impaired categories only, those impaired or vented fish, and so that's that first bullet, to make that clear.

Then I think there was a little bit of wordsmithing to some of the other bullets, but then the other big one was the second open bullet to provide justification if deviating, and, since we didn't deviate, Wilson provided some nice text to explain that we didn't have a better way to estimate a usage rate for descenders, but that we did have discussion that there was lots of uncertainty around that, and that was it. Folks that were on the breakout group, please correct or add to, if I missed something.

DR. NESSLAGE: Excellent. Thank you. Anything folks are uncomfortable with that they want to make sure is added or deleted or changed the meaning of in any way in this section? All right. We're not seeing anything. Excellent work, Group 1, and thank you, Jeff. All right. Now on to the second group. Wally, take it away.

DR. BUBLEY: All right. We made some adjustments to some of the bullets, just because a lot of the bullets were just kind of a note of what was being discussed, but more statements, and so we kind of made some adjustments, but, after looking at this first bullet, I realize that I completely butchered it when I was typing, and so we need to do some wordsmithing, but the general thought with it is that the alternative recruitment requested by the council of the mean recruitment over the last ten years takes into account the variability that occurred over that time, both high and low values.

Then we made a comment about -- This is kind of a placeholder here, and so don't take too much stock in this, but we wanted to say something about the SSC is looking forward to the recruitment working group findings, since we couldn't get that information available to us prior to this, and then we also put something about the lag lengths that Chris had mentioned, just to put it in there so that that information can be kind of relayed somewhere. It doesn't fit here, but it's just that we wanted to put it in for the time being, just so it doesn't get forgotten. We also made a comment about the management restrictions have likely contributed to increased recruitment.

Then we have a couple of caveats and concerns that were put forth for using the last ten years instead of the full time series, such as the theory as to why it's there, no model to predict future recruitment, and no stock-recruitment relationship, and that periods of higher recruitment may not be expected to continue. Any other concerns that anyone can think of with this one? I think we covered the bases there, but please feel free.

DR. COLLIER: Wally, the only suggestion, or maybe change, that I would say is this recruitment working group, but I was going to say can we call it the projection working group? That's what we've been calling it elsewhere, and I just want to make sure that it's clear.

DR. BUBLEY: That works great. Anything to make it sync up is good. All right. Then the idea of shifting the discards to landings, and we made reference that shifting those discards to landings shouldn't be done until substantial increases to the spawning stock biomass are observed and that it was counterintuitive to increase the landings while also trying to reduce the F by approximately half, some of the discussions that we had, and that using descender devices alone is not sufficient to reduce F to a sustainable level.

The next one is shifting discards to landings would offset the benefits of increased descending device usage, and the descender device usage could help to reduce F. Then the last portion was that mixed approach, and the reason I have that out there for needs clarification is just because someone not sitting in on these discussions today might not be aware of what that mixed approach is, and so we would basically just define that mixed approach here in the bullet point a little bit better for the final report.

DR. NESSLAGE: Can you scroll down a little, Chip? There's a little bit more.

DR. BUBLEY: Then the last bullet is discuss which recruitment scenario or scenarios are appropriate for use in setting the OFL and ABC. The first one is pretty apparent, and the SSC recommends an OFL based on Scenario 13. The F 30 is a more conservative rate than the catch-based on the F rebuild, and, therefore, a buffer between OFL and ABC is not recommended.

The current projections, with mean recruitment over the last ten years, indicates that the stock should rebuild more quickly than 2044, and there is significant uncertainty in the recruitment, and the uncertainty in the recruitment is underestimated and not being considered if OFL and ABC are set equal to each other, and that kind of leads into the last one. Are there difficulties encountered in applying the control rule, in that setting the OFL equals the ABC and ACL for a species with a probability of rebuild of 0.5 is the most risky action the council legally take.

DR. NESSLAGE: Thank you very much, Wally. Great summary. This was a tough one. I am not seeing -- It looks like there's no hands, no suggestions, and no one is upset about anything here, and that's good. Then let's keep it rolling. Yan, I believe you were in charge of the last group, but not least.

DR. LI: Thank you, Genny. The group -- You see the words highlighted in red are like the revisions and additions the group discussed. The first one is the SPR levels, and the group added "levels equal to or lower than", instead of just saying "lower than". We think, this way, it's more precise.

Then the group added a recommendation considering such analysis to evaluate the different SPR levels as the best proxy of MSY in a future stock assessment. The group also elaborated this, the next bullet point, and the meta-analysis completed by the SEFSC that used the most recent available data and explored the relationship between SPR levels and the steepness suggested an SPR of 38 percent is the closest proxy of FMSY.

Then, for the next one, the group made it more clear, by stating the results first. The results showed that the YPR did not decrease when changing from SPR 30 percent to 40 percent, and then the group added some comments on this, and this implies the more conservative SPR alternative, for example the 40 percent, would not substantially reduce the yield.

Then the next one is the same as before, and the last bullet point was added by the group. In general, an SPR of 40 percent is widely used as a proxy of FMSY in other regions and councils, such as the New England, Mid-Atlantic, and North Pacific Councils. If anyone sees anything, please speak up. That's all.

DR. NESSLAGE: Excellent. Thank you very much. SSC folks, is there anything that you disagree with or that you would like added? No hands. I am loving this breakout group. You guys are really efficient. I'm sorry it's so short, and I'm hoping that we'll have a little bit more time for more in-depth discussion, but this is fabulous, and you guys have really taken the notes and fleshed them out, and this will make it much easier for me to draft up the report, and I greatly appreciate it. Jeff, go ahead.

DR. BUCKEL: Chip, can you scroll up to the top bullet? There is no support for SPR levels equal to 30 percent, and I closed the presentation that Kyle had, and I'm not sure if he's still on the line, and I thought that maybe a little bit of the distribution -- I agree with that mostly, but just to be clear, and I thought there was some of the distribution of FMSY that hit F 30, or maybe Kyle said that, but I don't see that here, and maybe it was the Fmax. Sorry, but I just wanted to make sure that the plots did match that statement, that there was no support for F 30.

DR. SHERTZER: I will just chime in that it was F 30 that looks like it's within the distribution, but that's actually just sort of the rounding of the plotting function, and F 30 exceeds all the values of FMSY, or Fmax exceeds all the values of FMSY, and F 30 was higher than Fmax, and so it's outside of the range.

DR. BUCKEL: Thanks, Kyle.

DR. NESSLAGE: Excellent. Thanks, Jeff. Anne.

MS. LANGE: I guess my question is what SPR is being used in the assessment, in SEDAR 73, and wasn't it 30 percent?

DR. NESSLAGE: Yes.

MS. LANGE: Okay.

DR. SHERTZER: It is, but it's also assuming essentially a steepness of one, and so these values and the distribution are conditional on a beta distribution of steepness values that are less than one.

MS. LANGE: Okay.

DR. NESSLAGE: All right. Any other clarifications or concerns? Fred Serchuk.

DR. SERCHUK: Just back to the last point, and I thought the graph that we had up there was based on a Beverton-Holt stock-recruitment relationship, but there was no Beverton-Holt stock-recruitment relationship used in the current assessment, and is that correct?

DR. SHERTZER: Correct.

DR. SERCHUK: So I just want to make sure that we don't give the wrong impression that we're basing the distribution of FMSY on a Beverton-Holt stock-recruitment relationship, and somebody will ask, well, you haven't used it, and it's not apparent that a Beverton-Holt stock-recruitment model is appropriate with the data that you have. I am just trying to be a devil's advocate here for a second, and that's all. Thank you.

DR. NESSLAGE: Kyle, wouldn't that mean that the implications might actually be worse, because there is a lack of stock-recruitment relationship, or am I not thinking this through all the way?

DR. SHERTZER: Well, I think you could think of the way that recruitment was modeled in the assessment, using a mean recruitment model as sort of equivalent to a steepness value of one.

DR. NESSLAGE: So it's a specific form of a stock-recruitment relationship, but it's very constrained.

DR. SHERTZER: Right, and this distribution of FMSY values is conditional on the assumption of the Beverton-Holt spawner-recruit model, and, when we try to estimate a Beverton-Holt spawner-recruit model within the assessment, then steepness goes to the upper bound.

DR. NESSLAGE: So, Fred, is there something you would like to add to the -- Or modify in our comments here? I don't want to ignore your concern.

DR. SERCHUK: I just don't want to confuse people that are non-technically-oriented, and I guess it strikes back to the first thing, and there is no equal to or lower than 30 percent, and I know that we're -- It's almost as if we're chastising the council.

DR. NESSLAGE: Well, they asked, but can we add a sub-bullet that says these results are predicated on these assumptions and a Beverton-Holt relationship, which in the assessment we're assuming a steepness of one? Kyle, would that -- Or I should ask Fred. I mean, would that help, at least? We don't really have any other way to get at this, do we? I can't --

DR. SERCHUK: I mean, I think the most compelling thing, for me, in all of this is the last bullet, and the bullet says that SPR proxies of 40 percent are used elsewhere, and so on and so forth, and I just don't -- I want to be helpful to the council, quite frankly. They have asked about it, and I would say there is little support for SPR levels equal to or lower than, but I think the last bullet that you have here is really much more of an indicator that says, wait a second, we're one of the few councils that is not using what's commonly used elsewhere, and there must be a reason for it.

DR. NESSLAGE: Right. We've talked about this before, and we have animals that are long-lived, but they mature early, and so these SPR levels might not apply, although this particular analysis indicates that it might not be that far off either here in the South Atlantic, and so are you suggesting that we delete this bullet? Would anyone cry if we deleted this bullet? Is that what you're saying, Fred?

DR. SERCHUK: Which bullet are you talking about now, Chair?

DR. NESSLAGE: The last one.

DR. SERCHUK: No, I think the last one is fine, because I think what -- I think, basically, it's how do we deal with situations where we have either little -- We don't have a formal model to tell us, but we want to be risk-averse. I just wanted to be helpful here. They asked us to look at it, and maybe we can -- I just wanted to sugarcoat it a little bit, to say, look, there is rebuilding going on,

even with F 30 percent, and now you could say it's pure luck, but they're going to come back and say, well, that's what we've used, and it looks like it's working out okay.

DR. NESSLAGE: Can we say that this analysis indicates there is no support, and then have one of the sub-bullet caveats be, however, the SSC notes that there has been remarkably high recruitment in recent years, indicating the assumptions in this analysis may not be perfectly accurate, or something -- I don't know, and is that what you're getting at, Fred?

DR. SERCHUK: Yes, and it may be wrong, but we haven't seen a really deleterious effect, particularly when the stock is rebuilding and it's on its way, even under that, to this 2044, and, if you believe the most recent recruitment, we can actually get there quicker.

DR. NESSLAGE: Right. Does anyone -- Well, let's see. As Chip is writing, let's go down the list here, but, if anyone has any heartburn over those new additions, let me know. Alexei.

DR. SHAROV: I think we are already getting into the editing of the text to the detail that we said we're not going to do, but I think that the -- The Center was asked to complete an additional analysis to look for alternative SPR levels that could be proffered. Kyle completed the analysis and presented his results, and, based on what we've seen and what was presented, there is no evidence that supports a lower SPR, and I think we're reporting exactly what we've seen, and we have agreed with the analysis.

Maybe a little bit more of the detail on how the analysis was completed. For example, I don't know if there is any write-up on the meta-analysis that shows how actually this was done and if there is a reference or a reference to the prior publications or whatever, and maybe that could be helpful, but, beyond this, I think we report here exactly what is asked to do, and so I agree with these recommendations.

DR. NESSLAGE: All right. Thank you, Alexei. Yan.

DR. LI: Thank you, Genny, and, first, I concur with the modification here, and one little suggestion is can we put that these results are predicated on -- That sentence, but the same parallel relating to the big bullets and then put it on the top. So like the first one, when the council gets to this bullet and this item, first, they will keep in mind that all the results are dependent on the parameters and assumptions that we use here, and so all the things that we have discussed here is based on the results only, solely based on the results. Thank you.

DR. NESSLAGE: Thank you. Anne.

MS. LANGE: Sorry. I forgot to drop my hand.

DR. NESSLAGE: All right. How do folks -- Any other concerns or suggested modifications to any of these consensus statements? No hands. Excellent work, everyone. I really appreciate it. This was a tough discussion, and a tough day, and you stuck with it, and I greatly appreciate all of your work today.

Just so you know, I will take this document, once Chip sends it to me, and turn it into a report, draft report, that will include the table, the fishing level recommendations table, for red snapper,

and I will get it to you hopefully -- My goal is by next Wednesday, and then I will give you guys a week to provide edits, and so that would be the 11th, and you will have it back, and that will give us a little bit of lead-time and it's due early the week after, and so just as a heads-up.

I believe that's everything, except for public comment, although I will alert everyone to the very last bit of our agenda, and hopefully we will be meeting in person in October, the 27th to the 29th, and so keep that in mind, and if you -- I know I've spoken with a few of you, and, if you need other arrangements, please let me know. I believe -- Chip, are we ready for final public comment? Am I forgetting anything?

DR. COLLIER: I don't think so. Fred Serchuk has his hand up.

DR. SERCHUK: One last comment, Chair, if I could. Do we know what the SPR level is that is used in the red snapper in the Gulf?

DR. NESSLAGE: I don't know off the top of my head. Judd, do you know?

DR. CURTIS: I believe it's SPR 26 percent.

DR. COLLIER: That sounds right.

DR. SERCHUK: Okay, and so that's even lower than 30 percent. Okay. Thank you.

DR. NESSLAGE: Yes, and I don't -- We haven't -- I would love to see, and we should probably -- It would be good to see, in the future, given that we're recommending an analysis here in that third bullet, just as a note to Kyle, and it would be good to see a comparison with other similar stocks.

DR. COLLIER: Julie Neer had noted that SEDAR -- Red snapper in the Gulf is undergoing a research track assessment, and so that proxy could change in the near future.

DR. NESSLAGE: All right, and so hold that thought. Okay. Then I would like to open the floor for one last opportunity for the public to provide comment. If you have a comment, please raise your hand with the little turkey, green turkey.

DR. COLLIER: I will bring up the slide to show people how to do it, and so it's this icon right here. If you just click on that, that will raise your hand. I think everybody here is pretty much a pro, it's looking like, and I am not seeing any hands raised right now.

DR. NESSLAGE: All right. Then thank you, everyone. Thank you, SSC members, and thank you, Kyle and Julie. Thank you to the council staff who helped us, especially Chip and our breakout group leaders. I appreciate it, and I look forward to communicating with you over email regarding the projections working group and the draft report, and, with that, I will call the meeting to an end. Thank you very much, everyone.

(Whereupon, the meeting adjourned on July 28, 2021.)

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Amanda Thomas
August 30, 2021

Attendee Report: Scientific & Statistical Committee Meeting

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Attendee Details

Attended	Last Name	First Name
Yes	Addis	Dustin
Yes	BROUWER	MYRA
Yes	BYRD	01JULIA
Yes	Bell	00Mel
Yes	Bianchi	Alan
Yes	Blough	Heather
Yes	Breeden	Terri
Yes	Brennan	Kenneth
Yes	Bubley	Walter
Yes	Buckel	Jeff
Yes	Calay	Shannon
Yes	Cao	Jie
Yes	Carmichael	01 John
Yes	Collier	Chip
Yes	Conklin	00 THE REAL Chris
Yes	Cox	Derek
Yes	Curtis	Judd
Yes	DeVictor	Rick
Yes	Deal	Justin
Yes	Dumas	Chris
Yes	Finch	Margaret
Yes	Flowers	Jared
Yes	Foss	Kristin
Yes	Gaines	Graham
Yes	Gamboa-Salazar	Keilin
Yes	Gentry	Lauren
Yes	Glasgow	Dawn
Yes	Goss	Julia
Yes	Grimes	Churchill
Yes	HEMILRIGHT	DEWEY

Yes	Hadley	01John
Yes	Hart	Hannah
Yes	Helies	Frank
Yes	Holmes	Topher
Yes	Holshouser	Walter
Yes	Hull	James
Yes	Iberle	Allie
Yes	Iverson	01Kim
Yes	Johnson	Eric
Yes	Laney	Wilson
Yes	Lange	Anne
Yes	Larkin	Michael
Yes	Lazarre	Dominique
Yes	Li	Yan
Yes	Martinez	Adrian
Yes	McCoy	Sherylanne
Yes	Mehta	Nikhil
Yes	Neer	Julie
Yes	Nesslage	01 Genny
Yes	Poland	Stephen
Yes	Pulver	Jeff
Yes	Ramsay	Chloe
Yes	Reichert	Marcel
Yes	Rhodes	01Cameron
Yes	Robertson	Charlie
Yes	Runde	Brendan
Yes	Sanchez	Joseph
Yes	Sauls	Beverly
Yes	Scharf	Fred
Yes	Schmidtke	Michael
Yes	Sedberry	George
Yes	Serchuk	Fred
Yes	Seward	McLean
Yes	Sharov	Alexei
Yes	Shertzer	Kyle
Yes	Smart	Tracey
Yes	Smit-Brunello	Monica
Yes	Spanik	Kevin
Yes	Stemle	Adam
Yes	Strelcheck	Andy
Yes	Sweeney Tookes	Jennifer
Yes	Sweetman	CJ
Yes	Thompson	Robert
Yes	Travis	Michael
Yes	Vaughan	Douglas
Yes	Vecchio	Julie
Yes	Wiegand	01Christina

Yes	Willis	Michelle
Yes	Woodward	00 Spud
Yes	crosson	scott
Yes	moss	david
Yes	sminkey	thomas
Yes	walter	John