GULF OF MEXICO FISHERY MANAGEMENT COUNCIL

MEETING OF THE STANDING & SPECIAL REEF FISH, SOCIOECONOMIC & ECOSYSTEM SCIENTIFIC AND STATISTICAL COMMITTEES

WEBINAR

AUGUST 9-11, 2021

STANDING SSC VOTING MEMBERS

Lee Anderson .....
Luiz Barbieri .....
Harry Blanchet .....
David Chagaris .....
Roy Crabtree .....
Benny Gallaway .....
Douglas Gregory .....
David Griffith .....
Paul Mickle .....
Trevor Moncrief .....
James Nance .....
Will Patterson .....
Sean Powers .....
Steven Scyphers .....
Jim Tolan .....
Richard Woodward .....

SPECIAL REEF FISH SSC VOTING MEMBERS

Jason Adriance .....
Michael Allen .....
John Mareska .....

SPECIAL SOCIOECONOMIC SSC VOTING MEMBERS

Luke Fairbanks .....
Jack Isaacs .....

SPECIAL ECOSYSTEM SSC VOTING MEMBERS

Mandy Karnauskas .....
Joshua Kilborn .....
Steven Saul .....

STAFF

Assane Diagne .....Economist
Matt Freeman .....Economist
John Froeschke .....Deputy Director
Lisa Hollensead .....Fishery Biologist
Jessica Matos .....Document Editor & Administrative Assistant
Ryan Rindone .....Lead Fishery Biologist/SEDAR Liaison

Carrie Simmons..... Executive Director
Carly Somerset..... Fisheries Outreach Specialist

OTHER PARTICIPANTS

Shannon Calay..... SEFSC
Jason Cope..... NMFS
Michael Drexler..... Ocean Conservancy
Tom Frazer..... GMFMC
Marian McPherson..... NMFS
Jay Mullins..... FL
Julie Neer..... SEDAR
Skyler Sagarese..... SEFSC
Katie Siegfried..... SEFSC
Matt Smith..... SEFSC
Andy Strelcheck..... NMFS
Brendan Turley..... FL
Nathan Vaughan.....

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TABLE OF CONTENTS

TABLE OF MOTIONS

PAGE 29: Motion to accept the edits as written: When the SSC is acting as the peer review body for a stock assessment or other study, an SSC member(s) should abstain from any motions and voting on the issue of BSIA if they have served as the analytical lead, or principal or co-principal investigator or had any direct participation as a member of the analytical team. or been otherwise directly involved in the development of the stock assessment beyond the role of a workshop panelist. During the BSIA deliberations the SSC member(s) is free to participate in the discussion, answer questions, and provide pertinent expertise and feedback to the SSC. After a decision has been reached on BSIA, the SSC member(s) is at liberty to motion and vote on remaining management advice (e.g., catch limits, appropriateness of allocation calculations, decision tools developed to inform management action). The motion carried on page 29.

PAGE 89: Motion that the SSC accepts the new mean weight estimation methodology to estimate the weight of recreationally caught red grouper. The motion carried on page 93.

PAGE 113: Motion that the SSC accepts the updated methodology and interim analysis results for red grouper and sets the OFL at 5.99 million pounds gutted weight and the ABC at 4.96 million pounds gutted weight using the three-year moving average for setting the ABC relative to the OFL. These values are in MRIP-FES units. The motion carried on page 121.

PAGE 133: Motion to approve the edits to the Red Grouper Operational Assessment Scope of Work. The motion carried on page 133.

PAGE 143: Motion to accept the Vermilion Snapper Operational Assessment Scope of Work. The motion carried on page 143.

PAGE 161: Motion that the SSC recommends a data triage report be generated by the SEFSC for the tilefishes complex as a guide to the selection of the model environment for the next stock assessment. The motion carried on page 166.

PAGE 259: Motion that the SSC concurs with the SEFSC determination that the new methodology for estimating projected catches is an improvement and acceptable as BSIA. The motion was withdrawn on page 275.

PAGE : Motion that the SSC recommends that the current SEDAR

research track assessment for Gulf of Mexico red snapper investigate alternative scenarios for stock structure. The motion carried on page .

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The Meeting of the Gulf of Mexico Fishery Management Council Standing and Special Reef Fish, Special Socioeconomic & Special Ecosystem Scientific and Statistical Committees convened on Monday morning, August 9, 2021, and was called to order by Mr. Ryan Rindone.

INTRODUCTIONS
ADOPTION OF AGENDA
APPROVAL OF VERBATIM MINUTES AND MEETING SUMMARY: MAY 3-4, 2021 MEETING

MR. RYAN RINDONE: Good morning. My name is Ryan Rindone, and I am the council staff lead for the Scientific and Statistical Committee of the Gulf of Mexico Fishery Management Council. We appreciate your attendance on this webinar and input into this meeting, and we would like to welcome the reappointed and new SSC members and thank you guys all for your participation. Representing the council is Dr. Tom Frazer, and council staff in attendance include Carrie Simmons, John Froeschke, and Jessica Matos.

Notice of this meeting was provided to the Federal Register, sent via email to subscribers of the council's press release email list, and was posted on the council's website.

We have quite a few agenda items. Some of the non-clerical things will include election of a Chair and Vice Chair, discussing the SSC's best practices and voting procedures, a review of the updated red grouper interim analysis, a discussion of the research track and operational assessment process guidance, determining topical working groups for the gray snapper operational assessment, scope of work for red grouper and vermilion snapper operational assessments, determining the approach to assess the Gulf of Mexico tilefish complex, updates for the interim analysis and SEDAR stock assessment schedules.

Then we'll discuss National Standard 1 technical guidance on data-limited species, and we'll review king mackerel historical harvest differences, greater amberjack historical harvest and catch limits, greater amberjack projections, and we'll have a presentation on using field experiments to assess alternative mechanisms for distributing fish to the recreational sector.

Then we'll look at draft options for Generic Essential Fish Habitat Amendment Number 5, and then we will discuss topic leaders for agenda items, we'll have public comment, and then Other Business.

The webinar is open to the public and is being streamed live and recorded. A summary of the meeting and verbatim minutes will be produced and made available on the council's website.

For the purposes of voice identification, and to ensure you are able to mute and unmute your line, please identify yourself by stating your full name when your name is called for attendance. Once you have identified yourself, please re-mute your line. If you're in the room, you can just press the microphone in front of you, and it's tied into the webinar as well.

To signal you wish to speak during the meeting, if you're in the room, just raise your hand, and I will be able to see you. If you are on the webinar, use the raise-your-hand function, and staff will display your name on the notepad on the screen. Please remember to identify yourself before speaking and to also to re-mute your line or, if you're in the room, your microphone, each time you finish speaking. Jess, do you want to run through it?

MS. JESSICA MATOS: Lee Anderson.

DR. LEE ANDERSON: Lee Anderson.

MS. MATOS: Luiz Barbieri.

DR. LUIZ BARBIERI: Luiz Barbieri.

MS. MATOS: Harry Blanchet.

MR. HARRY BLANCHET: Harry Blanchet.

MS. MATOS: Dave Chagaris.

DR. DAVID CHAGARIS: David Chagaris.

MS. MATOS: Roy Crabtree.

DR. CRABTREE: Roy Crabtree.

MS. MATOS: Benny Gallaway.

DR. BENNY GALLAWAY: Benny Gallaway, here.

MS. MATOS: Thank you. Doug Gregory.

MR. DOUGLAS GREGORY: Doug Gregory, here. I will note that I didn't know that we could participate from a train.

MS. MATOS: David Griffith.

DR. DAVID GRIFFITH: David Griffith, here.

MS. MATOS: Paul Mickle.

DR. PAUL MICKLE: Paul Mickle.

MS. MATOS: Trevor Moncrief.

DR. TREVOR MONCRIEF: Trevor Moncrief.

MS. MATOS: Jim Nance.

DR. JIM NANCE: Jim Nance, here.

MS. MATOS: Will Patterson.

DR. WILL PATTERSON: Will Patterson, here.

MS. MATOS: Sean Powers.

DR. SEAN POWERS: Sean Powers, here.

MS. MATOS: Steven Scyphers.

DR. STEVEN SCYPHERS: Steven Scyphers is here.

MS. MATOS: Jim Tolan.

DR. JIM TOLAN: Jim Tolan.

MS. MATOS: Rich Woodward.

DR. RICH WOODWARD: Rich Woodward is here.

MS. MATOS: Jason Adriance.

MR. JASON ADRIANCE: Jason Adriance.

MS. MATOS: Michael Allen.

DR. MICHAEL ALLEN: Mike Allen.

MS. MATOS: John Mareska.

MR. JOHN MARESKA: John Mareska.

MS. MATOS: Luke Fairbanks.

DR. LUKE FAIRBANKS: Luke Fairbanks is here.

MS. MATOS: Jack Isaacs.

DR. JACK ISAACS: Jack Isaacs is here.

MS. MATOS: Mandy Karnauskas. Josh Kilborn.

DR. JOSH KILBORN: Josh Kilborn, here.

MS. MATOS: Steven Saul. Tom Frazer.

DR. TOM FRAZER: Tom Frazer.

MS. MATOS: Carrie Simmons.

EXECUTIVE DIRECTOR CARRIE SIMMONS: Thank you. I just wanted to welcome everyone, and it's great to see some folks in the room and hear some voices on the webinar. Carrie Simmons, Executive Director, and I'm glad to have this group together again. We have a couple of new members, and so I appreciate your time and your attention to a lot of the different materials that were put on your agenda, and I look forward to a productive meeting. Thank you.

DR. JOHN FROESCHKE: John Froeschke, Deputy Director.

DR. LISA HOLLENSEAD: Lisa Hollensead, Fishery Biologist.

MS. CARLY SOMERSET: Carly Somerset, Fisheries Outreach Specialist.

DR. MATT FREEMAN: Matt Freeman, Economist.

MR. RINDONE: All right. Thank you, everyone. We're going to start with the agenda. There's a couple of items on the agenda that have been struck through, and these are because these items either weren't received in time to be posted or they were pulled for other reasons, like they weren't going to be available at all, but, outside of that, does anyone have any edits to the agenda? All right. Does anyone have any opposition to the agenda being approved? Seeing no hands, by acclamation.

The next thing is approval of the minutes for the May 3 and 4, 2021 webinar meeting, and these minutes have been posted to the

meeting materials page for the SSC meeting, and so you guys should have had an opportunity to peruse that great reading. Does anyone have any edits to the minutes? No hands in the room. All right. Does anyone have any opposition to the minutes being approved as written? Hearing no mutiny, the minutes are approved by acclamation.

The next thing is Election of a Chair and Vice Chair. Classically, the way that these positions have worked is that they are one-year appointments, with the option to be reappointed for a second consecutive year, but the Chair or Vice Chair typically doesn't sit in that position for more than two consecutive years. The last Chair was in that position for almost three years, but, COVID being COVID, that was part of the reason for that.

For doing this, if there is more than one person nominated, or that puts their name forward for either position, we will have a silent vote, where you guys will just put in the subject line of your email "Chair", or, if it's for the Vice Chair, "Vice Chair", and send me an email with the name of the person that you are voting for. I will open the floor for nominations for the Chair position for the SSC. The perk to this position is you get to work with me.

ELECTION OF THE CHAIR AND VICE CHAIR

DR. POWERS: Ryan, a question. Does it have to be a Standing member, or can it be Reef Fish or somebody else?

MR. RINDONE: It has to be a standing member of the SSC. That's a good thing to point out, Sean. Thank you. Yes, it has to be a standing member of the SSC, because the Standing SSC members are the ones that are present for all SSC meetings, regardless of subject material, and so this potato is hot, and I'm looking to toss it. Luiz.

DR. BARBIERI: Thank you, Ryan. I would like to nominate Jim Nance for Chair.

MR. RINDONE: Jim, do you accept?

DR. NANCE: I would be willing to do it.

MR. RINDONE: All right. Are there any other nominations for Chair? All right. Seeing none, we'll go ahead and close nominations, and, Jim, since you're the only name up there, you win. All right. The Vice Chair position. Harry.

MR. BLANCHET: I hate to do this without having spoken to the person first, but I would like to ask Paul Mickle if he is interested in the Vice Chair position.

MR. RINDONE: Paul.

DR. MICKLE: Thank you, Harry. I appreciate it, but, just to let you know, I'm eight months into a directorship at a new position, and I am just truly overwhelmed. I would be honored to catch it next time, the Vice Chair, but thank you for the nomination.

MR. RINDONE: All right. Any other nominations for the Vice Chair position? Will Patterson.

DR. PATTERSON: I nominate Luiz Barbieri.

MR. RINDONE: Luiz, do you accept the nomination?

DR. BARBIERI: Thanks, Ryan. I do. Thank you, Will, for the nomination.

MR. RINDONE: All right. Any other nominations for the Vice Chair position? No hands waving in the room. All right. Seeing no other nominations, we will close nominations for the Vice Chair position, and so, Jim and Luiz, you're at the helm.

CHAIRMAN NANCE: Okay. Well, thank you, Ryan.

SCOPE OF WORK
SELECTION OF THE SSC REPRESENTATIVE FOR THE COUNCIL'S AUGUST 23-26, 2021 MEETING

MR. RINDONE: Next up, Dr. Nance, will be the Scope of Work, which I will go through item-by-item, as opposed to reading that War and Peace all at once, and we'll just hit each thing before each agenda item, and so, passing on that, next will be the Selection of the SSC Representative for the San Antonio Meeting. This meeting will be held in a hybrid fashion, and so the SSC representative that attends would have the option of attending either in-person or via webinar. The meeting is from August 23 to 26, and so if you want to find us a representative.

CHAIRMAN NANCE: Okay. Are there any that want to go to the meeting? I would be happy to go, but, if there is someone else, we can certainly consider that.

DR. CRABTREE: I think, given it's in your vicinity, that makes sense for you to attend the meeting.

CHAIRMAN NANCE: Okay. I will be happy to attend that meeting and represent the SSC there, and I really appreciate being able to do that, because this committee has always functioned very well together, and I think we can continue to do that, and just remember that the Chairman is just representing the entire committee and not myself there, but I would be happy to do that.

DISCUSSION DOCUMENT: SSC'S BEST PRACTICES AND VOTING PROCEDURES

MR. RINDONE: All right, and so, Mr. Chair, the next item will be the discussion document on the SSC's best practices and voting procedures. I will be taking that one on, with some help from Dr. Simmons, and so this is Item Number VI.

It's just a little two-pager, but I figured, to carve out some time for you guys to talk about this, because this will ultimately be -- How this is finally crafted will ultimately be what we use moving forward, when we're talking about voting on peer review items.

As you guys -- As many of you, probably most of you, likely remember from the review of the Great Red Snapper Count report, we tried to set up the voting for that to best follow the National Standard 2 Guidance on peer review, in keeping with the best scientific information available.

The two-page document that you have in front of you was developed in consultation with the Southeast Regional Office and NOAA General Counsel, to try to make sure that everything in there, to the absolute best avenue possible, was in keeping with National Standard 2 and the BSIA requirements in Magnuson.

These National Standards, obviously, are things that the council has to follow in any amendment development and, with respect to National Standard 2, that's the one that mostly falls upon the SSC to make sure the SSC follows.

When we're talking about voting, and how that's going to affect the decisions that are made by the SSC and the recommendations that go forward to the council, there are certain participatory things that SSC members need to have done in advance. Like you have to have filled out your SOFI when you're asked to, your statement of financial interest, and those are kept with the NMFS Regional Administrator, and they are also available to the

public. They are posted on the council's website. That last bit is a new requirement, and so you can see all of those on the SSC page on the council's website.

If your financial interests substantially change, you have to provide an updated SOFI within thirty days, and then that will also be provided to the Regional Administrator and posted online. When considering information for making informed recommendations to the council, SSC members participating in the decision-making process should possess relevant expertise, demonstrate independence, and be free of conflicts of interest, and that is just about plagiarized directly from the Act.

Per the NS 2 Guidelines, and this is directly from the Act, peer reviewers, in this case you guys, the SSC members, must not have any conflicts of interests with the scientific information, subject matter, or work product under review or any aspect of the statement of work for the peer review. For the purposes of this section, a conflict of interest is any financial or other interest which conflicts with the service of the individual on a review panel, because it could significantly impair the reviewer's objectivity or create an unfair competitive advantage for a person or organization.

Further, peer reviewers, the SSC members, must not have contributed or participated in the development of the work product or the scientific information under review. For peer review products of high novelty or controversy, a greater degree of independence is necessary, to ensure credibility of the process.

Peer reviewer responsibilities should rotate across a pool of qualified reviewers or among the members of a standing peer review panel, which is something that we already do through SEDAR, and it's rare that you have the same person on all SEDARs, or in all workshops, to prevent a peer reviewer from repeatedly reviewing the same scientific information, recognizing that, in some cases, repeated service by the same reviewer may be needed, because of limited availability of specialized experts.

Where the rubber meets the road is this last paragraph here, and I realize that I am reading all of this, and everyone here is literate, but this is just to read it into the record.

When the SSC is acting as the peer review body for a stock assessment or other study, an SSC member should abstain from any motions and voting on the issue of best scientific information available if they have served as the analytical

lead, as a lead investigator, or been otherwise directly involved in the development of the stock assessment beyond the role of a workshop panelist, and this is in keeping with how SEDAR has operated since 2005. If you were a workshop panelist at some point, you could still review the assessment in your capacity as an SSC member when the assessment is complete and comes to the council for review.

During the best scientific information available deliberations, the SSC member is free to participate in the discussion, answer questions, and provide pertinent expertise and feedback to the SSC. After a decision has been reached on the best scientific information available, which is the ultimate decision that says, okay, this is good stuff, and we're going to look at using this for management, and so that decision is now out of the way, the SSC member, or members, are at liberty to motion and vote on remaining management advice, such as catch limits, appropriateness of allocation calculations, decision tools developed to inform management action, et cetera.

The hurdle to get past, if you were the lead investigator of a study that's being considered say for management advice, would be the SSC, less the person that was the lead investigator, declares that we think this is the best scientific information available, and we think that this should be used for management advice, and it will be on myself, the Chair, and the Vice Chair to make sure that, when the motion making is occurring, that that motion happens by itself, and so it's not we think this is BSIA and the OFL should be this and the ABC should be this, but it will just -- That motion will just be is this BSIA or not, and then we'll go to the next thing.

When we go to the next thing, if you were the lead investigator or whatever, that decision to use that information, that's done. It's already been determined, and so the advice that comes next, going to the council to inform management action, you can participate in that full bore. That is what we're proposing here, and we're trying to keep that in line with, again, National Standard 2, with the peer review guidelines set forth for Magnuson, and are there questions?

CHAIRMAN NANCE: Is this a change, or is this the way it's always been?

MR. RINDONE: It's kind of the way that it's always been, but we just haven't been so deliberate about outlining it. Some of the other councils, for their SSCs, have these voting procedures codified in their standard operating procedures and policies

for their SSCs, or for their council as a whole, and we haven't had such language put into the council's SOPPs for the SSC, but we have still more or less been bound to follow it, because the council has to operate under Magnuson, which includes abiding by the National Standards.

In this case, we're trying our best to clarify it explicitly, so that it creates fewer gray areas for people, and they can better understand when their participation, if they have a conflict -- When they should abstain and when they can step back in, and so, in the room, we have Trevor and David.

DR. MONCRIEF: Just real quick, I know it's probably difficult to foresee all the motions that are going to come out of a given meeting, but will the individual that fall under this be notified prior to the meetings, should they have to be excluded from a given vote?

MR. RINDONE: If it seems rather obvious that somebody should be aware of this, I will reach out to them in advance, and, obviously, if you are presenting a study to the SSC that is being considered for management advice, this would absolutely apply.

One that's coming up that comes to mind, that you guys will see in September, would be the study by LGL and Associates for the Louisiana Department of Wildlife and Fisheries, and so Dr. Gallaway is a principal for LGL, and, Dr. Gallaway, I know I'm picking on you right now, and so, in determining whether that study constitutes BSIA, for the purposes of what it examined, Dr. Gallaway should not vote on that particular motion, but, once that motion happens, whatever happens after that -- Like, once that vote happens, whatever happens after that, then he can participate again. That would be a contemporary example. Dr. Griffith.

DR. GRIFFITH: Just a point of clarification, and so, if you are the PI on a study, you can participate in all the discussion and stuff, and the only thing you can't do is vote, and that's it?

MR. RINDONE: Yes, and your participation in the discussions is probably pretty critical, because, if there are questions, obviously, you want to hear it from the horse's mouth, and so the only thing that you're really being recused from is on whether it constitutes the best scientific information available. You can't review your own manuscript for publishing, that sort of perspective, and whether it's being used for

management advice.

Once the SSC has determined that we do want to use this for management advice, then you have the opportunity to step back in and vote on how it's going to be used for management advice and what the catch limits might be, what the recommendation for a closed area might be, if that was something that was being examined, or whatever the circumstance might be. Online, we have Harry and Jim, and so we'll start with Harry.

MR. BLANCHET: I have two kind of unrelated questions, and this really has to do with what role we may serve as SSC members that is beyond the role of a workshop panelist, which is defined language right now, and I see two things that we can do regularly in our everyday jobs, and one is as a data provider.

Our various agencies provide information sources that go into stock assessments, and we may or may not be personally involved with the collection, analysis, summarization, or whatever of that data, but that is basically coming from our shop, and so I would see that as something as being beyond the role of a workshop panelist.

If we leave that as it is, that would exclude a fair number of SSC members from those votes, especially something as complex as red snapper, for instance, where we've got everything but the baby in the bathwater in there, and sometimes we've got the baby in there.

The other aspect is kind of related to the type of an issue that you just mentioned with Dr. Gallaway, in that some of us may have reviewed all or parts of a document, going into that assessment, prior to it going into that assessment, and so, again, that's beyond the role of a workshop panelist. I think I would like some clarification about some of those other types of roles that might either require or not require exclusion, so that we can be clear, going forward. Thank you.

MR. RINDONE: Dr. Simmons.

EXECUTIVE DIRECTOR SIMMONS: Okay. I will try to start answering, I think, some of that, Harry, some of your questions. Just a couple of things to note. Other councils' SSCs do not vote, and they operate by consensus, and so that's the first thing that I wanted to tell you all.

We historically, in the Gulf, have voted, and so that's why staff has drafted the suggestion this way, and it doesn't mean

you can't go back, Mr. Chair, to trying to have a consensus in how you want to run the meeting, but we know sometimes that is not easy to do, and so that's a different approach we could take.

When we were drafting these, Harry, we weren't suggesting that we would exclude the examples you gave in your scenarios from voting on BSIA. From what I understand, an independent reviewer that was reviewing a proposal that was put before your agency to complete said work, you were not directly involved in the work, correct, and are you a co-author, a co-lead, a co-PI, and, to me, then you would exclude yourself from that first part of that vote.

If you are an independent reviewer, you're kind of seeing -- You're kind of like a -- What do they call us when we're doing the NOAA RESTORE? We're like the manager, and don't call us co-PIs, and we're not co-investigators, but we're helping facilitate, and so I don't see you as having to exclude yourself from voting in that case. Technical monitor. There you go.

You're making sure that you're getting what you need, and so we weren't intending that you would exclude yourself from that vote, but, you yourself, if you feel like you yourself should exclude yourself from voting on this, that's totally up to you. I would consult with the Chair about that, make a decision and consult with us about that and make a decision, but that was not our intent when we drafted this.

MR. BLANCHET: Okay, and I was mainly concerned about that statement that any -- It seems to be pretty definite about what roles we can play, and those were two cases where I thought we were going beyond the role of a workshop panelist, and so that was my concern.

DR. MICKLE: Real quick, Dr. Simmons, you made a statement there about consensus and how the other SSCs and councils require consensus, I guess in other places, and, in the Gulf of Mexico, we've always voted. If I am reading this correct, and you said that it would be the Chairman's choice for consensus or not, but, if I'm reading this correctly, in this document that Ryan has presented here, it says, however, it is up to the regional fisheries management council to determine the process for administrative motioning and voting best practices, and it's actually the council's decision of how -- If we do a consensus or not, and not the Chair of the SSC. Am I reading that correctly?

EXECUTIVE DIRECTOR SIMMONS: Well, I mean, the council has to sign-off on this, and they saw a draft of it before we put it before you, but I'm just telling you that other regional councils do not necessarily operate their SSCs by voting. They have a consensus process that they go through. If there are panel members that can't agree with that consensus, they write reports, I guess minority reports of sorts, saying why they did not agree with that, but they don't vote like we do.

MR. RINDONE: Roy.

DR. CRABTREE: I believe, Carrie, and that was my understanding, that this is the only SSC that doesn't really operate as a consensus body. I mean, I think, if we had a consensus that we wanted to operate as a consensus body, I suppose the council could come in and say we don't agree with that, but I don't ever recall the council engaging at that level in our business.

One of the benefits of consensus body is, when you receive science advice, is this the best available science, and it comes to you as an eight-to-seven vote, that's really not very compelling, and, a lot of times, I think it's much more valuable if you spend the extra time to see what can we all agree on, from a science perspective, and then sometimes, if we can't agree, what that tells me is the answer is really not in the science, and we probably ought to lay out the pros and cons and let the policy makers decide.

I have watched the South Atlantic and the Caribbean operate as consensus bodies, and it seems like it works pretty well, and it does avoid some of these issues, in terms of voting and split decisions and those types of things, and so I think it is something worth considering.

CHAIRMAN NANCE: I know that, even when we have voting though, we do have a rigorous discussion, and, during that discussion, we're doing the pros and cons and so forth, and all of that is on the record. While the vote may be fifteen-to-one, and that's pretty good, but, if it's eight-to-seven, that shows that it was something that we were having issues with trying to come to agreement on, for sure. I don't know if that's -- We still, in the voting, have that discussion.

MR. RINDONE: Carrie.

EXECUTIVE DIRECTOR SIMMONS: Exactly. That's what I am suggesting, and so I think, on a lot of issues, if the Chair had a good feeling that we didn't have to go to voting, and

there was a solid consensus of the panel, of the committee, that we wouldn't have to necessarily vote on every single issue. On some things, it may require votes, and this is what we're suggesting, but, if the committee would want to consider something like, on some issues, we suggest that the committee is primarily going to operate on a consensus.

In the cases where the committee can't reach a consensus, with a few minority opinions, then we would follow this process, but we want you to tell us if that's how you want to operate, is what we're looking for.

MR. RINDONE: Online, we have Jim Tolan.

DR. TOLAN: I withdraw my comment. Thank you.

MR. RINDONE: All right. Doug Gregory.

MR. GREGORY: Good morning. I have been serving on the Caribbean SSC since 2018, and they currently do vote, and they also recently have been given advice from NOAA General Counsel that anyone involved in the research cannot vote on any aspect that involves that research, and so they have a more strict criteria than what is outlined in this document. Personally, I think people should be able to vote on all aspects of it, and we wear different hats for different reasons, but there are differences between the councils.

MR. RINDONE: Doug, you and I talked about this a little bit, and it may be a more nuanced discussion for NOAA GC to have on that issue. I did get a couple of them involved with the crafting of what you guys have in front of you right here, and so, anywhere where you guys want to add more explicit language, that is something that we can certainly consider and put back before the council. As Dr. Simmons said, the council ultimately has to sign-off on whatever it is that this two-pager becomes, and this will be included in the SOPPs. Dr. Anderson.

DR. ANDERSON: Thank you. I sit on the Mid-Atlantic SSC also, and they use voting there, too. Sometimes they will come up with a consensus, but voting is always possible. I just wanted to make that clear.

MR. RINDONE: Lee, do they -- Just out of curiosity, do they start at consensus and then determine a need to vote, or do they start with a vote and then, if no one objects, then it's just listed as a consensus statement? Like what's the order of operations?

DR. ANDERSON: It's the second way. They will start with a vote. No, I guess he will say, is there any objection, or something like that, and then, if there is, then they would go to a vote. Quite frankly, I like that way, and, if you've got an eight-to-seven situation, it's going to be very difficult to get to a consensus.

MR. RINDONE: That's essentially what we do now. We ask if there is any objection, and then, if there's not, then the motion will carry without opposition. If there is objection, then, ultimately, it goes to a vote, the difference, I guess, being that, if we were trying to operate via consensus, then additional discussion would have to happen.

Kind of alluding to something that Dr. Crabtree said, sometimes the solution might be in breaking down the decision being considered into smaller components. Instead of having a very large, sweeping motion that encompasses quite a bit, and, I mean, you guys have really put forward some novels every now and then, some pretty long motions with a lot of information in them, maybe the solution would be to take things into smaller pieces, and then that would help better identify where people are having differences. Benny.

DR. GALLAWAY: When you get to the point where you know that you've got at least two groups, two opinions, represented, I think the consensus approach is really good, in that both a majority report and a minority report, from my experience, is required, and that enabled a clear presentation of what the basis for the two opinions are that a decision-maker can look at and form their own opinion, and so I'm really in favor of the consensus approach, even if we use voting to determine what level constitutes a consensus, et cetera. When we have more than one opinion represented, a detailed report from each view I think is critical and important. Thanks.

MR. RINDONE: We have Harry up next.

MR. BLANCHET: My primary concern was not with voting or not voting, and I really did not think we were going down that particular road with this item, and I was more concerned about the role of the SSC as a peer review body, and I really would like to see that line about what the roles are, or are not, more precisely defined, so that it's something beyond this discussion here about, well, if you were a principal investigator, you should not --

On a document, you shouldn't vote, and so the document gets provided to the Southeast Fisheries Science Center, and it becomes a keystone of the next assessment, whether it's a growth curve or whether it's a mortality rate or whatever, and then is that something that is disqualified? I hope not, but I would like to see those kinds of things better defined, and I agree that this is really a discussion that General Counsel can probably do a lot better than we can, but I just don't want to leave that line as it is right now, because, five years from now, it's going to look like we've basically got one role that is allowable.

MR. RINDONE: Harry, I will take a swing at this. This language here is obviously open to modification, and so, if there's something in particular that you think that we need to alter, by all means, let's work on that.

We tried to leave it as barebones and minimal as we possibly could, to exclude as few circumstances as possible, to leave more opportunity for voting, basically to the greatest degree that we could, under National Standard 2.

If you think though that we need to add more language in here, to be more explicit about when someone's involvement doesn't preclude them from voting, then let's absolutely add that in here. What you're describing, and like let's say -- I will pick on John Mareska.

If John shows up to SEDAR 74 for red snapper with life history information from Alabama, well, that shouldn't -- Based on how SEDAR has operated under National Standard 2 for the better part of sixteen years now, that doesn't preclude him from weighing-in on the decisions at-large that are brought before SEDAR 74, and it doesn't preclude him from being a reviewer of the assessment when it ultimately comes before the SSC. Well, in the case of a research track, it operates a little differently, but you guys understand what I am saying.

As a member of the SSC, John would still be able to make decisions with the rest of you on the assessment at-large, despite couriering that life history information from the state, that was likely collected by people other than himself, but being able to speak from a position of expertise and authority on it, because it comes from his state, and it's developed by his people, and it falls within his line of expertise.

The only time, under those circumstances, that John would have to just kind of fold his hands and let the discussion -- Well,

SEDAR operates by consensus, but just kind of like let the discussion evolve is when the life history panel, in this particular example, is trying to determine whether they are going use that information for some component of an aspect of the life history of the species within the assessment.

He should advocate for the data, to the extent that the data are defensible for themselves, but, as far as whether or not those data are going to be included at that stage in the data workshop, he just kind of sits that out, and that typically works pretty well in the SEDAR process, but, once that SEDAR is completed, and it gets to the SSC, the cuffs are off, and there are no restrictions on the advice that he can provide and when he can vote. Does that make sense?

MR. BLANCHET: It does, and I absolutely understand the reasons to not have a whole list of thou-shalt and thou-shalt-nots, because there is always new roles and new issues that are not included in that list, but it's just concerning to me, in terms of how this is going to be seen five years from now, without more guidance, and that's all.

MR. RINDONE: I think what part of this is coming from might be this part of the sentence here that says, "beyond the role of a workshop panelist", and so workshop panelist, in this case, is a definable noun.

It means something as part of the SEDAR process, and a workshop panelist is someone who is appointed by the SEDAR cooperator, in this case, for you guys, the Gulf Council, to attend a SEDAR workshop, and they can fill the role of data provider, provide expertise on the data, provide analytical expertise for examining the data, a number of different things, but workshop panelists are data providers, and so, by function of the way that this is written, and this is how I am personally reading this, and perhaps you will read this a little bit differently, now that I have said what I have said, but, if you're a data provider -- Like using the example of John bringing life history data from Alabama, you're filling the role of a workshop panelist, to the definition. Does that give a little bit different perspective, or do we need to further clarify it somehow with some additional language?

CHAIRMAN NANCE: Well, let me throw this in. What if we just -- When we go down the road of having a whole bunch of lists of who can do things, what if we just cut if off at if they served as the analytical lead or lead investigator, period?

That is really what we're talking about, is the individual that's involved directly with the assessment or the investigation of that project, and everything else is external, I think, whether you're an initial reviewer or things like that, and, I mean, we could go down and have a hundred different things, but, if we cut it off at those two things, I think that would serve us better.

MR. RINDONE: Carrie, do you recall anything specific about that last part of that sentence that we were thinking about that could be grounds for someone to recuse themselves from a vote, the "or been otherwise directly involved in the development of a stock assessment beyond the role of a workshop panelist"? I am trying to like rapidly burn through my brain, trying to think of different scenarios that would apply.

EXECUTIVE DIRECTOR SIMMONS: I can't recall right now. I think, in the past, we might have had a state or a federal lead, but I think it's covered there by analytical stock assessment lead, or lead investigator, and so perhaps that would make it cleaner.

I mean, we can continue to look at this, and say, in two years, if we feel like this doesn't meet our needs, we can bring it back to the council and bring it back to the committee. I don't know that we will put it in the SOPPs. We certainly will put it on the website as our best practices and policies, and we've got to talk to the council about whether it will go in the SOPPs or not, because, every time we modify our SOPPs, it has to go back up to Headquarters for review, and that seems to take a long, long time, and so I'm not sure yet if it will actually go in the SOPPs, but it will certainly go on the website, and we'll be following this, after you guys concur.

CHAIRMAN NANCE: Doug.

MR. GREGORY: Thank you. With regard to the consensus discussion, which is really not on the agenda, I would suggest that we put that on a future SSC agenda, because there has been a lot of interest in that in recent years, and I think it's worthy of a discussion, and it's something that could be helpful, if done right, and could be harmful if not done right, and so I suggest we just kind of bump that to a future meeting and really have an in-depth discussion of it. Thank you.

MR. RINDONE: We can do that, Mr. Chair. I will make a note.

CHAIRMAN NANCE: Yes, that would be good. Rich.

DR. WOODWARD: I mean, I think the point here is to eliminate any potential conflict of interest, and, personally, I can easily see that I would have a conflict of interest on a project in which I was heavily involved, but was not the lead, and so I am not -- Far be it for me to opine on matters about which I know nothing, but I can easily see a potential conflict, even if I'm not the lead.

CHAIRMAN NANCE: What would be an example of that, Rich?

DR. WOODWARD: If I was involved in a research project in which I was intimately involved in the development of the analysis, but I wasn't the leader of the research, I would feel emotionally connected to the results, even if I wasn't the one at the top of the bill, and so, I mean, that's why I don't review my own papers, even if I'm not the first author. That's sort of my perspective, but, as I said, I don't -- I have very limited understanding of the specific issues about which we're talking about here today, and so take this all with a very serious grain of salt.

CHAIRMAN NANCE: I appreciate those comments, for sure, and I think it's always been -- Anybody can abstain on any different issue, for sure, and I think we've done that over the past, and so I think what we want to do is, on this one, just clean this up, because I felt like, when we did the red snapper review, it was very -- It was hard to know what people could do and what they couldn't do, and I think this really adds a tremendous insight into what we're able to do, that you can vote on this, and then you can talk about it and things like that, and so I do appreciate this, and I would like to see this happen. Josh.

DR. KILBORN: I wanted to follow-up on Rich's comments, because I am actually going to fall into that category, when it comes into the Greater Amberjack Count. You know, there's a large group of scientists that have been put together to work on that project, and I am not one of the leads on that project, but I will be intimately involved in that work, and so that's just another example of the kind of thing that Rich was referring to. Thank you.

CHAIRMAN NANCE: Will.

DR. PATTERSON: Thanks, Jim. I think one way that we could suggest an edit to the text here that could get away from this idea is just, instead of saying it's a lead investigator, just say as the principal or a co-principal investigator, and I think "lead" is meant here as somebody who has a significant input in

the construction of the project and analysis, but not necessarily as the principal investigator, but, if we were more explicit, then I think that would help clarify what folks are talking about here.

CHAIRMAN NANCE: So what would you suggest as the wording for there, Will?

DR. PATTERSON: I would say, "as the principal or a co-principal investigator".

MR. RINDONE: How does that taste?

DR. PATTERSON: You could put it in parentheses, "i.e., principal or co-principal investigator", just so people understand what you mean by "lead".

MR. RINDONE: Mr. Chair, I'm just kind of looking to see if anyone has any general thoughts on that edit. Trevor.

DR. MONCRIEF: Will we still be removing that last part of the sentence?

MR. RINDONE: I think we can do a strike-through for last part of that sentence there, starting with "or been otherwise", and just highlight "or been otherwise" all the way to the end of that sentence. Just do strike-through there, and then, John, you're helping with that, with Will's?

CHAIRMAN NANCE: Okay. Any discussion on those edits?

MR. RINDONE: Dr. Simmons.

EXECUTIVE DIRECTOR SIMMONS: As long as that includes any stock assessment lead. I mean, we don't have, I don't think, someone right now that would be presenting that that's on the SSC, but that has occurred in the past.

CHAIRMAN NANCE: I think we need to keep analytical lead, or maybe how to have it is if they serve as the analytical lead or principal or co-investigator. Would that take care of that?

MR. RINDONE: So "as the analytical lead, or principal". There we go.

DR. KILBORN: I am not sure how those are materially different from one another, analytical lead or principal investigator. Aren't those essentially synonyms?

MR. RINDONE: They are, but it's just a difference in how those positions are described between when say academic research is done for like a project that one of you guys might be on versus, in the SEDAR process, the lead analyst is called the lead analyst, or the analytical lead, and so they are synonyms, but different places use different terminology, and so, by being explicit about it in here, we can hopefully mop up some of the gray area.

DR. KILBORN: I guess, once again, this would allow someone like myself to vote on something that I was involved in, specifically looking at this amberjack project coming up. I am involved in that work, but I am not listed as a principal, a PI or a co-PI, but I will be heavily involved in that work and the analysis, and so I'm not quite sure that striking through the last part of that sentence is the best idea, if we want to be explicit about defining roles. I mean, I would still take it upon myself to recuse, because I feel it's the right thing to do, but not everyone may feel that way.

CHAIRMAN NANCE: Ryan.

MR. RINDONE: Thank you, and, like Mr. Chair said, like Dr. Nance said, you can recuse yourself at any time, for any reason, and you can abstain from a vote at any time, for any reason that you feel is most appropriate. It's not to -- Nothing about this is set up to prevent someone from recusing themselves or forcing someone to have to vote on something, and it's always your prerogative to abstain from a vote.

Mr. Chair, when we're looking at how we're going to develop this language, I think, at this point though, we've still heard arguments for getting rid of and for perhaps keeping that last sentence, and so I don't know how you want to approach the editing process on this. We certainly still have plenty of time left to discuss.

CHAIRMAN NANCE: Let's hear Luiz and then Harry.

DR. BARBIERI: Thank you, Mr. Chairman. My thought, or recommendation, here is exactly to that point, and to the point that Josh just made, and so perhaps, instead of having that sentence there, have something like "or had any direct participation as a member of the analytical team".

What I am thinking about is, for example, in my case, where I do not just work for FWC/FWRI, but I actually direct the Marine

Fisheries Research Program, and so a lot of the folks conducting -- Not a lot, but all the folks conducting stock assessments from our team actually are under my group, are members of my group, but, if it haven't really been a member of the analytical team, or participated in any of the analysis, that would not, in my opinion, signify a conflict of interest.

I mean, that's to Josh's points directly. Even if he's not a co-PI or a co-lead in that project, but he's going to be participating in production of analytical products, that is almost like being a co-author in a paper later on that he will be therefore reviewing if he is a participant in that voting process. How about that?

CHAIRMAN NANCE: So what would you add, so Jessica can add that?

DR. BARBIERI: After "co-principal investigator", perhaps "or had any direct participation as a member of the analytical team", at least as draft language that we can improve upon, but you get the idea, and you could be the analytical lead or not, be a principal or co-principal investigator or not, but, if you're involved in any of the analytical products that are coming out of that work, that would signify a potential conflict of interest.

CHAIRMAN NANCE: Okay. Harry.

MR. BLANCHET: Luiz had a very similar comment to where I was going, and so I'm good with that.

CHAIRMAN NANCE: Okay. Thank you. Jason.

MR. ADRIANCE: Thank you, Mr. Chair. My question, I guess, is more at the ten-thousand-foot level, and any of these changes we make, and to Josh's point of anyone is able to abstain, but, if someone may choose, or choose not to, if they were involved in something, based on how this is reworked, will NOAA General Counsel give us some guidance on this, because what I would hate, in the end, is for us to deliberate about something and come up with our advice to the council and then someone turn around and discredit that, because someone abstained, and someone didn't, that may or may not have been involved. Thanks.

CHAIRMAN NANCE: Thank you for those thoughts. Any other comments on this language? I would like -- Bob Gill is not here anymore, and so we don't have motion makers, and so we're going to have to take it upon ourselves to get a motion out, but I would like to have a motion on accepting this, with those edits.

DR. GRIFFITH: I will move to accept the edits as written up there.

DR. ISAACS: I will second.

MR. RINDONE: We have a motion by Dr. Griffith and a second by Jack Isaacs.

CHAIRMAN NANCE: Paul.

DR. MICKLE: Just a point of clarification. What's the next step, if this passes? Does it go in front of the council and make its way into the SOPPs, or is it our little rule-following document? Is it internal, or can we have some guidance, please?

CHAIRMAN NANCE: Carrie, do you want to address that question, or Ryan?

MR. RINDONE: I've got it. The next thing that will happen is we'll edit the document that you guys have in front of you, if this motion passes, with the revised language, and it will go back before the council, and we will put it on the council website, under the SSC tab, as the standard operating procedure for SSC voting. It won't go in the council's formal SOPPs, as Dr. Simmons said, until there's a -- Probably unless or until there is a larger change to the SOPPs, because that has to go up to Headquarters, and that moves at a snail's pace uphill, but we'll put this up on the council's website so that everybody know that, under these circumstances, this is how this body is going to respond to this situation.

CHAIRMAN NANCE: Any other discussion? Any issues with -- I am trying to think of the term here. **Any opposition to this motion? I don't see any opposition, and so it's been accepted.** Thank you, and thanks for making the motion.

MR. RINDONE: All right. That brings us a little bit early to the point that we were going to have a break, and, because of how we have the schedule set up, Mr. Chair, we weren't trying to move a whole bunch of things around. If you wanted to try to tackle some things ahead of time, some of the things at the end of today --

CHAIRMAN NANCE: For red grouper, we scheduled that for right after lunch?

MR. RINDONE: That's correct, and so Dr. Sagarese will give that

presentation from the Science Center after lunch, and so I don't think we should move that one.

CHAIRMAN NANCE: No, we don't want to move that one. Let's look and see if there is --

MR. RINDONE: There's a couple of bits of low-hanging fruit there on the backend of today, like Items X, XI, and XII, that are all mine, if you wanted to tackle one or two of those before our scheduled break, and I think we could definitely tackle X and XII, if you wanted to.

CHAIRMAN NANCE: Let's go ahead and do those, Ryan.

MR. RINDONE: All right. Carrie.

EXECUTIVE DIRECTOR SIMMONS: Did you want Julie to go through that process first, so everybody -- That it's fresh in their minds about the topical working groups and the various operational assessments and what's in those scopes of work?

MR. RINDONE: Well, if she's on, okay, but I think Dr. Katie Siegfried had a few slides that she was going to be presenting after Julie's, and so we kind of need both of them together. If they're prepared to do that now, then we could do that now. Julie.

DR. JULIE NEER: I need about fifteen minutes, because I'm wrapping up something else, and then I would be ready.

CHAIRMAN NANCE: Is Katie on too?

DR. KATIE SIEGFRIED: I'm here.

MR. RINDONE: Yes, there she is.

CHAIRMAN NANCE: Okay.

DR. NEER: If you give me like ten minutes, I will be ready.

MR. RINDONE: Do you want to take a quick break for fifteen minutes?

CHAIRMAN NANCE: Okay. We'll take a fifteen-minute break, and then Julie and Katie can be on. Thank you.

(Whereupon, a brief recess was taken.)

CHAIRMAN NANCE: I think we're ready to start again. We're going to go ahead, and I will turn it over to Julie for the presentation.

DISCUSSION OF RESEARCH TRACK AND OPERATIONAL ASSESSMENT PROCESS

DR. NEER: All right. Thanks, Jim. My name is Julie Neer, and I am the SEDAR Program Manager for SEDAR here in the Southeast, and I am also the SEDAR Coordinator for the Gulf SSC, for the Gulf Council's assessments, along with -- I also work in the Caribbean, and I work with the Florida assessments as well.

I was asked to give a pretty quick big-picture overview for SEDAR. If any of the new members have even further questions, which you might, you can always reach out to myself, or to Ryan, who was the SEDAR coordinator before he became council staff, and so we live and breathe this every day, and there is a lot of details that you really don't need to know, but we want you to have at least the big picture.

SEDAR operates under what we all know of as the limited resource challenges, and you want to be -- That's not the next slide. There should be a slide before that, and I think we skipped two slides. There we go.

The SEDAR goals. Perfect. SEDAR was developed in 2002, as a council process, and it was developed after an assessment -- There was an assessment that went through for red porgy, and it went all the way through the end, and it got reviewed, and then people discovered that some of the input data were incorrect, because the people who collected the data were never looped into the assessment process, and so this process was developed back then to avoid those problems and to bring a more inclusive approach to producing these assessments, with everybody brought in at the appropriate stages where they are best suited to serve and provide input.

The goal is to provide robust and transparent assessments, and stakeholders are involved in the assessment process, which, as I said before, was not part of the process previous to the SEDAR program being developed. The attempt is to provide reliable and scientifically-rigorous assessments.

At the research track stage, which we'll talk about in a minute, we have an independent peer review of that assessment product, that vehicle that comes out of that first-time assessment, or a major, perhaps, re-look at an assessment. The goal is to provide

timely assessment products, thorough documentation of all the methods used and the data that was incorporated, and to provide appropriate consistency in the documentation, assessment approaches, and treatments of uncertainty.

Anyone who works knows it's very difficult to be fully transparent, be very thorough, and also be timely, because, the most transparency you want to bring in, and the more thoroughness, looking at every single question, obviously, that takes longer.

We have been put in the situation where we have to sort of pick two of those three, and that allows us to move forward in a relatively functional fashion, without getting totally lost in the weeds on every single thing, because, as we all know, management goes on whether we have the science, a new assessment, or not. The managers are required to manage these fisheries every day, and they can't sit around and do nothing while we're waiting eight years for the next assessment.

In response, SEDAR has two main assessment approaches. We have a research track approach, which is very, very thorough and completely transparent, and there's a lot of involvement at all stages of development, and then we have thorough, but more timely, approach, which is the operational assessments, which are built on previous research or benchmark assessments, and we'll talk about a little bit more details in a minute.

We're going to start off with the research track, and this used to be called benchmarks, before we revised the process a few years back, and they are still called benchmarks in regard to the assessments that the State of Florida does, due to a little detail that I am not going to get into here, but, if you want to know, you can ask me.

Research tracks, this is the time where we develop this tool, and we look at the models, and we come up with the methods, and we really try and examine how this particular stock should be assessed moving forward, and it's a stage where there could be hypothesis testing, where we can look at options for what stock ID should be, changing it from what was used last time, perhaps, if need be, if new information is available.

It's a place to implement new methods and new data streams across stocks, and so, if we have a new method in determining, I don't know, whatever, natural mortality, that just came hot off the presses, and we want to take a look at it, we absolutely can review it under these circumstances.

Also, if there's a variety of new data sources, this would be a good place. This is -- What's the big one right now in the Gulf of Mexico, and it's the red snapper that we're getting underway here for you guys, and we have a variety of new datasets, particularly the Great Red Snapper Count, which is a lot of new information that's going to be reviewed to see if it can be considered, and how, in the upcoming research track assessment for red snapper.

One of the keys about research tracks is that there's no status or fishing level recommendations provided, and the point about that is to say that, unless -- In the benchmark format we produced, we produced management at the end of the timeframe, and we had to have it done, because the councils were waiting, and we had a very -- A much more strict timeline that we had to meet, and, also, we were really bound by wanting to have the most recent data rolled in, and sometimes trying to get the most recent data, because different data streams came in at different times, and it would bog down the assessment or cause issues, where we thought we had the most recent data, but then an update came in from perhaps a state, and we needed to redo landings or something, and so there was a lot of pressure.

It removed this reliance on having to have the most recent data. For example for the scamp assessment that's wrapping up right now, the research track, the data went through 2017, to build the model and the tool, and then, when we do the operational, it will be up-to-date and provide the management advice.

While we say that we can look at a lot of things, and we review lots of data, and we have a flexibility in schedule, it is not totally open ended, and it can't become someone's PhD dissertation and take seven years to get done, and we do still need to get things wrapped up in a relatively timely fashion, roughly two years or so, is what we're looking at, eighteen months to two years, for the assessment proper portion of that.

If you have a stock ID portion, which I will talk about, that's a couple more months in the frontend of that process, but we are flexible to a point, but we still need to, as I said, provide management advice, and so we need to get the research track wrapped up, so we can do the operational and provide the management to the councils who are waiting on that to take management actions.

The schedule does allow us some flexibility, and it is much more flexible than what a benchmark was, where we already knew where

the review workshop was going to be before we even started the process, and we have some sort of drop-dead dates throughout the research track schedules, if you ever look at one where people weigh-in and say, yes, we're ready to move on to the next stage, and, yes, we're ready to plan for this to go to a review in three months, and there are checking points along the way, and, if we're not ready, we can postpone the remaining portion of that process, if need be, but we do have -- We have rough timelines, but we have a little bit more flexibility than we had under the previous benchmark approach.

Finally, the SSC is involved in all stages of the process, and we have SSC members -- Well, they can be. I mean, usually, the councils, the cooperators, do appoint some SSC members in all stages, and we have SSC members who serve as data providers, in the data stage, and we often have SSC members who serve on part of the assessment panels, weighing-in on that stage, and, at the review workshop, we have SSC members who serve as the chair of the review workshop as well as serve as reviewers alongside a panel of independent experts that we bring in, and so the SSC is pretty heavily involved in the research track and the development of this tool along the way.

One point we want to make in how SEDAR works is it's a sequential recommendation-making process. There are decisions, or recommendations, that have to be made at each stage so that we can proceed to the next stage.

Most research tracks consist of four stages: a stock identification process, a data review and preparation process, the assessment modeling process, and the actual review of the assessment product at the end. The reason I say most consist of four stages is there are some stocks where stock ID has been settled, and we're not revisiting it, and everyone is happy with what was decided, and there's no new information to suggest changing it, and so we may not always do that stock assessment portion, but we do these other three stages as part of a research track, to make sure that we can encompass and bring a variety of people in.

One key point that I want to talk about next is that an assessment development team, or ADT, is convened for each research track, and the ADT is often made up of SSC members, and so I want to talk about that, briefly, so you guys understand what that is.

The assessment development team is a small group of people that are appointed by the cooperator, and they attend both the data

and assessment portions of the process, and so, even if they are a data provider without necessarily a great deal of assessment experience, or they are assessment people, they still listen in to all the deliberations at this data stage, but the reason that this ADT plan was implemented, when we made these changes to the SEDAR process a few years back, was to try and help have a consistency of certain individuals that do go through multiple steps of the process, to help aid in the decision-making process and making sure that things are making sense from one stage to another.

The ADT participates in the consensus decision-making steps within the process, and so they are the ones who are really sort of responsible for saying these are the recommendations, and we agree, and let's move forward to the next process with them. It is a long, drawn-out process with the ADT participating, but it's incredibly valuable to have people see the entire process.

The ADT members contribute to analysis, as needed, and so, if they have special expertise, they may be appointed to the ACT because they have expertise in, I don't know, larval transport modeling, and we might rely on them to help craft the recommendations and craft the documentation that is needed, and maybe produce analysis, working with the Science Center analysts, to make sure that we're doing the best we can with the products.

They can contribute to the report preparation, as need be, and they certainly get to see drafts of it, and, again, if they have certain expertise, they may be tasked to help flesh out the initial draft to begin with, to make sure that the discussions and the thoughts are being represented correctly, and they may present at the review workshop, as needed.

Scamp, SEDAR 68, is our first research track, and it is our pilot. We had planned to have that research track completely finished before we started any more, but we had a variety of delays going into scamp, and then COVID hit, which then made further delays, and so the scamp review workshop currently has not even happened, and it's happening at the end of this month, and so we currently don't know if any ADT members will be required. We don't believe so, but, since it's conveniently being done via webinar, due to COVID, anyone who wishes to participate may weigh-in.

Once I get that webinar link set up for that review workshop, I will be sure to pass it on to Ryan to share with the SSC, and so, if anyone would like to listen in, they are more than welcome

to, and it is August 30 through September 3, one week.

The first step in the research track, if it's needed, as I mentioned, is the stock ID process, and so it's its own little component of the research track as a whole, and we've set it up to sort of have its own set of terms of reference and stuff, because, as I said, not all research tracks may require a stock ID process.

It is the first stage, and it has a terms of reference that it follows to meet the needs of the process, to get the information that we need out to move forward to the next stages of the process. The stock ID panel consists of council and NMFS-appointed personnel. For example, for both scamp and red snapper, we had SSC members, and we had state and university representatives, and we had Science Center representatives. We had a pretty diverse panel brought together, with a variety of different expertise in data, to discuss what stock ID should be.

When we're saying stock ID, we're meaning what should be the boundaries for developing the assessment, which data should be included for -- An example for scamp, the question was should they be -- The stock ID question was should it be one big stock throughout the entire Gulf of Mexico and up into the Atlantic, or should they be split, and, if so, where? The question with scamp was it was decided to split it along the council boundaries, and we came up with two assessments.

With regard to the red snapper assessment, the question was not whether we should move into the South Atlantic, but more where should the current status quo for stock ID in the Gulf of Mexico -- It is split at the Mississippi River mouth, Shrimp Grids 12 and 13, and the stock ID panel was tasked with reviewing whether it should stay there, if it should move, should it still be two stocks, should it be three stocks, and that was what that group focused on, and so looking sort of sub-structure, sub-stocks, within the council region.

We usually handle stock ID via some sub-working groups, and the standard ones we've been using, the last couple of times, have been a group that looks at landings, and we had a group that looks at CPUE, and we have a life history group that can be sometimes broken into movement, versus age and growth and reproduction information, and we have those groups that work -- Depending on people's interests and expertise, they can be in any or all of those groups, and then we would bring the entire panel back together and discuss those on a publicly-noticed

public webinar, and then we make recommendations overall, and so each working group presented their recommendations, and then we came up with overall stock ID recommendations for the group.

The process usually has a data scoping webinar, a variety of plenary webinars, to review the working group recommendations, and then, ultimately, come up with a final recommendation, and the panel is tasked to provide a stock ID recommendation for the upcoming research track. Basically, it's how the data is going to be divided, moving forward, and how the modeling will proceed.

The data research process is the nitty-gritty, down-and-dirty, let's look at all the data that we are aware of and see what might be useful for assessment. Just because something gets presented at the data workshop, it doesn't always mean that it gets included, and sometimes we have datasets that overlap, that represent sort of the same population, or the same information, and the data panel might pick one or two of those.

We also operate in a working group format for data workshops, and they are usually conducted in person over the course of one week, and so you can imagine that we don't have time for every single person to review every single discussion about every single dataset, and so we often work in a working group format, similar to what we do in stock ID, but we usually do it in-person.

Life history, landings, statistics, indices of abundance, and we also usually have some ad hoc groups. We usually have a group that looks at discard mortality, and we do that as part of an ad hoc group, because there is people in all the other groups that also have information to contribute to that discard group, and we want to get all the information together and give everybody a chance to see it, and then we also come back and meet in plenary, full plenary, and sort of each working group presents its results as well, and the overall group discusses it and asks questions and the like.

The individual data workshop groups often provide recommendations, and they prepare report sections, and they prepare working group working papers, and all the documentation that comes through the SEDAR process, with regard to working papers and reports and stuff, is always posted on our SEDAR website, which is a ton of information for all the SEDARs, and so, if you ever want to go back and look for things, there's a ton of stuff up there, and, if you ever have any questions, again, you can contact me, and I will help point you in the

right direction.

As I said, the working groups work and come together, and the assessment development team members, as I mentioned that ADT group, are the ones that ultimately are responsible for developing these consensus recommendations, as needed.

A working group might come to the full panel and say this is our recommendation of how to look at natural mortality, and the ADT members might ask some questions, and other panels might ask some questions, but it's ultimately the ADT that says, yes, we concur with this recommendation, and this is what we think we should move, and we should tell the analysts this is how we would suggest that you do it.

The data workshop group of people is usually fairly large, and it's one of the largest stages, and stock ID is getting to be almost as big, and it consists, again, of state agency people, Science Center folks, Florida agency people, if they're the lead analysts, if they're the lead analytic agency, which they sometimes are for some of the stocks that come to you guys in the Gulf, academics, anyone who might have information.

We try and bring them into this process and take a look at that data, because we strive to get a look at all the data in the process and see if it's useful, as opposed to somebody coming out two years at the end and saying, oh, I have a student who did this research, and it would be really helpful.

When we come to you, as an SSC member, talking about what data should be included, and do you know of anybody working on anything, and, if you have any students that are working on something, let us know early on. We would love to take a look at it, even if it's not finished yet, so that we can try and incorporate as much information early on in the process, so we can see if we can roll it in.

The assessment stage of the process, the data group makes recommendations of how all the data should be handled, because they prepare all that data, and they say this is what we believe is the best data available for this assessment, under these constraints. They pass that information on to the assessment team, whose key task is to develop the assessment model itself.

The analytical team works with the ADT to determine a base configuration of that model, what we think is, given all the information we know, what is the best way forward to describe the dynamics of that population going on at this time.

They may also examine other hypotheses, using the data that were prepared during the data process, and so sometimes we can look at things like, well, we think these four indices are great, and then, maybe at the assessment stage, they might say, well, let's see if we take this one indices out, how would that impact the model, and it doesn't seem to be contributing much, and let's see what happens, and so those are the kind of hypotheses we can examine at the assessment stage, using the information that was recommended and passed forward from the first data stage.

They also look at characterizing and evaluating uncertainty. As we know, all of our data is not perfect, and all of our knowledge is not perfect, and, if we knew everything, we wouldn't need to model, and we would have the answer, but, since we know we don't know everything, we have to look at this uncertainty and characterize it and evaluate it, and the analysts do spend a fair amount of time trying to do just that and provide that information as we move through the rest of the process, so that, when the assessment comes out at the end, the managers have a good understanding of where some of these uncertainties might lie.

They document the methods, the configurations, and what I say is initial results, and remember that research tracks do not produce management advice at this stage, but that doesn't mean that we can't take a look at how things are trending and verify that that trend seems to be realistic, given the data and the modeling methods that are used.

The report is usually produced heavily by the analytical team, but the ADT can certainly weigh-in, if they have expertise or have questions and clarification.

Then we have a review process for research tracks that is comprised of -- We use a group called the Center for Independent Experts, and it's -- So, basically, when we produce an assessment, we know we're producing one, we submit a request to the Center for Independent Experts, saying we're having this assessment done, and we are going to need it reviewed, and we're going to need three reviewers for a panel review in January of 2023, and they put us on a list, and it's a NMFS-wide -- It's an agency-wide call for a need, and then that group takes over, and they provide the names of several, usually three, CIE reviewers who are entirely independent from this process, and they have not been involved in any of the stages.

We have those CIE reviewers, but we also still, as I mentioned, have SSC reviewers come in and be involved as well, because, during the course of SEDAR, we have learned that we didn't really like having only external people who have no feel for local factors and issues and that sort of thing, and so the review process has changed over time since 2002, but we're pretty happy with the current structure, where we have CIE reviewers, and we have an SSC chair, who chairs the meeting, and we have SSC reviewers, who also serve on the panel, to help guide it, and then, occasionally, we might even have another outside expert that a cooperator might choose to put on the panel, and so it's a panel approach that reviews the assessment.

The goals of the review process are to evaluate the quality and the applicability of the data, the modeling, the assumptions, and the parameter values, and do they make sense, and they recommend the most appropriate modeling scenarios, they provide research recommendations, and we have been asking the CIE, lately, or the review panels, to provide recommendations in a format of short-term versus long-term, what are things that we think we could realistically evaluate, perhaps get new data on, stuff that can be done in the next three to five years and be useful for the next assessment, and then more long-term -- Well, actually, one to two years, and then more long-term, three to five years or later, are the long-term goals, such as it would be really great if we had a fishery-independent index that could look at X, Y, and Z, and those are more long-term, lofty goals, which we put in there as well.

The key about the review process is, again, they don't discuss management implications, and they focus solely on the science, whether the science is being conducted appropriately, using current best practices, and so their whole goal is to address and evaluate the assessment that was provided to them, and it is not to rewrite the assessment. They often make suggestions of, hey, let's try this, or let's try that, and they may come up with a different approved base model, and we call it the review workshop approved base model, as opposed to what came out of the assessment process.

As they do the reviews, we often find additional things that we didn't think about, but they don't redo the entire assessment. It's not their role, and they are pretty good at it, and the CIE has been around for years now, fifteen years, and most of the reviewers are very, very good about their roles with regard to what can we do now, what can we make recommendations on, and what is outside the scope of our process. We are reviewing the assessment that was given to us.

That's the review research track, and that's the full-bore, and those are taking between two to three years, timeline-wise, when we're scheduling these. As I said, we're doing scamp right now, and we're wrapping it up, and scamp is a little bit longer even than that, but we had a variety of issues getting it off the ground, and then, also, COVID jumped in in the middle and caused a three-month delay.

We have red snapper that just concluded the stock ID process. In the Gulf, that will be the first research track that's being done for the Gulf Council, and we have gray triggerfish is what's in the planning stages right now for the South Atlantic, and that will be the South Atlantic's first research track assessment.

The other type of assessment we have are the operational assessments, and these are closer to, if you've ever paid attention before, the updates and standards. The goal of the operational are to be thorough and timely, and they are more along the lines of not revisiting everything, and we only focus on very specific topics within that, and we'll talk about which topics we focus on in a minute.

Their goal is to update the accepted research track or benchmark assessment with the latest information. If we have a new dataset, we want to look at it. If we have five more years of landings, we want to include that. This is the step of the process that does provide management information, and it provides status and fishing level recommendations that come out of it.

This is the default approach for any assessment that happens after a research track, and so, when you finish a research track, the next thing you should do is an operational, to get that management advice, get that terminal year up to current, and provide the information for the councils to make their decisions.

SSCs may participate in topical working groups, if needed, and so they don't have -- Operational don't have a series of workshops, where we bring a bunch of people in. Operationals focus on, as I said, basically updating the information. We can look at a couple of topics that might come up, where we are aware of new information and that sort of thing, and, to address how that new information should be incorporated or utilized, there are these things called topical working groups, which I will talk about in more detail in a minute, and SSC members

often participate in those steps.

The review of an operational is conducted by the SSC, and so, since we're working off of an approved model, we're essentially -- When it comes to the SSC, your role, as the SSC, is to review the assessment and make sure it still follows all those best practices. If a new dataset was put in, do you think the new data was applied appropriately, and then, obviously, to say how you feel about the management advice that's being provided.

As I said, operational assessments are based on the previous benchmark or research track, and so they've already undergone this thorough peer review process, and so, therefore, unless there is a justified reason for making changes to the model or data, OAs should normally be limited to updating the existing assessment framework with the most recent data and only minor modifications in the framework and supporting information.

Operational assessments, how you determine what can be included or not, that scope is defined by a statement of work, and you guys are going to be preparing some of those later today, and so that's why we're chatting about this now.

Topical working groups, as I had mentioned, are how we manage looking at new data or data that needs a little bit of perhaps a tweak, based on new information on how to handle said data that might come. Maybe there's a new way for calculating discard estimates, and we might have a topical working group to look at something like that.

They are groups that are assembled to discuss and make recommendations on specific topics that are identified in that statement of work, and they are built on the same sort of panel, the same sort of group, as the other processes, SSC members, stakeholders, technical experts. They may meet via webinar or in person, and we often try and get a handle on how we want to handle that, get some information on that, in the statement of work.

They can utilize a planning-team-style approach to facilitate some of their discussions. Similar to how we've done some of these other processes, they can meet offline, and it can be a conference call, and do some work, like we did for stock ID, and then they come back to these noticed webinars and discuss everything, and the final recommendations are all made during these public processes on these noticed webinars.

The topical working groups will produce a written report,

essentially a SEDAR working paper, documenting their discussions and recommendations. Again, SEDAR strives to have great documentation with regard to what we did. If we're not careful -- The reports always say what we ended up doing, but, often, sometimes, it's lacking on the why we did it, and, when you go back and try and do something eight years later, you sometimes can't remember, and so the documentation is key in figuring out what the discussions were and what the rationale was, basically building that record for why that recommendation was made at the time.

The topical working groups are organized in the SEDAR process, because we organize all these other meetings, and it's just as easy for us to do it and make sure that the notices get filed when we have these public webinars and all of this.

One of the things about topical working groups is the timing of them. They need to be held in a fashion so that they fit in the schedule to provide the information when it's needed, and so the topical working group is meeting on something regarding --

Maybe there's a new age study, and we're reviewing if that new age study should be used, as opposed to the one that was used last time, and, obviously, those decisions and recommendations need to happen early in the process, before the modeling happens, and so they might happen earlier in the process.

If we're looking at something about how selectivity might impact something, that topical working group perhaps might meet after the base model is constructed and they're ready to go, and then we can evaluate it, and so the timing of the topical working groups is a little bit more fluid, depending on what the topic is that they're discussing.

Finally, not all operational assessments will have topical working groups. There are some that we are simply updating the data, and there is really no need to bring people in and have these initial discussions, and so we just don't have them, and, in that case, the SSC will just get the report when it's done, at the end, for the review.

I just want to touch, very briefly, on the role the SSC plays in operational assessments. It's pretty clear with regard to research tracks, and you guys are involved in all the workshops, all the data gathering, all that other stuff, but I want to make sure that you understand your role in the operational, especially since that's what you're stepping into right now.

The SSC has three main roles in the operational. It's to provide guidance on the issues for consideration in the statement of work. As I said, that is the scope of what will be looked at at the assessment and so it's incredibly important that you guys weigh-in on that at the beginning. Then participate in any topical working groups we have, and then reviewing the assessment report at the end.

Provide guidance on the issues for the statement of work. We are required to produce -- The cooperators are required to produce clear and detailed statements of work that are required for operational assessments. They define the scope of the assessment, and they are useful for clarifying expectations with regard to what the council is expecting and what the Science Center is expecting they are going to need to do with regard to producing this assessment, and they are critical for scheduling.

It's easy for you guys to say I don't get it, and we're only doing two assessments, and we're only getting two things this year, and, well, that's the Gulf, but remember that the Science Center actually provides assessments for the Gulf, the South Atlantic, the Caribbean, and HMS, as well as provides support for the Florida assessments and actually does the assessments for the commissions, the Gulf and the Atlantic States Fisheries Commissions, as well, and so they have a pretty heavy lift for menhaden, and they have supported some of the other assessments for the commissions as well, and not just menhaden.

If you ever want to listen to an interesting discussion, listen into one of the SEDAR Steering Committee meetings, where we talk about the schedule, and we have this big grid, and it's like Tetris. You have to slide all the boxes around and make sure that we can accommodate all the assessments across the entire stock assessment enterprise that the Southeast Fisheries Science Center is responsible for, and so knowing sort of what's going to be expected is really important to this process, and that also makes sure that everybody is on the same page.

When you're doing the topical working group discussion -- When you're discussing the statements of work, you have to look at whether you will need a topical working group, and that's something you guys can weigh-in on. Is there new information available? If so, then maybe we need a topical working group, and you can also make suggestions regarding who might be good, and like it might not be an SSC member, and it might be someone like, hey, a colleague of mine at the University of Alabama recently had a student who did this, and it would be great if

he could be involved, because SEDAR certainly does not know who is working on every single thing everywhere in all these regions.

We do rely on SSC members who especially may be a little bit more tapped into some of the academic work that's being done to speak up and say, hey, it would be great if we had this person on it, and they have some great information, and so, again, we want to bring the right people in, but sometimes we don't know who the right people are, and so, if you have ideas with regard to who should be on a topical working group, it would be great to at least bring that information to our attention, and we'll see if they can be accommodated.

Also, there might be topics that should be examined within the frame of the operational, but they don't actually need a topical working group to discuss them. We have some new methodology for doing discard estimates, and it's fairly well tested at this point, and it's been used on a variety of assessments over the last couple of years, and so, if this assessment that you're going to review for it didn't use that methodology, they should probably update to that new methodology, but it's not necessarily needed that they have a topical working group to discuss it, but you guys would want to make sure that you put in the statement work to update the discard mortality estimates or discard estimates using the latest best practices developed by the Science Center or something like that, and so not everything that needs to be potentially included in an operational requires a topical working group, is my point.

This is just a list of some possible things that could be included, and I have said most of these already, and you guys have the slide, and so we'll just move on.

Finally, as I said, you guys are the review body for operational assessments. There is no CIE panel, there are no external reviewers of any sort, and it relies on you guys to make sure that the analytical team used the methods that were approved the last time. If they changed those methods, that they fully documented why, and you buy why they changed those methods, and to provide the information with regard to those management decisions.

I know I just said a whole bunch of information, and it might be a little overwhelming, but you do have the slides, and so you can go back and look at them, and, like I said, myself and Ryan, and I am volunteering Ryan, but we are both available to answer any questions that you may have on how the process works,

if you have any, and I'm sure you will, but I will take any questions now.

CHAIRMAN NANCE: Thank you very much for that presentation. I have just a real quick one. The topical working group, how do you make sure that doesn't turn into a research project?

DR. NEER: Well, that's an excellent question. Part of that comes back to the scope of work that are put together initially, and we also have to sort of just use some best judgment. Sometimes -- Again, we're new at doing these, and so we've only done -- Well, really, within the SEDAR process right now, the only one we've really done is in the Caribbean, and they are structured around a series of very relatively small webinars, sort of a data scoping, a webinar where we review the data and we come up with questions that we would like the analytical team often to look at and prepare data, or it might even be a data provider, and like we would like to see the ages done this way, this way, and this way, modeled three different ways, and we have a second webinar, and we pick one, we make that recommendation.

It can't be we're going to take nine months to do it, unfortunately. Sometimes it's like this is what we can accomplish now, and your other points are extremely important and worthwhile, but cannot be handled within the scope of an operational assessment. We do have to rein them in, because the goal of the operational is to get you guys more assessments, so the managers can do their job with more up-to-date information on a more timely fashion, and more frequently too, and so it's kind of nebulous, and we just have to all use our best judgment and hope that we can keep it reined in a bit. I hope that helps.

CHAIRMAN NANCE: Thank you. That answers it. Thank you very much. Doug.

MR. GREGORY: Thank you. I noted that the presentation on the website is an abbreviated form of what you actually presented, and so we need to get your presentation put on the website.

DR. NEER: There was an issue, and I think they just updated it.

MR. GREGORY: Thank you.

CHAIRMAN NANCE: Jim.

DR. TOLAN: Thank you, Mr. Chairman. Julie, that's a great overview of SEDAR, and, unless I missed it, I think you left out one of the pretty important sub-groups for the stock ID, and that's the genetics sub-group, and that's for all of the new folks.

DR. NEER: Thank you, Jim. I did forget that, and genetics is always a component of the stock ID process. Sometimes it's simply a component where we say we don't have any genetics information, but we always want to make sure we're not missing something. Thank you for correcting my oversight.

CHAIRMAN NANCE: Thank you. John.

MR. MARESKA: Julie, thanks for the presentation. I just wanted some clarification on the hypothesis testing. Is that something that's at the discretion of the lead analyst, or is that something the assessment development team determines, or is that a collaboration? That's my question.

DR. NEER: You mean within the assessment process?

MR. MARESKA: Yes, within the research track.

DR. NEER: Okay. Well, I think some of the hypothesis testing -- I believe Katie, from the Science Center, has a presentation to talk about some of this stuff, but, in general, it's sort of a collaboration. We look at the ADT, with data that's available, and we talk to the analysts, and we look at the timeline, and we see what things can be examined in the timeframe that we have available and the data that we have available, but it is --

There are some things that are always going to be unable to be assessed in any particular process, but that doesn't mean that they're not valid, but it just might be that we can't do them, given the information, but it should be a collaboration among the people involved in the process and have discussions about what can and cannot be done. Ryan, do you want to go to Katie's presentation, or do you want me to finish these questions, because Katie's presentation might better address John's.

CHAIRMAN NANCE: We're going to have a question from Sean, and then we can have Katie's presentation, and then we can kind of answer -- We'll see if that leads us --

DR. NEER: Perfect.

CHAIRMAN NANCE: Okay. Sean.

DR. POWERS: Julie, I know that Katie will speak in a second about an issue, but one of your bullet points said, for the research track, this is not a research project, and that seems counterintuitive, to me, because, I mean, for example, red snapper, or any other species, we've been told for a decade that we can't explore X, Y, or Z, because it's not a research track, and now -- So can you expand on that point, because I understand it's not somebody's dissertation, but, arguably, with some species, it's more important than somebody's dissertation, and so what do you mean by it's not a research project?

DR. NEER: Well, what I meant was that it does still have a goal, and perhaps "research" should have not been -- That wording should have not been -- Research project should not have been the best wording, but the point is that we still do have a goal to provide management information in a timely fashion, even if we're not providing it at the end of the research track process.

We still are not able to look at everything that everyone might like to look at, because that would simply just take too much time, number one, and, number two, some of these things would be very difficult to make a choice at the end, when we don't have good criteria to choose between multiple alternatives, and so it's not -- We're not currently set up for a process where we can look at five different assessment models, because we don't have a way to choose, at the end, how that might be -- How you would pick, necessarily, which one, and so, as I said, the hypothesis testing that we're looking at is within the recommendations and within the data that was already sort of approved in the earlier stages and that we have in hand and can be done and objectively examined, I guess is sort of the question.

We do have to be careful that the ultimate goal of the SEDAR process is to produce an assessment, a product, that can be useful for management at the end of this whole two-year or three-year process, and so that's what we meant by it's not open ended, and it's never been open ended, if you go way back when. We never said you could look at every single thing in every single form that you may wish to, because we still have a job to do, essentially providing this information at the end that the managers can use.

The research track has really only been in place for -- 2018 is when we started rolling out to you guys the information on research tracks, and our first one is scamp in 2020, and so the

talks went on a little longer than that, because it took quite a bit of time, to be honest, to get what a research track meant through the SEDAR process.

It took several years to even get to our pilot, which is what we're doing now for scamp, and I will be honest that it's perhaps still evolving, and scamp isn't even done yet, and so there are things that we may need to do a better job explaining and things that we may need to make modifications to, to make sure that everyone is clear on the expectations, because there does seem to be some confusion among a variety of different participants in this process, and we strive to fix that, for sure.

DR. POWERS: Okay. Thanks. That helps a little bit. I understand the point that all the research questions that we have to look at ultimately have to have some management implication in the end, and that's a logical boundary on that.

At the end of the research track, you said the review is the independent review panel, which most of us are familiar with, but isn't there an additional step? I mean, the SSC has to look what the review panel said, and then we have to accept or ask for modifications or anything, or is it your -- For whatever the review panel's recommendation is, or are you saying that the SSC doesn't have a role there and that we just have to -- If the review panel says it's acceptable, then we have to accept it.

DR. NEER: No, and the SSC will review the overall SEDAR product, like you do now, that final stock assessment report, and that contains all the information on stock ID and data and assessment and the review panel information. That will all come to the SSC for your review and consideration.

Then, at that meeting, or shortly thereafter, the SSC's role is a little different at this stage, because what will happen is then you will produce the terms of reference for the operational assessment that follows, and so you are supposed to sort of look at the recommendations and things that the review panel might have recommended that can be fixed, because, again, these short-term versus long-term goals, and there are recommendations, and there are some things that perhaps couldn't have been reviewed or that the review panel might recommend that, hey, it would be great if you could look at, and, I don't know, combining these two rec fleets into one.

That's not something that could have been done in the three weeks between when the review panel meets and the report is

finalized, but it could potentially be done in the next four months or something, before the operational assessment is completed, and so the SSC could say, yes, we think that's a great idea, and we agree that that's a good thing to do, and we would like to see that happen in the operational.

On the flip side, the CIE might recommend something that the SSC will say that doesn't make any sense, given our local fisheries and our understanding, and so we don't think you need to do that, and so the SSC still has a role in producing those terms of reference for that operational assessment, but, again, it's -- Since it's following -- Assuming that the assessment got approved and the methods were used, that it's making minor modifications and requesting perhaps additional sensitivities and such within the operational assessment, as well as, obviously, updating all the data.

There will, obviously, have to be negotiations, if the SSC asks for something that is going to take eight months, nine months, ten months, to do, and the Science Center and the cooperator will have to have those discussions and see what could happen and how that would be handled.

Again, we haven't done one yet, and so I'm not sure, but certainly the SSC does have a role in producing those terms of reference that are going to be used for the operational that follows this, but the expectation is that, if it's been approved by the review panel, and the entire process was sort of signed-off on by that review panel, then we would hope that the modifications that were requested by the SSC would be more minor in nature.

If they were quite a bit -- If they're extremely involved, and I don't know what extremely involved means, but, if they're going to take a good deal of time, then those discussions will have to happen between the Science Center and the council, regarding how important those things need to be and where we could fit them in the schedule. I hope that helps, but, yes, you're definitely -- You guys weigh-in before the operational starts.

CHAIRMAN NANCE: Okay. Thank you. Will.

MS. MATOS: Will, you're unmuted, but we can't hear you.

DR. NEER: While Will is trying to figure out his audio, I guess I neglected to say there are essentially two types of operationals. There are the operationals that happen

immediately after the research track that produce -- That update all of that data and finally provide that management advice that doesn't come out of the research track.

There are also operational assessments that are stand-alone, which means they're not happening immediately after a research track, and so what I was describing in this presentation are more for those stand-alone processes, where you develop a statement of work, and you're involved in all of these things, and there might be topical working groups, those sort of things, and those are the things that you're sort of going to -- That the SSC is going to weigh-in later today, or tomorrow, on those, because operationals is kind of an overriding term for anything that's not a research track, but they have sort of a little bit of a different function in how they are developed and the process that they follow, and so a little difference between those two.

There are some more details on that in that Word document, the research track operational topical working groups guidance document, which I believe is in your briefing book, as well.

DR. POWERS: Okay. Thanks. That makes me feel better that the operational is automatically scheduled after the research, and, while we wait for Will, what is the cycle on the research? I mean, for example, this red snapper one, I mean, are we not likely to see another research track for a decade or more?

DR. NEER: That is difficult for me to say, but I will say that our key species, and every council has a few of them, were operating on a five to six-year cycle before you would see another benchmark, when we were doing benchmarks, and research tracks are probably going to be similar, or perhaps even more lengthy, because the process itself takes longer.

Usually, you were -- The benchmarks/research tracks were happening for those key species, like red snapper, king mackerel, some of the others, that those were happening roughly five to six years apart, with perhaps standards and updates put in there -- Then you have the option, at least in the Gulf currently, for those interim assessments, and I would bet that you will see an interim assessment or operational before you will see another red snapper research track, but, again, it is entirely based on what the cooperators come to the Steering Committee and say this is our high priority.

We have a lot more species, and we seem to assess about twelve on a regular basis, and we try and stick other ones in, and so, if the council thought it was necessary to do another research

track for red snapper in four years, because we're sort of scheduled out through 2024 already, 2024 or 2025, they could certainly request that, but it, obviously, means, with the workload issues, something else doesn't get done for a longer period of time, and that's always the balance of when they could happen, but, on average, they were five to six years for -- I am going to call them the most popular assessments that we do, and I'm not sure that they're necessarily the highest priority, but there are certainly species that we seem to do -- We were doing repeat benchmarks, and there is others that we've only ever done one benchmark and never repeated it, and so it's pretty species dependent, too.

CHAIRMAN NANCE: Thank you, Julie. Will, are you able to come on now?

DR. PATTERSON: I don't know what the issue was, and I didn't change anything, but thanks, Julie, for the presentation and overview of the process. Admittedly, when this was announced a few years ago, that the process would change and have operational versus research track assessments, I didn't fully understand the shift, and I still don't really understand why an eighteen month to two-year process for a research track that doesn't produce management advice, but then you immediately go into an operational, which might take another five or six months to produce the management advice, but I also understand that we're working through this, and it's still a new process, and we're trying to figure it out.

What I kind of thought was the deal is that you would have the research track, because it could be open-ended, and those of us who have sat on various SEDAR panels, or have just had stuff come up for review at the SSC, invariably, there is some process, or assumption, that is discussed that couldn't have been examined because of the nature of the assessment, and it wasn't in the scope of work for that particular assessment, but then we have the example -- I'm not sure if Sean was referring to this or not, but, in the red snapper, the current red snapper research track assessment, one of the issues that's been discussed is whether we can examine multiple different stock structure assumptions.

We've had discussions about that not being feasible within the context of that assessment, but, earlier, in SSC deliberations, that was like one of the number-one things, that we can't do this until there is a research track assessment, and so I fully appreciate the fact that this process can't be open-ended, and you can't examine all the minutia of every single parameter that

you might want to explore, but it seems, to me, that there needs to be some type of process then on the front-end that isn't as prescriptive, perhaps, as an operational assessment, but the idea that these things are fair game, and we maybe have a priority list of things that can be accomplished.

If you're going to have a two-year process of a research track assessment, then, to me, it seems like it does have to be kind of open-ended, a lot more open-ended than an operational assessment anyway.

DR. NEER: Again, this, I think, comes back to clarifying what we mean by looking at things and examining things, and so we -- From a SEDAR perspective, I actually believe that we did examine stock ID, and we came up with -- We reviewed all the -- There was a large panel that reviewed all the data, and you guys came up with a couple of different stock ID alternatives, various options that were all put forward with various pros and cons to each one, and you then -- What we couldn't do is likely move forward with all of them to the full modeling structure.

To say that we weren't allowed to review alternative stock ID structures I don't think is a fair characterization. We did look at alternatives, and, in fact, you guys -- The group didn't settle on status quo, and you did actually make a change to what stock ID structure is going to be used, moving forward, based on the information that was provided.

I think I do agree that we need to do a better job on perhaps the advertising of what it is, because I think we did address stock ID, and there was a large group of people who weighed-in on a variety of different options, and then one was selected, recommended, to be used moving forward, and it, obviously, is not as satisfying as some people I believe would have hoped we would have been able to continue moving forward with this, and, again, I think that's just some of that perhaps miscommunication, or not being clear on how -- Again, like you're saying, what can actually be accomplished.

We did have a several-month stock ID process, and we looked at a lot of information, and multiple alternatives were considered, and one was ultimately put forward as a way to move -- As a recommendation for the next stages of the process, and so, again, I agree with you that we need to do a better job with sort of the advertising and being clear on what we mean by what can be considered, and Katie's presentation will actually address some of this as well, I believe.

DR. PATTERSON: Jim, can I respond to that, real quickly? I would just like a chance to respond, before we move on.

CHAIRMAN NANCE: Absolutely.

DR. PATTERSON: I didn't mean to imply, or indicate, that we didn't explore, in the current red snapper research assessment, stock ID. There was a tremendous effort to explore stock ID.

What I'm talking about is that looking at sources of information for stock ID is only one component, and different hypotheses were put forward, and there was some discussion about the structure of the model and actually moving forward with competing stock structure assumptions and examining whether the data better fit models that had different assumptions about two populations, three populations, what have you.

That's the component that I felt a little bit let down that we couldn't explore, or won't be able to explore, because simply looking at the sources of information we have so far and trying to, from the outside, propose what the stock structure might be for red snapper is only part of the process.

Once you start fitting data to models, then you get a better sense of what the empirical data and some of the parameter estimates, what that actually supports, and so I thought that is exactly what the research track assessment for red snapper -- I thought it was actually the number-one issue, and something that could be explored.

Again, I think, on the front-end, we just need to have clear ideas about what's in the realm of possibility, so that we have a clear sense, and, if really important things, and like some of us thought that population structure for red snapper can't be explored within assessment models, and not just in a workshop on the front-end, then we need to have clearer ideas that when we discuss these things at the SSC and put stuff on that we're interested in potentially considering or that the data may suggest exist.

DR. NEER: I agree with you, and perhaps -- I mean, I said this might be something -- Part of it is being clearer in explaining what can be done, and I agree with you on that, and perhaps there needs to be even another stage, perhaps something clear like this, and maybe it's something that needs to be done even before we get to the assessment being scheduled, and perhaps it's something that may need to be spearheaded through the SSCs and the Science Center working on stuff prior to something going

on the schedule, if it's something that you would like to see, and maybe there's a way to do it.

Certainly we're going to have to probably have some more discussions on making sure that, one, we're clear with what we can do within the assessment processes that we have in place, and, two, perhaps have discussions on ways to accommodate some of these things that SSCs may find are vital and important to be part of the discussion, and how do we make that happen, and do we change the process, or do we -- Is that done outside out of the process, via a workshop method that's done by the cooperators and the Science Center, and I don't know, but I understand your point, and I understand your let-down of thinking that this was something that was potentially going to be able to be done as part of the assessment process, and it doesn't seem that that's going to be the case.

I agree with you that certainly we're going to need to give this some thought, on how we should approach some of these things moving forward.

CHAIRMAN NANCE: Thank you, Julie. That was a good question, Will, and thank you, Julie, because it's one of those things where the research track is the only place you can have these things, and so we need to do a little more thinking on how to incorporate those things. David Griffith, you're next, and then we're going to have Josh, David, and Jason, and then we'll have Katie.

DR. GRIFFITH: I am a social scientist, and so I'm kind of interested in the extent to which -- I see that you -- When I look over these stock assessments, I see that you look at landings and the difference between commercial fishermen and recreational fishermen and discards and gear types and things like that, which I guess could be considered social data, but I was wondering if you try to incorporate other kinds of social information, like fishing strategies or the uneven distribution of effort across the Gulf for different species or how a certain species fits into a whole pattern of fishing operations.

Say a person who switches between charter boating and commercial fishing himself, during different times of the year, and so there's all kind of seasonal dimensions that influence pressure on stock and things like that, and I was wondering the extent to which you try and incorporate, or even access, that kind of information.

MR. RINDONE: I can take this one, Julie, if you want.

DR. NEER: Yes, please.

MR. RINDONE: Okay. David, when we're going through the SEDAR process, we have involvement from fishermen and from council staff, who help inform about changes to the management process and also about some of the aspects of how the fisheries operate and primary and secondary targeted species and how anglers, whether they be recreational or commercial, may prefer some things during certain times of the year.

We always lean to the fishermen first, whenever we can, on those things, to let them speak for themselves, and, in the absence of them, council staff or council members, who are listening in, will also chime in and provide some of that information.

It's definitely considered, front to back, throughout the entire process. Whether it's part of the stock ID process, or when the data are being discussed, which is probably one of the most imperative points in the process for those discussions to occur, but they're also very fruitful in the more analytical parts of the process, like during the actual building of the assessment model.

If the assessment is predicting that a certain thing is happening, but the fishermen know that to not be reality, based on what they see on the water, they can voice those concerns, and then you can take a deeper look into why the model might be behaving in a certain way and make appropriate adjustments to try to better represent what we're being told is the actual say state of nature, if you will, for a particular parameter.

Then, of course, when it gets here, and you guys review it, you guys will sometimes get input from fishermen that will try and help explain why something is the way it is, and then, of course, at the council level as well.

DR. GRIFFITH: So, the comments by fishermen, are those incorporated into the reporting that goes to the SSC?

MR. RINDONE: They're included in the stock assessment reports. Oftentimes, you will see something discussed about the data, and I'm going to completely make up an example. If you see something discussed about, oh well, we primarily are observing juveniles in these areas at these times of the year, and fishermen will say, well, that's not really where we see most of them, and you might find them easily there, but usually where we find them is in this other area, and then that might retool

some thinking about distribution by age class and size class, and it might help better inform different aspect of life history, as an example. You will see that outlined in the stock assessment report, in the particular sections pertaining to those specific data.

CHAIRMAN NANCE: Katie.

DR. SIEGFRIED: I just wanted to add on to what Ryan was saying, and we have Mandy Karnauskas and Matt McPherson at the Science Center who have been heading up the participatory workshops that are asking these very questions, and they are sociological questions, economic questions, fisher behavior questions.

Before COVID, we had a room full of stakeholders that represented as many modes of fishing as possible for sets of species, and we would -- I mean, literally, and Mandy is on the call too, but we would throw up, on the wall, all of the information that the fishers would provide to us and figure out a conceptual model that we could then deliver to the analysts doing the quantitative modeling.

I know that she and Matt, and I think they have an intern working on it, are preparing the conceptual model for red snapper that will be delivered in time for the data workshop, and so we are trying to incorporate more information, and it hasn't been up to par in the past, but I think that we're really getting rolling on that effort, if Mandy wants to add anything, and I hope she will.

CHAIRMAN NANCE: Go ahead, Mandy, if you have anything for that specific item.

DR. KARNAUSKAS: Sure, and I can add to that. That was a great summary, Katie, and thank you. I guess I will add that, from the process that Ryan is talking about, making sort of adjustments to the stock assessment process, based on input from fishermen, is a little bit different than what Matt and I are doing.

That, I think, is more in line with some of the questions that David Griffith was asking, is what's the role of the species in the wider system, how do fishers change behavior based on regulations, and those sorts of questions, and so those are the kinds of things that we're trying to get at in the participatory workshops, but Katie did a great job summarizing. Thank you.

CHAIRMAN NANCE: Thank you. Josh.

DR. KILBORN: First, thank you for the presentation, and this is actually pretty helpful, but maybe I missed it, and apologies if I did, but how do things like ecological and ecosystem covariates get introduced into this process? Where -- You know, I see a lot of effort appears to be given, in the research track, to stock identification and things like that, but what about these other habitat considerations and ecosystem considerations? How does that get injected into the process, and where?

MR. RINDONE: I can take a swing at that. Typically, those sorts of discussions about ecosystem covariates and how they might be incorporated, those are initially talked about in the data workshop and data preparation phase, trying to identify what data are out there, how they've been developed, what condition they're in, and where best to try to plug them in.

My mind is drawn to things like the red tide mortality indices that are used for some of the grouper species, and those data are usually talked about at the data workshop phase, and then it's determined the best way to incorporate mortality from red tide, and, often, it's like the discard fleet, 100 percent discard fleet, and how to best align that mortality by size or age, depending on how the data are provided.

Things are like that are then folded forward into the assessment process, where they're incorporated into the model, and they can also be incorporated as sensitivities, to see how the model responds to the inclusion of those environmental covariates as a separate addition to the model.

Then, if it looks like that it helps better explain what's going on, and it helps represent a more plausible state of nature, then it can be included in the final base case, and so that's a very quick synopsis of how that process can go.

We usually try to identify these sorts of projects that can be informative as far in advance as possible, because, like with any new data, especially the more complex those data are going to be, the more work that often has to go into trying to figure out how to fold it in.

DR. KILBORN: Okay, and does that apply to less obvious things, like maybe oxygen concentrations from dead zones and things like that? I am just sort of thinking of just the less obvious things that may influence stock success. As people are working on that in the academic setting, does it translate easily into

this SEDAR process?

MR. RINDONE: Sometimes it does and sometimes it doesn't. It just depends on -- It depends on the data and how they can be included. I mean, we might have ample sampling of say the dead zone at the mouth of the Mississippi River and changes in dissolved oxygen levels emanating out from certain areas, showing the changes in that dissolved oxygen in space and time, but that, by itself, while interesting, may not, on its own, be enough to help inform something that's being observed in the model.

It might help with future hypothesis testing for future research, and so, in those cases, oftentimes, suggestions for the future research will be put into the research recommendations of the stock assessment report, and it just really kind of depends on what's been collected and how it can best be applied to trying to determine changes in the trends in total and spawning stock biomass.

Dave Chagaris is on, and Dave probably has, at least amongst the SSC members, some of the most used application of ecosystem tools that have gone into the assessment, outside of folks that are in the Science Center, and so he might want to speak a little more to this.

CHAIRMAN NANCE: David, why don't we go ahead and address your questions?

DR. CHAGARIS: Okay, and I can respond to Ryan, first. You described the process accurately, but I do think it could be done better, and, if you think about like the red tide example, I mean, there was a lot of precedent for that before it started showing up in the terms of reference, but, if there are other environmental drivers that maybe haven't been considered yet, something that's not as pronounced, as Josh was referring to, then that might not show up.

I am actually really glad that we're having this conversation, because this has been a concern of mine, really since we went to the research track, that it was really just shaping up to be another benchmark assessment, and I think what's clear, from this conversation, is that we definitely need to make space for this somewhere upfront in the research track assessment.

This would be a space to talk about environmental concerns and a space to talk about socioeconomics, and, also, the management options. I mean, there's this disconnect between the stock

assessment models and the knobs that a manager might want to turn, and so it's like the assessment stops at status determination and F projections, but how you actually get to that F, whether it's season closures or size and bag limits, could require a different structure of the model or some different projection models.

I think there's a lot of reasons, a lot of good reasons, to add another stage to this research track assessment, something on the front-end, and maybe you can fold it into the stock ID stage, or maybe you want to have something separate, and how well that could leverage the work that Mandy and her team is doing -- I mean, keep in mind this is something that would need to be done on a regular basis, or maybe you could have a single meeting a year to go through multiple species, and I don't know what it would look like, but, clearly, I think there is something missing in this that allows the models to adapt to what it happening in the environment and what's also maybe happening in the management arena as well.

I'm not sure how we go about doing that, Julie, if that has to be a motion from the SSC, or if it's something we can test drive with red snapper, where I think it will be pretty critically important to have those conversations upfront.

CHAIRMAN NANCE: David, is that your -- Are you done?

DR. CHAGARIS: Yes, I'm done. I've said my piece. Thank you.

CHAIRMAN NANCE: All good points. We're spending a little more time on this than we have allotted time for, but it's good. This SEDAR process is really critical to the things that we do here. I'm going to take Jason next.

MR. ADRIANCE: Thank you, Mr. Chair. I won't belabor the point, because I think Will and Sean covered a lot of my concerns, and I think I went into this naively, looking at those points about being able to explore new ideas, and I guess the thorough and transparent for a research track has a little bit of a timely component to it as well, but one thing I noticed in the process, and I don't know if Katie will get to this in her presentation, but, somewhere down the line, I guess maybe we need to explore the ability to look at some of these data breakdowns, outside of geopolitical lines, and I noticed that was one point of contention, at least in the stock ID process, that we have surveys and boundaries that are geopolitical, but parsing the data can be difficult.

I don't know how we move forward in that, but I think it's something to consider, as we do move forward, since these research tracks are going to be our opportunity to change things. If we don't do it then, we're stuck for the next cycle, if we can even do it then. Thanks.

CHAIRMAN NANCE: Thank you. We're going to take Mandy, and then we're going to have Katie's presentation, and then we'll get to other questions that are from here.

DR. KARNAUSKAS: Thanks. I was just going to add one more bit to the subject of environmental covariates in stock assessments, and I'm going to steal a quote from John Walter. When we used to talk about this stuff, and we've done a lot of research on how you go about including the environment in stock assessment, and John used to always remind us that the assessments are like Prego spaghetti sauce. It's in there. The environment is in there, and so I thought that was a great comparison.

A lot of the data, all of the data, streams are tracking the environmental impacts, and we call it process error, but it's already in the assessment, and so we do have to remember that putting additional environmental covariates in the assessment can often do a lot more damage than they do good, and so we certainly have a number of cases, like red tide and recruitment modeling, where we have included environmental covariates in the assessment, but those have to be selected very carefully.

Going back to the participatory workshops that Katie talked about, and as Dave Chagaris mentioned as well, not only do we characterize the socioecological aspects of the fishery, but we also ask the fishermen stakeholders what they think are the major drivers of the biology of the species, and so I think, if they were to point us toward certain mechanisms, those could potentially warrant, or take priority, as further research steps. Thanks.

CHAIRMAN NANCE: Thank you. Katie, let's go ahead and do your presentation, real quick, here.

DR. SIEGFRIED: Okay. Thank you, Mr. Chair. We consulted with council staff about setting up this short, but perhaps dense, presentation for you all, after some consternation surfaced during the stock ID process for red snapper, which you all have heard some SSC members comment on this morning, and so we just wanted to start to set what the expectations are for a research track, potentially, and then this can complement the way that the SSC prioritizes the research they would like to see.

First of all, as Julie stated, research tracks are meant to incorporate current research and then determine which hypotheses can be tested with those available data.

The research track assessments, they may begin with a stock ID process, if it's identified in the TORs. Sometimes it's not requested, and so it's not required, but, if a stock ID is requested, then we have a panel then that gathers together and reviews all of those relevant studies, all that research and all of the relevant data, to decide on a stock structure that then is required to build the model throughout the rest of the assessment process, and it's kind of like our architecture, the bones.

The stock structure is to be based on the best scientific information available and to be based on first principles, using the data, and it's to be arrived at by a consensus, through this transparent and inclusive process that Julie outlined in her presentation.

The Center wanted to set up this expectation, because we're realized this, through trial and error, that, with scamp and red snapper, that multiple stock structures just cannot be carried through the rest of the research track, and that's for two major reasons, and this may have been a miscommunication in the past, and we're sorry about that, and we would like to make that clear now, that we cannot support multiple stock structures, with our current workload and staffing and prioritization of other assessments.

This is for two major reasons. Most importantly, there is no objective way for us to judge which model is best when the model structure changes, and so, for example, our standard model comparison techniques, like AIC, or any other information criteria, require the same treatment of the data, and, by that, we mean changing stock structure that tends to change the way the data are used, using different likelihoods, like an index configuration, et cetera.

Our research track data are also supposed to be preliminary. As Julie stated, like for scamp, we don't have a terminal year that is most recent, and we also don't expect all the data to be perfect. We want them to be approximate and sort of what we need to build those bones, but they may not be the most final, most QA/QC'd data, and so, if we don't have that, we cannot compare model diagnostics across varying stock structures.

We also have this hypothesis testing statement that's been made repeatedly, but each stock structure may not be able to test the same hypotheses, or use the same data, which also makes them incomparable, and so that's the most important reason that stock structure cannot be carried through, barring anything much more intensive, like a simulation study or something where we have multiple post-docs working on this before the research track even begins, but, at this point, what we have are the panel looking at the available data and coming up with one stock structure and comparing across multiples, and it's just very difficult if there is no objective, quantitative way to do that.

In addition, multiple stock structures creates a factorial design for the modeling team and data providers, potentially creating an infeasible workload for the timeline of a research track, and so I'm sorry that I don't recall who just mentioned it, but there is some timeliness required for a research track, and we do need management advice at some point.

I tried to create just a pictorial to explain this factorial experimental design, and so, if we carry that stock structure through the process, we could potentially create an exponentially higher workload for the analysts and our data providers.

What I have put here is -- If you look at Model Structure A at the top, we test just one hypothesis, looking at alternative selectivities, and so we have four different competing hypotheses about selectivities, and it creates four models from that one model structure.

Then we test each of those selectivity hypotheses with a high and low natural mortality, and, those of you who have followed our assessment processes, this probably doesn't look that crazy, right, because we probably test selectivities, high and low natural mortality, and multiple other hypotheses in the process of doing our sensitivities, as an example.

If we then carry all of these hypotheses say for the alternative selectivities or high and low natural mortality through say two more model structures, we create an exponentially higher workload for ourselves, and we don't necessarily know if the selectivity scenarios will require the same treatment of the data, and so not only do we have different data, but we have different assumptions, and it's a problematic scenario for us.

This is just a really simple example of why it creates such a huge workload and how it's difficult to test across the

scenarios, and I hope this is clear that this is just meant to be a cartoon, and that we're actually a lot more complicated in our processes.

Once that stock structure is decided by a panel consensus, like Option A in the last slide, we can test multiple hypotheses with the data available at the data workshop phase, and we can look at inclusion or exclusion of a variety of indices or the way that those indices are standardized. They could include or exclude information about hypoxia, say, in the index standardization.

The age and length composition data can be weighted or not weighted, or using different likelihoods to fit those, and we have catch and discard data that can be taken back to a historical period or not, and then how the discard data are arrived at by a model is another sensitivity that we can potentially look at, or hypothesis. Sorry.

We have different selectivity functions, retention assumptions, and we can investigate different stock-recruit relationships, generally data-weighting issues, and we can attempt to incorporate published studies about topics such as larval transport, depredation, density-dependent mortality, et cetera.

All of these hypotheses can be tested during the research track assessment, but not necessarily during an operational, and so we do have this expectation of hypothesis testing in a research track, but just not necessarily the stock structure.

Just a little note at the bottom there is that the research track framework allows for this hypothesis to be tested using the data provided at the data workshop phase, based on the stock structure decided during the stock ID, and it could also be the status quo, if the stock ID was not specified in the TORs, but this was meant to expand on the expectations and clarify the expectations that may have been communicated in the past for a research track, and I hope that this helps sort of create a place to start the conversation about what can be included and not included for future research track assessments, and I think that's my last slide, if there are any questions.

CHAIRMAN NANCE: Thank you very much. I appreciate that presentation. Paul, did you have something to add to this?

DR. MICKLE: I appreciate this information, and it does give a lot of kind of background to what the research tracks can really provide, and I really appreciate this actual slide, because this

gives the ability to look at the multiple hypotheses that you can actually challenge and look at and see if you're going -- The path you're using, and the model design, and the stock structure you've actually decided on has been tested through these different things, and so I really appreciate that.

Just to jog my memory a little bit, I thought we would -- A few years ago, there was a lot of discussion about gray triggerfish and the ability to maybe look at some sort of new type of data, research track discussion, because I think it has been updated quite a bit, and benchmarked quite a bit, that particular species, but the recruitment side and the sargassum component -- I thought maybe there had been some direction and some research funds spent to look at kind of maybe that relationship, and I don't know whatever came of that, if anybody remembers.

I thought maybe that NOAA had funded a little bit to look at it, and maybe Dr. Hernandez over at Southern Miss, and I think a GIS satellite specialist, maybe down here at USF, had teamed up, and I think I just lost focus, or I just didn't follow-up on that, but whatever happened to that effort of trying to understand maybe a habitat and ecological component to the conversation we're having?

CHAIRMAN NANCE: Mandy, do you have something to that point?

DR. KARNAUSKAS: I'm actually the technical monitor on that project, and so I could update a little bit. It is coming to a close, and they are in the process of investigating satellite-derived sargassum indices and the relationship with gray trigger recruitment, and so that research is still in progress, but the project is coming to a close, and they are actively working with the stock assessment folks at the Southeast Center, and so they are making those linkages.

DR. MICKLE: That's terrific, Mandy, and that's really great to hear. We all understand that it's very difficult when ecological data are very spatial in nature, and they're very bound spatially by the study site, which creates issues in Gulf-wide stock assessments and those things, and so I would just like to highlight that that seems like a really wonderful effort, where NOAA provided the data need of a new type of data, and it was kicked off in a way that NOAA really outlined exactly the way the research could allow data to be informative to a stock assessment, because so much ecological data is not, for various reasons, and so that's just a really great example of how this provides benefit and pays dividends once the efforts are in motion. I just wanted to highlight that.

CHAIRMAN NANCE: Okay. Sean.

DR. POWERS: Thanks, Katie, for the presentation, and it is consistent with what we've heard from the Science Center during the stock ID workshop. I guess, getting back to your first point, and I totally agree that, if first principles agreed, and we could draw a definitive boundary, then that's, obviously, the best solution, but the issue with red snapper is that none of the bits of information were any overwhelming individually, and so we had a lot of places where we could have drawn that boundary.

I guess that's the point, is what happens, and I think this is the case for red snapper, and I hope it's the only species we have this problem with, but what if first principles don't give a clear answer? That's what we're facing here.

You know, while we did get consensus, the consensus wasn't overwhelming. I mean, basically, Option C was the consensus, which is the three-stock model, for those of you who aren't familiar with it, versus a new line at the Florida-Alabama line and a two-stock model.

I'm not sure which one is correct, because there is no overwhelming signal on first principles from the studies on where definitively to draw that line, and so I understand the concern about the workload, but, again, this was the priority that the SSC had for a research stock assessment on this, was deciding on the stock structure.

I realize that there is no objective measure, because there will be differences in the models and the data inputs, and it will affect sampling sizes and all of those things, but there is probably a way, short of doing a complete factorial design, that we can look at this question, and we can choose a couple of indices and then look at their fits, because, ultimately, since the genetic life history information isn't leading us to any definitive point, ultimately, we want to see what makes the most sense or, for lack of a better word, visual fits of the indices.

We have done that consistently in the SSC, actually looked at visual fits of the indices, when we can't get an objective way, and so I understand this list of hypotheses that you want to test, but part of -- Or that we think that we should test, but, for example, I would be willing to give on a few of these if we could look at the stock ID structure.

I understand it's a tremendous amount of work, but, arguably, it is the most important species that we deal with at the SSC, or at least public perception would say that, and so I guess that's -- My question comes back to what if first principles don't give us a clear boundary? I mean, there would be some argument, according to Magnuson, that we should then, if there is no clear thing, we should manage it as one whole stock, and I don't think anybody is advocating for that, but what happens when first principles don't lead us to definitive stock boundaries?

DR. SIEGFRIED: Can I respond to that, Mr. Chair?

CHAIRMAN NANCE: Absolutely, Katie.

DR. SIEGFRIED: I think, without showing the SSC this whole stock ID report at this point, it would be difficult to truly debate all of this, Sean. I know that the Center and council staff have discussed that we would like to present the stock ID report to the SSC at the next meeting, and that, once the SSC can see all of those details, it would be a heck of a lot easier to debate this, at that point, at least the details of the red snapper stock ID.

When you say that the first principles don't arrive at a clear stock structure, then it has to be something where the panel comes to consensus of what other best scientific information there is. If there's not one clear answer, which seemed to happen for the red snapper stock ID, then the panel discusses it, which we did over multiple webinars, and we had to come to some kind of compromise, based on what was available and what we expected to see if we could rely on just first principles alone.

I would ask if we could debate the actual details of the red snapper stock ID at the next one, where the whole SSC can be aware and educated about what the panel discussed.

CHAIRMAN NANCE: Ryan, is that possible to do?

MR. RINDONE: I would argue no, the reason being that the data workshop, or the data preparation workshop, whatever it is that anyone feels like calling it for the research track process, and it's supposed to be the first week of November, and debate implies that there's something left -- Something still to be decided, and so, if this decision is not made, isn't already made at this point and ready to go, I mean, it affects everything downstream at this point.

If we wait until the next SSC meeting, which is the end of September, then, at the end of that meeting, that leaves essentially the month of October for everyone who is responsible for data to put those data together in such a way that complies with the hypothesis, or hypotheses, for stock structure and have to do that in a month, and I would venture to say that you will hear a lot of people say that's either highly unlikely or flat impossible.

Then, for all of that to be prepared and ready to be discussed at that data workshop in November, I just don't personally see how that's possible, given my experience with the SEDAR process, and so the possibilities, from there, would be that either we would have to go forward with what we have, and try to think of alternative ways of looking at things, as Sean alluded to, or we would have to look at the schedule and see how we could change the schedule to accommodate further consideration of the stock ID process, and so I see Julie has got her hand up.

CHAIRMAN NANCE: Julie, do you want to respond, and then Katie, or vice versa?

DR. NEER: I just want to step in with regard to the process. As I said, we have a stock ID process that we went through and we followed, and SEDAR is more than happy to make the report available for you all to see, and it will be posted on the website as soon as it's finished, in the next couple of weeks, but SEDAR does not currently, in its format, come back to the SSC in between each one of these steps to get them to sign-off.

It is an entire process that moves forward, and, as I said, it is a sequentially decision-making and recommendation-making process, and, if we are now going to have to get each stage of this process reviewed and signed-off on by the SSC, that is a fundamental change to how SEDAR functions, and it will require a lot of discussion at the steering committee level, if that is a path that we're going to go down, then that's -- I have a feeling that we're going to discuss this topic in general at the next meeting in October for the SEDAR Steering Committee, but we have ADT members who are in this whole process, and some of them were actually on stock ID, and some of them were not, but we have SSC representation at each one of these stages for a reason.

The whole product, at the end, comes to the SSC for their review, but coming back and now taking this report and sending it to the SSC for them to weigh-in on, without the benefit of seeing

all the discussions and all the -- We had fifty-two people appointed to the stock ID panel for red snapper, and we had a series of webinars and workshops.

For you guys to now just look at that condensed report and then perhaps override the decision that was made by the panel is a real problem for the process, and, if that's what you wish to do, I guess the SSC can make that recommendation, and then we're going to have to take that up to leadership and see if it can be accommodated or not, because that is not how the process works, as it is currently structured. Thank you.

CHAIRMAN NANCE: Thank you. Katie, anything on that?

DR. SIEGFRIED: Yes, and I'm really sorry that I used the word "debate". What I thought we were doing, and had discussed doing, is bringing it for awareness and not for approval, and so what I meant was it's difficult to answer Sean's specific questions about it, because the whole SSC is not aware of what we're talking about, because there is no document, but I certainly didn't mean to add in that the SSC needed to approve that. The panel came to consensus, and so I apologize for misspeaking.

CHAIRMAN NANCE: Thank you, Katie. Will.

DR. PATTERSON: Thanks, Jim. Katie, back to your original sort of two points about why we couldn't explore stock structure within the assessment model, or models, one is this factorial issue, and the second is just the data requirements to accomplish that.

As far as the factorial, anytime we change an assumption about selectivity, or we change assumptions about high or low M, that doubles the number of runs that are required, and so, by having two stock ID assumptions, it would be no different than any of those other parameters.

It seems to me what it really comes down to is the data, and I understand the difficulties in trying to produce all the various information, whether it's the age comps or the index information for various indices, and that, if you have different geographic boundaries between population groups, or stock sub-units, then that causes problems, or it creates more work, but, to me, that just argues for the process I think that's being undertaken, or is attempted to be, in the region of more automation of the data time series and the ability to pull data at the click of a mouse, if possible, for these various different components of

what goes into stock assessments and not have it be a two or three-month process to get data providers to get information for a given index or a given source of information that goes into an assessment, into a given assessment.

I know that's problematic now, and I'm hoping, in the future, that, if this automation process is successful, at least to some extent, then perhaps we can start to evaluate some of these things, and, as far as an objective way to interpret the information, if you ran a two-stock versus a three-stock assessment, and then tried to figure out which one is the most parsimonious, or the best fit, in some other respect, I think we can do that, like Sean was alluding to, even without a formal framework.

I mean, obviously, it's better to be as objective as possible, but I think that could be done, and so I understand that it's not going to happen for red snapper for this particular process, this particular research assessment, but, right now, you have a three-stock model moving forward.

What happens if you get to the end of two years and you're not getting convergence, or there's something else squirrelly, and you have indices that just don't fit, because the population structure that's assumed in that model just doesn't match the fish, the biology of the animal, and you have bits of information that may be suggested, but, in the end, it's not the best approach, and what do you do at that point?

You've got two years invested into a process that doesn't produce a result that maybe the SSC would recommend to be turned loose into an operational assessment, and so, if the issue is about efficiency and best use of time and how to accomplish the objectives of the research track process, we could actually end up in a position where you have -- By not running these multiple scenarios, and, by multiple, I am suggesting two, but then you could actually end up in that same situation, but for a different reason.

CHAIRMAN NANCE: Thank you, Will. Trevor.

DR. MONCRIEF: I want to make two points, real quick, and so the first one is on the document itself, and then I'm going to call of follow -- I think Will was going down the route that I was going, but I've got another scenario that I wanted to ask a question about.

Paragraph 3 of the guidance document, and I think it's Sentence

4, says this would increase quality, because the research assessments are not rushed to completion under the pressure of needing to provide management advice. Then another sentence in your bullet points, the last one, is, therefore, the frequency of research track assessments should be tempered by the extent of compelling new information and the resources available and that there are no expiration dates on the assessment tool built through a research track.

I feel like -- I think you all are going to provide the clarity that was asked by multiple folks, but I think adding what you all have in this last slide would provide a lot of clarity in the document, and it would really clear it up, for anyone who pulls this up, to be able to look at what the research track is supposed to be.

The other one is I think we all have come to the consensus that we want to explore multiple stock structures, and it would be a great thing to do, but it might not be in the cards here, and I guess my question is, is there concern from you all's staff, or anybody at this table -- Basically, what I am thinking is this is going to come up again for a research track in a few years, and the same question is going to arise, and we have the possibility that we're going to have basically a previous assessment that had a stock structure, a research track assessment now that's going to have a different stock structure, and then the new one, when it comes out, the next research track could have a potentially different stock structure altogether.

Is there any concern about comparability or changing these stock structures over time for each one of these assessments, because that's a fundamental change, in my mind.

CHAIRMAN NANCE: Katie, go ahead and address that, please.

DR. SIEGFRIED: We did -- To Trevor's question, we did talk a little bit about comparing stock structures, where we couldn't collapse back to status quo, and I think that's what you're getting at, is that it's difficult to compare when the stock structure may change from research track to research track.

That was one of the appealing options, but one of the things that made the option seem appealing is that, potentially, if we ran into issues like what you're saying, or what Will was saying, where we had convergence issues, or problems with the data not being enough to support another region, that we could then fall back on status quo, which is something that I think is outlined in that document as well, that if the data aren't sufficient to

move into the different stock structure that we would have to fall back on that. Can I also comment on Will's point, Mr. Chair?

CHAIRMAN NANCE: Absolutely.

DR. SIEGFRIED: Okay. So then, as far as automation goes, we have some staff who are dedicated to the automation side of it, and we are going just about as fast as we can on those, and we've made some big strides, but a few of the things that we haven't fully automated yet are key points to the stock structure discussion, the indices and the age and length composition data weighting, and those are much more difficult to automate, when it comes to changing the stock structure.

We are open to suggestions and further discussion about that, as well as any academic studies that are of interest to those on the SSC, or their collaborators, to look into something like a simulation study for stock structure, and our staff, unfortunately, just have such a high operational workload that we can't pursue all of the types of research that we would like to pursue outside of our SEDAR and operational workload.

The other thing that I wanted to mention about this slide that's on the screen here, it certainly is not all-inclusive, and I hope that that was understood, and there's plenty of other things that we can test. Natural mortality comes to mind, and, also, we can incorporate hypothesis testing in the operational assessments and not just research track, and so I hope that was clear.

I wish we were farther along with the automation and that there was an easier way to move forward with stock structure, something where we had some sort of decisional framework with all the available data, but we're just not there yet.

CHAIRMAN NANCE: Thank you. I think this research track is one of those things where it's the first attempt, and it's a good learning experience on how these things need to proceed. Any additional comments on this topic? Okay. Julie and Katie, thank you very much for those presentations, and I appreciate all the comments.

We're going to break for lunch, and we'll come back at 1:00 Eastern Time, and we'll go into the red grouper. Thank you much to all those who participated.

(Whereupon, the meeting recessed for lunch on August 9, 2021.)

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August 9, 2021

MONDAY AFTERNOON SESSION

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The Meeting of the Gulf of Mexico Fishery Management Council Standing and Special Reef Fish, Special Socioeconomic & Special Ecosystem Scientific and Statistical Committees reconvened on Monday afternoon, August 9, 2021, and was called to order by Chairman Jim Nance.

CHAIRMAN NANCE: Welcome back, everybody. Our next agenda item is we're going to review the updated red grouper interim analysis. Skyler, I guess you're up for that.

REVIEW OF UPDATED RED GROUPER INTERIM ANALYSES

DR. SKYLER SAGARESE: Thank you so much, and I'm going to basically be giving a run-through of the updated interim analysis for red grouper. I know there are some new folks on the SSC now, and so I'm going to try to maybe add a little bit more background as I go through it than I normally would have, but, if you've looked at the materials online, there is quite a few new documents that we've posted, and there's been a lot of updated work on red grouper since we had our last presentation.

I am going to just start, quickly, by going through a brief history of the interim analyses for red grouper. Red grouper was the first stock that we did do an interim analysis for, and I'm also going to spend a lot of time, on this call, talking about some updated methodologies that we proposed at the Science Center to move forward with for red grouper, and so I will kind of go in detail in terms of why we're proposing those approaches and talk about some of those specific issues with red grouper, and also talk about another issue that's come up.

From the allocation standpoint, when we started digging into landings time series and assessment predicted outputs, basically, we ended up coming back to our projections and kind of doing a little analysis for the interim before another full assessment can be done, and that helps out with the predicted assessment recreational landings, and so we've done sort of a little adjustment to the OFL and ABC that we'll see later on, and I did want to highlight here that there's a lot that's in

this presentation, but there is also --

We've tried to break it up into pieces, and, where we need SSC decisions to be made, we're kind of going to approach it that way, and so we'll talk about through the first issue and then kind of stop and discuss. You know, number one is that recreational weight adjustment, and are those results accepted, and then number two, because the interim is dependent upon that decision, then we'll jump into the interim analyses results.

Of course, with red grouper, with the groupers and the ongoing red tide, there's been quite a bit of concern that we've been hearing, and so we wanted to try to provide a little bit of input there, and I'm hoping that Brandon Turley will be able to chime in, and he's been leading some of those results, and so, when we get to that point, I'm hoping he can jump in with some additional background, and so there's a lot to cover.

Basically, the take-home for red grouper, SEDAR 61, was finalized and presented at the September 2019 SSC meeting and then at the October 2019 council meeting. At the time, while that assessment was ongoing, we had the red tide that had occurred in 2018, and there was some concern that was raised, in terms of the ACL wasn't being met, and so the first interim analysis that was conducted at the Science Center was for Gulf red grouper.

I highlight here that all the interims we've done so far from red grouper have been projection-based interims, and I will go into more detail in a few slides on what that means, but that's really important to keep in mind, and that's one of the themes of this presentation.

After that first interim analysis, it was -- The SSC suggested that it could be useful for setting a new ACL, and that was about 4.6 million pounds at the time, but, ultimately, it wasn't used, because the 2019 ACL that was put into place by an emergency rule, and then later by framework action, actually used the 2017 landings value, which was, I believe, 4.16.

The first interim produced advice, but, ultimately, that advice wasn't used, and then, more recently, at the end of -- All my years are jumbling together, but, at the end of 2020, when we produced another interim analysis, using the 2019 data, we were able to kind of get a gut-check on what the SSC had agreed upon, in terms of the assumption of the red tide mortality, and so one thing to note here is that the SEDAR 61 stock assessment had a terminal year of 2017.

At that time, 2018 was the first year of our projections, and we knew that there was a very bad ongoing red tide, and so we had to make some assumptions in our projections to allow for some sort of event, and so, for example, in the figure on the right, what we ended up showing for that assessment, the output that followed throughout much of the reviews, was a -- That's just the time series of the projected yields out of our projections, which started -- So the first year of projected yields was in 2020, and then through 2035.

We ended up putting fixed catches for both recreational and commercial in 2018 and then in 2019. In 2019, because we did not have final data, we made the assumption that the commercial ACL would have been landed and that recreational landings would have remained similar to 2018.

The first thing to highlight is, and as we document in our reports, there's a lot of assumptions that go into our projections, but, ultimately, what that 2020 interim analysis showed was that our assumption was pretty good that there was a red tide, and it looked like it did have a bad influence on the stock, based on the trend and the relative index.

Then, in 2021, and so, in this past December of 2020 and then in March of 2021, we put out two different interims, using the index of abundance that we'll go through, essentially a full index and then an index that was based on a reduced spatial footprint, because of 2020 and COVID and other reasons that the survey wasn't able to sample the whole region.

There's been -- Just to kind of put it in perspective, there's been a lot of interims that have occurred for red grouper since that first one, but, at the end of the day, none of them have actually been used yet to set catch advice, and much of it had to do with the results of SEDAR 61 being tied into the allocation issues, and so allocations had to be finalized before we could finalize the projections and get out the new OFL and ABC.

Basically, the most important thing, with all the work that we did projection-wise, was that the big assumption for our 2018 red tide was that it would have been similar, and had a similar impact to the population, as the 2005 event.

Previously, as I mentioned earlier, kind of foreshadowing, all of the interim analyses that we've done for red grouper focused on a forecasted index, and so they were projection-dependent, and so what this figure here is showing is you've got relative

abundance on the Y-axis, over time, and, in this case, this was for the full NMFS bottom longline survey.

The index of abundance is in red, and then the reduced spatial area index is in green, and what the previous interim approach that was applied for red grouper, we would take the assessment forecasted, and so the dashed-blue line is essentially the expected trend for that index that the stock assessment was projecting forward, based on all the assumptions we made in our projections, and so the fixed landings, the red tide assumption, and that is the trend that the assessment had expected would have happened if all the conditions we made in the projections were constant, and so selectivity, retention, and everything was assumed to be the same as 2017.

Many of you that looked through those SEDAR documents, you know that the projections have a lot of assumptions built into them, and so that's how that previous interim analysis worked, is we were comparing what the current index, the actual observed index, was doing in relation to where we thought we were from the forecast.

I have highlighted those strong assumptions in red, because all of the work that's been done was based on the assumptions, and now, with the terminal year of 2017, we're already into 2021, and all those projections that we presented are really assuming that the assumptions we made about the red tide, which, again, was just an assumption, sort of a placeholder, in the absence of any other information, that those may not represent -- A couple of years later now, we have better data streams, and we don't really have to rely on those forecasted relationships that we thought were the truth at the time. We did the best that we could, but there's been some new research that we want to incorporate for the interim.

Just to kind of bring the where is the red grouper fishery at to-date, and so we've seen this plot in the past, and this is just looking at the -- Over time, the red-grouper-specific quotas for commercial on the left-hand panels and then recreational on the right, the landings are the dashed lines, the realized landings are the dashed lines, and then the quotas are the thick line, and, at the bottom, it's just plotting the percentage of the quota that's been landed.

In 2019, the ACL was dropped considerably, and so, in 2019, the commercial fishery caught about 70 percent, and then, in 2020, they caught about 80 percent of the quota, and then, in both 2019 and 2020, the recreational fleet caught just over 80

percent for both years, and so, even with the change in the ACL, currently, neither fishery is actually realizing the entire ACL.

I do want to point out that this was based on the available data that I had at the time. Because we're currently halfway through 2021, the commercial quota, I believe, right now is about 60 percent, and I'm not quite sure about recreational. I didn't see new data, and so there's still some concern that we're not seeing as many fish, although I do think that, very recently, that has changed, and I think that we're starting to see the cohort that the assessment had predicted in 2013.

We're starting to get some reports that red grouper fishing is really good, and that's promising, and I think that's -- These are the kinds of reasons why we want to apply these interim approaches in between full-blown stock assessments, because it will allow us to have a bit more of a handle, real-time, on what's going on, and so, as I mentioned, with the terminal year of 2017, the SEDAR 61 assessment is already quite old, and it still really has not been used yet, until now, luckily, but there is still quite a bit to discuss.

What we're proposing with the new approach, and the working paper that's now posted on the website kind of goes through this in detail as well, is essentially switching to an index-based approach that does not rely on the projections, and so this approach was used for red snapper and gray triggerfish, but that's not the only reason why we want to switch to this approach. We think that this is a more defensible management procedure that has been used and has been simulation tested.

In this case, it was tested in the Huynh paper for vermilion snapper, and we still don't have a red-grouper-specific MSE that has been used to test all the different combinations and management procedures, and it's something we're hoping to work towards at the Science Center, but, for now, in this case, we did feel that the additional peer review of this approach by Huynh was justification for putting forward this sort of an interim approach, a harvest control rule that does not rely on the projections.

Again, this removes the reliance on what I talked about with, number one, we had to make an assumption about the 2018 red tide, and now we're a few years past that, and we're already kind of getting into the midst of another red tide, and so how good were those assumptions in the first place, as well as the landings, and so the benefit of removing the reliance on the forecasted index is that we can use the index of abundance we

have from the reference period and from our recent period and get an idea of what's going on and be able to adjust the catch there.

That's one of the biggest -- The biggest change from what we've presented in the past, is we are no longer comparing the observed data that we're getting more recently to the forecasted index of abundance, and, again, as I mentioned, the reason for this move, or this shift, was because this approach has now been simulation tested for another Gulf stock, and I need to emphasize here that the approach we had used in the past has not yet been simulation tested, and so we feel more comfortable moving forward with an approach that has.

Again, it has been presented and accepted for red snapper and gray triggerfish, and so, from that 2018 first interim, a lot has changed, in terms of how we approach interim analyses for red grouper, and it wasn't until very recently that we reevaluated all of the different steps, the approach, that we took, as well as some of the other modifications that we needed.

Just to kind of give you an idea of how this approach works, and I do want to point out that the approach we presented follows from what was done I think a few months ago for red snapper, where it takes a modification of the Huynh approach, where we're now using a moving average, and, essentially, what we're getting is our catch in year Y-plus-one, and so that would be the year we're trying to produce, and so, for example, 2021 in our case, and the C reference is essentially the reference level of catch that would come out of the recommendation for the assessment.

Normally, it would be the year following the terminal year, and so, for example, our terminal year was 2017, and so, technically, we would have seen this advice go into play in 2018. Now, of course, we've had a pretty large lag from SEDAR 61, but, just for the purpose of this analysis, we wanted to stay strict to that thinking that this really was a case where there was a much larger time lag than there really should have been, and so, for this presentation, we're going to look at the results that looks at a three-year or a five-year moving average for both the recent mean index and the reference mean index.

The reference mean index is just the average index value that was before and after, and so from 2017 to 2019, or for the five-year period, and, basically, we just kind of anchor that catch level that came out of the assessment, and you anchor it to the index value during that reference period, and that's what you compare with more recent data, so you can see where you're

getting.

Just kind of going back into this, the adjustment -- We would essentially be recommending catch levels that could be implemented starting in 2022 from this analysis, and what I want to now talk about is this -- So the reference catch level that we're going to adjust, and we ended up going back and re-doing our projections using the Amendment 53 final preferred allocation ratio of 59.3 percent commercial to 40.7 percent recreational.

After kind of going back and forth with some very keen eyes, in terms of comparing ACL monitoring landings with what the SEDAR 61 assessment was predicting, we ended up going back and looking at our projections and coming up with an approach that allows us to scale up our recreational weights, and so what was happening in the SEDAR 61 assessment, and, specifically, the steps we took, and we do have a paper, a working paper, online, or on the website, that kind of talks through the steps of why we had to do that.

I wanted to now take a few slides and basically talk through the issues, and then, number one, the first thing we provide in this presentation is our recommended adjustments to the OFL and the ABC, and, from there, we would apply the interim on that approach.

For SEDAR 61, a couple of years of back-and-forth and kind of digging into the data, and the first thing that I do want to caveat with red grouper is SEDAR 61, I think, was the first assessment where we really had to dig into recreational landings in weights. Traditionally, in the Gulf, we have always modeled recreational landings in terms of numbers of fish, and that's how we put the data into the model, and we fit to the numbers, and so everything looked fine when we were going through SEDAR 61.

It wasn't until afterwards, when you started looking at the derived recreational landings in weights, and so the stock assessment predicts the recreational landings in weights that it expects with what's actually in the ACL monitoring dataset, and we noticed a pretty large discrepancy.

What was causing, or what's behind, that discrepancy is essentially just a pretty large difference in terms of the mean weight of red grouper that were landed by the recreational fleet from what comes out of the ACL monitoring data versus what the assessment thought, and so some of the reasons behind this, in

the assessment model, is that we generally estimate the growth curve externally to the assessment model and then fix it in the stock assessment, giving it a variability around age, to kind of get at where we think the fish would be.

We put in retained age compositions, and we put in discard length compositions, and, in the case of red grouper, the model was converting those age compositions into length compositions and then into weights, but it really didn't have any weight information, in terms of the size of fish, to anchor those estimates, and so the way the model was fitting is just what we've done in the past, but it wasn't noticed until you started digging into the outputs.

The first thing, for this figure, and so this is just comparing the mean weight of red grouper landed by the recreational fleet, and so, for SEDAR 61, it's a single recreational fleet that combines headboat, charter boat, and private, and the thick line here in the assessment expected mean weight, and so the mean weight of landed red grouper predicted by the assessment model is much smaller, and so you can see it's about four pounds gutted weight. That was what the model thought.

When you look at the ACL monitoring data, you can see that that mean weight is pretty variable from year to year, but it generally bounces between about four and seven pounds, and, in 2019, it was about six pounds, in gutted weight, and all of these metrics have been in gutted weight, for consistency.

Where this plays is, when you look at the assessment -- Again, we fit to numbers, and we didn't see any major discrepancies, when it came to reviewing the assessment model, and that's what you see on the top here. This is what we saw with the assessment, and the numbers were fitting to millions of fish, and the dashed line is the ACL monitoring numbers, and the solid line is the assessment-predicted numbers.

Now, remember that, for recreational landings, we assumed fairly large error estimates, and so, for red grouper, we had a CV of about 30 percent, or 0.3, and so the model doesn't have to fit those numbers exactly, and that's kind of what we're seeing here. In some years, it fits fairly well, and, in some years it doesn't, particularly in the late 1980s. There are some big differences there.

When it came time to compare the assessment-predicted recreational landings in weights, in the bottom, on the panel, that's the black line, and so that's what the assessment thought

the recreational landings, in weight estimates, would be, but, when you compare that to the dashed, the ACL monitoring weights, you can see a pretty large difference.

What we ended up doing first was saying, okay, well, we know that the assessment model underestimated the mean weight of a landed red grouper, and what we wanted to do then is take a -- Basically, just find a ratio of the mean weight that the model thought was happening to what we actually saw in the ACL monitoring data, and, for that, we used that 2019 value.

The reason why we chose the 2019 is, if you remember, 2018 had the big red tide that occurred, and so we were concerned that we had this big event that hit the fishery, but the assessment model kind of made an assumption, but we didn't have the facts, in terms of how severe it was and what the effect was, and so we didn't want to use the mean weight from 2018, thinking that it wouldn't be representative.

Then, in 2020, we had COVID, and we had reduced sampling and other issues with that, and so, for the purpose of this analysis, we chose to use the ratio of the mean weight for 2019 from the ACL monitoring to what the assessment thought, and so that's what we used to get this blue line here, is basically -- If we had taken the assessment-predicted numbers and multiplied that by the mean weight from the ACL monitoring data, these are the trends in the weights that we would have gotten, and so, in many of the years, you see it's a lot better, or a lot closer, to what you would think, but there is still some differences, again, because we do have considerable uncertainty for the landings for this stock.

That is kind of where -- We just wanted to demonstrate that this was the issue, and, when we adjust for that issue, given what we can do in the time allotted for trying to reevaluate some of this, we are able to get better -- Fit better to the expected weights that are shown in the ACL monitoring, which, again, are used for management, and so that was the big concern, was that there was such a divergence between the weights that are used for management and then what the assessment was putting out.

Then what we end up having is, if you remember from Amendment 53, and so the Preferred Alternative Number 3, based on the allocation that I discussed earlier of 59.3 commercial and 40.7 recreational, what comes out of that analysis would have been an OFL of 4.66 million pounds gutted weight, but, once we have gone back and we essentially redid all of our projections to ensure that the allocations would be maintained throughout the

projection period, and we recalculated the OFL, using the same decision rule that was used for the SEDAR 61 review, which the OFL was defined as the retained yield from -- The average retained yield from 2020 to 2024, and so, for that initial original value of Amendment 53, it was 4.66 million pounds gutted weight.

Once we took our projections and we adjusted the recreational landings in weights up, because we knew that our model-predicted weights were an underestimate, what that would lead to now would be an OFL, and so we're calling it the adjusted OFL, of 5.99 million pounds gutted weight, and, again, the only thing that we did there was we basically took the recreational landings that were projected by the model and just bumped up a little bit, based on that ratio of mean weight that we knew was underestimated in the assessment.

That's what we would propose, for moving forward, an updated OFL of 5.99, and then the ABC, following what was done from the September 2019 meeting, the ABC was defined as the catch level that would have a 30 percent probability of overfishing, and so what that would translate to, in this case, would be an ABC of 5.57 million pounds gutted weight.

Essentially, for our interim, we would propose to move forward with this C_{ref} of 5.57 million pounds as the ABC value to be adjusted in the interim analysis.

With that, here's kind of the first place where I think we can take any questions on -- Really, the first issue is that adjustment. Does the SSC accept the new projections, as well as the updated OFL and ABC that we have made based on scaling up the predicted recreational landings to better match what is seen in the ACL monitoring dataset? That, here, would be the ABC of 5.57 million pounds gutted weight. I am happy to take questions on anything I have talked about until now and open the floor to questions or comments or even SSC discussion.

CHAIRMAN NANCE: Doug.

MR. GREGORY: Thank you, and thank you, Skyler. That was really good. The new approach to just using the index, isn't that equivalent to us choosing a beta of one with the old approach?

DR. SAGARESE: You're correct that, yes, it's similar, because the length of -- The number of years you would select for the moving average -- Basically, selecting a moving average gets us away from having to specify that beta, and so it is one way to

kind of rein-in how variable that catch advice would be, but you are correct in that, yes, it is very similar to having to select that beta.

MR. GREGORY: In 2019, which is the only document I had in front of me, we chose beta equals one, and so, even though the approach is totally different, that's not a major of a change for us to consider as initially I thought. My other question, or concern, is aren't we kind of going out on a limb to use the new allocations that have not been implemented? What if those allocations get rejected? What happens then? That may not be to you, but the SSC itself.

DR. SAGARESE: What I can say, and I will certainly defer to Katie or anyone else on the call, but we approached this analysis under the assumption that the allocations in Amendment 53 would be finalized. Katie or anyone -- Does anyone else have something else to follow-up with?

DR. SIEGFRIED: We would have to reevaluate this if the allocations change, but this set of allocations that she's going to go over, or that Skyler has been assuming in this presentation and analysis, was arrived upon after several dozen attempts at figuring out allocation, and so it can still change, I suppose, but they did take final action on Amendment 53, as far as I understood.

MR. GREGORY: Right, but it still has to be approved and implemented by National Marine Fisheries Service. One other comment is, going forward, I hope the assessment teams look at a similar issue with weights between projected or the von Bertalanffy curve, versus what's used in the ACL monitoring dataset, and it may not be as significant as it is with grouper, but it could be.

Since the last meeting where we discussed this, Will raised the issue of trying to incorporate uncertainty in this index, and what if we had an index that changed OFL only, and then we used some uncertainty approach to calculate ABC? That would address Will's concern about us not incorporating some uncertainty, because it doesn't make sense to have uncertainty buffered below ABC, and it's contrary to what we usually do. Thank you very much, again, and so far, so good.

DR. SAGARESE: Thanks, Doug. Just in relation to your first comment, we are absolutely adding in checks within our assessment process, to make sure that we're comparing the mean weight of the landed, or even discarded, fish that we have. I

strongly encourage everyone on this call -- So scamp is currently the ongoing research track, and we've made some changes to the report, and so, if you want to just quickly peruse the current assessment report that's up there for Gulf scamp, and we've added in some information there.

We definitely see this as one of those -- As we kind of -- One of the growing pains, at least that I have experienced, being here now for almost six years, is we're continuously learning and figuring out better ways to show what we need and other validations that we need to do, and so we're hoping that our reports, as we get more towards an automated process, will have that kind of information, and so please take a look at the scamp assessment report, and I am happy to -- Please email me any comments or questions or things you would love to see, and I would really, really appreciate that, because we are trying to address that, moving forward.

Then, yes, your second question about -- For red grouper, basically, what I did, for now, is just kind of do what was done in the past, where we did the interim analysis on the ABC level, and we're recommending an adjusted ABC.

I believe that red snapper, for that interim, that there was also discussion about why we don't use the OFL, and so I think that's a good point, and maybe Katie has more thoughts from the Science Center perspective on whether we want to move forward with that, but it's certainly something that could be done, where we run the interim on that OFL value, and then share those results, as we move forward.

MR. GREGORY: I am not asking to do that, but it's just a thought and thinking of what Will said at the previous meeting, and so thank you.

DR. SIEGFRIED: Can I address that, Mr. Chair?

CHAIRMAN NANCE: Yes, Katie. Please do.

DR. SIEGFRIED: Doug, that's a great point, and I do think there are better ways to incorporate uncertainty, and we're looking into other ways, including updating our projection methodology, where we could carry some of the uncertainty through.

I'm not sure that that would be the best way, to just use the interim to update the OFL, but we -- Like Skyler said, we are open to participation from SSC members when we get farther along in our projection methodology discussions, and so we can put

you down, if you're interested.

CHAIRMAN NANCE: David.

DR. GRIFFITH: Skyler, thanks a lot for that presentation. I did appreciate it, and I was wondering about this discrepancy between the projected and the real weight, and I was just wondering if you had any ideas about why that might be, and I am not really familiar with recreational side of this fishery, and I'm more familiar with the commercial side, but would you think there's any like high-grading going on, that people are keeping larger species and throwing back the smaller ones, or anything like that, because they do that in the commercial fishery, where they keep a certain size fish that they know that the dealers are going to like.

DR. SAGARESE: That's a great question, and I can provide a bit more insight into what's actually going on, and so my expertise with this, of course, is red grouper. What happened with the configuration -- This is how we specified the model, and it was just an inconsistency that we didn't catch in time, because we weren't comparing all of the outputs, and so we've always fit to recreational landings in numbers, and so we've always looked at the fits from the expected and the observed, in numbers, with some error, and you don't expect a perfect fit, and so that looked fine.

When we reviewed the SEDAR 61 assessment as well, as I had mentioned earlier, what we ended up fitting to, the input data, were age compositions of our retained fish, but length compositions are our discarded fish, and so, normally, you would have length compositions of your retained fish as well, and so the model would have a lot more information, in terms of the length-to-weight relationship and then using the growth curve to convert ages to lengths and such.

There would be a lot more information, and you would be able to check things, and what happened with red grouper is one of the changes we made in the base model was we switched from an age-based selectivity pattern for each of the fleets, including recreational, into a length-based selectivity pattern.

What I think happened, and what we'll see when we revisit this assessment in the future, is that that -- Because we did not include retained length comps -- In this case, we often have -- We have to be concerned that we're not using the same data for length and ages. Otherwise, we're double-dipping, but, in this case, that not including all of the length information we

had led to that issue, and so it led to that disconnect, because the model knew that there were 100,000 fish that it was removing, but trying to convert those numbers then into lengths and into weight, or from ages into lengths and to weight, is where this issue happened.

For this, what we're currently -- Because we've got the scamp assessment ongoing, we've been looking a lot at different ways to model recreational landings, looking at different inputs, and this is something that is one of the top topics we want to discuss when the upcoming review workshop at the end of the month occurs, just to kind of make sure that, in the future, we don't see this again.

I can only really speak to red grouper, but I know, for a fact, that this is something that we will be reevaluating for the next assessment, and we'll talk about that later, I guess, when we talk about the scope of work for the next red grouper assessment.

CHAIRMAN NANCE: Thank you. Rich.

DR. WOODWARD: On the -- How do discards enter into the setting of the OFL, and I would think that the average weight for discarded fish is going to be below that for the retained fish, and so how does that come into it? Again, I am very low on the learning curve, and so help me out here.

DR. SAGARESE: You are correct in that the mean weight of the discarded fish will likely be much smaller, because, oftentimes, it's undersized fish that are discarded. The OFL, and so the way we set the OFL in the assessment, is the OFL is based on the retained yield, and so we project forward the retained yield, and so discarded fish do not play into the actual OFL estimate that we provide, and so the OFL that we provide, in terms of recreational fish -- Recreational landings are defined by the Type A and then Type B1, and so recreational fish that we treat as landings are those that were observed dead by observers from the MRIP program, or by -- Not observers, but port agents.

They are observed dead or that were said to be discarded dead by the fishermen, which would be B1, and so, recreationally, the B2s, which are normally those fish that are released, those are not included in the definitions of the OFLs or how we calculate the OFLs. I hope that answers your question.

DR. WOODWARD: But, clearly, if you -- I mean, discards are going to enter into your modeling, in terms of the general

impact on the fishery, no?

DR. SAGARESE: Yes, correct, and so the model does estimate dead discards. We estimate it within the model, but so, for example, the B2s with the discard mortality rate applied is not -- It does not feed into the OFL estimate that we produce currently, and so, yes, the model accounts for dead discards, but the actual OFL -- We're not really trying to optimize discarding, but we're trying to optimize -- We project forward and report the retained yield.

DR. WOODWARD: Okay. Thank you.

CHAIRMAN NANCE: Tom Frazer.

DR. FRAZER: Thank you. Skyler, I've got a quick question with regard to the figures that are on page 5. You might want to pull them up, real quick. The question has to do with the panels, the recreational panels, and, in particular, the bottom-right panel that has the percent of the quota landed, and so we have information provided for the recreational sector from 2014 to present, and do those estimates -- Do they use six pounds per fish? Do they use that readjusted weight, or do they use the weight at the time that the data were reported?

DR. SAGARESE: That's a great question, and so this table -- I have all my sources on the left, and this is table is summarizing and plotting all the data that's been reported in the ACL monitoring datasets, and so commercial landings shown in this table are out of the IFQ portal, the website, and then the recreational landings come off of the SERO website for --

I believe the units here would be the CHTS units, because that is how the fishery is currently monitored, and so I would not be able to say, specifically, that they're using the 6.22, because, the way that the Southeast Fisheries Science Center develops their estimates of recreational landings in weights is they actually use a mean stratified approach, and so they find the mean weight over the different strata, and I think we've shown that those kind of slides in the past, from year, region, species, there's a whole bunch of strata to get to, and so these data are showing those that are used from the ACL monitoring dataset.

This has nothing to do with the assessment, and this is strictly from the monitoring perspective, and this is how the fishery has been operating in the units that it is currently managed.

DR. FRAZER: Sure, and using the data that were collected during the in-season monitoring to kind of estimate the weights. That's right.

DR. SAGARESE: Yes, exactly.

DR. FRAZER: Okay, and we can get those data from SERO?

DR. SAGARESE: Well, there is -- You can find the Gulf of Mexico historical recreational landings and annual catch, yes, and so the HTML -- The second from the bottom is essentially the site where I went for recreational landings, and then they have more recent, normally preliminary, for example, here, for that 2020 and 2021. That's where I went to get the data for the monitoring, because that's what I believe is used for the management.

DR. FRAZER: I'm not trying to pin you down specifically, and I'm just trying to figure out -- I appreciate that I can get the landings data there, and I just really want the weight data for each of those years that went into the conversion, and so I will follow-up with SERO.

DR. SAGARESE: Yes, and I should also mention too that this is red-grouper specific, and so, of course, there were quotas for shallow-water groupers prior, but this just kind of focuses on the recent, to highlight some of the concerns that were raised, in terms of not being able to meet the quotas, and so this is not a complete, comprehensive time series of red grouper, but this is really just red grouper.

DR. FRAZER: Right. I get it. Thank you.

DR. SAGARESE: Thanks.

CHAIRMAN NANCE: Jason.

MR. ADRIANCE: Thank you, Mr. Chair. Jason Adriance. Thanks for the presentation, Skyler, and I apologize if this is in the documentation, but is this FES or MRIP units, for the recreational data?

DR. SAGARESE: Everything for SEDAR 61 used MRIP-FES, and so all of the outputs of the assessment and what we've talked about is comparing FES to FES. When I talk about the ACL monitoring dataset, for example in that working paper, the recreational adjustment, yes, that is all strictly using the FES data, so that it is apples-to-apples, and I will add a caveat to that

slide that I just was on, Slide 5, because that's how it is monitored, and that's previous CHTS, but everything else you will see from me is using FES.

CHAIRMAN NANCE: Okay. Thank you. The question is do we as the SSC accept the new projections? We need a motion, and do we want to discuss it first, or do we want somebody to make a motion?

DR. GRIFFITH: In the interest of moving forward, I will move that the SSC accept the new projections and updated OFL and ABC from the adjustment that scales up assessment predicted recreational landings in weights using the mean weight from the ACL monitoring dataset.

CHAIRMAN NANCE: Thank you. Do we have a second?

DR. ISAACS: I will second.

CHAIRMAN NANCE: Thank you. Any discussion? John, go ahead.

DR. FROESCHKE: Just for my own edification, are you bundling Decision Point 1 and 2 at this time, because, the way it's written, there is two decision points. There is Decision Point 1 to just accept or not the weight adjustment, and then Decision Point 2 is to subsequently apply the interim analysis, and then there's a decision point whether you would use the three or five-year moving average.

CHAIRMAN NANCE: Okay. So we could say, in this one, for my own knowledge here, we could say that we accept the new projections and updated OFL and leave the ABC, because that's the one that is going to change with the different years.

MR. RINDONE: Mr. Chair, it would be my recommendation that you take these things in smaller bites, and so perhaps the first motion would focus mostly on whether or not to accept the new methodologies that are being used for the interim analysis as the best science and as the best approach, moving forward, for that purpose. Then, after that, talk about what to do as far as the actual catch limits, the OFL and then the ABC, bearing in mind that there is more than one option available to you for the ABC, and so just smaller bites.

CHAIRMAN NANCE: Okay, and so let's back up then. Do we accept the new methodology, and I guess we need a motion for that one.

MR. RINDONE: Well, the original motion maker and seconder,

David and Jack, can modify their motion, if they like, considerate of this smaller-bite approach.

DR. ISAACS: I think the smaller-bite approach, as you said, has some merit, and maybe we could consider the weight change adjustment separate from the OFL and the ABC.

CHAIRMAN NANCE: I think that would be the wise thing to do.

DR. GRIFFITH: I don't have any objection to doing that either.

MR. RINDONE: Okay. Can you guys help Jess with your new language there? Based on the discussion that you guys have had, it could be something to the effect of that you accept the new projections using the updated recreational weight estimation scaling procedure.

CHAIRMAN NANCE: I'm not sure we -- Don't we want to have that we accept the new methodology?

MR. RINDONE: Whatever you guys think best details --

CHAIRMAN NANCE: Because the methodology, and then we can go with the projections in a separate one. John.

DR. FROESCHKE: I guess I would advocate for the motion to say that you accept a new methodology to estimate the weight of recreationally-caught red grouper, and then, subsequently, deal with -- I don't even know that I would call them projections, because it's really just a fixed value of OFL and ABC. We don't really have a year-by-year projection, based on this.

CHAIRMAN NANCE: Well, it's a fixed value for OFL, but then ABC can be based on either a three-year or a five-year adjustment.

DR. FROESCHKE: Correct, but it doesn't change year-by-year.

CHAIRMAN NANCE: That's right. Absolutely. **So the new motion reads: The SSC accepts the new methodology to estimate the weight of recreationally-caught red grouper.** Any discussion on that motion? Paul.

DR. MICKLE: A point of clarification. Should we identify what the new methodology is in the motion or not? Is it specific enough the way it is?

MR. RINDONE: You guys can craft this to be as specific as you want it to be.

CHAIRMAN NANCE: Paul, go ahead and put that in.

DR. MICKLE: Just the new mean weight estimation methodology. That's fine.

CHAIRMAN NANCE: John, did you have another comment?

DR. FROESCHKE: I was just going to add that if you wanted to add -- It's based on the landings from the ACL database, but, if you've got it covered, then don't mind me.

CHAIRMAN NANCE: Okay. Doug.

MR. GREGORY: I have no comment on this, and my hand has been up for quite a while.

CHAIRMAN NANCE: We will let you put it down then. No, go ahead, Doug.

MR. GREGORY: My original question was the reference to the simulation methodology references a journal called "FishFish", and I assume that's a typo, and so I was wondering what journal that came from.

DR. SAGARESE: That's the abbreviation for *Fish and Fisheries*. Sorry. I will write out the full journal names next time. Good eye there.

MR. GREGORY: My hand is down.

CHAIRMAN NANCE: Okay. Thank you, Doug. David Chagaris.

DR. CHAGARIS: I think this new mean weight estimation is acceptable as sort of a stock approach, but we still have the underlying issue of this discrepancy between the mean weight in the assessment and what the ACL is using that I think needs a lot more attention, and hopefully we'll learn more about it with the scamp, but I am just trying to think through, and maybe, Skyler, if you all had any discussion on this.

For example, the assessment model is either predicting that the recreationally-caught red grouper are much smaller in size or they're catching smaller fish, and so, if that model and the reference points are all tuned to a certain selectivity pattern and size-at-weight, and then, on the backend, we just adjust that weight up, what sort of implications or consequences might that have, just in general?

I am just trying to think through that, and then, of course, the other issue is trying to reconcile -- Because, just looking at the fits to the composition data for the recreational fleet and the SEDAR 61 document, it does look like it is predicting a few more younger fish than the data would show, and just that small discrepancy could be leading to these differences in mean weight over the -- In total.

I am just wondering, and did you all explore any kind of selectivity adjustments or anything to try to fit those before doing this, and what are your thoughts on potential implications moving forward with this back-end-adjusted heavier size red grouper?

DR. SAGARESE: Dave, those are some great insights, and what I can say, at this time, is we have only really tried to find an interim approach to adjust the catch advice, and we have not gone back and done sensitivities, because we're currently in the middle of the research track for scamp, and so we have been kind of -- We haven't had as much time as we would like to devote to this, and so, at this point -- It's hard really to say what the implications would be, because I would not feel comfortable saying something until have thoroughly evaluated all the different options and kind of highlighted the tradeoffs.

From that perspective, until we have another red grouper assessment, where we can actually dig into the details and see what were the implications historically of these changes throughout the model, and throughout the other time series, and all the inputs, we really can't make that many changes right now, outside of the SEDAR process.

I think what I would say is we have to really stay tuned, and, if this is a priority by the SSC, which this is -- As you mentioned, this kind of is just an interim way to move the catch advice forward, but there is quite a bit more work that will need to be done at the next assessment, during the SEDAR process, so that this can be evaluated and reviewed by a panel.

DR. CHAGARIS: Okay. Thank you for that, and, I mean, at least from my perspective, I would see this as being a priority, because these discrepancies in the ACL units and the stock assessment units is something that we see quite a bit, and so it would be good to have that resolved.

CHAIRMAN NANCE: Yes, I agree. Harry.

MR. BLANCHET: This is kind of along those same lines, recognizing that this is not something that is going to be capable of being done right now. What this really highlights for me is it's not just the retained catch, but also, if the harvest is such a bigger fish, that also probably has some implications for what the release sizes are and what those discards might look like, in terms of ages, and so it concerns me, in terms of where we may be with regard to stock status overall.

I hate to talk about P* and uncertainty, but this is a perfect example of uncertainty that we're certainly not taking into account when we're looking at what the difference between ABC and OFL was going to be for red grouper. Thank you.

CHAIRMAN NANCE: Thank you, Harry. Any other questions on this one motion? **Is there any opposition to this motion? If there is, in the room, please raise your hand. Seeing none, it looks like the motion has passed without opposition.**

Skyler, I think it would be good -- I think this Decision Point 1 for accepting the new methodology -- I think what we want to do is go through maybe the rest of the presentation, and then we can discuss OFL and ABC together at the end.

DR. SAGARESE: That sounds great. What we're going to go through now are the interim analysis results for using that Cref of basically starting with an ABC value of 5.57 million pounds gutted weight, and what would the outcome of the interim be using that adjusted catch advice that we just discussed. Again, really emphasizing that in the interim, until another red grouper assessment is on the books and underway, so that we can really dedicate the review and the details and all of that during the SEDAR process, where this needs to be done, but highlighting that we are doing it for scamp, and that hopefully you will be seeing those results in the near future.

Looking at the results, here, what I am showing is the results of the interim analysis using the three-year average, and, as Doug alluded to earlier, one of the control points is the number of years that you find in your average, and so, of course, the fewer years that you're using the mean from -- You will have a bit more variability in there, and so, the more years you use in the average, the closer the -- I should say the more similar the advice will be from year to year.

In this case, for the three-year average, what we're showing is this the plot of the relative index of abundance for the NMFS

bottom longline survey, and I do want to highlight that this is now -- All of the interim analysis, as we saw in the last presentation, this is using the reduced spatial area, and so, because of COVID, the bottom longline survey didn't reach their furthest northern sites, where they often sample, and so the entire bottom longline index was run on a subset of data that only sampled fish in that same area, and so this is now comparing apples-to-apples.

The concern with the full index was that the value was artificially high in 2020, because it didn't sample that northern-most region, and so what we're using here is the reduced area index, which we call it throughout the documentation, and you can see that, basically, the index is very high in 2011 and 2012, and SEDAR 42 had a terminal year right around there, and so, at the end of SEDAR 42, things looked great, and then we had SEDAR 61, with a terminal year of 2017, and we started to see a decline, and then we had the red tides, and so the red tide in 2018 and, honestly, a red tide going on right now that is really in its infancy.

What we end up seeing, for the three-year average, is our reference period would have been the years 2017 through 2019, and so we have a I reference value of 0.68, but our current reference is actually the last three years, and it would have been 2018 to 2020, is about 0.61, and so it's only a ratio of 0.89, and so, because the recent index is lower than the reference index, we would actually see a drop in the recommended catch, which would become 4.96 million pounds gutted weight.

Remember our reference, in this case, was 5.57, and the interim analysis shows that that would be dropped to 4.96, using that three-year moving average, and, in the case of the five-year moving average here, we would have been using the index, the reference index, values from the average of 2019 back to 2015, and it would be about 0.72, and then, more recently, from 2020 to 2016, it would have been 0.65, and so, here, still, even with the five-year average, we're a bit lower than we were during that reference period, but, in this case, the ratio is a little higher. Here, it's 0.91, instead of 0.89.

If you were to adjust the 5.57, with this approach, in this case, the adjusted -- The output of the interim would be 5.07 million pounds gutted weight, and so the -- Kind of trying to summarize everything, this has been a lot of material.

There's been a lot of documentation out in the past about the old approach and the new approach, but what we really want to

highlight, and the take-homes from all the work we've done to now, is that using this index-based approach that does not rely on the projections is a better way to go, because the whole point of being able to do the interim analyses is being able to adapt to what's going on out on the water.

For example, the issue of the red tides, the red tides are a fairly large issue for the groupers, and so red grouper is a perfect example, where we had an assessment, and the terminal year was 2017, and we had an idea of what stock status was in that year, and then we had a really bad red tide, and we did not have the data, at the time, to kind of inform how bad was that for the population and what did it do to the size of the population and the age structure.

One of the benefits of this approach, that has been simulation tested, is that it performs pretty well when there is episodic natural mortality occurring, and that's exactly what we have in the case of the red tides, and so, in this case, working with that observed index, and being able to get it fairly quickly and run this approach, we're able to better adapt to changes that are ongoing, and I think that's one of the strengths of the interim approach, period, but not having to --

In the case of red grouper, not having to rely on that forecasted index of abundance, again, with all those assumptions that we talked about earlier. This really seems like a much better approach to move forward with, and, again, this is all stuff that we'll look at further when we do have a full MSE working for the red grouper, to be able to test all these different decision points and other issues, such as the beta. For example, using that, instead of looking at the average-type index-based management procedure, to potentially look at that buffer, where we use that type of approach that's been done in the past.

The old approach for red grouper has not been simulation tested, and we do feel more comfortable moving forward with something that has been simulation tested and can be updated very quickly as we move forward, and so I think the -- For this decision point now, I guess the options here are -- Number one would be for the SSC to consider for acceptance the results we've shown for either the three-year or the five-year moving average, which would be -- For the three year moving average, it would be an adjusted ABC of 4.96 million pounds gutted weight, or, for the five-year moving average, it's 5.07 million pounds gutted weight.

Now, that is strictly just kind of showing what we have provided

and coming forward and taking those numbers and accepting them or not, but, because we're talking about red grouper, we have an ongoing red tide that has just kind of started to creep up now, and --

CHAIRMAN NANCE: Skyler, Roy has a question, if you would take that, please.

DR. SAGARESE: Sure.

DR. CRABTREE: I think I'm good with what you guys are proposing here, and it seems to me that 4.96 or 5.07 is not much difference, but I am trying to get a feel for what this means relative to the fishery, and so the allocations all changed, and they haven't been catching their quotas in recent years, and so, if we did put in place an ABC of 4.96, would we expect that that would be caught, and, if so, would it be caught relatively quickly, or would it be close, because a lot of this is showing CHTS versus FES, and I am having a hard time piecing it together.

DR. SAGARESE: Roy, that's a great thing to bring up, and so we are -- All of these results that we're now showing are in MRIP-FES units, because SEDAR 61 used MRIP-FES, and so I believe, with Amendment 53, the 2017 landings that were used to set 2019 emergency rules were converted into FES units, and I believe it was 5.62 million pounds, and someone might want to just double-check me on that, and so, if that emergency ACL was in FES units, it would have been 5.26, and that would have been accounting for FES.

What we're currently proposing, and remember that the ABC that's coming out of Amendment 53 for the preferred alternative was 4.26 million pounds, and so that's a bit lower than what that emergency ACL would have been, but you're right in that these numbers are still lower than what was on the books for that emergency rule, but, again, based on the data we've looked at for complete years of 2019 and 2020, the ACLs have not been met yet.

What I can say is I am hearing that there's a lot of positivity coming from red grouper fishermen that they're catching a lot, and it seems that they may be able to get closer to that quota this year, and I'm not -- I can't, for 100 percent certainty, say that they will meet that, but it does, to me, seem like there has been some issues, and then we have this ongoing red tide again, and, as I will kind of talk about in the new few slides, that's a potential reasoning for -- Maybe if we're not

-- Maybe if the ACL is not being reached, maybe we don't want to jump the gun too much and kind of get the next interim and see what, if any, damage has been done with the 2021 red tide.

DR. CRABTREE: I just know we've been criticized, on and off, for the last, I don't know, five or six years, of not doing enough with red grouper, and, when you look at it, it is a case where the catches don't appear to be constraining the fishery, and it's almost like we've been behind, and catches have just dropped, because of, I guess, red tide and a whole host of other things, and that is what is tough to figure out here.

We've got so many things going on with red grouper, and it's hard to tease out what management can do versus what, because of red tides and things, that we can't really control, but it does seem to be a case where being careful here would be wise.

CHAIRMAN NANCE: Benny.

DR. GALLAWAY: I just needed to get unmuted. I was late getting back, and so I'm sorry that I interrupted. I'm done.

CHAIRMAN NANCE: Okay. Rich.

DR. WOODWARD: I just wanted to follow-up with the last discussion, and it seems like the catches have been falling pretty fast over most of the last decade. I mean, recreational fish have been falling since like 2011, and is this related to -- Is it all red tide, or is it stock, or it is just people don't want to catch red grouper? What is behind the decline in harvest?

DR. SAGARESE: That's a great question. The one thing that I can say here, for red grouper, is what we've seen in the past is we seem to see these huge cohorts that come through, and so there's a lot of -- You will have very low recruitment, and then you will get a huge pulse, and those pulses that move through the population tend to sustain a lot of the landings, and I think we -- You know, we do often, after red tide, see big blooms in recruitment, if there's been a big mortality event, and we saw that with gag, and we've seen that with red grouper as well.

You're right in that the population was dropping, and I guess it was after 2017, when this terminal year was, and we were still below the target, but we were not in a negative stock status state. In terms of this population, there's a lot of things that we're hearing on the water going on, that, for

example, it's hard to catch red grouper, but there was -- During the SEDAR 61 assessment, there was a lot of positive, and it was, oh, we're catching lots of undersized, and so maybe, in a few years, we would start to see those pulses come through.

I think that's kind of what we're hearing about right now, and it could be that the 2013 recruitment event that the assessment predicted, that we're starting to see that come through the fishery, and some catches are going up now, but the thing that I can highlight here, and one of the uncertainties we have, and it's a bit topic for research tracks, in my opinion, is that we have these red tide events.

Yes, we've incorporated red tide mortality into the stock assessments, but we made assumptions that the mortality was constant across ages, and that may not in fact be truthful. As you get more data -- For example, the work that Dave Chagaris is doing with his RESTORE work is -- You know, it might be that those kinds of assumptions have to be revisited in our stock assessments, and so what we've done is we've made assumptions about the red tides, but we really don't -- Until we get a few more years of data, to be able to look at what happened to the indices and what happened to the age structure, we really can't get a handle on the exact magnitude of those events and what it did to the stock.

I think it's really important too to mention that, with red grouper, we don't have a lot of data on the juvenile red grouper, and so we don't have an age-zero index. I believe red grouper are fairly infrequently caught by FWRI in the surveys, and so I think the concern with red grouper that I certainly see is the red tide, because we just don't know exactly what's going on and how it's affecting juveniles and how it's affecting the adults exactly.

I think that, the more that we look into some of the ecosystem approaches, because these red tides don't just affect red grouper, and they affect forage and predators and other species, that I think, as we learn more, that we're going to have to keep adapting to how we model these types of ecosystem events in our assessments, because we've done what we can, given the data we have, but I am definitely concerned, given the 2018 event that occurred, and now the 2021, that may be ongoing, that we'll talk about in a little bit, but I think, as Roy alluded to, there's just a bunch of factors going on as to why they're not landing what they can.

Then you talk about some of the things we've heard at some of

the stakeholder workshops that I've been to, and, for example, the interspecies competition and that it's hard to get the hooks down to red grouper, because of all the red snapper, or aspects like that, and so there's a lot going on right now.

CHAIRMAN NANCE: John, you had a comment?

DR. FROESCHKE: My comment was just in reference to Roy's question about the landings, and so just a couple of things to think about. One, when comparing these landings to what's currently on the books, remember the old landings, or what we have now, is in the CHTS units, and so, essentially, in the FES, the recreational landings are going to accumulate about twice as fast.

We did, in Amendment 53, which was the management documented based on SEDAR 61, we do have a closure analysis in there, based on the current landings in 61, which are, again, lower than this, and we could look at that, and it's Table 2.1.1, if you wanted to bring that up.

That was only on the recreational, and I don't believe there's an equivalent for the commercial, but, under some scenarios, we were predicting a closure analysis for red grouper on the recreational side, whereas, in recent years, we have not.

That's something to think about, and it is a different system, and we do provide, in the actions and alternatives, the FES, what we thought the old estimate would be perhaps equivalent to in FES.

The other thing that I will just mention, real quickly, is we did, in I guess -- All the months go together here, but, in June, early June, we went out to public hearings on that amendment, and so we went to like seven locations all throughout the Panhandle, and we had a lot of comment about that there are more red grouper, and it's coming back and things, and that was a big push to do this interim analysis, and, based on the earlier results that we saw in January and things, it showed this big increase, and so it does seem to at least suggest that there is some recruitment coming through, not withstanding whatever happens with this red tide, which has been quite severe, in our area at least.

CHAIRMAN NANCE: Steven Saul.

DR. SAUL: Thank you, Mr. Chair, and thank you, Skyler, for the presentation. I do find good merit in this approach, but I did

have a question regarding cohort strain, and so, when you pull projections from the stock assessment model, like Stock Synthesis or whatever you use, the sort of cohort strain, size structure, et cetera, is sort of baked into the projections, at least in terms of defining what they should be, whereas, in this approach, using the index, although indices do pick up cohort strains, there is usually like a lag, in a sense, and, I mean, the same with size data, I suppose, but you cannot always see the same effect in an index that you do when you look at size composition or age composition data.

Given that it seems that this population for red grouper seems to be kind of cohort driven, boom and bust, whether it's due to red tide or whatever, or just the biology of the animal, I guess I'm wondering if you can sort of comment on what -- On whether you feel that that is sort of a limitation with this index approach, in sort of properly setting the ABC and the OFL.

DR. SAGARESE: Thanks, Steve. Again, those are great questions, and so, for projections, what we assumed was that the recruitment would -- We basically assumed average recruitment from 2010 to 2017, and so that average value is what the assessment model predicts throughout the projection period, which I will note does include that 2013 spike, but I would have to go back to my notes, but I believe, when we had the SSC review of SEDAR 61, that that spike was noted in the recruitment, and I think I did some sort of sensitivities excluding it, but I would have to double check.

You're absolutely right in that the index that we've chosen here, the bottom longline survey, is an older red grouper -- It's tracking the older individuals.

What I didn't show for this presentation, and I'm glad you made me remember this, is that, for red grouper, we also have the index from the summer SEAMAP groundfish survey, and, in this case, I would have presented the updated results, because those red grouper are younger, and they're not exactly age-zeros, but that index tracks the younger population, and it was recommended for use in the stock assessment.

That survey was not active in 2020, because of COVID and other reasons, but what I would say with the -- I think that's potentially -- While that index is not used exactly in this management procedure, because we're focused on the adult population, I think that's where there is value in other data streams, to kind of bring the whole picture when these analyses, as we can, to say, oh, well, here is what also going on in the

groundfish survey at the moment, and we're seeing really low numbers here too, and so maybe that would be indicative of poor recruitment as well, or maybe we're seeing different trends.

I'm hoping that that index will be out now and will be available for when we present the 2022 interim analysis, and we'll be able to present the trends in that index as well, because I think you're right in that we're not really putting a lot of -- We're not specifically tracking the recruitment, and that's one option that these interim procedures --

They're not set in stone, where, if there was a lot of interest, that you could develop a composite index, or you could develop a multi-indicator approach, where you're interested in what's going on with the juvenile index and what's going on with the adult index or with the size compositions, and so I think you're right that that's something to consider moving forward, but I do think, with red grouper, that, because we have those issues -- That's my one concern with when we do projections.

We are making a bunch of assumptions, and so everything that we run is based on those assumptions. I think, in this case, given what we're hearing from some of the testimony from fishermen, it seems like they're doing fairly well, and, to me, it seems like that 2013 is turning out to be more representative, and I know there were a lot of concerns, at the time, of that spike and whether it would be realized.

Again, we have the red tide, and we don't quite know exactly what those red tides -- How much mortality on each class it's having, and we've just assumed that it's going to affect each age class in the same proportion, and so my caveat with the science with red grouper is the red tides.

What has happened, and how are we going to account for that in these assessments, and that's certainly one of those uncertainties that -- I always think that incorporating more environmental aspects into the assessment -- It's certainly what I am a proponent for, but it also can add to the complexity, and red grouper shows exactly that. We have answered one question, but we've come up with ten more, and so I really hope, later, that a research track could be dedicated to red grouper, to try to tease out some of those aspects that we've seen.

CHAIRMAN NANCE: Thank you. Mandy.

DR. KARNAUSKAS: Thank you, Mr. Chair. I wanted to go back Roy's question, and I had raised my hand a while ago, but,

regarding the factors impacting the ability to meet the catch limits, I'm not sure about the recreational side, but, on the commercial side, I think we've also heard about lack of access to allocation, in particular trying to lease allocation, and so, in areas where red grouper might be plentiful, it can be an issue of folks not being able to get the allocation to actually catch those red grouper.

This came up in the last SSC meeting, I think in our discussion of the IFQ review, and I'm not sure if SERO has some analysis on this, but I just wanted to throw that out there, that that can be a factor of the commercial side for why we're not seeing the industry take full advantage of the quota.

CHAIRMAN NANCE: Thank you. Ryan, did you --

MR. RINDONE: Thank you, Mr. Chair. I was just going to speak to a question about why people or may not be catching red grouper, and it certainly does vary by fleet, by and large, especially for the recreational fleets.

They're multispecies trips, almost all the time. When recreational fishermen go fishing, they fish for what they can catch, and they specifically try to target the things that they can keep, and so, if the season is open for a particular species, more or less, it should be considered fair game that that recreational fishing trip either directly, or secondarily, is going to try to target those particular species.

With the commercial sector, especially for red grouper, because it's under an IFQ, there are other things that could be at play, and, depending on the price per pound of fish, that could influence the desirability of trying to expend the effort to land that species at that time.

For fishermen that don't have the ability to retain those fish, if they don't have -- If they're not a shareholder in the IFQ program, and they're leasing their shares, the ability to lease those fish from somebody else -- If they can't find someone to sell them those fish to be able to land, then they can't retain them, and so, in those cases, it may be market forces that are driving commercial retention more so than recreational retention, which is, usually anyway, driven largely by what's open and what's not.

That's just a glimpse at a couple of the things that could influence whether or not a particular fleet endeavors to retain red grouper.

CHAIRMAN NANCE: Thank you. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. Actually, my hand had been raised a while back, and Mandy has already addressed the comment that I was going to make for the last SSC meeting, and so I'm good to go. Thank you.

CHAIRMAN NANCE: You're welcome. Sean.

DR. POWERS: Just to clarify, are we doing this for 2022, or we're trying to change for 2021, is the first question I have.

DR. SAGARESE: We are presenting catch advice that could be implemented started in 2022 from this 2021 interim analysis.

MR. RINDONE: We don't have any illusions of being able to get something done before the end of the year.

DR. POWERS: I am just checking on that. Second, in your Figure 1, I am just trying to get it clear, and the recreational landings in that figure are in what currency?

DR. SAGARESE: Can you clarify? Figure 1 in which document?

DR. POWERS: Figure 1 in the report, the interim analysis report. It's the one you had in the slide show.

DR. SAGARESE: That's Slide 5. This Slide 5 is strictly the MRIP -- This is the CHTS, and this is how all the data are monitored, and this is not factored into the assessment. This is just to give you a snapshot of how the fishery has operated, based on the data from SERO's website.

DR. POWERS: Like Roy, a lot of us, I'm concerned that they're not coming close to the ACL, and I know I have anecdotal reports from fishermen, and I realize this is an interim analysis, but is there any commercial effort data that we could see, to see at least if the effort is increasing while the ACL is not being reached, or if it's the effort is decreasing? That would make me feel a little better.

DR. SAGARESE: I would have to follow-up with Science Center staff on whether there is commercial effort information available. I am not so sure.

CHAIRMAN NANCE: We have some from the council here.

EXECUTIVE DIRECTOR SIMMONS: I think, just roughly, the commercial landings, I guess in the last four years, have increased about 10 percent per year, and so I think they're at 80 percent, but Matt has some more information to show for both sectors, and I think with estimates of the recreational landings in the FES currency.

DR. FREEMAN: Sure, and so I'm waiting for staff to pull open Reef Fish Amendment 53, and, when they do, Table 2.1.2 has the recreational landings available in MRIP-FES, and so I could discuss that, in terms of what the rec ACL would be from the two options that the Science Center has presented. It's Table 2.1.2.

That very last column shows rec landings in MRIP-FES. If you look all the way to the right, that last column, you see landings, and 2015 was like 3.8 million pounds, and, again, that's in MRIP-FES, down to 1.6 in 2019. In comparison, looking at the two options that the Center has presented on, I did some math last week, just so I would have them prepared, and the rec ACL -- We're looking at either 2.02 million pounds gutted weight or 2.06 million pounds gutted weight, and so, at least compared to relatively recent years in those rec landings in MRIP-FES, it does seem feasible that they could reach that, and so I will pause there.

CHAIRMAN NANCE: Thank you. Andy, did you have a comment to this point?

MR. ANDY STRELCHECK: I can't speak to the effort data. What I can say, and Carrie mentioned it, is we have been seeing an increasing trend in commercial landings. Two-million pounds were landed back in 2019, and we saw 2.4 million, I believe, landed last year.

Right now, we're seven months into the commercial season, and they have reported 1.8 million pounds, which is roughly 60 percent of the quota, and so we're expecting landings to continue to go up, and, at least based on the alternatives that are before you, they would at least be coming closer than the 80 percent that they've been landing in recent years, probably closer to 90 to 100 percent of the overall commercial quota.

In terms of the recreational harvest, I think Matt has covered it, but, because of the conversion to FES, we're likely to see the recreational sector, if trends continue, bumping up against the revised catch limits.

CHAIRMAN NANCE: Roy.

DR. CRABTREE: Can someone tell me -- If we set the catch level at 4.96, what would the commercial quota then be?

DR. FREEMAN: I can answer that. I was just about to. You're reading my mind. The commercial -- Again, for folks who might not be familiar, the rec sector catches to their ACL, and the commercial catches to their ACT, and so, under the two options presented by the Science Center, the commercial ACT would either be 2.79 million pounds gutted weight or 2.86 million pounds gutted weight.

Under 53, and, again, we're kind of using that as the benchmark, the rec ACL is 1.73, and the commercial ACT is 2.40, and so, relatively speaking -- Again, as an economist, I cranked out all the numbers, and the differences would be, for the rec ACL, an increase either of 0.29 million pounds gutted weight or 0.33 million pounds gutted weight. For the commercial side, with the ACT, it would either be 0.39 million pounds gutted weight or an increase of 0.46 million pounds gutted weight.

CHAIRMAN NANCE: Thank you, Matt. Will.

DR. PATTERSON: Thanks, Jim, but my question has been answered.

CHAIRMAN NANCE: Okay. Carrie.

EXECUTIVE DIRECTOR SIMMONS: Thank you, Mr. Chair. Skyler, I had kind of a different question. In the first part of the presentation, you were suggesting that the ABC could be changed, based on the recreational landing weight estimates, to that 5.57 million pounds. What is the concern with that versus the -- We could use that as a reference, with the three-year or five-year, and is that equivalent to I think what Doug asked earlier? Is that 5.57 million pounds that essentially is being corrected from the stock assessment, is that equivalent to that beta of one that we talked about? Can you go into that a little bit?

DR. SAGARESE: Sure, and so the way that I approached the weight adjustment is I had to redo the projections from the SEDAR 61 assessment model that accounted for that weight adjustment for the recreational landings, and so, as SEDAR 61 was reviewed, the SSC determined the OFL as the mean catch from 2022 to 2024 of those five years of the projections, and so, for this analysis, I redid the projections, and I took the projected retained yields that came out, and that was the estimate of the OFL, was -- I am starting to jumble my numbers, and I'm not

going to say, but maybe 5.99 million pounds gutted weight.

At the time of SEDAR 61, what I put on that slide where I say that the ABC is 5.57, that is making the same assumptions that the SSC, when they set SEDAR 61 -- Basically, all of the assumptions and decisions that they made to set the probability of overfishing of 30 percent, that defined the ABC, and so, on that slide, I presented what would have been the OFL and the ABC, using this adjustment approach to the SEDAR 61 projections.

The way that we've worked with the interim is we take whatever ABC the SSC gives us and adjusts that ABC value in the interim analysis, and that's where I am adjusting the 5.57 million pounds gutted weight, taking that as that would have been -- The same decision would have been made that the OFL and the ABC that we've basically updated with this weight adjustment would have been used, or would have been recommended, and then we have adjusted that ABC.

The whole interim works off of the ABC value that I assume that same approach would be taken, because, if, for example, the SSC did not accept the OFL and ABC from the adjustments that we've shown, we would have conducted the interim analysis on the ABC value of 4.26 million pounds gutted weight out of Preferred Alternative 3 from Amendment 53. That's where that 5.57 comes from, and that's how it feeds into the interim.

CHAIRMAN NANCE: Okay. Thank you. John.

MR. MARESKA: I guess this is just a comment, and so I like the information as it's presented, but what's giving me pause is the fact that if that relative abundance -- If that jumps up to say 2.6 in 2022, and, all of a sudden, our OFL, or ABC, is estimated to be 12.6 million pounds, are we still going to feel that same about it then, just because that's a tremendous difference, and, when I look at the -- Is that 2011 and 2012, and it looks like it only took about three years for the fishery to knock that back down to where it was closer to one, and so it's just giving me a lot of things to think about, whether I choose a three or a five-year average.

CHAIRMAN NANCE: Ryan.

MR. RINDONE: Just more food for thought on whether you choose a three or a five-year average, and, granted, the circumstances can always vary as to why, but, at this point, we're looking at having had two not insignificant red tide events in the Tampa Bay region within the last five years, and, obviously, we can't

predict when the next one will occur, and it may be next year, or it may be eight or ten years from now, but certainly the variability of when those things can occur is unknown, and the scope of mortality that could be put upon the red grouper stock, which has already been pretty well demonstrated to be pretty susceptible to episodic mortality from red tide, and the severity of that is going to be unknown until afterwards, and so that's just something to think about.

Long ago, we had a workshop that examined incorporating episodic mortality into stock assessments, which was one of the starting points for a lot of the efforts that have since gone into this, and, of course, there could also be other things, like I touched on briefly with Dr. Griffith about, like with reasons for why the commercial sector may not be landing its red grouper, and it may have absolutely nothing to do with the health of the stock. There are multiple things that could be at play that you guys have to think about.

CHAIRMAN NANCE: Thank you. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. John, to that point about the three versus the five-year moving average, I mean, besides everything that Ryan just said, in terms of the more recent red tide events, there is also the fact that the main purpose of this interim analysis is to be more reflective of recent conditions, to be more like a quasi-real time assessment of what's going on and updating the assessment catch advice in between full assessments.

To me, when you use the five-year, you're spreading that time period over time, and, of course, you get something that perhaps is a bit more stable over time, but the idea here is to reflect the most recent conditions, and so, with that, I would go with the three-year, if I had to make a choice.

CHAIRMAN NANCE: We're going to go to the end of the presentation before we make motions, but it's good to have this discussion right now, and then we can -- Harry.

MR. BLANCHET: My comment is pretty much to that same point as Luiz, but, not unsurprisingly, I come out on a different side. We're trying to balance responsiveness versus stability, and the thing that struck me was the Figure 2 in the document 08(b), which is showing the variability, or the precision, of the NMFS bottom longline, on an annual basis.

We don't really have a measure of how precise these indices of

abundance are on a three-year basis, and we do see what they are looking like on an annual basis, and it would be 8(b).

What brought me to that was really the discussion about the difference between 0.89 and 0.91, and is that really a true difference, or is it just spurious, just random, within that noise, and, honestly, I don't know, but I kind of like the three-year for its -- In this particular case, because we are dealing with these relatively infrequent, but highly consequential, events. If we were dealing with something like yellowedge grouper, I would think -- I think I would be more inclined to go for something with a longer time period. That's all my comments.

CHAIRMAN NANCE: Thank you. Go ahead, Doug.

MR. GREGORY: Thank you. I also support the shorter moving average, because it does give us a lower quota. I feel a strong need to be precautionary. We've been precautionary with red grouper, and we have not been proven wrong yet, and the reallocation of red grouper actually increases the overall fishing mortality for any given OFL or ABC, because it shifts more fish from the commercial to the recreational, where there is a higher discard mortality, and so that makes me even more precautious, and so I am supporting the three-year moving average, or anything we can do to be as precautionary as possible. Thank you.

CHAIRMAN NANCE: Okay. Thank you. Skyler, let's go ahead and finish the presentation, and then, as the SSC, we'll have a discussion on next steps.

DR. SAGARESE: Okay. Thanks. I think that's a great idea, because we did want to try to emphasize -- What we've talked about is a lot of uncertainty. We've got environmental uncertainty with red grouper, with the ongoing red tide right now, and so, for the presentation, if you caught it when we uploaded it about a week ago, the other option, in addition to using the numbers we've shown so far, would be to wait until the 2022 interim analysis comes out.

We tend to complete our interims for red grouper in December, and so, in December of 2021, I would anticipate having the new interim completed, assuming that the survey -- That the index of abundance comes to us on time and we don't have any sampling issues, but I would imagine that we will be presenting that, and I would guess that it would be reviewed by the SSC at the January 2022 meeting.

The reason why we bring this up is because of the ongoing red tide. We have certainly started to hear more and more concerns being raised around the Tampa Bay area, and so the figures that I am showing here I pulled from the FWRI website, just kind of highlighting what the status was, even as of three weeks ago, but, basically, you can see that this current red tide is from the Tampa peninsula down to about -- It hasn't hit Fort Myers yet, but the concern is that we have this event that's brewing, and so these events tend to get more severe as the year goes on, and they generally really peak later in the summer.

The fact that we're starting to see such a strong red tide in July, it really remains to be seen how severe it's going to get. Currently, it's really been focused on the inshore regions, and, while that might be good from a perspective of we're not seeing much offshore yet, that is a cause for concern, and so I'm not sure right now if we can -- If you can unmute Brendan Turley, and so he's currently working as a post-doc with Mandy at the Science Center, and he's been doing a lot of detailed analyses on the red tide data and the satellite data. If we can get him to kind of just chime in for the next couple of slides, I think that the SSC would really benefit from kind of seeing where we are right now, with some on-the-ground sampling that's been going on.

MR. BRENDAN TURLEY: Skyler did a good introduction, but the background behind what I've been doing is we are interested in learning more about how red tide is associated with hypoxia, because hypoxia is really bad for the environment, and the research that I have been working on is finding that there is a fairly strong association between bad red tides, like 2005, and 2014 was similarly bad, but in a different way, and then, in 2018, we found that there were pretty large areas of hypoxia.

There's been a real limitation in our ability to sample these events, just because research cruises take time to plan, and they're expensive, and there are gaps between, and so what was kind of borne out of 2018, in discussions with the fishermen, who are really impacted by these red tide events, is some had taken up the mantle of starting to do sampling to fill in those data gaps.

It's been a really important collaboration to help us better understand what's going on, not just during red tide, but between red tides, which is really a limitation, because, when there is an event, people sample, but, kind of between them, we kind of forget, and there's not as much sampling, and there is

always sampling, of course, for various surveys, but it's been really important to work with the fishermen, who are on the water every day.

The brief overview of the data that I'm going to show you is that there's a commercial fisherman who is working with the Florida Commercial Watermen's Conservation Group, and it's a non-profit out of Pine Island, Florida, and they take these hand-held sondes and collect water column data at various locations, wherever they happen to be, but we got one of them to agree to take some samples just off the coast of Tampa Bay.

What you're looking at is a map of the overview of where he sampled, and the black and red lines was his zig-zagging up the coast, and then he did a line outwards towards the continental shelf break, and he then worked his way southward, collecting data all along the way, which has been tremendous in helping us understand what conditions are going on right now.

The data were binned and smoothed and interpolated, and I will show you various plots to help you understand what we are actually seeing offshore. He did report pretty good water conditions, and pretty good fishing too, at least north of the 27.8 line.

I will say, kind of as like a take-home, right off the bat, there weren't any real areas of concern that might be related to red tide, and what this is not designed to do is to give you ready-to-use data for intake in any sort of stock assessment or process, but, rather, this is just helping to provide some environmental context for what we are seeing offshore during this really bad red tide event.

This is that first segment that's closest to the shore, and all you're looking at is the same profiles, depth versus latitude, with the south being on the left-hand side, for temperature, salinity, chlorophyll, and dissolved oxygen, and, like I said, we really were looking for like hypoxic areas, which is typically considered below two milligrams per liter, and so this segment -- We don't really see anything that is really cause for concern, and I would call it pretty normal conditions, and there might be a little bit of salinity stratification in the northern reach.

This is that segment that's just offshore of that. Similarly, there's not a whole lot to report, which is good. I mean, this is pretty close to shore, relatively speaking, and so it seems that at least the conditions that we are interested in don't

seem to really be affected by the red tide that's onshore currently.

This is that line that he took directly offshore, and you start to see that it gets deeper, and you start to see some more thermocline, as you get further out towards the shelf break, and a little bit of decrease in salinity that might be probably related to the plume coming from the Mississippi River, a little bit of a chlorophyll signal on the bottom, but nothing really concerning to us.

If we look at the profile going southward, again, there's nothing really concerning to us. There's a decrease in salinity in the north, probably associated the river plume, a little bit of some chlorophyll on the bottom, which some have suggested might be associated with red tide, but take that with a grain of salt.

There is a little bit of increasing chlorophyll, but, again, there's nothing really that pops out at us that might be a cause for concern that might be associated with the red tide onshore, and so, overall, things look good right now, and it's hard to say, without sampling again, what the conditions will turn out to be, but that's pretty much all I had to say. I will take any questions, if you want, now. That way, I don't have to stay through all of this, and I have other things to do.

CHAIRMAN NANCE: Any questions on these last few slides? I don't see any questions, but thanks for that presentation.

MR. TURLEY: All right. Take care.

DR. SAGARESE: Thanks, Brendan.

CHAIRMAN NANCE: Go ahead, Skyler.

DR. SAGARESE: I will keep plowing away. Now we're at the point where we've kind of given you -- We've gone through the new interim approach, what the results would be, as applied, again, for implementation starting in 2022, but then we've also kind of highlighted the potential concern with the ongoing red tide event and kind of given a snapshot of what the conditions looked like a few weeks ago, of course noting that those conditions can change at any time, and it's something that I think everyone will be watching very closely offshore, to see if this plume starts to move further offshore and become an issue for the offshore fisheries.

Now we're up to the second decision point for the SSC, which is, essentially, number one, would you accept this results that we've shown for the interim, and, if you do, which would be the moving average, and would it be three years, five years, or potentially another, and I know Harry mentioned something about more years.

The one thing that I will point out is -- In that Huynh article, they talk about -- Of course, all these different decision points should really be simulation tested in some sort of approach that is -- In a simulation that is specific to red grouper. We have not yet had the ability to do that at the Southeast Science Center yet for red grouper.

Of course, it's on the list of research that we would like to conduct, but there are certain drawbacks of -- The benefit of the moving average is it's kind of a continuous -- As I think Luiz said, a quasi-tracking. We're kind of getting a closer look at what's going on with the stock and then what's happening with that index, and we're going to adjust the catch advice based on that.

I think, the longer you make that time period, the less movement there will be, and, yes, that could be more -- You won't see as much variability, but you might also remove the ability to make some changes based on what's going on.

The one thing I want to point out, and what we see with the interim analyses is, when we show results, and it looks like things will drop, you also have the other way, and so if, for example, in 2021, the index comes back, and the population looks like it's good, and things are doing really well, and that cohort is moving through, and the red tide didn't have a big effect on the stock, we will see that in the index and whether the approach recommends an ABC -- It could go up or down, and that's part of the nature of this approach.

I do have one more slide, and then I will back up to that, but I just want to highlight, again, that we haven't simulation tested all of this work for red grouper specifically. Of course, it's something we want to do with every stock we do show, but we do feel that these results, because there has been some simulation work done, it is useful for the SSC at this time, and, of course, we strive to be able to conduct an MSE specific for red grouper, in addition, not just looking at interim approaches, but the red tides and how best to incorporate it and what are the potential risks and all those types of issues.

I think that's just references, and I am happy to take more questions, but I will leave the slide here at this next decision point.

CHAIRMAN NANCE: Perfect. Thank you very much for that presentation. It was excellent. From the SSC perspective, the modeling, as we said in our motion, really looks good, and I appreciate that new approach. I think it enhances being able to have these interim analyses.

I think the point right now where we want to go to is we need to decide -- The OFL is going to be the same, no matter what we do, but whether we want to use a three-year average -- For the ABC, a three-year average or five-year average or wait until December and look and see if we have anything from red tide.

My question, Skyler, is, if we wait until December and get the data in, how much data would you have extra? Would you have all the way through 2021?

DR. SAGARESE: We would have the ongoing -- The bottom longline index of abundance, they sample in August and September for red grouper, and they have done a lot of work to automate much of the data cleaning and the index development, and so we should have the 2021 index in time to provide results by the end of this year.

Then we would be able to update the method through 2021, and, again, the caveat there is that the survey is out there in August and September, but the red tides may also trickle into October, November, and December, depending upon how severe it is, and it might go beyond those months, but we will have the index updated through 2021.

CHAIRMAN NANCE: Okay. Thank you. Trevor and then Roy.

DR. MONCRIEF: Skyler just answered my question that I was going to ask. We've heard angler reports on the fishery-dependent side, but I was going to see if there was any -- If anyone had been seeing anything on the fishery-independent surveys, but, since it's done in August and September, I guess we'll see here in a little while.

CHAIRMAN NANCE: Roy.

DR. CRABTREE: I mean, my inclination is that we would go ahead and give the council a new ABC. If they wanted us to hold off and wait, if we had some guidance from them, but that's sort of

their decision, if they want to do that, and so it seems, to me, and so I will make this as a motion, I guess, is that the SSC accepts that updated methodology and interim assessment results and sets the ABC at 4.96 million pounds, based on the three-year average.

CHAIRMAN NANCE: I think we need to have the OFL in there, also.

MR. RINDONE: Mr. Chair, just a point of order to that, and so that ABC would actually be higher than our current OFL, and so you guys should probably start with the OFL and then work back from there. The OFL was 5.99 million pounds gutted weight.

DR. CRABTREE: So that would set the OFL at 5.99 million pounds gutted weight and the ABC at 4.96. I am going with the shorter period, because I tend to agree with Luiz.

CHAIRMAN NANCE: I think we may want to have that in there. Using the three-year moving average.

DR. PATTERSON: You need to indicate Gulf red grouper in there somewhere.

CHAIRMAN NANCE: Thank you.

MR. GREGORY: Mr. Chair, when we're ready to vote, I request that you read the motion.

CHAIRMAN NANCE: We will, yes. We will. **I think we need "the SSC accepts the updated methodology for red grouper".**

DR. BARBIERI: Mr. Chairman, should we clarify that this is in FES units, just to avoid any potential confusion?

CHAIRMAN NANCE: Yes, we should.

DR. POWERS: I will second the motion.

CHAIRMAN NANCE: Okay, and so here is the motion. **The SSC accepts the updated methodology and interim analysis results for red grouper and sets the OFL at 5.99 million pounds gutted weight and the ABC at 4.96 million pounds gutted weight, using the three-year moving average for setting the ABC relative to the OFL. These catch limits are in MRIP-FES units.** Dr. Powers has seconded that. Any discussion? I think, David, you had your hand up before.

DR. GRIFFITH: No, and I just wanted to know if a mixing event

affects the red tide, and so, if we have a hurricane between now and December, if that's going to affect it, but --

CHAIRMAN NANCE: We hope we don't have any. Sean.

DR. POWERS: So my question is, since we're not going to wait, which was one of the options, will we be able to see the interim analysis again in January, I mean, in case we want to change our minds or intervene?

CHAIRMAN NANCE: Ryan, to that point?

MR. RINDONE: Yes. Thank you. Yes, you guys -- The council has a standing request to the Science Center for annual interim analyses for red grouper, until otherwise indicated, and so, every January, we expect -- Well, every December, late December, before the January SSC meeting, we expect to receive an interim analysis from the Science Center for red grouper, and so that's just kind of become a standard thing that we have prepared for January.

You guys didn't see this one this past January, because there was another red-colored fish that was occupying a lot of your time, but, typically, that January SSC meeting is when you would see the red grouper interim.

CHAIRMAN NANCE: Thank you. Luiz.

DR. BARBIERI: Mr. Chairman, thank you. Just a couple of points. First of all, just to make sure that the council has a full understanding of our decisions here, and I know that we're going to have our report, and there are the meeting minutes and all of that, but, just to make sure, I think it would be good to have -- To understand why we made this decision regarding the three versus the five-year moving average for estimating this, as well as why we decided to go with this approach versus not.

Then one other thing is I think that Skyler's presentation brings up some very good points about the potential red tides that could happen between now and the end of the year and that the cruises are going to be in August and September, and they may not be reflective of the potential impacts of these red tide events, but my question is can we still get the interim analysis completed at the end of the year, Skyler, so that we get to see what happened in reality, versus what we are proposing here?

DR. SAGARESE: My understanding is there's a request from the council for annual interims for red grouper, and so -- Katie

can chime in too, but I'm pretty sure we are already planning on -- Assuming that we have the index developed in time, and no issues with that, and we will be presenting that report by the end of the year, is my understanding.

DR. BARBIERI: Excellent. Thank you. That's great, actually.

CHAIRMAN NANCE: Thank you, Luiz. Will.

DR. PATTERSON: I just recommend changing the words "these catch limits" to "values" in the last sentence.

CHAIRMAN NANCE: Is that okay, Roy?

DR. CRABTREE: Yes.

CHAIRMAN NANCE: Thank you, Will. That's perfect. You want "catch values" though, correct? Just "values"? Okay. Thank you. David Chagaris.

DR. CHAGARIS: Thank you. This might be a moot point now, since we're able to revisit this at the end of the year, but I'm curious as to whether or not there are any consequences, or ramifications, of waiting. If this is supposed to provide catch advice for 2022, does it matter if the council gets that information now or December?

CHAIRMAN NANCE: I think the point is we provide the science, and then they can choose whether to wait or not. I think we're providing this to them, and we'll have another -- It looks like another analysis in January that we'll look at, or December report, which will give us the chance to change that for next year, if it looks bad. Matt.

DR. FREEMAN: The council will be receiving a draft framework at the August meeting, in a week-and-a-half, based on the SSC's recommendation. The tentative timeline would be that the document would go final in October, and, again, that's tentative, and so it would be in place at the beginning of 2022, which, obviously, would have implications for commercial quota, et cetera, towards the start of the year, whereas, again, if it's delayed, implementation might not happen until later into 2022.

CHAIRMAN NANCE: Okay. Thank you. Harry.

MR. BLANCHET: Dr. Chagaris asked my question.

CHAIRMAN NANCE: Okay. Thank you. Jim.

DR. TOLAN: I was just going to echo what Dave was saying, and, if I cut out real quickly, I'm just going to let you know that I'm going to vote against this motion, simply because this red tide is pretty unprecedented, in terms of the timing, and so I think waiting until December is not a bad idea. Thanks.

CHAIRMAN NANCE: Thank you for that comment. Carrie.

EXECUTIVE DIRECTOR SIMMONS: Thank you, Mr. Chair. My question is for Skyler and Luiz. I think, if we were going to take a hard look at red tide, that you would have to look at multiple fishery-independent indices, which would not just be the NMFS bottom longline index updated, which I think is what has historically been used for this, and so I think you would want to look at those visual surveys, any trap surveys, or anything else, because I don't know that the bottom longline is going to show what we think it may for a couple of years from any impacts from red tide, and that's just what I am thinking. I guess we would ask for all of those, the next time this is on the agenda, and is that correct?

DR. SAGARESE: To follow-up, what I mentioned earlier too is the SEAMAP summer groundfish survey. In the past, we have provided fishery-independent indices updates for that and for bottom longline, because we both have much of that work automated at the Science Center, and so I can plan on showing those, assuming that we have enough data and the index is developed in time.

The other fishery-independent surveys are the video survey, which is a bit more complicated, because it's three different labs that combine their data, and so that has much more of a lag, in terms of combining the data and doing an index. That would not be ready in time for this meeting, and the other index is the FWRI repetitive time drop survey, which is no longer operational.

I think, going forward, for December, we should be, assuming Pascagoula is able to produce the two indices that I have mentioned, the longline and the SEAMAP ground fish survey, and those would be the two that I would expect that we can present for the January SSC meeting.

CHAIRMAN NANCE: Okay. Carrie.

EXECUTIVE DIRECTOR SIMMONS: Thank you, Mr. Chair. Skyler, we

do get red grouper in the SEAMAP trawl surveys?

DR. SAGARESE: Yes, we do, and it's actually in the stock assessment. It gets smaller red grouper, and so it's a pretty good indicator of the younger red grouper size classes and age classes. It's not an age-zero, but it has quite a bit of catches of red grouper, but I think that might change now, with some of the changes in the survey protocols, and so we may see that there may be less data than there used to be, but, at this time, yes, it was recommended for use in the stock assessment. We have shown results in the past for that index, and so those are the two fishery-independent indices that we can definitely have together.

EXECUTIVE DIRECTOR SIMMONS: Okay. Thank you.

CHAIRMAN NANCE: Since the trawl survey moved over to Florida, in these later years, we're able to see some of the different fish over there now. Roy.

DR. CRABTREE: I am really, in terms of the timing, looking at the need to get this into the FES currency issue, because that's what we have to monitor the fishery, and then, when we get that done, and then, if we get new information in January, or when we get it, we'll deal with that as quickly as we can.

CHAIRMAN NANCE: I think that's a wise choice. Rich.

DR. WOODWARD: I just have a comment that I think this idea of sort of moving the limits up and down, based on stock estimates and indices of the stock, makes an awful lot of sense, but it seems to me like there should be -- There is a variation across species, across situations, and that the -- For example, a very long-lived species might need to move faster or slower than a short-lived species and how much uncertainty there is in the catch data.

Obviously, we don't have that kind of information for this decision today, but that would be an interesting analysis that could be done down the road that would help inform decisions along these lines in the future.

CHAIRMAN NANCE: Okay. Thank you. Any other comments or discussion? Let's go ahead, and I think, for this one, we'll vote. We already have -- I know that Jim has expressed opposition to this motion, and so, Jessica, would you do the call, please?

Here's the motion we're voting on. **The SSC accepts the updated methodology and interim analysis results for red grouper and sets the OFL at 5.99 million pounds gutted weight and the ABC at 4.96 million pounds gutted weight, using the three-year moving average for setting the ABC relative to the OFL. These values are in MRIP-FES units.**

MR. GREGORY: Mr. Chair?

CHAIRMAN NANCE: Doug.

MR. GREGORY: With the OFL, I didn't hear you say "5.99". I just heard you say "5.9".

CHAIRMAN NANCE: It's 5.99 million pounds gutted weight.

MR. GREGORY: Thank you.

CHAIRMAN NANCE: Thank you.

MS. MATOS: Jim Tolan.

DR. TOLAN: Opposed.

MS. MATOS: Rich Woodward.

DR. WOODWARD: In favor.

MR. RINDONE: You guys can just say yes or no, if you like, too.

MS. MATOS: Steven Scyphers.

DR. SCYPHERS: Yes.

MS. MATOS: Sean Powers.

DR. POWERS: Yes

MS. MATOS: Will Patterson.

DR. PATTERSON: Yes.

MS. MATOS: Jim Nance.

DR. NANCE: Yes.

MS. MATOS: Trevor Moncrief.

DR. MONCRIEF: Yes.

MS. MATOS: Paul Mickle.

DR. MICKLE: Yes.

MS. MATOS: David Griffith.

DR. GRIFFITH: Yes.

MS. MATOS: Doug Gregory.

MR. GREGORY: Yes.

MS. MATOS: Benny Gallaway.

DR. GALLAWAY: Yes.

MS. MATOS: Roy Crabtree.

DR. CRABTREE: Yes.

MS. MATOS: David Chagaris.

DR. CHAGARIS: Yes.

MS. MATOS: Harry Blanchet.

MR. BLANCHET: Yes.

MS. MATOS: Luiz Barbieri.

DR. BARBIERI: Yes.

MS. MATOS: Lee Anderson.

DR. ANDERSON: Yes.

MS. MATOS: Jason Adriance.

MR. ADRIANCE: Yes.

MS. MATOS: Michael Allen. John Mareska.

MR. MARESKA: Yes.

MS. MATOS: Luke Fairbanks.

DR. FAIRBANKS: Yes.

MS. MATOS: Jack Isaacs.

DR. ISAACS: Yes.

MS. MATOS: Mandy Karnauskas.

DR. KARNAUSKAS: Yes.

MS. MATOS: Josh Kilborn.

DR. KILBORN: No.

MS. MATOS: Steven Saul.

DR. SAUL: Yes.

CHAIRMAN NANCE: You skipped Cynthia, I think.

MS. MATOS: She is absent. That's it.

CHAIRMAN NANCE: Okay. Well, thank you. It's been a lively discussion, and I appreciate that. Skyler, thank you very much for that excellent presentation. Now we'll go ahead and have our break, and we'll come back at 3:30 Eastern Time.

(Whereupon, a brief recess was taken.)

CHAIRMAN NANCE: It's approaching time to start again. I think our next topic is Determination of Topical Working Groups for SEDAR 75, which is the Gulf of Mexico gray snapper operational assessment.

MR. RINDONE: Mr. Chair, if I could, if we could talk about the red grouper operational assessment first, while that particular species is fresh in everyone's minds, and maybe that would be a decent modification. Just to take the red grouper operational assessment scope of work first, since we just finished talking about the interim analysis and that species is fresh.

CHAIRMAN NANCE: That would be perfect. We will do Item XI and then X.

SCOPE OF WORK FOR RED GROUPER OPERATIONAL ASSESSMENT

MR. RINDONE: All right, and so we're going to review this scope of work for the planned operational assessment for red grouper,

which is going to take place in 2024 and use data through 2022. You guys should discuss the items proposed for the terms of reference that are in this scope of work, whether topical working groups would be necessary, and for which topics, like life history, recreational landings, whatever, and red tide, perhaps, and whether an in-person workshop should be necessary for this operational assessment.

Your recommendations will then be incorporated into the scope of work and submitted to SEDAR for use in developing the terms of reference for the proposed assessment, and so, up here, you can see -- On the screen now, you can see the proposed scope of work, and so this was developed by council staff, in consultation with SERO and the Science Center, and also looking at some of the things that were mentioned as needing examination in SEDAR 61. You guys can take a look and recommend edits as you think appropriate.

We can go line-by-line, if you want. I mean, some of the main takeaways here is we're suggesting a terminal year of data of 2022, and we have added in that we want -- As we have for been for many of these recent assessments, to document any changes in the MRIP data, both pre and post-calibrations, in terms of the magnitude of changes in catch and effort, and we are recommending that -- This is new, and this is a new addition, and we're recommending that this be compared to the values that are demonstrated in SEDAR 61, just to see how the data change with time, due to QA/QC processes.

Also, to update life history information, if warranted, as it may relate to growth, reproduction, and mortality, and red tide factors in here and in Number 3 down there. Also, consider the treatment of recreational harvest, such as consider inputting recreational catch in weight, such as in pounds, instead of in numbers of fish, and then reevaluate error estimates for the recreational landings, and that's something from SEDAR 61.

For point Number 3 here, to explore the potential effects of red tide with consideration to past red tide events and more recent events in 2018 and thereafter, which would include the 2020 event and if that -- Sorry. The 2021 event and, if that extends into 2022, then that as well. Dr. Powers.

DR. POWERS: Given our discussions about the red tide and all of the great ideas that people had, I mean, how do we go about -- Would we just make a motion, or we would just suggest that we think that this is a big enough issue for a topical working group, because we don't think we can just simply just check this

box without one?

MR. RINDONE: You guys can -- At the bottom there is an option for topical working groups, and we can list those out there, and so we can add in a topical working group for red tide there, and, if we can get this to a point where everybody is generally happy with the material contained therein, then you guys can just make a blanket we think this is good and submit this to SEDAR, and so I can add that in now.

CHAIRMAN NANCE: Also, as we go through here, if there's any edits that we want to have. John, did you have a comment?

DR. FROESCHKE: Just real quick, just following up on the earlier discussion we had on the average weight issue that we just discussed, is that incorporated in the first bullet on Item 2, in regard to the changes in MRIP data, or are there other parts of that that need to be considered?

SSC MEMBER: I had the same question. Thank you.

CHAIRMAN NANCE: Let's go through this, and then if there are -- Think about, like for Number 2, if we want to add something and edit, and let's put that in, okay? This is our opportunity to put items into this document, so that, when we have the assessment, we know they're being covered.

MR. RINDONE: Under Number 2, if you guys wanted to be more explicit about it, you could add a bullet that says something like "explore the effects of changes in the mean weight estimation procedure from that used in SEDAR 61 to that proposed and used in the 2021 red grouper interim analysis". Is that an addition that you guys would like to see put there? I am seeing some nods.

CHAIRMAN NANCE: Yes. Steven Saul.

DR. SAUL: Thank you, Mr. Chair. Please correct me if this is beyond the scope of an update assessment, and it's been a bit since I was involved in the SEDAR process, but one edit to the scope of work that I would recommend, and, again, this may be not appropriate for an update and have to be done during a full benchmark, but one recommendation that I would make would be to try and include runs, sensitivity runs, or the base runs, that incorporate historical data. There is precedent for this for red snapper, of course, and we often include historical time series, going back pretty far, and we have analogous data for groupers, and we know, from historical records, that this is an

old fishery, that people were catching red grouper back in the 1800s and such.

Again, I don't know that it's -- Correct me if this is not an appropriate place for it, and if that should be considered during a full, during a benchmark, assessment, but that would be my recommendation. Thank you.

MR. RINDONE: So where are we plugging this in again, Steve?

DR. SAUL: It's not for any specific line item, but it was just a general kind of -- It may have to be another item.

MR. RINDONE: Okay, and so do you want to draft that?

DR. SAUL: I can. Again, is it appropriate for this type of an update assessment to explore that?

MR. RINDONE: We haven't set the schedule yet. Since this is beginning in 2024, it's still, obviously, a ways off, and so, at this point, we request the things that we want to see happen, and then it's moved to SEDAR, and SEDAR consults with the Science Center, to try to determine the feasibility of these things, and, if it's something that can be done, then we'll do that.

CHAIRMAN NANCE: I think it would be good to put it in, and it can always be taken out.

MR. RINDONE: Okay, and so let's go ahead and put it under Number 3, and so, Steve, if you want to give me specific language, I will type that into my copy here.

DR. SAUL: Okay, and so I would say to explore stock assessment model runs that incorporate historical landings data back to the start of the fishery. The reason I feel this is important is because, from my own work, it has shown -- Again, when I have simulated Gulf fisheries and then assessed them, that, in models like Stock Synthesis and many of the assessment tools that we use, that it can be really difficult to fit that starting year fishing mortality value, and that value makes a big difference. The model is really sensitive to that, and, when you play around with that, you can often get different stock status results, and so, if you don't have that right, it can be a problem, and so that's the rationale behind the recommendation.

MR. RINDONE: Okay, and so I'm actually going to plug this in as the fourth bullet under Number 2, and, Steve, just to this item, this is something that was explored in-depth in SEDAR 61,

but it also something that can be revisited, and it usually is revisited, just as a function of trying to determine the start year for the assessment.

One of the things that makes some of the grouper species a little bit more interesting is the IFQ program and the resolution and availability of data going back in time, and sometimes it's a little bit more hit or miss, but we can definitely plug that in and look at that again, and so, given where I've got it put now, under Number 2, do you think that appropriate?

DR. SAUL: That works for me, yes. Thank you.

CHAIRMAN NANCE: Let's see. I think Luiz is next.

DR. BARBIERI: Thank you, Mr. Chairman. I am going to start with the same caveats that Steve just made, regarding the fact that, yes, this is an operational assessment, and I understand Katie and Julie's presentations this morning, talking about what scenarios are considered for operational versus research track assessments, but, still, I really would like to see if it would be possible to conduct the sensitivity run that explores the use of the Florida State Reef Fish Survey data of the private recreational sector, instead of MRIP, similar to what we are doing now for gag, and, again, it's just something that, as we continue the discussion on how to develop, implement, or interpret the results of these supplemental surveys, more specialized surveys, in the Gulf for some of our reef fisheries, that, the more we learn about them and how models, assessment models, handle those data, relative to MRIP, the more information I think we're going to have to help us move forward in getting those issues resolved. That's my point there, Mr. Chairman and Ryan.

CHAIRMAN NANCE: Thank you. Ryan.

MR. RINDONE: Thank you, Mr. Chair, and thank you, Luiz. I would also be adding this under Number 2, and this would be the fifth bullet, and it's my understanding that this sensitivity would use the SERFS survey in place of the MRIP program data.

DR. BARBIERI: Yes, just for the private recreational sector, yes.

MR. RINDONE: All right. Explore the use of the Florida State Reef Fish Survey program for recreational catch and effort for red grouper, in place of the same data collected by the Marine

Recreational Information Program. For private recreational catch and effort. Sorry. Luiz, does that look correct to you?

DR. BARBIERI: Yes, it does, Ryan. Thank you. That's it.

CHAIRMAN NANCE: Okay. Thank you. Harry.

MR. BLANCHET: I was going somewhere else, but I think that there is -- I think you can -- From the first line of Luiz's bullet, if you put "private" right before "recreational", on the first line, you don't need that last phrase.

Where I was going is I know that a lot of these terms of reference have been built by a considerable effort by a group of people, and I am kind of curious, in terms of the third bullet, the first sub-bullet, about inputting recreational catch in weight, instead of numbers of fish.

To me, I have always -- Because of the way that weight is estimated in the MRIP, I have always considered that less reliable than the numbers of fish harvested, and so I'm curious why that bullet is in there.

CHAIRMAN NANCE: Is that the third bullet on Number 2, Harry, that you're talking about?

MR. BLANCHET: Yes, the third bullet, the first sub-bullet under that bullet, right where the cursor is.

CHAIRMAN NANCE: Okay.

MR. RINDONE: I can speak to this, and so this has been talked about at the council level, because the commercial landings are input in weight, and the catch is measured in weight, and everything, all the quota, is allocated and dispersed in weight, and all of that is done in weight, but the recreational catch is initially recorded and monitored in numbers of fish, which is then converted to weight, and, within the stock assessment, the stock assessment internally estimates annual average weight, and then that's what it uses to take that numbers of fish and turn it into a weight within the assessment.

The thinking was to try to just input everything as weight, since it's managed in weight, as opposed to counting it in numbers and then managing it in weight, and this has been attempted, and it wasn't successful for gag, but perhaps it would be for another species, like red grouper, and so that's why it's being considered here, and the Science Center folks

that are on the line, and I'm sure there's still a couple, can speak to the difficulty with being able to do this, but this was something that the council had talked about wanting to see.

MR. BLANCHET: I mean, I'm -- You almost never hear me speak against including something, but, to me, this seems like a step backward, unless there is some reason in the modeling process that this should be included. I recognize that -- We just saw a slide that showed the issues with translating from -- The estimation process that the model had versus what was estimated from the dockside sampling. However, that's very different than what I am seeing here, and I would much rather have it being fixed by some other method than by using the weights, and that's just -- It rubs me the wrong way.

CHAIRMAN NANCE: Okay. Thank you. Doug Gregory.

MR. GREGORY: Thank you. I say to Harry that the bullet says "consider". It doesn't say do it, and so I'm comfortable with that. With the historical landings, that was attempted in the late 1990s with the red grouper stock assessment. To the extent that a big effort was made to try to compile Cuban landings, because our longline fleet learned how to longline from the Cubans, and, prior to the Magnuson Act, the Cuban fishery was fishing on the west coast, and I think, until the longline fishery was developed, or started, there probably wasn't a large commercial catch of red grouper, because they don't aggregate like gag, and so exploring it is no problem, but it's been done before.

My question to Luiz is does the Florida State Survey program extend in enough years for it to replace MRIP in the assessment, or would it be used something like an independent index of some sort? Thank you.

DR. BARBIERI: Just to answer that question, Mr. Chairman?

CHAIRMAN NANCE: Yes, you may. Thank you.

DR. BARBIERI: Doug, we do have a full calibration for the entire time series. It doesn't really include a historical period. I mean, that would have to be handled differently, and this is something that we are going through now with gag, but, for the full time series of MRIP data, we have a calibration conversion factor in place.

MR. GREGORY: Thank you.

CHAIRMAN NANCE: Okay. Thank you. Dave Chagaris.

DR. CHAGARIS: Just another maybe bullet to add with regard to the mean weight. Maybe we could add a bullet that says, if using numbers, compare mean weight from the stock assessment with the ACL monitoring mean weight.

Actually, better yet, include -- So, going back to Harry's question, I mean, part of the problem is that -- I agree with Harry that, ideally, we would be able to fit the model to numbers, and the mean weights would line up, and everything would be fine, but one thing that we're trying to do, I believe we're trying to do, with scamp is to actually include observed mean weight data from the recreational sector in the model and then fit to those data, to try to match that, and so something along those lines. Include or compare the mean weight from the model with the mean weight used in ACL determination, because I think that was really -- What Skyler showed today really highlighted the issue, and it's something we're going to want to take another look at.

CHAIRMAN NANCE: Okay. Thank you.

MR. RINDONE: Mr. Chair, just so we're putting this in the right place, and, Dave, heads up. Under Item 2, the third bullet, the third sub-bullet, we're going to have a -- I have, as a third sub-bullet, to explore the effects of changes in the mean weight estimation procedure between SEDAR 61 and the 2021 red grouper. To explore the effects of changes in the mean weight estimation procedure between SEDAR 61 and the 2021 red grouper interim analysis.

Under that, I have Dave's -- So this is, if using numbers of fish as the input, or unit, for recreational catch, compare the mean weights estimated by the model with that reported by the SERO ACL Monitoring Dataset. As the input unit for recreational catch, and so, that "for" between "input" and "unit", you can delete that word. Dave, thoughts?

DR. CHAGARIS: I think that's good, and maybe we could just add maybe -- At the end of that, you could add "or explore fitting to the SERO ACL monitoring data within the model". I don't know if that's maybe getting a little bit too prescriptive, but there's two things. You can compare the model with the ACL data afterwards, or you can actually try including them in the model as an observed time series.

I guess, continuing on with that, "or explore fitting to the

SERO mean weights". I think that's just there to remind the assessment team of this other option when building the model, if that works.

MR. RINDONE: Okay. Got it.

CHAIRMAN NANCE: Looks good. Jason.

MR. ADRIANCE: Thank you, Mr. Chair. So the advantage of being later in the queue is I guess I can just jump straight to where I wanted to get to. Given the previous presentation and what's going on with this Section 2, this might be one we consider for a topical group, a landings group. Thanks.

CHAIRMAN NANCE: Thank you. Mike Allen.

DR. ALLEN: I must admit, this is my first SSC meeting, and I'm a bit drinking from a firehose, diving right in, but I enjoyed Skyler's presentation, and I just wanted to add that, perhaps for no other species, the red tide effects on natural mortality anomalies are going to be important. They've had big effects on the abundance, and I don't fully understand what that topical working group option might be, but I definitely think that Point 3 here in the document is a critical thing to consider in the future assessments, and so thank you, Mr. Chairman.

CHAIRMAN NANCE: Thank you very much for that input. Any other edits within the document itself? Let's go down to the bottom, Ryan.

MR. RINDONE: Thank you, Mr. Chairman. Item Number 4 is pretty canned, and it reflects the update to the status determination criteria from Reef Fish Amendment 44, and so, if we scroll on down, Item Number 5 just says to report what you did.

Right now, we have it listed that an in-person data and assessment workshop is not recommended for this assessment. If you guys think that the nature of it necessitates a workshop, you can certainly recommend otherwise, and, right now, for our topical working groups, I have three. I have, based on the discussion, and so you guys advise, but I have red tide, changes in the mean weight estimation procedure, and recreational catch and effort.

Typically, for the -- Well, not typically, because we've never done this before, but, in concept, for the operational assessments, we try not to have more than two or three topical working groups, and we really try to use those to focus in on

specific issues that need to be evaluated. It's red tide, changes in the mean weight estimation procedure, and the third one is recreational catch and effort.

CHAIRMAN NANCE: Then we'll need to change topical working groups are thought necessary.

MR. RINDONE: The other thing to evaluate is the in-person workshop component of this. If you guys think that the discussions are such that they would better be served by being in person to discuss some of those things, you can recommend that, or, if you think this can be facilitated by webinar, then we can --

CHAIRMAN NANCE: I am going to ask Sean this question. With the red snapper stuff that you were doing, was it straightforward to do it over webinar, or would it have been better to be in-person?

DR. POWERS: The stock ID? It would be much better to be in-person. I mean, without a doubt. Of these topics though, I am guessing you could do two or three by remote, but the red tide issue is a pretty large one, and it's not just this stock that is affected, and so I would think that you would want an in-person workshop for red tide. Some of the ideas that we discussed, whether it's age-specific mortality, how you deal with the mortality and how you include some of the environmental modeling products, and the models that are going out, like the ecosystem model, and so I think that's a large one. I would put it with this species, but realize that it's going to affect a lot of other species.

CHAIRMAN NANCE: Maybe Julie can answer this, but is the in-person data and assessment workshop -- You have the topical working groups, which is separate from the data and assessment workshops, right, Julie?

DR. NEER: No. There are no -- There is no longer an assessment panel that gets together and works on all the data for operational assessments. There are now only topical working groups, and so there is no panel to review all the components of the data. The only pieces that anyone external to the Science Center is going to get to weigh-in on are the things that are talked about within a topical working group.

Topical working groups may be held in-person, and they may be held via webinars, and I was going to suggest that, if there are ones that you feel are better suited via webinar, versus

ones might be better to have in person, please indicate that, because the reality is, if you need three topical working groups for every operational, we cannot, probably, afford six in-person workshops.

The new structure, we need as much information as possible, and so if the SSC -- Like Sean had said, perhaps a red tide discussion would be better suited to be in-person. Maybe red tide is best suited in-person, and changes in mean weight estimation may be handled via webinar, and that information helps everyone process the scope of this -- The scope of what's being requested, and so we would appreciate that.

CHAIRMAN NANCE: Do we need to then say, for each one of these, in-person or webinar?

DR. NEER: I think it would be good to provide what you would like to see, and it's really not up to me, SEDAR, to make that decision. How this works is -- I will say you guys request what you want, basically your statement of work of what you would like to see, what you and the councils would like to see, and you provide that information to the Science Center. The Science Center will weigh-in on what can be accomplished.

You may request -- You guys just added four different things to the terms of reference, to the statement of work, and they might say we can do one, two, and four, but we can't do three, right, and so then there's a negotiation period between the council and the Science Center before it's actually approved.

The Science Center may also say we agree that you need topical working groups for all three of these things, and we may think you need topical working groups for two of them, but not this one, and there's a negotiation process, but you should put everything you want in here, and it never hurts to ask.

You may not get it all, but that, again, is a negotiation between the Science Center and the council, and then SEDAR gets to make happen, but, yes, if you have advice on which ones you think would be best suited for -- Like Sean said, these two might be fine via webinar, but this one maybe would be better in-person, and indicate that, so that we have an idea of what you guys are thinking.

CHAIRMAN NANCE: Okay. Thank you.

MR. RINDONE: All right. So, in light of that, we'll go ahead and delete the in-person workshop bit there, and we'll just take

it out completely. Next to "red tide", in parentheses, put "in person". Next to "changes in the mean weight estimation procedure", put "via webinar". Then what is the pleasure of the SSC for recreational catch and effort? Think about this also in context of the comparison between the Florida State Reef Fish Survey and MRIP, and is this best served in person, or can it be done via webinar? That's a question.

CHAIRMAN NANCE: I think webinar.

DR. TOLAN: Mr. Chairman, if I may?

CHAIRMAN NANCE: Yes, Jim.

DR. TOLAN: Having been the leader for the landings and CPUE group for red snapper, the very recent one, I think the quality of the data that was out there and the number of people that participated, we did just fine with a webinar, and so I would agree that this one could be handled by webinar.

CHAIRMAN NANCE: Thank you very much, Jim, for that input. Trevor, you had a comment?

DR. MONCRIEF: My only comment is -- On that one, doing it via webinar I don't think too much matters, but those two -- I know the weight estimation procedure is fairly analytical, and there will probably be a little more conversation, but I was thinking the two could probably be combined, but, since they're both separate webinars, it should be no problem.

CHAIRMAN NANCE: Thank you. Any other -- David, yes.

DR. GRIFFITH: Given the importance of red tide, I was just wondering if -- It's going to affect a whole bunch of different species, and I was just wondering if -- Is there another way to actually -- Rather than within the SEDAR, to focus on that as a working group for a whole bunch of species, rather than just red grouper, or does it have to come under something like this?

MR. RINDONE: It's funny that you mention that, because that was exactly what I was just texting Ms. Guyas about, about how this isn't the only species for which this situation would exist for the State of Florida, and it exists for gag, and it exists for, obviously, red grouper, and several of the southeast U.S. species that we manage along with the South Atlantic Council, like mutton snapper and black grouper, yellowtail, et cetera.

There is definitely some other species that would fall into

this, and, looking at all of those species and the relationship between, and the differences between, SERFS and MRIP would be a larger SEDAR procedural thing, I think. That would be a larger separate effort, probably separate from this assessment itself.

I think that, in the interest of making sure that all the I's are dotted and the T's are crossed for red grouper, what you guys have in here is appropriate, but you could also recommend to the SEDAR Steering Committee, of which the council's two members are currently here, Dr. Simmons and Dr. Frazer, that the idea of a workshop of some fashion to explore the differences between SERFS and MRIP would be beneficial to the SEDAR process for multiple species, and that certainly does seem to be the case. Perhaps, after we tie the bow onto the scope of work, that's something that you guys could formally recommend.

CHAIRMAN NANCE: Let's go ahead and finish this one. We need a motion to approve this document, with the edits that we've made.

SSC MEMBER: So moved.

CHAIRMAN NANCE: Okay. Any opposition to that?

MR. RINDONE: You need a second.

CHAIRMAN NANCE: Okay.

DR. BARBIERI: Second, Mr. Chairman.

CHAIRMAN NANCE: Okay. Perfect. **Any opposition to that?** Thank you. If we would like to make a motion, I am open to that, for a red tide meeting, to be able to explore the effects of red tide on different species.

DR. POWERS: Ryan, we're talking about like a best practices type of workshop or something like that?

MR. RINDONE: Yes, and so, with respect to the difference between the State Reef Fish Survey and MRIP, it would be like a best practices thing, basically to look at the relationship between the two surveys and the differences for all the species for which the State Reef Fish Survey currently includes, which, right now, it's ten species, and, in the future, it's going to be increased to I think thirteen species, once they get a few more years of data.

This would be something that, because it spans so many species that are managed both by the state and federally, a SEDAR

procedural workshop seems a good look to be able to look at all of that at once, rather that species-by-species.

DR. POWERS: Yes, and so the only problem, issue, that I see with that is, obviously, we're talking Florida now, because of red grouper, but Alabama and Mississippi and all of them have their state datasets now, and so I could see each one wanting the opportunity for the different species in question, to do precisely that. It came up with red grouper by Luiz, justifiably so, because Florida -- Obviously, red grouper in Florida would be the only state that has a comparable dataset, but I think, once we open this box, each state is going to want to be involved.

MR. RINDONE: To that point, Mr. Chair, you guys could certainly constrain this to the species that primarily or only occur in Florida waters, and, for instance, like yellowtail snapper isn't really found in any measurable quantities that are relevant outside of Florida, and the same mostly with gag, with red grouper, like with those kinds of species. Obviously, for something like red snapper, there are multiple different datasets that are available to quantify recreational catch and effort for red snapper, and so that particular species might not be a subject in this procedural workshop. You guys could identify that, and I think Luiz would probably be key to helping to identify which species.

CHAIRMAN NANCE: Julie, did you still have your hand up on something?

DR. NEER: I do, and I just wanted to -- As you continue this discussion, I wanted to -- Two things to be aware of. One, you're talking likely a procedural workshop will not happen until 2024, at the earliest, most likely, and so, if you want to go through the SEDAR process, this is quite a bit down the line, and that's not saying you shouldn't recommend it.

I also want to let you know that the procedural workshops are usually -- They make sure that the topic spans and can take all of the species that all of the cooperators can be involved, with regard to the importance for -- This is certainly an issue within the Gulf, with red tide, and this is not an issue in the South Atlantic for any of the other cooperators, and so just keep that in mind when you're crafting whatever your request might be.

Third, I think it's an excellent idea to try to do this outside of an individual assessment, and the SEDAR procedural workshops

are one way to handle it, and there might be a way that the council can organize something on its own, with the help of the Science Center, and produce information and review things outside of SEDAR, where you might have more flexibility in timing and can tackle more than one issue.

Just, as you're crafting your motion recommending this be given its own look, especially for red tide, maybe think about those things and how you word your motion, to leave a little bit of flexibility of who might need to make this happen, so that it gets done in a timely fashion, because it is an important issue that does cross a variety of species within the Gulf, but is not a huge topic in some of the other regions. Thank you.

CHAIRMAN NANCE: Thank you, Julie. Benny.

DR. GALLAWAY: I believe the Fishery Ecosystem Management Plan will address red tide as one of the ecosystem issues of consequence in the report, and Carrie or Mandy might wish to speak to that also, but I will be meeting with the program manager this afternoon, later, and I'm sure that red tide is on that list, and so it will be addressed very soon, with a presentation in the next week or so in the Fishery Ecosystem Management Plan study.

CHAIRMAN NANCE: Okay. Thank you. Jason.

MR. ADRIANCE: Thank you, Mr. Chair. To the point of -- Sean brought it up a little bit, but you have -- While some of these state surveys focus specifically on red snapper, some cover all species, and so I hate to say the "C" word, but it sounds a lot like calibration to me, just outside of red snapper. Anyway, thanks.

CHAIRMAN NANCE: You're welcome. Thank you. Jim.

DR. TOLAN: Thank you, Mr. Chairman. Jason I think covered the question that I was just about to ask, and it really was a question for the folks in Florida. When you do have a red tide, and you have an assessment, what level of detail do you normally go to, because I know, here in Texas, when we get our pretty bad red tides, it's long along the Gulf beach, and it's pretty much everything we run across, and we're counting everything, and we're putting them into different size bins, and so we're getting a bunch of information, but I was just curious, on the Florida side, what level of detail you're working with. Thank you.

CHAIRMAN NANCE: Thank you. Any other discussion? Any motion? Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. Just to Jim's question there, Jim, we try to collect some information on the sizes and ages and species that are being impacted by the red tide events, but, as you know, this can be a very overwhelming effort that, in some ways, depending on the area coverage, can be highly inaccurate and imprecise and generate sometimes more confusion than not.

We mainly just try to incorporate the information that's coming through the indices of abundance, with the idea that, if an event is large enough to have stock-wide-level impacts, it will show up in the indices that are really successfully indexing abundance for that stock.

Of course, that doesn't really work all the time, and that doesn't include sometimes the level of detail that we would like to have there, and so efforts like the Center has been conducting and then the projects that Dave Chagaris and others have been working on, to try and more explicitly integrate those effects, are better, and they improved to just the general assessment process, but we try to integrate some level of those impacts into our state species assessments, but in a limited way that never has gone as extensively as what we see with some of those other assessments. I hope that answers your question, Jim.

DR. TOLAN: Mr. Chairman, if I may?

CHAIRMAN NANCE: Absolutely.

DR. TOLAN: Thank you so much, Luiz. I wholeheartedly agree that the accuracy of some of these assessments, especially when they can range hundreds and hundreds of miles up and down the coast, here in Texas, and so, again, like you guys, we do what we can with the personnel that we have, and we try to capture the event, but, when you have one of these -- Like especially in Florida, and you have these long-term events, and they're going on and on and on, and it's really hard to keep up with what's fresh and what's not and what's coming in, and so I fully agree that the accuracy can be an issue, but that's all I have to say on red tide. Thank you.

CHAIRMAN NANCE: Thank you very much. Katie.

DR. SIEGFRIED: Thank you, Mr. Chair. Feel free to tell me to wait until the Science Center gets these scopes of work to make

my comments, and I certainly don't want to impede the SSC's ability to make their comments freely, but I just have a couple of comments for you.

One of them is about just clarifying for me what we were just discussing, and are we talking about the way that we model red tide, or are we talking about the way that we monitor during red tide, because I see this procedural workshop, which I'm concerned that we wouldn't actually be able to have until 2024, might be conflating the two, and, actually, what we were discussing, at least internally, is we still don't quite have the time -- We haven't had the time or quite know how to model red tide effectively, and we've talked to Dave Chagaris a lot about this, and it's like we need to wait until we have our research track for red grouper in order to explore all these things.

We just can't go down every avenue of just what Dave has discovered during his research if it's an operational, and so I don't know if it was discussed as to whether the red grouper assessment could be a research track, and it's certainly important, and you have your three topical working groups, and it seems like the group could actually make even more, and so I see this as a really good candidate for that, but I understand if that's not the council's choice.

The other thing I was going to ask about is I guess the calibration side of it, and so I didn't actually see it as both the monitoring and modeling, and Sean is right that, if we go down that path, we would have to discuss calibration and all of the state data, which I didn't see as conflated with red tide, and so those are just my comments. Thanks.

CHAIRMAN NANCE: You're very welcome. I was looking, and maybe I'm wrong here, Katie, but I was looking more as a monitoring, as opposed to modeling. Is there other -- Go ahead, Trevor.

DR. MONCRIEF: I mean, I think you would have to do a little bit of both, right? You would have to take into account the surveys, the monitoring, the effects, and then, within the framework of the operational assessment, what your constraints are, and come up with some reasonable analyses to move forward, whether it be just sensitivities on age-specific mortality or increased natural mortality or something else like that, and so that was my thought.

CHAIRMAN NANCE: I guess, with that, Ryan, do we -- On the topical groups, we just have red tide there, and is that too

open?

MR. RINDONE: For the purposes of a topical working group, probably. When the Science Center is looking at this information, they're trying to determine workload and time and the data that are going to need to be gathered and who needs to be asked what, and specificity is certainly their friend, and so, if there's a specific aspect of red tide that you guys, or a couple of aspects of red tide that you guys, really want to zero-in on, it would certainly help the process to list those.

CHAIRMAN NANCE: I think, to help the Center, instead of just having red tide, we need to be more specific on what the topic is that we're interested in. Sean.

DR. POWERS: I think the lower-hanging fruit is two. One is how do you model the mortality events, and, secondly, what type of index of red tide, an environmental covariate, you can put in the model, and I think those, to me, are the two immediate ones.

There's larger questions on ecosystem and food web and all those other things, but the most proximate for stock assessment is how do you deal with the mortality, and that's the question of age specific as well as general mortality, and then what kind of index can we put in, and I know some work has been done on both of those, and so a lot of it is just synthesizing what's been done and trying to figure out what's the next step, and I think those are the two topics most relevant for a stock assessment.

MR. RINDONE: For that first bullet under topical working groups, after red tide, we're going to put "age-specific episodic mortality and red tide index development". Dr. Powers, what do you think? All right.

CHAIRMAN NANCE: Do we need to have another motion to approve that change? I would think.

MR. RINDONE: Yes, you guys could make a --

CHAIRMAN NANCE: Anyway --

MR. RINDONE: I mean, we follow Roberts Rules here, and so, technically, you would have to have a motion to reconsider the previous motion and then make a new motion, but it doesn't seem as if there would be a lot of mutinous mumblings about --

CHAIRMAN NANCE: I hope not.

MR. RINDONE: So at your pleasure, Mr. Chair.

CHAIRMAN NANCE: Is there any opposition to approve the edits that have been made in the red grouper operational assessment scope of work? Hearing none.

MR. RINDONE: All right. I've got it, and I will send this to SEDAR, so that they can share it with the Science Center and we can get to work on plotting out a schedule for this thing.

CHAIRMAN NANCE: Thank you very much. I guess our next item is --

MR. RINDONE: Topical working groups for SEDAR 75.

CHAIRMAN NANCE: So it's Topic X. Ryan, would you bring that one up, please?

DETERMINATION OF TOPICAL WORKING GROUPS FOR SEDAR 75: GULF OF MEXICO GRAY SNAPPER OPERATIONAL ASSESSMENT

MR. RINDONE: Sure. If we can go to the scope of work, then I will tell you what's going on with this, or, generally speaking, I can just tell you anyway. SEDAR 75 is going to assess the Gulf of Mexico gray snapper, and it follows the SEDAR 51 stock assessment.

There is going to be two topical working groups at this time, one for life history and one for recreational catch and effort, specifically looking at the effect of the shore mode on recreational catch and effort for gray snapper. The shore mode constitutes a significant portion of the landings, especially in Florida, and so, right now, these are the people that I have listed for participating in SEDAR 75: Jim Tolan, Doug Gregory, Steven Scyphers, and Jim Nance. There are also some other members that are part of our larger SEDAR pool that are members of FWRI and then other fishermen.

At this time, given the diverse makeup of the SSC participants and the other participants, it is my advice that all of you be appointed to both topical working groups. It seems as if you would all have something to contribute under both, and so, unless there is some objection to that, that's the path forward. Does anyone think that a poor idea? Brilliant. I like it. Make sure that ends up in the transcription, that it's a brilliant idea. All right. We can move on from that one, Mr.

Chair. That one was easy.

CHAIRMAN NANCE: Okay. The last one is scope of work for the vermilion snapper operational assessment, and it's Topic Number XII.

SCOPE OF WORK FOR VERMILION SNAPPER OPERATIONAL ASSESSMENT

MR. RINDONE: For this one, just like with red grouper, we're going to review the scope of work, and this assessment is going to take place in 2024, using data through 2023, and, just like the last one, you guys just take a look and see what we have listed in here for what to do for vermilion and see what kind of changes that you want to make.

We don't have as many things listed in here for vermilion, mostly because there hasn't been much change in the data available for the species, and the SEDAR 67 assessment used the MRIP-FES data, but we haven't implemented catch limits yet, based off the recommendations from the SSC, from I think it was June of 2020, and so we've been a little backed up in amendment development, and there's lots of things going on.

The catch advice that would result from this assessment though wouldn't be expected to be incorporated until sometime in probably 2025, and so there's still plenty of time to implement those new catch recommendations from the SSC following SEDAR 67.

What we have listed in here is to document any changes in the MRIP data, pre and post-calibration, in terms of the magnitude of changes to catch and effort, and compare that to SEDAR 67, and then to update the life history information, if warranted, and then that's really it.

The updated status determination criteria, as listed in Amendment 44, are included in Scope of Work Item Number III there. Then do the report. An in-person workshop or topical working groups are not currently recommended for vermilion. Does anyone have any edits to this?

CHAIRMAN NANCE: Dr. Griffith.

DR. GRIFFITH: I don't have an edit, but I was just wondering what is your knowledge of the vermilion snapper stock? I know, when I was doing that study of the IFQ program, they were saying that vermilion was the one that a lot of people were going to shift to if they were cut out of -- If they didn't get catch

shares, or didn't get enough catch shares, and so I was just curious what's gone on in the past few years with the stock, that you know of.

MR. RINDONE: Thank you. SEDAR 67 reported the stock as healthy, and I think one the comments was these things grow like weeds, and so the stock does appear to be pretty healthy, and it's not a stock that we hear about from fishermen as being one that they think is imperiled, and we know, from other species, that they've not been shy to let us know when they think something is on a downturn.

We don't have any data to suggest, at this time, that there is a dramatic amount of effort shifting or anything like that going on, or anything like that, or anything biological occurring with the stock that would somehow impede its ability to support removals through fishery activity, and so that's what I have.

CHAIRMAN NANCE: Any other comments? Rich.

DR. WOODWARD: I am just curious, and I don't know whether this belongs in the SEDAR process or not, but we just had this long discussion about adjusting the harvest control rule based on index-based adjustments, and the reference was that they had done this for vermilion snapper, and is that something that would be normally included in a SEDAR-type of document, or is that always ex-post in an SSC discussion?

MR. RINDONE: I will kind of punt to the Science Center on this one, if they think that the Huynh study is something that should be considered within the scope of the vermilion snapper operational assessment. Katie, are you around?

DR. SIEGFRIED: Yes, I'm here. Sorry. My audio was not working for Rich's comment, but I heard you, Ryan. Is the question why wouldn't we just do an interim instead of an operational?

MR. RINDONE: Rich, do you want to restate your question for Katie, please?

DR. WOODWARD: My question was, I mean, we had this discussion about index-based adjustments in the harvest control rule, and is that something that would typically be -- Is that the type of analysis that would typically be done within the context of a SEDAR document, or is that something that is outside the scope entirely of those type of analyses?

DR. SIEGFRIED: The interim assessments have been requested from

the council, and they are not SEDAR processes. They are not run by SEDAR, and so the interim-based approach is separate. That would have to be requested instead of, or I guess in lieu of, or after the operational assessment, in order to maintain management advice in between SEDAR-run assessments. We didn't decide -- The Science Center didn't decide whether this was an interim or an operational.

DR. WOODWARD: So let me rephrase my question. Is analysis of an index-based harvest control rule outside the scope of this scope of work?

DR. SIEGFRIED: That is separate, yes.

DR. WOODWARD: That's all I wanted to know. Thank you.

CHAIRMAN NANCE: Harry.

MR. BLANCHET: This kind of goes to Luiz's point about the last, or one of the prior terms of reference, but is this another one where we want to be comparing state-level data versus the MRIP recreational harvest data? That's a question.

MR. RINDONE: Luiz, is vermilion included in SERFS? I didn't think that it was.

DR. BARBIERI: No, that's not included, Ryan. You're correct.

MR. RINDONE: So the other recreational catch and effort datasets would be TPWD and LA Creel, and I think that's it for vermilion, and so TPWD being the only one available for Texas, because MRIP hasn't operated there, and then LA Creel being the only index available for Louisiana from 2014 on, but, beyond that, it would be MRIP for Mississippi, Alabama, and Louisiana.

MR. BLANCHET: So, basically, it is what it is. Okay.

MR. RINDONE: It is what it is.

CHAIRMAN NANCE: Yes. Julie.

DR. NEER: I just wanted to quickly follow-up on Rich's question with regard to operational versus interim, and so the SEDAR manages research tracks and operationals, and those are the full assessment processes, and, out of those assessment processes, we get status updates, stock status determinations, out of those processes. Well, just from operationals, but we get stock status processes, and we update all of the information from the

last assessment. If the last terminal year was 2017, we'll update it through 2022 or whatever is feasible for when the assessment gets done.

The interim analyses that happen in between are simply -- You don't produce a stock status update, and you don't update all of the data. You only update that one index, or that one piece of information that was determined to be the thing we're using to track the stocks between doing full assessments, and so it's not necessarily outside the scope of looking at that, but it's a very different process.

With regard to this operational assessment for vermilion, we would update all the data from the last assessment and look at -- So that we have up-to-date data, and come up with potentially a new stock status, and give you all the management parameters, whereas you don't get all of that out of an interim, and you just get a how to adjust your ABCs, up or down, essentially, and so I just wanted to try and clarify that, because I really didn't talk about interims in my presentation, because, as Katie said, and she's correct, those are negotiated between the Science Center and the cooperators directly, and SEDAR is not really a part of those. Thanks.

CHAIRMAN NANCE: Thank you. Any edits to this TOR? Does someone want to move to accept these?

DR. MONCRIEF: I will make the motion to accept.

CHAIRMAN NANCE: Okay. Do we have a second?

DR. POWERS: Second.

CHAIRMAN NANCE: Any opposition? Okay. **So moved.** That ends for today.

MR. RINDONE: Good job, everybody. You survived your first day.

CHAIRMAN NANCE: Tomorrow, we start at 7:30.

MR. RINDONE: Tomorrow, we start at 8:30, Eastern Time.

CHAIRMAN NANCE: I was doing Galveston time.

MR. RINDONE: 8:30 a.m. Eastern Time tomorrow, everybody. Thank you.

CHAIRMAN NANCE: Thanks to everyone that participated.

(Whereupon, the meeting recessed on August 9, 2021.)

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August 10, 2021

TUESDAY MORNING SESSION

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The Meeting of the Gulf of Mexico Fishery Management Council Standing and Special Reef Fish, Special Socioeconomic & Special Ecosystem Scientific and Statistical Committees reconvened on Tuesday morning, August 10, 2021, and was called to order by Chairman Jim Nance.

CHAIRMAN NANCE: Welcome, everybody, to the SSC on the second day. We're going to start with Item XIII, Determination of Approach to Assess the Gulf of Mexico Tilefish Complex.

DETERMINATION OF APPROACH TO ASSESS GULF OF MEXICO TILEFISH COMPLEX

MR. RINDONE: Thank you, Mr. Chair. This is more of like an open discussion and trying to get information from you guys on what you think about this, and so the council has been talking with the SEDAR Steering Committee about another assessment for Gulf of Mexico tilefish.

The last assessment proved pretty difficult, because we had landings data, but not a terrible amount more than that, as far as information on the different species. In the Gulf, originally, we had five species of tilefish for which the Gulf was responsible, and it was golden, blueline, goldface, blackline, and anchor tilefish.

In 2010, when the IFQ program began for the tilefish complex, all five species were included, and then, in 2012, anchor and blackline tilefish were removed from that share category, the landings being almost zero most of the time, and so the golden tilefish is the species that was kind of used as like an indicator for the rest of the tilefish complex in SEDAR 22, but SEDAR 22 did include those three species, and so golden, blueline, and goldface.

Landings of all of those, of those three species, are somewhat consistent for the commercial sector and pretty intermittent

for the recreational sector in years past, but, as you approach the current year, there are ever increasing numbers of -- Or ever increasing landings by the recreational sector of tilefish, as you see more recreational fishermen operating larger boats that can go out further and, within one fishing day, operating larger transducers, under higher power, and they're able to better map the bottom and better find these fish.

Deep-dropping by recreational fishermen has gotten a lot more popular, especially with improvements in electric reel technology and just general availability of more data to try to find these fish.

When the South Atlantic did its assessment for SEDAR 50 for blueline tilefish, there was a lot of debate about connectivity between the Gulf and the Atlantic with respect to blueline populations on the West Florida Shelf. There's not a terrible amount of information on blueline on the West Florida Shelf, or anywhere else in the Gulf for that matter, but it stood to reason that, given current patterns in the Gulf, going through the Straits of Florida, that there was probably some gene flow going from the Gulf to the Atlantic to at least support homogeneity, from a genetic standpoint, between the stocks.

Tilefish are not a migratory species though, and so there's no presumption that blueline tilefish are going from the Gulf to the Atlantic, and so the Straits of Florida would still serve as a population bottleneck, like a geographic barrier, between the stocks, as far as that is concerned.

Basically, what we're looking for from you guys is just some open discussion about, based on the findings from the SEDAR 22 stock assessment report that are up on the website and our contemporary understanding of tilefish, for which there hasn't been much work done on tilefish species in the Gulf since then, and a couple of things, but not much, would the -- What approach should the council consider when trying to figure out how it should move forward with assessing these stocks? Is it something that we should take a swing at individually, or should we consider them a complex, bearing in mind the data environment and how we typically have been trying to look at these things, and so I will open the floor.

DR. CRABTREE: Ryan, when we did the previous assessment, that was golden tile, and is that correct, SEDAR 67?

MR. RINDONE: It was 22, actually, was the last time any of the tilefish were assessed.

DR. CRABTREE: Was that golden?

MR. RINDONE: It was golden, but it was considered for all three.

DR. CRABTREE: When I have looked at this fishery in the past, the recreational landings are probably increasing, and I think that's probably real, but, boy, when you look at the catch estimates, they really suffer from low numbers of intercepts, and I can recall a number of occasions where one intercept would drive the estimate essentially through the roof. Then, in the previous assessment, were they able to come to a status determination, or was it inclusive, or what happened?

MR. RINDONE: It was inconclusive, as far as whether the stock was overfished or not, and then overfishing, since it's just been measured based on the average landings in our Tier 3, and so --

DR. CRABTREE: I know, for years, we've done golden tilefish assessments in the South Atlantic, and blueline as well, although there have been a lot of issues, more issues, really with that one, and the Mid has done assessments on golden tilefish, and I think those have all come to conclusions. Whether you believe them or not is a different story, but they have come to status determination conclusions, and I wonder if anyone has looked and compared the two. I would think we have more data in the Gulf, but I don't really know if that's true, and I think we have higher landings in the Gulf than in the South Atlantic, but I'm not even sure of that.

MR. RINDONE: I can try and look that up, real quick, just like a landings comparison.

DR. CRABTREE: Well, it would seem, to me, to be kind of a starting point, is to see what the other -- Look at golden and what have they done in the other regions and what has worked and what hasn't.

MR. RINDONE: Well, they have more data on tilefish species in the Atlantic than we do in the Gulf, and so we might have comparable landings, but the SEDAR 50 assessment focused exclusively on blueline, but, again, based on the -- There was a lot of debate in the data workshop for blueline about the connectivity between the Gulf and the Atlantic, and those in favor of saying that the West Florida Shelf was connected to the Atlantic, as far as justification for a single-stock

hypothesis, it was based mostly on there being habitat that seemed reasonable to be occupied by blueline tilefish from west Florida through the Keys and up the east coast of Florida, and it seemed reasonable, based on the current patterns, that larvae could be making the trek.

DR. CRABTREE: Well, I'm sure they are, and I remember that debate very well, and the council, the South Atlantic more, was pretty adamant that they wanted the assessment break at the line, and no one felt that the fact that some larvae may come around -- That's true of everything, and it's going to be true of any snapper and grouper species, and so that didn't seem like a compelling reason for why we would jumble these together, and I know, over there, it's been a longstanding issue with the Mid-Atlantic about how to divvy up management of things like blueline tile.

We've done separate golden tile assessments for the South Atlantic and the Mid, even though there is even less of an apparent boundary between the two, and so that's just some background.

MR. RINDONE: As it stands right now -- Based on the generic annual catch limits and accountability measures amendment that was implemented in 2012, there's a 582,000-pound gutted weight allocation to the commercial sector for the entirety of the tilefish IFQ program, and that constitutes 99.7 percent of what the total allocation would be, and so only 0.3 percent to the recreational sector.

Typically, the entirety of the tilefish IFQ program isn't landed, and so -- Recreational landings being historically pretty low, it's not been something that the Southeast Regional Office has been flagging to us as there being an outstanding issue or anything like that with tilefish landings, where we need to be paying closer attention to it, but, again, this is for all species combined, and so they're not reported to us by individual species.

CHAIRMAN NANCE: David Griffith.

DR. GRIFFITH: The last assessment was done in 2011, and is that right?

MR. RINDONE: Using data through 2009, yes.

DR. GRIFFITH: Okay. Since then, is that when the recreational sector has seen tilefish as a much more popular species?

MR. RINDONE: Yes, and it's growing in popularity because the technology has improved, and more fishermen have larger boats that are able to go out to those depths and try to fish for those species within the course of a day.

Depending on where you are in the Gulf, the frequency of that activity has increased at a faster rate, and so, like up in the northern Gulf, where you don't have go offshore quite as far to get into deeper water, that practice has picked up, and there's some charter captains up there that have been telling us about that, but, off of like Florida and Texas, the upper West Florida Shelf and the Texas shelf, you could have to go quite a ways offshore in order to get there, but, if you're in a thirty-six-foot Contender, with triple 350s on the back of it, you can get out there and back in the course of a day.

DR. GRIFFITH: How about the commercial sector? Has the popularity of the species gone up with dealers and the market and stuff, because I recall, when I was doing some work in Charleston, there was some interest in golden tilefish by local chefs and stuff like that, and so it was kind of starting a market there for them, and so I was wondering if the same thing is going on with the commercial sector. When I was doing the work on the IFQ program, tilefish was kind of an incidental species, and it wasn't that big of a deal.

MR. RINDONE: For the commercial fleets, they have always landed them in the longline fleets, and so, in some areas, they focus more on other grouper species, like historically in the eastern Gulf, before they were pushed out offshore a little bit further, but, in the central and western Gulf as well, when they're fishing for things like scamp and deepwater grouper species, and they do get tilefish.

Insofar as I am aware, and I don't know if Matt is listening in, or Assane is listening in, and they might have more information on this, but the market has been relatively steady, and so, Mr. Chair, you have Luiz and Paul and Carrie.

CHAIRMAN NANCE: Thank you. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. I just wanted to add a little bit more background to what Roy presented and talked about earlier. For golden tilefish over there, in the South Atlantic, it has been a programmatic assessment, and Roy is right that they have been able to conduct an age-structured assessment and obtain stock status determination, but the

uncertainties associated primarily with the recreational estimates, landings estimates, has been really problematic.

In perhaps not the last one, but the two previous assessments, they have major uncertainties that couldn't really be well explained, and it was just something that we could tell, and it wasn't easy to get to and have very high -- Blueline tilefish was an even worse situation. They started over there by trying to conduct an age-structured model, using BAM, and that didn't really go anywhere.

Then they tried to do a biomass dynamic model, through BAM as well, but not an age-structured, and that didn't go much further, and then my recollection is that, for the last time, they actually had to use a data-limited approach, because they couldn't get anything better completed for blueline tilefish, and so I like this approach, Ryan, and I think it's an important discussion, but this is something that I think we're going to have to discuss, in terms of broader issues that have to do with the high uncertainties in some of these landings estimates, primarily for the recreational sector associated with the tilefish species and then evaluate if there is some other way for us to approach recreational fisheries data collection for these stocks that would be more reliable than what we have in place right now through MRIP, given the fact that these stocks, for the recreational sector, is still very much considered rare-event species. Thank you.

CHAIRMAN NANCE: Thank you, Luiz. Carrie.

EXECUTIVE DIRECTOR SIMMONS: Thank you, Mr. Chair. I was just going to point out that, I think in the five-year review of the IFQ program, it says that, typically, golden tilefish, or tilefish, account for 80 percent or more of the tilefish complex landings, and we can circulate this report, if it's not up on our website yet.

CHAIRMAN NANCE: What was the percent?

EXECUTIVE DIRECTOR SIMMONS: 80 percent. However, in recent years, there has been a shift towards more blueline tilefish being caught, and we're not sure what may be driving this shift, but it's something that we should perhaps investigate, and this was an exchange between Andy and Jessica Stephen and some of our staff.

We can circulate that report, and it says it's Figure 1 on page 32, but I don't -- I mean, would it be worthwhile to consider

perhaps that data-poor process that we used, and I think that ended up that we got some management advice, and maybe not status determination criteria, but we got some management advice for lane snapper. If not, then I guess we'll just try something else, but that's just some ideas to start looking at this again. Thanks.

CHAIRMAN NANCE: Plus, I was curious -- There's a whole bunch of recommendations in SEDAR 22, and it would be interesting to see those recommendations and then anything that has happened in order to meet those recommendation needs. I don't know if there's anywhere where that's listed.

EXECUTIVE DIRECTOR SIMMONS: I don't know. Ryan, we would have to look at that. I'm not sure we've made any progress. Do you know?

MR. RINDONE: I would venture to guess there has not been any progress specific to -- I am going to look it up right now, but I would venture to guess there has not been any specific progress to tilefish, but there have been substantial improvements in best practices and model development and just the general way that Stock Synthesis can operate and handle different types of data from where we were back in 2009, 2010, and 2011, when this assessment was done.

The Science Center can certainly speak better to the things that are available, as far as the NMFS Data Limited Toolkit and the models contained therein, and perhaps some insight on the data that they know to be available, versus what is necessary to run the species or the complex through Stock Synthesis.

CHAIRMAN NANCE: Thank you. Paul.

DR. MICKLE: Just two things, real quick. First, I would wager that the recreational landings are probably very underestimated, and I mean private landings, because these are large boats, like Ryan said, and, to approach Luiz Barbieri's concerns about the recreational landings, those large boats leave from private properties, which never encounter, ever. There is a zero percent chance they will ever encounter MRIP intercepts.

In talking to folks that do this from their private homes, it's just too hard to launch those large boats at public ramps and annoy everyone around you, and they don't have to, and so they launch from their houses, or they have the boat houses they launch from, and they're back by one o'clock, at least in the central Gulf, and so it's not as far as people think, at least

with the technology they possess.

Also, they have actually -- A few of them in eastern Louisiana and western Mississippi, I've gotten a few calls to identify them, because they are very into tilefish, and they even have some of the Gulf of Mexico dichotomy books to identify them, and I have been called, called over to their houses, and there is maybe some hybridization, and there is some very strange looking tilefish coming up that don't quite look like golden or anything else.

There is a paper that came out, and this is the last thing that I want to share, and T.S. Kang put it out in 2019 talking about some new PCR methods for identifying and differentiating tilefish species, and there is a lot going on. It's a very stable environment with deepwater fish, and so a hybridization is very probable, and it seems like keeping this as a complex would be a wise thing.

I mean, I am giving anecdotal information just to share with the group, but, yes, they are targeting tilefish, because they're just so sought after. Just, in my experience, in talking to folks in the past ten years, they have shown up on menus all along the east coast and west coast. They are highly prized, and, once they end up on menus, folks want to go out and get them themselves, because the price is so high from the commercial side. If you own a big boat, you want to use it a lot, and when everything else is closed -- You can go for them year-round, which is a very attractive endeavor. That's it.

DR. GRIFFITH: Do you know the time period? Is it over the past ten years or so that this has happened, since this assessment came out?

DR. MICKLE: I don't know if I can answer that. I've just been getting calls and talking to folks lately, but it's centralized Gulf, and I'm just imagining Alabama and Louisiana is the same as what we have here in Mississippi, but I've got a few calls here and there, and they're mostly identification and just sharing that they're doing very well, and it's a real steady fishery for them, and it's not as far as people say when you can do about seventy-five miles an hour.

SSC MEMBER: It might be interesting to look through some of the magazines and internet forums that these people use to communicate with each other and see if there are more references to tilefish coming up in those sources. I don't have any experience looking at those things, but it could be interesting

to explore.

CHAIRMAN NANCE: Ryan.

MR. RINDONE: From both personal experience and talking to fishermen, there is a growing desire by recreational fishermen to go and catch tilefish, because there is a considerable amount of effort that is put into catching one, but, if you're deep-dropping, and you catch two forty to sixty-pound tilefish, everybody is happy, and so everybody gets to take home nice cuts of fish, and it makes terrific table fare, which is part of the reason why it commands the price that it does at seafood restaurants and at fish houses, and so it's --

From the fishermen in the northern Gulf that we've talked to, the guys that are operating charter businesses out of popular marinas will say that there's a lot more talk about fishing for deepwater grouper and tilefish species now than there was say ten years ago.

SSC MEMBER: Is there a challenge to finding them and catching them that might make them more interesting to anglers?

MR. RINDONE: There is a challenge, and so you have to have the technology to be able to sound the bottom in a way to understand, and so, if you're running an off-the-shelf $500 or $600 depth-sounding equipment, you may not have the power to really be able to sound the bottom in a meaningful way, except for large features, but, if you're on a large center console, or a sport fisher, and you have a transducer that's running over a thousand watts through it, to be able to sound the bottom in much higher resolution, you can see those shifts in ledges, and you can see differences in the bottom topography that a smaller vessel with less-powerful equipment might not be able to see.

That is where some of the charter vessels have an advantage for being able to put people on these fish, because it's a business, and so the investment is just considered a critical part of the business, but more private recreational fishermen are starting to run this equipment, and they're getting better at finding these fish, and it's a challenge, because, when you drop that deep line down there, you have no idea what you're going to catch, and so maybe you get a yellowedge, or maybe you get snowy grouper, or maybe you get a tilefish or a blackbelly rosefish, or who knows what.

It's kind of like a lottery, or like playing a slot machine. When you pull the handle down, you have no idea what you're

going to get, and maybe you get something cool, and it's always exciting.

SSC MEMBER: It could be kind of an angler's version of the birders checklist of species they've never caught before, and that's interesting.

CHAIRMAN NANCE: Okay. let's go ahead. Shannon.

DR. SHANNON CALAY: Thank you very much, and congratulations to you, Jim.

CHAIRMAN NANCE: Thank you.

DR. CALAY: From the Science Center's perspective, Ryan is quite correct when he said that the -- We have evolved quite a bit with our data-limited and data-moderate methodologies since the time of SEDAR 22, and, in fact, in the U.S. Caribbean, we have successfully created both OFLs and ABCs with a data-moderate implementation of Stock Synthesis, which only uses catch information and length composition data, but there are other configurations that could be considered, and, essentially, what is needed to do a data-limited approach, or a data-moderate approach, is a reliable time series of catch, an index of abundance, or length composition data.

What I think I would recommend, rather than promising, for example, to do a research track assessment of this stock, would be to allow the Science Center to do a data triage, to make sure that this is a plausible species to assess, and, if it is, we can let you know what methodologies are feasible.

CHAIRMAN NANCE: Okay. It sounds like, from just the talk we've had right here, it sounds like it's a sought after -- It's getting more popular, and so it would probably be good to do something with it, but we, obviously, need the data in order to do that. Roy.

DR. CRABTREE: Shannon, is there enough in the NMFS longline survey to get any kind of index of abundance?

DR. CALAY: Well, that is exactly what we would want to look into. My recollection of SEDAR 22 is that there were indices that were attempted, and I think the assessment just didn't quite meet the standard for using it for management purposes.

We do also have a commercial IFQ fishery, and it is possible that this one might be able to be turned into an index of

abundance, but we do need the time to look into that and to see if the stock is plausible. What, frankly, the Science Center doesn't want to do is commit to entire an entire research tracking process and then find out, after all the data that are provided, that it's not really a candidate for assessment.

I would encourage you to basically request a data triage, but you do need to understand that it does take some time to do that data triage correctly, and so it may not be something we can turn around quickly, but I think we could turn it around in a reasonable timeframe.

CHAIRMAN NANCE: Thank you very much. Will.

DR. PATTERSON: Thanks, Jim. A couple of things. The earlier discussion about whether the fishery actually is, at least on the recreational side, targeting these deepwater reef fishes more heavily, I think the anecdotal information is pretty clear there, but, again, I think it's going to be tough to come up with an objective way to try to quantify that, but it's definitely -- As Ryan was pointing out with the electronics, and the evolution of transducers in particular, the ability to find soft bottom to target at least golden tilefish has increased.

Charter captains, which typically have more advanced sonars than just the chirps that you can get on most center consoles, the challenge is not just the bathymetry, but also the reflectance of the sediment, and, to the second point here about blueline as a percentage of the catch, I think it would be worth looking, at whatever level of detail that the data exist, at what the spatial distribution of recent recreational golden versus blueline tilefish landings have been, because the habitats where they live are different.

Goldens bury into clay and mud sediment, and bluelines prefer a little harder bottom, and so the distribution of where they exist on the upper slope in the northern Gulf is a little bit different, and, spatially, I think you might find some differences in where they're being targeted.

For example, if the long-range deep-drop fishery in the West Florida Shelf has increased more so than other places, then you might see a shift in the distribution, and so I don't think we can just look at landings trends, but we need to look at this spatially as well.

Then, as far as the data-limited assessment approaches, we

published a paper last year using the NMFS Panama City otolith archive for warsaw, in which we used the Taylor et al. 2004 Bayesian model to estimate growth rates, but also to estimate mortality, and Rob Ahrens was a part of that, and he's now at the Pacific Islands Fisheries Science Center.

I think, given the amount of otolith data that exists in Panama City, for golden in particular, this might be an approach that would be useful. You have to make some assumptions about selectivity, but you can actually do sensitivities where you change the shape of the selectivity function in the model, and we're doing some work, and Beverly Barnett is involved with this, and some other folks, looking at age validation for some of these deepwater fishes, and the three that Ryan just mentioned of yellowedge, golden tilefish, and blackbelly rosefish are all part of that.

We do have some knowledge of what's in the archive, and I think it's substantial enough that you could potentially explore the SS length-based approaches that Shannon just mentioned while, at the same time, trying to utilize the otolith archives and the age composition data in a little different way than we would typically use, but might be useful for some of these deepwater data-limited stocks.

CHAIRMAN NANCE: Thank you, Will. Doug Gregory.

MR. GREGORY: Good morning. Thank you. I just wanted to reinforce what Ryan and Shannon were saying, and I think Shannon's suggestion of a triage is ideal. I was the chair of the review workshop for tilefish and the grouper, and what I remember from that is the tilefish assessment ran into problems, because SS was a new method for us, and my impression was the lead analyst chopped up the data too much.

There were too many fleets, and there were too many depth zones, or regions, and there just wasn't the data to support that many different categories, because I clearly remember telling him and suggesting that he doesn't do that next time, because his next assessment was red snapper.

I think another look at it would be ideal, without going headlong into an assessment routine, and I think the Science Center is the ideal people to take a look at this and give us some advice on whether we should go with the data-limited approach or use SS again. Thank you very much.

CHAIRMAN NANCE: Thank you, Doug. I agree. Trevor.

DR. MONCRIEF: I think everybody's points so far have been well made, and I am also in favor of a data triage, just to be able to see what's there and what's available. One point I was going to make, on the fisheries side of things, is, I mean, yes, these guys are going out and targeting golden tilefish, and that fishery has really expanded over the last few years, as we've already discussed, but the guys who are doing it are going out there for a lot of different species, and it's not really just a specific tilefish fishery, but it's they can go out there and catch let's just say five to ten species pretty easily that really don't have seasons, and things that come in the boat can go straight to the box.

That's one of the reasons they do it, with constrained seasons on the closer-in species and everything else like that, and that's really what has driven this fishery to be so popular, along with the advances in technology.

The other thing that I was going to point out, and I think Luiz is about to be up, and he'll probably be able to speak to it a little bit better, because he was an instrumental part of it, but the NAS report that came out on management of species with ACLs and everything has a specific list in there about identifying an angler universe, an offshore angler universe within the Gulf of Mexico, and leveraging that, using that, as a vehicle to identify the magnitude of this fleet that fishes the deep-drop fishery.

That will probably be something that we can look forward to as we continue to look into that report and everything else, and I think that's a good way for us to be able to get an idea of how big the fleet actually is.

CHAIRMAN NANCE: Thank you very much. Julie.

DR. NEER: Thank you. Good morning. Shannon touched on some of what I wanted to bring up, just as a kind of little procedural thing. Currently, tilefish, or a tilefish complex, assessment, either way, is slated for 2024, as an operational assessment. It sounds, from all the discussions here and the discussion the Science Center has put forward, again, that this might not be appropriate for an operational, because it sounds like we might need to change models and try new methods of assessing this species.

I too support the Science Center's suggestion to request a triage of the data, and then we can more accurately figure out

what type of assessment this should be in the SEDAR process. I don't think it would fall under an operational, which is what it is currently slated for, but, again, we don't want to invest a bunch of time in putting it in as a research track if the data is just not there, and so that's just a little hint on what we thought we were going to do with it might need to change with regard to the type of assessment that is requested for this species this next time. Thank you.

CHAIRMAN NANCE: Thank you. Ryan, to that point?

MR. RINDONE: Thank you, Mr. Chair. Julie, we have an assessment on the books that, granted, ultimately wasn't used for management advice, but, through that assessment, we identified some of the data that were available, and there's been some discussion here about some other data and approaches that might be considered.

Given that -- I kind of wonder and does this have to actually go in as a research track, if we're considering taking a step back, as opposed to trying to do something more with these three species, and so, if we could use the time that would otherwise be blocked off for an operational assessment and to allow the Center to do its triage and to make some recommendations, I mean, even that would be a step somewhere. Right now, we're just kind of standing here without any real clear path forward for this complex.

I know it doesn't really fall within the prescribed pegs for the research track and operational, but it just doesn't seem appropriate to leverage the machine to the research track degree in this case.

DR. NEER: Mr. Chair, may I respond to that?

CHAIRMAN NANCE: Yes, you may.

DR. NEER: Okay. Ryan, I wasn't saying that -- While I agree that, yes, there was an assessment, it doesn't really matter if it was used for management or not, so much as that there was an assessment. One of the underlying tenets is that, if you are changing the methodology that you're using, basically coming up with a new approach, new modeling, it should go through a benchmark/research track.

Now, research tracks do not have to take two years. They can be designed to do whatever needs to be done. If you want to use the time that was put in, penciled in, for an operational

assessment and have the Science Center spend that time on triaging, that's perfectly acceptable with SEDAR, and we would just take it off the SEDAR schedule, and then the Science Center and the council can discuss how you would like to reallocate that time, but I'm just saying that I don't think we can -- That data triage doesn't have to come through the SEDAR process.

In fact, I think it shouldn't come through the SEDAR process. I think the data triage is something the Science Center will do on its own and report back to you guys with regard to what they think can be accomplished moving forward, because I agree that we do need to do something for these species, for sure, because it's been a while, and it is increasing in popularity, and we need to see what's going on with them.

I was just trying to lay out that I don't think you could do an operational assessment, since it sounds like we're trying to change the modeling approach, how things are done, but note that a research track does not have to take forever. Research tracks can be -- They are developed and set up with a schedule and a process for whatever we need them to be for the species or the group of things.

Actually, I wanted to point out, after your discussion yesterday with regard to red tide, one of the things that was initially put forward with research tracks is that you could use a research track slot to develop say how to handle red tide for four species in the Gulf of Mexico, and that could be something you could do, and research tracks do not have to be always single-species assessments.

They were initially designed to be pretty flexible with regard to what we need to do and how to design them in such a way that they can accomplish what we need, and they don't have to be a one-size-fits-all. A research track for tilefish would probably not look anything like the research track that we're doing for red snapper right now, as an example, and so I hope that clarifies what I was trying to say. Thanks.

MR. RINDONE: Thanks, Julie, and I guess, just looking at Dr. Simmons in the back here, and knowing that Dr. Frazer is listening, maybe, on the margins there, let's go ahead and pencil that in for a discussion item for the next SEDAR Steering Committee meeting, for the Gulf Council to have a little bit more discussion about that approach for looking at tilefish.

DR. NEER: Certainly.

CHAIRMAN NANCE: Thank you. I am more leaning towards having a data triage first, and I think that would give us a lot better look at where we want to go with the assessment. I think that really is a necessary first step, but I will wait for these other three individuals, and then we can talk about that. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. Trevor has already brought up the issue that I was going to mention. Thank you, Trevor, for bringing that up, and so the NAS report has just been released, and you probably saw the announcement that came out, and we are in the process of scheduling briefings with all the different councils and interested commissions.

There will be an opportunity, in the not-too-distant future, sometime this fall, to come and present this to the Gulf Council, and perhaps even the SSC as well, and, in that report, and, by the way, Sean Powers and Steven Scyphers are also members of that committee, and so they can probably help me discuss some of these issues, when that presentation is given.

In that report, there are some options that are brought up that specifically focus on addressing some of these rare-event species, like the deepwater groupers and the tilefishes, and so it's not an easy issue to handle, and this is not a discussion that is going to resolve everything immediately, but I think, there, it will give us some options to discuss going forward on how to address these, and not for the immediate future, but perhaps in developing better data streams that can support assessments and management in the future, and so stay tuned. It's going to happen sometime this fall, and I will be talking to council staff and coordinating for those presentations. Thank you.

CHAIRMAN NANCE: Thank you very much. Harry.

MR. BLANCHET: This is going back a little bit, but one of the things that we're talking about here is that, essentially, eleven or twelve years ago, we had an assessment that did not come out particularly well, and we had a set of recommendations of how it could be improved, and we don't seem to be very far along, in terms of data collection processes, that might help improve the outcome.

While I appreciate the ability of the Southeast Fisheries Science Center to do the best that they can with the data that's available, I really think that we need to be taking a look, and tilefish is one example of this, but we do have a lot of other species that are not well captured by a general survey for the

recreational fishery, for instance.

I am just using this as one example of how the council's responsibilities and the existing data systems may not jibe, because, yes, we have a small subset of recreational anglers who do not match the profile of the typical recreational angler that's going after these folks, and it's really a challenge, if you're thinking in terms of the thing that has been most often suggested of a panel-type approach, and how do you maintain a panel whose job, essentially, is to -- It will certainly be perceived that the job of that panel is to provide the data that the Gulf Council and NOAA is going to use to constrain the fisheries that those people are currently enjoying.

There is no stick, and this has -- It's a voluntary recreational approach, and I don't know how you get something that can be a long-term data collection platform for these rare-event species, and we have tried a few things, on a volunteer basis, and it does not seem to be very widely adopted.

I heard Jack Isaac's suggestion of internet surveys, and, obviously, those have some uses, in terms of flagging new species of interest, but I don't know if that has become less of a new curiosity and more of a regular occurrence, and I don't know how much -- Again, I have concern over the consistency of a long-term dataset there, but I think it can -- I guess where I'm going here is that a lot of what we are working with now is surveys that were intended to collect long-term information for the most abundant species.

Those species, we've got pretty good grips on, and we're now looking at stuff where we really don't have good information, but we know something is happening, and, if we're talking about things like tilefish -- If I recall correctly, the size of the stock estimated from the most recent assessments were not all that big, and so, if we're talking about realistic harvest rates from the recreational sector becoming significant, this could be important in a hurry.

I am just encouraging that we need to really think in terms of beyond tilefish, but, also, for other rare events, how do we get a good long-term system of collection? I mean, things like Florida has got a system for tarpon that I don't know a whole lot about, but that's the kind of thing that I am talking about, and that's not something you're going to get a good estimate for in MRIP, and so I'm just throwing out more questions than answers.

CHAIRMAN NANCE: Thank you, Harry. Those are very good things to think about, for sure. Benny.

DR. GALLAWAY: Thank you, Mr. Chairman. I will try to be brief, and I want to go on record as supporting the data triage, as has been suggested, and I'm assuming that there is no problem with financially supporting that with funds that have been allocated for a different type of assessment, and so those funds would be used to support the data triage effort, is my suggestion, or concurrence with people who have suggested that.

I also believe that Harry has just opened a big box that needs serious thought, and so I would recommend that, as we go forward, we address those issues in a systematic way and not kind of shove them off to the side of the table. Thank you.

CHAIRMAN NANCE: Thank you. The data collection is something we really need to think about for some of those other species. I would like to entertain a motion. John.

MR. MARESKA: I just sent an email to Jessica, and so she'll put the motion on the board that I drafted.

CHAIRMAN NANCE: Thank you very much.

MR. MARESKA: It's a brief motion, and so I hope that all the lengthy discussion that was very good and covered a lot of important details -- Hopefully that will just be captured in the minutes.

The motion reads: The SSC recommends a data triage report be generated for tilefish, being golden tilefish, as the indicator species for the tilefishes complex as a guide to the selection of the model environment for the next stock assessment. On that note, we can add "golden tilefish", so that it's a little bit clearer for people.

CHAIRMAN NANCE: I am going to ask this, and this is going to be just -- Do we want to have "by the Southeast Fisheries Science Center"?

MR. MARESKA: Yes, I will take that amendment, but I would like a second, too.

CHAIRMAN NANCE: Yes, absolutely.

DR. CRABTREE: Second.

CHAIRMAN NANCE: Okay. Roy is the second for this. Any discussion? David.

DR. GRIFFITH: Just to clarify, I am not really sure what data triage means, and is it like a pilot study or something like that?

CHAIRMAN NANCE: In my mind, it's to look at all the data that's available and see what's available and how many years we have and those types of things, to be able to allow us to see what we can do in an assessment.

DR. CRABTREE: I think the promising thing here is, as Shannon pointed out, they have really made a lot of progress in data-poor assessment techniques, because I was part of what was going on in the Caribbean, and it's far more data-poor than we are.

The problem with tilefish recreationally is the CVs on the catch estimates are -- I suspect they're 100 percent in many years, and, while it's good to talk about long-range plans for tags and permits and all these kinds of things, that's going to take years and years, and so I think it's those new techniques that offer the most promise here.

CHAIRMAN NANCE: Ryan.

MR. RINDONE: Thank you, Mr. Chair. First to the motion, and then to Roy's comment about the CVs, because I have the PSEs pulled up, and so I can tell you about that, but, for the motion, Dr. Simmons had mentioned that 80 percent of the landings right now for the tilefish IFQ program, on average, were attributable to golden tilefish, but that landings for blueline tilefish were increasing.

Just to make sure that, whatever approach that the Science Center ends up recommending, it is considerate of the three species that are currently managed by the council, and perhaps you guys would consider having that data triage focus on those three tilefish species, and it may come to pass that, specifically to goldface as an example, there isn't any, and, to blueline, there is barely enough to talk about, and there's enough for golden, but we still have 20 percent of the landings to account for, and so, when forces are combined, then we have something more comprehensive to look at, and so perhaps list those three species out, and just say a report be generated for the tilefish complex and then, in parentheses, list those three species, just to provide as explicit direction as possible. That's not to say that the Science Center probably wouldn't do

that anyway, but just so everyone understands.

MR. MARESKA: I am fine with that change, if you want to, but, I mean, I think that's kind of been incorporated in the initial discussion that you led off, that those were the three species that are being considered here.

CHAIRMAN NANCE: I think it would be good to put this in parentheses, so that we have that. My only other concern is, in looking at this, does this read that we're asking the Southeast Fisheries Science Center to do this report? We've stuck the Southeast Fisheries Science Center at the end, and it says, "for the next stock assessment by the Southeast Fisheries Science Center", and so it doesn't really, in my mind, read that we would like them to accomplish doing this report.

DR. CRABTREE: I think, Jim, what this amounts to is we're recommending that the council ask them to do it. Then that will probably have to be somehow negotiated in the context of the SEDAR workflow, I would guess, but it's for the council to figure out.

MR. RINDONE: Typically, what happens is you guys request something like this, and then we send a memo to the Science Center asking them about doing this after having a phone call with them to understand what is actually able to be accomplished and when, so that we're not asking them for something that is not able to be accomplished.

Then, after that phone call, we send a memo, and they plug it into their workflow as they can, and, since we don't have this slotted for an assessment until 2022, it gives a little bit of time to try to figure out -- Sorry. 2024. It gives us a little bit of time and then a little bit of time to try to figure out when to start poking around about this.

The other thing that I forgot to mention to you guys was about the PSEs for tilefishes, and so this is for all three tilefish species combined, and this is from the MRIP query page, and so the PSEs from 2012 to 2020 range from 35.2 in 2020 to 104 in 2017, and the landings, in terms of pounds, for A and B1, range from about 700 pounds to 323,000 pounds for recreational landings, and so 700 to 323,000 pounds is a big swing, and so the recreational landings are not going to be very informative, I don't think.

CHAIRMAN NANCE: We have one more comment here from Luke.

DR. FAIRBANKS: I was just curious if the data triage report could or would consider alternate methods for collecting some of the recreational data, or is it exclusively just existing catch and other data?

CHAIRMAN NANCE: I think, in my mind, it would be seeing what data is available and then maybe recommend other ways to collect data, if it's not available. Thank you, Luke. Harry.

MR. BLANCHET: To Ryan's point of the recreational harvest, I think, when we started this whole discussion off, the first point that was made was that MRIP is not a good vehicle for collecting this data, because the people who are going out, especially on the private side, are such a small fraction of the total population that it's never going to be measured by the standard MRIP survey.

You are not going to see these guys at the dock, and so there's going to be zero catch to multiply by that effort value, and, when you do catch one, you're going to catch -- It's going to, as Roy pointed out, blow up the estimate. This requires a different kind of survey if you're going to get some reliable estimate, and I don't know the scale of those estimates, because the people that are involved with that fishery are a different group of folks than what you're going to see at a public boat launch, or even a public marina. I think that, if we start off with looking at MRIP data, we may be deluding ourselves.

CHAIRMAN NANCE: Roy, to that point?

DR. CRABTREE: Well, I mean, I think this is a longstanding concern with rare-event species in the MRIP survey, and it's not unique to the Gulf, and I know we've had a lot of discussions.

The MRIP folks are looking at different ways to stratify the survey, to produce better estimates, or at least to bring down the CVs on the estimates, things like producing estimates only every two years, so that you have more intercepts and things, and so that's going on. I don't know where that will take us.

Unfortunately, in the Gulf, even for things that are common, like red snapper, because the council has chosen to geographically parse the whole thing down to ever smaller regions, then we get in the situation where no one is happy with the estimates of catch even for common things anymore, and that stresses the system, and we devote all kinds of resources and funding to dealing with those issues, and this one, because

these are rare-event species, it's not going to get the attention, and it's not going to get the priority, but there are things going on in the MRIP program to try and look at different ways to handle this, but I suspect that resolution of those issues is going to come after this exercise is done.

CHAIRMAN NANCE: Thank you. After Will and David, I'm going to cut off our discussion. Will.

DR. PATTERSON: Jim, has this motion been seconded?

CHAIRMAN NANCE: Yes, and it was seconded by Roy.

DR. PATTERSON: Okay. Great. **I support this motion, and I suggest a slight edit here and just to strike the text after "generated" and through "species".** I think that captures this idea that we're not going to look just a golden tilefish, but all the tilefishes, if that's acceptable to John.

Secondly, I totally understand the point that Harry is raising, and I don't think it precludes the data triage, however. MRIP and the private recreational data are one thing, and the age composition information that exists in Panama City are different sorts of information altogether, and then, also, I think the for-hire sector recreational fishery data may be quite informative here for how targeting has changed, perhaps, over time.

I fully understand that it's an important issue for rare-event species, as has been discussed, but I don't think it should preclude at least looking at what data do exist and what they might tell us.

CHAIRMAN NANCE: Will, one question. Did you want to have the Southeast Fisheries Science Center still, or do you want that cut out, also?

DR. PATTERSON: It doesn't -- If folks think that needs to stay in there, great, but I just think that we shouldn't say only for golden tilefish and that it should be for the complex.

CHAIRMAN NANCE: Okay. John.

MR. MARESKA: I have no objection to that edit.

CHAIRMAN NANCE: David.

DR. CHAGARIS: I was just going to say something along the same

lines as Will. The triage will definitely eliminate any major deficiencies, but it's still good to do it, because it will have an eye towards the assessment modeling approaches that might or might not work, and then, with this discussion of MRIP and recreational data, I just wanted to remind folks that there is the for-hire electronic reporting system that will be eventually going into place, and so there could be some future -- Some data in the future on this species that might work better than MRIP for us. Thank you.

CHAIRMAN NANCE: Thank you. Doug, I will let you in.

MR. GREGORY: Well, it was to this point. This is a golden tilefish discussion, and I -- This may be picayune, but the complex is a complex, and I assume that the Center will look at golden tilefish as the indicator species, which is what we have used it for since the beginning. I would hate to change that trajectory.

CHAIRMAN NANCE: I think, the way it reads now, it will allow them to do that and other things, and so I think this is a better way to -- In my opinion, it's a better way to have the motion.

MR. GREGORY: Okay. Thank you.

DR. CRABTREE: I mean, this is a recommendation to the council, and staff ultimately is going to draft a letter to the Center, and they know what we're talking about and can get the content.

CHAIRMAN NANCE: Okay. Let me go ahead and read the motion. **The SSC recommends a data triage report be generated by the Southeast Fisheries Science Center for the tilefish complex as a guide to the selection of the model environment for the next stock assessment. Any opposition for this motion?** Thank you. **It looks like it passed without any opposition.**

I appreciate all the comments on this, and I think we've made some good recommendations and also pointed out some critical data needs for these rare species. Ryan, let's go ahead and move to our next item, which is Item XIV, Interim Analysis Schedule.

INTERIM ANALYSIS SCHEDULE

MR. RINDONE: Thank you, Mr. Chair. Up in front of you guys, you see our interim analysis schedule through 2024, and we have quite a few of these listed, especially for 2023 and 2024, and

you will see some common themes here, and red grouper shows up every year, just like we had talked about yesterday, and red grouper is an annual request of the council.

For next year, we've also requested greater amberjack, because of its status determination as being overfished and undergoing overfishing, and then, also, king mackerel for 2022, because the terminal year for that assessment was the 2017/2018 fishing year, and so, by that point, we're pretty far removed on king mackerel, and we haven't actually done an interim analysis for it yet, and so the Science Center will be investigating that and seeing if the SEAMAP larval survey will be useful in that regard.

When you're looking at that second column there of the index listed for each of these species, that refers to the index that was listed the last time the Science Center gave a presentation on likely candidate indices of abundance for each species and which ones might be able to be looked at for doing an interim analysis.

The terminal year there, in that second column from the right, is based on when the council is trying to receive that information, which is that right-most column, and that delivery date column is based on current management actions and the fishing year and things like that of when the council would be best positioned to start conversations about using updated management advice from you guys, and so there's a lot of moving parts in this particular schedule.

It's important to remember, as Science Center folks mentioned yesterday, that the interim analysis process is divorced from the SEDAR process, and so this table and the conduction of interim analyses is a negotiation that occurs exclusively between the council and the Science Center. Any input that you guys have here would certainly be helpful.

CHAIRMAN NANCE: Thank you, Ryan. I do have a question, though. It seems like I see red grouper as January, but it seems like we see red grouper -- Last year, we saw it several times during the year, and how does that fit into this interim analysis, because it seems like they do it more than once a year.

MR. RINDONE: There was the update to the mean weight estimation methodology for the recreational landings, which is why we saw some different versions of the interim analysis for this year, but, now that that methodology has been mapped out, and that's what they're using from this point forward, our expectation

would be that, in late December, we'll receive the red grouper interim analysis for you guys to consider in January of the following year, and that will allow that catch advice, if any is generated from that, to go to the council and for the council to act upon that and try and get a framework action or something like that done and get management changed, perhaps even before the end of that calendar year or by early the following year.

CHAIRMAN NANCE: Thank you very much. Doug Gregory.

MR. GREGORY: Thank you. Yesterday, we talked about including the SEAMAP trawl survey for red grouper in 2020, and so that could be added to this, and this is a handful, and these are problematic species, for the most part, in my mind, with the exception of lane snapper, and so I would suggest reconsidering trying to do five in 2023 and maybe keep it to the big four. Thank you.

CHAIRMAN NANCE: Ryan, to that point?

MR. RINDONE: I will let the Science Center speak for themselves, but, for some of these, like for red grouper, the processes are pretty well mapped out at this point, and it takes probably about as long to generate the report as it does to actually do the interim analysis, and so, as more of these are done, the automation of that process will improve for each of these species, but we'll certainly let them speak to the perceived workload associated with this.

CHAIRMAN NANCE: Thank you. Benny Gallaway.

DR. GALLAWAY: Thank you, Mr. Chairman. The Great Red Snapper Count report is critical to many of these red snapper assessments, and my understanding is that it's still in draft form. When will a final report be available so that the data can be used directly, as a final report?

MR. RINDONE: Mr. Chair, I will take a swing at that. The final report is in its final editing stages, currently, and so soon is what we have been told.

DR. GALLAWAY: Excellent.

CHAIRMAN NANCE: Thank you. John.

MR. MARESKA: Ryan, I was curious, and the gray triggerfish looks like it's going to be done annually starting in 2023, and that's the combined video index, and is that something -- What's

the time delay on that? When we see the combined video index, is that going to be through the previous year or two years prior?

MR. RINDONE: I have it listed right now as for the previous year, and, if you look at the delivery date, we have a start date that is later in the following year, to allow for the processing of that video data to be done.

We have had this up and circulated a few times now, and so, if the terminal years need to be adjusted, we would certainly appreciate any input on that from the Science Center, but, at this point, we haven't received anything to say that we should push that back another year, but I would certainly lean on them, since they're the ones that have to process those data.

CHAIRMAN NANCE: Thank you. John.

DR. FROESCHKE: Thank you. My comment, or perhaps question, to the Science Center is based off the discussion we had yesterday with red grouper, and, in our communications with the Science Center, we're often asked to be as specific as possible with these requests, and so the most recent iteration used a different methodology, and earlier, and so I'm assuming we might want to be specific about which methodology, unless the one they're using now is, quote, unquote, the default, and then I don't know if the weight adjustment that was done for red grouper -- If that would be a similar issue for any of these other stocks, but it would be nice to know, on the frontend, if it was or if it isn't. I guess I was looking for a Science Center response, perhaps.

MR. RINDONE: I see that Mandy has her hand up and Julie and Skyler.

CHAIRMAN NANCE: Go ahead, Mandy.

DR. KARNAUSKAS: I believe Shannon and Katie had to hop off, and I can't speak to all these issues, and I don't know if Sky is on to provide some input.

DR. SAGARESE: John, just to follow-up with what you -- In terms of the workload, some of the interims take less time, and so it seems like we're good to go with red grouper, and I believe that red snapper and triggerfish as well, and so I wouldn't worry too much about the workload for some of those.

I think, when the combined video survey is used, and Ryan already

spoke to the amount of time, it takes a bit longer to process that index.

Lane snapper uses the headboat index, and so that also takes a bit more analyst time to develop that index, but the one thing that did notice, looking at this, is the gag assessment actually does not use the combined video survey, and so we'll have to redefine what index is going to be used for that interim.

We did test sensitivity runs with the combined video, but so, going forward, in terms of the index, I don't think you have to be so specific, because I think we have specified the methodology, and so, whatever methodology was approved and has been used in the past now for red grouper, for red snapper, for gray triggerfish, those approaches will be used going forward, and so I wouldn't worry about adding too much detail.

I mean, of course, you're more than welcome to add what you want, and then what was -- The issue with the weights, and so, right now, we've only looked at that issue of potentially having to adjust the weights up for red grouper, and what I think Katie would say, if she was on this call, is just that we will certainly look into it and determine whether it's needed for the other species, but it's hard to say, at this time, if it will or if it won't.

If it will, I would assume that we'll kind of do a similar presentation and report, kind of documenting why it was needed, if it was needed, first of all, and what was done to adjust the catch advice, but that's sort of a -- Of course, it's going to be a species-by-species issue that we'll look at each time we do our interims.

CHAIRMAN NANCE: John.

DR. FROESCHKE: Thank you for that. I guess my question is based on the feedback that we have received to make these requests as specific as possible, and, for example, with the red grouper, we made the initial request for an interim analysis, and we never sent a request to change methodologies or anything, and I don't object to improving the science, but I do --

It can be problematic, for example, if you have the method that we're using now, and, whenever the next method comes along, if there's a switch that we're not anticipating, sometimes it's difficult to understand what to expect, and then it causes these communication problems, and so I'm just trying to close some of

these communication gaps, so everyone is clear what we're to be expecting.

CHAIRMAN NANCE: Thank you, John. Mandy, you're up next.

DR. KARNAUSKAS: I was just trying to chime in on behalf of the Science Center.

CHAIRMAN NANCE: Thank you so very much. Paul, you're next, and then Julie.

DR. MICKLE: Just two things. if you look up on the terminal years here, and looking at I'm assuming the data processing that's causing a little bit of a lag here, and so the combined video looks like about a year, and then the SEAMAP larval looks like about two years for data, and I'm assuming it's processing and QA and QC and getting the data into the form where it's usable as an input.

To the combined video, we actually have a grant right now that we're looking at automating it through software-based platforms, and it's going really, really well, and I just wonder -- I know nothing about the SEAMAP larval, even where it's done, and I guess it's done in Pascagoula, but that's just a guess.

CHAIRMAN NANCE: It's done in Poland.

DR. MICKLE: Poland. Okay. Well, I just wonder if it would be worth discussions of looking at automated techniques for the SEAMAP larval, because a two-year data lag for that data stream seems a little excessive in this day and age for the needs of such a data stream. Thank you.

CHAIRMAN NANCE: You're welcome. Julie.

DR. NEER: Thank you. Just real quick, Paul, the automation -- The development of the index itself for the larval survey is not the lag, and it's the fact that the samples are identified and sent out of the country to Poland for identification, and that's where that time lag comes for the larval survey, but that's not actually where I was going to talk.

I wanted to talk briefly about the combined video, and it's actually not produced within the Science Center, and it produced by the folks down in Florida, and so I'm sure that Ryan has already spoken to them, when we're talking about workload issues, how often and how many they need to do on top of the

ongoing assessments that they're working on.

One other comment on the combined video, and it actually has never been used in a gray triggerfish assessment, yet. It was considered a useful way to go in SEDAR 62, but, since SEDAR 62 actually never came to fruition, we don't know if it would have made the cut and been an actual useful index, and so I just wanted to point out that, like with gag, it's not used at all, and we don't know that it would actually have made it in the gray triggerfish as an appropriate index, once the model was done, because it was not used in 43, and they were independent indices that were used in 43.

Again, it's not until 2023, and that's fine. We'll be doing a research track on gray triggerfish beginning in 2023, and so, obviously, we'll have guidance on that, but I just wanted to kind of put that little note in people's heads, that the combined video may not be the best one that comes to be used for gray triggerfish moving forward. Thank you.

CHAIRMAN NANCE: Thank you, Julie. Harry.

MR. BLANCHET: Thank you. The question that I have got may be simple. All of these interims seem to be listing a single index, and my concern is that what I really see as a benefit with these interim analyses is that it formalizes a method of ensuring that you're actually working with the most recent data for management, and I really appreciate that.

With the bottom longline, I see that as a good tool for measuring changes in abundance of animals that are available to the fishery, but, with the red snapper, we have a bunch of other indices that could also be used that could give us information on other aspects, and the one that comes to mind is the trawl index for a recruitment index, which could tell us a lot of -- It could give us more of a heads-up of what's coming down the pipe.

I recognize that the trawl index is not perfect, but it's still looking at a piece that we currently are not looking at if we're only looking at the bottom longline, and I know that NOAA has mentioned the possibility of using multiple indices in some of these interim analyses, and I just didn't know if that was something that they were considering for some of these or if this was the only one that we're going to use. Thank you.

CHAIRMAN NANCE: Ryan, to that point?

MR. RINDONE: Thank you, Mr. Chair. I mean, the interim analysis process was designed to be a faster snapshot, using a representative index of relative abundance, and, when we start considering multiple indices, we start trending pretty quickly towards stock assessment territory, and, where the information that's being evaluated -- I mean, it may as well just be evaluated as part of a larger stock assessment effort.

The addition of each extra index requires those data to be worked up, and especially if we're considering two, or even three, indices for an interim analysis, it just -- Each additional index greatly increases the scope of work, because not all of the data processing has been automated for all of these yet, like it has for say the NMFS bottom longline index.

The Science Center can certainly add to this comment, but I think that we just have to be cognizant, and perhaps a little careful, about how much we're adding to these, lest they drift quickly towards operational assessment status.

CHAIRMAN NANCE: I agree with that. Go ahead, Harry.

MR. BLANCHET: I get that. My concern is that -- As I prefaced this with red snapper, we have a ton of indices, fishery-dependent and independent, that get incorporated into that assessment, but I think that, if we have something like an index of recruitment that can be used for guidance, and that's what this is, and this is not an assessment, then I think that it's something that should be taken a look at, and so, at the very least, what would it take to begin the automation process?

I mean, a trawl survey is not requiring identification of larval fishes, and I will talk about that another time, or reviewing a whole bunch of videos, and all of those are very time intensive. A trawl survey, you've pretty much got the raw material when you walk off the boat. It seems like that's something that we could use fairly quickly, and so that's where I'm going.

CHAIRMAN NANCE: Thank you very much, Harry. Any other comments for discussion? Will.

DR. PATTERSON: Harry raises an interesting point about the timeliness of the data, but another issue here is the selectivity and what that information is actually telling us, and so, typically, we use the trawl surveys to inform about age-zero abundance, or recruitment level is used to index the spawning stock.

Combined video, the selectivity is for fish sort of in their middle age ranges, and so I think it's important not just to think about the timeliness of the data, but what the data are actually telling us a function of the selectivity of that particular gear or approach.

CHAIRMAN NANCE: Thank you. Point well taken, Will. Mike Allen.

DR. ALLEN: Thank you, Mr. Chairman. I guess I have a question about just how are these interim analyses used, because I had the same question about why is a single index mentioned here, when I'm sure, for many of these species, there is multiple indices, and I realize this is not a full assessment, but how, ultimately, is this used in this process, for my understanding?

MR. RINDONE: I will take that one, Mr. Chair. The interim analyses can generally serve two main purposes. They can be used to update catch advice for the SSC to make updated catch recommendations to the council, and they can also be used as a health check, and so let's say that we're in between assessments, and we have a species that's rebuilding, and the council has passed a framework action to change the catch limits, and that hasn't been implemented yet, but they're just generally trying to have a thumb on the rebuilding pace of the stock, to see if management is working.

Looking at an interim analysis that looks at a representative index of relative abundance can help better inform the directionality of that rebuilding progress, and it can tell the council whether they need to plan to take additional action to make adjustments to fishing mortality, or if everything looks like it's going as intended, and so updating catch advice and health checks.

DR. ALLEN: Okay. That's helpful, Ryan, and so a single index here is meant to be a check on the trajectory, relative to the trajectory of the stock, relative to the last assessment?

MR. RINDONE: Right. We're just peeking under the hood and seeing what things look like without tearing the engine apart.

CHAIRMAN NANCE: It allows us an annual look at some of those species, so we don't have to do full-blown assessments every year.

DR. ALLEN: Okay. That's helpful. Thank you.

CHAIRMAN NANCE: Okay. I think we'll go ahead and move on to the next topic, and I appreciate all the comments and discussion on this, and it was very important. Now we're going to go to the SEDAR Stock Assessment Schedule.

REVISED SEDAR STOCK ASSESSMENT SCHEDULE

MR. RINDONE: All right. The big one. I will just walk down the list here. For 2021, the gag operational assessment is getting all wrapped up, and you guys are going to review that at the September meeting, and so that will be a big thing on the September SSC agenda, which, by the way, go ahead and pencil into your calendars the last full week of September. I will be sending out a doodle poll on that after this meeting.

The scamp research track is still underway, as is the red snapper research track, and, later this year, we will see FWC get a mutton snapper benchmark assessment off the ground. In 2022 -- We'll have the completion of the scamp research track, at the end of 2021, and then, in 2022, we'll have the operational assessment of scamp, which will give us that management advice.

The red snapper research track will still be going on, and perhaps being completed by the end of 2022, and then we'll also have operational assessments for Spanish mackerel and gray snapper, and the mutton snapper benchmark assessment will be completed by FWC.

For 2023, we'll be finishing up the red snapper research track and then doing the operational assessment, and then we also have listed an operational assessment for yellowedge grouper, which hasn't been updated since SEDAR 22, using data through 2009, and so it will be good to wipe the dust off of that one, and then FWC will be kicking off a benchmark assessment for west Florida hogfish at the end of 2023, and that will wrap up in 2024.

In 2024, right now, we have, on the list, a research track assessment for gray triggerfish, and you guys might recall the last assessment of gray triggerfish was terminated early, due to some data issues, and we'll also have an operational assessment of red grouper and vermilion snapper.

You guys just finished up approving the scopes of work for both of those yesterday, and then we talked today about that tilefish complex and how we're going to best approach that, and so Dr. Neer currently has that listed as an operational assessment, but we'll have the Science Center -- Based you guys'

recommendation, we'll ask the Science Center to look at that data triage and see what's actually feasible, and the SEDAR Steering Committee will look at what best to plug in there for Gulf tilefish species in 2024.

Then, proposed for 2025, we have the completion of the gray triggerfish research track, which, in 2026, will be followed by an operational assessment, which is where we get that management advice, and we have an operational assessment of lane snapper on the books, and also for cobia and greater amberjack.

Then, by that point, hopefully we've made some strides in some of the species identification issues between gag and black grouper and we can take another swing at a benchmark assessment for black grouper, with FWC at the analytical helm for that. Busy.

CHAIRMAN NANCE: Okay. Any comments or discussions? Trevor.

DR. MONCRIEF: Forgive me if I'm a little bit naïve to the process overall, but this question kind of popped up into my head. Yesterday, when we were going over the vermilion snapper scope of work, given its history, and I think it was defined as overfished in the early 2000s, but, after an inclusion of data, it was marked as good. All the assessments after that, it's been in good shape, and there is no indicators that show that the stock is being prosecuted in a way that would be ultimately damaging.

When it comes to these schedules, and when you have species like that that are of relatively small concern, compared to others, it seems like you could continue to do interim analyses until a trigger gives you some warning to do an assessment or anything else like that, which will allow for more resources to go to these species that are in a little bit more of the limelight, I guess, and a little bit more concerned state, but that was my question, the timing of it and the use of interim analyses for species that are of little concern.

MR. RINDONE: The reason why we still have these things pop up on the assessment schedule like this is just because, when we're looking at an interim analysis, we're typically only considering a single index of abundance with fixed recruitment and no further investigation into growth and no evolution of any knowledge about reproduction or anything like that, and so we try to assess everything that's been assessed and that can be assessed with some frequency, albeit not consistent frequency, because the council priorities can cause there to need to be

some adjustments and things like COVID that can come up and cause substantial delays.

We try to assess everything with some intermittent frequency, just so that we can update all of that stuff. We don't want to be doing an interim analysis say for yellowedge grouper that hasn't had any of its stock-recruit information updated since 2009, and none of the trends in recruitment have been updated since then, and growth hasn't been looked at since then, and we're a little behind in getting that one done. We've just had a lot of other -- As you alluded, some more contemporary priorities that have caused us to ask the Science Center to focus specifically on certain species, but getting these things looked at in a more complete approach, through an actual stock assessment, is definitely a good look for the science, to make sure we're not letting any of the data that we're using get too dated.

CHAIRMAN NANCE: Sean.

DR. POWERS: I understand your comments, Ryan, but I just want to echo Trevor's concern, because we're constantly told about the challenges that assessment teams face, and clearly they do with the analysts' time and things like that, but, you know, I mean, some of these, and lane snapper is another example, and, I mean, these are species that, yes, it would be great to have up-to-date assessment models for them, but, given some of the other challenges we hear, about schedule and things like that, at some point we need to prioritize.

I'm not saying we need to do that now, but it's just I share Trevor's concern that, given that we hear about scheduling difficulties and then see some of these species that we're not as concerned about right now.

CHAIRMAN NANCE: Ryan.

MR. RINDONE: If you guys want to recommend different intervals for assessing some of these things, that's certainly your prerogative to provide that advice to the council and to the Steering Committee, but just looking at some of these, and so like lane snapper was last assessed in I think 2019 or 2020, using data the year prior, and so, by the time it gets to 2025, the data are six years old or so, and that is a -- For that particular species anyway, that's a species of growing interest, especially on the West Florida Shelf. Landings are scratching close to a million pounds, and so it has definitely grown into something that it wasn't before.

For species like vermilion, like Trevor had mentioned, they grow like weeds has been a common comment during the assessment process the last two times that species has been assessed, and it is -- Based on our current perceptions, it's healthy, and so it's certainly one that we could push to a later date, if you guys thought that appropriate, to try to get something else looked at in its place.

I would just caution letting things get to the age of say the yellowedge grouper assessment, where, at the time that we actually get to assessing yellowedge grouper here, we'll be including twelve new years of data, which is -- Well, it's a lot, and so that's one of our oldest assessments at this point, and it certainly has a good layer of dust caked on it, and we should endeavor not to let things get that dated, regardless of what their last stock status was, because, truly, how are we supposed to know what the true condition of that stock is if we don't really take a good look at it once every decade or longer?

By all means, recommend to the council and the Steering Committee alternatives for how to pace these things out, if you guys think it appropriate to do so, considerate of your own knowledge and expertise and the previous stock assessment.

CHAIRMAN NANCE: That really is the challenge, is you want to make sure that things are assessed at a pretty good rate, but it seems like there is other things that get in there ahead of them sometimes, and so you've got like yellowedge that hasn't been assessed for many years, but, yet some of them are assessed every other, and those types of things, and so, go ahead, Sean.

DR. POWERS: Ryan, to build on your point, and I don't see any reason to change the schedule or not, but just trying to have some discussion to inform the council, in their negotiations with SEDAR, where some of our priorities might lie, because, obviously, we want everything, I mean, as a simple answer, and everything as quick as possible, and so I don't advocate, necessarily, for any changes, but I just wanted to be on the record, like with Trevor, to give the council some background, if they do have to go into negotiations on the SEDAR schedule.

CHAIRMAN NANCE: Thank you. Trevor, to that point?

DR. MONCRIEF: Yes, and I agree with that as well. I don't think this is the time to be able to redo the schedule or anything else like that, but there is going to be more and more species that become of concern, and that's going to be a constant

thing that we have to deal with, and I think, as long as we have the idea of what the priorities are, when the council wants to push a species, or, if there's something of concern, we have the species in mind that could kind of be moved to a later date, because there was concern.

CHAIRMAN NANCE: Do you have any on the list right now?

DR. MONCRIEF: I think vermilion snapper sticks out in my head, for sure. I mean, I'm kind of with Sean, and I know lane snapper is building, but, to me, that's a small one, and then, the gray snapper, I know there's concerns with the shore landings and everything else that came out of the last one, but that's another one that has probably had a little bit of range expansion over the last decade or so, and there seems to be landings inshore and offshore, but --

CHAIRMAN NANCE: Gray snapper is for 2022, and so that's on there, but vermilion -- It looks like vermilion is 2024. To that point, Roy?

DR. CRABTREE: Yes, and I can tell you, having sat on the SEDAR Steering Committee since it was created, what is a priority depends on where you're from and who is yelling at you and who is on the council, and so it's a tough one to balance.

The one thing I would say is I think a kind of philosophical discussion about how to approach the problem and all of that is fine for down the road, but one thing that I think we have really tried to do is stabilize the assessment schedule and not make changes, because we've had a habit, over the years, of flip-flopping and changing things, and that really throws a big monkey-wrench into the whole process when you do it.

This has all been agreed to and negotiated, but I think having discussions down the road -- There has been a lot of time put into that stock assessment scheduling prioritization process and all of that, and so we could revisit some of that, if folks wanted to.

CHAIRMAN NANCE: Ryan, to that point?

MR. RINDONE: Thank you, Mr. Chair, and Dr. Crabtree is absolutely correct, and so everything that you see that has "final" next to it, there's going to need to be a real ecological emergency to make changes at that point, and so, really, what we're talking about is 2024 and 2025, especially more 2025 than 2024, and we can still consider changes for 2024, but we would

prefer not to, if possible.

It's just because there are so many moving parts in trying to get the data set up for these assessments, and there are teams and teams of people that have to be mobilized and dedicate time towards preparing everything for these assessments, and so, when we do make changes, we do need to be very deliberate about it, as far in advance as possible, and we have tried to inform all that pay attention to the schedule, and especially the council, that changes are simply not permitted two years out from the current date, unless there is, as I said, some dire ecological emergency for changing the schedule, and it's locked in at that point. I see Dr. Neer has her hand up as well, Mr. Chair.

CHAIRMAN NANCE: Julie, thanks for waiting. Go ahead.

DR. NEER: No problem. Ryan just said what I would say, is that we are looking approximately two years out for finalizing schedules, and it's really critical that we do that. As I mentioned yesterday, the stock assessment enterprise for the Southeast, unfortunately, is not just one center per one council.

The Science Center has a lot on its plate, unfortunately, and so, yes, as Ryan mentioned, 2024, we could maybe make adjustments to something that's listed in there, because those won't be final, but the 2024 schedule will be final in May of 2022, and so, if you guys feel strongly about 2024, and certainly 2025, now is a great time to share your thoughts, and perhaps even talk about what you would like to see in 2026, because we will start talking about what do you guys think is useful in 2026.

Now, of course, the SSC is making recommendations, and the council is the one who actually sits on the Steering Committee, and they will make their requests for 2026, but we'll start talking about 2026 in October of this year, and so, if you feel strongly about species, now would be a great time to let the council know your thoughts. Thank you.

CHAIRMAN NANCE: Thank you, Julie. Carrie.

EXECUTIVE DIRECTOR SIMMONS: Thank you, Mr. Chair. Julie said most of what I wanted to say. I think it would be helpful -- I heard take lane snapper off and take vermilion off, but we have to think about what can fit in that slot as an operational assessment, and we can't do four research track assessments, and so I kind of think, with vermilion, we're a little bit too

far along, and you just looked at the scope of work, and we're not at terms of reference yet, but do keep in mind there were things from the last assessment that are in that scope of work that could not be addressed, and would not be addressed, in an interim assessment, and so we have to think about balancing all of those things.

Remember there is an issue with the shrimp trawl bycatch and all those types of things that I think they were going to investigate, and, Ryan, is that right, or am I getting confused, in the vermilion snapper assessment, and so there's things like that that we have to try to balance when we're thinking about the schedule as well, and so it would be helpful if you have some suggestions, especially for 2025 and into 2026. Thanks.

CHAIRMAN NANCE: Trevor.

DR. MONCRIEF: To that point, I wasn't encouraging removing those right off the bat, right now, looking at the schedule, but what I did want to highlight is we were talking about the red snapper stuff and discussing timing and the workload and everything else, and I do think it's more a philosophical discussion, like Roy said, but, maybe in the future, when we go through these schedules and we start to get into a crunch, we can kind of look at these species and decide this one is a priority, and this one is not as much of a priority, and kind of use that to be able to gauge the schedule a little bit better.

CHAIRMAN NANCE: I think the point is though that the crunch is three years away, and so that's the thing that we need to recommend, is 2022 and 2023 are locked, and so, if we see a crunch coming, we need to have it in there for 2025 or 2026. David.

DR. CHAGARIS: I don't have any objections to the schedule as it is. I mean, I can see one making an argument to remove one species and put more effort into another, but, in general, I would be concerned about substituting some of these operational assessments for interim analyses, because, for a lot of these species, we don't really have representative indices of abundance, and so those interim analyses have a lot of uncertainty baked into them, and we could be making management recommendations just based off of noise in those, whereas the assessments are going to kind of synthesize more information for us.

Also, as Ryan was speaking earlier, there could be situations where you have fisheries that are growing, and an interim

assessments that's based on an index, an index of abundance that probably wasn't even designed for that species, it might not detect that. It wouldn't give us that information, and so I would just think carefully before we rely too much on the interim analyses as a replacement for some of these operational assessments on the schedule. Thank you.

CHAIRMAN NANCE: Thank you. Ryan.

MR. RINDONE: Thank you, Mr. Chair. Mandy or Sky, or I guess particularly Sky, are you still around?

DR. SAGARESE: I am here.

MR. RINDONE: I'm thinking about some of the webinars that we had recently for gag, and that maybe it wouldn't be such a bad look to try to plug gag in 2025, and thinking about the lane snapper operational assessment -- I know that you helped out a little bit with that one, the last time, and it was either you or Adyan, and I thought it was you, but, if we were to try to add in gag in 2025, and, again, recognizing that that's a proposed part of the schedule, and it's not finalized yet, and I just want to hear you mentally chew on that for a second, if you don't mind.

CHAIRMAN NANCE: We have gag in 2021, and we're doing it right now.

MR. RINDONE: We do, but landings of gag have been trending down, and we've had a couple of red tides, and, without the review having taken place yet, I'm not going to go diving into it just yet, but suffice it to say that it probably would not be to the council's detriment to look at gag again in the not terribly distant future.

CHAIRMAN NANCE: Skyler.

DR. SAGARESE: Ryan, I think you're right about we had a lot of topics that came up with the gag assessment, and, in addition to what you've already spoken about, we also have the issue of the red tide, and we know that Dave Chagaris has done a lot more work, in terms of how to incorporate that, and so I do think that putting the gag assessment back on the calendar would be a pretty good idea, in place of that lane snapper.

You're right that Nancie Cummings had done the update for lane snapper, maybe last year, but, in terms of priority, it seems like the gag grouper assessment is currently ongoing, but it

seems like it would not be a bad idea, in the next few years, to plan on doing that.

CHAIRMAN NANCE: Sean.

DR. POWERS: Ryan, in the interest of keeping up with my statement that we want everything, the cobia is scheduled for an operational assessment, and has there been discussion about making that a research track, or was the feeling there's not enough out there new about cobia yet to warrant a research track?

MR. RINDONE: Cobia is one of those stocks where we don't actually have a fishery-independent index of abundance that gets used for that, and we use the headboat index, MRIP to inform the private recreational landings, which have quite a bit of uncertainty around them, and then the commercial landings, which only make up a very small fraction, annually, of the total harvest.

Cobia landings have been trending down, and the most recent research is close to several years old at this point on cobia, and, if you think about some of the stuff that was done out of the University of Southern Mississippi, like Jim Franks and Read Hendon and some of those folks up there, and so I don't know what problems we would be endeavoring to solve that we would actually have the data to solve in a research track for cobia.

There might be some methodological changes that we could pursue, but the assessment is already in Stock Synthesis, and the metapopulation dynamics of cobia have already been considered the last two times, and it's really a matter of trying to better understand, at this point, where the stock boundary is for cobia on the east coast of Florida.

We perceive it to be somewhere around Volusia County, but, without a real definitive stock boundary up there, right now, we've drawn the line at the Florida-Georgia state line, and that's based on our current understanding of the genetics, and so, yes, I really don't know what data would be available to try to better elucidate that, and I know that there were some research proposals, one that was recently completed in the Gulf using pop-up satellite tags to look at cobia movement, and there were a couple of proposals, and I don't know if they got funded or not, for the same for the Atlantic, to try to better understand movement and interconnectivity between that metapopulation of Gulf cobia that goes up the east coast of Florida and then the southern metapopulation of cobia from the

Atlantic stock that pushes down on that Georgia-Florida border.

DR. POWERS: I guess that was my question, and you kind of answered it, and it's probably not enough there new to warrant a research track, and I know it's of increasing concern for everybody, and that's the only reason that I brought it up. What was the last one for the Gulf? It was an update, right, of SEDAR 28 or something like that?

MR. RINDONE: Yes, and it also migrated the data to FES, and the stock ID process for the last Atlantic cobia assessment, which I have to dig on the SEDAR website, and Julie probably knows what it is off the top of her head, but that effort was what helped to better define where the actual stock boundary was, and, given the data that were available for a species like cobia, that they were able to use the genetic data especially to narrow it down to where they did, to that northeastern corner of Florida, in my personal opinion, that was pretty remarkable in and of itself. Then using the Florida-Georgia line was more for simplicity for anglers, to know where the regulations applied to them and for enforcement.

CHAIRMAN NANCE: Thank you. Mandy.

DR. KARNAUSKAS: Since Sean brought up cobia, I wanted to mention that I have heard increasing concern about cobia in the past few years, and I'm curious if this is just a unique localized thing or if others have heard these concerns. I would say it probably started about two or three years ago, like at MREP workshops, and I heard about lack of cobia in Texas, and then, more recently, we've been speaking to red snapper fishermen in Alabama and the Florida Panhandle, and there are really serious concerns.

People are saying things like the fishery needs to be shut down for five years, and we just don't see them anymore, and so I just thought I would throw that out there, and I'm wondering if people have heard similar things across the Gulf or if there is maybe a localized depletion issue going on.

CHAIRMAN NANCE: Roy.

DR. CRABTREE: I have heard a lot about it, primarily from Alabama and the Panhandle of Florida fishermen.

CHAIRMAN NANCE: Sean.

DR. POWERS: I would agree, and we've heard some concerns for

probably the last two years that they've gotten -- It's anecdotal, but, every year, we do this big deep-sea fishing rodeo, and, this year, it was remarkable how few cobia we had weighed in, and, like you said, Mandy, I don't know if that's localized depletion or if that's Gulf-wide. I guess that could be answered in the operational assessment as well. As Ryan pointed out, since we don't have a fishery-independent index, it's going to tough, and that's kind of why I wanted to think about was there any potential to do a research track and whether we could identify some fishery-independent indices, but it doesn't seem like they're out there for cobia.

CHAIRMAN NANCE: Thank you. Benny Gallaway.

DR. GALLAWAY: Thank you, Mr. Chair. I think my question may be out of place, and maybe reserved for later, but my question that I wanted dealt with is have you guys been able to put together, for the West Florida Shelf, the degree to which the complete life history for red snapper is completed, or is that still open to question as to whether it's being produced in place or largely influenced by immigration, and, if this question is out of place, just defer it. Thank you.

CHAIRMAN NANCE: Any comment on that one? I'm not sure, Benny. Ryan.

MR. RINDONE: Benny, I actually worked on a paper with Todd Kellison out of the NMFS Beaufort Lab a few years back on connectivity between the Gulf and the Atlantic for red snapper, and a large component of that work was a literature review looking at the available data, and so there's a lot that is stacked up in there, as far as looking at the research that has been -- Like the peer-reviewed research that has been conducted throughout the Gulf and the Atlantic.

As far as better characterizing what I think you're asking, I feel like there's a lot of fishermen-contributed data that the council has collected over a number of years related to what historical fishermen have seen in the past off the West Florida Shelf, and what we're hearing from those same folks now is that the abundance levels of red snapper have certainly increased a great degree compared to where they were ten or twenty years ago, but the size of the fish isn't -- On average, in the eastern Gulf, it still isn't on par with what it is in the western Gulf.

I think though that, like for red snapper -- Obviously, we have more data available for red snapper than any other species in the Gulf, by an order of magnitude at least, and so maybe a more

specific literature review, to your point, would be necessary to better capture an answer to that question.

DR. GALLAWAY: To that point, if I'm allowed, Jim.

CHAIRMAN NANCE: Absolutely, Benny.

DR. GALLAWAY: My thoughts were -- Where I was really headed with that, or thinking about, is we have SEAMAP data now where we can look at juvenile survival, and is it indicated to be consistent with what we know from the western Gulf, and is there a high juvenile mortality, or does it appear to be density-dependent mortality? Is recruitment from the juvenile sector into the age-two, if they move to larger reefs, does that appear to be consistent with juvenile survival rates, or is it more influenced by, like I say, transported immigration from other regions?

We have SEAMAP data, and I haven't seen -- Maybe it's there and I just missed it, but juvenile survival is an important consideration as well as the size distribution, which I think is a really key point that needs to be very seriously addressed, and I was wondering if people looking at the existing data are pursuing those questions. Thank you.

CHAIRMAN NANCE: Thank you.

MR. RINDONE: Mr. Chair, I think Will is probably one of the most expert to answer that.

CHAIRMAN NANCE: Will, go ahead.

DR. PATTERSON: In the red snapper population estimation study that's wrapping up in the Gulf, we had about 760 natural bottom sites from Pensacola to the Tortugas, and most of the fish that we saw were fairly small, young fish, less than 600 millimeters, and there's a long tail of larger fish, but relatively few.

We didn't see a whole lot of fish that we couldn't scale with lasers, or with our stereo camera system, and so, with the stereo camera system, we're not limited by the distance between the lasers, but we didn't see a whole lot of fish on the reefs or low-relief natural bottom sites that we examined that were less than 200 millimeters, for example, that could be zeroes, or even a whole lot of fish between 200 and 300 that could be one-year-olds, more of those than the little guys.

In the trawl survey, although the trawl survey is occurring on

the West Florida Shelf, and has been, I guess, for about six or seven years now, the issue is that there isn't a lot of shell rubble habitat, like you have in the western Gulf, or off of Mississippi and Alabama, even into the Panhandle of Florida a little bit, where you have settlement habitat for the zeroes that is trawlable.

I don't know -- I haven't looked at it specifically, and I'm not sure who has, about the trawl data from the expanded survey east into Florida that has occurred in recent years, the SEAMAP trawl surveys, and whether they are picking up the zeroes in that system.

As far as the self-recruitment versus subsidies from other areas, I think the person that's been working on that question, more than anybody else in recent years, is Ernst Peebles at USF. They have been using eye lenses to try to estimate whether reef fishes are locally produced or coming from other areas, using an isoscape approach with stable isotopes.

I don't know where that work stands now, but earlier work with otolith chemistry was inconclusive, and then, obviously, there is some tagging studies that showed movement from the north central Gulf along the Florida Panhandle and down toward Tampa, but fish that move those great distances were just on the tail-end of distributions, and conventional tags always stay on fish for a year or so before they drop off and you can't use that.

The work that Matt Catalano did in the red snapper estimation project in the Gulf, where there were fish tagged in each of the regions, we didn't tag fish on the West Florida Shelf, and we tagged them in the Panhandle, and none of those fish have shown up in catches, or been reported from catches, on the West Florida Shelf.

Unfortunately, as far as your question about local self-recruitment on the West Florida Shelf versus subsidies coming from other areas, I think that question is still very much open.

DR. GALLAWAY: To that point, Jim, I found your West Florida Shelf report very informative and intriguing. Good job, and I think these issues are close to resolution, and we seem to be right around the edges of being able to say something, but not quite there yet, and so I was trying to figure out how to get there now, and so, anyway, thanks.

CHAIRMAN NANCE: You're welcome. Thank you, Benny. Will, did you have anything else?

DR. PATTERSON: No. Thanks.

CHAIRMAN NANCE: Katie.

DR. SIEGFRIED: Thank you, Mr. Chair. I just wanted to add something back to the cobia discussion, if I may, and so Mandy had mentioned what she had been hearing from red snapper fishermen, and Sean kind of validated that, and we do think that the cobia stock is in -- It should be a higher priority than like say the vermilion stock, and what Trevor mentioned earlier about looking at a stock that's in pretty good shape, and what are other ways to evaluate that, and it seems like the cobia should be a higher priority, in general, than the vermilion.

I don't think it's actually too late to switch those in the 2024 and 2025 calendar, from what Julie said, and others said, and so, based on the trajectory of the cobia stock, it was between SSB SPR 30 and the MSST, and it was 1.11 of MSST and undergoing overfishing, and so it does seem like a higher-priority stock than vermilion, but Carrie is right that there were things about the vermilion snapper assessment that would be good to attack in an operational.

CHAIRMAN NANCE: Okay. Any comment? Carrie.

EXECUTIVE DIRECTOR SIMMONS: Real quick, and thank you, Mr. Chair. Regarding cobia, we agree that it is a higher priority. The tradeoff, again, that we have to consider here is the council is currently working on ending overfishing and making major changes to management for both sectors for cobia, and that probably is not going to be implemented until 2022, early 2022, and so, if we want to try to capture some of that in the next assessment, we also need to keep that in mind as well, where that is on the schedule. Thanks.

CHAIRMAN NANCE: Thank you. Any other comments? Okay. I appreciate the discussion on this topic. We will go ahead and break and come back at 10:55 Eastern Time. Thank you.

(Whereupon, a brief recess was taken.)

CHAIRMAN NANCE: It looks like we're ready to start. I think our next discussion is Item Number XII, and it's the National Standard 1 Technical Guidelines Sub-Group 3 Tech Memo. I will go ahead and turn it over to Ryan, I guess. Are you going to be discussing this one?

DISCUSSION: NS 1 TECHNICAL GUIDANCE SUB-GROUP 3 TECH MEMO

MR. RINDONE: This is actually going to be led by Marian McPherson, who is on the line, and she is from NOAA Fisheries, and she's going to walk you guys through this presentation that she has put together on the National Standard 1 technical guidance for this technical memo that they've put together to help inform the councils about alternatives for approaching catch limits for data-limited species, and so, Marian, as soon as you're ready to run with it, it's all you.

MS. MARIAN MCPHERSON: Hi, everybody. Thank you, Ryan. I'm Marian McPherson, and I work in the Office of Sustainable Fisheries, and I'm a member of this National Standard 1 Technical Working Group Sub-Group 3 that drafted this technical memo.

Here with me today is Jason Cope and Katie Siegfried and Skyler Sagarese, who also have worked on this guidance, and they are really more of the technical experts, and so I'm coming at you from the policy side, but I'm happy to be here, and I'm glad that you've had us here to discuss this with you.

To start with a little bit of background, basically, the Magnuson Act has had the requirement for ACLs since 2007, and 2009 is when NMFS established the guidance in the National Standard 1 Guidelines of how to implement ACLs, and they have been helpful management tools, in most cases, but, particularly with some of our data-poor stocks, there have been challenges.

There has also been progress, and so it's been a while since we've looked back at that rule. In 2016, NMFS issued revised guidelines for the National Standard 1 Guidelines and convened this technical working group to focus on implementing the advice, providing some advice on how to implement the revisions, and so this draft technical memo is very specifically focused on one paragraph of those revisions to the National Standard Guidelines, and so I have put the title here to highlight how specific our focus was in working on this guidance.

There is a paragraph in the National Standard 1 Guidelines that is written down there, and it's the 50 CFR 600.310(h)(2), and we are going to call that (h)(2), that sets forth flexibilities for data-limited stocks for when the standard approach to ACLs that NMFS provided in its National Standard Guidelines, when there might be room for recommending an alternative approach, and so that is what this sub-group looked at, and that is what this memo is about.

Just to give you a quick status update, NMFS discussed this draft with the CCC in May of 2021, and we have invited comments by October 1 of 2021, and we are happy to be here working through what this advice means with some of the SSCs, and you are the third folks who have invited us to talk with you, and so, again, I'm happy to be here, and I hope that we can be helpful.

Just a note about our sub-group, and, as I said, I am one of the few policy people on this sub-group, and it's mostly composed of people from S&T, and we've got folks from each of the Science Centers who have worked on putting this advice together.

This is an overview. The draft tech memo is organized into three main areas. The first provides some of the legal context of the Magnuson Act and the NS 1 Guidelines, differentiating between the requirements that come from the Magnuson Act itself versus the requirements that NMFS set up through our interpretations. For ACLs, the Guidelines sets up a standard approach, which has to do with ACLs defined in terms of an amount of fish, weights in numbers, but it also provides flexibilities, and so we'll talk about that.

Then the next section of the tech memo talks about the science side, what are the data-limited assessment methods that we have and how have they evolved since 2009, and there are two categories of assessment methods that we talk about. There are those that support developing an ACL the standard way, pursuant to the standard approach in the guidelines, and that's an amount of fish, and, when those methods are used, the tech memo provides recommendations and considerations for dealing with uncertainties and using those methods.

The tech memo also talks about other methods that we now have that have been developed that do support good scientific advice and could possibly support compliance with the Magnuson Act, but not in the manner described in the standard approach for ACLs, and so we'll talk about those methods.

Then the paper gets into the management advice, how to apply these (h)(2) flexibilities, the ability to recommend an alternative approach to reference points, ACLs, for data-limited stocks, and then we'll talk about which stocks qualify, and then we will talk about one potential alternative to an ACL, expressed as an amount of fish, and that would be looking at an ACL expressed as a rate.

Then we do briefly treat stocks that are data-poor and might qualify for an alternative, but they don't even have data to do rate-based management, and so that's the overview.

First of all, I want to note that nothing in this tech memo exempts us from the Magnuson Act requirements, and those Magnuson Act requirements are that the FMP must establish a mechanism to specify an annual catch limit, and that catch limit must prevent overfishing, and there must be accountability measures. Those are the requirements of the Magnuson Act. We've got to comply with those.

Then the NMFS guidelines set forth the standard approach to ACLs, which is still NMFS' interpretation of the best way to do this, and that would be to express your ACL in terms of an amount of fish, a weight or a number of fish, and so the guidelines set forth that standard approach, and then the guidelines also provide flexibilities.

Those are the (h)(2) flexibilities, which is for certain stocks, and those include these data-poor stocks that we're going to discuss, and the council may recommend an alternative approach, but the alternative still must comply with those Magnuson Act requirements that are bulletized up at the top, and they must be included in the FMP, and we must document the rationale for why it complies with the Magnuson Act requirements.

Just to emphasize how (h)(2) is going to be relevant to us, it allows flexibility from the National Standard Guidelines approach for ACLs for these limited circumstances that include, among other things, stocks for which the data are not available either to set the reference point, and, by that, we're talking about ACLs, in this context, or to manage to the reference points pursuant to that standard approach. Again, the key is going to get down to what data are available and what is the best we can do with what we have.

Now we're going to get into talking about the science for a little bit, and so, as I mentioned, since 2009, we've had advances in stock assessments for data-limited stocks, and we have new tools to more effectively use the data that we have. We're able to identify manageable metrics, and we have increased our understanding of uncertainties.

This is a flow chart that we put together that depicts what you can do, what the methods are that out there, based on what information you can feed into the method. Trying to get to a standard ACL, expressed in terms of weight or number, you're

going to need to have minimum information about abundance.

This flow chart basically goes down the left-hand side of the screen, assuming that you have the biomass, the abundance, information needed to get you to a standard ACL, and so it's just a question of what you have, and the yes/no questions get you down to -- You can develop an ACL that is expressed in terms of an amount of fish.

I want to put a flag down there at the very bottom, and you're going down the left-hand side, but you have a bunch of no. The bottom middle blue box, it's the catch estimator approaches, and that is the worst-case scenario of what you can do if all you have -- The least amount of data, and all you can do is just a catch estimator approach, and we're going to flag that, because we're going to have recommendations for that in a minute, when we get to the recommendations section.

Now, all of this on the right-hand side of the screen are data-limited methods that can give us good, measurable information, but just not help us get to that standard approach where the ACL is expressed in terms of an amount of fish, and so maybe you have length information, or maybe you have other indicator information, and you can plug these into the assessment methods that we now have, and, if you have that information to plug into these methods, that little purple box at the bottom says you're going to want to look at (h)(2), an alternative to the standard approach, and particularly the alternative we're looking at, that come from these methods, would be a limit expressed in terms of weight.

You guys, and ladies, may have a lot of questions about the details on this, and I am going to just hold off on this for a minute, while I walk through the presentation, and then Jason Cope can really work through the details of this one, if you've got questions on this slide, but this is the general vision of the slide.

Before I move on, I do want to mention that we've sort of laid it out in this simplistic visual for you, but we know, from trying to work through this, and working with some of you and the Science Center, is that it's not a cut-and-dried question, in data-poor fisheries, of what data really are available for doing what you want to do with them, and we recognize that you're going to need to really look closely at what you're wanting to do, talking with your science people, your managers, your constituents, about what you can do with what you have, but there may be a better way than catch estimators, and it's

worth looking into.

I mentioned that, assuming you're going down the left-hand side of that slide, and you've got methods that can get you to a standard ACL, you're still data limited, and there are still caveats and considerations that need to be kept in mind. I am not going to read these bullets to you. They are written down in the paper, and you can read them, but they have to do with being transparent about uncertainty and using appropriate buffers, but I do want to highlight, at the bottom, this blurb about the catch estimator methods.

As I mentioned on the last slide, we recognize that sometimes this really is all you have. If it's your best scientific information available and you're trying to get to ACLs, then maybe that's what you have to do, but we're now encouraging you to look at alternatives and consider whether an (h)(2) alternative might be more appropriate.

If you're still going to be stuck using the catch estimator, just be sure you're appropriate with your buffers and plan to transition to another approach. These are recommendations in this draft memo, and so things for you to chew on and give us feedback on.

Those were the methods that get you to your standard ACL, and then I mentioned that we have these other methods that provide really good advice, but just not resulting in weight or amount-of-fish-based advice, and so you've got length-based methods, and you've got indicator-based methods, and they do provide science-based metrics and reference points that can help us establish limits, monitor to limits, and comply with the Magnuson Act requirements.

The tech memo provides guidance on which data-poor stocks might be appropriate for using the (h)(2) alternative. As a reminder, it's focused only on alternatives for stocks that lack the data, and these are the two sets of criteria that are mentioned in the (h)(2) flexibility paragraph itself, that the data lack to either specify or manage with an ACL, and so those are the two considerations that we have to bear in mind in determining whether we're going to qualify to look for an alternative under (h)(2).

Here is another visual, sort of depicting the whole premise that is set forth in our tech memo of which stocks qualify to use alternative ACLs under (h)(2), and that's one question that needs to be asked, and then the next question is, all right, so

you qualified and recommend an alternative. Is the rate-based alternative right for you, or appropriate for you?

Again, it starts with what information is available, just like on Slide 7, and you've got to have this core abundance information to go down the left-hand side of the slide and get to your standard ACL, and that information is bulletized up there at the top, and it's about time series of removals, life history information, et cetera, and so that's the first question, is do you have the abundance information to start with, so that you're going to be able to set your ACL, in terms of an amount of fish.

If yes, then start proceeding down the left-hand side. If no, if you don't even have that, then you can start looking -- The right-hand side of the screen is going to be the (h)(2) world. It's time to start looking at whether an alternative would be appropriate for you.

Let's just say that, yes, you have that abundance information. You're going to go down the left-hand side of the screen, and you're not done. You're not automatically -- You don't automatically have to go all the way to the weight/numbers-based ACL, because you also have to be able to monitor and enforce that. That's the other aspect of the (h)(2) paragraph.

Can you set the ACL, and can you monitor and enforce it? If yes, then use the NMFS standard approach. Use your weight-based ACL, and we still think that's the best way to go, but, if no to either one of those, head over to the right-hand side of the screen, and that big box in the middle, and that's where you're starting to get into the (h)(2) world.

Like I said, this tech memo focuses on the alternative of expressing the ACL in terms of weight. Just because you're in (h)(2), and you can do an alternative, it doesn't mean that rate is right for you. You're going to have to answer these questions, and you're going to have to be able to estimate the average fishing mortality rate, either having length composition data or other indicators, and you're going to have to have the proxy for F at FMSY to set the MFMT, the maximum fishing mortality threshold.

If you have both of those things, then you should consider using this rate-based ACL. It may be preferable to what you're doing now, without better biomass information, and then the no box on that side, that gets you down to the very bottom, yes, you qualify for (h)(2), and you are very, very data poor, but you

don’t even have weight info, and what are you going to do, and so you’re still required to find a way to comply with the Magnuson Act, and we’ll talk about that a little bit at the end, but those stocks are still our most problematic.

The MSA defines overfishing as a rate or a level of fishing mortality that jeopardizes the capacity to produce MSY on a continuing basis, and so, while weight and numbers-based ACLs are the standard approach, expressing the ACL in terms of the fishing mortality rate and monitoring the actual fishing mortality level against the reference point could provide an alternative means of monitoring, to make sure that overfishing is not occurring.

You could have the same management tools that are available for managing under a weight-based ACL, or you could use the same things for managing under a rate-based ACL, and just the trigger would be expressed in terms of F rather than weights or numbers, but, if you hit the trigger, you would still be able to apply a time/area closure, trip limits, size limits, all potential accountability measures that could be used as well for a rate-based ACL as they can for an amount-of-fish-based ACL.

If you have a data-limited method that can provide you your F and your MFMT, then the SSC and the council could apply buffers to derive the ABC and ACL, just like we would do under a standard approach.

Hypothetically, depending on what data you have that are collected, and maybe you have length data, this might be an indicator that could be useful and could be incorporated into management, and so, if the SSC can correlate an indicator with a rate, and management controls could be designed to maintain the stock within that indicator range, that might be a way to go, and so, hypothetically, here’s an example.

If your stock assessment provides information that your OFL, or your MFMT, is 9.4 inches, and that comes out of the assessment, then the SSC might look at that and apply an uncertainty buffer to say your rate-based ABC might correlate to ten inches, and, similarly, the council could do a rate-based ACL correlating to 10.2 inches, to get to the F_{ACL}. We started using these abbreviations with the F in front of the reference point to indicate that it’s a rate-based reference point. Then, as I mentioned, the same management options would still be available.

As we mentioned, the FMP must describe how the monitoring would ensure compliance with the Magnuson Act. Our group thought of

different ways to potentially do monitoring, and one hypothetical we examined with the Caribbean is we looked at setting up a length-based indicator system and doing a data-limited assessment method using lengths, and the thought process was that it might be -- Once that method was set up, it might be just as easy to run the method on an annual basis and compare the F to the ACL.

On the other hand, a potential approach, if you had a good indicator, might be such as length, just to monitor the indicator reference point versus the indicator of what you're finding in your samples, and then it's important that there would be accountability measures.

Another thing to think about is, in setting up such a system, would be how frequently you would want to monitor. We did not provide guidance on in-season monitoring in this draft tech memo, but that's definitely something that people had kicked around and chewed on a little bit.

Finally, I talked about these stocks that are very data poor, and they lack data for effective management, the standard approach, and they also lack weight data, and so what do we do with these stocks? We still have to comply with Magnuson, doing the best that we can, and these might be stocks that end up in the catch estimator box, but the paper recommends considering whether a data collection program could be set up that it would be cost effective to start moving towards a rate-based ACL system and whether there could be a step-wise plan to progress towards a standard ACL. Start with your rate-based, and start some kind of data gathering, with the goal of progressing towards the standard approach.

That is the broad overview, and, as I mentioned, we do have some technical experts on the line and here, if you've got questions or comments.

CHAIRMAN NANCE: Marian, thank you very much. That was a great presentation. Any comments from the committee? Rich.

DR. WOODWARD: Thanks very much. This was very interesting. As somebody with very little experience in all of this, I am just -- A couple of questions came to mind. First of all, is there any use of fishery-dependent data when you're dealing with some of these questions, and, if so, how is that incorporated into the analysis?

Secondly, I was sort of surprised that there was no mention of

-- The word "Bayesian" did not show up in any way, shape, or form in the document, and so I would think that a Bayesian approach would make a lot of sense in situations where you are very data limited, and so two questions.

MS. MCPHERSON: These are definitely going to be questions for Jason.

DR. JASON COPE: Thank you for those questions. The second question you mentioned, the Bayesian -- Well, let's start with the first one about the fishery-dependent data, and those sources are often critical in these data-limited situations, because you often don't have fishery-independent surveys or designs or the money to kind of set up those sorts of things, and so, often, all you have is fishery-dependent data, and so absolutely all of those -- If you think about that very broad, or generalized, flow chart, that diagram of assessment methods that Marian shared, with --

MS. MCPHERSON: That was Slide 7, if you want to go back to that.

DR. COPE: You can if you want, but I just want to highlight the fact that -- Oftentimes, the critical piece of information that you do have to work with, or if you're just starting to -- Oftentimes you coming from that first, and then you try to build off of that, maybe some fishery-independent information, and so, yes, very much -- Even though you have to respect the fact and the caveats that it may not be designed to measure exactly what you would hope to measure, it's all you have, and we have to work with it, and so that's fine.

There are actually methods that are specifically designed to use fishery-dependent data, and you kind of can mess things up if you use fishery-independent data, and those would be examples that -- Thank you for showing this.

CHAIRMAN NANCE: Jason, we're hearing about every fifth word.

DR. WOODWARD: I have a quick follow-up, and I think I got the gist of what Jason --

DR. COPE: Did I lose folks there?

CHAIRMAN NANCE: Yes.

DR. WOODWARD: Let me just ask a quick follow-up question on that, and so economists spend a lot of time thinking about what

we call the data-generating process, in terms of what are the incentives and the source of the data, and is that type of analysis included when you're using fishery-dependent data?

DR. COPE: I think our angle here is basically looking at what is available, and so, however that data were generated is kind of outside the thought process, and we're just seeing what we have and what we can do with what we have. Now, part of this, as you can see, as you read through the tech memo, is building up from where you are, and so all sorts of analyses would then go into there, including economic analyses of data generation and all of that, and so it's absolutely a critical point to this.

What we're mostly highlighting here is that we find ourselves, depending on the stock that we're looking at, in some challenging data situations that we either can just bypass, and just make decisions from something, and I don't know what, or try to use that available information as best as possible, but, likewise, you should always be thinking on how can you build from where you're at, and that's really, I think, the encouragement here, is that, wherever you are, there is something you can do that can lean on fisheries science, the history, the theory, whatever it is, as you mentioned, Bayesian techniques, eliciting priors from experts.

You can do all of these things and do the best that you can with what you have and simultaneously try to figure out where you want to go next and what are you going to need and what's the cost-benefit analysis of moving to the next level of data collection, what should that look like, how are we going to do that, how are we going to get cooperation, et cetera, and so it builds from that, and I hope that I'm addressing your question head-on. I am attempting to.

DR. WOODWARD: No, that's great. Thank you very much.

DR. COPE: I don't know if I -- I kind of cursory there mentioned the Bayesian part, and absolutely. A lot of these methods either use Monte Carlo approaches or Bayesian approaches, and all of that stuff is wrapped up in the particular method, and so there's a lot of sort of prior information, as you can imagine, going in, expert opinion, all that sort of stuff, and we're trying to mine as much information as possible in some of these data-limited situations, and so absolutely Bayesian approaches are critical here.

We didn't go into the deep depths of description on these

methods, and we mostly outlined them, to show these are the types of things, and here are some references, but it definitely includes Bayesian considerations.

CHAIRMAN NANCE: Thank you. John.

DR. FROESCHKE: Thank you. Thank you for producing the report and providing the presentation. When I looked at this, and I was trying to look at it through a bit of a regional lens, I guess, and how this information would apply, or could apply, to the Gulf stocks, and a couple of takeaways.

Originally, if you look at that flow chart on the screen, most of our data-poor stocks we measure with the landings-based ACLs, which is, I guess, the catch estimator approaches, and, if you look at that top box, we have available records, and removals are monitored, and so, essentially, based on that criterion alone, the way I see it, all of our stocks would be in the yes side, the left side, of that flow chart right away, which is where we already are.

I am not sure how applicable this is. That bottom one, where it says the index, and then it has the fork between the stock production and the catch estimator, and so the landings is where we are. I guess, if you had an index, then you would try to go to the stock production. The way I was interpreting that would be akin to the data-limited stock assessment, i.e., the SEDAR 49, and what we've done for lane snapper.

When we did the SEDAR 49, what we found out, based on the methods used in there, was that most of our data-poor stocks didn't have enough information for those kinds of things, and so my interpretation of this is it's a low bar to get to the yes side, where you're going to have the catch estimators, but there is still a pretty big gap between there and what could be done for the data-limited approaches, unless there is some new information, or methods, for the stock production that I am not aware of.

The other thing that struck me was the use of the mean length as an indicator, and I guess I just have some concerns that in a period -- If you had a particular stock, and you were monitoring that approach, and you had a big recruitment event, you're going to drive the average size down, even though that's a good indicator of the fishery, and it's likely going to lead to an overfishing signal, and then, conversely, you have periods of failed recruitment, and you're going to be fishing on older fish, because that's all that there is, and so everything is

going to be looking good, when, in fact, that's probably not the direction you want to be going to. Those are just some thoughts from our region, as I see them, and I would just be curious on the collective response.

DR. COPE: I'm happy to add a little bit to that. All excellent observations, and one thing to bring out sort of to the forefront is, in that very top box, where it says "do you have available removal records for basically most of the fishery", the other key part of that is that you're actually able to monitor those catches well, and, in some fisheries, that's where a lot of folks kind of find the biggest challenge, is monitoring catches, whether it's a mix of commercial and recreational, or whatever it is.

You really need both, because, if you set an ACL, but you really can't monitor it well, then maybe that isn't the good indicator of the fishing level that you want to measure to see if overfishing is occurring, and so that's one thing to highlight.

Now, if you are in that situation, where you're finding that you are able to monitor and track catches with little problem for all FMP stocks, and you have a full time series, then it just -- Like you said, it kind of just depends on where you land with the rest of your data what you can do.

Now, the big warning though in our tech memo is that some of these catch estimator methods are assuming some really big things that you know about the population, such as what the current stock status is and other things that are huge assumptions and that the results are very sensitive to, and so definitely, that warning in the tech memo, we want to highlight that.

On the side of the mean length and length-based methods, you're absolutely right that those are -- All of these methods are suffering from certain assumptions, and like the catch estimators can suffer from not knowing what the current stock status is, and mean estimators are very sensitive to the assumptions of equilibrium. As you mentioned, a big recruitment can really mess up your signal and so you want to recognize that, and, for some stocks, maybe that isn't -- Even though you could do it, it may not be the most appropriate thing to do, because of such an occurrence of big recruitment that might mess things up, and so those are things that you want to think through.

I think what we want to provide here is the guidance that says

here are things that you can do, and, if that does occur, you just want to work that into your interpretation of the results. If you have a big drop in mean length, you want to ask yourself, do we have recruitment? If so, that's a good sign, probably, and not a bad sign.

You can work that into the way that you interpret the results, but I just want to encourage that, and that's the exact type of thought that you want to have. Be very critical in the consideration of these methods, because they all have weaknesses, but they can -- When those are respected, when those assumptions and caveats are respected, you can do some powerful things, even in extreme data-limited situations, that can also highlight what you want to start to collect next, as far as data, to get you out of that particular trouble that you might find yourself in.

Of course, we would like to have, ideally, right, integrated stock assessments with multiple data types that all give the same signal. The problem with our integrated assessments is that, and I can speak firsthand to this, you have a bunch of data, and they are giving you different signals, and which is the right, quote, unquote, signal.

Any time we put length compositions into our assessment, we might suffer -- If we get the selectivity wrong, or we misinterpret them, even our integrated stock assessments can lead us astray a bit, and so all of these things need to be thought through, and these questions here are really nice to hear, because these are very thoughtful, critical questions that are needed when thinking through this, and we hope that we just provide guidance that folks feel like, if they do find themselves in the neck of the woods where there aren't a full time series of catches, or you can't really monitor those catches, there is still something that can be done to try to figure out if overfishing might be occurring and provide some guidance to the managers.

MS. MCPHERSON: That's a very good -- All of those are good points, and so I do want to just add on just a bit. I had that one slide with sort of the summary of recommendations, if you're going to be using the assessment methods on the left that can get you to those standard ACLs, and there is -- If anyone has got the tech memo, or if you just want to take a note for your review, when you go back, it's on page 7 is our section on recommendations when you're using those methods on the left, and I don't know if I copied every bullet, but there is a bullet that talks about kind of, when you think you have the data, but

you're uncertain with it, and there's a section on this in the tech memo, on page 7.

It might be worth just reading the whole thing, but there is a bullet about, if the results are driven by weakly-justified expert opinion, poorly-known parameters, severely-limited data, consider one of the other methods, and so explore the uncertainty in your inputs.

Like, if you have something that you can say fits the box, but you're super uncertain about it, you might want to look down on the other side of the slide and see if one of the other methods might -- We keep hearing in these data-limited fisheries that -- You've really got to ask among yourselves, and the answer is within you and within your community of do we trust this data to do what we're asking of it.

It's this second-bullet-from-the-bottom is the one that I was just reading from, but all of these might be worth considering when you're providing us your comments.

CHAIRMAN NANCE: Okay. Thank you very much. Roy Crabtree.

DR. CRABTREE: Thanks, Jim, and thanks, Marian, for the presentation. I have seen this a number of times over the years, and I don't know where this ultimately goes out, because I think there's a lot of questions about whether this complies with the statute or not, but that's for the lawyers to sort out somewhere along the way.

The fishery that comes to my mind though that this might be helpful to us is spiny lobster, and we have really struggled, over the years, with how to set the ACL for spiny lobster, and we have struggled with the accountability measure for spiny lobster, which is essentially we convene a review panel and review it if we go over and all.

Because of the peculiarities of the spiny lobster fishery, I think the gist has been, over the years, that having a size limit is sufficient to protect things, because the recruitment comes from elsewhere, and so the notion that somehow you can substitute a size limit in some fashion for the ACL -- That's the one that comes to my mind as a place where this approach might be worth looking at.

I think part of what will come up with the council though is I think a lot of constituents are going to argue that we can't monitor and enforce ACLs adequately for any of our recreational

fisheries, because the timing issue is so far off, and we certainly have fisheries where the season is over before we get any recreational catch estimates, and so how you argue that that's what you can monitor and enforce I think is a pretty tortured argument.

It's interesting, but I do think, given some consideration of how we might better deal with spiny lobster, because we've never closed the fishery down because the catch was too high or too low, and we have always concluded that the high catches didn't threaten the stock in some fashion or another, because things are driven by other drivers, and so that's my thought on it.

CHAIRMAN NANCE: Thank you. Will Patterson.

DR. PATTERSON: I am really curious about this idea of utilizing rate-based approaches. It doesn't seem to have gotten as much treatment, or consideration, as the landings or mean-size-based approaches for data-limited stocks when integrated or lesser assessments, more quantitative assessments, can't be accomplished.

I am curious, and we have the situation, I think, for some stocks in the Gulf of Mexico, that isn't often encountered, where you have a time series of landings estimates that are fairly unreliable, yet there is also considerable otolith samples that have been collected through time, and so the age composition of the landings is possible, but it's tough to put them together so that you have -- You have, I guess, a reliable estimate of what the landings actually were, but you do have the age composition data.

Earlier, we were having a conversation, a related conversation, before I think Marian and Jason got on the call, but, in the Nathan Taylor paper from 2005, where they were looking at likelihood approaches to estimating von Bertalanffy growth equations, or growth parameters, they actually show an approach to taking age composition data and simulating what the population must have looked like, given assumptions about selectivity.

I am curious if, in Jason's experience in particular, like what your group has been working on, if anything, in that realm, and it seems to me probably a pretty rare case where you have age composition, but no other reliable data, and so I'm just curious what's been going on in that realm.

DR. COPE: That is a really great question, and we do have some

exciting stuff that's going on in that realm, and you're right that it is a unique situation to have kind of a treasure trove of age data and not much else, but that age data is so potent in its ability to kind of tell you what's going on with the population, as you said, as long as you can kind of understand roughly what that selectivity curve is.

What that falls into is the category of basically those length-based approaches, and the length-based approaches are really there to approximate ages, and that's what those approaches are doing. Now, if you have ages, you have an even better way of tracking what's going on in the underlying demography of the population and the age structure and so forth.

Understanding selectivity, you can pretty powerfully understand what the status of the stock is and pull out some sort of long-term fishing mortality that has driven that stock to that particular age structure, and, with that, if you have any other indicators of the stock, in addition to the -- So maybe you don't have a really good catch record, but maybe you have other ancillary data that could indicate some aspect of the population, whether it's recruitment or something, and you can put those together in a multi-indicator approach.

What's really interesting is, working internationally, this is exactly the type of stuff that folks do, because they aren't focused on setting catch limits, and they're focused on just coming up with the best indicator or way to measure the status of the stock that they can do, and they come up with a lot of these creative situations, and I think spiny lobster was a really good example of how this gets done in other places as well, because they have the same problem of setting catch limits, and they often go to some sort of size or length-based approach to get a stock status and get an estimate of F and move on from there.

Yes, within -- I mean, this is an aside, and I will just invite anyone who wants to get into the technical stuff -- If you want to talk to me about how you can implement these things in Stock Synthesis, these super data-limited approaches, such as purely just ages, without a real good catch history, I'm happy to talk and show you how to do that, but, yes, you can do that sort of stuff, and it can be really powerful, to be honest, having a bunch of ages.

DR. PATTERSON: Thanks. Jim, can I just follow-up, real quick?

CHAIRMAN NANCE: Yes, Will. Go ahead.

DR. PATTERSON: Thanks, Jason. That's really cool stuff, and I will follow-up with you offline and send a recent paper that we published on warsaw grouper here in the Gulf, and I would really like to talk about some of these other Stock Synthesis approaches, to try to code that up, and so, anyway, thanks for the input, and I look forward to interacting later.

CHAIRMAN NANCE: Thank you. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman, and thank you, Marian and Jason, for the presentation and the discussion. It's very, very helpful and super interesting stuff, and I think very useful. I really want to compliment the working group for going through this process and putting this together, and, obviously, you were dealing with a super complex issue and a very, very tough problem to solve, and I think that you did a great job pulling together a lot of different approaches and considering a pathway that I think provides very helpful guidance, and so congrats on that.

I had a lot of the same questions and concerns that others have brought up, for obvious reasons, and I know pretty much all of you who have worked with this working group, and I know that you're aware of all those concerns and all those questions and the use of this data and the availability -- I mean, the use of these methods and the availability of the data, et cetera, and so I think everything that you explained there, Jason, and went through, in responding to John Froeschke and to Will and others, I think that helps clarify the tone of this.

I like the fact that you present this as a variety of approaches and methodologies and pathways that can be followed to deal with some of these issues, but it's not very prescriptive to use this one or use that one, and so I like that a lot, and so my only question here then is did you go through the process, because I think it will be helpful, to develop some example applications of this? Was there time to get some of that done, just so we could see some of the situations where this may have actually been tested, to some extent, and shown to provide some useful guidance? Thank you.

MS. MCPHERSON: Thank you for your comments. Have we gone through examples? I will say, in developing the paper, we did sort of a hypothetical case study exercise with some internal data that we haven't -- But we are -- We have talked with the Southeast Region and the Western Pacific Region about possible pilot projects, and I think there is some interest, and I don't

know if anyone from the Southeast Region is here to talk about possibly doing something like this for queen triggerfish. I don't know if any decisions have been made about that, but there is definitely interest at NMFS in having some kind of pilot projects done, but we're not there yet.

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

CHAIRMAN NANCE: Thank you. Steven Saul.

DR. SAUL: Thank you, Mr. Chairman, and thank you, Marian and Jason. I was just going to add that I certainly agree that these approaches, when properly matched, due to the data structures and such that you have, can be a powerful tool. Some colleagues and I completed an assessment of about fifty different reef fish species in Indonesia, together with the Ministry of Fisheries, and one thing that I found useful that we've done is we've taken a handful of these approaches that are appropriate and ran the data through those multiple approaches and then blended the results and the outputs, in order to understand some level of model uncertainty, given that there are a variety of different approaches, and there is really no one size-fits-all, and no approach really is perfect. By sort of blending multiple approaches and blending the outputs, that's kind of one good way that you get at model uncertainty.

What we found from doing that is some stocks sort of straddle the fence, in terms of where they were more relative to FMSY and BMSY and such, but others, when you look at the ranges, were either clearly doing very, very well or clearly not, and so you can really steer your management approach based on some of these approaches when clear signals can sort of be derived. Thank you.

CHAIRMAN NANCE: Thank you, Steven.

DR. COPE: Can I just say one thing with what Steven said? He said some really, really good stuff there, and I appreciate that example of applying it in Indonesia, and I just want to highlight one thing he noted, is that sometimes these methods give you -- - They do give you clear answers as to what's going on.

If we're asking these really data-limited methods to parse out kind of really fine details on what the population is doing, we might be asking too much, but there are many instances where they can give you very clear signals that will help guide management, and, in the instances where they don't, I think this is where we fall back onto our risk structure, and this probably

falls into the SSC's realm and the council's realm of defining risk and what do we do when there is a bunch of uncertainty about status, and how do we approach it.

I think lots of councils have talked about how do you structure your risk approach when you have data limitations, and so, coupling that with these methods, I think we couple the science with the risk-based approach, and we can make good informed decisions, even under highly uncertain situations.

CHAIRMAN NANCE: Thanks, Jason. Before we leave this topic, are there any specific SSC recommendations that we have for the council? Trevor.

DR. MONCRIEF: Just real quick, I mean, would it be useful to at least have some candidate species? I mean, we mentioned spiny lobster and stuff like that, but would it be useful to have some sort of list of applicable species that could fall under this?

CHAIRMAN NANCE: I think that would be very good, and so certainly spiny lobster is a candidate for this, for this approach. Any others? I think we had some very good information here, and good flow charts and everything else, to allow us to be able to utilize this methodology for our assessments. Will.

DR. PATTERSON: I just think there are some deepwater species for which there is quite a bit of age comp data, and perhaps unreliable catch, or even size comp information, that I am curious what Jason said here about using SS in those situations, but I think there's a possibility that we could explore some of that, using the more recent data-limited approaches.

CHAIRMAN NANCE: Yes, I agree. Certainly some of those topics that we discussed this morning would be able to be used here, maybe. Roy.

DR. CRABTREE: I guess I have a question for Marian, in terms of the timing and getting to an actual rulemaking, because this would require revising the National Standard Guidelines, and can you give us any sort of notion as to what the agency is considering, in terms of timing?

MS. MCPHERSON: Sure. At this point, this is in the form of a technical memo, and our thoughts, at the moment, are to continue moving forward with this process, and I believe NMFS has gone on record saying that you don't need to wait for us to finalize this advice, because the exception is already in the National

Standard 1 Guidelines, in (h)(2), in 310(h)(2), and it specifically says the council can recommend an alternative approach for a rate-based ACL.

(h)(2) is focused on limited circumstances, and the idea, the hope, is that we will get a couple of pilot projects going, and we do have in mind that, as this becomes more widespread and used, if there is a desire to use it for more than just limited circumstances, there could be a need for rulemaking.

DR. CRABTREE: Marian, the current guidelines also specify that catch is an amount of fish, and so a catch limit is an amount of fish, right?

MS. MCPHERSON: The guidelines set up a standard approach for ACLs, and that's the language used throughout the guidelines, is "standard approach", and it's within that context that it says -- In the paragraph that defines the ABC and ACL, that paragraph says, for these two purposes, we're saying catch means the weight of fish.

Then, later, in the paragraph (h)(2), it says there may be limited circumstances where we need to propose an alternative way, alternative to what we said, in that definition of a standard approach, and so this is what the sub-group has been working on, is providing advice on what that might mean. What might an alternative approach look like that could still comply with what's in the Magnuson Act, an annual limit that prevents overfishing and that triggers accountability measures, but might not be effectively able to be done under that standard approach, where the ACL is an amount of fish.

DR. CRABTREE: Okay. I guess the question becomes how much time do you want to invest in looking at this, and it seems to me that what the council needs to do is have a real discussion with NOAA Office of General Counsel about what they would be willing to clear or not, because my concern with this is that you could go way down this path and then find out that you can't get it through the attorneys, and so it really becomes a question as to how far you want to go in the absence of something more concrete, in terms of the guidelines.

MS. MCPHERSON: We do have the green light from the attorneys to proceed along with this approach, for the purposes of this tech memo, and it is fully contemplated that, if it becomes more widespread, there may be a need to do a rulemaking in the future, but, at this point, it's NMFS' position that the technical memo provides advice on implementing (h)(2), and (h)(2) is already

there.

A limited basis of alternatives could be submitted, and, as you're saying, that's going to be where the rubber hits the road. Specifically, what do we come up with, and (h)(2) also really specifies that you're not exempt from Magnuson, and you have to demonstrate in your record how the approach you've described is going to satisfy those pieces of Magnuson, an annual limit that can prevent overfishing and that can trigger accountability measures.

CHAIRMAN NANCE: Okay. Thank you, Marian. Steven Saul.

DR. SAUL: Thank you, Mr. Chair. I was just going to mention what Will did about some of the deepwater species, and so no worries. Thank you.

CHAIRMAN NANCE: Okay. Thank you. Mike Allen.

DR. ALLEN: I just wanted to make the point that data-limited stocks doesn't necessarily mean that the outcome of those evaluations has high uncertainty or bias. Some of the historical size structure data from back in time, relative to current day, can be really, really informative for the current fishing mortality rate, and so I think it's just important to think about some of these data-limited stocks aren't necessarily any more, or to much degree, more uncertain than stocks where we have a lot of datasets that may not be informative.

CHAIRMAN NANCE: Thank you. Any more recommendations or comments? Jason and Marian, we sure appreciate your time and that presentation.

MS. MCPHERSON: Thank you for having us.

DR. COPE: Thank you, everyone.

CHAIRMAN NANCE: We will go ahead and break for lunch now, and we'll come back at 1:00 p.m. Eastern Time.

(Whereupon, the meeting recessed for lunch on August 10, 2021.)

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August 10, 2021

TUESDAY AFTERNOON SESSION

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The Meeting of the Gulf of Mexico Fishery Management Council Standing and Special Reef Fish, Special Socioeconomic & Special Ecosystem Scientific and Statistical Committees reconvened on Tuesday afternoon, August 10, 2021, and was called to order by Chairman Jim Nance.

CHAIRMAN NANCE: It looks like we're getting ready to start. It's one o'clock, and so everyone can get reassembled, and we're going to go on to king mackerel. It's Item Number XVIII, and we're having a presentation from the Southeast Fisheries Science Center. I'm not sure who is in line to give that one.

MR. RINDONE: Shannon or Katie, are either one of you there?

DR. CALAY: Sorry about that. I was muted by an organizer, and so I could not speak for myself. I apologize.

CHAIRMAN NANCE: I told them to do that.

DR. CALAY: Well, ordinarily, you would be right, for sure.

CHAIRMAN NANCE: Welcome, Shannon.

REVIEW OF KING MACKEREL HISTORICAL HARVEST AND CATCH LIMITS

DR. CALAY: Thank you, and so I think I am on the hook. I would like to acknowledge Michael Schirripa, who did most of the work associated with these two presentations, and I am -- I drew the short straw, because Michael is on leave today.

The first presentation was from Council Request 9583, and this is the influence of the Coastal Household Telephone Survey versus the FES statistics for the management advice for Gulf king mackerel. This has been presented to the council, at least in a brief format, and so I think this has been in the meeting materials before, perhaps.

The Science Center was asked to provide a few sensitivity runs of the Gulf of Mexico king mackerel stock assessment to demonstrate the effects of the changes that were made to the recreational statistics, and so the major changes for this update assessment were to change from the Coastal Household Telephone Survey to the FES statistics, and there was also a change in the shrimp bycatch estimation.

We did have an earlier attempt to address this request very

directly by putting the FES statistics directly into the 2014 base model, but that produced a model that was unstable, and it did not produce reliable results, and so this is the second attempt to address this request.

MR. RINDONE: Shannon, if you're talking, we cannot hear you.

CHAIRMAN NANCE: We'll wait for a minute for Shannon to get back online. Roy.

DR. CRABTREE: Ryan, what is it that the council is trying to get at with this? I mean, what is the issue?

MR. RINDONE: The council is interested in what the catch limits would have been coming out of SEDAR 38 in 2014 had that model used FES instead of CHTS for the recreational catch and effort data, and so what the simulation shows is the four model runs that you see tabulated here on the board.

They just wanted a better understanding of how things would have looked for kingfish had FES been used in the original SEDAR 38 assessment, which used different spatial delineations for kingfish than was used previously, and so this set of sensitivity runs was designed to get at that and answer that question, and it does.

CHAIRMAN NANCE: Shannon, are you back online?

DR. CALAY: Yes. My apologies for that. I will go ahead and move into the sensitivity runs that were conducted to look at the effects of the various changes to the king mackerel model, and so, essentially, we ran four model runs.

A model run is simply the baseline SEDAR 38 stock assessment as it was configured in 2014, no changes, and so the terminal year of that stock assessment was 2012, and it is the SEDAR 38 stock assessment base run, and they have used the Coastal Household Telephone Survey recreational statistics and the shrimp bycatch estimate produced in 2012.

Now we're going to make step-wise changes to the model to look at the effects of those changes, and so, in Model 2, the only change is that we are now using -- Well, the few changes are that we're now using the SEDAR 38 update base case with FES statistics and the 2012 shrimp bycatch estimate, and we're truncating the data in 2012 so that it's most directly comparable with the SEDAR 38 base run.

Then, in Model 3, we're again using the SEDAR 38 update assessment, a terminal year of 2012, the FES statistics, and the shrimp estimates from the 2020 assessment procedure, and so now we've got both the change to FES statistics as well as shrimp bycatch, and then Model 4 is simply the SEDAR 38 update base run, which has all of the updated data through 2017, the SEDAR 38 update base model FES statistics, and shrimp bycatch from 2020 estimation.

Like the SEDAR 38 and SEDAR 38U assessments, the OFL and ABC were determined from projections, and the OFL is the 50th percentile from a projection of FSPR 30. FSPR 30 was the proxy for FMSY for king mackerel, and ABC was simply a P* of 0.43, which is equivalent to the 43rd percentile of the projection of FSPR 30.

The results are tabulated here, if you are interested, but I am going to go ahead and show you, visually, what these changes look like, and then we can always go back to this slide, if need be.

First, I will show you some comparisons of the differences, and so this table shows the acceptable biological catch, the ABC, and the percent difference from the SEDAR 38 assessment that each model configuration change caused, and so, in this particular case, I am looking at the first column of this table, which I have put the mark "Baseline SEDAR 38", and those are the baseline SEDAR 38 ABC recommendations for the years 2015 to 2027.

Now I am comparing them to Model 2. Now, remember that Model 2 is essentially the SEDAR 38 update model truncated at 2012 and using the FES rec stats, and so the major difference here is the use of the FES rec stats with the SEDAR 38U model configuration, and you see here that the difference between Model 1 and Model 2 are relatively small for the Model 2 comparison.

It's been a while since I looked at this, and I do need to clarify that these changes are in fact due primarily to small revisions that were made in headboat landings of discards. Okay. Now the next comparison.

CHAIRMAN NANCE: Shannon, just one -- Can you wait just one -- Roy has just a question.

DR. CRABTREE: Model 1 uses the CHTS, the old survey, and then Model 2 uses the FES, and so presumably the rec landings in

Model 2 are much, much higher, yet the ABC comes down a little. Am I misunderstanding something?

DR. CALAY: Well, Roy, I don't think that you are. I think that, in fact, there is a clarification needed to what Model 2 is, and I think this has more to do with the changes made to the headboat landings themselves, and I think that the CHTS statistics were actually retained in this case, and so I will look into that, but I think that the major change here is just due to the headboat landings and discards and the revisions made to those in particular.

DR. CRABTREE: Okay, and one other. Are these runs now being done in Stock Synthesis?

DR. CALAY: These are all done in Stock Synthesis.

DR. CRABTREE: But, back in 2012, or 2014, it would have been done in something else, right?

DR. CALAY: In 2014, this model was also done in Stock Synthesis.

DR. CRABTREE: Okay. All right. Thanks.

DR. CALAY: I am going to have trust Michael on this one and say that, in fact, that these are in fact the FES estimates, and there are a number of changes in this model. The FES statistics is only one of them, and another change was that the magnitude of the shrimp bycatch changed considerably, and another one was that the additional years of data have changed your perception.

Rather than attempting to modify the interpretation of this slide, which has been reviewed by Michael carefully, I would say that, in fact, these are the changes from the FES data, in Model 2, and that the changes are relatively small only because they are also affected by the change to the shrimp bycatch and the additional years of data, which also change your perception of the model results.

CHAIRMAN NANCE: But, Shannon, it looks like shrimp is the same in Model 1 and 2.

DR. CALAY: Correct.

CHAIRMAN NANCE: The only difference is we've gone from the telephone survey to FES.

DR. CALAY: Yes.

CHAIRMAN NANCE: My question is, when we say SEDAR 38 update, that indicates to me that there has been some internal changes in the model between SEDAR 38 and the SEDAR 38 update without changing to FES and those types of things, and is that correct?

DR. CALAY: That is correct. There were a number of changes made to the model structure to essentially have a model that was fully convergent and passed all the routine diagnostics, and so that could be easily teased out, and that was the reason why, when we tried the original approach, which was just to take those FES statistics and put them into the old model, it did not succeed, because there are a number of changes in the model structure that confound your interpretation of the FES statistics themselves.

CHAIRMAN NANCE: While we see just -- It looks like just FES changed between Model 1 and 2, and there were probably some internal things in the model that had to be changed, and so the model that is used in 1 is different than the model that is used in 2. Is that a fair statement?

DR. CALAY: That's correct, and, when you introduce those higher FES statistics into Model 2, a number of the parameters are re-estimated in that model, and, essentially, what has happened is that you don't see that expected change, where FES statistics necessarily equals more catch recommendation in this particular case, because of the changes made to the update model itself as well as changes made to shrimp bycatch estimation, which were quite sensitive in the model.

CHAIRMAN NANCE: Okay. Jason, we'll go ahead and let you ask your question, and then, Shannon, after that, we'll let you continue. Thank you for that.

MR. ADRIANCE: Thank you. Shannon, I was wondering if there was any consideration -- I noticed that the shrimp, the 2012, jumps right into the FES, but if there was any look at the CHTS with the shrimp 2020, just to see what that impact may have been prior to going to the FES and the shrimp 2020. Thanks.

DR. CALAY: The only model runs that we did for this council request were those that are listed here, and so, no, that was not done in this case, or at least it was not done for this request. It could appear in the stock assessment report as a sensitivity run. I would have to look into it.

CHAIRMAN NANCE: Okay. Thank you, Jason. Okay, Shannon. Thank you for that.

DR. CALAY: Okay, and so now, in Model 3, it's still the 2012 truncation, but now we do have both the FES statistics and the new estimate of shrimp bycatch.

You can see that's where you start to see substantial increases in the OFL and ABC, is when we're including both the FES statistics and the new estimates of shrimp bycatch, and so the shrimp bycatch is a very important change in the stock assessment model.

Then, finally, in Model 4, we are making -- In the next slide, you'll see Model 4 results, and that is all of the changes simultaneously, and so now we have FES statistics, the new shrimp bycatch estimates, and all of the data through 2017, and so that leads us to Model 4, which is in fact the base model configuration for the SEDAR 38 update assessment.

CHAIRMAN NANCE: We're only seeing, on this one, the percent increase in ABC?

DR. CALAY: You are only seeing the percent increase in ABC in this particular case, and that's correct, but all of the results for all four tables are in a slide in this presentation, if you want to look at the OFL estimates as well.

CHAIRMAN NANCE: Benny, go ahead and ask your question here.

DR. GALLAWAY: Thank you. Shannon, can you characterize the distribution of the shrimp bycatch, and that is, is there any standout patterns of distribution that shows where this bycatch is occurring? Is it western Gulf or --

DR. CALAY: It is western, primarily.

DR. GALLAWAY: Okay. What depth zone? I'm just curious.

DR. CALAY: I don't recall the specifics. I would have to look at the SEDAR document to see what depth zones were included in that estimation.

DR. GALLAWAY: Okay. Very good. Thank you. You did a great job.

DR. CALAY: Thank you. I do appreciate the thanks.

CHAIRMAN NANCE: Doug Gregory.

MR. GREGORY: Thank you. I will be quick. This is quite interesting, but I just want to point out that, while we followed the ABC Control Rule for SEDAR 38, we did not for the SEDAR 38 update, and so these ABC numbers won't match what we recommended to the council for Model 4, because we used, I think, some X percent of F of MSY for our ABC, and that's a minor point, but I just wanted to point it out though. Thank you.

DR. CALAY: I thought that I checked the SSC document and matched the numbers in the table in this presentation to your recommendation, but we could double-check that.

CHAIRMAN NANCE: Ryan.

MR. RINDONE: Shannon, I'm looking at the SSC summary report from September of 2020, and the ABC was set at the yield at F at OY, or 85 percent of F at MSY.

DR. CALAY: All right. My apologies.

MR. GREGORY: But that's a minor point. If somebody is comparing numbers, that would be why they wouldn't be the same, and I don't think it affects any of this discussion otherwise.

DR. CALAY: That's correct.

CHAIRMAN NANCE: Doug, thank you for pointing that out. Dave Chagaris.

DR. CHAGARIS: Thank you. I am just trying to understand this a little bit better. Shannon, can you give us some idea of the magnitude of change going from the CHTS to the FES, as well as the difference between the 2012 and the 2020 shrimp data?

DR. CALAY: Well, the difficulty really is that that direct comparison is very difficult to make. When we use Model 2 and substitute in the FES statistics, and so we're doing a direct replacement of CHTS with FES, the difference looks relatively small, but we have changed, to some extent, the configuration of the stock assessment model, and so, rather than looking ideally --

DR. CHAGARIS: I was actually asking about the input data.

DR. CALAY: The FES statistics show more removals, and so it basically is higher landings from the recreational sector out

of the FES estimates, but, when you put those higher numbers directly into the SEDAR 38U model, you don't see -- When you look at the comparisons between Model 1 and Model 2, you don't see that expected change that we've seen with some other stock assessments, where you get that corresponding large increase in OFL and ABC.

In this particular case, it has to do with the changes made to improve the SEDAR 38 update model and the shrimp bycatch estimate, which was very different, and so the shrimp bycatch estimate for -- Well, that gets into the Model 3 configuration, and so we'll just look at Model 2 and Model 1 right now. It really has to do with the changes made to reconfigure the SEDAR 38U update model to improve its stability, and it confounds, to some extent, that expected difference in OFL and ABC that we have seen in other stock assessments from the introduction of FES statistics. It does not look like a very large change in the SEDAR 38 model.

DR. CHAGARIS: I understand all of that. I was wondering like are the FES estimates double the Coastal Household, or are they 10 percent? Was it a big change, because, for some species, the change going from Coastal Household to FES was really large, but, for others, it wasn't, and so I'm just trying to get an understanding of what would be the expected change. This is one of the cases where FES results have been really -- I'm sure this was presented at another meeting, but I'm just trying to --

DR. CALAY: I'm going to see if I can answer your question. I was booted off the internet entirely, and so I'm literally talking at my cellphone, and I'm going to try to look that up for you now, assuming I can access the internet.

MR. RINDONE: Shannon, I actually have this up and can answer these questions, if you like.

DR. CALAY: Thank you.

MR. RINDONE: Dave, generally speaking, FES results in about a twofold increase over CHTS for Gulf kingfish, and, if you guys look at the SSC meeting materials, you will see the couple of links on there for the past SEDAR stock assessment reports, under Item VXIII, and Item XVIII(d) is the SEDAR 38 update stock assessment report, and, if you go to Figure 5.1, you can see where Michael isolated some of the main changes to -- Going from SEDAR 38 to the update, to show you the effects of those, including FES, the changes to the headboat index, and then the

change to the estimation of shrimp fishery bycatch.

Those are -- The effect of those on estimates of spawning stock biomass through the 2012/2013 fishing year are demonstrated by comparison in those plots there, and so, if you're talking specifically about the change in the shrimp fishery bycatch, generally speaking, it gives you a larger initial estimate of spawning stock biomass at the beginning of the model start time, and then it drops more precipitously towards about -- Call it 1990. Then it trends back up to about the mid-2000s, and then it drops in the last couple of years, but it generally follows the same trend as SEDAR 38's original model.

DR. CHAGARIS: Okay. Thank you for that, Ryan. I was able to follow and see those figures, and so, in general, these are much larger increases than removals that are being added between the models, and that's what I was trying to get at. Thank you.

CHAIRMAN NANCE: Trevor.

DR. MONCRIEF: I will just follow-up, and I had the same question, Dave, and not just for this, but for the upcoming agenda item as well, but I think it is useful, at least, when we're making these large-scale changes in removals, to at least look at the proportional change in removals compared to the proportional change in the ABC, just to be able to have an idea of the magnitude of change between both.

CHAIRMAN NANCE: Okay. Thank you. Go ahead, Shannon.

DR. CALAY: Okay. These just show you graphical representations of the change in ABC and also the difference in the ABC of the various model runs, and so it's just a graphical presentation of the results in those tables, and you can see that Models 1 and 2 are similar in the way that they behave, and then Model 3 and 4 are much higher, and that does appear to be -- An important aspect of that is the shrimp bycatch estimation.

This first bullet point, which I admit that I probably modified somewhat from what Michael had initially said, I don't think it's fair to say that they are primarily due to the FES statistics, and we do see some changes in OFL and ABC due to the use of FES recreational statistics, but that is confounded by the additional changes that were made to the stock assessment parameterization to improve model stability.

We also see changes in the result due to new years of data since the previous assessment, the revised shrimp bycatch estimates,

which were quite sensitive in the model, and revisions to the headboat landings and discards, which also caused changes in OFL and ABC. It is rather difficult, in this case, to actually sort out the change in FES. Because of the other changes in model configuration, it is simply not as apparent as it has been in some other stock assessments. Are there other questions about this presentation?

CHAIRMAN NANCE: Any additional questions, please? Roy.

DR. CRABTREE: I am sorry if I am dense, but I having a really tough time understanding how this could be, and so you went into the model and effectively doubled the recreational catches, in a stock that is principally -- Most of the harvest is rec, yet the ABC comes down a little, and so, Shannon, is what you're saying is the catches were way high up until 2013, and then they plunged down, because the ABC went down, and, if so, does that mean those high catches drove the stock status down, because I am not seeing where this is showing it. It just doesn't follow, to me, how you can double the catches, all other things equal, and have the ABC actually go down, and something is just not computing.

CHAIRMAN NANCE: Ryan.

MR. RINDONE: Thank you, Mr. Chair. I think there's a couple of things to remember here, especially for kingfish. One, we had a very large mixing zone that we resolved in SEDAR 38 to be constrained only to be south of the Florida Keys and only -- So that reduced a little bit of the scope of the recreational effort that was going into the fishery.

Two, prior to the migration of the FES, the CHTS landings were pretty comparable to the commercial landings in many years, in terms of the magnitude by fishing year, a few million pounds, give or take, with some variation in and around that, but, generally speaking, the commercial and recreational landings were not that different.

The migration to FES increased those landings, along with the effort, but, prior to, they were pretty comparable, and kingfish is -- Third being that kingfish is unique in that, unlike many other species that we manage, the recreational sector does not catch its ACL for kingfish, and hasn't for well over twenty years, and so, every time the model is predicting that, all right, in 2020, you can catch X, and in 2021 you can catch X, in every successive year, we're actually underestimating what could be caught, all other things being equal, because the

recreational sector is not harvesting those fish.

In the case of kingfish, also, for the last decade, recruitment has been poor. It's been terrible, and so that's so that's another thing to try to resolve with respect to where the spawning stock biomass is against what the landings are, even after migrating to FES. There is more interesting things, I think, at play here than there are typical of some of the other species that we see.

DR. CRABTREE: I think that has to be the case, that there's a lot of stuff going on here, but I can't tell what any of it is just by looking at the ABCs.

CHAIRMAN NANCE: I think, Shannon, from what you were saying, and hopefully I got this right in my head, but when -- From Model 1, when you introduced the FES values, the model wasn't converging, and you had to make some changes to the model in order for FES to be input in there and get convergence, and is that correct?

DR. CALAY: Well, I have some answers to these questions.

CHAIRMAN NANCE: Okay.

DR. CALAY: So Model 1 is the SEDAR 38 model that was conducted in 2014. The other model runs all use the SEDAR 38 update model as the base, and that update model did have changes that were introduced during the update process, right, and so those changes were made to enhance the model stability because, in the SEDAR 38 update, when we switched to FES statistics, the model essentially did not -- It showed diagnostic behavior that was unacceptable, and so some updates needed to be made to the way that was parameterized.

Only Model 1 of this particular comparison uses the SEDAR 38 configuration, and all the others, Models 2, 3, and 4, have those SEDAR 38U configurations.

Now, in answer to Roy's question, when we went to SEDAR 38U, and we put the FES statistics into that model, what happened was that the model estimates a much higher spawning stock biomass in the unfished condition, but it actually estimates very similar spawning stock biomass in the terminal year, and so it's basically saying that the stock is more depleted now than the SEDAR 38 model had suggested.

DR. CRABTREE: Well, that kind of makes sense, and that's what

I was wondering if wasn't happening here, is those higher removals we fished the stock down.

DR. CALAY: Exactly, and so that's why you're not seeing the bigger changes in OFL and ABC that we might have expected.

DR. CRABTREE: I've got you.

MR. RINDONE: That is part of it. When you think about the recruitment situation also, and the fact that, right now, our spawning stock biomass, while above the minimum stock size threshold, is still below spawning stock biomass at MSY, and so the OFL and ABC recommendation that you guys approved in September of last year is on an increasing trend, and it's because, theoretically, the stock should be rebuilding to SSB at MSY under that catch advice.

CHAIRMAN NANCE: Thank you. John.

DR. FROESCHKE: Thanks. I just wanted to bring up one other point that is relevant, and it's on this Figure 3.8 in the report, and it shows the difference between the shrimp bycatch in there, and so the way that I interpreted this is, in the SEDAR 38U, the shrimp bycatch historically was much larger, and so, in order to have the observed landings, the productivity of the stock must have been higher.

Going into more recent times, that shrimp bycatch has largely gone away, or essentially they are similar between the models, and so that's when you start picking up the additional removals related to that historical productivity, and so I think, along with Shannon's answer, that is how I understand those pieces fit together.

CHAIRMAN NANCE: Okay. Thank you very much. Doug.

MR. GREGORY: I wanted to thank Michael and the Center I guess for doing all of this. The original request coming from my friend, John Sanchez, who was a council member, was for the Center to go back and put FES back into SEDAR 38, and that could not be done, as Shannon has explained, and so I guess the Center said how can we try to figure out what the effects might be, and so we have this document in front of us, which, in the end, is not very helpful, because of all the confounding factors, but I applaud the effort to try to piece that out.

What John was trying to figure out was, given that FES causes the ABC to go up, it should have also allowed the commercial

sector ABC to increase, and how much would that have been, and that was a big conundrum, because you just can't do that, and so I appreciate all of this. It's kind of insightful, but, at the same time, I don't think we can do anything with it, going forward. Thank you.

CHAIRMAN NANCE: Thank you, Doug. Jim.

DR. TOLAN: I will put my hand down. I think Ryan covered a lot of the points that I was going to make about the recreational side quite eloquently, and so I don't really have anything to add. Thank you.

CHAIRMAN NANCE: Thank you, Jim. Josh.

DR. KILBORN: I am curious, and is it possible to use the CHTS values in the SEDAR 38U configuration, or does that also result in a destabilized model?

CHAIRMAN NANCE: Can you repeat the question?

DR. KILBORN: The question was, to kind of have a directly comparable Model Number 2 to Model Number 1, could you have used the CHTS values, in lieu of the FES, in the new 38U configuration for the Stock Synthesis, or does that also break the model, basically?

DR. CALAY: It does not break the model. The SEDAR 38U model is fairly robust to those types of changes, but, because of the mixing zone and the way the stocks are distributed across, it's not something that I can get directly from S&T on their website, necessarily, and so it would take a little bit of effort from our data providers to get those estimates in CHTS units, but I do think -- I am not positive, but, in our perturbations of the SEDAR 38U model, it did appear to be a fairly robust configuration, and so I would like to understand the --

DR. KILBORN: I think that would provide a more --

DR. CALAY: The trick is to understand specifically what the council's question is and what sort of information the Science Center might possess to help them address that question, because it seems like the work that we have conducted to-date so far has not really helped them address the question at-hand.

DR. KILBORN: So, I mean, that might help to kind of shed some light on what the new model configuration kind of did, and then we would be able to tease out some of those changes when we look

at these other configurations that you have here for Model 2, 3, and 4. That's all.

CHAIRMAN NANCE: Thank you, Josh. Any other questions or comments? Benny.

DR. GALLAWAY: I was impressed by the shrimp trawl bycatch decline and the consistency between the two approaches, and, in the report, which I have not read, is it explained what those changes were? Obviously, there is a reduction, a huge reduction, in effort, but when and where might be very important as well, and is that addressed at all in the report, or is that something that one would have to go tease out? Thank you.

DR. CALAY: So, unfortunately, and this was something that we were very honest about during the SEDAR 38 update process, those SEDAR 38 shrimp bycatch estimates that are used in the stock assessment are not explained with the document, and they are not reproducible, and we did have a variety of people attempt to reproduce those estimates, and we could not reproduce them at all, and so, unfortunately, it seems to be not possible, at this time, for us to explain, and the analyst responsible no longer works for the agency, and so I apologize for that extremely unsatisfactory answer, but that is the honest answer.

DR. GALLAWAY: That's the important answer, and so thank you.

CHAIRMAN NANCE: Jack.

DR. ISAACS: This really is just more of a question, for my curiosity, and, Ryan, I thought you did a pretty good job of explaining the fact that, when you switched from the old system over to the FES, you saw this doubling in recreational landings for the king mackerel, and am I correct? Did you see with other species?

MR. RINDONE: The degree to which the increases between CHTS between FES are observed vary by species and by year. It really depends on the species, and you have to look at them in particular, but, in almost all cases, it is an increase of some amount.

CHAIRMAN NANCE: Roy, did you have a comment?

DR. CRABTREE: Remember it's a broad effort survey is the change. This is all interesting, to give you a sense of the changes and all, but it's also complicated in these models, and there are so many different things changing, and I guess it's just not

clear to me where we could go from here, in the absence of some specific question that the council is trying to get at with it, and I'm just not sure where we -- I mean, I appreciate all the work that the Center did, and they did a great job with it, but I'm just not clear where we can go with it.

CHAIRMAN NANCE: Go ahead, Ryan.

MR. RINDONE: I think part of where the council was looking for some insight here was just to try to have, in their minds, an image of, if we had used the data we have now back then, what sort of catch limits would we have had back then, versus what we have now, and I think, and Shannon has definitely talked to this point, that the stock is depleted from where it was when we assessed in 2014, using data through the 2012/2013 fishing year.

There is a number of reasons for why this might be, but, generally speaking, like some of the things that we could certainly point to would be trends in recruitment are below the long-term average for the last ten years, and they have remained there for the last ten years, and so a couple of boom years of recruitment can certainly turn things around for any fishery, but that just hasn't happened yet for kingfish.

We've also seen the consistent pressure applied to the stock, in terms of the commercial sector just about always landing its ACL, and, in some years, the recreational sector lands a little bit more than normal, but the recreational effort is certainly not limited either, and the council recently increased the bag limit for the recreational sector to three fish per person, but, despite doing that, we didn't really see a change in the recreational landings as a result.

If there is a decrease in abundance, despite an increase in the predicted size of the stock, as a result of using the FES, at least from my seat, I'm eyeballing recruitment as being somewhat culpable and without an explanation as to why.

CHAIRMAN NANCE: Jason.

MR. ADRIANCE: Thank you, Mr. Chair. Ryan, thinking about the question the council is supposed to ask, if we were able to look at this back in time, and I guess the big question is could the commercial sector have harvested more, and I'm certainly not an economist, and I would be curious, but wouldn't we have to also go back and look at the capacity of those fleets, and would they even have been able to harvest it, given that they don't

currently --

CHAIRMAN NANCE: Go ahead, Ryan.

MR. RINDONE: Thanks, Jason. Based on our understanding of the performance of the commercial fleet for kingfish historically, I think it's very reasonable to say that, if given a larger ACL, that they would be able to harvest it. For many years, we've curated the history of the quota closures associated with the different commercial zones, and, with few exceptions, those zones almost always close early, due to those zone quotas being met.

Obviously, at some point, if you inject enough quota into that sector's ability to fish, the season is going to end before they catch everything, but I am confident in saying that there is still extra capacity in that fleet to catch more fish, if given the opportunity to do so.

MR. ADRIANCE: Thanks.

CHAIRMAN NANCE: Doug Gregory.

MR. GREGORY: Ryan answered the question. Thank you.

CHAIRMAN NANCE: Tom Frazer.

DR. FRAZER: Thank you very much. Again, I missed a couple of minutes of this conversation, but I just wanted to make sure that people understood the request that was coming from the council, and I think they do.

Essentially, what was asked is whether or not we could hindcast the data, right, using the FES equivalents to look at the ABC, and then, when you had an adjusted ABC, and then you applied the allocations to the two sectors, it was just being able to provide an idea of the magnitude of the fish that might have been available to the commercial sector historically, and so I just wanted to make sure that we're all on the same page here.

CHAIRMAN NANCE: Okay. Tom, thank you. I guess let me ask you this, from my perspective for the SSC, and what do we need to do? Do we need to do anything with these results to help the council?

DR. FRAZER: You know, I guess I would ask Shannon, and so, if we were to look -- Do we have the data in-hand that would allow us to go back into the historical catch record and look at the

adjusted ABCs that were adjusted using the FES numbers, right, to figure out what a potential harvest of the commercial sector might look like with those numbers, given the allocation split?

DR. CALAY: Tom, I admit that I'm not entirely certain what you're requesting. Are you just asking for us to examine the statistics themselves and let you know what the allocations would have been historically if we had been using FES statistics, or are you --

DR. FRAZER: That's what I'm asking, and so, if you use the FES numbers, right, and you applied them to the historical record, and you had an adjusted ABC, based on the allocation at the time, what would the number of fish be that would have been available to the two sectors? That's the question. That's what people are interested in knowing.

DR. CALAY: That's a very involved analysis. What you're essentially asking us to do is to do a hindcasting approach where we remove, sequentially, a year of the data, back in time, and re-project the OFL and the ABC based on that new understanding of the FES and CHTS about the recreational and commercial allocations, and, in the past, when we've had that conversation about that proposed body of work, it didn't rise to the priority where the Center felt that we could afford to put the staff time on it to do it justice, with our other obligations in mind.

If the council does still desire that, we can have another conversation about what work could be done and how long that work would take, but it's not the request that you're asking for.

DR. FRAZER: I appreciate that, and I'm super sensitive to the workload that the Science Center has, and I think it would be good to explain that at the next council meeting, what process is involved, how many resources might be involved, and why it hasn't risen to a priority within the agency, and it may be, in fact, very well justified, but I just think some explanation, either coming through the SSC's report to the council, I think would be welcomed.

CHAIRMAN NANCE: Ryan.

MR. RINDONE: Tom and Shannon, I am looking at Table 2 in Item XVIII(b) in the report for the analysis, and, Tom, I think this is about as close a stone's throw as you're going to get to what the OFL and the ABC would have been projected in the out years

from the beginning of the SEDAR 38, the original assessment, and that projection period.

If you think about -- If you're looking at those annual projections for OFL and ABC, given the parameters for Model 2, which, again, is the SEDAR 38 update model using a terminal year of the 2012/2013 fishing year, using the MRIP-FES data and the 2012 estimate for shrimp bycatch, and so this -- Model 2 is using SEDAR 38 and everything else, and FES and -- The SEDAR 38 parameterization, but everything else is basically the same, and so it's not exactly apples-to-apples to what the council was asking for, because, like Shannon said, you can't just plug FES into SEDAR 38, and there were other changes that were necessary, but it gives you some idea.

If you apply the allocation there, 32 percent of that ABC, that's about what would have been available to the commercial fleets, and it looks like, if we're thinking about contemporary time series here -- So 11.65 million pounds times 0.32 is 3.728 million pounds landed weight, and so it's not terribly more than what is being projected right now under a status quo allocation with the SSC's updated OFL and ABC recommendations, but it is a little bit more, but we also have to be cognizant of where we think the status of the stock is now, and we think it's a little bit more depleted than it was at the end of the 2012/2013 fishing year. That's just something to chew on, I guess.

DR. FRAZER: I agree that it's a helpful or useful exercise to look at those model projections, I guess moving forward, but I am good with this discussion, and I think that, again, we can provide a summary of the discussion and highlight some of the key points in the SSC report to the council, so they can understand that we in fact did consider the request, and, if they want more than that, if they think it will be extremely valuable, given the large number of things that are on everybody's plate to pursue, then that's a discussion they would have, but they would benefit, certainly, from this discussion.

CHAIRMAN NANCE: Thank you, Tom. Doug Gregory.

MR. GREGORY: Thank you. The presentation on the website is not exactly the same that Shannon is presenting to us. On the website, there's a mistake with the ABCs for Model 4, and that's minor, and it doesn't affect the discussion at all, but I just think we should have the corrected document on our website, and I wholeheartedly agree with the council chair, Tom, what he's asking.

It would provide a lot of insight, and, relative to what Ryan was saying about this stock being more depleted now that before, recall that we're only catching maybe two-thirds of the ABC over the years, and so something is going wrong in this stock.

If recruitment is going down that much over this time period, we need to take a closer look at this and maybe start doing some more frequent assessments, because the stock used to extend into the Atlantic, and that was based on research done in the 1970s, when it was extremely cold weather.

Now that we've got climate change and the warming temperatures, the king mackerel stock in the Gulf doesn't really swing around the south end of Florida and go up the east coast anymore. In fact, the gillnet fleet, which fishes in January, seems to be going more and more north every year, by a mile or two or three, just to find the concentrated schools of fish.

This population -- In SEDAR 38, I didn't hear any discussions of the population shrinking or the population getting more dense on the Gulf side, but that was a dramatic change, but maybe we need to look into it more and see what the dynamics of this fishery is, because us fishing so much below the ABC -- We shouldn't be having a declining stock. Thank you very much.

CHAIRMAN NANCE: Thank you, Doug, for those comments. Any other comments or recommendations? Ryan.

MR. RINDONE: Thank you, Mr. Chair. Shannon, just looking at the difference in the Table 3 in the presentation versus this table here in the report, it looks like, for Model 2, that there are some differences there, as far as what the ABC would have projected to have been by year. I think that probably would have affected what those percentage differences shake out to be in that red box.

DR. CALAY: We can get an update presentation to Ryan soon.

CHAIRMAN NANCE: So what's different, Ryan?

MR. RINDONE: The numbers of the projected ABC that are on the table that are in front of you, and this is from the simulation report for Model 2, for the ABC, for that right-most column there, for the Model 2 table, and those values are higher than those that are presented in Table 3 of the presentation. Those values are higher than those presented for the ABC here, and so it may just be a matter of redoing that table in the presentation.

MR. GREGORY: Also, if I may jump in, the ABC and the OFL in Model 4 are identical, and that's what I was looking at earlier.

CHAIRMAN NANCE: What was that, Doug?

MR. GREGORY: In this table that came from the website, in Model 4, the OFL and ABCs are identical. That's what caught my eye earlier, where I requested an updated table.

CHAIRMAN NANCE: So it looks like, maybe in the report, when it got copied to the slide, Shannon, it got -- It didn't come over correctly or something.

DR. CALAY: Is it just Model 3?

CHAIRMAN NANCE: No, and it looks like Model 4. In Model 4 on your slide, it's -- The OFLs and the ABCs are identical to one another, and then, on Model 2, like for example the OFL is 8.63, and, in the other one, it was fourteen-something, and so something went on with the --

DR. CALAY: Okay. We will make the needed corrections and post correct documentation soon.

CHAIRMAN NANCE: Okay. You can see that one that's on the screen now, Shannon?

DR. CALAY: Yes.

CHAIRMAN NANCE: You can see that Model 2 says fourteen-something, and, on the other one, it was eight. Then, on this one, on Model 4, the OFLs and the ABCs are different.

DR. CALAY: This came from a council request that I think was in March, and so it's possible that there is essentially a disconnect between the draft document and the presentation, but, in any case, it's an easy fix, and we'll get corrected and up-to-date documentation to the SSC archive as soon as possible.

CHAIRMAN NANCE: Thank you very much. I appreciate that. Anything else from the SSC? Dr. Frazer.

DR. FRAZER: Thank you. I don't want to prolong the discussion, but I just want to ask a few questions that would help me think about this a little bit. In the model, I am curious how the discard mortality is handled, particularly with regard to the recreational fishery.

As people have indicated before, they are not necessarily landing their allocated catch, but we know that effort is increasing, and there is likely to be very high encounter rates, and that's one of the attributes of the fishery that folks have recognized, a positive attribute, at least from the recreational side, but, with that increasing encounter rate certainly comes increased mortality, and I am wondering if that potentially plays a large role in some of the model output.

DR. CALAY: Was that you, Tom?

CHAIRMAN NANCE: Yes, Shannon. That was Dr. Frazer, yes.

DR. CALAY: I'm sorry, but could you restate your question, real quick?

DR. FRAZER: Again, it's pretty brief, really, and so one of the things I'm interested in is how discard mortality, particularly from the recreational sector, is handled in the model, and the reason that I ask that is because, even though that sector hasn't historically landed its allocated quota, it certainly has increased pressure, and, associated with that, increased encounter rates and discards, and so I am wondering if that plays a large role in some of the model output, or the model findings.

DR. CALAY: This was an update assessment, and so the discard mortality was unchanged between SEDAR 38 and SEDAR 38U, and the discard mortality that was selected for the recreational components were 22 percent from headboat and 20 percent from charter and private boats, and so those assumptions were retained between SEDAR 38 and 38U. Is there more?

DR. FRAZER: Well, my question then would be those values of twenty-plus percent were empirical data, and I'm just wondering, from the SSC, if there were any other more recent information that might provide insight into perhaps more realistic discard mortality numbers for that particular fishery.

CHAIRMAN NANCE: I am not aware of any, but there may be others that may.

DR. FRAZER: Okay. I will just sit and listen. If there's no input, that's okay.

CHAIRMAN NANCE: Okay. Thank you. Trevor.

DR. MONCRIEF: I mean, I don't have any more information or anything else about that, but I did want to point out -- I mean, looking at the Model 4, it certainly seems like it could be just a little bit of an oversight, but I would be very interested in Model 2 and how -- Which results are correct and which ones actually are selected, because, if the document is correct, and it shows a pretty common, or at least some comparability between the increase in landings and the overall increase in the ABC, and so I think Model 2 needs a little bit of focus, to make sure it's correct.

CHAIRMAN NANCE: Okay. Thank you, Trevor. John.

DR. FROESCHKE: I guess I was sort on in that same vein, in that, if the fourteen million pounds for Model 2 is correct, then I think that changes how we interpret that table that steps through the various models, and so that would change my thinking on that quite a bit, and perhaps make it more interpretable to directly answer the council's question, based on the information we have at-hand.

CHAIRMAN NANCE: Okay. Anything else from the SSC? I want to commend the Center. It was a great job on this analysis, and so we appreciate that. Without anything else, let's go ahead and move on to the next, which is Review of King Mackerel Historical Commercial Harvest Differences. It's Item XIX. Do you have the short straw on this one too, Shannon?

DR. CALAY: I believe I do.

CHAIRMAN NANCE: Okay.

DR. CALAY: This one is a little bit simpler though, and Ryan can certainly tag-team, if this is the one that I believe it to be.

MR. RINDONE: It should be XIX(a). Hold on. Tell you what. It's XIX(f).

CHAIRMAN NANCE: All right, Shannon. It's showing. You've got an apple and an orange.

REVIEW OF KING MACKEREL HISTORICAL COMMERCIAL HARVEST DIFFERENCES

DR. CALAY: A little cheeky there, but we were asked, essentially, to look at a table that was presented at the June council meeting which implied that the commercial landings were

in fact quite different between SEDAR 38 and SEDAR 38U, the update, and I will just give you the short answer first.

They are not different. These were a variety of essentially misunderstandings that evolved from documentation that potentially could be improved, to some extent, and so here's the picture that shows you that the commercial landings data for SEDAR 38 and SEDAR 38U are in fact virtually identical.

You can see a little hidden bit of red there popping out from place to place, where there is a small difference between 38 and the update assessment, but there is nothing important -- There are no important differences there.

MR. RINDONE: That's the terminal year of SEDAR 38, also, by the way.

DR. CALAY: Right, and so that was due to some incomplete reporting, most likely. The table that was in question is shown here, and you can see that, in the area that's outlined in red, there was a column that was marked Gulf of Mexico commercial handline landings and gillnet, and it was summed to produce a commercial total landings for SEDAR 38, but, in fact, those numbers did not -- They did not come from the Science Center, and they were put together from various documents and not -- They are, essentially, not correct as added together.

I think the next slide will tell you a few reasons why, and so, essentially, those data that were shown in the council table contain errors that were attributed to differences in how the data were presented in the stock assessment report and used in the stock assessment.

However, when they are summarized in a consistent manner, meaning if you had taken the input data from the two assessments, the commercial data are essentially identical.

We do have a variety of different ways of summarizing data in the documentation process of a stock assessment, and so, for example, during the data workshop, the data may be summarized by gear or by region, but they're not necessarily summarized in the way that they were input directly into the stock assessment, and so, in this particular case, what was actually added together in that table presented to the council contains several errors, one of which was that data that were actually the total landings for the Gulf of Mexico region were added to gear-specific landings for the same region, essentially double-counting some information.

We also had an offset, where one set of tables was produced in calendar year, meaning the sum of the monthly data from January to December, but the stock assessment model actually uses the fishing year in the Gulf, and so the data input into a stock assessment are summarized from July 1 to June 30, and so we were able to systematically make each of these corrections and show that the input data for SEDAR 38U and SEDAR 38 are essential and that, in fact, the table had a variety of misunderstandings that arose from essentially the rather difficult nature and lengthy nature of our stock assessment documentation.

I don't have to say the Bullet Point 1 again, I don't think, and what I do want to say is that there may have been some confusion introduced by the way we present information throughout the stock assessment process and from the way those numbers can be pulled by interested parties for use in, for example, documents that might accompany management actions.

In addition, there were some changes made between SEDAR 16 and SEDAR 38, to the spatial extent of the mixing zone, and those changes were actually made during the assessment workshop process, and so the data workshop itself may have used different assumptions than were used during the final assessment modeling in SEDAR 38 that may have also caused confusion.

What the Science Center is working on, and it's a rather lengthy process, is to create standardized documentation that will make it very homogenous how data are presented in our future stock assessment reports, so that it's very clear to the user what we are tabulating and how that data should be used.

This is certainly a work in progress, but we do -- We will be showing you some of our automated documentation. We have, and we will continue, to show you that documentation, and, if you do find that there are improvements that can be made to improve its clarity, we would welcome your input.

Kind of how do we avoid these sorts of misunderstanding in the future? I mean, the Science Center is very willing, and well equipped, to help you explore any data issues that you might find, or that might arise, and we do routinely respond to requests for data and for analyses from the council and from other management partners as well.

Essentially, what our recommendation is, it's that, if there is an issue in the future, that it appears that there is a big discrepancy in a stock assessment, the Science Center would be

very happy to take a look at that and to try to work that out prior to presentation, so that we avoid kind of the confusion that can arise when we are essentially unprepared to answer a council member's questions at a hot mic. I think that's the last slide.

CHAIRMAN NANCE: Perfect. Yes, and that happened to me many times over the years, and it can cause a great deal of going back and making sure that everything is correct, and so I think the bottom line is that the data are the same, and I think that's the key point. Then I think, as you go into automation, it will help for any future issues like that. Doug.

MR. GREGORY: Thank you. Thank you, Shannon. I got caught up in this with king mackerel, and the standardization is an excellent idea, and I was going to ask for that, at least between the assessment and the following update assessment, because, so many times, we want to go back and see what changed or whatnot, and, a lot of times, I've found that landings might be reported in gutted weight for some species, for one assessment, and whole weight in another assessment and metric tons in one assessment and pounds in the other.

It gets difficult, and, like you said, fishing year versus calendar year, and it gets to the point where you cannot compare one assessment to the other, as far as the output data, and then you've got, sometimes in the assessment report, the report that is the estimated landings from the model and not the input data.

I guess the input data should be provided and made clear if there's any estimated landings that are in the report as well, and so the standardization will fix all that, and I appreciate that.

The other question I have that SEDAR 38 has caused me to think about, and Ryan and others, is how do we account for the historical landings when the geographic area of the Gulf group king mackerel has changed dramatically beginning in 2014, and we stumbled across that when we went back to see what percentage of the quota has the commercial fishery fulfilled.

Like Ryan said earlier, usually they are closed before the season is over, and so the commercial fishery pretty much takes 90 to 100 percent of their quota, but, in some of these reports, or tables, they were taking 60 percent or 50 percent of the quota, and so, historically -- This is a question, I think, for you, or for us, to think about.

When we're looking at the landings and the ACLs prior to 2014, in my mind, we should include the east coast of Florida in all of that, because that's what the ACL was based on, but then, after 2014, we do not include the east coast of Florida in those landings, because the ACL now is based only on from south Florida into the Gulf, and so that was one point of confusion that wasn't obvious to some of us, and that should be part of, I think, the description in the assessment and all documents, that this change has been made, and, again, it begs the question of did the population decrease, or did the population just become more dense and shrink, or both? Thank you very much.

CHAIRMAN NANCE: Ryan is going to take a crack at it first.

MR. RINDONE: Sure. Thanks, Doug, and it isn't that the population shrank or became more dense, but it's just the area in which we were measuring the population changed, and so, when we made that initial data request for the commercial landings for kingfish, the landings that were sent to us were under the auspices of the new mixing zone, as was revised for SEDAR 38, but the historical quotas, going from the 2015/2016 fishing season back in time, they still included that Florida East Coast Zone for each fishing year from November 1 through March 31.

The data that we received, again using that new mixing zone information, they didn't include that zone anymore, and so we were missing several hundred thousand pounds a year of landings from the data that we ultimately received.

I have since been working with the Southeast Regional Office and S&T, and yesterday, or this morning, I received the data that we were looking for, which is the commercial landings for the Florida East Coast Sub-Zone for November 1 through March 31 for each of the fishing years, and so I will be working on updating all of our tables in the CMP 33 document to reflect that.

At a quick glance, looking at those data, I am pretty confident that it dots all the I's and crosses all the T's, as far as resolving that gap in the landings that we thought that we were missing, and so, where initially you saw that the landings table was showing that there was a -- That the commercial sector was not landings its ACL, that will be resolved, and it will be more accurate to show that the commercial sector has -- As we know that it has, because of the history of the quota closures for each of the commercial zones for the last twenty-five years, and so we have those data, and we'll be working on that.

CHAIRMAN NANCE: Doug.

MR. GREGORY: Thank you, Mr. Chair. One quick response. Please straighten this out before you start calculating percentages for allocation changes. It makes a big difference.

MR. RINDONE: Thanks, Doug, and it will all shake out in the tables when I update all the landings data, and so I have everything set up to automatically populate that information if those data are updated, and so all of that information throughout the document is going to have to be updated, but it's just going to take a minute.

CHAIRMAN NANCE: Shannon, did you have any response to Doug?

DR. CALAY: I think that my main response is that we are aware that our documents can be very dense, and they are mostly -- The purpose of them, the data workshop and assessment workshop reports especially, is often just to give us the information we need to duplicate an assessment a few years later.

We worked very hard on creating an executive summary of the assessment results that can be read by a non-technical audience, and I think what we need to do now is just look at that same information from the assessment report and the data workshop report that you would like to have created in a standardized format, and we will add that to our automation tasks, because I think that there's a real power in creating those automated documents, and it will avoid some of these misunderstandings in the future, and so we are very happy to work on that with the SSC and with the council and council staff.

CHAIRMAN NANCE: Thank you very much. Any other questions from the SSC? Shannon, thank you for those two presentations. I appreciate it.

DR. CALAY: You are very welcome, Jim.

CHAIRMAN NANCE: We will go ahead -- Our next one is amberjack, and it's going to take a while, and so we're going to have a fifteen-minute break right now, and then we'll come back and do Item XX, which is Review of the Greater Amberjack Historical Harvest and Catch Limits. That will take a little bit of time, and so we'll go ahead and come back at 2:40. Thank you.

(Whereupon, a brief recess was taken.)

CHAIRMAN NANCE: We're going to go ahead and get started here.

We're going to go ahead and do Item Number XX, Review of the Greater Amberjack Historical Harvest and Catch Limits. The presentation is by the Southeast Fisheries Science Center.

MR. RINDONE: Is this Katie or Shannon again? I think it's Katie this time.

DR. SIEGFRIED: It's by Matt Smith.

CHAIRMAN NANCE: Matt Smith. Okay. Thank you.

REVIEW OF GREATER AMBERJACK HISTORICAL HARVEST AND CATCH LIMITS

DR. MATT SMITH: My name is Matt Smith. For those new members on the SSC that maybe are not familiar with me, I am a lead assessment analyst with the Sustainable Fisheries Division. My previous works have included red snapper and vermilion snapper, and I will be co-leading the SEDAR 74 red snapper research track assessment going forward.

Today, we're not talking about that, and we're talking about greater amberjack, and I was asked to step in and update these projections with the FES data, because it was something that came out of the vermilion snapper assessment, SEDAR 67, when we started making these comparisons, to try and help the SSC and the council make sense of changing quotas in the face of changing landings data.

This is a relatively short presentation, and so we're not really going to spend a whole lot of time on details and specifics, but what we ended up doing here is taking the SEDAR 33 update assessment model, which was not the last greater amberjack model, and that was SEDAR 70, and this was the one before that, where the CHTS data was used for the recreational fleets.

I took just the basic model, and the only things that I changed in there were the private, charter, and headboat landings, as well as the discards, and I replaced those with the FES-based statistics that were produced for SEDAR 70 and used in SEDAR 70. The headboat information was changed because some of the calculations in there are depending on the MRIP estimates, and so I updated the headboat one as well.

What couldn't be changed for this are the indices of abundance, and we do, oftentimes, include fishery-dependent recreational indices in these stock assessments, and there wasn't time, as part of this council request, to rework that index and input it

in here, and so only the landings were changed, in this sense.

I know, from the previous conversation surrounding king mackerel, there were questions about other model configurations, and nothing else was changed in this base model. When I updated the data and refit the model, obviously, it re-estimated some of the parameters, but there weren't any convergence issues or things that came up that required further tweaking in the model to get it to function, and so the only things that happened here were those landings and discards being updated.

For the projections, I followed what was done in the SEDAR 33 update, to try and make them as comparable as possible, and that included using a three-year average to establish the relative Fs, which was 2013 through 2015, and recruitment was derived from the stock-recruitment curve, and this is something that has changed recently.

With newer versions of Stock Synthesis, we have the ability to do more refined and different approaches to how we handle recruitment in the projections, but, in the SEDAR 33 update, it was an older model of SSC, and the stock-recruitment curve was used to predict recruitment in the projections.

Selectivity and retention, all the biological functions were taken from the most recent time period, and then, as was done in SEDAR 33, the 2016 landings, sometimes we get landings information that comes after the terminal year, that trickle in kind of late in the process, and then we end up fixing those in the projections, in order to give management advice starting in the next actionable year.

In the SEDAR 33 update, 2016 was fixed in the projections, and so I did that again here, and I just pulled the FES data for 2016 from SEDAR 70 and input those landings directly into the forecast module of Stock Synthesis.

A couple of projections that were done that were in the request. There was an OFL projection, which here was an equilibrium projection of FSPR 30 percent. There was also a request for F rebuild, which, in this case, is an ABC projection that achieves 30 percent SPR in 2027, and then, to try and make this more comparable to SEDAR 33, or at least provide the information, I did two additional projections.

One was of FSPR 40 percent, and the other was a projection of 75 percent of FSPR 30. Those were the two projections that were put forward as possible ABCs in the SEDAR 33 update, which have

shown here in this table on the far-right, and the last three columns are the OFLs and ABCs from the SEDAR 33 update. Just so we could have a direct comparison with those old ABC options and what they would look like with FES, I did those runs as well.

Shown here in the table are what would have come out of the SEDAR 33 update with FES information included for 2017, 2018, 2019, and 2020. The first four columns there are the new data with FES, and, like I said, the last three columns are just to show you what came out of CHTS and the SEDAR 33 update.

I believe I have one more slide, and this was just kind of a clarification. It came to my attention, when I was tasked with doing this, that there was some confusion around these tables, and this one is from greater amberjack, but it's based on something that I produced from SEDAR 67 for vermilion snapper and then did a couple other versions of, and this was just kind of an on-the-fly attempt to try and give some additional information to the SSC and the council about what things would have looked like, and it was kind of a cruder version of the analysis you just saw.

It seemed as though people were taking the far-right column here, the equilibrium yield column, as being comparable to an OFL, and so I wanted to include this, just as a point of clarification for anybody listening. In these tables, that last column is essentially the equilibrium yield, or what you achieve in a long-term hundred-year projection, when all the variations in the age comp and the constant recruitment smooths itself out and you get this constant equilibrium yield.

That final column there is not directly comparable to an OFL, and it was simply included in these as a way to get a quick look at whether or not the new advice, in this case from SEDAR 70, that bottom row -- Is that an actual increase, or is that a decrease, compared to what it would have looked like in the past?

I guess, for the point of the discussion around these numbers, if there is any, the previous slide is the table that has the information to be considered today, and that last slide is just put in there as a point of clarification, because it seems as though the initial intention of that last table was maybe getting misconstrued a little bit.

With that, that's it for me, and it was a relatively straightforward council request, and I'm happy to answer any

questions I can, and I believe some of the people who are more familiar with the nuances of greater amberjack are also available, if there's questions regarding species-specific problems, and so thank you very much, and I will answer any questions that may come up.

CHAIRMAN NANCE: Matt, thank you for that presentation. I just want to remind us that, for this, we're not expected to make any new OFL or ABC recommendations, based on this analysis, and so are there questions that are occurring just on the presentation itself and anything that would help the council in viewing this one? We'll take questions now. Trevor.

DR. MONCRIEF: This is going to follow, essentially, the king mackerel questions, but this is another species where the MRIP landings increased around I think a little over 100 percent, on average, and we see an OFL increase of about 60 percent, but I was wondering, and do you know what the proportional change in total removals were after the change from CHTS to FES?

DR. SMITH: I was listening into the previous call, and I tried to look some of those up, real quickly, and so, when I looked at the percent differences from CHTS to FES for the MRIP fleet, and so the private charter, and you're looking from 1981 to 2015, because, prior to 1981, that's the historic stuff, and the statistics I looked at were there was a minimum difference in those years of 13 percent, a maximum difference of 200 percent, an average difference of 87 percent, and a median difference of 84 percent.

Then the change in the ABC recommendation from the SPR 40 percent and the 75 percent was roughly 65 percent, and, depending on which one you look at, it was 62 or 67, and the F rebuild represents an 81 percent increase over the previous ABC values. I hope that helps.

DR. MONCRIEF: That was perfect, and so, essentially, what about -- If you take into account the commercial landings didn't change, but that's a part of the removals as well, and what would be the total proportional change in all removals, I guess is what the question is?

DR. SMITH: The total proportional change in all removals, that one I don't know off the top of my head. I don't have that in front of me, Trevor, unfortunately.

MR. RINDONE: Matt, I think you would have to run it back through to generate that. I don't see that as something that could be

pulled out of here.

CHAIRMAN NANCE: Matt, thank you. Doug Gregory.

MR. GREGORY: Thank you. I don't recall what we did before with greater amberjack. What I see here is three different potential ABCs, and could somebody remind me what ABC -- What we used for ABC? Was it F rebuild, FSPR 40, or 75 percent of SPR 30?

CHAIRMAN NANCE: Nancie, can you answer that?

DR. NANCIE CUMMINGS: Thank you very much. I was the lead analyst on greater amberjack, and I looked through the previous question, regarding what was the percentage change in total removals, and I would like to refer you to the SAR report, pages 88 and 89, and that gives you a really good pictorial of the percentages of the differences, rather, in the recreational and commercial catches, as well as the discards, and Matt has already touched on the -- It was pages 88 and 89, Figure 3 and 4. Matt has already given you a good idea as to the recreational proportional change.

The commercial from SEDAR 33 to SEDAR 70, up to the same years, were almost nearly identical, and so there was really no proportional difference. We were able to replicate those landings, and then, obviously, we added 2016, 2017, and 2018 for SEDAR 70.

To the second question, and so that is Figure 3, and those are the observed landings, and so the top two are the commercial, and the bottom two are the recreational, and so you're focusing on particularly the FES and the charter/private. To the second question, I think from Mr. Gregory, it was what was used for ABC, and that was 75 percent of OFL, which is F 30, in the SEDAR 33 update. Did that help?

MR. RINDONE: It's F rebuild.

DR. CUMMINGS: F rebuild was defined as 75 percent of OFL, F 30, in the SEDAR 33 update.

CHAIRMAN NANCE: Okay, and so it's F rebuild that we're looking at is what is currently --

DR. CUMMINGS: F rebuild currently is the fishing mortality rate that will rebuild the stock back to SSB at SPR 30 in the current SEDAR 70 assessment.

MR. RINDONE: That's to be done by --

DR. CUMMINGS: Correct.

MR. GREGORY: That's what we chose as ABC, was the F rebuild?

DR. CUMMINGS: For SEDAR 70, yes.

MR. GREGORY: But not 33?

DR. CUMMINGS: Not 33 or the 33 update.

MR. GREGORY: Okay. That's where I was confused, because, until recently, when it was explained to us, I think we were taking F rebuild as a sort of different OFL, and we were reducing that and calling that an ABC, but then, later, it was explained, I think through Shannon and Rick Methot, that F rebuild itself is an ABC.

DR. CUMMINGS: We actually calculated it. In the SEDAR 33 update, I calculated it, at the request of Steven Atran, but it was not used. It was 75 percent of OFL.

MR. GREGORY: Thank you.

DR. CUMMINGS: You're very welcome. Any more questions about that proportional change in total catch, total landings?

CHAIRMAN NANCE: Thank you, Nancie. Shannon.

DR. CALAY: Thank you. Doug is quite correct that, at one time, we were basing OFL on an F rebuild trajectory, but, in fact, the current guidance is that, in the situations where a stock is overfished and requires a rebuilding plan, that rebuilding plan would essentially be an ABC.

CHAIRMAN NANCE: Okay.

MR. GREGORY: Mr. Chair, may I say something?

CHAIRMAN NANCE: Yes, Doug.

MR. GREGORY: Thank you, Shannon. I wanted to share a little bit -- This is more for tomorrow, for the next discussion with amberjack, but I have become quite concerned about greater amberjack, as I'm sure other people have, and it seems like, no matter what management measures are put in place, amberjack just doesn't recover, and we currently have I think an estimated

spawning stock biomass way below, significantly below, our MSST, and our MSST is at 50 percent of BMSY, and, if you're to believe any of the theory that gives us MSY, that means the spawning stock population is somewhere below 25 percent of the virgin biomass. That is where we've been talking about this biomass critical point, where dramatic actions are taken, even the consideration of closing the fishery.

I just wanted to leave that with everybody to think about for tomorrow, and I'm leaning toward really pushing this idea of doing something draconian to try to rebuild greater amberjack. Thank you.

CHAIRMAN NANCE: Okay. Any more questions? Go ahead, Carrie.

EXECUTIVE DIRECTOR SIMMONS: Thanks, Mr. Chair. Just real quick, Nancy, in the presentation, or I guess Matt, sorry, for OFL in the FES units -- I see that it's different in yours. I apologize, because what we have for the SSC -- I got it. Never mind. Thank you.

CHAIRMAN NANCE: Okay. Will.

DR. PATTERSON: Thanks, Jim. Doug, you make a really good point here, and I'm curious. I don't still Mandy still on the call, but maybe -- She is. I'm sorry. I'm wondering -- Maybe this will come up in the next agenda item, but, since Doug has already sort of brought this subject to the table here, to the floor, I'm wondering --

In the council's -- Not the council's, but the Southeast Fisheries Science Center's work with different constituencies, fishing constituencies, and trying to understand the perception of anglers and fishers on the water about different populations of different stocks of fish, I'm wondering what feedback they're getting on greater amberjack, because different groups that we work with in the Panhandle of Florida, and then a little farther to the west, have expressed a lot of concern about amberjack. I am just curious what anecdotal information that's been collected perhaps in a more objective fashion indicates, as far as population status and trend.

DR. KARNAUSKAS: We have not done a systematic analysis of amberjack, as we've done for some other species, and so the short answer is I don't have any information. Again, as I mentioned earlier, at the red-snapper-focused calls, cobia came up as unprompted, and we have not had any unprompted mentions of amberjack, as I remember, and so I don't know if that's

helpful at all, but that's about all the information I have.

MR. RINDONE: From the public comment perspective from the council side, what we typically hear is that, the deeper you go, the greater the odds of being able to find larger ones, and, when you're around wrecks and things like that, you certainly can get into them on occasion, but, typically, what we hear, from the recreational fishermen anyway, is that it can sometimes be difficult to find greater amberjack that are at or above the minimum size limit, which has brought on a little bit more of the impetus for trying to improve the discard mortality associated with those fish.

Depending on how long they're fought, they can be released pretty heartily even from the depths of say twenty to thirty meters, but, when you get into depths deeper than that, there's probably some latent mortality associated with internal injuries from barotrauma, from being brought up from those depths.

It's kind of hard to piece together though, because your average fishing trip offshore, fishing for reef fish species, is more likely to encounter various snapper or grouper species with greater consistency, it would seem, at least on the West Florida Shelf, where we have a lot of interaction with anglers and greater amberjack, and so other areas of the Gulf may report a little bit different observations, but, by and large, what we hear is that it's growing to be a little bit more difficult to catch legal-sized amberjack. They can be found, but they're not common.

CHAIRMAN NANCE: Thank you. Benny.

DR. GALLAWAY: Our paper on absolute abundance for federally-managed reef fish around Gulf of Mexico offshore petroleum platforms has now been accepted for publication and will be out soon. A pre-print acceptance version can be found at the *North American Journal* website, and it suggests that, based on the number of amberjack on the platforms, essentially from Alabama to Texas, it suggests a much larger stock than is being suggested by the stock assessment.

We also have a study in progress, and it's not available. It's got to the point where it's under peer review, but where w we look at, off of Louisiana, a wider distribution of habitats and amberjack, and those will also provide enlightened results, and so I think -- Or different results anyway, and I think the stock size estimates, in this case, should be reevaluated, and I think there's a study in progress to do exactly that, and so I would

say more information might be necessary before any final decisions are made about stock size, and how accessible those stocks are is another matter. They may be larger, based on our experience. Thank you.

CHAIRMAN NANCE: Thank you. Any other questions or comments on this particular item? Will.

DR. PATTERSON: Just in response to Benny's statement about estimates that LGL has made on Louisiana habitats, including petroleum platforms that extend farther to the east, this idea came up during the peer review of the red snapper population estimation study in the Gulf, that the data can suggest truncated age distribution, and issues with egg production that are associated with that, while, at the same time, population sizes not be scaled correctly in the assessment, and so they're not mutually exclusive.

There was some discussion during the SSC deliberations about how to utilize the information from the preliminary report on the red snapper population estimation study about this, but I am curious if Matt is still on the line, because Matt is the lead analyst for red snapper, and then, although Nancie was the lead for greater amberjack, Matt clearly is familiar enough with the model to produce these projections.

I am curious, and we have three examples now of congressionally-appropriated funding coming in to set RFPs to fund projects to estimate population sizes of reef fishes in the Southeast. There is the red snapper project from the Gulf, and there is a new red snapper project that I am the PI of in the Atlantic, and then there's this RFP for greater amberjack that -- I don't think that's been announced yet, but I could be wrong there.

Anyway, with these three projects, we're going to -- If they occur in the future, there will be estimates of population size produced outside of the stock assessment process, and so I'm wondering, with respect to amberjack here, because it will be the next one in the Gulf that has to -- That management will have to factor in this external estimate, if there's been any more thought about how to incorporate or scale the assessment models using this external information.

I mean, it can't be as simple, I don't think, as just putting in a prior in the assessment model that has to do with what the population size estimates are from this external source, and maybe it can be as easy as that, but it seems like there will be other reconciliation processes required, and so I'm just

wondering what the thinking is with respect to that and how that might be incorporated.

I don't have any idea whether these types of processes are going to continue and what the prospects are for the future, but we do have these handful that are either currently underway or recently completed in the region, and so I'm just wondering, from a stock assessment perspective, if any more thought has been put into how those results can be incorporated.

DR. SMITH: I will chime in with what I have, and then, if Shannon and Katie want to jump in and walk through it some more, they can follow me up here. We haven't sat down and really come up with a concrete plan. I have played around with the red snapper stuff a bit, because, obviously, in, my mind -- We'll have to sort it out at the data workshop, how best to approach it, but I don't think it's going to be as easy as we had hoped, based on my initial exploratory runs.

The approach we were trying to take, or that I have tried to take, is to incorporate that information as an index of abundance with a selectivity across the appropriate age classes, and so, in the case of the red snapper, it was age-two-plus, is what is being looked at there, and the issues that I have run into that have nothing to do with incorporating it into Stock Synthesis, is getting the model to respond to those singular data points.

There is so much other information in that model that it seems that, from this likelihood standpoint, forcing it fit to that little nugget of information in the sea of other information is not as straightforward as I thought, and I tried imposing different lambdas on the data and tried to upweight it and downweight other things, and I have yet to get the model to fully respond to the input on the abundance estimate.

We're certainly not throwing our hands in the air. We're going to continue to attack it, but it was not, at least at first glance, as straightforward as we had hoped it would be to build it into the assessment, and it is something we're going to have to sort out, how best to use it, because as you said, there's not only red snapper, but there is other ones of these coming down the pipe, and we'll probably continue to see them, because they have been well received and are extremely valuable, for a number of reasons. If Katie or Shannon want to chime in, or if Mandy wants to jump in, please do.

DR. KARNAUSKAS: I was going to jump in and add to that, Matt,

just a couple other lines of research that we have in trying to make use of those results, and there's the obvious question of connectivity, both from the biological perspective, but from the how the fishery operates perspective.

On the biological side, a big question is the spawning of offshore biomass, or biomass that isn't immediately accessible to fishery, and how does that seed areas that might get depleted, and so we have the larval connectivity modeling that we're using to try and get estimates of how much non-depleted areas would be a source of larvae to depleted areas, and so that's one sort of research activity we have going on.

Then, also, with the participatory work that we're doing, we're trying to get a sense for connectivity and how currently underutilized areas might be utilized in the future, and so, if and when areas become depleted, how far would fishermen go to access other areas, what are the sort of factors driving those decision points, and so those are a couple of lines of research that we have that might also help guide us in terms of how we're able to use the information.

CHAIRMAN NANCE: Katie.

DR. SIEGFRIED: Thank you, Mr. Chair. I just wanted to add to what Matt and Mandy said, just a small part, and so we did hire a SEMIS associate that's working with Mandy on that connectivity work, and so the Center has made that a priority, scientifically and financially, and then the other thing is it's going to be incredibly important for the Great Red Snapper Count PIs to participate in the red snapper data workshop portion and subsequent assessment webinars, and so we're really going to lean heavily on those folks to work with us in figuring out a way to incorporate these data into the next assessment. That's it. Thanks.

CHAIRMAN NANCE: Thank you very much. I think that's a great idea. Any other discussion on this particular topic? Shannon.

DR. CALAY: Thanks. I just wanted to clarify a point I heard Will say. Nancie has been the lead of the greater amberjack assessment for a number of SEDAR cycles, and she is certainly very familiar with the stock assessment projections and the work that's been done.

The reason why Nancie is not presenting this today has more to do with the fact that, in our realignment, she's been assigned now to the Caribbean branch, and so is leading SEDAR 80, which

is queen triggerfish, and so I just wanted to explain that we are still very much collaborating with Nancie and she still is very much available to assist us, as needed. It's mostly workload. We're just roped Matt in to help us out.

CHAIRMAN NANCE: Thank you for the clarification. Benny.

DR. GALLAWAY: I do want to point out that, for most or all of our collections, and I am at home right now, and I don't have it in front of me, but we have length and weight and otolith and sex and maturity data for most of the federally-managed species that we collect. A lot of that hasn't been processed, but it's been collected, and so we're able to sort size and sex as well for our estimates around platforms and other structures. Thank you.

CHAIRMAN NANCE: Okay. Nancie.

DR. CUMMINGS: I just wanted to say thank you to Shannon, but also to Matt, for stepping in and running those extra projections. I just wanted to speak out to some of our input data, because, as we've seen in a couple of other assessments, some of our fishery-dependent indices have not been as informative going forward, because of certain other regulations, and so we had a --

If you will look at your -- If you will read the SAR report, you will see that, from the SEDAR 33 update to 70, we actually did not use the commercial vertical line index, but we were we able to retain the longline index, but I would like to say that we're looking forward to the continued development of that combined video index, and so I think that -- I want to say the answer is still not there, in terms of whether the stock assessment is doing what we think it's doing, or is not doing what we think it's doing, but we certainly know that, as the data inputs get better, and the combined video index becomes more informative for this stock as well, that we'll probably see benefits, in terms of the information content, and so I just want to speak out to that index, and it's a very, very important index for the stock. Thank you.

CHAIRMAN NANCE: Thank you. With that, I think we're going to move on to Item XXI, which is really a continuation of this, which is Review the Updated Greater Amberjack Projections. Matt, are you going to be doing that one also?

DR. SMITH: No, I don't believe I'm on point for this one. We're all taking a stab at greater amberjack today, and somebody else

must have it.

CHAIRMAN NANCE: Nancie, are you going to do that one?

DR. CUMMINGS: Yes, Jim. Thank you very much.

CHAIRMAN NANCE: You're very welcome. Thanks for doing it.

REVIEW OF UPDATED GREATER AMBERJACK PROJECTIONS

DR. CUMMINGS: For those of you that are new to the process, to the SSC, welcome to the group, and I look forward to working with you, although I'm working also in the Caribbean, again. I'm Nancie Cummings, and I've been with Southeast Fisheries for a few years now, and I have worked, amongst other things on mackerels, Spanish and king, and some of the tuna work, cobia, and dolphin, early on, and I've been working on amberjack since probably the mid-1990s, 1990s.

This presentation was prepared in response to a request from the council staff for updates on projections using some alternative sector allocations. The current sector allocation is -- Basically, it's the 27/73, 27 percent commercial and 73 percent recreational, and so we were asked to look at projections from I think it was four allocation of scenarios.

1981 to 2004 is 84 percent recreational and 16 commercial. 1993 to 2019 is 80 percent recreational and 20 percent commercial. Another from 1993 to 2007 is 78 percent recreational and 22 percent commercial, and then, finally, we were asked to look at another set of projections, leaving the commercial annual catch limit, the ACL, at 484,380 pounds whole weight, and then to calculate the remaining sector allocations after that, and so they would be variable.

Then, for continuity purposes, I updated the SEDAR 70 projections. Again, those were 73 percent recreational and 27 percent commercial.

Again, I have repeated here the same slide that was provided to you in the SAR report, as well as in the Executive Summary, and what that is is it's the pertinent relevant settings, the projection settings, for the SEDAR 70 assessment, stock assessment, and these are the relative Fs, selectivity and retention, and those parameters were taken as averages from the last three years of the assessment, reminding you that the terminal year was 2018.

In the most right-hand column is sort of a more descriptive characterization of what that parameter is. The recruitment is the average of the last ten years of the time series, 2009 to 2018, and the 2019 landings were taken as reported to us, and the 2020 and 2021 landings were the average landings between 2016 and 2018, and that's a normal convention that we use in our projections, and that is to use the -- 2019 is one year beyond the terminal year, and that's usually a preliminary estimate, and we think that -- when it was provided to us, and then 2020 and 2021 are averages of the last three years. Again, for the projection time series, it was 27/73, in terms of that allocation ratio.

Just kind of to give you a little bit of a rundown on software and notations, I just want to point out that the SEDAR 70 base model results are achieved through a two-part process. It's an iterative search, using an R script, for the fishing mortality -- To attain the fishing mortality at SPR 30 over 100 years, while maintaining that sector allocation, and also then Part B is to run the base model in the forecast mode, applying fixed Fs from Step A for forecast years of interest, i.e., we would take those from the first ten years.

Also, results for F rebuild were achieved by iterating the annual F that would rebuild the stock to SSB at SPR 30 by 2027, but I would like to point out that we may want to use -- For SEDAR 70, that was mainly done through Stock Synthesis only, except for the part where, in Part B, you take the fixed Fs from the last -- Instead of equilibrium years, and those are input into the model to forecast forward for the OFL.

I would like to point out that, for the updated projections, and that's for what we just presented, or are presenting to you today, all of the results for OFL, ABC, and F rebuild were achieved using a new F script, and it was written by Nathan Vaughan, who works with us as a contractor, and it was to achieve MSY proxy, the annual F, and the sector allocation targets according to the specified allocation scenarios.

We have learned that we have some improvements, and we're able to maintain those sector allocations a little bit more accurately, by using this new R script.

Results for OFL are obtained by achieving SPR 30 percent at equilibrium and the constant FSPR 30 in all years and those fixed allocation scenarios, whether they are the base 27/73 or the alternative ones. Results for ABC were achieved by simultaneously achieving a constant F of 0.75 of F 30 and then,

again, maintaining those fixed sector allocations in all years.

Then F rebuild was achieved by iterating to identify the annual F value that would rebuild the stock to SSB SPR 30 by 2020, while simultaneously maintaining the sector allocations, and so it's a little tricky new script. For amberjack, it ran pretty quickly. For some stocks, it doesn't run as quickly.

This is a summary, and I will walk you through the setup. This is a summary of the updated projections, and you're going to find three sets of projections. They are the OFL, which is the projection under F 30, the ABC, which is the projection at 75 percent SPR, as defined here, and I just want to point out that this was not ABC in SEDAR 70, as specified under the terms of reference. ABC, as specified in the terms of reference, was F rebuild, and this is just an extra set of projections that were giving you with the second block.

Then, if we have the scenario, which would be OFL, ABC, which is 75 percent of SPR 30, or F rebuild, and I would like to -- The final column then directs you to the sector allocations, and this was our current. The first row in each block will be our SSC 2021 projection, which is the 27/73. The final set of column -- Number 5 is the projected yield in millions of pounds whole weight, going from 2022 to 2026, and so Row 2 in each block is the updated projection, which we've given you here, with the new code, which utilizes Dr. Vaughan's new R scripts, which effectively maintains those allocation ratios more accurately.

Then that's maintaining the same sector allocation as the base model, and then the final four rows in each block guide you to the alternative allocation that we were asked to consider, and then the projected yields for each scenario, projection scenario, are 2022 to 2026, and so what we're looking at, in terms of the updated projections in this model would be Row 2, giving you the OFL of 2.1 million pounds in 2022 and slightly increasing out to 2026, and then you would be looking at Block 3, which is the ABC equal to F rebuild, and the Row 2, which is the base model that was accepted by the SSC with the new projection code, and, again, the projected yields from 2022 to 2026 being slightly below that of the OFL. Again, the F rebuild is defined as the annual F that would get you to rebuilding by 2027. That's the last slide. Any questions?

CHAIRMAN NANCE: Nancie, thank you. Let's go back to that table. Just real quick, it looks like the first two rows on each of the different scenarios -- The new code seems to have a

larger projected yield than before, and so it went from --

DR. CUMMINGS: Slightly larger.

CHAIRMAN NANCE: Slightly larger, and so it went from -- Am I reading that correct?

DR. CUMMINGS: Yes, and they're slightly larger.

CHAIRMAN NANCE: Okay, and so, in the first one, it went from 1.6 to 2.1.

DR. CUMMINGS: Correct.

CHAIRMAN NANCE: Okay. Any questions on this? Nancie, thank you for that presentation.

DR. CUMMINGS: You're very welcome, and I would just also point the audience to the document.

CHAIRMAN NANCE: Katie.

DR. SIEGFRIED: Thank you, Mr. Chair. Thank you, Nancie. I did want to just add something to the answer to Jim's question, and Nancie actually has some slides to this effect, if the SSC wants to see it, but they just weren't ready in time to be in put into your briefing book, but the 2022 value, Jim, that you just compared, the 1.637 in the OFL scenario, versus 2.102, that's true that it's larger, but, in general, the SSC, or I guess because the council wants more constant projections, we have also looked at the average, either the three or five-year average of 2022 through 2024 or 2022 through 2026, and they are not that different from the average that you find from the current recommendation for the OFL and ABC. Does that make sense?

CHAIRMAN NANCE: Okay. That does make sense. Thank you.

DR. CUMMINGS: Thank you, Katie, and I can show those, if you would like. I also have more of the four different alternatives that were requested from the IPT team that is considering the framework amendment.

CHAIRMAN NANCE: Why don't you go ahead, Nancie, and just show the slide, just for our edification?

DR. CUMMINGS: I think we emailed them to Ryan, and it's just basically the replacement PowerPoint.

MR. RINDONE: You can just make here the presenter. We're trying not to continually update stuff on the website mid-meeting.

CHAIRMAN NANCE: Doug, we'll see this, and then I will get to your question.

DR. CUMMINGS: What we've done, and thank you, Katie, for noting this, is we've taken -- What we've taken is, for each scenario, I've just given you a five and three-year average, and so, if you look at the -- I will just highlight Row 7 here, the five and three-year average for the -- This is the OFL and then the F rebuild, and so, as Katie pointed out, even from the old code to the new code, they are not that different, especially for the three-year average.

Obviously, looking at the alternative scenarios, there will be further deliberations on those scenarios, I'm sure, from the IPT team, and, looking at the F rebuild, similarly, these are not so different.

CHAIRMAN NANCE: Thank you for showing that.

DR. CUMMINGS: You're very welcome.

CHAIRMAN NANCE: Doug, you had a question?

DR. CUMMINGS: This is the previous table that you saw without the five-year and three-year average.

MR. GREGORY: Regarding the averages, the five-year average is lower than the three-year average, yet the numbers are going up year after year.

DR. CUMMINGS: The numbers?

MR. GREGORY: Your 2.1 to 2.2 to 2.3, 2.4, 2.47. I would expect the five-year average to be larger than the three-year average.

CHAIRMAN NANCE: I think it's the previous five years.

MR. GREGORY: I'm looking at it backwards. Okay.

DR. CUMMINGS: That's just the way we had it arranged, Doug, and this first one is a little weird, because, without the new code, the R script that maintains the sector allocations, you had it really going up in 2026.

MR. GREGORY: Right, and my original thing that I wanted to point out, given my concern about greater amberjack, and the differences are minor, but, the more you allocate to the recreational sector, the lower the OFL is, which means that the recreational sector is exerting, pound for pound, a greater fishing mortality rate than the commercial sector.

DR. CUMMINGS: But we've known that, Doug, for years. You don't even have to go out to the projections to see that, because, if you just go back and look at your landings and your actual age composition over time, you can see that the recreational fishery has been prosecuting the fishery higher, more intensely, rather, since the early 1980s.

MR. GREGORY: Thank you.

DR. CUMMINGS: Thank you, and you pointed that out about something else this morning, and I thought it was a wonderful comment that you made.

CHAIRMAN NANCE: Are there any more comments from the SSC? I guess I have a question. What do we think about these calculations? Are they acceptable? Benny.

DR. GALLAWAY: Is the recreational fishery prosecuted equally across the Gulf, or is it focused in one area or the other? Does the eastern Gulf have larger recreational fisheries than the western Gulf, for example?

MR. RINDONE: Yes.

DR. CUMMINGS: We don't have the landings -- I mean, we don't have the inputs into the model broken down to that refinement, because of basically the availability of samples and so forth, and we have taken into account weightings of our samples, both the age and the length comps, by area, east and west, and not any finer than that, but, in general the answer is yes.

DR. GALLAWAY: Yes being that it's more in the east?

DR. CUMMINGS: Yes, sir.

DR. GALLAWAY: Thank you very much.

CHAIRMAN NANCE: John.

MR. MARESKA: Nancie, I am just noticing that it looks like,

for all these new projections, the buffer between the OFL and the ABC are very miniscule compared to the current difference between the OFL and the ABC, and is that something because of the new R script, or what's causing that decrease in the buffer between OFL and ABC?

DR. CUMMINGS: Are you looking at the F rebuild, at the OFL?

MR. MARESKA: So if we look at the OFL, that first row, using the current, the projected yield for 2022 is 1.63, and the ABC, under the F rebuild scenario, is 1.2, and, if we go down to the second row in each one of those boxes, the OFL is 2.1, where the ABC F rebuild is 2.02, and so there is very little difference in all these new projections compared to the current projections.

DR. CUMMINGS: We would have to go into each individual year and look at that, and I can also -- I think Nathan is on the call, who wrote the script, but I think we can probably say that that is the largest contributor to those smaller buffers, but if Nathan or Katie want to add anything to that.

DR. SIEGFRIED: I can add something to it.

CHAIRMAN NANCE: Yes, Katie, please.

DR. SIEGFRIED: So the F rebuild, the fishing mortality that leads to recovery by 2027, isn't that different from FSPR 30 compared to the 75 percent FSPR 30 that was chosen by the SSC previously, and Shannon can correct me if I'm wrong, but, when we looked back to find out why the -- You discussed this a little bit during Matt's presentation, why it's 75 percent FSPR 30 instead of F rebuild, and it seemed like it was a precautionary approach, for the very reason that the question was just asked, and so it's either 25 percent less, if you're using the 75 percent FSPR, or it's F rebuild, which actually isn't that different from FSPR 30, if that helps.

CHAIRMAN NANCE: I think the question John had was the difference between the OFL and the ABCs. It seemed to be -- If you're using the old model, then you get an OFL, and you get an ABC. If you use the new R script, the ABC is much closer to the OFL than in the original model.

DR. SIEGFRIED: I don't think that has to do with the new R script. It's F rebuild.

CHAIRMAN NANCE: It's occurring whether it's F rebuild or F 75

percent SPR 30.

DR. SIEGFRIED: The 75 percent FSPR 30, the values to compare would be the 2.102, as opposed to 1.582, which is 75 percent less, pretty much, and so a 25 percent buffer is pretty good compared to 2.102. as opposed to 2.021 for F rebuild. I'm sorry that I can't point for you, and so I'm trying to be clear, but I know it's hard.

DR. CUMMINGS: You are correct, and I did confirm your point about the mortality rate, but it is much closer to OFL, F 30.

CHAIRMAN NANCE: What we were comparing is you had something like an OFL of 1.6. With the new code, it went up to 2.1, but then, if you look at the ABC, for the sixteen, it's 1.214.

DR. CUMMINGS: No, that's incorrect. This is if you use 75 percent.

CHAIRMAN NANCE: I was just using that as an example, but F rebuild is 1.255, and then the next would be -- With the R code, it's 2.021.

DR. CUMMINGS: Correct.

CHAIRMAN NANCE: Okay. So those -- I guess, John, are those closer?

MR. MARESKA: Under that scenario, under the current, it looks like we have a difference of about 300,000 pounds, but, under the new scenario, it's less than 100,000 pounds difference, and that pattern just seems to repeat, and I was curious if that was an effect of the R script or something else has changed. We can call on someone else, and they may have something to add to it.

CHAIRMAN NANCE: Okay. Let's go ahead and go on to Will.

DR. PATTERSON: Sorry. My hand is down.

CHAIRMAN NANCE: Doug Gregory.

MR. GREGORY: Thank you. I suspect -- Thank you, John. That was a great call. I suspect the F rebuild is exhibiting the properties it is because we're only like six years away from F rebuild, unlike red snapper, where we had almost a decade to build up to it, and we're pretty close to rebuilding already, and so, if we're put in the position of recommending new

projections, I would seriously consider going back to the F 75 percent, and that would be precautious, particularly if that was our logic in the past, but what are we being asked to do here?

I would not be inclined to call any of this best available science information. It's just a bunch of numbers that are projections, and that's what they are, and that's not for us to choose, and I didn't find anything wrong with it, but --

DR. CUMMINGS: The task of the Center was to update the projections assuming that -- Looking at alternative allocation scenarios. In doing that, because the Center has been working on new projection code for a number of species, that would work for a number of species rather, then we felt that it would be imperative to go ahead and update the projections for the base model that was accepted in January.

CHAIRMAN NANCE: Okay. John.

DR. FROESCHKE: I think maybe Nancy provided the information, but, essentially, the way I see it is, in January, the SSC provided an OFL and ABC based on SEDAR 70, and I think it's like a 1.6 OFL and 1.2 ABC, ish, and so, now, and that was assuming the 23/73, essentially the Alternative 1, with regard to the allocation, and so, in terms of developing a document, an amendment, we would need that, and so the first question is does the SSC want to reconsider that previous OFL and ABC recommendation based on the information presented here, meaning, for that particular allocation, do you want to go with this 2.102 for the OFL and one of the different ABC options? That is one decision point.

The second one is, once you have figured out that, the Science Center has provided different recommendations for allocations, based on what the council may be interested in, and so those, essentially, would be equivalent, just accounting for the differences in selectivity between the fleets and so how that affects the OFL overall, and so that's analogous to what was done with red grouper, but I guess the point we weren't anticipating was this change to the original no action allocation, the 27/73, when this -- Based on the new projection code. I think, once we figure that out, then we can move ahead.

CHAIRMAN NANCE: Okay. Yes, because the first thing, before we accept any numbers, we need to determine, from consensus, is whether this is acceptable, and so is there discussion on that topic? Are the numbers coming out of here acceptable for us to

work with? Silence. Roy.

DR. CRABTREE: Well, I mean, I don't know why we would not. I mean, we've already accepted the basics of the assessment and the update and all those things, right, and so this is really just an update and then a look at a variety of different allocations, right?

CHAIRMAN NANCE: Yes, and my only concern is the difference between the two top rows on each one are what we looked at in January, and then a new code that should produce the same -- Some sort of number, but they're a little different, and I know they're not that much different, but that's my only concern. Katie, go ahead and -- I will let you go first.

DR. SIEGFRIED: Thank you, Mr. Chair. I just wanted to reiterate why we thought that this was necessary, to provide the base case projections again, and that was not in the council request, as Nancie said, and I'm not really saying anything different than what Nancie has already stated, and she just -- There is one other slide that we had on the updated projection that will show the effect of --

The SSC has been asking, for a long time, for the Science Center to address the projections and the ski-slope issue that we see on the screen here. On the right is the old set of projections, and on the left is the new, and we have this contractor, Nathan Vaughan, Dr. Vaughan, who has been working on this for a while and trying to correct the SS-based projections, and so just the projection module contained with SS that -- As we tend to do in the Southeast, we break SS a lot, and one of the things that breaks it is fixing allocations in equilibrium projections.

What Nathan's code does now is hold those -- All the values in the SS base model the way it should be held when we're holding allocations through time, and so on the left is what the Science Center thinks is more accurate, and it takes the stock to the SPR 30 percent that we have stated in the past, and we think that this is the correct way to do assessment projections now.

We didn't want to add confusion, or complicate anything, and we wanted to provide you with what we think are the best available projection methodology, or projections using the best methodology. Thanks.

CHAIRMAN NANCE: This graph is a perfect one. It explains the difference, and so I'm glad that you showed this. Thank you very much. Doug.

DR. CUMMINGS: You're welcome. You're very welcome.

MR. GREGORY: I am ready to make a motion to accept the new methodology, and so the SSC concurs with the --

CHAIRMAN NANCE: One second. We're going to have Jessica get ready. Okay. Go ahead, Doug.

MR. GREGORY: This will need to be wordsmithed, because I didn't think it out in advance. **The SSC concurs with the Southeast Fisheries Science Center determination that the new methodology for estimating equilibrium mortality rates is an improvement and acceptable as the best scientific information available.**

CHAIRMAN NANCE: Do we have a second?

DR. GALLAWAY: Second.

CHAIRMAN NANCE: Benny made a second. Okay. Is there discussion on this motion?

MR. GREGORY: We probably should take out "equilibrium" and say "for estimating projected mortality rates", and it's not just equilibrium.

CHAIRMAN NANCE: Shannon.

DR. CALAY: Sorry. It's no longer needed, but thank you very much, Chair.

CHAIRMAN NANCE: You're very welcome. Discussion? Paul.

DR. MICKLE: I am trying to figure out the basis of the motion, and I'm glad that we have a clear option here of what our role is of identifying if this is best available science or not, and to be used for management, I guess, is what we're tasked with here.

I appreciate the detail that they've given on this new method. The only thing that concerns me is that none of us really understand -- I don't, and I will just speak for myself, but I don't exactly understand how it's different from how it was done before in just the nuts and bolts of it.

Now, if it's been done in other areas, and this is an acceptable method, that gives me a lot more comfort in supporting this motion, but, if this is an R code written by a contractor, I'm

sure it's great, and it's working, and the statement I think that was just made by the Science Center was that they liked it, and they thought it was usable, which is great, and they probably do understand it very much, but it's hard me just to look at this and have a very quick briefing and understand the nuts and bolts and to say this is acceptable.

In a similar story, there is a running -- There is different types of analyses that are somewhat spin-offs of different types of tests and statistical comparative things, and, just as an example, there's a stars analysis, which is literally -- It's I think similar to this, where it's literally a running T-test, and so you're looking at changes over time, and there is independence issues with that, but, in the scientific community, half the community loves it, and it makes it through peer review, and the other half of the statistical community can't stand it, and refuses everything about it, and it's just a great big divide.

I don't know if this is that or not, and it probably isn't, but those things do exist, and I don't understand this enough to actually stamp it as the peer-reviewed best available science. That's all. Those are my thoughts. Thank you.

CHAIRMAN NANCE: Thank you, Paul. Will.

DR. PATTERSON: Aren't we projecting future catches here and not actually mortality rates?

CHAIRMAN NANCE: Yes. That's a good point. **So projected catches.**

MR. GREGORY: Please change it as needed.

CHAIRMAN NANCE: Thank you, Will.

DR. GALLAWAY: Agreed.

CHAIRMAN NANCE: You always catch those things. John.

DR. FROESCHKE: Thank you. Jess, can you bring up that chart with the projections on it again, the one that they just provided that had the two panels with the -- Who had that?

CHAIRMAN NANCE: The graph?

DR. FROESCHKE: Yes, and I just wanted to --

CHAIRMAN NANCE: Katie, did you provide that, or did Nancie, the graph?

DR. CUMMINGS: I have that.

DR. FROESCHKE: I will just start talking while -- I guess, just looking at that, and it was the first I had seen of this, but, in general, if you look at the projections for either set of methods, the projected landings are higher than the last three years or so, and higher than essentially the landings that I have seen, yet we expect these to lead to a rebuilding of the stock, in fairly rapid succession, and it doesn't seem like we're reducing the landings very much.

I guess, just based on historical, we've done, I don't know, since I've worked here, four or five amberjack assessments, and they look very similar to those sorts of projections, and we have yet to make any progress on it, and so the new ones, I will say, just based on how they are, they're more linear, where, in the past, they typically would -- A result would be you would have one year of fairly dramatic reductions in catch and then a very rapid rebuild, and that's what we had before, and the new ones look like they are much smoother, which seems, intuitively, to make sense, but, again, if you look at those first -- Since 2016-ish, I mean, we're right there, and the stock hasn't responded in the direction that we had hoped.

CHAIRMAN NANCE: Shannon.

DR. CALAY: I certainly do understand and respect the desire to be cautious. I did want to say a few things about the new projection methodology. I think many of you recall, from some of our previous work, that, in situations where we are attempting to hold a constant F, like F rebuild, and also an allocation, what we sometimes saw is that the F in those immediate years of the projection, where we get our OFL and ABC, actually indicate F above the constant F we're projecting, and so F higher than FMSY, in some cases, or F higher than F rebuild.

That was a problem with SS itself, in that Rick concentrates primarily on the equilibrium situation, which is many, many years out, and not the transitional effects, which are where we get our immediate catch advice from. Nathan Vaughan has been working on our projections, and he's also part of the team who is implementing changes to SS in association with Rick and his colleagues, Rick Methot, and so he is available to answer any questions you might have about what he did and what tests he may have conducted to assure that his results are correct. He

is available.

CHAIRMAN NANCE: Okay. Paul, to that point?

DR. MICKLE: Shannon, I do appreciate that. Is the methodology in the literature, and has it been published, in gray literature or anything like that, where you can really jump in the weeds and understand how these differences are? At this point, it seems real abstract to me, and maybe I'm not grasping it.

DR. CALAY: It's not in the published literature yet. This is basically something we have been working on to correct the projections in the most immediate years, pending a problem that we see here in the Southeast frequently, and we may be the only region in the country where they frequently hold allocations in projections. In most places, they don't attempt to that do that level of precision in the projections, and so this is an innovation that has not yet been peer reviewed.

CHAIRMAN NANCE: Thank you, because, in all of our other assessments, the first year of projections spiked, and it did it for every species, and so the Center, for the last few years, has been trying to get that down where it is down to normal, and I think this is their attempt to do that, and so they've been working on this for a while now.

DR. CRABTREE: Just to -- What Shannon is saying is, in the figure to the right, when the yields turn down sharply, that's because it's overestimating the F, and removing more fish than we ought to be, and that's corrected in the new methods, and it keeps the Fs more at the target level, and is that right, Shannon? Am I understanding it properly?

DR. CALAY: Yes, Roy. You are correct.

CHAIRMAN NANCE: John, to that point?

MR. MARESKA: Shannon, can you speak about the uncertainty estimates that are surrounding those point estimates? It looks like, in the update, that uncertainty is a lot larger than it is in the original January estimates.

DR. CALAY: I, unfortunately, don't know the answer to that, but I think that both Nathan and Katie are available, and they may understand that.

CHAIRMAN NANCE: Okay. While they're -- Why don't you go ahead, Jim, and ask your question.

DR. TOLAN: Thank you, Mr. Chairman. Could we go back to Slide 7, the table? I just want to make sure that I understand this, because I understand Paul's concern on the R code, and so the basic comparison of the R code, initially, looks to be from 1981 to 2004, and you run through those projection years, and then I just want to make sure that this new method, this R code, is carried forward for each one of these other time steps where the allocation changes, and so we get all the way to 2019, where the terminal year includes this new method, and so I just want to make sure that's what I understood. Thank you.

CHAIRMAN NANCE: Any response on Jim's question?

DR. CUMMINGS: I was a little confused when you mentioned 2019. The projection is beginning in 2022, and so maybe I just didn't hear it correctly. Thank you.

CHAIRMAN NANCE: Jim, could you re-ask your question?

DR. TOLAN: To that point, the last line of the sector allocation goes from 1993 to 2019 and a 20/80 split, and then, after that, we were having these projections based on that allocation through those years, and is this new allocation tracking the method with this R code? Is that included through those years, up through 2019? The main comparison that we're being shown is this new R code goes through 2004, and here's the difference, and so is this now maintained through all of these other differences in the sector allocations?

CHAIRMAN NANCE: I think, Jim, the analysis is 1981 through 2004, but the projections -- That's the difference, and it's just the projections start with 2022, and so you're using the old projection method, as in Stock Synthesis, in the first row, and the new R code -- For the projection only 2022 throughout for the new R code.

DR. TOLAN: Again, that ends in 2004, at that allocation --

DR. CUMMINGS: The projection -- I just want to make sure that we all know that we are projecting from 2022 forward. Shannon probably, or Katie, can also confirm this, but we are interested in projecting from 2022 forward, and the scenario title is just giving you an indication of how that sector allocation was defined, and so it's just a descriptor, and so I just wanted to say that, because we have our base model -- We basically started in 2018, with the terminal year, and we have the stock status and a bunch of catch and a bunch of mortality rates, and so on

and so forth, and we have our retention parameters and so on and so forth, and, according to the projection scenario, then we start -- We have 2019 catches that were put in, as I described, and 2020 and 2021 were an average of 2016, 2017, and 2018.

According to that definition, I think there's like three, and then we start moving forward in 2022 with whatever projection allocation scenario was defined, and the first two rows are the basic, the current status, the 27/73, and then we have four other options that we considered.

In each of those, that 16/84 was carried forward in 2022, 2023, 2024, and it went out for a hundred years, and so I hope I helped, and I think both Shannon and Katie might want to follow-up on that.

DR. TOLAN: Mr. Chair, to that point, if I may?

CHAIRMAN NANCE: Yes, you may, Jim.

DR. TOLAN: I really appreciate these explanations, and it's been helping me understand it quite a bit, and it's to the motion that I'm really addressing this too, because we're stating in the motion that this new method is the new best available science, and I just wanted to make sure where it was being captured in terms of the projections, and so these explanations are helping, but thank you.

CHAIRMAN NANCE: Thank you. Shannon, anything on this point, or should we go on to the other questions, first?

DR. CALAY: I was really just going to let you know that Nathan was muted by an organizer, but he thinks he has figured it out now, and so he is now available to answer the question about the uncertainty, and maybe some other questions that you have as well.

CHAIRMAN NANCE: Okay. Nathan, I see your name there, and so why don't we go ahead, and, Jason, if you don't mind, I'm going to move Nathan up and have him explain it, and then we'll get to your question.

DR. NATHAN VAUGHAN: Thank you very much. I just wanted to point out the details of how this works, so that people aren't too concerned that there's some magic happening behind the scenes. Like Shannon pointed out, the biggest issue with the SS projections is we're trying to balance three things, and SS

kind of does some of them.

We're trying to balance achieving a set target, in this case SPR 30 percent, in 100 years time, which is equilibrium, and we're trying to then achieve the total removals, F, that equates to that final equilibrium target in every year, and we're also trying to make sure that we get the correct allocation in pounds between those two recreational and commercial groups in every year.

The basic SS projection is only able to get one or two of those things correct, and so it can get -- If you run it by default to an SPR 30 percent, it will project that 30 percent correctly, and it will get the Fs in each year right, but it won't get the allocations, and so the allocations end up all over the place, because it just projects with constant effort between fleets.

If you try to turn on allocations inside of SS, there is a default option to do that, and it then gets the allocations correct, but, because of the single run estimation that it does, it then doesn't reach your required or expected target, and so your 30 percent will get to 20 percent, or 35 percent, depending on the assessment, and then it also doesn't achieve the correct F in every year, and that's what Shannon was mentioning, and so, in those early years, you might be too high, and you might also be too low, and so all my code does is go through and does an iterative search, multiple times, to adjust the catches between fleets until all of those targets are achieved.

It can be directly tested in the SS output files that you did achieve the correct F that we've targeted, and we did achieve the correct final stock status, and we did achieve the correct allocations between fleets, and so it hasn't been published, but it's not doing anything that can't be directly tested in the SS report files, and so that is all being -- We are all now correctly -- We're sure that we are actually on the correct target for all of those features.

For the recruitment, for the uncertainty that we project in that, basically, all that we do is, once we run that projection, we do the search and get the correct Fs in every year, until we meet all of our targets. Once we've done that, then we run a final version of SS with uncertainty turned on, that re-estimates the parameter values, and then that projects the uncertainty forward into the projection period.

The reason you see, and, if it is brought up, the reason you see that funneling, and the uncertainty actually reduces from

the recent year into the future, is because all our projection estimates -- Our recruitment is fixed at that recent mean, and the Fs are fixed in our projections, and those uncertainties get sucked up, and the uncertainties get sucked up at zero, and so you end up -- You've got those uncertainties in F and recruitment in the recent years, and it is slowly reduced down to just the model parameter uncertainty in the long-term forecast.

We are currently working to try to come up with methods to incorporate more of that real uncertainty in future recruitment and annual landings, so that we can get more realistic uncertainty projections into the long-term projections, but, at least for the moment, because you're using either the 75 percent SPR or the F rebuild as your ABC, instead of a P* approach, that is less of a concern that they're not necessarily lining up exactly as we might like, but that is something that we're working on at the Center. I'm happy to answer any other questions, if that wasn't clear.

CHAIRMAN NANCE: Nathan, thank you very much for that explanation. Jason, go ahead with your question.

MR. ADRIANCE: Thank you, Mr. Chair. Can we go to Slide 8 again? I don't know the rebuild year offhand, and so this may be the answer, but the graphic on the left, out there at about 2027 or 2028, the OFL and rebuild flip-flop, and is that's what's going on there?

DR. VAUGHAN: Yes, 100 percent. That's the change in the year, and so the F rebuild was a little bit lower than the F OFL, and so that's the stock rebuilding a little bit faster, and then it jumps up in 2028.

MR. ADRIANCE: Thank you.

CHAIRMAN NANCE: Good eye. Will.

DR. PATTERSON: Thanks, Jim. I thought that I understood this until we put this figure up. I don't understand, in the July 2021 update, why it appears that a much lower equilibrium level is being reached, and the curve flattens out, whereas, in January of 2021, you have projections to much higher yields down the road, and the yields in 2030 are projected to be about what they were, and actually a little bit less, than 2016, when overfishing was estimated to be occurring.

I am confused as to why such a flat curve, and I understand some

of the issues about smoothing out the early years, but I don't understand why it looks like productivity is estimated to be lower in the out years.

CHAIRMAN NANCE: Nancie or Katie?

DR. CUMMINGS: I was going to ask if Katie wants to take that one. I think she's on.

DR. VAUGHAN: Katie is muted, and so I think I will jump in. There were some changes that were made in the projections with how SS was interpreting the previous forecast and with the recruitment steepness, and so the previous code that was used to run projections was built on an assumption of a steepness of one, and this was used for red snapper and some other species, where it's not been an issue, but, in the amberjack case, it did have more of an impact, and so, when we switched to the new code, we're rebuilding from a different value in SS, basically, and so it has -- It does change the target equilibrium OFL benchmark, if that helps. Sorry for jumping in. This is in line with what we were presenting as doing, and there was just some corrections made to the previous target.

CHAIRMAN NANCE: Does that answer your question, Will?

DR. PATTERSON: Partly, and I would have to think about some more of what's going on here, but, while we have Nathan, and so, if you've changed the steepness, you're clearly changing the assumptions about stock productivity, but you're projecting landings in 2030 that were overfishing in 2016.

DR. VAUGHAN: Previously, yes, it was going much higher than what we're envisioning, and the issue was that it was being projected on spawning biomass, and so, if your steepness is one, your spawning biomass ratio is the same as your SPR ratio, and everything is equivalent.

If your -- When your steepness, as is the case with amberjack, is less than one, your SPR ratio, which is what we were intending to project, and what we're now showing you accurately, is actually less than your spawning biomass, and so, in this projection, the spawning biomass is a -- The spawning stock biomass ratio is less than 0.3, while the SPR ratio, which is your spawning stock biomass discounted for the recruitment, that average future recruitment, is balancing it out, if that makes sense, and so we're targeting now a 30 percent SPR, which is what was the terms of reference for the assessment.

DR. PATTERSON: But, historically, if the steepness was fixed at one, or 0.99, that wasn't projected forward. There was an average recent recruitment that was projected forward. We're basically saying there's no relationship between spawning stock biomass and recruitment, and so we take the average recent recruitment and project that forward, knowing that we're really not thinking about thirty years down the road, or a hundred years down the road, and we're only concerned about the immediate future.

DR. VAUGHAN: Yes, and it's just that doing that recruitment as well -- That is something that is more recently added to SS, is that option for that average recent recruitment, and that also, yes, will impact it, and so it's just -- It came to light, the disconnect between spawning biomass ratio and SPR ratio, that it hadn't been an issue in previous assessments, but it was an issue in this case, because both the steepness and, for amberjack, the average recruitment that we're projecting is much lower than what you would expect at equilibrium, than the virgin recruitment level, and so both of those things are impacting that result, now that we're discounting for the correct SPR target.

DR. PATTERSON: If we actually had the SPR-projected trajectories here, or eggs, or SSB at biomass, just so we could see what the population is doing that's producing these catches, because I just -- I can't wrap my mind fully around what you're telling us here, that, even though we're dialing down the Fs, our catches aren't diminishing much, and our F rebuild is similar to what recent catches have been, and we're not going to recover the stock to a point where it's going to produce more catch in the next ten years than what we've seen for a stock that is perceived, or estimated, to be significantly overfished. I still don't quite catch all that.

CHAIRMAN NANCE: It doesn't look like it would get us past the overfished state.

DR. VAUGHAN: I am not sure where Nancie is -- You're very close to being able to fish, with the new projections and the new target, and the model actually puts you pretty close to where it -- That's why the F rebuild is very low, and like it's not -- Those are constant Fs, obviously, resulting in those catches, and so they're saying that you're a lot closer to your target biomass than the old version that wanted to project to a biomass ratio benchmark, which is much higher.

CHAIRMAN NANCE: These graphs are good, but if we can go back

to that table, because I think the numbers themselves will be -- - There we go. Will, does this -- Let's look at this and see if this helps.

DR. PATTERSON: Jim, these are just the numbers that are in those figures, and so it shows that, from 2022 to 2023, you have a 500-pound increase, and then it goes to a 400, then a 300, and then a 200, and so you're just getting -- This is the plateauing that we saw in the previous figure.

DR. VAUGHAN: Maybe the -- Do they have the current status relative to that target? Is it Slide Number 3, I think, if you go up to it? Nancie might know better if she has a slide here that has the current stock status determination.

DR. CUMMINGS: There's not a slide, but you're asking, under OFL, when are we going to recover, and is that the real question?

DR. PATTERSON: I think what Nathan's point is, it's that, if a stock is close to its F rebuild target, that's why you would see the plateauing.

DR. VAUGHAN: Exactly. It's very close to the target.

DR. CRABTREE: I mean, that's what I am getting out of this, is the Fs aren't very far from the target, and there is not much rebuilding to come, and so you're not going to see much of a change in the fishery from rebuilding.

DR. VAUGHAN: Exactly, and so the previous models going with the spawning biomass expected very large potential increases, because they were targeting a much larger raw spawning biomass than we are now by correctly doing SPR.

DR. CRABTREE: If I could, Jim, the problem, over the years, has been this stock has not responded in the way the projections indicated that it would, because the projections were indicating big changes would happen, and they never did, despite what we did management-wise, and we didn't see that.

What I am gathering, from the way we've been doing it, is it just wasn't -- The projections weren't doing what we thought they were doing, because the computations weren't working right, and that's been resolved here.

CHAIRMAN NANCE: Sean, to that point? Go ahead.

DR. POWERS: I guess, Roy, are you -- Is this indicating the

stock is less productive than we thought? Is that why we're so close to rebuild, even -- I mean, so we've been making incorrect assumptions about the productivity of the stock? Is that --

DR. VAUGHAN: That's hard to know, because these projections, and everything to do with them, is based on the assumption of fixing recruitment out into the long term at the current average, the recent years' average, and so it's difficult to -- We would hopefully see a change, if it's going to increase, and then we could make corrections down the road, but these current projections and that long-term expected yield is based on the recent averages, and so, when we've used the virgin recruitment in the past, it has come up with much larger catches, which apparently have been an overestimate, which is why we haven't achieved those targeted rebuilds that were expected by the model.

DR. CUMMINGS: The recommendation to use the fixed recruitment from the recent years was only recently done, and it was actually after the original SAR report went in, and it was done right before the SSC meeting, to the last ten years.

If you do review the base model, you will see the results of the -- The diagnostics on the recruitment curve, you will see that there are quite a few spikes in those early years of recruitment, and then we're using 2009 to 2018. There was one question at the SSC meeting regarding that choice, and it was felt that that was more of a judicious choice to reflect the recruitment.

CHAIRMAN NANCE: Okay. Thank you. Doug.

MR. GREGORY: Thank you. Well, this is confusing also, in that the stock is estimated to be at like 37 percent of BMSY, or 30 percent of BMSY, and so that's saying that it is extremely depressed, and so, following along what Will was saying, something here doesn't add up right. Thank you.

DR. VAUGHAN: Do you have that figure there Nancie somewhere? I don't know that, with the new projections, that the stock is at 30 percent of BMSY, given the --

DR. CUMMINGS: I can give you the number, but we didn't make a -- I didn't make that figure, because it was -- It was decided not to update the executive summary, because we weren't trying to request a new evaluation on the base model, but I can get that number for you, just if you will hang on.

DR. VAUGHAN: I think that might be the issue. I think, with the new projections, BMSY is much lower than it was before.

CHAIRMAN NANCE: I think that's the issue. We have an assessment that's been done, and then, with the projections that we had, we have an OFL and an ABC that we have taken, but now these -- We have the same base model, but now these new projections are different than what we have seen in the past.

DR. CUMMINGS: Right, and the current stock is based at 77 percent of BMSY, and it's 0.77, and so I just will say that it's above MSST, and I don't know if all the new members know that MSST is 50 percent of BMSY for this stock. I will just say that the BMSY has been reduced to 3179, basically, millions of pounds, or metric tons.

MR. GREGORY: So what is the percent biomass currently?

DR. CUMMINGS: 77 percent.

MR. GREGORY: I'm off-base then. I thought for sure that I was reading that it -- Particularly looking at the slides that we saw in the previous agenda item, and the current biomass was below 50 percent of BMSY, and so --

DR. CUMMINGS: That was before the new code was written that would search for equilibrium OFL. I think we have a slide that does give you those metrics. No, we didn't put it in there. Okay.

DR. VAUGHAN: That is, obviously, a change for the base as well, but that's part of the issue, is every one of those four different projections with different allocation ratios all have a different BMSY, or B, and so it's --

DR. CUMMINGS: If you look at your document that was provided, along with this presentation, on Table 2, it does give you the metrics, the benchmarks and reference. It's Table 2, which is page 4.

DR. VAUGHAN: That's on page 4 of the report, Katie says.

DR. CUMMINGS: So there's your mortality criteria, and so nothing has changed in the first five lines, and then the mortality rate criteria -- You have a new SPR, F at SPR 30, of 0.42. That 75 percent is FOY, and F rebuild is different, and it's 0.32, and so you can see that these are close, as Katie was referring to. It doesn't take as long to get there. With

F rebuild, we do get there by 2027, because that's the definition, and, without OFL, we get there at 2034, about two or three years earlier than in the previous --

DR. VAUGHAN: If you scroll down a smidge on that page, I think you'll see that we get to the 77 percent.

DR. CUMMINGS: This was 7119 in the previous projection scenario, and so we're above MSST. We're at 1.53, and we're 77 percent, in terms of SSB to the proxy F 30.

MR. GREGORY: Nancie, I am looking at Table 23, the summary of reauthorization act benchmarks and reference points, and it has MSST at let's say 3.6. It has current SSB at 2.4.

DR. CUMMINGS: What table are you at?

MR. GREGORY: Table 23, page 78.

DR. CUMMINGS: Yes, and so this was based on a different BMSY. It was based on the 7119 MSST being 3559, and so, with the new code, now searching for SPR 30, we have lower SSB BMSY.

MR. GREGORY: But SEDAR 70 is our latest stock assessment.

DR. CUMMINGS: It is, but this is the results in January, and so what you're looking at now are updated projections based on the revisions to seeking the correct status.

CHAIRMAN NANCE: So, really, Nancie, it's more than just changing projections, isn't it? It has changed some of our benchmarks in the assessment.

DR. CUMMINGS: It did change the reference benchmarks. Correct. That is true, and it has to do with the way we were using SS strictly to search for FSPR 30, and, as Nathan pointed out, the model developer really concentrates more on, in all of his projection code, those Fs in an equilibrium sense, and there's not many stocks, other than the Southeast, that has these multiple sector allocations, or multiple fleets.

DR. VAUGHAN: It's trying to continue that benchmark, like what we were trying to target to.

DR. CUMMINGS: Right, and I'm really oversimplifying it here, I realize. We're truly seeking for the F that will achieve FSPR 30, our proxy, and maintain those sector allocations simultaneously, and so it's not just a simple single-vector loop

search, and it's actually a multiple -- It's a little bit more complicated than that, and I don't want to oversimplify it either.

CHAIRMAN NANCE: Okay. Thank you, Nancie.

DR. CUMMINGS: You're welcome.

CHAIRMAN NANCE: Katie, you're next up on the list.

DR. SIEGFRIED: Thank you, Mr. Chair. So much of what I had already wanted to say has been said by Nathan and Nancie. I guess the first reason that I wanted to chime in is, Jim, I believe, Tolan asked if all of the other projections in the spreadsheet, or in the document, were conducted using the updated methodology, and they were. I'm sorry if that's already been answered.

Then Nathan already covered the issues with SPR 30 and the recruitment, and so, to Sean Powers' point, if we use those virgin recruitment -- If we use the stock-recruit curve, we're not really using the most recent recruitment, which shows a much lower level than in the past. As Nancie noted, there's quite a few peaks that would increase the average recruitment expected from the stock-recruit curve, and so I don't think that we're saying, overall, the stock is less productive, and we're using more recent estimates of recruitment, but, everything else I was going to say, I think Nancie or Nathan already said. Thank you.

CHAIRMAN NANCE: Okay. Thank you. David.

DR. CHAGARIS: My question has been addressed. Thank you.

CHAIRMAN NANCE: Mike Allen.

DR. ALLEN: Thank you. A lot of my question has been addressed too, but I had the same question about the productivity difference, the apparent productivity difference, in the trajectory of the recovery between those two scenarios.

One of the things that struck me, in looking at the assessment, is that the stock-recruit curve -- Actually, there's one advantage of having a greatly-depleted stock, and it's that you have a lot of data points down near the origin, and it seems like the steepness for this stock should be pretty well defined, at least by the model prediction, and so I wondered why the future recruitments were constant, and why not just use the

empirical age estimates, the steepness estimates? That was my question.

DR. CUMMINGS: I would just direct the slide staff to Slide -- To page 155, just to give the audience a depiction of those recruits, and you can see those spikes. What we did in the model was, going back as far as SEDAR 33, we were recommended to use -- To estimate some of those recruitments far back, to try to get a better sense of -- A better estimation in the later part of the time series, and you can see those spikes and the large deviations. It's in the document, the SAR document. When you have some time, look at that page 155, and you can see a really good sense of those recruitments.

As I said, we were -- We only had one question, at the SSC meeting, about restricting those recruitments to the last ten years, and so now to the next question, and I think it was about the productivity, and it was also regarding why not use the -- Steepness was -- At first, we tried to estimate it in the model, and then we found that we had a number of -- The model still converged, but it gave us poor performance, in terms of diagnostics, and we tried to estimate steepness, and so we ended up -- We did use our profiles, and the profiles on steepness are shown in this report, and I forgot what page, but I can reference those later for you.

We found an area where we thought steepness was reasonably characterized to be at sort of the lowest of the profile, and that number was 0.7. We fixed it at 0.7, and we did find some support for that value, and that number is somewhat different than the SEDAR 33 and the 33 update. That was 0.85. That number came off of a literature review, and so I hope that helps a little bit more about the steepness value.

DR. ALLEN: It does, and it just seemed like it was better defined for this stock than it is a lot of the time, which is encouraging, but, when I saw the difference in trajectory, recovery trajectory, between those two plots, the only thing I could rationalize that would cause that is a difference in the productivity, because the F is constant, and the yield is increasing at such a different rate between the two that it would have to be a productivity, which is similar to what Will brought up.

DR. CUMMINGS: But the reason that it was ultimately fixed by the panel was because of the diagnostics, and so they became a little bit unsettling, in terms of -- I think it was the retrospective pattern, in a couple of cases, and then some of

the residuals in some of the other fits, and it basically affected some of the other fits, and so, I mean, that's what happens in SS. You've got so many parameters that you're estimating, and it just trades off estimating one better than the other, and it's like a big Ouija board.

CHAIRMAN NANCE: Thank you, Nancie. We're going to go offline for just maybe five minutes while we have a discussion with the council and stuff, and so just everybody hold on, and we'll be back at 4:40.

(Whereupon, a brief recess was taken.)

CHAIRMAN NANCE: What we're -- I guess we've just been talking amongst ourselves here, and I'm sorry for the other SSC members that are not here, but while the model -- I love the -- I think the new approach seems to be a very good approach, and our only issue is it has gone back into the assessment itself and changed the current MSST value, and others, and so now we're starting -- Instead of just changing the projections out from the end of the model, we've gone back in and changed some of the assessment values, and so I guess, as the SSC, we're a little uncomfortable with those changes that have occurred to the assessment itself.

What we would like to recommend is we need to probably have a presentation from the Southeast Fisheries Science Center at an SSC meeting where we can look at this new update and what it does to the assessments, so we can, I think, vet the analysis. Paul.

DR. MICKLE: Very quickly, we do have a motion on the board, if I'm not incorrect, that we most likely have to address before taking on such conversations. Am I wrong there?

CHAIRMAN NANCE: Well, I think you're probably right. Doug, can we maybe retract this motion? Would you be comfortable with that?

MR. GREGORY: Throw it away.

CHAIRMAN NANCE: Okay.

MR. GREGORY: We know a lot more, and we're confused now. It seems like Paul was right all along.

CHAIRMAN NANCE: Katie or Shannon or Nancie, do you have anything to add, or Nathan?

DR. SIEGFRIED: Thank you, Mr. Chair. Nathan has said this, and I think that Nancie alluded to this, but I wanted to just reiterate what we were presenting to you here, and so, when we got the council request to do these allocation scenarios, we had to do some new coding, in order to be able to even process those requests, because one of them -- As you saw, the fourth one was fixing the commercial landings and then running it with allowing the recreational allocation to do what it would, and so we did need to innovate a little bit.

In the process of doing that, we found those two key errors in the previous projections, which you all have worked through the thought processes of that, and so I just want to state them for the record, openly, so that everything is as transparent as possible.

The first one is we were not iterating to SPR 30 percent SSB, and we were iterating to biomass of basically zero, which is fine if your steepness is one, which is what the assumption has often been, but that was an error, and we have corrected that in these new runs.

The other error was that we were pulling from the stock-recruit curve instead of the recommended last-ten-year timeframe for the recruitments, and so that estimated that more recruitment was available for the projections, and so that is also the sort of deflation of that curve that Nancie has shown and the council staff has shown, and so those are two key errors that we found in the previous projections.

We have also met the allocation requirements and made the improvements, but it also covers, potentially, for you all to consider the use of the proxy, based on just simply the fact that I think Will and others have stated, and Jim and Paul, that, if the projections are achieving SPR 30 percent, but they're not really dropping down below recent landings, which are said to be overfishing, perhaps the proxy needs to be revisited, or the recruitment assumption, the last ten years, and so there are a lot of questions that we're happy to put together a more complicated and thorough presentation for the next SSC meeting, but I really wanted to get all of that on the record and make sure that we were as transparent as possible. Thank you.

CHAIRMAN NANCE: Katie, I appreciate that very much. The methodology looks very promising, and I think it's the way to -- It's certainly the way to go once we've looked at what it's doing, because it's taken away the spikes in our projections

and things like that, and so I really, really greatly appreciate what the Center has done in looking at this. Benny.

DR. GALLAWAY: My hand was up previously, and it was lowered before, but I do think I need to agree to withdraw the motion as well, as the second, and I'm not sure if that's correct, but I think the method also looks extremely promising. I think, for now, it's representative, will be proven representative, unless east/west differences are found in stock sizes, which I anticipate will be the case. Thanks.

CHAIRMAN NANCE: Thank you. Will.

DR. PATTERSON: Thanks, Jim. I think the approach that Katie is advocating here is prudent. It's really rare that we as a group can't figure out any potential issues and resolve them, based on work that the Center scientists do, in addressing council requests and the SSC's then review of those, and so it's rare, but I think this is a case where it's prudent to maybe pull back and reexamine some of those things.

Getting back to what Roy had mentioned earlier about the fact that projections in the past never were realized, and perhaps what we're seeing with the new code by Nathan Vaughan is the application of that. However, there just seems to be some other sources of uncertainty here that we haven't completely reviewed, and so I fully support this approach, and I'm hopeful, at the next meeting, we can figure our way through this and put it to bed.

CHAIRMAN NANCE: Thank you, because it does -- It does seem reasonable, what's happening. We seem to be comfortable with it back into the assessment part, and so, from a Center standpoint, Nancie and Shannon and Katie and Nathan, thank you very much for that presentation.

DR. CUMMINGS: Jim, I have a comment.

CHAIRMAN NANCE: Nancie.

DR. CUMMINGS: I want to thank Katie for that wonderful succinct summary, but I do want to address the terms of reference that were given to us, and it did define the projection scenario, but it did not define a new recruitment series, and so we did that at the very end, actually, right after this report was put out, the SAR report, and then that certainly did not get implemented, I should say, that ten-year recruitment series, but SEDAR 33 and the SEDAR 33 update both used that entire time

series for recruitment, and so that was just followed through. Thank you very much.

CHAIRMAN NANCE: Thank you. Nathan.

DR. VAUGHAN: Thank you, Chair. I just wanted to give a heads-up. As Katie had pointed out, we're working, at the Center, to try to improve our forecasting approaches and come up with best practices and get this cleared up for future assessments, but, based on the discussion that's been going on here, there is -- Like this single request was to simply update the projections with different allocation fractions, and, in this scenario, they are fairly large changes.

I understand that it's creating some concerns, but, from the comments on the BMSY targets, with those allocation fractions changing, that will always change your BMSY target, and so that's something that we're trying to look into how to have that discussion with the SSC and the council, on how we work on -- Every time we update an allocation, it is going to change all those benchmarks, to some degree, because those are all interrelated, and so I just wanted to make that comment, that it's something that's going to have to be considered, and maybe we can come up with some best practices, with the SSC, on how to handle that in the future.

CHAIRMAN NANCE: So, Nathan, I'm just trying to follow what you're -- So you're saying that, once you do the projections, the base benchmarks will change every time?

DR. VAUGHAN: Yes, if they're allocations, because the benchmarks are based on -- Say you've got, for an extreme example, two very different fleets, and you've got one fleet that is catching fish at age-two and another fleet that's catching fish solely at age-twenty, and they have very different levels that are sustainable from the population, and so, if you shift the allocations between those two fleets, what constitutes the sustainable SPR 30 benchmark is going to change, and so that's something that -- For some fisheries, it's not too big of a deal, but, for some, it has a more intense effect, which is why you see those changing allocation quotas from all the different benchmarks that we pursue. They also have different benchmarks for each one of them.

CHAIRMAN NANCE: Thank you. Any other comments from the SSC? Okay. Thank you very much. We'll adjourn, and we'll be back here at 8:30 tomorrow morning, Eastern Standard Time, or Eastern Daylight, I guess.

(Whereupon, the meeting recessed on August 10, 2021.)

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August 11, 2021

WEDNESDAY MORNING SESSION

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The Meeting of the Gulf of Mexico Fishery Management Council Standing and Special Reef Fish, Special Socioeconomic & Special Ecosystem Scientific and Statistical Committees reconvened on Wednesday morning, August 11, 2021, and was called to order by Chairman Jim Nance.

CHAIRMAN NANCE: We'll go ahead and start. Welcome, everyone, on the SSC meeting. I'm going to turn it over to Ryan, just for our next SSC meeting, to go over some of the things that we'll be covering at that meeting.

MR. RINDONE: Thank you, Mr. Chair. One of the things, based on the discussions that were had yesterday regarding greater amberjack that it seems clear that we're going to need the SSC to review is this new projection method that was applied for greater amberjack. Is there anyone from the Science Center that's on right now that can talk, Katie or Shannon or somebody?

DR. SIEGFRIED: I'm here.

MR. RINDONE: Hi, Katie. The SSC is going to need to see a writeup on this new projection method, along with a presentation about it, at the September meeting, preferably, if it's possible to do that, to have a better understanding of how it operates and how it affects -- How changing those sector allocations can affect the ultimate stock status for the species to which it's being applied.

We have a few species right now that we have accepted projections for that we'll need to know whether those are also in error, as they were for greater amberjack, and what the effect would be of applying this new method to those, and, off the top of my head, red grouper, yellowtail snapper, and vermilion snapper doesn't have sector allocations, and neither does cobia, but having some understanding of if this method has any effect on those would also be helpful, in addition to greater amberjack, and so, really, it's five species then, and so vermilion and

cobia that don't have sector allocations, and then red grouper, yellowtail snapper, and greater amberjack, which do.

DR. SIEGFRIED: I just have a question. We didn't do yellowtail snapper, and that's a Florida assessment.

MR. RINDONE: That's correct, but FWC, as I know you to know, receives a lot of support from the Science Center about working through Stock Synthesis, and so, if the projection that was used for yellowtail snapper needs to be revisited, in light of this new method, we should probably know about that, because that affects the Gulf and the South Atlantic Council.

DR. SIEGFRIED: I see. Yes, you're right, and so Nathan has helped the Florida analysts do their projections, and the red grouper assessment is where we did first use this code, but we will address all of that in the presentation.

MR. RINDONE: Okay, and so all of that will need to be talked about as one agenda item, and then we'll need to -- Judging from the SSC -- It looks like we'll need to go back through the greater amberjack stock assessment presentation, including this new method, so that the SSC can see how, under the different scenarios, how stock status, virgin biomass, et cetera, how all of those things are affected by this new method.

They will have to consider all of that information in its totality again, as to whether it constitutes best scientific information available, because, as it stands right now, changing the projection method, after they have already accepted the old one as being BSIA, and then seeing the new one, which changes the stock benchmarks, it seems out of step, since the projection methods the last time -- Like those were done external to the model, and so having that all presented again will end up being necessary, and, if that can also be done in September, then that would also be ideal.

DR. SIEGFRIED: Yes, that can happen, and so let me just make sure that I understand, Ryan, and so the way that status is calculated, using the equilibrium projections, we need to review that, because the only difference in the methodology is just the allocation part, and there is no difference in the way that we have used long-term equilibrium projections to determine status, and that's how we calculate F 30, our SPR proxies, and those calculations haven't changed. The methodology is just the allocations.

The amberjack is the only one that we know that there was an

actual error in the implementation of the code, but we will review the other assessment codes, or the projection codes, to be sure that any similar errors were not also made.

MR. RINDONE: That would certainly be helpful and still having a breakdown for the SSC of how all of this works I think is certainly going to be to their benefit for moving forward, since this seems to be the new status quo. John.

DR. FROESCHKE: Just to jump in, with respect to amberjack, I do think we're going to need to have some information about SEDAR 70 and how this information integrates. For example, it changes dramatically our picture of stock status, going from overfished to not overfished, but rebuilding, but on a much better position, although the stock doesn't seem near as productive, and I don't know how it would affect the rebuilding time and things like that.

I think all of that needs to be placed in context after we have some information and a presentation and document about the change in the projection methodology, because, I guess, speaking for myself, I don't -- It's difficult to understand how all that fits together, and, given that this is going to be what we're seeing in the future, I do think the SSC, as a body, would benefit from a presentation and some information on how to interpret and provide feedback on this in the future.

DR. SIEGFRIED: No problem. We can provide that, and I think that we have a good idea of what needs to be presented, and we can do that. I don't think that it's something -- We will present this, but it's not something where the way that SEDAR 70 was put together is an issue, but it was just at the projection phase, and so we can make that clear in the presentation.

MR. RINDONE: I think that it's more than that from the perspective of determining and recommending what the best scientific information available is, because, if the projections change the stock status, then the entire package is what is being declared to be best scientific information available, and so it's not that the assessment, by itself, without projections, is BSIA and then also the projections, secondarily to that, are BSIA.

It's all of it constitutes BSIA and is appropriate or not for management advice, and so that's where that distinction will need to be revisited, because it's already been made, based on the old way of doing things. If that is not true, then it needs

to be revisited in its totality, because that's how it has classically been determined by the SSC. You have several hands up, Mr. Chair, and I don't know if you want to start working on the list.

CHAIRMAN NANCE: Doug Gregory.

MR. GREGORY: Thank you and good morning. I respectfully request that we add king mackerel to that list, Ryan. As I noted yesterday, there must be something strange going on with king mackerel, if we're catching say approximately two-thirds of the ACL and you're seeing recruitment has been flatter going down, and we've had the major change in the geographic extent of the population, yet the historical estimates of spawning stock biomass does not change between the early 2000s and after the geographic extent was changed.

I think a lot of this might be due to climate change, and clearly water temperature is affecting king mackerel movements, but I think it's worth taking a good look at that, and this list you have is a good start with that, if we can add king mackerel to that.

MR. RINDONE: So noted.

CHAIRMAN NANCE: Jason.

MR. GREGORY: Thank you.

MR. ADRIANCE: Thank you, Mr. Chair. I just wanted to make sure -- Do we need to revisit anything red grouper because of this?

MR. RINDONE: We don't know yet. If they have already used this with red grouper, and that was what was used to recommend best scientific information available, then it would seem as if that was already done. However, I don't think that that was -- I mean, I don't recall this kind of discussion about the red grouper projections having happened, and so that wasn't disclosed at the time, but, if that methodology was used, then you guys have already approved it as such, as BSIA, as a function of looking at the different allocation scenarios that you recommended to the council as being in keeping with BSIA for those scenarios, and then the council, of course, would just choose the one that best suited management.

DR. SIEGFRIED: Mr. Chair, may I speak?

CHAIRMAN NANCE: Absolutely.

DR. SIEGFRIED: There is -- Red grouper -- There were absolutely no mistakes or errors made in the red grouper projection specification, and everything in that report is accurate, in terms of what was asked for by the SSC and what was provided, and so the allocations were held constant, and the corresponding exploitation rates were correct.

That work by Skyler and Nathan is what made us consider that, oh, we need to do this for other species, and so it wasn't a non-disclosure of new methodology, but it was kind of the first time that we ever did it right, and then we developed this methodology that was generalized for other species.

MR. RINDONE: So, Jason, under that information, it would seem as if red grouper, at this time, wouldn't need to be revisited, because you guys have already gone through it for that species.

MR. ADRIANCE: Thanks. I just wanted to make sure.

CHAIRMAN NANCE: Thank you, Jason. Thank you, Katie. Mandy.

DR. KARNAUSKAS: I just wanted to put some of this discussion in kind of the broader context. I am not directly involved in the stock assessments, but I am part of a national working group revisting forecasting and projection methods, and my understanding is that projection methods are always -- It's a developing field, and we spend a lot of time, or we have spent a lot of time in the past, fitting data to the model, and that part has been really well fleshed out in the stock assessments, but the projections aspect of stock assessment is very much a sort of developing field, and that's not just the case for the Southeast, but across the regions, and, again, I say that as participating in this national working group.

I think we're probably going to be seeing constant updates and improvements to the way that we project, and so I just wanted to add that perspective, that this is an issue that's going to come up, I would expect, kind of routinely over the coming years, and it's not that old methods were wrong, or that they were errors, but that just we're constantly finding ways to improve, and so that's my two-cents on what we're kind of dealing with here.

CHAIRMAN NANCE: Thank you for that perspective. David Griffith first.

DR. GRIFFITH: I was just curious about the timeline, and Mandy

actually probably addressed this, in that I would -- I am not that familiar with these methods, and I would actually like some more background information on the kinds of assumptions that go into them and things like that, and maybe that working group that Mandy just talked about will provide that kind of information, but, if not, I was wondering if we could get some background information ahead of time, so that, if we had some questions that we would like to raise, or have included in the presentation, if we could give some feedback to the Science Center people before the meeting. Thank you.

CHAIRMAN NANCE: Thank you. Dave Chagaris.

DR. CHAGARIS: Thank you. Katie, I appreciate you all agreeing to come back and go over this again with us in more detail, and I just wanted to mention that the big question that I have with the analysis we saw yesterday was that, in the assessment model, the spawning stock biomass MSY proxy was like 30 percent of the unfished biomass, but, in the projections, the new biomass proxy was like 13 percent, and I think I understood that to be due to the different allocations and selectivities, but, given the changes in allocation that were prescribed in the projections, I was surprised that the change was that much.

While the projection methodology itself may be sound, there could be some other things going on a little bit deeper, or just a decision to switch the MSY proxy calculation, and that is the big sticking point for me, and so hopefully you can clarify that in September. Thank you.

CHAIRMAN NANCE: Thank you, David. Benny Gallaway.

DR. GALLAWAY: Thank you, Jim. Would this be the place to submit new information regarding the studies that I referenced yesterday concerning western Gulf greater amberjack abundance estimates, abundance, size, and sex estimates?

CHAIRMAN NANCE: Probably not at this meeting.

DR. GALLAWAY: Okay.

CHAIRMAN NANCE: But that certainly we can do at a later date.

MR. RINDONE: Benny, if you want to plan on January right now, but the September meeting was full before yesterday, and so we'll have to add on time for this, but, if you want to plan on January, you can go ahead and pen that in, because I don't have that meeting filled up yet. Is that acceptable?

DR. GALLAWAY: Yes, indeed, and, by that time, I think we will have additional new information from the Louisiana study.

MR. RINDONE: Even better.

DR. GALLAWAY: Thank you.

CHAIRMAN NANCE: Any other discussion on this item? Thank you. We'll go ahead and move into our scheduled item, Review of Draft Options: Generic Essential Fish Habitat Amendment 5.

REVIEW OF DRAFT OPTIONS: GENERIC ESSENTIAL FISH HABITAT AMENDMENT 5

DR. LISA HOLLENSEAD: Thank you, Mr. Chair. I will be presenting this agenda item. Just a little bit of context here. At the June council meeting, the Habitat Committee was convened, and they reviewed this initial Draft Generic Essential Fish Habitat, and I'm going to call it EFH from here on out, Amendment, as well as a version of this presentation.

After reviewing those materials and some discussion, that committee decided to request that staff bring those materials before the SSC, in order to get some feedback on some of the proposed methodologies and just generally looking over the draft options and providing any input or recommendations.

Then what will happen then is the council staff will summarize those discussions and then bring that summary back to the Habitat Committee at the August meeting.

Before I sort of jump into the amendment or anything, I am going to give a little bit of background on EFH. What is EFH? It has a very specific definition that was first brought about with the reauthorization of Magnuson and the creation of the Sustainable Fisheries Act in 1996, and that specific legal definition is those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.

Now, the Gulf Council does have identifications and descriptions of EFH that was completed in Amendment 3 back in 2004, and so, also, within Magnuson, is a stipulation that five-year reviews should be completed to review the council's policy on EFH, and so those have been also completed in 2010 and 2016.

Those reviews will sort of update the information that may be available to inform descriptions of EFH, but those five-year

reviews don’t do anything in terms of formally changing the FMPs, for example, and so that has to be done through a generic amendment, which hasn’t been done since 2004. Those five-year reviews are available in the background materials.

After those reviews are done, the Habitat Division over at SERO will also have some recommendation letters in response to those reviews, and those are also in the background materials, and they were done in 2010 and 2016, and so one of the things that I just want to highlight is you will see those letters are very comprehensive, and they sort of have a ten-bullet-point list of things that they look through, in terms of considering the council’s EFH policies, and so EFH is certainly important, but it’s one of many things, and it’s sort of the tip of the iceberg.

Today, in talking about the draft options paper, I am going to focus on EFH, but keep in mind that there’s a lot of other things to consider that would go into this amendment, like fishing effects, non-fishing effects, habitat areas of particular concern, and those sorts of things, and so I just wanted to make the committee aware of that.

Highlighting the latest recommendation letter from the 2015 five-year review, there were a few things that popped out that were identified by SERO. An update to the habitat protection policy they recommended, as well as identifying and prioritizing some research needs, and then one of the emerging themes though from that letter was the need to amend the council’s FMPs with updated habitat information as soon as possible, in consideration of other council priorities and timelines.

When that original Generic Amendment 3 for EFH was created in 2004, some of the habitat data that was used to inform those descriptions was from the NOAA Data Atlas, which, at the time, had data from 1985, and so, back in 2004, it was maybe a little outdated, and so it’s probably very outdated now, and so that was one of the recommendations from the SERO office, was to go back and look at this. The council had been doing the five-year reviews, but, as I mentioned, those don’t formally change the FMPs, and that has to be done through a generic amendment, which is why this is being tackled here today, and then something that the council is going to have to address as well.

These descriptions are important, because they are needed and used to inform the consultation process, and so a consultation would be required when a federal agency has authorized, funded, or undertaken part or all of a proposed activity that could potentially adversely affect EFH, and so an adverse effect could

include direct or indirect physical, chemical, or biological alterations.

Sometimes the federal agency, in agreement with NOAA, may determine that no consultation is required, but, more often than not, it is, and so this is just a way to allow for some development, but also within conservation goals for habitat in the Gulf.

The Gulf Council has some tasks, and then some upcoming ones as well, and so the council must identify and describe EFH for all managed species by the life stages you see there in that first bullet. If you've been paying attention as we've gone along, you may say, well, hey, the last five-year review was in 2016, and that means the next one is up to bat in 2021, this year, and so that would be correct.

Council staff, in speaking with the Habitat Office at SERO, agreed that probably the best use of resources would be to combine those two efforts, and so to develop a generic amendment that would update those EFH descriptions in the FMPs as well as incorporate what would need to be done in the five-year review.

In trying to keep, generally, and adhere to that timeline of the five-year review, the goal of completion of this amendment would be by 2022, and so it's a bit of a tight turnaround, given the amount of work that would be done, but, if it could be completed, that would actually be a great way to combine those efforts, and so that's the goal that the council has set up.

Since the 2004 amendment was created, there have been certainly not only advancements in sort of the data sources available, but also the quantitative and computational techniques that are available for sort of describing spatial ecologies in the Gulf, and so, when revisiting this, this was something that we thought perhaps the council may be interested in considering.

The rest of the talk, I'm kind of going to go through and talk about these methodologies that we could use to describe EFH, and I'm going to use gag grouper as an example, and so we're going to use that as kind of the case study, and then so the three pictures will denote those three approaches that I am going to consider.

That first picture, the top of that picture, just some sea habitat, is going to be the standard method that we're using right now, and so what that does, very generally, is it looks at the available habitat, the benthic habitat, and then looks

at some life stage tables, and so some species attribute tables, and says, okay, let's link those up. That's the current method. It's already established, and it's a fairly quick process, but it does lead to some broad generalizations for descriptions of EFH.

A second method that could be proposed would be just look at species presence, and so it says, hey, I know that the species is here, and I am not entirely sure why, necessarily, or what the linkage for the habitat is, but I can at least refine myself a little bit, and then I know something about the species presence.

Then we can get into some complicated models, and so then we can say, well, I know actually something about the species presence and its absence, as well as I have some information on some environmental covariates that I can try to use to link those things.

For the two, these two, proposed methodologies, we only have data to do it for a handful of species, and so it would be very limited, even if we decided that, hey, perhaps we would like to go with one of these new, more quantitative techniques, but it will only work for a handful of species, and so the majority of managed species is probably still going to have to use the current method, and so just keep that in mind.

Then, certainly, the more complex these models get, it takes a little bit longer to go through these analyses and make sure that everything is up to snuff, and so it just takes a little bit more time than the more qualitative techniques that we're currently using.

This is how it's currently done here in the Gulf. Habitat use, an extensive literature review is done to look at the species habitat use within the Gulf and attributing those to various habitat types. These benthic habitat characteristics are mapped in the NOAA Gulf of Mexico data atlas. Like I said, what we have on the books now, through Generic Amendment 3, is from 1985. Also, habitat categories are broken down into twelve distinct categories, and then the Gulf is divided into five ecoregions and three depth zones as well.

This is what these ecoregions look like, by their name, and then the various bounds to demark them, and they generally follow the NOAA statistical grids, and those are laid out there in that last column. Here is a visualization of what those ecoregions look like, and they are, across the Gulf, just very, very

broadly.

Then these are the twelve habitat types, and so you've got everything from submerged aquatic vegetation, oyster reefs, shelf edge, and so these sort of broad descriptions of benthic habitat, as well as some drifting algae and sargassum as well.

Here is these other considerations for breaking out the habitat types by depth, and so you have an estuarine boundary, which is comprised of barrier islands and estuaries, and then a nearshore categorization is depths of sixty feet or less, and then the offshore would be depths of sixty feet or greater, and so that's just general depth strata there.

Then we would also, through the literature search, compile all of that, and so this is an example for gag grouper, broken down by those life stages, and so what the researcher would do is look at these various life stages and then try to assign these life stages to an ecoregion, based on what has been found in the literature, as well as looking at some of those habitat zones and the habitat types and those sort of things, and so this is how that's broken down.

Then, spatially, you can take your GIS layers and put these all together, and you will get something that looks like this, and so this is from the 2016 five-year review for all life stages of gag grouper, and so this is probably -- This map is probably different than that's denoted in the 2004 Generic Amendment 3, because this has been updated through 2016, and so this is slightly different.

However, if, for example, we decide to continue with this method, this is, generally, what this would look like for all stages of gag grouper, and so sort of expansive areas of the Gulf would be described as EFH for that species, in this case, and so that's the methodology we have been using.

There is some pros and cons associated with this. Some of the pros are it's already established, and so we wouldn't necessarily have to reinvent the wheel, and we would just have to update our data sources. Formally, that's been done up to 2016, with that five-year review, but, in 2020, I did have some time to go through, and those tables and things have now been updated to 2020, and so we have that information as well.

Certainly the cons would be that that data atlas is outdated, and so, again, we would have to formally implement what we've been doing in the reviews and here recently into the FMPs through

this generic amendment. Again, there are some probably more refined methods available that we could use that are a little less qualitative to help refine EFH.

In terms of a policy pro, there is some precedent for using these similar methodologies in the South Atlantic, the Caribbean, and the Western Pacific. I think, actually, the South Atlantic mostly uses depth strata as a way to describe their EFH for their main species.

It can be very quickly updated, should it need to be, and it's going to work for most species. Even for some data-limited species, we do have a few papers that will let us know something, so that we can go off of that, even if we don't have a whole lot of other information for them.

A con, like I said, is it's relatively broad, and there's a little bit of indirect linkage for species and habitat, and so what this is doing is this is erring a little bit more on the side of I know that this habitat type seems to be selected based on some studies in the literature, and so I'm going to assume that, everywhere that habitat type exists, that the fish could be there, and that assumption is sort of a big one, because, as you might imagine, there's probably other things going on, water temperature or salinity effects, that would also be driving selectivity to certain places, and so this is going to give you, like I said, a little bit broader description for EFH, using this method.

This is how these concepts translate into what's in the document, and so Alternative 1 would be the no action, and so we would retain that current description and identifications of EFH as described in Amendment 3.

Alternative 2 would say, okay, I'm going to take those same methodologies that I used to generate those descriptions back in 2004, but I'm going to update my data sources, and so we're going to have habitat maps that are much more contemporary, as well as a literature review through 2020, and so that's what that would do for Alternative 2.

For the two proposed more quantitative methods, the data sources that we used would be the Gruss et al. 2018 paper that's also available in your meeting materials. I will go into a little bit more about what that paper did, but, in terms of Gulf-managed species, the next two methodologies that I am going to talk about, these species presented on the tables, this is what it would be applicable for, and so this is where we have that

information and we could use some of this data.

Now, some of these species, they only have the aggregated life stage data, and so it would have to be done maybe as an aggregate, and there is actually even fewer species where we have this information by species and by life stage, and so, like I said, it would only be applicable for a handful of species.

What this paper did is they identified a number of fishery-independent and dependent datasets, and so these datasets included presence-absence data for species of interest, as well as a number of environmental covariate measurements to go along with those, and this data was collected -- They requested data from 2000 to 2016 for these datasets, and, again, this is throughout the Gulf, and generally, for their analyses, they also selected datasets that had a long time series and good spatial extent and that sort of thing as well.

Then it came through for a number of gear types, in terms of encountering species, for everything from video to trawl seine and vertical line and so on, and so the two proposed methods to be considered for this would be a non-parametric kernel density estimator, using a nearest neighbor approach, and so that would be sort of that presence only, and so I know the species is here, and I have identified it in a fishery-independent survey, but that's all I'm going to use for that.

The second method would be a boosted regression tree model, and that says, okay, I know a little something about the presence and absence as well as some habitat data, and so I'm actually going to be able to model that together and say a little something about that.

The first method I'm going to talk about is this presence only. If you had your observations of your fish here, and the method I'm going to bring up draws from two different sort of conceptual ways of looking at this, and so let's pretend that this is our population of our gag here, and we want to say something about like, well, I'm curious as to what area the fish are inhabiting, and so, back in the day, when they didn't have a whole lot of computational power, and, actually, most of this comes from the avian literature back in the day, when people kind of sat around and watched birds, and, if you had your observations, you could draw a polygon around those outer observations, and you could say, okay, here is the area in which I have seen my species.

It's really quick and easy to do, and it's easy to interpret, and it's easy to compare across time or other species and that

sort of thing. However, it's generally going to give you an overestimation, because you can imagine that most species aren't spread out evenly over a spatial plane. There is areas that they're selecting, and so they may congregate as well, and so, if you just draw a line around your most -- A polygon about your most exterior observations, you're going to get an overestimation of the area.

There are other ways you can sort of approach this, and so a more interesting question would be like, well, what is about the size of my core area, and then what is the size of the extent of the area, and what would be a better way to perhaps describe what you're seeing in terms of habitat use, and so another way that you can approach this is by looking at it in sort of these little pieces, and, instead of drawing a minimum convex polygon about all of your observations, you can also do -- It's very popular, and you may have heard in on some of these approaches used, but it's called a kernel density estimator.

What it would do is it would take each one of your individual points and it would overlay a bivariate normal distribution overall of those, tabulate those, and you would apply a smoothing curve and get your isopleths and you could say, okay, here is more core area of about 50 percent of my occurrence, and then you can move out from there.

That works great for a lot of things, and so, for example, Atlantic HMS uses this approach, because they have pelagic species that are out in the water column, and so they can sort of draw these inferences based on those kernel density estimators.

For a species that's a little more inland, when you draw those kernel density estimators, a lot of those times, those tails on those probability distributions can get fairly long, and, suddenly -- You're accounting for areas that you know the fish is there, or they're near land, and, suddenly, you've got some these considerations where it says your fish is on land, and we know that's not the case.

To sort of move around that, instead of using a probability distribution to say, okay, this is what I'm going to consider my core area, or this utilization, based on how many occurrences I have here, you can, instead, draw your polygons being informed by the nearest neighbor, and so this is an observation that I know where the fish is, and that will also allow you to account for any boundaries, and so, if the fish are aggregating nearshore, you wouldn't include any shore space, or area, in

your estimation of your habitat use. That is very conceptually, broadly, what this is doing.

To look under the hood a little bit, what it's doing is that first expression just says, okay, I have a location of points on some grid, and I'm going to call it XY, and these are my locational points. Then the model is going to generate a list of local convex hulls using a nearest neighbor algorithm, and so you're going to tell it that I want you, when you draw your polygons, to consider this many nearest neighbors, and I will get into how that is selected. Then it draws these areas, and so it gets an idea of this core use, and so that's great to know.

Then the next step it does is it reorders these areas, smallest to largest, and then it defines unions and creates -- Where there is overlaps of those unions, it can give a better idea of this is what the extent of my area is, and so it's a nice way to be able to say here's perhaps some core area, where fish seem to be aggregating, or selecting these certain areas, but then, also, here is my broader extent, and so that's what it's allowing it to do.

In order to compartmentalize that, such that we can make a determination about what we're interested in defining as a core area, you can also assign percentile of points within that utilization distribution, and so 100 would be all of your observations, for example, and so you can go from 10 percent all the way up to 100, and you can construct those corresponding nested set of regions within each of those areas, and so each extent has an area that's associated with it.

You can pull that out, and you can calculate your utilization density, and so that's the last expression there, and so you can take your area, and then you divide it by your percentile of points, and so, for example, if you kept area constant, and you increase your percentile of points, that density calculation is going to get smaller, and so you can say, hey, this is where I've got my concentrations of points, in this smaller area, and so that's what I am accounting for.

We performed this analysis in R, using the T-LoCoH package, and we used this package, and then, like I said, in terms of how you want to draw your convex polygons, or your convex hulls, you need to tell it how many neighbors, how many neighboring points, I want to consider, and so that could be a little arbitrary when you get started out, and three might be enough, or do I need fifty, and what do I need, and so, fortunately,

the package does allow for some diagnostics to help inform that decision.

To do that, you can examine your isopleth area curves and your isopleth edge area curves for each K value, and so you can check that out first. To do that, when you do that, it looks something like this.

On the left, we start with the graph on the left here, and K is those nearest neighbors points that I want to address on the X-axis, and, on the Y, I have the area. Then the various lines are your isopleth determinations, and so anything below 0.5 is going to be considered your core area, and then 75 and 95, and so those lighter colors, and the larger area are going to be your larger extent, and what you're looking for here, and this was the example done for gag, adult gag, what you're looking for here is, if you see any rapid increase in the area as you increase your nearest neighbor number, that would let you know that perhaps there is a few outliers that are causing the extent to expand.

It's only attributable to a few observations, in which case you might run into creating a -- That would be like a Type II error, and so you're including area that may not be there, and so that would be the problem that I ran into right when I was first talking about how you would just draw a polygon over your larger extent and then perhaps be including the areas where they're not really there and overestimating.

In the case for gag, we see sort of this just plateau throughout, and so, as you increase the number of nearest neighbors you want the model to consider, you don't see a whole lot of difference between fifty or a hundred, but when things get interesting is when you start looking at the isopleth edge area, and so, again, that would be the plot on the right.

Again, on your X-axis, you have the number of nearest neighbors you're considering, and then your ratio on the Y, and, if your edge-to-area ratio is really high, that would be indicating some overfitting, and so you would perhaps be higher probability if you had less nearest neighbors that you were considering of a committing a Type I error, so that you're actually excluding areas that perhaps could be important for utilization.

Looking at this for gag -- I did a number of these, and this is just an example, and we settled on using a hundred, and so that's where you start to see that come down a little bit, and so you don't get that overfitting, or sort of the Swiss cheese

effect, where you sort of get these really high demarcations, in terms of where it's saying these concentrations are, and so you don't want to necessarily overfit as well.

The results from using a hundred nearest neighbor looks something like this, and we've drawn our isopleths in and around this, and so the warmer colors, the reds and the yellows, are going to be that core area, and then those lighter colors are going to be more the extent.

Generally, in the literature, a core area is considered about 50 percent, and so, in the case of this map for adult gag grouper, it's going to be those more yellow colors, and then 95 percent would be the darker colors there, and, like I said, Atlantic HMS uses a 95 percent isopleth for describing their EFH.

This is something that we get using this method, and the next slide is just to remind you what the method that we would currently use would look like, and you get a pretty different description of EFH depending on what method you use. The presence only, or the non-parametric kernel density, does refine things a little bit better, because it says something about like, well, this is where I seem to see and encounter that species, and, even if perhaps the habitat is available, you just don't see them there, is basically what that is sort of broadly telling you.

CHAIRMAN NANCE: Can you answer just one question I have?

DR. HOLLENSEAD: Sure.

CHAIRMAN NANCE: It's interesting that on that first -- The other slide, you have very nearshore, and then, on the other one, that nearshore is totally blank.

DR. HOLLENSEAD: Just to let you all know too, the kernel density, or the non-parametric kernel density that I'm showing is just considering adult gag, whereas this one is considering all life stages together, and so it's not quite apples-to-apples, but, yes, you would think that there would be a little bit more overlap than there is.

CHAIRMAN NANCE: Go ahead, John.

DR. FROESCHKE: Just on this particular one, I think what the issue is, the way these work, you have maps of the habitat types, and then you link -- Those are recognized as EFH. For

example, gag hardbottom is mapped, and so, to the extent -- On the West Florida Shelf, if you don't have a good map of the hardbottom, it's going to be underrepresented. In this case, a lot of that area -- There probably is a lot of ephemeral, low-relief hardbottom that really isn't captured in the benthic data that we have, and so I think, in that particular case, that is the issue.

CHAIRMAN NANCE: Thank you.

DR. HOLLENSEAD: It's likely that would be -- You would see similar patterns for other species and life stages that we would be considering, and so that's something to think about.

Pros and cons for this method are it's a fairly simple model, actually, and it's using fishery-independent data. Some cons though is, again, it's not available for all life stages, and another policy pro is that there is a little bit of precedent in New England, Mid-Atlantic, and, again, Atlantic HMS, as I mentioned before.

It does seem to better refine EFH. Potentially, this method could be something that could be used to describe habitat areas of particular concern, and so, if we were interested in protecting an area, for example, we could do something where we looked at all juvenile life stages across all species and see if we can get some patterns or if there's these high areas of concentrations, or hot spots, to sort of inform what might be going on there, or aggregations of spawning adults across species, something like that. This would be sort of a good methodology to sort of look at that.

One of the cons is it does add a couple more actions to the document, to make it a little bit bigger, but that's just more of timeline thing, and then this does -- One of the cons here is there is a species habitat linkage tradeoff, and so what it says is I know that the species is here, but I don't really know anything about how the habitat links into that, and so, when you think about your formal definition of EFH, we're missing that a little bit, but at least it can say, hey, there's probably something that I may not be measuring, or I don't have the greatest habitat maps of that area, but I do know that the fish is there, and so that's a tradeoff there.

In terms of the draft paper, Alternative 3, and so, if this method were to be considered, there would be an Alternative 3 that would say, okay, use this non-parametric kernel density estimator to describe EFH, and, again, it would only be

applicable for those species listed on Slide 14.

When sort of looking at this, it's probably a good idea to give some consideration of what isopleth you would be interesting in assigning for EFH here, and so, within that third alternative, there would be a couple of options, either at 50 percent, 75 percent, or 95 percent kernel density estimator, and so this would allow you to focus on either core areas or be a little more conservative and say out to 95 percent, and so that larger extent of the habitat use. That is all I have for the presence approach.

Now I'm going to talk a little bit about the presence/absence and habitat model, and so, before, it was just looking at I know the species is here, and this model says, okay, I'm going to have my sampling event, and I have encountered my species, and so I'm going to encounter my species, mark it as encountered, and then also take a suite of habitat measurements associated with that observation.

Potentially, also, you could have a sampling event and the animal is not there, and so you say, okay, well, now I also want to measure this habitat so I can say something about where the animal is not. Of course, you can also sample animals there, and you don't capture them, but I will get into that in a little bit, too.

In an ideal case, it would look something like this, and then you could put these together and get your model output, and so you can say something about the linkages between the species presence as well as those environmental covariates.

To do that, we're going to use a boosted regression tree model, and so these regression model approach -- It's a regression model approach, but the objective is not to find the best model, and I think maybe a frequentist approach, and, instead, we're going to use recursive bifurcation, or trees, that are constructed to identify regions within the space that have the most homogeneous response to our predictors, and so those are that tree from that figure that you can see up there, those little demarcations right there.

It's a regression model where each term is a tree, and so it's going to let you know that, hey, this response variable is significant for explaining why a fish is here, or a fish is not, and, because of that, it can say something like water temperature is the most important, and certainly water temperature above thirty degrees, or something like that, and

it allows you to demark exactly where along that variable you begin to see the difference between why it's there and why it's not.

The model can fit a variety of responses, and so, if you had count data that worked really well for a Poisson, you could use it, but, when we investigated our dataset, we found that it was best suited -- Our presence/absence observations were best suited for fitting a binomial distribution. We used the GBM package in R to run this model.

As well as constructing the model, one of the things that gives this approach some of its predictive power is boosting, and so this uses a stage-wise optimization and is focused on quantifying the variation in the response. That has not, so far, been explained by the model, and so, every time it goes through an iteration, it's looking to fit those residuals a little bit better.

Boosting incorporates some stochasticity in the model, using a random subset to reduce overfitting and improve that predicted performance. The sequential model fitting builds from knowledge of the previously fitted tree to help focus on more convoluted observations, which can be difficult to predict, and this can affect the learning rate and tree complexity, but it allows for a straightforward prediction that still requires considerable thought and interpretation, and so, with great power comes great responsibility, right, and so this model can do a lot of things.

It can tell you a little something about interaction terms, but how you interpret that -- You would want to be very careful and give that a lot of consideration through the output.

Again, we used the Gruss paper to run this model. Originally, there was 209 environmental inputs, and we were able to reduce that down to thirty-nine, using Spearman correlation analysis, and so here's what actually we put into the model, and the years, again, were from 2000 to 2016, and the gears considered were trawl, seine, longline, and gillnet, and then we had a variety of environmental inputs that we also examined in the model.

What we got for, again, adult gag grouper is, when we looked at relative influence, not surprisingly, gear came out, as well as bottom depth, bottom temperature, year, month, bottom dissolved oxygen, and surface salinity, and so this is some of the physiochemical things that also came out as well.

What the output also gives us is a number of plots looking at how each variable performed in the model, and so what each one of these little plots is going to tell you is each one is related to an input, and so like the top-left one would be here, and gear was a categorical variable, as was month, and so that's why you see them denoted as those little dashes, whereas bottom depth and temperature are going to be continuous variables, and so that's why you see them marked out as a line.

What this is telling you is that anything above -- Certainly above zero is going to have a positive effect, in terms of habitat selectivity, or predictive, and then anything around zero is going to be neutral, or be a non-effect, and anything well below zero, or below zero, is going to have sort of a negative effect.

Again, it looks like Gear 3 has a strong negative effect, and I believe that is gillnet, I believe, and so that's what it's telling you, is that gillnets are very good at catching adult gag grouper, which I think makes sense.

Then you get your bottom depths and things like that, and so the model can then look at all of these things and say, well, okay, can we say something then and give sort of a predictive analysis, based on this model, of where we may encounter gag grouper, and so, visually, this is what this would look like, and so this is a Raster expression, and the brighter colors, and so your yellows and greens, you've got a higher probability of encountering a gag grouper, and then the darker colors, the purples and dark blues, would tell you that you have less probability, and so it's just a different way of getting at that.

The pros here is it's very refined. Like I said, we can get into looking at some interaction terms, and it can get very complicated very quickly. Again, it also uses that fishery-independent dataset. Again, the con is that it's not available for all species or life stages, and it is quite complex, and so, even though we were able to get this to work for adult gag grouper, as we go through some of the others, we think that they may be good for considering this, but, once we run the model, we won't really know, and perhaps they're not, in which case we wouldn't be able to use them.

Pros, in terms of policy, the North Pacific and the Pacific have some not quite boosted regression tree models. They do some maximum entropy models, but they are really powerful models that they can use to describe their EFH in those areas, and what's

really great is it directly links that species presence and habitat, which sort of hits the nail more on the head, in terms of our legal definition for EFH.

It can also be used to inform habitat areas of particular concern as well, and, again, very few species, and, again, adding another alternative would complicate the document and perhaps extend the timeline with which it would take to complete it.

Looking at our draft options, this would be represented as Alternative 4, which would use that boosted regression tree modeling approach, and so this is -- If you were to include the no action alternative, the alternative for using the same methodology, but with more contemporary data, that would be Alternative 2, and then we would have our new proposed methodology, Alternative 3, being the presence only and Alternative 4 being the boosted regression tree approach.

Similar to what we saw for the presence-only model, a way to sort of -- You know, how do we consider what we describe as EFH, and you would have to sort of look at the magnitude of what you're considering, and so, again, there would have to be options within that alternative as to what you would define for your EFH levels.

With all of that, and certainly after some discussion and just maybe some things to kick out as starting discussion for the group, one of the things that I think the council would be interested in knowing is, certainly, the SSC's thoughts on the methodologies, and, to my knowledge, there is no other fishery management council that sort of piecemeals their descriptions of EFH, and I believe the methodology they use for one species and life stage they use for all, and so it's comparable across all of their managed species, and I don't think they take considerations into which have more data and do something different.

The council is probably interested in knowing the SSC's thoughts on, well, maybe we do have some Cadillac models for some of these, but it would be -- What's the merits of maybe leaving it the way we have, so that it's standardized and at least we have comparable descriptions of EFH for all of our managed species.

We do have some good data layer sources, and those are also available in your background materials that we went through, and so that's sort of what we have in house, but certainly, if anybody had some suggestions on like, for example, the sargassum maps, any remote sensing or anything like that we could look at

and perhaps incorporate, that would also be really great.

Then, during your discussions, if you wouldn't mind just taking in those timeline considerations. In an ideal world, in order to still adhere to that five-year review timeline, we would be completing this by early 2022. Well, 2022 anyway, and so please just keep that in mind during your discussions, and, at this point, I would be happy to take any questions that you had.

CHAIRMAN NANCE: Thank you very much. I have one question on alternatives. If Alternative 3 was preferred, you would have -- Because it's only fourteen species, I think, or whatever it was, but you would have to have another option within it to say what you were going to do with the other ones.

DR. HOLLENSEAD: What you could do is you could select Alternative 2 for everything, and then you could select Alternative 3 for -- You could select both. You could select Alternative 2 for those species where you didn't have this data, and then you could select Alternative 3 for red snapper or whatever species.

CHAIRMAN NANCE: Would it be better to have -- It would give you more alternatives, I guess, but you would have Alternative 3 for the fourteen species, and, if not, then you go to Alternative 1. The other one would be those fourteen species, and, if not, then Alternative 2.

DR. HOLLENSEAD: That's something that we can speak about. I know we had originally talked about going FMP-by-FMP and doing this, and, in talks with our interdisciplinary planning team, it was suggested to do it this way and then allow for Alternative 2 and Alternative 3 to be selected, depending on the species, and so that is something that we can talk about at that level, certainly, the best way to organize that.

CHAIRMAN NANCE: I just didn't know if you needed to have all the alternatives listed, like typically it is within an amendment, and you had to have all of the alternatives for everything listed.

DR. HOLLENSEAD: I believe, actually, in the 2004, it was just a single action, and do we update EFH or do we not, but they were only considering one methodology for that.

CHAIRMAN NANCE: Okay. Thank you. Mandy.

DR. KARNAUSKAS: Thanks, Lisa. This was a great presentation,

and I had some thoughts on the questions, and maybe we can go back to the previous slide, so I can see them. I have some potential resources for you.

On the methodology, it's great that -- The Gruss paper, I'm familiar with that, and that is a really comprehensive compilation, and he has a follow-up paper on that where, if I remember, he actually, he and his team, attempted to create species distribution models, and I'm not sure if you've seen that paper, but that might be useful as a comparison, or you might even be able to use those models themselves as another methodological approach, and that's the only input I have on the methodology.

On the other data layer sources, I think there's a number of sources that could be useful to you. On the sargassum, there is the Hernandez sargassum project, and I hope he's in contact with you. If not, we need to do that, because I think he has a lot of useful information. That RESTORE project he's been leading has been looking at specifically the role of sargassum in habitat for a bunch of managed species, and so that should be a really useful source, and they have now automated, I think, weekly maps of sargassum for the Gulf of Mexico.

Another RESTORE project that just kicked off is the work by Tracy Sutton and the DEEPEND Consortium, and we just had their site visit meeting a couple of weeks ago, and I'm the technical monitor on that project as well, and they have some emerging work on characterizing new mesophotic habitats, mesophotic reefs, that I think were previously under-described, and so that might be a useful resource for you on the mesophotic reefs.

Then the last data layer that I wanted to mention is the Southeast Center has a recent effort, and we've been using compositional kriging of the usSEABED database, and this is something we needed for some of our red snapper work, and looking at species distributions for other species as well, but we have a -- We're attempting to put together a really comprehensive habitat map for the Gulf of Mexico, largely pulling from that usSEABED database, and trying to get a better sense for that sort of uncharacterized bottom offshore and what that actually consists of. I am happy to share further details on any of that, but I thought those could be useful data sources for this effort. Thanks.

CHAIRMAN NANCE: Thank you very much. Ryan, to that point?

MR. RINDONE: Thank you, Mr. Chair. Mandy, if it's possible,

if you could provide those papers, so that we can -- Where you have access to them, so that they can be sent around to the SSC, in case anyone else has an interest, and that would be great.

DR. KARNAUSKAS: Will do.

CHAIRMAN NANCE: Thank you. Trevor.

DR. MONCRIEF: I just wanted to briefly discuss Option 3 and then kind of take it up to a little bit higher level of conversation, but, if we're relying on a lot of fishery-independent data, then we also have to take into account the paucity of some of this fishery-independent data around the Gulf of Mexico.

From a little bit higher level, I was trying to read through, and forgive my naiveness when it comes to some of this stuff, but, essentially, if we define essential fish habitat, I kind of wanted to at least get a brief description of the consultation process, should some activity be deemed to go through a consultation process, when we define it.

Really, my mind goes, I think, to gray snapper most, but I'm pretty sure that's on the list, and gray snapper has a pretty far-reaching distribution, from the estuary all the way out to the shelf edge, and it's across the entire Gulf of Mexico, and I just wanted to think about, or at least have a little bit of a description of if it is defined, and it's something that's a global species, and what is that consultation process like, and is it going to create a larger burden on the process?

CHAIRMAN NANCE: Lisa or John?

DR. FROESCHKE: That's an interesting comment. I guess the long answer, regarding the consultation, is David Dale from the Regional Office is the best expert in the region, and perhaps, at a future meeting, we could get him in to kind of go over that.

In a nutshell though, I have had a number of conversations with him, trying to understand the tradeoffs between having a more refined, if you will, core area of EFH versus a larger area and how that affects the consultation process. He has explained to me that the agency can consult regardless of this, but it does give them some additional authority, but, the way it's done now, if you look at any particular one -- For example reef fish EFH is an aggregate of all species and life stages.

Essentially, it's the entire inshore area, and it doesn't matter if an area falls into EFH for one species and life stages or twenty species across, but it's either yes or no. One of the potential benefits of this is it would go through more on a species-by-life-stage basis, and it would allow you to compare two areas that may both be EFH, but one may be EFH for one species and life stage, whereas another area might be EFH for twenty species across five life stages, and so you could compare them a little bit more and perhaps provide a little more information to the consultation process, but, again, I think we could get you some information from him.

DR. MONCRIEF: Thanks, John.

CHAIRMAN NANCE: Thank you. Benny.

DR. GALLAWAY: I want to express my -- That was an excellent presentation, and I think a real contribution -- Your proposed changes are a real contribution to refining the EFH, and it's something that is useful. I think, historically, EFH, as it has been defined, is so broad that it's almost not useful, but I see the combination of what you're doing as actually contributing something that -- To where we can use EFH in the way it was intended to be used.

I really like your proposed modifications, and I support some sort of tiered approach, where they're in the lead, so to speak, as defining EFH, and you drop back to whatever method you have to, given data availability. This is a really nice presentation. Thank you.

CHAIRMAN NANCE: Thank you, Benny. Lee.

DR. ANDERSON: Lisa, I also agree that that was a brilliant presentation, and I learned so much from that, and what really got me is that, if I was a council member, and I have been a council member for eighteen years on another council, and I had to vote on this, your explanation would have given me a lot of background, but this is a case where I hope that you and the other parts of the staff -- Members of the SSC like me, who are economists, are -- We know a bit about this stuff, but not enough to make a decision, and, if I remember my days as a council member, there's a lot of people that are very intelligent, but don't know much about this at all.

If they have to go through alternatives, they are going to, respectfully, need a lot of help, and I hope that, when this goes up, whatever level the decision is made on, we have staff

preferred alternatives.

Sometimes staff doesn't like to say, well -- They say it's up to the council, and, with this thing, I would think that we need a lot more advice on I would do this, for this reason, and stuff like that, and so I think it's brilliant, and I hope that it can be -- That you and the rest of the staff on this can stay and provide ongoing evaluations of it. Thank you very much.

CHAIRMAN NANCE: Thank you very much, Lee. Rich.

DR. WOODWARD: Thanks. I agree with Benny and Lee that this is a really interesting presentation. Benny said that this was allowing EFH to be used as it was supposed to be used, and I would like to know how does this affect fishery management plans and other things, and, obviously, the consequences of a large area versus a small area are important to know what are those consequences. If you define it really broadly, and there is no consequences, does it really matter?

The other question is that, in the regression tree approach, there were -- Well, first, gear was included as one of the variables, which doesn't strike me as really part of the habitat, and so that sort of surprised me, but I also -- The presence of artificial reefs, wrecks, oil and gas platforms, are also on the list, although lower down, and should those be included as habitat in analysis such as this?

DR. HOLLENSEAD: To get to your first question, I think you were asking -- As you were saying, how EFH is supposed to be used, and what does it mean if it's small or big, and, again, I guess I would have to revert back to the legal definition, and, unfortunately, this is where the science melts into the legal world, in that it's got a legal definition, and it's basically trying to conserve areas, and it recognizes that they are potentially areas that may be more, for lack of a better term, important than others, right, and so those areas where perhaps spawning aggregations may happen or areas where juveniles need to be able to grow to contribute to the adult population, and trying to figure out what that might be.

Unfortunately, depending on your methodology, you could end up doing something where you have maybe a pelagic species, and we have run into this issue, where you don't know a whole heck of a lot about the habitat, or are not able to use a method that will help with a little bit more precision, and then end up determining that the entire EEZ is EFH for that, and so you're being very conservative, but, again, maybe missing the mark,

and I believe that's what Dr. Gallaway was mentioning in terms of that.

It's a little bit of a balancing act between the legal ramifications and the consultation progress, as well as the science, and so that's where we're trying to juggle there, and then your next question of why would we put in gears, one of the ways that -- Gear did come out, and we put it in mostly to see how it would interact and what the influence would be.

One of the nice things about the boosted regression tree model is it uses a stage-based approach, rather than a step-wise, and so it can say -- The model can say, hey, this variable seems to be very important, and I am now going to investigate the other residuals in the model, but it leaves that gear component out of it, as opposed to a step-wise, that would maybe encounter that as well, and so it's a little bit more compartmentalized in the way it works.

Certainly, at the SSC level, if that was something that you thought could maybe be left out -- It's something that I believe, and Dr. Froeschke can correct me if I'm wrong, that we can put these things into the model and see what it does, and then, when we use our predictive aspect of it, we could leave it out then, but it would allow us to interpret, perhaps, what we're seeing in that prediction output, and he can speak to that maybe a little bit more than I can, but I think that would be the idea as well.

The artificial reef would be along those same lines, right, and so gear and artificial reef. If they could be put in the model, it would help us interpret our output as well.

DR. WOODWARD: Let me just quickly follow-up, and so if the -- If I found that an artificial reef, or let's say an oil-and-gas rig, were identified as critical to essential habitat, would that mean that -- Would that have implications for policy, in terms of whether that rig is removed from the Gulf, should it become inactive?

DR. HOLLENSEAD: As of right now, artificial reefs, rigs, those things, are not considered EFH, and so I do not believe that it would have anything to do with that policy, but I will let John speak to that.

CHAIRMAN NANCE: John.

DR. FROESCHKE: In regard to that question, the way that EFH is

currently structured, and Lisa had it in the presentation, there are a number of habitat types, and so, in order to be EFH, there are, I guess, about a dozen different habitat types, and so those habitat types are mapped in XY space and then linked to the species.

Right now, artificial reefs are not a recognized habitat type. However, if you look at maps of the Gulf, they may sit on the bottom, and so, for example, soft-bottom substrate is EFH for shrimp, and so many of those reside on EFH. At one point, and it was probably seven or eight years ago, the council briefly looked into considering artificial reefs as EFH, and there are a whole host of issues, and it didn't really seem to address this, but, right now, the removal of platforms and things is outside of the council process.

However, given that they do occur in EFH, and, even if they didn't, the National Marine Fisheries Service does have the ability to comment on this, I believe.

Just as a follow-up, one other thing, while I've got the mic. In regard to using the gear type, you're correct that that's not a habitat issue, and that's why it's in there, and so, if you think about the way that gears are used, the gear selectivity is not equal, and the gears are not placed randomly throughout all portions of the Gulf, and so that contributes to some variance, and so the gears are included in there as essentially a blocking variable to partition the variance of the sampling that is solely due to what we think is the gear effect, and so then the model -- Then you can look at that and make your interpretations of the map and try to remove that effect from the model.

DR. WOODWARD: That makes a lot of sense. Thanks.

CHAIRMAN NANCE: Thank you. Roy.

DR. CRABTREE: I can comment on that consultation process and how all of this is used, and a lot of it is stuff that really the council, or you guys, would not see, but the Regional Office of the Fisheries Service has an Office of Habitat Conservation and a whole group of people whose job is to do essential fish habitat consultations, and so, if you are doing something in the EEZ that requires a federal permit, you have to consult with the Fisheries Service on what sort of impact you're going to have on essential fish habitat, and you have to find ways to minimize it.

Sometimes this involves huge projects, and the most recent example of big projects have been some of the port expansion projects that have gone on, the Port of Miami, Port Everglades, Savannah Harbor, where you're talking huge amounts of dredging and removal of materials in the Port of Miami and Port Everglades, and corals, and so it brings in, oftentimes, endangered species and protected resources.

The Fisheries Service will engage in essential fish habitat consultations on all of those projects, and there will be a long negotiation that may go on, and this will be the Army Corps would be the federal agency permitting this and doing it, and so the Fisheries Service and the Corps might engage in negotiations literally for years on some of these big projects, to try to find the best way to do it and how to minimize the impacts on it.

It also -- States have to come in and do essential fish habitat consultations for their artificial reef projects, because they are depositing stuff out on what is often essential fish habitat. If the Department of Interior wants to remove a rig, they would typically have to come in and do an essential fish consultation on the impacts of removing the rig, but that often more focuses on the use of explosives to remove the rigs, and so it kills animals and those kinds of things.

The whole issue of artificial reefs as essential fish habitat, this has been kicked around for twenty years or more, and I have always found it to be really a stretch and difficult to accept that anything that is manmade and not natural to begin with is essential to the proper functioning of a habitat or a species, because none of that stuff was there until people started putting it there, and these species and the ecosystem was perfectly healthy, and so it changes things.

You can argue all you want about how it affects productivity and some of these things, but a lot of these artificial structures are on and are in areas that have been designated as essential fish habitat, but that's really most of the impact of these designations, is in the consultations that go on between the Fisheries Service and these other agencies.

They do have significant impacts, and they have resulted in a lot of seagrass being preserved and a lot of good things being done to prevent destruction of these habitats, but, ultimately, in the end, it's a negotiation, and the essential fish habitat recommendations are not binding on the federal agency, and they don't necessarily have to go along with them, but, if they

don't, they have to put down in writing why it is they can't and why they're not doing it, and so that's kind of, briefly, how the process goes.

CHAIRMAN NANCE: Thank you. David Chagaris.

DR. CHAGARIS: Thank you, Lisa, for the presentation. I thought it was really clear and informative, and I agree with the other members that a more refined EFH designation would make sense. I mean, some of these EFH maps, as others pointed out, are basically the entire shelf, and I do like some of these modeling approaches, but there are maybe some pitfalls to those as well.

As somebody else pointed out, the data don't always have comprehensive coverage, spatially, and like, for example, that last map that you showed for Option 4 for gag grouper, my -- I suspect that that map is largely informed by the Pascagoula and Panama City sampling dataset, the camera dataset, but, if you were to include the more recent FWC data -- Because that's where they sample, is right where those hotspots are on that map, but, if you were to include the more recent FWC data, and the combined dataset, you would probably get a quite a bit different map.

I am saying this just that, if it's in your mind that these models are going to be done in some kind of wholesale approach, that you could come into some issues there, and I would recommend thinking carefully about the datasets that you're using in each of those models. If there is one good dataset, I would recommend trying that, and this is coming from experience. We have tried modeling some of these distributions with these same datasets for some of our ecosystem modeling work, and so that's just a note of caution there, that the data that you're using are going to influence those maps.

Then the other, I think, major underlying issue with those two approaches is that we're treating species distribution maps as essential fish habitat, but those maps are coming from data, as I said before, that aren't collected comprehensively, but they're also coming from data derived from a system that has had local depletion and things like that, and so, just because this is where the data say the fish are now, it doesn't necessarily mean that that's the only essential fish habitat, and so I think that that issue will be there.

Like, for example, what we do with our spatial ecosystem models is we actually -- We use generalized additive models to define the preference for different habitat types, and then we predict those over maps of those habitats, and we get these spatial

predictions of what we call habitat capacity, and that's like in the static form, but, as the simulations play out over time, the actual abundances tend to diverge from that initial habitat capacity, and that's due to things like exploitation in the nearshore environment over time, as the nearshore portion of the population becomes depleted.

Just keep in mind that those processes are in place and that the species distribution maps might not always identify where the essential fish habitat would be, but thank you.

CHAIRMAN NANCE: Thank you. Will.

DR. PATTERSON: Thanks, Jim. Lisa, really nice job here. I like the direction and the more quantitative approach to trying to define EFH. Dave's comments had a little bit to do with what my, I guess, concern here, or not really concern, but just things to look for.

You talk a bit about process error in your presentation, and, obviously, modeling error, using different approaches, to try to estimate the distribution of EFH, but I think measurement error is something that should be, perhaps, more closely considered here, and Dave mentioned the issue of exploitation and where species are today, versus where there is capacity for them to be.

The second thing is just our knowledge of the habitats themselves is pretty incomplete, and so I would think that would be a challenge to your endeavor here, and, obviously, you have probably considered this already and have plans for trying to address it.

In one of the early maps you showed on gag, I found it interesting, where you were mapping EFH based on SAV and hard-bottom habitat, but there was this big area of the Big Bend, for example, which is known to have lots of seagrass habitat and is important for young gag, as they're moving offshore, but that didn't really show up in your model, and so, when you're considering these different habitat layers, the question of what are we missing I think becomes really important.

Not only from the species perspective, about what anthropogenic effects could be affecting where current distributions are, but just that we've got incomplete knowledge of where the habitat itself actually is.

CHAIRMAN NANCE: Thank you, Will. Dave Griffith.

DR. GRIFFITH: I also wanted to thank Lisa for giving a wonderful presentation, and then I also wanted to thank John and Roy for pointing out how they consider -- How this is used in management circles and also how they are considering things like artificial reefs and gear.

Personally, as a social scientist, and I have always considered humans as part of the system, and so they really are part -- They have been part of essential fish habitat for thousands of years, and so these -- I would advocate keeping in things like platforms and artificial reefs and gear, of course, because they do affect the reproductive fitness of these species.

For submerged aquatic vegetation, one of my students did a study that showed, in the Albemarle Sound, the human impacts on SAV was quite substantial, and it really affected the nursery areas in the Albemarle Sound, and so I think we have been a part of the system for many generations, and so I would advocate keeping that kind of stuff in the model and in the mapping. Thank you.

CHAIRMAN NANCE: Thank you. Thank you for that comment. Trevor.

DR. MONCRIEF: I just wanted to follow-up on what Roy had, real quick, and, if I didn't say it before, the presentation was wonderful, and it was very enlightening to me, and I'm still just trying to understand it, I think more from a higher level, but John said that, before, it was bulk species, right, everything all in one, and what we're talking about now is establishing EFH for various different species, and this might not be a question for you, and it might be a question for when we get some more explanation, but let's say we do something right in the middle of the Gulf of Mexico, around hardbottom or anything else, and it lines up with twelve of the fourteen species.

Does that mean that a consultation is going to have to be had and a response is going to have to be written for every one of those species that falls within there? I'm just trying to think that, if it already takes years on end, I would hate to create an entirely new burden by adding all these different species consultations across-the-board, when a lot of them are using this habitat in the same way, and using it for the same reasons, and that's all.

DR. CRABTREE: Well, I mean, it would only trigger a consultation if there was some federal action, and so like the Army Corps was going to issue a permit to someone to do something, and that

is the case -- For example, if an oil company wants to go out and drill an oil well, there are going to be permits issued, and there would be a consultation on it, but some of these consultation are done very quickly.

Sometimes we look at it and we don't think there's any effect, and some projects we just don't consult on, because we think the impacts are minimal, and we don't have staff to do all of them, and so it varies. The projects that typically take years of negotiation are projects where the development of an EIS to do a major port expansion -- I mean, that takes years to do, to begin with, and for the whole project. They're huge, and the engineering companies that come in, and so sometimes you have to write an environmental impact statement and go through that whole process.

Other things are much quicker and much smaller, and so it just varies, but there has to be some federal nexus to where there is a federal action taking place.

CHAIRMAN NANCE: Paul.

DR. MICKLE: Thank you, Lisa, and I really enjoyed the presentation. I am going to kind of echo Dave Chagaris' and Will Patterson's comments with a couple of examples, but the EFH is incredibly complex, and hitting the mark dead on is almost impossible, when you start thinking about habitat selectivity for basic food resource reproduction, refugia, predation, and even social interaction with some species.

You can get into age classes. Years ago, we tackled it through occupancy index with acoustic telemetry, and we came up with a new method, and I can't believe it made it through peer review, because it was so weird, but it did, but there are a lot of ways to look at it, but really understanding -- A lot of the work done with spotted seatrout came out of Florida, and seagrass, seagrass, seagrass, and nothing else, and it really affected management decisions in the rest of the Gulf.

Yellowtail snapper, the reefs are dying in the Keys, the habitat reefs, and the reefs are in terrible shape, and yellowtail snapper are doing pretty good. Really, my point is spatial sampling, with the presence/absence, and make sure that everything is sampled, so you have no spatial selectivity with your presence/absence independent and dependent.

My only question is I saw you talked about independent data in the presence/absence, and what about the dependent data? Did I

just miss that in the second model that you presented? How does the dependent data make its way into the second model type that you presented? I may have just missed that, Lisa, and thank you.

DR. HOLLENSEAD: I will have to double-check which exactly surveys went into the model, and I believe they were primarily independent. There are some fishery-independent, and John is indicating that there are a couple, but I would have to go back and look at the code, to see what we actually put in.

DR. MICKLE: I love the second method, and I think it's great. I love the complexities of it, and I have no issues with it, and I'm thinking of the science and not the management side of some of this discussion, but I think most of my reservations is on the frontend, of taking the peer-reviewed literature that's out there.

In some areas of the Gulf, it's dominated by certain regions of the Gulf, and that's just -- Once you identify what habitat types are for each species, you're probably getting that from the literature, and that can be very dangerous, and, again, spotted seatrout is a perfect example.

It was all done in Florida, and it's seagrass was the most important thing of spotted seatrout production, and, in Louisiana, there is virtually none, and, in Louisiana, there is ten-times more trout than -- You could put Florida ten-times over, and there is more over in Louisiana.

The conditions are higher on the fish, and there is no seagrass at all, but, when everyone is screaming the literature out there, and the EFH are set up on state levels -- Even the restoration process, there was so much money wasted on trying to restore seagrass when it shouldn't be in an area of the Gulf, just because the literature was screaming it out, and so a Type II error can be created even before you start crunching numbers, because of spatially-biased, I guess, perception of habitat. Does that make sense?

DR. HOLLENSEAD: Yes, and I think -- That's what we were actually trying to get at with sort of like the boosted regression tree model, where you had that primarily example where some literature -- The study was only done maybe in one portion of the Gulf, and now it's like, well, we're going to expand this out here, which is a potential problem and something we were trying to address, using these other methodologies.

CHAIRMAN NANCE: John, to that point?

DR. FROESCHKE: Yes, and, if you dig into the weeds on how EFH is done in the Gulf right now, and so there's two -- There's actually one other layer, and so there is the habitat types, and then there are ecoregions, and so, essentially, these portions, and so what that does allow, and you're correct that it's important that we figure out the linkages, but it does allow that, for example, a habitat type, say seagrass, that is recognized as an EFH for spotted seatrout, which we don't manage, but, as an example, in Florida, an ecoregion, and I don't know if that's 5 or 1, and I can't remember, but it doesn't necessarily mean that that is a recognized habitat type and that linkage is the same in Ecoregion 3 or 2 or 1.

It's possible that you could get those sort of interactive effects of different habitat types that provide different ecological functions for species in different regions of the Gulf, and that is possible, through the way that we do that, but it does require that you have a good -- That your understanding of the linkages are correct, and I think there is room for improvement there, and I think, in some cases, there are some errors in what we have now.

CHAIRMAN NANCE: Paul, to that point?

DR. MICKLE: Thank you, John. Exactly, to that point, but an example of still missing the mark there would be a species in one part of the Gulf may be opportunistic with habitat. In other parts of the Gulf, it may be a specialist, or highly selective, and, if that's missed, then it's just the independent sampling -- I don't know how to approach it, but there needs to be caution in the frontend, because species do different things in different areas of the Gulf, and, when they're categorized in one area, even within an ecoregion, it can be quite dangerous. Thank you.

CHAIRMAN NANCE: Thank you. Lisa.

DR. HOLLENSEAD: Just, to that, I mean, these are pretty broad ecoregions that we're assigning as well, and there's only five, and so, even within that, I can see your point.

CHAIRMAN NANCE: Rich.

DR. WOODWARD: Just a couple of quick follow-ups. First, based on Roy's comments, it seems like any expansion that heads in the direction of shore is going to end up being very expensive,

potentially, if it leads to a net increase in EFH, and so there's going to be a lot of pushback, and we need to make sure that the science is really, really solid as you move closer to shore, it seems to me.

Then, also, on sort of echoing some of David Chagaris' comments, any of these data-driven approaches are going to be backward-looking. I mean, if you see habitat declining sort of over time, and species abundance declining over time, the area of which that are identified as essential is just going to keep falling, and, obviously, everybody is very much aware of that, but that's just a concern that we need to make sure is reflected in the analysis.

CHAIRMAN NANCE: Thank you very much. Lisa, we appreciate your presentation. I think we've provided some very good comments and recommendations. John.

DR. FROESCHKE: Sorry. I can't help myself. Just trying to think about how to move this along, I mean, it definitely seems like we have some homework to do, as far as digging a little deeper in the data and things, but, as far as the big picture, does there -- Is there a consensus about some of these methods? Should we keep working on all of them, or should some of them be abandoned? Do you have thoughts on that that we could kind of put a bow on, and so we would know how to respond to the feedback?

CHAIRMAN NANCE: Trevor.

DR. MONCRIEF: Do you mind pulling up that options list, real quick, so we can look at it again?

CHAIRMAN NANCE: Certainly, in my opinion, we want to start moving away from Alternative 1. I really liked what we were doing with the kernel density estimates, and I thought that looked like a very interesting approach that could be tried with some different species, and, for those species that we can't do anything with, then I think Alternative 2 would be where we would like to go, and that's my opinion. Mandy.

DR. KARNAUSKAS: I am thinking about Dave and Will's comments and wrapping my head a little bit more around what was done here, and I just had another thought. Looking at Slide 34, for example, there is really an impressive number of habitat variables that have been compiled here, and, I mean, it's really quite thorough and impressive, and, to get at Dave's and Will's point regarding the sort of sampling biases, I think there's a

fundamental question, or decision point.

I guess the question is do we create these species distribution models and then assume that every habitat laying underneath those models is essential fish habitat, which I think is the current path that you're going, if I'm not mistaken, or an alternative would be to look at some of the species response curves on Slide 35, for example, and we were actually looking at how the species is reacting to each of these habitat variables and, if there is a habitat variable that is particularly influential, in terms of its percent variance that's being described, those would be the candidates for definition of essential fish habitat.

That might get at some of the issues that Dave was talking about, and so I think the approach, the methodology, is really valuable, and, again, it's very impressive what's been done, but I wonder if we need to be looking more at the species response curves, as opposed to just the distribution maps themselves.

CHAIRMAN NANCE: Thank you. Sean.

DR. POWERS: Getting back to the kind of consensus I heard, and I support, is Option 3 for those -- Alternative 3 for those fourteen species that we could do, and, when we have to fall back to Alternative 2, then that's the plan.

CHAIRMAN NANCE: Will.

DR. PATTERSON: I support actually using sort of a hierarchical approach here, because sometimes you're not going to have the data available for more quantitative methods, but I think, in the end, I think it's also probably important, and Mandy's comments kind of touched on this a bit, about presence/absence versus what it truly means to be essential.

I mean, if you go back to some of the work that Mike Beck and others did in the early 2000s, talking about, you know, what is EFH and that there are different levels of information that can be used to define what EFH is, and presence/absence is really the lowest level, and then you get into population demographic information and then eventually to estimating production, habitat-specific production.

There can be some really small habitats that produce a disproportionate amount of production for a given species, and so, from a production-based perspective, that would be the

essential habitat, or, alternatively, if most of the production comes from widely-distributed habitat, that doesn't -- It's not really distinguishable, from a production on a per-unit area basis, from other habitats, but, just by its expanse, it's producing most of the biomass for a given species.

I think I'm not sure, in the context of this analysis, how to fold in that other -- The levels of -- From presence/absence all the way up to production-based estimates of what is EFH, but I do think that that needs to be considered somewhere in here, but, as far as the options that are shown here, I don't necessarily think that you have to pick one or another. It just seems, to me, that you should have sort of a hierarchical approach, and you should be as quantitative as you can be, given the data for a given set of species.

CHAIRMAN NANCE: Thank you very much. Josh.

DR. KILBORN: Thank you, Mr. Chair, and thank you, Lisa, for the presentation. I guess I agree with what Will was saying about the hierarchical approach, and I do think that it makes sense to kind of work you way down from the more complex models, based on the data that you have available.

However, I'm a little cautious, because we've already pointed out some potential biases regarding sampling that could affect Alternatives 3 and 4, and I don't know that it would be -- I don't know how smart it would be to jump right on those methods without first trying to account for some of these other things, and so I'm a little hesitant to -- As much as I really do like both of those alternatives, because I think the methodology is really promising, I just want to make sure that we're being careful about the application of those methods, because there is the potential to get a lot wrong, if we don't really, really pay close attention to the data that we're putting into those models.

All of that being said, I also agree with the chair that we should probably be moving away from Alternative 1 and moving into Alternative 2 wherever it is possible, and so those are kind of my general comments on that stuff, and then I also think that it's important that we do pay attention to things like mobile habitat, like sargassum, which is starting to become important for things like amberjack and king mackerel and things like that, and we know that they take advantage of that habitat, but we don't really know the extent to which they take advantage of it, and so some of the work, like what Frank Hernandez and his group is working on, is going to be really useful and

influential moving forward, but that's not complete yet.

Again, I think there's some stuff that we're kind of not paying attention to fully that is going to be important moving forward when -- That will allow us to use Alternatives 3 and 4 in a more efficient and correct way, for lack of a better term, and so, yes, that's basically what I have to say about that. Thank you.

CHAIRMAN NANCE: Thank you. Those are very good comments, and so the Alternative 2 -- It looks like to move towards Alternative 2 with some research being done to see how well Alternative 3 and 4 pick up the different things and any issues with those. Any other comments from the group? Okay. Thank you again, Lisa, for that presentation. It was excellent. Let's go ahead now and move into I guess Number XXV, Topic Leaders, from Ryan.

DISCUSSION OF TOPIC LEADERS FOR AGENDA ITEMS

MR. RINDONE: Previously, during the last three-year SSC term, something that Dr. Joe Powers had introduced, to try to facilitate more involvement by different members of the SSC, and also to reduce some of the lift on the Chair position, was this idea of topic leaders for different agenda items.

This wouldn't apply to every agenda item, and some things staff will just take the lead on, and some things the Chair would take the lead on, but, if there were items that were keenly suited to a particular SSC member's area of expertise, then that SSC member could serve as the topic leader for that agenda item. Let me pull up the agenda, so I can pick on a few of you and use you as examples.

CHAIRMAN NANCE: It did last for one session, and then we didn't do it anymore.

MR. RINDONE: It lasted a few, actually. I think some -- I know that like Kai had served as one, and I think Doug had done it a couple of times, and I think Will had done it once, and so a couple of times different -- John had done it once.

Things like the discussion document on SSC best practices and voting procedures, like that's definitely an SSC Chair and council staff lead thing to lead, a staff lead thing to lead, but, if we scroll down to something like the discussion of the research track and operational assessment process, if there was an SSC member, and I will pick on Will Patterson here, that has extensive experience participating in the SEDAR process, both pre and post-genesis of the research track and operational

assessment evolution of SEDAR, then that SSC member might be well equipped to be able to lead the discussion and talk about the differences and things like that and help provide an SSC member's perspective on those changes, good, bad, and indifferent.

The same for some of these different species that we might be talking about. If an SSC member has spent a lot of time working recently on serranids, then, something associated with grouper in the Gulf, they might be keen to be able to inform about.

We've talked about things -- I will pick on Dr. Scyphers here. We have talked about the Something's Fishy tool in the past, and Steven has been a great source of information for giving us perspective on how to better structure that tool to be more helpful, and so, if we were talking about that specifically, he would be a good person to lead a discussion on something like that.

These are just ways to get more of you involved in different parts of the agenda, and, if this is something that you guys would like to revisit and get back off the ground, we certainly can do that, and so I'm just kind of looking for a little bit of feedback from the group and the Chair on this.

CHAIRMAN NANCE: I appreciate that. It's one of those things where, from an expertise standpoint, a lot of you guys really have great expertise in those, and so, if we're going to go down this road, we each need to be willing to do that. Will.

DR. PATTERSON: Thanks, Jim. I agree with that statement, and so we tried this once, and there were a handful of times when folks led discussions on a given topic, other than the Chair. I am not really sure why this didn't take off more when we were doing it, or why it sort of just kind of trickled away.

I do think that Jim Nance's first meeting here in the Chair's chair has been really effective, and I am not sure we need topic leaders, and I think, if there were a vote for Chair for Life today, I think I might cast a positive vote here, and so I think that has some bearing on whether we approach it this way or go back to trying to do the leadership thing.

CHAIRMAN NANCE: Here's what I would suggest, and I appreciate that comment, but a lot of you guys have real good expertise in these areas, and I may not, but you all -- On discussions and things, you always speak up, and that's good, but are there -- I guess, as we look at topic items for the next meeting, I would

appreciate maybe, if you have an expertise in that, let me know, so that you can -- I can say, okay, you can lead the discussion and things like that, because I'm not going to know, for each one of you, where your expertise lies.

I have a good idea for some, but not all, and I think that would be a good way to do that, because I know that your input is invaluable in these discussions, and so maybe that's the way to go, is, instead of me trying to figure out who to assign to something, it's that you let me know that you would be willing to provide some expert discussion in that topic, or lead a certain portion of that, and that may be the way to go. David.

DR. GRIFFITH: Actually, I was going to suggest something very similar along those lines, in that you could still chair the sessions, Jim, but those of us who have certain areas of expertise on certain topics and could volunteer to assist in the discussion, or maybe be listed as somebody who would give a brief presentation or something like that, as long as we were provided the agenda ahead of time and could look it over and say, yes, I know a little bit about this, and I would be willing to talk about this aspect of it, and so that's all.

CHAIRMAN NANCE: Thank you. Jim.

DR. TOLAN: Thank you, Mr. Chairman. First off, I will second Will's nomination for Chair for Life, but I think this meeting has gone remarkable well, and, for your very first one, it was a really good meeting.

My perspective of the topic leaders, it's a good idea, but it came across as a little bit clunky, because of the formality that we run our meetings at, and I think most of the people that have a good deal of insight, or expertise, for some of these different topics -- I think, most of the time, they do speak up, and so things, from my end, have gone pretty well up to this point, and so I don't really see the need to institute this formal topic leader.

I like your idea of just reaching out to folks when an agenda item comes up and say, you know, will you help out with this topic coming up, but I think this meeting has gone very well, and so thank you.

CHAIRMAN NANCE: Thank you, Jim. Sean.

DR. POWERS: I am just with Will and Jim, and I don't want to add too much more, because I agree that I don't think that it's

essential right now, but I encourage people to reach out to Jim and to give him a hand.

The other thing I would like to say is one of the reasons I thought this evolved, when Joe was doing it, is we had some meetings, and maybe it was COVID, and maybe it was a variety of reasons, that Joe just had a problem getting people to have conversations and discuss things for a while, and this has definitely been one of the more interactive SSC meetings that I remember, and so I think part of the reason was just stimulating conversation and opinions and getting people to talk, and, based on this meeting, I don't think that's a problem.

CHAIRMAN NANCE: Paul.

DR. MICKLE: I agree with pretty much everybody. Most of the topics don't have problems getting conversation. Jim, I would say it's up to you. If you see a -- You know the topics well enough, and the agenda items well enough, for you to know if there might be some prodding needed to get some information, or to get some folks to talk up, or, if we dive into some of the disciplines that the Standing folks don't have the backgrounds, the economics and the social parts and those things, obviously, maybe we want to -- You might want to just politely ask, before a meeting, for a leadership in that role.

I just want to tip my hat to Tom Frazer, and he's so good on the council level of encouraging conversation, even when folks don't want to do it, and sometimes he's gotten me to talk, and I didn't even want to talk, and he got me talking, and I didn't even realize that he got me talking, and so it's a true talent, and I just have to say that, but, Jim, you've done that as well at this meeting, and so I don't think there's a formal need for it, but, again, I think, just perusing the agenda before each meeting, and that's your call, as Chairman.

If you see something that there hasn't been conversation in the past on, you may want to reach out, and I would encourage you to reach out to whoever you wanted to to do that, and that's the role that you're -- The last thing I will say is leading conversations at a hybrid meeting seems like a disaster, if you have someone virtually trying to come in with audio issues and trying to lead a conversation, and that would kill efficiencies of what we're always trying to stay on top of.

CHAIRMAN NANCE: It does make that difficult, for sure. What I would suggest, and we don't need maybe a formal recommendation, Ryan, but, as we get the topics for the agenda, I would encourage

each one of you to reach out to me and let me know that you have an expertise that you would like to talk about, that type of thing, or part of that discussion, and I would love to hear from you and be able to know that you would be able to do that. I know most of you pretty well, that I can figure out where your expertise is in, through the years, but I think you can reach out to me, also.

MR. RINDONE: So noted. All right. Next is Public Comment.

CHAIRMAN NANCE: Public Comments, and I guess we'll go ahead and turn the time over for public comments. Jim Tolan.

DR. TOLAN: Actually, this is a follow-up to the last thing you were talking about, but it could actually be rolled into public comment, but I really would like to hear some of the brand-new members, how they thought this went, being their first meeting, and I haven't heard a whole lot of them speak up, and so I'm just curious of their initial thoughts on their first SSC meeting.

CHAIRMAN NANCE: I think the new members have really spoken up at this meeting. I have had to keep Paul from talking as much, but, for that, it wasn't that bad.

MR. RINDONE: We just walk over to Paul's mic and unplug it every now and then.

DR. POWERS: It is hard to get Roy to --

CHAIRMAN NANCE: It is, but I have been very encouraged, and I share Sean's comment that I have been very encouraged by this meeting. It has been very good discussions on all the different topics, and I truly appreciate that.

DR. TOLAN: Are there any of the new members joining virtually?

CHAIRMAN NANCE: Well, for the SSC, I think we have most of the new members -- We've got four new members that are here on campus, but I think, for all of the other -- We have a couple that are not, but we've got four new members that are here in Tampa, and I think we have most of the Special SSCs, Reef Fish and Economics, and some of those members are not present here in Tampa.

MR. RINDONE: Some of your new members are Luke Fairbanks, Mike Allen, Steve Saul, Josh Kilborn, and we've heard from just about everybody, I think, and so we definitely appreciate you guys'

active participation.

DR. TOLAN: I guess the whole point of me bringing this up was just to welcome everybody, and so thanks.

CHAIRMAN NANCE: Thank you, and it does -- Having this hybrid, there is always pros and cons to that, but I do think having at least some body here in Tampa has helped in the discussion, because, when we were all virtual, it was more difficult to prod people to talk and things.

DR. CRABTREE: I definitely agree with that, and I think the meeting has gone well, but I think getting back to being here in person, and particularly getting the Science Center folks in person to do the presentations, that makes a huge difference.

CHAIRMAN NANCE: Jack.

DR. ISAACS: I agree that this has been a very engaging meeting. Truth to tell, some of the online meetings were hard for me to give the proper level of concentration to, but that's just entirely my fault. I think the SSC, very properly, focuses most of its attention during these meetings on the biological modeling and such, but we all agree that economic and socioeconomic aspects are also very important for informing the council on its decisions.

I would like to draw everybody's attention to some of the really neat stuff in the red grouper report that we had here, and Assane and Matt and Mike Travis did some really good stuff, just pulling together all sorts of data that I found most illustrative, and I really, really liked it.

One thing that they did that I have started doing with shrimp and oysters and things over in Louisiana is not just looking at the landings of those things, but trying to put the landings for a particular type of seafood into perspective for the total landings of the people who harvest that type of seafood, and I think that gives you some idea of the degree of dependence that the folks have on that particular type, and that's most helpful to me.

I also wonder if we might be able to get some input from the council on how helpful they found that information informing their own decisions. In the past, that always hasn't been communicated to me, and, if that were somehow shared with me, I would be most appreciative. Thank you.

CHAIRMAN NANCE: I guess council staff, or do you want the council itself?

DR. ISAACS: I will leave that up to you.

CHAIRMAN NANCE: Okay. I think we can maybe -- When I am there at the council, I can kind of ask that question. Lee.

DR. ANDERSON: I want to follow up on Jack's comment, and I feel that there's a lot of things going on that the economists -- There is some economic-related topics that the SSC could look at, but they just haven't, and I think, if I can come in periodically and talk about stock assessment aspects, my colleagues of other disciplines can come in and talk knowledgeably about some of the other things, and one thing I was -- I don't want to raise any problems here, but I was a little disappointed that I heard that there's a snapper reallocation going on, and that was never brought up in any phase to say we would like the SSC's evaluation of it.

Something of that big of a biological nature, it certainly would have been, and I think that may be just because it's never been done. Maybe they don't want to hear from us, and I don't know, but I would hope that the council representative here would take back to the council that the group that we have here can talk about a lot of things and not just biology. Thank you.

CHAIRMAN NANCE: Red snapper was never one of the topics we had on reallocation, for sure. Tom.

DR. FRAZER: I just wanted to weigh-in on that last comment, for sure. I mean, I think it's -- I think everybody recognizes that the decisions that are made at the council level depend not only just on the biology, right, but the socioeconomic data and the interpretation of those data, and it's, admittedly, a weak part of the process, and so I think every member on the council would be very, very pleased to have more complete and informed discussions on that part of the process. I will certainly -- I know that Jim will raise that point at the council meeting coming up in San Antonio, and I will work on it a little bit as well, but I do appreciate the comment.

CHAIRMAN NANCE: Thank you, Tom. Mandy.

DR. KARNAUSKAS: I am wearing my Science Center hat here, but, since we're on the topic of other sort of areas that the SSC could discuss and other sort of areas of expertise that could be presented, I wanted to point out that the Science Center does

a lot of work on ecosystem factors impacting the stocks, and a lot of these issues came up, and Doug talked about the impacts of water temperature on king mackerel, and we talked about red tide, and so I just wanted to highlight that the Science Center does do a lot of work in these areas, and there is other information that could be presented to the SSC, if that's of interest.

CHAIRMAN NANCE: Thank you. Lee and Jack, I greatly appreciate your comments, for sure. Sometimes it seems like we overlook a lot of the economics and social and that type of thing. I remember, way back in the 1980s, Tony Peritus, a sociologist that I was dealing with on the Texas closure, came to the SSC meetings, and he was the only sociologist there, and so it was always, Tony, do we have any comments on sociology, and, in fact, he wrote a paper on that, and it was kind of a funny little paper that he had on dealings with the Gulf Council, and so that is certainly one of those things well taken. Okay. I think we're done with that discussion. Carrie.

EXECUTIVE DIRECTOR SIMMONS: Thank you, Mr. Chair. Just real quick, red snapper reallocation, just to clarify I think something that was requested, or asked, earlier is we are planning to work on that. That is a council motion, and we haven't started work on that yet.

I think maybe what you're referring to is perhaps the red snapper calibration, or conversion, document the council may be working on, and that was reviewed by the SSC, I believe last year, last spring, and I can't recall, and so I'm not sure what red snapper reallocation document, or work, you perhaps are referring to, Dr. Anderson, but just to clarify that.

Then I think something Dr. Isaacs asked earlier is, you know, is the council happy with the advice, and I think this body does a good job, and we try to do a good job with our presentations, and we have a council rep on there that is helping us get what we need, and we have our Chair, or whoever is going to the council meeting, trying to answer any questions or gaps, and trust, if they don't understand what you guys are recommending, it will come back to you, and so you will have a second chance, or maybe third, and so thanks.

DR. ANDERSON: Can I jump in again?

CHAIRMAN NANCE: Go ahead, Lee.

DR. ANDERSON: Dr. Simmons, I apologize if I said something out

of place, and some of you know that I was on the National Academy of Sciences Committee that studies LAPPs and mixed-used fisheries, and we finished the report, and it's out, and the chairman of the report said, if you guys send a letter to the committee, that I guess has been disbanded, but she still had the address list, and said you might be interested and that the Gulf Council is still doing something on red snapper allocation, and so maybe I was judging on that, and I did go to the council webpage, and I maybe was not as fully informed as I should have been, but, Carrie, I do hope that the economists on the SSC can be of use to you and the council.

CHAIRMAN NANCE: They are, Lee. Sean, do you --

DR. POWERS: Yes, and so I was on that committee with Lee, and, Lee, that email was about red grouper and not red snapper, and Carrie is shaking her head, and they have, or are, considering reallocation for red grouper, and you are correct though that that did not come in front of the SSC.

MR. RINDONE: That's not entirely true. When we talked about all the different options for reallocation for red grouper, we brought those different allocation options in front of you guys, to look at the different projection scenarios that corresponded to each of those allocation scenarios.

There was not a corresponding comprehensive economic analysis applied for each of those allocation scenarios presented to you guys, and such was also not requested, and so perhaps we can try to plan that out a little bit better in the future, but certainly I think the opportunity to discuss those different allocation scenarios was afforded a couple of times to the SSC.

If, in the future, when we're looking at these things, you guys want to have the opportunity to look more closely at the IPT's analysis, which you can usually find in Chapter 4 of our fishery management plan amendments, where we break down the physical, biological, economic, social, and administrative effects of the different management options that are being considered, we can certainly do that and try to time that in to have you guys look at those effects, to the extent that you are interested in doing so for allocation scenarios prior to final action being taken, and I'm sure the council would appreciate any additional information that can be made available to it to assist its decision-making.

DR. ANDERSON: I am going to jump in again, if I can. I am sorry if I started a he-said-she-said fight, because that was

not my intent. I just wanted to say that we're willing to do it, and I'm sure that Carrie and the rest of the gang want to cooperate with the whole SSC, and that's all I wanted to -- If I started some unintentional arguments, I deeply apologize.

CHAIRMAN NANCE: Lee, thank you, and your comments are always appreciated. Steven.

DR. SCYPHERS: Ryan, just a follow-up question to you. How could the SSC best request that type of analysis, or information? If it's attached to an assessment, I assume that it could be at the terms of reference stage or something like that, if we knew that allocation was going to be ultimately part of a further conversation, but, if it's just a framework or an amendment, is there a stage where more specific requests like that could come from the SSC?

MR. RINDONE: I think this is something that we could probably plan around a little bit. I mean, we kind of generally know when we're going to have an allocation discussion. If we're looking at a new stock assessment for a species, and that species has migrated from CHTS to FES, and it has sector allocations now, the presumption should be that those allocations are likely to be reinvestigated by the council.

Then, if the council takes up an amendment to a fishery management plan, regardless of any data migration to reconsider allocation, for whatever reason it's thinking that it needs to do so, then obviously we'll be aware of that as well.

Initially, we won't have those analyses to present to you guys, and those analyses aren't typically completed until later in the amendment development process, but there is a period between when those are developed and when the council takes final action that there's a gap in time that they could be brought to you, and Dr. Diagne is in the back of the room, and he's one of the council staff economists, and he can speak a little bit more about -- At least from the economic side, what those analyses can look like, and I think that Dr. Lasseter is on as well, and she can talk about it more from the anthropology side.

I think that there is time for you guys to look at those, if you think it's appropriate, to provide some additional input to the council, and especially if the council requests it, and certainly Dr. Frazer can bring these comments back to the council as a whole later this month, also.

CHAIRMAN NANCE: Okay. Thank you. Assane.

DR. ASSANE DIAGNE: Thank you, Mr. Chair. About this topic of allocation, I mean, if we look at the big picture, the council has done very few, if you would, reallocations from start to finish, and, essentially, in some cases, when that was done, it went through the court, and some people around here know the outcome of this, and so, as far as the SSC is concerned, we don't necessarily have to bring any, or all, allocation actions before you, because, if you are using the same method over and over to let's say consider reallocation, the SSC has already spoken about that, but, every time we have a new study, or a new approach, and let's say to remember -- Let's say, for example, when the Science Center, Dr. Agar and Dr. Carter, looked at reallocation in some different way, we asked both of them to come before this body and present, and then we took the recommendation, and we also went before the council to discuss that.

The flip side of this is that sometimes we come to the SSC to start talking about allocation and the feedback that we get is, well, this is really a policy issue. As an SSC, we are interested in the science, and the science is not new, and so we prefer to not get involved, and so, I mean, those are essentially some of the things that we have heard, over the years, when it comes to allocation, but absolutely we'll keep it in mind, and every time we have let's say new approaches, or new methods, we will definitely make sure to bring it before you. Thanks.

CHAIRMAN NANCE: Thank you, Assane. Katie.

DR. SIEGFRIED: Thank you, Mr. Chair. My comment is more general, if you want to continue to Doug, if he has an allocation comment, and I can wait until we're back to more general comment time.

CHAIRMAN NANCE: Okay. I will take Doug, and then I will take you. Thank you. Doug, is yours to that point?

MR. GREGORY: Yes, and just briefly. What Assane said at the end is true, and the SSC is dominated by biologists, and that's the attitude of most of the biologists, is anything that's not strictly biology is in the council's purview and not ours, but that's not true, as Jack and Lee are pointing out, and so I am looking forward to seeing more of this diversity of advice. Thank you.

CHAIRMAN NANCE: Thank you, Doug. Okay, Katie.

DR. SIEGFRIED: Thank you, Mr. Chair. Just back to the general sort of comments about the hybrid meeting, and this meeting has gone remarkably well, and I have noticed a lot more participation, and that definitely makes it a lot more fun.

My general comments were just it's important to me, personally, and to the Center, that we are making effective remote presentations, and so any feedback about that, until we can get back in the room, is really helpful, and it's important to me that you know that many of us very much prefer to be there, and we wish we could be there, and it's very frustrating that we can't be there, but we just are not allowed to travel yet, for the most part, and we really appreciate your willingness to accommodate our remote participation.

I think it would be useful to still allow that into the future, even when we can get a group of us in the room, just because I think it helps our staff understand what happens at the SSC meetings a lot more, and the Gulf, in my experience, has always been pretty good about that, and so I appreciate your willingness to accommodate that. That's it. Thanks.

CHAIRMAN NANCE: Thank you, and the presentations this last time, Katie, have been excellent, and I appreciate the willingness of the whole Center to be able to discuss things and be able to give us your thoughts and impressions.

Certainly, any time we can get together face-to-face is always better, but, since we're in the situation of some of us are remote, and some of us are here in person, I think we just have to do our best with that, but I didn't see any issues with having you do that remotely that affected the presentations or anything. Will.

DR. PATTERSON: I will just echo what Jim said there before and move on to my point about allocation. I think we all appreciate the challenge of trying to present stuff when you don't see people's reactions in the room and doing it remotely, but, over this past year, I think the Science Center has maintained its high standard of providing information that's digestible and complete, and I don't -- I am speaking only for myself here, but I don't think that standard has slipped a bit.

To Roy's comment earlier about having everybody in the same room, I think one of the great benefits of that is the side conversations, and like, you know, if Nancie Cummings is presenting something on amberjack, and I didn't quite get it,

maybe I can grab her for a couple of minutes at the coffee break, and she can clarify or explain to me something that I'm not understanding, or Katie or Matt or whomever.

I think that's the real benefit, or the greatest benefit, of having an in-person meeting, is just the extra time that allows all the information to kind of soak and allows for follow-up and discussion, but, as far as the presentations themselves, the high standard has been maintained through this challenging year, and I don't think -- I doubt anybody would suggest otherwise.

As far as the allocation issues, Doug said something there at the end about some of the biologists prefer only to talk biology, and I think, just kind of remembering back through previous allocation discussions and what Assane mentioned about let policy be policy, and the council handles that, and then, if there's a scientific issue, the SSC is happy to weigh-in and provide scientific advice, and that's really my perspective as a biologist, and probably the leading proponent of this idea of, if it's an allocation issue, and it comes before the SSC, then let's talk about what the science is.

Maybe it's the way to re-estimate what the allocation should be, going from CHTS to FES, but, if it's an issue of a political decision about the split between commercial and recreational, absent some scientific analysis -- By scientific analysis, that could be an economic analysis, and that can be a sociological analysis, and I'm not just restricting that to biology.

That is the thing that I am cautious of, because I don't like to see us, as a group, weigh-in on the policy sides of things, except for how the science is informing it, because I think we should really be protective of that divide, so that what comes out of the SSC is always perceived as objective and scientifically based and not trying to steer something in the policy arena. I think we should respect that division.

CHAIRMAN NANCE: I agree, and policy is one thing, and science is the other and I think we need to do better -- In my opinion, we need to do better, from the economic standpoint, the sociological standpoint, to be able to bring those other disciplines in when we're discussing allocation and things like that, and so I think that's where we need to maybe step it up a little bit and do that. Lee.

DR. ANDERSON: I agree, to a certain extent, with what Will said, but I also get a little internally upset at this, because

what is my science is looking at policy, and so you're saying my science -- Well, I don't want to say that.

I agree that economists, or anthropologists, or anybody, should not go around and say this is what you should do, you dummies, and that's not what we do. If I were to look at that, I would say, all right, here's some alternatives, as an example, Alternative 1, 2, and 3, and now, if I read these objectives that you have here, in my opinion, Alternative 2 would best meet the objectives, for these reasons, and that's what our science is, but I agree that we don't --

I don't think that we should impose our will on the council, or anybody, and I hope that the other social scientists in the room agree with me, but we can enter into policy decisions, and I said earlier that I think my colleagues from other disciplines can enter in too if they play by those same rules. It seems to me that, again, these are the alternatives, and these are the criteria and objectives that the council has set up, and I would say this alternative best meets the goal. I will stop now. Thank you.

CHAIRMAN NANCE: Thank you for that, Lee. I am going to start cutting it off a little bit here, but Benny and then Mandy.

DR. GALLAWAY: I just wanted to say that I endorse both the statements that Will has made as well as what Dr. Anderson has said. We do have expertise in different areas, and we have the ability to comment on different areas, but, generally, we need to, in my opinion, focus on the science and our arena of expertise and not get involved in policy issues, except for those on our group, in our group, that are qualified and endorsed to do so, and that they play by similar rules, and so I guess I endorse both the statements of Will and Dr. Anderson. Thanks.

CHAIRMAN NANCE: Thanks, Benny. Mandy.

DR. KARNAUSKAS: Just to add to this conversation, I agree with Will and Benny on the independence of science and policy, but I also think that, as we think more about ecosystem-based fisheries management and what that means -- Part of ecosystem science is sort of understanding the unintended consequences, or potential domino effects, of any particular policy decision, and so I see it as between getting involved in the policy versus looking at a policy and helping the council think about what the downstream effects of any particular policy decision might be, and that, in my mind, falls squarely in the realm of science.

CHAIRMAN NANCE: Thank you. Go ahead, Will.

DR. PATTERSON: I agree with Mandy's comments there, and, to speak to that, as well as what Lee had said, I think, when a scientific body like the SSC is using whatever methodologies, sociological or economic or ecological or population dynamics, to try to estimate the potential effects of a policy decision -- Usually, they come to us a range, or a series, of potential choices that the council is trying to make.

If we're using scientific methodology to estimate what the likely effect of that policy decision is, to me, that's not entering into the realm of policy, and that's simply using the science, whatever discipline, to estimate the potential effects to give feedback to the council.

That's not endorsing a policy, but that's just saying, based on what we know, the assumptions of this approach, the limitations of the model, this is what we estimate the potential implications might be. I think that's a perfectly appropriate way for the SSC to provide information, or guidance, to the council. I am just leery when it ventures away from that and try to guard against it.

CHAIRMAN NANCE: I think that's an excellent point. Paul, and then we're going to shut the discussion off.

DR. MICKLE: Okay. Thank you, Jim. I am going to try to keep it simple, and it's a difficult issue, but there's things that do need to come in front of this council, in my opinion, and, as the Magnuson-Stevens Act identifies, not only historical landings can be used for allocation, and so I think this body, and everybody in it, has the responsibility of identifying what is informative and can be quantitatively justified for one -- Quantitative measure to justify an allocation.

Just for an example, if the council comes up with a way of getting into an allocation discussion, and, really, the world is the limit on what can be thrown in there, as Magnuson-Stevens says, to justify allocation, and so I would think that, whatever number comes up, we would have to stamp it as a reliable metric, or a non-reliable metric, but maybe that's way out of our purview, and I don't know, but I would think the council would definitely need guidance from something, or someone, and whether it's us or not, I don't know, but I see, in the future, within the next five to ten years, some really zany and different types of metrics could be potentially justifying an allocation.

Whether that falls with us or not, I don't really know, but I sure hope that somebody is helping them out, because it can get really quite a circus act, when you start thinking about what people want to justify allocation on. Thank you.

CHAIRMAN NANCE: Thank you. Tom, go ahead and have the last comment.

DR. FRAZER: Thank you, Mr. Chair, and so I've been really, really pleased with this discussion, and I think the folks that are on the call that are participating from Tampa are really in a good philosophical place to provide the science and the information that is needed to inform and guide the policy decisions at the council, and I just, again, would urge you to continue this level of engagement on all the topical areas, and so I thought it was a great meeting, and I would agree with all of the sentiment that's been put forth with regard to your effectiveness as a chair, and so good job, Jim, and I really enjoyed listening to this meeting.

CHAIRMAN NANCE: Thank you. I appreciate that. We are going to go ahead and end this discussion and go ahead and enter into the public comment period, and do we have any individuals from the public that wish to comment?

MR. RINDONE: Just for members of the public, so everybody knows how we're doing this, it's pretty much the same way as it's done for the council meetings, and you will have a few minutes to address the committee. If they have any questions to ask you, hang around for just a second, in case they have a question.

CHAIRMAN NANCE: Thank you, Ryan. Michael Drexler.

PUBLIC COMMENT

MR. MICHAEL DREXLER: Thank you, Mr. Chair, and thank you for running a great meeting. I agree with all the comments being said so far, and I thought it was a very productive meeting, and so thank you for that.

As some of you may know, I'm Michael Drexler, and I'm with Ocean Conservancy, and I just wanted to acknowledge the written comments that we submitted to the agenda, regarding the agenda item regarding the Great Red Snapper Count, and I would like to put the red-snapper-specific issues aside in this and just provide a comment on the process we went through.

Just noting that the item was on the agenda, but it was removed,

and I think that's great, that the PIs are going through the revisions to address some of the concerns noted by the CIE reviewers, but I did want to note, especially for the new SSC members, that the review of that -- The rollout and review of that Snapper Count put a real strain on the integrity of the SSC and the assessment process, and I think the SSC should really think about a roadmap to incorporate these type of abundance studies moving forward.

These studies provide really informative information on the distribution and habitat utilization of these species, but we still have big, unanswered questions with respect to how to appropriately apply an abundance study like the Great Red Snapper Count into management and what that means for sustainability with respect to the stock and the fishery.

It was said several times during the review process that we were building a plane while we were flying it, and I would just reemphasize that we really need a plan. There are two more abundance studies in the process, which I think all provide invaluable information to improve these stock assessments, but we need a plan, and start thinking about a plan to incorporate this.

The rollout of the study was a bit rushed, and decisions were made on incomplete products, adding strain to the integrity of the system, and so, again, we need a plan. I'm not sure what the timeline on the Snapper Count is, and I'm grateful to the PIs for reviewing that huge body of work, and it is no small feat.

I would just like to point out, when it does come back, there are some big comments made by the CIE reviewers that need to be addressed, and I would encourage the SSC to develop a terms of reference to consider whether those have been addressed and how to use this in the stock assessment, and I think, for any part of that plan, I think SEDAR is an appropriate mechanism to review those types of studies, and so thank you.

CHAIRMAN NANCE: Thank you very much. Any questions for Michael? Michael, thank you. We appreciate those comments. Will.

DR. PATTERSON: Sorry, Jim. Thanks. Thanks for your paper, Michael, and for your comments here. You made a statement that the SSC needs to have a plan for this and that the review of the Red Snapper Count -- The population estimate study in the Gulf created a strain on the system.

You know, this was a unique opportunity, and I don't know of any other region where Congress has allocated $10 or $12 million to fund an independent estimate of population abundance for any fish stock prior to the first red snapper project.

Since then, there have been a couple of subsequent allocations of funds, one in the Atlantic for red snapper there and now for greater amberjack in the Atlantic and Gulf, but the Gulf study was the first, and I think there are lots of lessons learned there.

Within the team, and I was a member of the red snapper team in the Gulf, and am a member, and we're not quite done, and there were discussions about how to reconcile, or utilize, this point estimate that is produced Gulf-wide from that study, or was to be produced, and how that would be incorporated, and I think there was some, maybe, perception of some constituencies within the Gulf that that would be a stand-alone number, but, you know, we have all this other information that's collected by scientists, independent academic scientists, state agency scientists, for the most part, and then a handful of federal scientists that go into the assessment process, the SEDAR process, which is itself a collaborative process, and I've heard it referred to as the federal assessment, and that's not really true.

It's a collaborative process, where most of the people at the table aren't federal employees at all, and it's also an incredibly transparent process, to the point where it can be slow at times, because of the amount of transparency that's imparted into it, and so I agree that, if there's going to be future, and we know of at least two more, estimates that are going to come, and not before the Gulf necessarily, but in the region, then we need to think about how to address this and incorporate these estimates into this process, whether it's directly through SEDAR or some extra process.

We need to put more thought, as a scientific group, and I don't mean just the SSC here, and I mean everybody who has a stake here, into how these estimates are incorporated.

I do think that there was a problem in the process for the red snapper rollout, and Joe Powers mentioned this at the last SSC meeting, or the April SSC meeting, where he mentioned that the estimate that was being talked about, at least in congressional meetings, et cetera, that there was a seven-month period between when that estimate was first discussed by our group and when there was the peer review that came before the SSC, the external

peer review and then the peer review from the SSC.

He questioned why there wasn't some process put in place, at least in those seven months, and there had been three years where we knew this was coming, but in those seven months as sort of a reconciliation process, and I think, in hindsight, that was a pretty germane statement, important statement.

I am the PI of the project, the red snapper project, in the Atlantic, and we have a reconciliation process written into that proposal. I think it's important, and I asked Matt Smith a question yesterday about what they were doing, trying to incorporate this estimate into the assessment.

You know, there's a ton of information in these integrated assessment models, and we have seen, repeatedly, that sometimes we have to dial down the effective sample size of some of the information, because it overwhelms the model, and the model only fits to the age composition, for example.

Now, if you're putting in one data point, will the model even pay attention to it, and how do you actually force the model to fit to that? I think it's unrealistic to take one study and one data point and say, okay, this is where -- That we're going to manage based on that, because you don't have age composition information, and you don't have fishing mortality information, and so there's got to be this reconciliation, and these estimates are going to be one part of the information that then informs assessment and management.

These are extraordinary efforts that are going into these population estimates, and I don't know, again, of any other region where they've had this type of independent approach, and only for Congress stepping up have we been allowed this opportunity to compete for funding, as scientists, to produce the best scientific information available in these processes.

I do think that we need to stop using the word "count" to describe these studies, because it's imparting an unfortunate idea, I think, among constituencies and the fishing public about what is being produced. This isn't a census, and, in the red snapper study in the Gulf, we didn't go to all the red snapper houses and knock on the doors and say how many of you are here, how many live here, and then go to the next house. We don't know where the houses are.

We can't see all of the individual red snapper, and it's a statistical estimate, and statistical estimates have bias and

precision issues, and so that, obviously, has to be folded into how the information is used on the backend.

Anyway, I think Mike makes some good points here about what I would call reconciliation, reconciling these one-off studies and trying to estimate population size, into the broader context of information that we have on the stock, and I think, in our region, as these processes continue to be funded, or at least funding is being made available, we as a collective scientific body, NMFS scientists, council staff, academic PIs, SSC members, we need to think collectively about the best approaches to try to incorporate that information into assessment and management, because it just seems unrealistic that that number would just stand alone by itself and we would somehow utilize that, and we need to have a better process, I think, the next time such an estimate is produced, so that we avoid some of the consternation that I think occurred in April. Thanks.

CHAIRMAN NANCE: Thank you, Will. Any other comments from the SSC? Josh Kilborn.

DR. KILBORN: Thank you, Mr. Chair. I wanted to follow-up on what Will was saying, and I think that, to my mind, the real value in these large counts is not so much the point estimate of the population size, but it's really the process that went into producing them.

I think that they can be really useful to help inform the scope of work for future research track assessments, because the Great Red Snapper Count was a research track assessment on steroids, right, and so I think that the value is a lot more in the process and it uncovered a lot of new data streams and information that can be folded into the more formal process moving forward, and so I think that's an area where we really need to pay attention to how we could improve what we're doing, moving forward, based on the work that was done in these large-scale estimates. Thank you.

CHAIRMAN NANCE: Thank you. Jay Mullins.

MR. JAY MULLINS: Good morning, SSC members and all listening. I'm an eastern Gulf commercial longliner, and I was the fisherman that collected the water samples for you all to review.

Being that I have a lot of history in the eastern Gulf, I have very deep concerns about the way the eastern Gulf is being managed, particularly in the grouper species, seeing that it's

such a delicate complex compared to the snapper.

Our red grouper -- I heard some questions come up about us not catching our quota, or our ACLs, and there's a lot of variables involved in there. The life history of the red grouper fishery is so complex, and I don't think -- I didn't hear none of Ms. Skyler, in her presentation, really touch on very much of it.

Primarily, red grouper are shallow-water grouper species, which longliners that produce 80 percent of the quota, or catch 80 percent of the quota, are pushed to twenty fathoms and greater to fish. Well, since the implementation of a lot of restrictions, the turtle closure, which is the twenty-fathom closure out to thirty-five fathoms, and that's a three-month-long closure of June, July, and August.

Furthermore, what restricts red grouper harvest, with the longline industry, is that also runs into the hurricane season, which is natural, completely natural, September and October and into November, which restricts us even further.

Furthermore, what we have going on in the eastern Gulf is market manipulation and the consolidation issues, where we cannot get no access to allocation. I was allocated, originally, somewhere near 70,000 pounds of red grouper when the IFQ program was put into place. Since then, 60 percent has been taken away, and I'm down to I think 29,000 pounds of red grouper to catch for the year.

I stay away from red grouper like the plague, to land them, because we pretty much can't get no access to lease from outside the industry any longer, and so that definitely restricts our access to harvest these fish, not to mention, when NOAA said the longline industry was overcapitalized, prior to 2010, I think you guys eliminated nearly 100 longline vessels and restricted us down to sixty-two.

Last year, I think we only had forty longline boats that actually had landings on their permits. Why -- My questions are has the SSC looked at any of this and put that in any of their equations? You know, there's been a lot of assumptions over the last few days that I have listened to, and predictions and projections and whatnot, but there is very grave concerns, in the eastern Gulf, about which way our management is headed and the science that's not being reported.

I think Mr. Strelcheck had this information down in the Key West meeting, at the Gulf Council meeting, about the market

manipulation that's going on, and has the SSC received any information about this? That's a question I have for the SSC.

Then, on top of that, if you looked at the three overfished stocks that we're going to have, and I don't -- Gags haven't been considered overfished yet, although I know, at the last stock assessment meeting, they will be classified as overfished, and you have three fish stocks that are really overfished, and the recreational sector of those three fish stocks had the majority of allocations allocated to it, at sixty-some percent, almost 70 percent, each, your amberjack, your cobia, and your gags, and them fish are being overfished.

The commercial sector is completely accountable. When NOAA says to jump, we say how high. I would like to know, has anybody laid population density maps on their dashboard, to look at the population increases in the State of Florida to account for this?

Moving forward, we need to start looking at the population increasing at an incredible, alarming rate, and maybe put the brakes on it before this fishery in the eastern Gulf is getting wiped out, and it's getting hurt.

Furthermore, these are not natural occurrences with this red tide. The verbiage "red tide" really kind of disturbs me. These are manmade fish kills, which the State of Florida is responsible for, but yet, at the end of the day, the commercial sector is the whipping post, and has anybody taken these, and these are black-and-white facts, into account to make wiser, or more intuitive, scientifical ideas to create a better path forward for the future? Thank you.

CHAIRMAN NANCE: You're very welcome. Thank you very much for those comments. As you look and see what we discuss here at the SSC meeting, you see all the information that we have, and our discussions are based on that information. Any other comments from the public? Thank you. We appreciate all of that input.

We will now go into Other Business. We do have one item of Other Business that I am aware of. I will take Ryan's other business first, and then, from Dr. Sean Powers, we have another item of business.

OTHER BUSINESS

MR. RINDONE: Thank you, Mr. Chair. Just for all of the SSC

members and members of the public and presenters' edification, in the past, we have had a rule for materials being submitted to the SSC that nothing could be submitted inside of a week of the meeting, and we have certainly been far more flexible, to the point of almost ignoring that rule, in the last couple of meetings.

I just wanted to say that we are going to get back to it in a hard and fast way, and so, if you are to be presenting any materials to the body in any future meeting, please expect to have those materials submitted by one of the briefing book deadlines that I will provide. If I know that you're presenting, I will be hitting you up about that at least a few times prior to the meeting, to let you know about those deadlines, and you will see those in the draft agenda as well.

If there are any changes, edits, additions, or what have you that, that need to be made to your materials inside of a week, those -- We're going to be severely limiting whether those changes can happen or not, and the only circumstances, at present, that would allow any changes to be made to materials would be either to pull it down and move it to a subsequent SSC meeting or if the council is going to be taking final action on something directly related to that topic that you are presenting on at the following council meeting, and so just an FYI there.

Obviously, we'll take things on a bit of a case-by-case basis, and there is always extenuating circumstances, but just to try to make sure that we're providing things to you guys with more than forty-eight hours to review complex material prior to the start of the meeting. We realize how inconvenient those materials updates can be.

CHAIRMAN NANCE: Thank you. Katie.

DR. SIEGFRIED: I didn't actually raise my hand, but I do have a comment. I totally understand this, and the council staff have to be running around like chickens with their heads cut off trying to keep up with all of the stuff that's flying at them during the SSC meeting, and so I completely understand this.

The Center has put forward a memo sort of outlining the communication about requests that are to be delivered either to the council or the SSC and other cooperators, and that includes a timeline, and we'll just have to be really careful about making sure this one-week hard deadline, which we understand, is included in that timeline.

If we receive a request for projections three weeks before the SSC meeting, that's just -- That's going to be really difficult to fulfill, if we basically have two weeks to complete them and review them and get the document to the SSC, and so we'll just have to be more aware of all of these timelines and make sure that everybody is adhering to the needed lead time for requests.

CHAIRMAN NANCE: Thank you. Ryan, to that point?

MR. RINDONE: Yes, of course, Katie, and I will work very closely with you and folks in your shop to make sure that we're pacing things out at a reasonable -- In a reasonable way, so that you guys aren't stumbling over each other trying to meet a deadline that's unreasonable, and we'll do our best to work together on that.

CHAIRMAN NANCE: Okay. Thank you. Sean has a motion that he would like to present to the SSC.

DR. POWERS: The background for this is, since we've talked about the research track red snapper issues at this meeting, and we've had some sidebar conversations amongst SSC members, and I've had some email communications with those on virtual, and so we've gotten to a point where I think it's important that the SSC comes on record and advises the council what we would like, as the SSC.

Now, we've heard Katie and SEDAR talk about workloads and what they can and cannot do, and I think that's important for everybody to hear, but I think it's also important that the council hear from us what we would like. Then, if it can be done, it can be done, and, if it can't, it's -- You know, we have established it.

The background, a little bit, as Julie Neer mentioned in her comment that the group of fifty-some-odd scientists -- That there was consensus for an option, but it wasn't overwhelming consensus, I would characterize it as, and I got concerned that most of the SSC members, and I won't speak for all of them, but most of the SSC members were the ones that had, ultimately, the concerns, and so that kind of stimulated some email exchanges and the conversation.

This motion is purely to hopefully get support from the SSC to tell the council exactly what we would prefer. That is, during the assessment modeling phase, for them to explore the different stock area options that we've had.

There is three, and so it's not a huge number, and I know it's not a trivial amount of work, and Katie has talked about the expectations for that workload, but this is a key consideration and a key point, and we won't be able to get another shot at this for at least a decade, probably, and so, anyway, this is the motion. I guess I will get a second before I read it?

CHAIRMAN NANCE: Why don't you go ahead and read the motion, and then we'll ask for a second.

DR. POWERS: Okay. **The SSC recommends that the current SEDAR research track assessment for Gulf of Mexico red snapper investigate alternative scenarios for stock areas, and, specifically, this refers to the document Options a, b, and c, during the assessment modeling phase. Given that the information reviewed by the life history and genetic working groups of the stock ID workshop supports several possible alternative boundaries, with no definitive boundary evident, and the use of different stock areas (number of regions and exact location of boundaries) has remained a key concern of the SSC, the SSC feels that this must be explored during the assessment model phase.**

CHAIRMAN NANCE: Thank you. Do we have a second for that?

DR. SCYPHERS: I will second.

CHAIRMAN NANCE: Steven Scyphers has seconded that. Now we'll go on to discussion. Doug Gregory, please.

MR. GREGORY: Thank you. Unfortunately, I really don't know what this motion refers to, because the SSC has not seen any of the background information, and we have not had a discussion about this.

Those of us that were not part of those working groups, or part of the research topical working groups, or whatever it was, are completely unaware of this, and so it seems to me that this is really something that we can't do at this time. Thank you.

CHAIRMAN NANCE: Sean, to that point?

DR. POWERS: I understand, Doug, and that's one of the things that I struggled with, and this was part of Katie's concern, that we -- Do we need to bring it and discuss it at the SSC, but that's really not the SEDAR process, and my issue is that, if we do wait until the end, when everybody can be informed,

then that might be too late. The decision has already been made.

CHAIRMAN NANCE: Okay. Thank you. Roy.

DR. CRABTREE: I have to agree with Doug. I mean, this is kind of coming out of nowhere, Sean, and I haven't seen any of the document or anything with it. I just feel like it would be inappropriate for the SSC to weigh-in on something like this, when we haven't had any preparation for it or seen any of the documents, and the SEDAR process is what it is, and I think that process has to run, but I just can't support this, because I am not sure what any of it even means or what is really going on, because we haven't seen any of that.

CHAIRMAN NANCE: Will.

DR. PATTERSON: I think Doug and Roy bring up some really important procedural points here. My concern with this process is just that the current research track, we've been told, just can't handle examining multiple stock structure scenarios.

Personally, I don't think the Options a, b, and c that are in the document, that, obviously, many of you have not seen, are all equally plausible. I think the one that was chosen is the best approach as a default, but I do think that, if that doesn't work out, then it will fall back to the current status quo.

My whole point, in the conversation the other day, was why not just move forward with both and test to see whether that's -- Make that as objective as possible, and which is the better approach, given the data and the fits, et cetera, and so, while this particular motion I wouldn't support, if the motion was to encourage the SEDAR process to permit the examination of multiple stock structure scenarios, then I think that's a more general and better approach and would be a path forward.

DR. POWERS: I am happy to change that, Will. That's a good point. I mean, I struggled with how prescriptive to be, but you're right that the issue is just to expand what we can explore in the research track, specifically that, and so I'm fine with that edit, and it's shortening it considerably and keeping it just to letting the -- Allowing that exploration of the stock areas in the research track.

CHAIRMAN NANCE: We can either do it with a substitute motion or, Sean, we can edit this one. Steven would need to agree to that, obviously.

DR. SCYPHERS: I am happy to agree to that, and that's actually close to what I had raised my hand for anyway, and so I would agree to the changes that Sean suggests, and you can take my name off the list. Thank you.

CHAIRMAN NANCE: So go ahead, Sean, and make -- I won't say a quick edit, but edit.

DR. POWERS: Go to "The SSC recommends that the current research track assessment for the Gulf of Mexico red snapper investigate alternative scenarios for stock structure, period. Essentially delete the rest.

CHAIRMAN NANCE: Steven, are you okay with that?

DR. SCYPHERS: Yes.

CHAIRMAN NANCE: Okay. Katie.

DR. SIEGFRIED: Thank you, Mr. Chair. Can I please defer to the end of other SSC members' comments? I can provide my comments after the SSC has weighed-in.

CHAIRMAN NANCE: Absolutely. I will make sure you're on there, for sure. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. By the way, my apologies that my participation this week has been completely erratic. I am having major computer problems, and my computer crashed, and I am trying to use different loaners to participate, to the extent possible, but at times without success, and I missed most of today's conversation, and so I apologize for that. Anyway, it looks like things are working now.

Sean, relative to this motion, I think a lot of my thoughts on this, my concerns, have already been expressed by Doug and by Roy and Will. Basically, it's we don't really know -- We don't have any information on any of this, and we haven't participated in the meeting that made these decisions, and we haven't seen a report, and we're completely uninformed about what this leads into, and I don't know how, or why, the SSC would weigh-in on this right now.

I mean, the SEDAR process, with the research track, involves the use of the assessment development team, and so we have several of us that are members of that assessment development team, and our role is explicitly to weigh-in on these types of

issues and follow along throughout the data assessment development and, finally, review continuity in SSC participation in this process.

Sure, we can discuss this at some other time, when the report and the documents are available, but, at this point, to have a motion of this nature, weigh-in so explicitly on the content of a SEDAR assessment, I am uncomfortable, and, at this point, unfortunately, I am inclined to vote against the motion.

CHAIRMAN NANCE: Sean, to that point.

DR. POWERS: I understand the concerns, Luiz, and, ideally, this is not how I would have preferred it to happen, but it's just a lot of us, or I will just speak for me, but, when I came into what a research track would be, I thought that, just like that, the SSC members on the ADT would have a large say in what to explore and what the priorities are.

This process revealed that it's more SEDAR staff and the analysts that are limiting what we can explore, and so that give and take -- I understand that this motion is way out of the sequence of things, but I do think, for red snapper, it is such a critical thing that we explore that waiting until the end doesn't give us an option to go back, but I understand your points.

CHAIRMAN NANCE: Thank you. Jason.

MR. ADRIANCE: Thank you, Mr. Chair. Having been one of those members in this stock ID, I understand the concerns. There was a lot of information presented, and I get that a lot of folks here were not privy to that, but what bothers me is some of those same concerns that Sean has mentioned, that this idea of a research track allowing us to explore some of these things, especially one that has been pretty important to the SSC --

As Sean mentions, obviously, there is a time crunch, and, to me, it appeared -- The group was asked to reach consensus, but there was this underlying notion that, if someone spoke out and mentioned that, well, they did not agree with what the ultimate choice was, that, well, that just blows up the stock assessment timeline, and then we're going to have to shift the red snapper assessment, and things aren't going to get done, and there goes the SEDAR schedule.

From my perspective, I had a lot of hesitation to really speak how I truly felt about my concerns with the ideas being explored,

and so that is my big point, and I think hopefully some of the discussion that we had earlier this week on managing expectations helps that in the future, and we can better this process, but I do feel that, here, this is one where we should explore these things, and there should be a little more freedom for the analysts to do that. Thank you.

CHAIRMAN NANCE: Thank you, Jason. Jim.

DR. TOLAN: Thank you, Mr. Chairman.

DR. BARBIERI: Mr. Chairman, my apologies, but just another point of clarification, because -- I apologize for jumping in, but just on what Jason just mentioned, and I think this is important for us to understand as this discussion progresses, is there a consensus report that is being produced that was the result of an outcome of these workshops or the working group products that was put together, because I feel that, for us as an SSC to make a recommendation that conflicts with recommendations for consensus decisions that are in that report, it creates a process problem here that is difficult for me to understand how we would be able to handle through the SEDAR process. Thank you, Mr. Chairman, and apologies for jumping in like that.

CHAIRMAN NANCE: Thank you, Luiz. Jim Tolan, please.

DR. TOLAN: Thank you, Mr. Chairman, and no worries, Luiz. That was just fine, and I think Julie is going to address that point directly, and I will address that a little bit, as one of the workgroup leaders, but, Sean, as much as I love the fact that you brought this motion up, and I totally support it, I think some of the formatting issues and the timing issues that have been brought up earlier have me a little bit concerned, with all the rest of you, but I know, from the landings CPUE group that I led, in our recommendation, we put forward that we think that there needs to be a different one of the options taken, and so we're going to take that to the data scoping on Friday. I'm going to still push really hard for that, but I think this motion is ill-timed, and so it's going to be tough to get this one passed, but I certainly appreciate you doing it. Thank you.

CHAIRMAN NANCE: Thank you, Jim. Mandy.

DR. KARNAUSKAS: Thanks, Mr. Chair. I agree with Luiz and others on some of the procedural concerns, and so I won't repeat those, and I will also disclose that I was part of the stock ID process, and I contributed some work to that.

I also appreciate Sean's desire to investigate these different possibilities in the research track stock assessment process, but I have to say, having been involved in kind of opening the hood on this assessment in the past, and, for example, looking at some of the research done with larval connectivity and trying to look at spatial structure in the stock assessment and how we could better account for some of the movement dynamics, it's really not a trivial exercise.

It's not just a matter of divvying up the data and slicing and dicing in a different way and popping it in the model, and it really -- Each time you add model complexity, it really opens up a whole new can of worms, and so I really have to question whether these kinds of explorations are the best use of the analysts' time.

Again, I appreciate the willingness and the concern and wanting to explore these alternatives, but I really have a hard time, with my experience in this assessment, trying to figure out how this could be feasibly done.

CHAIRMAN NANCE: Thank you, Mandy. Julie.

DR. NEER: I will speak after Katie. I want the SSC to make their case first. You can stick me after Katie. Thank you.

CHAIRMAN NANCE: I may put you right before Katie.

DR. NEER: That would be fine as well.

CHAIRMAN NANCE: Okay. Katie can have the last word, I guess, but we'll see. You guys can duel it out. Will and then Roy.

DR. PATTERSON: I am sorry. I left my hand up the last time, and I don't have anything.

CHAIRMAN NANCE: Okay. Thank you, Will. Roy.

DR. CRABTREE: I will just be quick. I mean, I appreciate your willingness to modify the motion, Sean, but I just don't think this is the appropriate way, time, or place for the SSC to weigh-in on this. I mean, I'm hearing a lot of things said, but we don't have anything -- I don't know what happened, and we don't have a report, and it's just not the proper time, I don't believe, for a way for us to weigh-in, procedurally.

CHAIRMAN NANCE: Trevor.

DR. MONCRIEF: I certainly understand all of the concerns and everything else, and, being a part of the stock ID process, and listening in on it, this is one those things, when it comes down to a stock like this, that you have a lot of folks that have a lot of expertise, and you have a lot of information out there, and you're not always going to have 100 percent agreement, and, while consensus was reached, there was a lot of questions on which one to choose.

My question here, and I want to be able to balance the desire of the motion, and also the concerns about the data and everything else, and I was wondering -- Is there a spot for this at the next meeting? Will a report come out before then? Is there any chance for the SSC to review the document, review the information that's there, and kind of have this discussion and come to some sort of consensus of the group?

CHAIRMAN NANCE: Sean and then Ryan.

DR. POWERS: That is definitely my preference. I mean, I would love to table this motion, or withdraw it, for now, and have the SSC come up to speed, but we still have the issue that, procedurally, that's not what we usually do, but I am -- I just don't want procedure in the way of trying to get this stock assessment to where the SSC can examine it and not send it back at the end, and that's my concern, but I am perfectly willing to withdraw it for now, if we can put it in the next meeting and let everybody read the report and see a more informed decision.

CHAIRMAN NANCE: Ryan.

MR. RINDONE: Thank you, Mr. Chair. The way that the research track process is designed to work is not to have consistent SSC, as a body, intervention in between each of the steps of the process, and Dr. Neer had talked about, in her presentation a couple of days ago, that there is some main components.

There is the stock ID process, and then there is the data preparation and evaluation phase, and then there's the assessment process, and then there's the peer review, which includes SSC members and the CIE.

Then, after that, the research track is done, and then we begin the operational assessment component of it, which is where we update all the data that were used in the research track to their most current year available and then, using the newly-

rebuilt car from the research track assessment, and then the SSC serves as the review body for all operational assessments.

It would seem, based on the way that -- Obviously, we have started this research track process for red snapper now, and it would seem that interrupting that process in a way that could result in having to repeat the stock ID process, at least in part, or perhaps in its entirety, would certainly create substantial delays in the development of any sort of management advice down the road for red snapper.

If that is what the SSC is recommending, I would just ask you to think about the downstream effects of what that means, not just for the SSC and its review, but also the workloads for the Center, when the council anticipates receiving the catch advice down the road, and there's a lot of players, obviously, as was spoken to as part of Julie's presentation, and then as Will spoke about earlier.

It's not just federal, and it's academics, and it's state people, and it's everybody, and then, for red snapper, it's more than any other species. There are hundreds upon hundreds of people that are involved, and going to be involved, in this assessment, and so any changes to pace, et cetera, affects many, many people, and not insignificantly, and so that's all I have on that.

CHAIRMAN NANCE: Doug Gregory.

MR. GREGORY: It's hard to follow that one. Sean, this is surprising, and I had the impression that a research track was to investigate everything, and no matter how long it took, and you do it. In fact, I think, within National Marine Fisheries Service, there was some discussion about that.

I also understand how SEDAR likes its schedules, and so this will mess up their schedule, and I am really sympathetic to this, because of my concern about king mackerel.

If you remember, back in the day, we would refer to king mackerel as having a western Gulf migratory group and an eastern Gulf migratory group, and somehow that has been lost, but, in essence, for all intents and purposes, those migratory groups were separate genetic populations, and so I would like to see that re-emerge and us look at the western Gulf and the eastern Gulf as separate populations, because something is going strange with king mackerel, and we need to look into this, and so I am sympathetic, but I don't support the motion, and I see it

probably being withdrawn, but this is not what we thought the research track process would be. Thank you.

CHAIRMAN NANCE: Thank you, Doug. Katie.

DR. SIEGFRIED: Thank you, Mr. Chair. There's a lot of things to potentially respond to, and I think Julie will probably comment on procedure. I guess I will just weigh-in on that a little bit, and it's not SEDAR that is limiting -- We're not shackled by SEDAR to only produce one stock structure, and I wouldn't say that the SEDAR process is the problem.

As I explained in my presentation, and Julie explained in hers, we had a stock ID process that was supposed to be when we considered these alternative stock structures, and it doesn't sound like it's satisfactory to folks, and I understand that, but I hope that it can also be understood that all of the analysts are not focused on just providing data for red snapper, or modeling for red snapper, and so we have to provide some feasible limits of what we can provide at the Science Center, given all of our other operational workload.

For instance, if this is something that the SSC wants to change procedure and circumvent the stock ID process and decide on stock ID themselves, which I haven't heard that exactly, but, if you want to revisit it next time, that's really ignoring the consensus that was reached during the SEDAR stock ID process, and we would have to stop data provision.

At this point, we wouldn't need to have data scoping, and we wouldn't want to have the data providers pull the data multiple times. Like the Florida folks have to recalculate their indices of abundance that are key, and, like Ryan said, there's lots of other people that have to get their data together multiple ways, and so it's a trickle-down effect, and it's a trickle-out effect, that we just -- We have to put some feasible limits on workload.

Also, we just don't know an objective, quantitative way to decide between these models. If we run the status quo, and then we run Option c side-by-side, it's, at that point, at least double the work, and potentially more, because we don't really know which indices will be used in Option c.

Then the final comment is I agree with all of the folks that have raised the issue, and they haven't even looked at the options, and they don't know what they're evaluating, which was a comment that I made before, but I think that touches on

everything that I had written down, and I'm happy to elaborate on anything, and I know that I commented on quite a number of things there all at one time, but hopefully Julie can get at the procedural and process part. Thank you.

CHAIRMAN NANCE: Thank you, Katie. Sean, to that point?

DR. POWERS: Katie, and I don't disagree, and I don't think any of us would, that there was a consensus option, and I guess what I go back to is that consensus somewhat was forced, because we were told we could only have one option, and I guess that's the heart of it, and not which option is the best or anything like that, but just, as many of us said, going into this research track, we thought we could explore more things than we can, and so I am not debating that, or arguing that, the option that was chosen was the consensus among the large group, but it's just we were restricted to choosing one option, and that's all.

CHAIRMAN NANCE: Mandy.

DR. KARNAUSKAS: Thanks. I just wanted to point out what's going on with the research track also isn't happening in a vacuum. There are a lot of lines of research that we're undertaking at the Southeast Center, and we had, before the research track, been exploring some spatial modeling approaches and alternative spatial areas for red snapper, and that line of research is still ongoing, and so it's independent from the research track assessment.

We also have an effort looking at trying to divvy up sort of artificial versus natural red snapper populations, trying to divvy up the data by those separate habitat types, so we could look at the impact of productivity on artificial versus natural reefs, different growth and those sorts of things, and so that research is ongoing, and potentially those sorts of complexities added into the stock assessment might even have more bearing than two a two-region versus three-region model, and so I just wanted to point that out, that, if it doesn't get included in the research track assessment, it's not that all is lost. A lot of these things can make great PhD dissertations and projects and gradually get included and incorporated into the management. Thank you.

CHAIRMAN NANCE: Thank you, Mandy. Jim.

DR. TOLAN: Thank you, Mr. Chairman. I will just back-up what Sean was saying about, at the very end of that stock ID, we were kind of forced into coming up with some consensus, and I made a

point of putting some language into our report that was almost like a minority report status that says, even though the consensus is this, our group preferred this option, and so, again, a lot of people haven't seen these, and so I'm not going to talk much about them, but I still think we were sort of shepherded by the staff to say you get to pick one and go do it, and so, again, it gets away from what a research track ought to be. Thank you.

CHAIRMAN NANCE: Thank you for that comment, Jim. Julie.

DR. NEER: Thank you, Mr. Chair. It seems that the understanding of what a research track can and cannot do is an outstanding question, with regard to the scope of what can truly be done. I am sorry that groups felt that you were kind of forced into consensus, and that was certainly not my intent during the process, but I do agree that the guidance we were provided was that, as anything with a research track, versus a benchmark, versus any of the processes that SEDAR has done, they are sequential decision-making processes.

You have to make decisions to move on to the next step, and so the Science Center made a compelling argument, during the stock ID process, which I believe they have tried to reiterate here with regard to, one, workload issues, but, two, the bigger issue with regard to how would you choose which model is, quote, unquote, best, if we could even run these things in multiple iterations moving forward?

I would suggest that, if that is something that the group feels needs to be done, then perhaps that's a recommendation that should come out, that says, well, if we think we want to do these things, we need to come up with an objective way to choose between multiple models, and that's a whole other process that can be conducted via the Science Center, the Science Center and the council, and the Science Center and the council and SEDAR, or whatever.

It sounds, to me, like that is one of the underlying issues, is, unfortunately, what we feel -- What the Science Center feels can be accomplished, and what the SSC would have liked to have been accomplished are not in step right now, and so we're going to have to deal with that.

My other comment I just want to make is the current process -- We do not have, as Ryan mentioned, reviews at each step of the process during a SEDAR process, and we never have, and this is not the current structure of how these things work.

If that is something that you also feel needs to be changed, that the SSC should actually weigh-in at each step of when we finish stock ID, when we finish data, when we finish the assessment, before it goes to review, that is something that you need to give some thought to and come up with a proposal and have your council reps present that to the SEDAR Steering Committee, because that is a fundamental change to how we operate, and have operated since SEDAR was put in place in 2002.

SEDAR changes all the time, as we all seem to make a joke about, but it's true, and we are constantly trying to change and adapt to make things happen, to meet the needs of our cooperators, and, if that's a step that we need to suddenly need to incorporate and make changes to, then think about that. Think about how you would like to see that happen, and it can be discussed at the Steering Committee level, and that's certainly not something that is just decided by any individual cooperator or any individual SSC, and it's a bigger programmatic issue.

Finally, I just wanted to say that, with regard to timing of getting stuff done, we also have received -- SEDAR also receives pressure from outside influences, such as cooperators, saying we need this management advice. SEDAR is happy to make this project five years long, if that is what it's going to require, but it's not my choice to make that. These schedules are defined and set up with cooperation with regard, and consideration with regard, to when the councils need these products, how much time the Science Center needs to make these things happen, how much involvement we need from a variety of people.

As Ryan said, this is one of the largest things we've done in a long time, since the first SEDAR red snapper that was held in the Gulf, and there was fifty-some people on the participants list, and that is kind of where we're at again already, not counting the public just showing up, and we think there will be.

We set schedules, but I don't want anyone to think that SEDAR sets the schedules. In reality, SEDAR sets very little. We operate and act under the guidance we are provided from people doing the work and people who need the product at the end, and then I take all of that information, and I come up with a project schedule to try and make everyone happy, and there is always people who are not happy along those lines, but, if we need to make changes to any of these processes, the mechanism is you make your recommendations to your council, and they can bring it up at the Steering Committee level. Thanks.

CHAIRMAN NANCE: Thank you. Trevor.

DR. MONCRIEF: Thanks, Katie and Julie, for all that information and everything else. I wanted to go down kind of the same route that you were talking about, Julie, but just a little bit different direction, really trying to look at, down the road, should this kind of thing happen more, and you can only imagine that we're going to continue to get more and more data on all these species, and the assessments are going to become more and more complex, is what you would think, down the road.

I know, at one point, at the end of the meeting, essentially, when we were struggling to come to some sort of consensus, and folks coming down to it, the comment was made that, if we can't make a decision here, then the decision would have to go to the powers-that-be to make it, and I was wondering, at least in our group, if the discussion would be worth having, and, in the future, if a stock ID group cannot come to a consensus, would this be an applicable venue to then receive that information and help guide the process to a consensus? That's just something I wanted to bring up.

DR. NEER: Jim, may I respond to that, quickly?

CHAIRMAN NANCE: Yes, Julie.

DR. NEER: In a previous SEDAR, and it was a benchmark at the time, and it was cobia, Atlantic and Gulf cobia, and we also had these issues within blueline tilefish. In both of those terms of reference, they had an additional process to -- They had steps built into the process, as part of sort of the -- Not the terms of reference, but the operational guidelines, with regard to what if this group can't make a consensus.

In the case of blueline, we had a review panel review it, and we had stuff like that, and then it went up to sort of council leadership, because there were multiple agencies, or councils, that might have had to deal with the management issues, and there was a technical review body that could also step in, if we had additional questions, and so I think that having that discussion of what do we do if we can't reach consensus, how we move forward, we need to revisit and make sure that those steps are outlined, and I think that is useful.

Whether it would be the SSC who would weigh-in on it, or council leadership, other technical experts, I don't know, but I agree that, given all the consternation that has come out of this one,

we should revisit that process, and it has existed in the past for pieces, and we didn't -- It had sort of fallen by the wayside, because we haven't had any extremely controversial -- We didn't envision any of these being extremely controversial or difficult decisions for the recent ones that we have done, but it's certainly a mechanism that could be looked at.

CHAIRMAN NANCE: Thank you. Will Patterson, please.

DR. PATTERSON: Thanks, Jim. I think this issue with the stock structure questions, with respect to the research track assessment for red snapper, really comes down to expectations, and I don't remember going through the TORs ahead of this assessment, and I guess we should pay close attention in the future.

If there's something that SSC members think really needs to be a focus, or at least potentially examined within one of these research track assessments, that we be sure to get it into the terms of reference, because, going back to -- Following 2010, when we started to see a plateau of stock biomass in the east -- After 2007 or 2008, the trajectory was going upward quite substantially, and a similar trajectory in the east and the west.

The west continued to climb, and the east kind of plateaued, and then we started seeing, through the various assessments and updates, the decline in indices in the north-central Gulf of Mexico, but an increase in values in the eastern Gulf of Mexico, south of San Blas.

Now, there was -- I should say just in the data that were collected from various programs, because the indices themselves were being fit to the entire eastern Gulf of Mexico, versus western Gulf of Mexico, and that's when folks that have been involved in the red snapper assessment processes and SSC members started to really get an interest in, well, perhaps we have different dynamics that are occurring south of San Blas, versus from the Mississippi River over to San Blas, and we were told, well, we can't do that in this type of assessment, but there's a research track coming down the road.

I guess I just didn't really pay close enough attention to what the realm of possibility was there, because I was surprised, in one of the earlier stock ID workshops, when I brought up the -- I naively said, what do you mean we have to choose, and we can do both, and then it will just be this, and then I was told that, no, we can't do that, and so my ignorance there shown

through.

I do think that this is possible. I understand that the data requirements and the amount of finesse that will be required to examine two different population structure assumptions is not insignificant, but, really, what it comes down to is motivation and choice, and time, obviously, right?

There's a lot of analytical time that's involved here, and so I guess, if the SSC had said this is our number-one priority in a research track assessment, to examine this issue early on, then it seems to me that that would at least have been considered, if not incorporated into the process. We just have to do a better job, I guess, of communicating that as we go.

I disagree a bit with Katie about this idea of an objective evaluation, because, even though we may not be able to look at AIC or some other Bayesian criterion, there is expert judgment here. We can look at how the model is fitting and how the two different models would be fitting under different population structure assumptions and, from that, draw some inference as to which we think is more plausible, and then the other, which does a better job of capturing stock dynamics.

It seems like an area for research, especially as spatial models become more in vogue and are utilized, to examine that, when you're not handling the data exactly the same way, so you can use some type of information criterion to evaluate between the two, but I still think that it could be done in a somewhat objective manner, even if we couldn't use the typical types of approaches. Thanks.

MR. RINDONE: Jim stepped out for a second, and so we'll go to Tom.

DR. FRAZER: Again, there is a lot of discussion here that is valuable to hear. I think it will be important, and a lot of it centers around expectations regarding the research track assessment, and I think we can certainly have a discussion again at the council meeting with Science Center leadership, and I will call Clay again to try to clarify what the bounds might be on a research track, and they certainly can't be unlimited, but they should be as flexible as they can be to pursue any number of things, but, again, there are some realities that we have to pay attention to, and so I think some clarity coming from the Science Center with regard to the scope of the research track assessment is in order.

We can certainly -- I will talk to Clay personally about it, and then we'll have some discussion at the council meeting in Texas in these coming weeks.

Depending on where that discussion goes, and based on this discussion, we'll have -- Some of it will bear on process and what's appropriate and what's not, and how we might intervene or have some checkpoints, and, if it's doable and the right thing to do, perhaps we can have a one-day SSC meeting to deal specifically with this topic before we get too far down the road, and so that's all I have to say for right now.

MR. RINDONE: All right. Mike.

DR. ALLEN: Thank you. I just wanted to mention that, as a new SSC member on the Reef Fish SSC, I haven't seen any of this yet, and so I wouldn't be in a position to comment or vote either way on any of the motion, and I realize that this is something that the group has been tackling for a long time, and that it's almost irresistible to talk about it, but I'm not in a position to weigh-in either way at this stage, and so thank you.

MR. RINDONE: All right. Is there anyone else that would like to speak to this issue? Seeing none, are there any other members of the SSC that have anything to bring up for other business? I think this was all that we had prior to the meeting.

Seeing none, thank you, all. You guys have done a great job, especially for your first meeting, and it certainly wasn't dull, and so I will be working on an updated agenda with the Chair and Vice Chair and council staff, and we will float that to the Science Center and the other people from whom we need to receive materials for the September meeting.

I will send out a doodle poll later today for dates for that last full week of September, and so go ahead and draw a circle around that with a pencil and flag that, and that's definitely when this is going to be, and, right now, it's looking like probably a three-and-a-half-day meeting. If we go forward with having a one-day meeting to resolve this stock ID issue with red snapper, we'll plot something out on the calendar and try and figure a time to discuss that with you guys, and so any questions?

DR. NEER: Ryan, when you say the last full week of September, you're talking the week of September 20, the last full week of September, or are you talking --

MR. RINDONE: Sorry, Julie. You're right. I am looking at the week of the 27th to October 1.

DR. NEER: Okay. Thank you. I am just penciling in the right week.

MR. RINDONE: Yes. The 27th to October 1, that week.

CHAIRMAN NANCE: I greatly appreciate all of your input, and this has been a great meeting. I guess we will go ahead and end.

MR. RINDONE: All right. Safe travels, everyone. Thank you.

(Whereupon, the meeting adjourned on August 11, 2021.)

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