GULF OF MEXICO FISHERY MANAGEMENT COUNCIL

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

FEBRUARY 27-28, 2024

STANDING SSC VOTING MEMBERS

Jim Nance.....
Luiz Barbieri.....
Harry Blanchet.....
Dave Chagaris.....
Roy Crabtree.....
Douglas Gregory.....
David Griffith.....
Paul Mickle.....
Trevor Moncrief.....
Will Patterson.....
Daniel Petrolia.....
Sean Powers.....
Steven Scyphers.....
Jim Tolan.....
Richard Woodward.....

SPECIAL ECOSYSTEM SSC VOTING MEMBERS

Mandy Karnauskas.....
Josh Kilborn.....
Steven Saul.....

SPECIAL REEF FISH SSC VOTING MEMBERS

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

SPECIAL SOCIOECONOMIC SSC VOTING MEMBERS

Luke Fairbanks.....
Cynthia Grace-McCaskey.....
Jack Isaacs.....

STAFF

John Froeschke.....Deputy Director
Lisa Hollensead.....Fishery Biologist
Jessica Matos.....Administrative and Accounting Technician
Emily Muehlstein.....Public Information Officer
Carrie Simmons.....Executive Director

OTHER PARTICIPANTS

Billy Broussard.....GMFMC

Shannon Cass-Calay.....SEFSC
LaTreese Denson.....SEFSC
Mara Levy.....NOAA GC
Vivian Matter.....NMFS
Julie Neer.....SEDAR
Clay Shidler.....
Katie Siegfried.....SEFSC
Matt Smith.....NMFS
Jessica Stephen.....NMFS
Bob Zales.....Panama City, FL

- - -

TABLE OF CONTENTS

TABLE OF MOTIONS

- - -

The Meeting of the Gulf of Mexico Fishery Management Council Standing and Special Reef Fish, Special Socioeconomic, and Special Ecosystem Scientific and Statistical Committees convened at the Gulf Council Office in Tampa, Florida on Tuesday, February 27, 2024, and was called to order by Chairman Jim Nance.

INTRODUCTIONS
ADOPTION OF AGENDA

CHAIRMAN JIM NANCE: We'll go ahead and start. Good morning. My name is Jim Nance, and I am the Chair of the Scientific and Statistical Committee for the Gulf of Mexico Fishery Management Council. We appreciate your attendance at the webinar and input in this meeting. Representing the council is Billy Broussard.

Council Staff in attendance includes Carrie Simmons, John Froeschke, Lisa Hollensead, and Jessica Matos. Notice of the meeting was provided to the Federal Register and sent via email to subscribers of the council's press release email list and was posted on the council's website.

This week's meeting will include the following topics: review of SEDAR 85, Gulf yellowedge grouper; comparison of reef fish and snapper grouper fisheries in the southeastern United States; review of other deepwater grouper landings data and catch limits; review of SEDAR 74, red snapper research track; review of SEDAR process recommendations from SEDAR 74; review of SEDAR 96, southeastern yellowtail snapper; operational assessment review of SEDAR 85, Gulf yellowedge grouper projections; revised black grouper and yellowfin grouper landings and catch limits; and review of 2024 Gulf red grouper interim analysis.

This webinar is open to the public and is being streamed live and recorded. A summary of the meeting and minutes will be produced and made available to the public on the council's website. For the purpose of voice identification, and to ensure that 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, and we'll go from there. Thanks.

MS. JESSICA MATOS: Luiz Barbieri.

DR. LUIZ BARBIERI: (Dr. Barbieri's comment is not audible on the recording.)

MS. MATOS: Harry Blanchet.

MR. HARRY BLANCHET: Harry Blanchet.

MS. MATOS: David Chagaris.

DR. DAVID CHAGARIS: (Dr. Chagaris' comment is not audible on the recording.)

MS. MATOS: Roy Crabtree.

DR. ROY CRABTREE: Roy Crabtree.

MS. MATOS: Doug Gregory.

MR. DOUG GREGORY: Doug Gregory.

MS. MATOS: David Griffith.

DR. DAVID GRIFFITH: David Griffith.

MS. MATOS: Paul Mickle.

DR. PAUL MICKLE: Paul Mickle.

MS. MATOS: Trevor Moncrief.

MR. TREVOR MONCRIEF: Trevor Moncrief.

MS. MATOS: Jim Nance.

CHAIRMAN NANCE: Jim Nance.

MS. MATOS: Will Patterson.

DR. WILL PATTERSON: Will Patterson.

MS. MATOS: Dan Petrolia.

DR. DAN PETROLIA: Dan Petrolia.

MS. MATOS: Sean Powers.

DR. SEAN POWERS: Sean Powers.

MS. MATOS: Steven Scyphers.

DR. STEVEN SCYPHERS: Steven Scyphers.

MS. MATOS: Jim Tolan.

DR. JIM TOLAN: Jim Tolan, sitting on the wrong side of the room.

MS. MATOS: Rich Woodward.

DR. RICH WOODWARD: Rich Woodward.

MS. MATOS: Jason Adriance.

MR. JASON ADRIANCE: Jason Adriance.

MS. MATOS: Mike Allen.

DR. MIKE ALLEN: Mike Allen.

MS. MATOS: John Mareska.

MR. JOHN MARESKA: John Mareska.

MS. MATOS: Luke Fairbanks.

DR. LUKE FAIRBANKS: Luke Fairbanks.

MS. MATOS: Cindy Grace-McCaskey.

DR. CINDY GRACE-MCCASKEY: Cindy Grace-McCaskey.

MS. MATOS: Jack Isaacs.

DR. JACK ISAACS: Jack Isaacs.

MS. MATOS: Mandy Karnauskas.

DR. MANDY KARNAUSKAS: Mandy Karnauskas.

MS. MATOS: Josh Kilborn. Steve Saul.

DR. STEVEN SAUL: Steve Saul.

MS. MATOS: Billy Broussard.

MR. BILLY BROUSSARD: Billy Broussard.

MS. MATOS: Thank you.

CHAIRMAN NANCE: Thank you, Jessica. Everyone should have had an opportunity to look over the agenda. Are there any changes, or any other business, that we need to put on that? Paul.

DR. MICKLE: I have a question about Item Number VIII(b), Evaluation of Benchmark TORs, and why was that scratched? Is there a story behind that, or was it not completed in time, or --

CHAIRMAN NANCE: I don't know. Katie.

DR. KATIE SIEGFRIED: Since Ryan is not here, I can tell -- We had a conversation about what we were going to discuss at this meeting, and there are some things that need to be -- Some feedback we need from the SSC about how to move forward with red snapper before we create TORs, and so we hope that that will be productive discussion this session, and we'll go back to TORs in May, if everything works out well at this meeting.

REVIEW AND APPROVAL OF MINUTES FROM THE SEPTEMBER 2023 AND OCTOBER 2023 SSC MEETINGS

CHAIRMAN NANCE: Thank you, Katie. Thanks, Paul. Any other changes, or questions, about the agenda? Is there any opposition to adoption of the agenda? The agenda is adopted, without opposition.

We have two minutes, and summaries, that have been put out this time. We have the minutes from the September 2023 meeting. Were there any changes for those minutes? Any opposition to approving those minutes? Okay. Those minutes are approved.

We have the October 2023 minutes from the SSC meeting. Any changes to those minutes? Any opposition for approval of those minutes? Okay. Those are approved, also.

One thing I wanted to bring up, before we get into the agenda, is I had a discussion with Ryan. He attended a meeting in California last month, and I think Jim was at that same meeting, and they had a -- Mandy, were you there, too? Maybe not. Okay. Anyway, they had a different way of -- If you wanted to ask a question and those types of things -- Sometimes the way we do it here is we raise our hand, and then I write the name down, and it's -- You know, you're number five, and, by the time your question is raised, it's kind of old.

We're going to try a different system, and so, if you have a -- If you want to ask a question, and it's a general question, I want you to raise your right hand. If you have something that is pertinent to what is being talked about right then, raise your left hand, and I will put you ahead of the list, so that we can get that answered, and addressed, then. Anyway, if you have --

Jim, you can kind of -- It seemed to work well.

DR. TOLAN: It actually did, believe it or not.

CHAIRMAN NANCE: Will.

DR. PATTERSON: I didn't think we used it much at all, Jim.

CHAIRMAN NANCE: Okay. Were you there, Will?

DR. PATTERSON: But whatever.

CHAIRMAN NANCE: Well, let's try it, because I know that sometimes, you know, we're having a discussion, and there is something that we would like to bring up right then, and so, if you have that, raise your left hand, and I will call you next, so that we can kind of keep something moving. If it doesn't work, then we can go back to the old way that we just put you on the list. Anyway, we'll try that, and see how that works. Paul.

DR. MICKLE: In academic circles, there is heated meetings a lot, like a lot, and so we adopted a similar strategy, and I'm not saying we should do this, but raise your hand, and the line gets long. If you need to talk right now, you raise this, and wave it around, and it becomes very obvious that you want to speak.

CHAIRMAN NANCE: There is that option, too. Anyway, we'll try it, because it's nice to be able to keep a discussion going, if you have something that's pertinent to that discussion right then, as opposed to just waiting five or six people in. Rich.

DR. WOODWARD: I'm just pointing out that I have neither a right nor a left online, and so I'm not sure how --

CHAIRMAN NANCE: I know. Unfortunately, the ones online I will put at the end. Not the very end, but I will just put you in order.

DR. WOODWARD: That's understandable. Thank you.

CHAIRMAN NANCE: Okay. Thank you. Any other questions, before we move into the agenda? Okay. Thanks. We'll go ahead and start with Item Number IV, Review of SEDAR 85: Gulf of Mexico Yellowedge Grouper. We have Dr. Sagarese here to be able to discuss that. Lisa is the Ryan for today and tomorrow, and so we appreciate her being here, and go ahead and read the scope of work for that, and then we can get into that.

REVIEW OF SEDAR 85: GULF OF MEXICO YELLOWEDGE GROUPER PRESENTATION AND PROJECTIONS

DR. LISA HOLLENSEAD: Thank you, Mr. Chair. Dr. Skyler Sagarese is going to give us the results of the stock assessment for yellowedge grouper, also known as SEDAR 85. That stock assessment had a terminal year of 2021.

Some differences from the previous assessment, SEDAR 22, is that the SEDAR 85 resolved some data and parameterization issues, as well as incorporates data from the Marine Recreational Information Program's Fishing Effort Survey, MRIP-FES. In addition to her presentation, council staff will present results from the Fishermen Feedback tool for yellowedge grouper, which analyzes fishermen's sentiment to stock abundance and perceived fishing experience.

There is also -- Just to remind the group, there is some time allotted tomorrow for the SSC to consider any outstanding decisions, such as how to consider recruitment and the proxy for fishing mortality at MSY, and so be sure to let Dr. Sagarese know of anything that you would like her to report back on this morning, and then she will report back on those results tomorrow.

Also keep in mind that the overall action item for this portion of the agenda will be to determine whether the stock assessment meets the terms of reference and whether it's consistent with best scientific information available. Mr. Chair.

CHAIRMAN NANCE: Thank you. Skyler, we'll go ahead and turn the time over to you.

DR. SKYLER SAGARESE: Okay. Great. Thank you, everybody. It's been a while since I've been here in-person, and it's nice to see everybody's faces again, and so we're going to walk through the yellowedge grouper stock assessment results, and I've tried to boil it down to the biggest issues and kind of reiterate some of the discussions that we had in terms of data.

We'll start reviewing the data, and we'll through results, diagnostics, sensitivity runs, and we'll end with some concluding thoughts, and then we'll go through the preliminary projections that we've prepared for this presentation, but we also have additional projections based on other assumptions for recruitment, and so we ended up taking two extra months, just because there were quite a few data issues that we wanted to iron out before we kind of wrapped up the modeling, and so it did almost take a full year, and so there's quite a bit for us to go through.

SEDAR 85, of course, we had some terms of reference, and I'm not going to go line-by-line, but to consider the MRIP, the updated recreational data from the Fishing Effort Survey, to look at including all available length frequency for our commercial fleets, update life history, if that was possible, consider our new implementation for estimating commercial discards, and then we had specific terms of reference related to, for example, red tide mortality, which has been an issue for some of our shallow-water groupers, the effects of Deepwater Horizon, and, also, in terms of treatment of steepness in the model, if we needed to do some sensitivity runs, which we did.

The first thing, when I was assigned this assessment, is I was excited, because I thought it was going to be a very different assessment than the ones I've worked on in the past, and it really was, and so this is actually a two-region model. In going back to try to get some of the background, there's quite a few reasons why they separate the eastern and the western Gulf at the Mississippi River. There tend to be larger, and older, yellowedge in the west, and there's also, of course, we know differences in habitats with the eastern Gulf. You've got more natural reefs in the western Gulf, and you've got lots of artificial structure, oil and gas, and so very different habitats and different environments for them to live.

There was also a pretty detailed technical document from 1983 by Prytherch that described the beginning of the commercial longline fishery, where yellowedge is, of course, deepwater, and it's primarily commercial longline, but they did a pretty thorough job of describing the fishing patterns and species compositions throughout the Gulf, and, in that report, they reported them for three areas, the western Gulf, the northern grounds, which is essentially the central Gulf, and then the eastern grounds, the eastern Gulf, and they went into that data workshop for SEDAR 22 assuming that they would have a three-area model, and so all the data providers, you know, did a lot of analyses, and landings were produced for those three regions, and then, ultimately, they did end up backing out and doing only a two-area model, and so they combined central and east, and so they had the eastern Gulf and the western Gulf, but there was quite a bit of work to get that decision and that stratification.

For yellowedge, there are some regulations for this stock. There is no size limit for recreational or commercial. They do fall within the aggregate bag limit for recreational for grouper, and, of course, they are in the deepwater complex for IFQ monitoring, and so there were commercial trip limits prior to the

implementation of the IFQ program in 2010.

There are not as many regulations as our other groupers, but it's still important to keep a lot of this information in our minds as we move forward.

Plotting what's from the SERO website for monitoring landings, and this is just giving you an idea. On the left-hand side is our plot of -- We've got -- At the top, it's just the landings, and there's a million pounds gutted weight at the top for commercial, the top left, and recreational is middle, and the total stock complex is on the right.

On the bottom, it's just a bar plot showing if they went over the quota, and so the red line in the bottom-left is just showing that, in the mid-2000s, they were over the quota, and, hence, why the IFQ program came in in 2010, and, since then, you can see that, the last few years, they haven't quite hit their quotas, but they've been pretty close in a couple of those years, but they really have not been achieving that quota that's been on the books the last few years, and, of course, we've had COVID since 2020, and that really probably changed our fishing behavior, fishing patterns, quite a bit, and market issues as well.

I should mention that yellowedge are in the deepwater complex along with snowy grouper and speckled hind, which we tried in the data-limited assessment, as well as the warsaw grouper.

For this assessment, I was quite happy, and I think we had a lot of really great working papers submitted, to not only kind of review the data streams, how they were produced last time, but also to review lots of the improvements, or modifications, or data changes that were made, and so that was really helpful for us, to be able to try to hone-in on some of the differences we were seeing, because there were quite a few, and so I just wanted to highlight all the amazing work from all the data providers. This is quite an effort. There's a lot of stuff that goes into these assessments.

To just kind of set the stage here, I just wanted to start with just a quick summary of the big points for this assessment. Currently, the base model says that yellowedge are not undergoing overfishing, and they're not overfished, using an SPR proxy of 30 percent, which was dictated in the terms of reference.

Of course, that -- Whether they're undergoing overfishing does depend on that SPR proxy, which we'll see in the other presentation that I provided, but we ultimately made a lot of changes to the

SEDAR 22 base model that was used. SEDAR 22 was back in 2011, and there's over a decade since that assessment was done, and it was our first assessment using the Stock Synthesis modeling platform, and that assessment had a terminal year of 2009, and so we had quite a bit more data, and we've had lots of changes in how we process our data, how we analyze our data, and there's been quite a few improvements that we were able to make throughout this process for this assessment.

Big improvements, considerations, include the commercial landings estimates, incorporation of more uncertainty in the assessment model for those landings, which I think we'll talk about in detail tomorrow as well, and, before I -- I did want to note that, so SEDAR 22 -- One of the biggest issues that they talked about throughout the data, the assessment, and the review workshop was historical landings for yellowedge. There's quite a bit of work that goes into estimating those historical landings for the species, because of the unclassified grouper issues, and so there's quite a bit of work that was done, and I will cover that in a bit more detail later.

We also have the term of reference looking at our commercial discard data, coming from the CPUE expansion approach that we've been using since SEDAR 61, and we have the issue of using the updated MRIP-FES recreational landings and discards, which we'll talk about a little bit more, and we also -- In this case, we had a lot of composition data that was used in the last assessment, and we wanted to go through and reevaluate some of the decisions that were made, for example using sex-specific composition data for males and females, and we'll talk about that later.

We used weighted length compositions where we could, and I'll talk more about, you know, what regions we were able to do that, and why, and why not, and we also ended up trying to use the conditional age-at-length compositions. Initially, that was used in SEDAR 22, but we did run into some issues with some very poor fits and concerning modeling behavior, and so we ended up switching to nominal age compositions for all of our fleets and surveys.

Looking through the length-weight relationship information, we found a small error, and so we corrected the alpha parameter. We updated the first age of yellowedge mature, the first age male, and also fixed the hermaphrodism transition rate at those values recommended from SEDAR 22, and I'll talk more why as we move into this presentation.

We ended up fixing steepness at a biologically-plausible value, following the logic from our scamp research track assessment, and

we also looked at increasing the SigmaR. We fixed it at a higher rate of what was last time, and so the last assessment was 0.2.

In this assessment, we ended up fixing it at 0.5, and then we implemented the Dirichlet multinomial approach for weighting our age and length compositions, and so that's just kind of a quick summary. There's been a lot of changes, and, hence, why we needed a couple of extra months in this assessment, to kind of hash out some of these details, do the required sensitivity runs, and make sure that we were building to a defensible base model.

Quickly, I'm going to try to succinctly review our data. The last time I presented for red grouper, it was over six hours, and so I've tried to learn from my past experiences, and hopefully this will be a bit more streamlined.

For yellowedge, the model starts in 1975, and so it starts at the beginning of the fishery, and so we can assume virgin conditions for our stock. The terminal year was said to be 2021, and, again, there's two areas. There is east and west, separated from the Mississippi Reiver, and this is just the -- I love showing this plot, because it just gives you an idea of all the different data streams.

For this assessment, we've got two big fisheries, the commercial vertical line and commercial longline, operating in each region, and we've got abundance indices from our commercial longline, pre-IFQ data from the logbook program, and we've got the NMFS bottom longline survey index of abundance for each region.

What was very interesting to me, and I haven't seen a model like this, but, for our yellowedge assessment, for each of our fleets and surveys, we include both length and age composition, and I think, later in the presentation, I'll kind of propose why that is, and, normally, we don't include age compositions for our surveys We just don't have the feasibility to do so, but, for this assessment, we actually do have length and age compositions, age compositions meaning the otolith was aged, and it's a real age of the fish, and it's not anything converted, and so that was really interesting for this species to work with.

Lastly, we do include mean length-at-age, and we don't fit to it. We just kind of use it as a guide, to make sure that the model is predicting values that make sense, based on the observed data, and that came out of our scamp research track assessment.

This figure -- Here is just a comparison of the data that were included last time, with SEDAR 22 on the left for the benchmark,

and on the right is my SEDAR 85 continuity, and so, for this assessment, I tried to produce a model that was as close to the SEDAR base model as I could.

You know, newsflash is, in the Gulf, we really don't have normal continuities, where everything stays the same, and we always have lots of pieces of data that were improved, and are not quite the same, and so it's really hard for us to produce a standard continuity, but this is kind of our Gulf try continuity. You can see that, in this figure on the right, you can see the conditional age-at-length, and so we initially did try to include that in the model, and so, as we were going through the data inputs, we were starting to get a little nervous about, you know, the commercial landings for example, and there were some pretty big changes.

Some of the estimates for gears and years were over 10 percent different from last time, and so we were just kind of looking at this and saying, well, this might be a little hard, and let's kind of dig in and make sure we can explain what's going on, and what we spent, I think, most of the time on was looking through the composition data, and so what was produced, or shared, last time for the assessment, and what was produced this time, there were actually quite a few differences, and I'm not talking like a sample size of a couple of fish were added or left, and it was, you know, years that were included last time that weren't this time, or years that were included this time, or big changes in inputs, you know, hundreds of fish in some cases, and so we really wanted to dig into what was going on, and it turns out that, giving us extra time, we were able to kind of address some of these issues with our data providers.

That was just kind of the impetus for last July we came to the SSC, just with a quick check-in on this assessment, and we said, look, you know, we're seeing some pretty big differences in our data inputs, and we really wanted to have just another couple of eyes review some of these inputs, so that we could just talk through and make sure we're comfortable moving forward.

Since this was an operational assessment, you really wouldn't want many things to change. However, because the last assessment was over a decade ago, a lot of things have changed.

We've gotten better at extracting our data, and we've gotten better at storing our data, processing our data, QA/QCing our data, and so there have been some big, big changes that led to a lot of our differences that we were seeing, and so we ended up meeting with -- We had -- Because it was kind of a last-minute topical working group put together, we had two separate meetings with different

members, and we ended up going through a lot of the issues, which I'm going to walk through next, and coming to recommendations on the September webinar, to say, okay, here's how we're going to proceed, and so that was very helpful, because, again, we definitely -- Some of the changes were a bit larger than we would hope to just keep plowing through in an operational.

The first topic that I wanted to cover is this issue of -- So, last time, they did include -- They had male data, female data, unsexed data, and they included, and fit to, sex-specific compositions in the last yellowedge model, which, again, that's -- I've never really seen this done, and it was very ambitious, and they certainly had the data at the time, and they ended up using that in the base model that was accepted, but, as we started to dig into this, knowing what we know now, we were concerned about, number one, the assignment of sex, and so most of it, in the datasets that we have, are just by visualization, and, you know, it turns out that the life history experts really recommend using histology to get at males and females, and so we were concerned over data quality.

We were also concerned about just quantity, and so, normally, for our fishery composition length data, if there's fewer than thirty lengths, we usually exclude that information, and just it's not a large enough sample size to really capture that trend of what we want for the composition, and so we ended up saying, well, okay, in this case, when you split it out by sex, we had nowhere near thirty lengths, and we had very, very small sample sizes, and so we said, okay, well, you know, here's what we're working with, and the important thing last time -- The reason why they included the sex-specific composition data is most of those samples came from the late 1970s, when the fishery was just about -- It was right before starting, and so it was essentially the sex composition at virgin conditions, and they ended up estimating the hermaphrodism transition function in the assessment model, using that information, but, as it turns out, the program -- Well, the developers of Stock Synthesis really don't encourage estimation of those parameters unless you have a lot of data, a lot of high-quality data.

Going back and looking at this, we said, you know, we have concerns over the data quality and quantity, and we just did not feel comfortable estimating those parameters, and I will show a comparison, in a few slides, of what that was.

As the working group, we kind of walked through, and we said, okay, well, let's not use sex-specific data, and let's just lump everything together. The overwhelming majority of the data is not

sexed anyway, and let's go with our more current best practice of excluding years, and year and fleet combinations, and region combinations, that have fewer than thirty lengths, but, for fishery-independent data, let's use all the data we have available, and that's generally how we operate, and then to fix our hermaphrodism transition at those values that were recommended at SEDAR 22, and so these were kind of the big-picture issues for the composition data.

The second, which we had quite a bit of discussion, and there is lots of different sources feeding into this, and the second issue was looking at the landings, and I have listed the working papers, because there's a lot of great detail in each one of them for commercial, for recreational headboat, and then recreational gen rec, which is MRIP-FES plus Texas plus LA Creel.

As we were looking at our data, and comparing what was done last time, we were pretty concerned, and we ended up walking through a lot of the methodologies, and there were quite a few different changes that were made that led to some big differences that we'll see in the next slide.

We also had the issue of the recreational data, using MRIP-FES, and so, you know, the elephant in the room of recreational data, at least for yellowedge, and it's extremely minor, and so maybe it's not the elephant, and maybe it's more like a mouse in the room at this point, and only 2 percent of all removals for yellowedge grouper are from recreational, and so it's primarily a commercially-targeted species, and, you know, we did still include the recreational data.

I do have a sensitivity run, at the end, that shows removing that, just to see what the effect would be on the model, just to give you an idea, but we ended up discussing, and saying, okay, you know, what we want to do is we do see -- With our recreational MRIP-FES data, we often see a big spike, and we did see a big spike, which I will show later on, and, as a group, we ended up deciding, well, let's do what's been done recently for gag grouper, and we're starting to be more consistent, and we're starting to replace that spike with the average of the surrounding years, and so that's what the group decided, is let's do that for yellowedge.

Recreational landings for this stock, and dead discards for recreational, are so small that they get added into commercial vertical line, based on similar gears, and so there's just not a very large recreational component. It gets lumped in, and the figure in the middle, on the left, is basically comparing your commercial landings and dead discards in purple, and the

recreational landings and dead discards, and so you can see that there's a couple of years where you can actually see yellow, but, for the most part, this is just primarily a commercial stock.

Then the third issue that we -- In more recent versions of Stock Synthesis, the modeling platform we use, we can incorporate more uncertainty in our landings estimates. The last assessment used an error estimate of 0.01, and so, basically, our landings were known perfectly. Even given a lot of the uncertainties that we will walk through, last time, they were just treated as perfectly known.

This time around, we wanted to incorporate a bit more uncertainty, to be more representative of what is actually going on out there, and so, for our model, with the IFQ program -- Once that goes in, we do trust our landings, and 0.01 is perfect for that, but, before that, we did want to highlight just a bit more uncertainty, based on some inputs that we have that I will talk through in a little bit.

There were quite a few discussions, and, you know, we looked at, and talked about, all sorts of issues, and, again, and so, just to reiterate the fleet structure, we've got the vertical line fishery for east and west, and we've got a longline fishery for east and west, and our vertical line not only includes commercial vertical line gears, but commercial other gears, recreational landings, and recreational dead discards.

The discard estimates were negligible for the commercial vertical line fishery. From the observer program, I think there only a handful of trips that actually had discarded yellowedge, and so no data were provided for that, but, for commercial longline, we did have a time series of discards provided, and, in order to estimate our dead discards, for this assessment, following SEDAR 22, all fish caught are assumed dead, just based on where they're caught, you know, the behavior of the fishery, and sort of their lack of being able to survive when they're brought up from such depth.

This figure, there's a lot in this one, but this is just comparing the landings time series that were submitted last time in blue to the ones that were submitted this time in orange. The top-left is our vertical line east, and the top-right is vertical line west. The bottom-left is longline east, and the bottom-right is longline west.

We'll start with just kind of walking through vertical line east, and so one of the biggest things that you will notice is that huge spike in 1982, and that was from a single recreational trip where

fifteen yellowedge were reportedly landed, but not seen, and that ended up being expanded to an estimate of about 690,000 pounds of fish, and so really large, really huge, and nothing -- That magnitude has not been seen anywhere in the time series, even more recently, when we think that there's been more effort toward the species, and so that's why we did discuss bringing that one down, and it comes down to -- When we do the average, it's about 130,000 pounds, which is still quite big, but one thing to point out is vertical line removals are much smaller than longline removals, and so the longline fishery is really driving a lot of the removals for this stock.

On the right, and so vertical line west, and you see that there's quite a bit of difference basically before 1990, and there were -- So there were a lot of assumptions that were needed to, number one, come up with a time series of yellowedge landings before 1986. Before 1986, everything was landed as an unclassified grouper, unless it was a warsaw or a goliath, and so, during SEDAR 22, the commercial landings team put a lot of work into reviewing that Prytherch 1983 report, looking at proportions of unclassified grouper that were yellowedge, making a lot of assumptions to try to recreate a time series.

This time around, our data providers reviewed all of those steps, but they also stopped along the way and said, you know, does that decision still make sense, and one big change that they did make is, last time, when they were parsing out of the unclassified groupers what proportion would have been yellowedge, they ended up adding all the groupers together, including warsaw and goliath.

This time around, the data providers said, you know, they were probably always landed under their species code, because they had one, and so, when they parsed out those unclassified groupers, they excluded warsaw and goliath, and so there was a change in that proportion that would then be yellowedge, and that seemed like a better process. They talk more about it in their working paper, but that was one of the bigger changes that's causing some of these differences that we're seeing.

You can see the differences are quite noticeable, you know, in the early periods, where quite a few assumptions are needed to estimate those landings, given the issues of not being reported to species code in the landings database.

Then, on the bottom-left, longline east, one of the changes for commercial is that, last time, and, actually, you can see it more clearly on the bottom-right figure for longline west, and the landings from 1983 to 1985 -- They ended up interpolating the

landings, and so you see there's kind of just a ramp-down, but, when the data providers were going back through this, they said, you know, when you look at the unclassified grouper landings, they're extremely variable, and so it makes sense that, in this case, they ended up interpolating their proportion of groupers that were assigned to yellowedge, and then, with that proportion, they multiplied that by the unclassified grouper landings to get that variability that we would expect from the data, and so it's much more pronounced on the longline west.

You know, for these reasons, we just kind of wanted to walk through and make sure that the data updates topical working group agreed that this was the best path forward, because the commercial landings -- There is quite a bit to unpack for this species with our landings and all the time and effort that went into estimating historical landings.

You know, just to reiterate this, as I mentioned, in SEDAR 22, there was a lot of time that was spent on looking at the uncertainties in these landings. There was a low landings sensitivity run, as a result of -- In the figure, it's just looking at our shrimp grids, and so Grid 7, kind of up in the Big Bend area, and 6, they ended up saying, you know what, most of the unclassified groupers that were landed there were probably not yellowedge. 7 is extremely shallow, and then the composition in 6 is more similar to the southern region, where it was a much lower proportion.

For the SEDAR 22 assessment, they did do a sensitivity, and one of their core runs was using this low landings scenario, and so just to highlight that uncertainty in the landings has been, you now, a forefront issue for this species in the past, and we do also continue with these sorts of sensitivity runs for SEDAR 85, just to be able to highlight, you know, what that effect would have.

Lastly, when we -- I think it was the research track for scamp, but we were able to get some expert opinion idea of how much uncertainty we have in our landings streams, based on changes in how data were collected, when trip ticket programs came in for each state, you know, when summaries changed, just to sort of have a better idea of how much uncertainty could we put into our landings, and we know that our landings -- Especially given -- Well, not necessarily for yellowedge, but we know that there's a lot of uncertainty in our recreational landings.

You know, we have working papers, and they give us CVs that sometimes are very large. For yellowedge especially, they're over the 0.5 for most of the years, and so we know there's uncertainty

in our landings, and we would rather incorporate that into the base model, if we can, than treat them as perfectly known, because we do feel that there is some justification for acknowledging the uncertainties that we have, the realities that we see in the Gulf.

What we did for this species is, since yellowedge are caught throughout the Gulf, we ended up taking these expert opinion values and weighting them by the landings, and so, for example, in the eastern Gulf, since a lot of the landings come from Florida, the CVs for -- The annual CV estimates for the fleets were about 0.05, and, for the west, it was a little higher. It generally ran between 0.05 and 0.1, just because these values were weighted by the landings.

You know, we're not giving them ridiculous uncertainties that the model just doesn't know what to do with, and can't fit, but we're just trying to not treat them as perfectly known, and we're allowing just a little bit of flexibility, and, again, this was -- We talked about this, and developed these estimates, during the research track for scamp, and this approach has been used, I think, in the South Atlantic. We took the logic from them.

Okay, and, just very quickly, near and dear to my heart, at least, are the kind of ecosystem considerations, and we did look at -- Is there a question? Mike? No? Okay. You just looked like you were coming in for a question. Okay.

We did try to get a feel for whether red tide mortality could be an issue for yellowedge, and, you know, a literature review -- In a lot of the oral histories we've done, we didn't see any real strong evidence. One of the best approaches, or the best ways to look for red tide, is generally in the indices of abundance, like for red grouper and gag grouper, and we tend to see big drops in abundance when there's a red tide, and we don't see that here with yellowedge, but I did want to mention here that -- So Dave Chagaris' West Florida Shelf Ecospace model has -- That's going to be funded for another five years, and we've been operationalizing it from the RESTORE program, and so part of that is going to be not only refining estimates for gag and red grouper, but also maybe looking for some of these other species.

I think the big key, with some of the work that Dave has shown, is that, if the mortality is stronger on the younger age classes, if they're close to shore and they're more vulnerable, and that could potentially be a very important source of mortality for us to be looking at, and so those are the kinds of things I think that that RESTORE project will help us get a better handle on in the future.

Then Deepwater Horizon, and I did try to do a literature review of what was out there, what was being shown, and, of course, you know, there are studies that show that there was poor conditions, you know, lesions on the fish, and changes, but, in terms of trying to incorporate the effects of this into the stock assessment, we didn't really have a clear mechanism, and so did the Deepwater Horizon -- Did it kill a bunch of animals, or did it just affect their growth, and maybe they didn't grow as well, and maybe they didn't produce as many recruits, and we didn't really see much of a signal.

It was hard for us to figure out how to incorporate that, and then, just kind of looking at their occurrence from the fishery-independent survey, in that figure from the Gulf of Mexico data outlets, you know, where they're generally seen, versus where the oil spill was, from the Lewis et al. 2020 study that was submitted as a reference document for SEDAR 68, there really didn't seem to be that much overlap.

At this point, you know, I think this is something to keep in mind, because we're fourteen years since Deepwater Horizon, and since yellowedge -- We don't really start seeing them in the fishery until about eight years, and we've only really had a couple of years where maybe they would start to be popping up in the fishery, and so, maybe with more years of time, we'll be able to address this.

Okay, and so life history. For SEDAR 22, the last assessment, most of the life history data, and the parameters, were provided by a dissertation, and so there was an analyst that spent a considerable amount of time producing all of those estimates.

This time around, we did not have updated information, such as, you know, updated data inputs, and so we ended up using a lot of what was used last time, but I will kind of discuss some of the differences.

In the figure here, the western region is going to be on the left, and the eastern is going to be on the right. The top one is just showing the weight-at-length estimates, and there is no difference between regions for that particular parameter. In this case, you can see that the purplish line -- That's our SEDAR 85 value, and the SEDAR 22 is in yellow, and so there is a slight shift, because of that correction in the alpha parameter that we found and corrected in the model.

In terms of age and growth, we are using the starting values that were recommended for SEDAR 22, but the Stock Synthesis model is

estimating those parameters, and so, in this figure, one thing to note from the last model is, because they had sex-specific composition data, they were estimating sex-specific growth curves, and so, because we removed the sex-specific data, because of the concerns we discussed earlier, we did not estimate sex-specific curves, and we just estimated regionally-different curves, and so the eastern and the western Gulf could have different growth patterns, and they did. We generally see larger fish in the west, compared to the east.

Those figures in the middle are just comparing the growth estimates, which, again, will vary by region for the eastern and the western, and, in the next slide, I will talk about the ageing error matrix that was produced for the newer information that was provided, and then natural mortality is estimated internally in Stock Synthesis, using the Lorenzen function, the same as last time, based on a reference age of fifteen and a target M of 0.73.

For this species, that estimate is largely from catch curve analysis from the fish from the late 1970s, before the fishery started, and so it's thought to be a pretty good estimate of natural mortality, which we really don't have for other species. It's not kind of an age-based proxy, and it's a fairly good estimate. Because that vector in Stock Synthesis takes into account the growth curves, that natural mortality curve will differ between regions, but not between sexes.

For this assessment, we incorporate an ageing error matrix just so that the model has an idea of how much uncertainty there is in those age estimates. You know, yellowedge are very difficult to age as they get older, and, in this case, as I mentioned earlier -- Much of the earlier work for the benchmark was done by analysts that were -- You know, they consistently aged the otoliths through 2009, and, actually, through 2012.

Starting in 2013, there was a change in the people that were reading the otoliths, in the readers, as well as in the sub-sampling scheme for pulling the otoliths and ageing them, and so there was kind of a clear shift, and so we wanted to account for different errors based on different readers, and so on the right-hand side is our ageing error matrix for the newer data, starting from 2013 onward, and on the left was the ageing error matrix that was used last time for SEDAR 22, and, again, because the ages were the same for sort of those intermediate years of 2010 to 2012, we ended up using that ageing error matrix for them, and, for this species, they live to about eighty-five years, but our plus-group of forty and older is used based on -- At that point, there is very few fish that occur, and so, you know, what we normally see,

as the fish get older, there is a lot more uncertainty. There is a range of ages that can be identified.

Finishing up the life history, the figure on the top here is going to be the proportion mature, in the middle is the fraction female by age, and at the bottom is just our fecundity, and so there is no different regionally, and those trends should be the same across areas. Maturity, nothing was changed for this assessment.

As I mentioned, the hermaphrodism transition rate, and I will show an example of, you know, what the effect was, but we did fix that at those parameters recommended by SEDAR 22, because we did not feel that those parameters were estimable in the current model.

The sex ratio at birth, the yellowedge is a hermaphrodite, and so they're all female, and then they transition to male, and fecundity, and so because fecundity for this model -- It's equivalent to spawning stock biomass, but that slight change in that length-weight relationship did have a slight impact on the vectors that you can see in the figure, that the yellow and purple lines are not right on top of each other.

Just digging in a little bit more, within Stock Synthesis, the hermaphrodism transition from females to males, it's modeled as the proportion of the individuals for each age class, and it's using a scaled normal distribution, and so the figures on the left, the blue lines, are that transition rate. The top one is the SEDAR 22 model estimate, and the bottom was the SEDAR 22 recommendation, and so, for example, in that top-left figure, in the plus-group, a forty-year-old yellowedge, at that point, would have had a 7 percent chance of transitioning from female to male.

Because that's such a small chance, when you look on the right, that's just the fraction females in the population. That red line is just to help guide your eye, and so, basically, for that plus group, about 20 percent of those fish were still female, based on that parameterization from the base model last time. In terms of the SEDAR 22 recommendation, the age-forty fish would have about a 50 percent chance of transitioning, which, in turn, leads to far fewer females in that plus group, and not zero, but a much, much, much smaller proportion, and I think the 2002 yellowedge assessment, I believe that Shannon led, assumed that all individuals in the plus group were male, and so, to us, this just made more sense than trying to estimate it, just given the concerns with our data.

Moving into recruitment, we're using the Beverton-Holt spawner-recruit curve for this assessment, and we're estimating the R0,

and so essentially our virgin recruitment estimate, which is on the logscale in Stock Synthesis, and we are estimating recruitment deviations from 1975 to 2012. The reason why we're not estimating through our terminal year is because we really don't see yellowedge in the landings until about eight, and so that's a big gap in when they actually show up in the fishery, and so we really just don't have a lot of information to try to estimate them later. We tried, but, when we did try to estimate those recruitment deviations closer to the terminal year, they were just very uncertain and giving some very strange patterns.

Because we have an east and a west component to this assessment, we're estimating total recruitment for the whole area, but then we're parsing it out to each region, using apportionment parameter in Stock Synthesis, and so we fixed it for one region, and it estimates it relation to the other.

For steepness, we did quite a bit of work trying to, number one, tell whether it was estimable. Because it was not, based on the diagnostics that we ran, we ended up wanting to fix it at a biologically plausible estimate here that followed the logic from the scamp research track assessment that used the FishLife package, which basically brings a whole bunch of life history data from FishBase, from actual studies that you can add in as well, and it gives you the best estimate of what a realistic distribution would be for your stock, and so, for yellowedge, doing that analysis was about 0.827, but we do sensitivity runs, later on, estimating it with and without a prior and other fixed values.

For SigmaR, the recruitment variability for this assessment, last time, it was about 0.2, and one thing that I did not note, when I showed basically the big chart showing all the data, is for this assessment, for the groundfish survey, we actually got length composition data back to the late 1980s, whereas, for SEDAR 22, they only used the groundfish data from 2000 to more recent, and so we have a lot more data that we tried to incorporate from the groundfish survey, which tends to get, you know, age-one to very small yellowedge, very young yellowedge grouper, hoping that that would help us better estimate our recruitment parameters, which it didn't really, but I think that, because we incorporated that much more data, we thought that it was more appropriate to have a higher SigmaR, and we did do some diagnostics to kind of land on fixing it at the value of 0.5, but that's pretty similar to what we've done for other groupers.

I think, for gag, we fixed it at 0.6, and red grouper was estimated at 0.8. Scamp was about 0.5, and so it's kind of within the ballpark that we ended up fixing it, but, again, we do have a

sensitivity run later on.

Okay, and so, just to quickly touch on the term of reference about trying to estimate -- Or using the newer approach for commercial discards, and this plot -- So the top-left is our vertical line west. Again, vertical line includes other commercial gears, recreational landings, and recreational dead discards, and you can see the breakdown.

Most of the years, with the exception of more recent years, your see the green, and so those are recreational landings, with recreational dead discards in yellow, and then purple is basically the commercial vertical line. Most of the years, 98 percent of the data are from commercial for this area.

In the east, we see kind of a bit more spikes of recreational data that come in, but, again, most of the landings are this commercial vertical line, and, on the bottom, we've got commercial longline, both landings and dead discards, and the dead discards for commercial longline would be yellow, but you can barely see them, because they're so small, and so we did have estimates of discards provided, but, when you look at the bigger picture, they're so small, compared to landings, that they're in there, but it's just overwhelmingly that most of the fish are landed, and, again, there's no size limit. They are in the IFQ, but there is very few fish discarded for this species.

Then one thing -- You know, the commercial longline on the bottom, there's a lot more longline landings than vertical line, and so it does look like recreational, for some of those years, there's a big proportion that's recreational, but it's still very small compared to longline.

CHAIRMAN NANCE: Skyler, we have one question. Trevor, please.

DR. SAGARESE: Sure.

MR. MONCRIEF: Sorry to interrupt what is a fantastic and interesting presentation so far, and the -- I guess that's 1991, the recreational dead discard on the top-right figure, and what's kind of going on there?

DR. SAGARESE: I think I will show that in the next slide.

MR. MONCRIEF: Perfect.

DR. SAGARESE: So stay tuned. Yes. Okay, and so, taking a deeper dive into the recreational data, for the last assessment, SEDAR 22

used the MRFSS program, and now, more recently, we've been provided with FES, and so this figure comes out of the working paper. On the top is the AB1, and so the landed fish. On the bottom is going to be our discards, and so B2, and so, just looking at the landings, for example, most of the years are pretty close to zero, but you do see these spikes, which got a lot larger with FES, and so that 1982 value, which we talked about, is smoothing out.

The discards, yes, and so you can see that there's a pretty large discard estimate that was provided in both the old and the newer versions, and so that's just a pretty large estimate. I would have to go back to the working paper to see specifically how many trips that came out of, but I can do that, because that's part of -- We've gotten much better, at the Science Center, with documenting some of those issues.

CHAIRMAN NANCE: John, please.

MR. MARESKA: So you don't have to go back and look, and I was looking at it, and there's three cases. It's the 1981, the 1991, and the 2005, and one angler trip in every case.

DR. SAGARESE: Okay. Great, and I think this is another important point to mention, that we do have a sensitivity run later on where we've excluded this data, just to demonstrate what would have happened, because, yes, there's quite a bit of -- We've had a lot of discussions, and I should say that, during the data updates topical working group, we did have members say, well, we suggest you just remove all the recreational data from the model, and then we had, on the other side of the spectrum, that, no, we don't want to remove it, and these are still data, and they're uncertain data, but why don't we show a sensitivity run and see what this would do, and so that's how we tried to address these concerns, but, yes, and thank you for your keen eye. This is at least a very easy example, because you just see these big spikes, and everything else is essentially almost zero now, whether that's -- That is the estimates provided.

Are there any other questions on landings? I think this might wrap up kind of the landings stuff, until we get to the sensitivity runs. If not, I will keep going through.

CHAIRMAN NANCE: Keep going, and we'll probably -- Before you get to results, we'll probably stop for a second, and, if there's any questions on the general data.

DR. SAGARESE: Great. Okay. Thank you, Mr. Chair. Okay, and so the indices of abundance. For this assessment, we've got -- For

each of our regions, we've got the commercial longline index, using the logbook data, that stops in 2009. That was not updated for this assessment. It's the same index that was used last time. On the left-hand side, the top-left is longline west, and the top-right is longline east, and you can see there's a lot more uncertainty in the index from the west.

Within the assessment model, we ended up using the error estimates that came from the standardization process, and we just converted them to logscale standard errors for input, and, on the bottom, we've got the NMFS bottom longline for the west, and, on the right-bottom, we've got bottom longline east. Unfortunately, no data were collected in 2020, because of COVID, for either area, and, in the western area, for 2005, we had Hurricane Katrina, and so there are some missing points there, but I think -- Unfortunately, one of the hopes with the SEDAR 22 was that, when we get another decade of data, it will solve a lot of our problems, but we see that there's still a lot of uncertainty in the fishery-independent data, and so these indices have pretty high standard errors around them.

The western bottom longline does suggest a decline in recent years, whereas the longline east kind of just -- I don't know. It's kind of flat, and most of the indices we really don't see a lot of signal in them, and there's just not a lot of contrast, and we'll see that when we get to the results, unfortunately.

Talking about the available length data, and I just want to point out -- So this little snippet at the top of the bubble size is just showing the spatial occurrence, and I know there's no years, but that comes from that big figure at the beginning of the report, Figure 1, and so just to give you an idea. Like, for example, longline east has the biggest circles, and they have the largest sample sizes, and, for the most part, we did a lot of digging in, and so Micki Pawluk, who was the data analyst for both commercial landings and compositions, her and I had a lot of meetings, kind of walking through and trying to dig into some of the issues that we were looking at.

In this case, we ended up -- I think she hates me, and I made a lot of requests, but I really appreciate how responsive that they were, and they really helped us with this assessment, to kind of get some of these issues resolved, but what we ended up doing from the topical working group was -- Again, we didn't fit to sex-specific comps, and we added all the data together, unsexed, female, and male, for each year, gear, and region, and we ended up -- For SEDAR 22, we used nominal length comps.

For this assessment, where we were able to, we used weighted, or

scaled, length compositions, and, in this case, for yellowedge, because we have east and west, we were able to produce length compositions, weighted by our landings, for the eastern zone, because we had central and east, and we were not able to produce weighted comps in the west, and we only used nominals, because that's all we could handle. Yes, Will.

DR. PATTERSON: I just have a question about the composition data. So like the third line, commercial longline east, and so those fish were landed in the east, but were they also caught in the east?

DR. SAGARESE: That's a great question. I know, when we did the landings, there was some mismatch, and so, yes, my understanding is that they might -- Not all fish were probably caught in the east, and there might -- That's a great question. Yes, that's a great question, and I'm not sure, and I would have to go through the working paper, to see if there's something in there, but, yes, I will try to look into that later.

The figures are just aggregating all the length samples that we had for each of those fleets and areas, and so commercial vertical line east is top-left, longline east is top-right, vertical line west is bottom left, and longline west is bottom-right.

The input sample sizes for yellowedge -- We ended up using the number of fish, and, of course, it's ideal to use the number of trips, or number of sets, but we were not given that information for all of the data streams, and so we had to use the number of fish, which was also used in SEDAR 22, and we also, as I mentioned, kind of walked through and looked through all the data. In this case, we did exclude data that we thought were not representative, including fleet, year, gear combinations less than thirty lengths.

Discard length compositions were submitted, but, because we did not model discards explicitly, we did not include that, and that was still not that much data in this assessment, and so we also had the age composition, again from otoliths that were read and giving us real age composition for this assessment, and you can see that the split -- You know, there's a lot of variability in sample sizes, and the same decisions were made. We did not use sex data, and we tried the conditional age-at-length, but we ended up using the nominal age compositions after -- As we were building the model, and kind of looked at the diagnostics, and said, okay, this looks fairly good, and let's kind of switch to this.

We used the input is the number of aged estimates, or number of otoliths, just as SEDAR 22, because we did not have the number of

trips, unfortunately, for every data source, and we excluded -- In this case, for age data, we exclude fleet, year, gear combinations with fewer than ten age samples, and we did want to look at -- Critically evaluate whether we thought that the data were representative, and there was an issue.

As we were building the model, we saw some really strong undesirable patterns in our residuals for 2010 to 2012. There was a lot more data observed than what the model was saying, hey, this is what we think is out there, and so my hunch is that, in this case, we had -- As I mentioned, most of the life history data came from the analyst, and she was doing her dissertation on this species, and I think she was super excited and processed all the otoliths, and, ultimately, there was a lot more data going in that might not have been representative of the landings, which is what we need, and so we ended up excluding those three years.

There was no information, and we went back and forth with Panama City, the life history experts, and we couldn't find information on how they were subsampled, and so we just felt that those three years of data -- There was too much concern, and we wanted to exclude them at this point, and I think you'll actually see -- It might be longline west, but, when you look in the report, the longline west, when you look at like the mean length-at-age, you will see these big, big, big gray bubbles just like dominate the entire year, and that's kind of the behavior that we were seeing for 2010 to 2012, and so that is kind of a big assumption that we made here.

We also have length compositions for our survey data, and so from the NMFS bottom longline as well as the groundfish survey, and all data were used, and no female or male data were used specifically, and we used all combined. We used nominal compositions for our fishery-independent data, and we generally use nominals because the survey should be designed to represent the lengths and ages that are being collected.

Sample sizes for this assessment, again, number of fish, and for the exclusions -- So we talked with the data provider, and data prior to 2000, for this survey, were used last time for the assessment, and we ended up removing those years, because, starting in 2000, the circle hooks started to be consistently used. Before that, there was a lot of changes in the j-hooks, the sizes, the depths they fished, the areas, and so the data providers were very adamant that those years prior to 2000 -- We really shouldn't be fitting to them, because they won't be consistent with the more recent data, and so those are some exclusions that we did make for the bottom longline survey in both regions, and it was only a

couple of years. They did specialized surveys back in the day.

Again, pointing out -- So the age composition data, and I have not really seen age compositions for our surveys, and I think, with yellowedge, we were able to do it because there's not a very large sample size, and so it's -- Part of the challenge has been length and age datasets are separate, and so having the agers share the data back from the age estimates to the survey people, where the length data are -- I think for yellowedge, because there were so few samples, they were able to do that, and so we were actually able to use the age composition for this assessment, but that's normally not the case.

It's very difficult to try to share all of that information and get it into a working database, so that both of these can be produced at the same time, and so I think that's one of the special reasons why this was done for yellowedge.

Again, we used nominals in this case, number of ages, and the exclusions were that bottom longline age data prior to 2000, and then the groundfish survey -- The groundfish trawl data for the east, we only had four fish caught, and so we didn't fit to that information, and, in the west, we had a bit more data, but we ended up just aggregating that and fitting it using the super-period approach in Stock Synthesis, because, you know, I think the hope, and the goal -- So one of the reasons -- In SEDAR 22, there was a lot of discussion with the SEAMAP NMFS groundfish survey, because it gets the younger fish.

There was hope that it would give us information on recruitment, and, ultimately, the number of lengths -- You know, it's really small, and the number of otoliths -- They haven't really collected any otoliths since 2009, and so we only have like piecemeal a little bit of information.

You can see, from the figure, they're aggregated, and they are catching ages -- It's mostly age-one in the west, and so there is some information, but, unfortunately, we just don't have the large sample sizes, and that's one of the reasons why the index was not used in SEDAR 22, the index of abundance, because it just -- There was not enough information, but we felt -- You know, because this was an operational, we did want to include this groundfish trawl data in the model, with the hopes that it would somewhat help, and I do have runs where we remove it, and, overall, it doesn't make that much of a difference in the model outputs. That's the end of data.

CHAIRMAN NANCE: Okay. Any questions on the data? David, please.

DR. GRIFFITH: Thank you for that, Skyler. That was really interesting. I was just wondering, and is there much of a market for this fish, just because, after Deepwater Horizon, you know, there was a lot of concern about fish coming out of the Gulf, and whether it was edible and that kind of stuff. Thanks.

DR. SAGARESE: Yes, that's a great question, and I know there are some studies out there that talk about the PAH levels in the fish, and the same with tilefish, another issue with tilefish, but there are -- You know, they have been getting close to their quotas, in some years, and so I think, more recently, and maybe with COVID they're not necessarily -- Maybe it's not necessarily a market issue, and it's more of a is it worth my time to go out and try to land them.

I think, you know, they're not targeted as much as red grouper and gag grouper, but this is also where I think the multispecies nature of our fisheries comes in, where, you know, if gag is in not good shape, and red grouper -- You know, they're probably going to try to shift, and I know we were at a council meeting, a few years ago, and they were saying, you know, even with the IFQ program, you can basically plan your fishing with what's going to be available, and how you can do it, and so I think that -- You know, I've kind of been a proponent for, instead of having like yellowedge grouper blinders on when we do an assessment, to try to understand more of the multispecies nature and what's driving the behavior of the fishery, because the market, COVID, you know, recreational, and we hear concerns that recreational, in more recent years, might be going up, but, if we don't see that in our data, and we don't have, you know, a clear understanding, those are all unknowns.

CHAIRMAN NANCE: Josh, please.

DR. KILBORN: Thank you very much. Great presentation, and it's really interesting. On Slide 26, where you show the landings data, and, you know, the proportions show that, you know, we're well over 90 percent in the commercial landings, but what I'm wondering is those green bars for the recreational, over the last ten years, on the top two panels, are becoming more frequent, and larger, right, and so I'm wondering is there a trend, and an uptick, in recreational fishing for this species over the last ten years, and is that likely to continue, and are we accounting for that in any way?

DR. SAGARESE: Yes, and, I mean, that's a great question, and I think that's what the data show. The data show that recreational

has certainly been ramping up, but still it's very minor. I think it's really important to keep that in mind, but I have heard concerns that, you know, the surveys that we have -- They might not be catching a lot of the fishermen that are going out, and like private boats now have bigger engines, better technology, and, if they're going out, and we're not sampling them, there is some cause for concern with more recent -- You know, there's a lot of uncertainty in, I think, more recent years, especially with COVID. I think recreational effort really did increase, and so if -- You know, yellowedge might be one of those species that they're better able to target with technology, and so that's a great question, and I think that's something we need to keep in mind. I wish I had more data to be able to quantify your concerns, but, yes, this is what we currently have.

DR. KILBORN: Thank you.

CHAIRMAN NANCE: I have a question, because I was going to ask that same question, but, if you go to the next slide, and you see the yellow, which is the recreational, why is it not showing a -- My brain is not -- I see a large -- In the end, a large recreational component, but I don't see that in the other slides.

DR. SAGARESE: Yes, and so keep in mind -- So those bar plots I think give the illusion that recreational is so big, because it's much of that component, but, when you add all the landings together, that vertical line fishery that the recreational is making up is still so small, and I think we have a plot in the report, maybe in the forties, that shows the expected landings plotted as bar graphs, you can see how much is everything, and you will see the vertical line is tiny, tiny, compared to everything else, and so it -- Yes, it is concerning to think about the recreational over time, and is it getting more recent, and, given the data that we have, yes, there is certainly uncertainty there.

CHAIRMAN NANCE: Thank you. Trevor and then Roy.

MR. MONCRIEF: To that point, landings are, you know, dominated by bottom longline commercial, and then, just to speak to the recreational side, just so everybody is clear, the issue at-hand I think, as far as the proportion that's being landed by recreational, is still small, but is it growing?

Yes, but the individuals, and the folks that are targeting this fishery, are deep-dropping out around and off the shelf, in larger vessels that do not come back to public docks, and so it's a very minor proportion of the population that are targeting this fishery, and are able to exploit it, and then, of that small proportion, an

even tinier proportion are actually coming back to public docks to be able to get surveys on and everything else, and so there's a good chance that we're really -- Unless we employ completely different tactics from what we're going down on the recreational side, we're really never going to get a signal on this fishery.

CHAIRMAN NANCE: Thank you, Trevor. Roy, please.

DR. CRABTREE: Skyler, we spent a lot of time, when we went through the gag assessment, talking about sex ratios, and shifts in sex ratios over time, and sperm limitation, and I know you showed some figures, and maybe it sailed over my head, but do you see trends and shifts in the sex ratio over time, since back in the 1970s or so, and is sperm limitation, and those same kind of concerns, a concern here?

DR. SAGARESE: Great question, and I didn't include that in my slides, but I think we have it in the report, and we do plot sex ratios over time, for both regions, and also combined, and we do see trends, and so you do see kind of a drop, but, for this species, it does not have the same issue of, you know, 2 percent male, and I think the sex ratio is still in the twenties, and I would have to confirm, and double-check, but, for this species, I don't think sperm limitation is really as big of an issue. However, I think there is still the cause to be -- You know, we have some data for yellowedge, but not as much as we would like, and so I think, with more data, with more reproductive data, maybe we can try to get a better handle on that, but I don't think that it's as dire as gag grouper for sperm limitation.

DR. CRABTREE: Do we know enough about spawning in yellowedge grouper to know if they aggregate, or any of those kinds of things, and I suspect they don't.

DR. SAGARESE: I would have to check that RESTORE project that looked at spawning, and there's a dataset, or a website, that kind of looks at it by time, over space and time, to see which ones aggregate, but I don't think we really know that much.

CHAIRMAN NANCE: Thank you. Jessica and then Mandy.

DR. JESSICA STEPHEN: I just wanted to answer back to the economic question of yellowedge grouper. It is 80 percent of all deepwater grouper IFQ landings, and it does command the highest ex-vessel price, and so it is an important component within the IFQ fishery, and it does get landed a lot.

CHAIRMAN NANCE: Thank you. Mandy, please.

DR. KARNAUSKAS: Just a thought with respect to the private rec sector component that could be going offshore, and maybe undetected in our current surveys, and we might want to take a look at social media posts, and see if there is ramping-up of, you know, observations or bragging about going offshore and catching species, and that's something that at least we might be able to get an overall trend of is it ramping up or is it stable over recent years, and that's just a suggestion for maybe the future.

CHAIRMAN NANCE: Okay. Thank you. Bob.

MR. BOB ZALES, II: Bob Zales, II, Executive Director of Southeastern Fisheries. To the market part of it, on the commercial side, due to the fact that red and gag grouper quotas are falling, yellowedge are being targeted more, and the market is increasing.

On the recreational side, it's going through the roof. Over the past several years, because of the invention of center consoles, fifty-foot and longer, with four and six outboards on them, people are running out there with these electric reels, deep-dropping, and you can run a hundred miles in a couple of hours, and go fish a spot, and you've got all these fantastic charts now that show every little rock out there. At the last council meeting, it was brought up that they're going to start looking at doing some kind of a permitting thing, to try to get a handle on what's going on, but it's jacking up.

CHAIRMAN NANCE: Thank you. Okay. Those are good questions and comments on the data. Let's go ahead and go into the results section, Skyler.

DR. SAGARESE: Okay. Great. Thank you.

MR. BLANCHET: Mr. Chairman?

CHAIRMAN NANCE: Harry, please. I didn't see your name on the list.

MR. BLANCHET: It jumped up late, and I was trying to let everybody else get their licks in.

CHAIRMAN NANCE: We always appreciate your comments.

MR. BLANCHET: This is a question on either page 30 of your slides or on Figure 1. That gap in age compositions between 2010 and 2012, I hate to go back and plow over what must have been some

very well-plowed ground, but I really -- That's a -- It seems like we're not including an awful lot of work that might need some sort of special dispensation to be included in this analysis, but couldn't something, going back to just looking at your length comps, and then just doing your more old-timey age assignments, rather than using what you're currently using the rest of the time, something to try to at least characterize what's going on in those three years?

It just hate to exclude those years of age information from the analysis, and that just -- Given all the valuable information that's out there, and I know you all have probably tried to lever it in, but can you talk to me more about why it's just excluded? Thank you.

DR. SAGARESE: Yes, sure, Harry, and, I mean, I agree. I do not like excluding data, unless there's a very good reason to do so, and so part of the concerns with the age data is our grouper species -- The way that the sampling is designed -- When they assign which port agents, how many fish you're going to get, they're trying to -- In the past, before 2009, Linda Lombardi used to do the sampling, and she would specify, in each grid cell, how many samples we would need, so that the compositions that were coming from that data should be representative of the landings, and she would use the landings to say, okay, this is the one that is most landed, and so that composition -- That was then -- They would read the otoliths, bring them back, and we would put them together for our annual comps, and that would have been representative -- It should have been representative of the landings, and so that's what we need, right, is we need age compositions representative of the landings, whether they're weighted somehow, and I know we'll talk about more of weighting tomorrow with red snapper, but that was how the otoliths were -- Basically, the port agents were assigned to collect this many.

They would come back, and they would be read, and they would be processed, and I think the issue was, with 2010 to 2012, 2010, 2011, and 2012, when you look at the raw data that came in, there's a lot more samples that were available, and I think there is some concern, and there's no discussion on how those otoliths were assigned, and like how were they collected out in the field and then brought in.

Our concern was that what was done -- We don't know what was done, and, when we looked at the fits in the data, it did not look representative of what it should have been, and so we were really concerned. I mean, we saw these patterns for 2010 to 2012, for all four of our fishing fleets, and just very -- It looked very

non-representative, and so that's why we decided to pull it out for this assessment, of that concern that we do not think this is representative of the landings, like it should be.

Starting in 2013 and onward, they no longer are telling port agents how many samples to get, and they're trying to just randomly assign it, and so, internally, in terms of the Southeast Fisheries Science Center, I think we have lots of discussions internally, and desires for additional work for our composition data, and I think that's something that we want to look into, and I think it starts with making sure, you know, when changes in sampling occur -- Like this, and we went to the working paper and said this -- Look, they say right here that they don't know how the otoliths were sampled, and it kind of told us the story of, okay, well, here's our concerns, and I think those changes in how the data have been processed -- We need to be aware of those changes, so that then, when we see these sorts of patterns, we can help explain it, because we did not see that trend anywhere else, and so that's kind of the concern that we had, and that's why those years were excluded.

MR. BLANCHET: Okay, but you did have length comps for those years.

DR. SAGARESE: Absolutely. Yes, we have length data, but that comes from the trip interview program, and so the collection of otoliths is sort of a different sampling scheme. We weren't concerned with the length data that was coming, but we were concerned with the age data and how they were defined for collection and then other issues.

MR. BLANCHET: I mean, I'm just -- I'm just thinking of using that length data as a surrogate for sampling, so that you have all of those lengths from 2010, and you have an age composition for a twenty-four-inch yellowedge that you can have a suite of ages assigned to it, something to fill that black hole that you have there, and, you know, I don't know. I mean, you guys talked about it a lot, but it just -- I have a hard time just walking away from that much information without trying to lever it into the -- Downweight it or whatever, but somehow find a way to get it in there, and that was just, you know, difficult for me. Thank you.

CHAIRMAN NANCE: Thanks, Harry. Let's go ahead and go into the results, Skyler, please. Paul.

DR. MICKLE: Thank you, Mr. Chair. Just real quick, how close to a data-limited -- How large is the data? There's no Ns in the presentation, and it's hard to put a gauge on the needle of how close we're getting to data-limited, and I know this has been in SEDAR for a while, and it's been done a few times, and so obviously

it’s got enough, but how close to that threshold?

DR. SAGARESE: I would call this one data-moderate, and so it’s not data-limited, but it’s not as data-rich as some of our other groupers, but I think we have enough information to, you know, warrant doing an age-structured model like this.

DR. MICKLE: This is just a comment, but the need for transparency, with some of the methodologies of dissertations and publications and things would help out, I would assume, in this particular situation, but a lot of the journals now are asking for the datasets, for replication capabilities by reviewers, and I think it's a wonderful direction to go, and it may provide some accountability, so this won’t happen in the future.

DR. SAGARESE: I think that’s a great point, and I know, at the Science Center, we’re trying to become more open with our science, so there’s, you know, other ways for us to distribute and share and kind of do project management, but also to tracking changes in the stock, but we do run into potential confidentiality issues. If it were up to me, everything would be publicly available, but, unfortunately, we do have some issues with -- Even our Stock Synthesis files can be confidential, and so we can’t even post the assessment results, and so it’s kind of a challenge. It’s a very big challenge, and we certainly want to be as transparent as possible.

CHAIRMAN NANCE: Okay, Skyler.

DR. SAGARESE: Okay, and so, shifting into results, and this slide may look familiar, and this is what we came with to the SSC last year, but, because I mentioned earlier that we can’t really do a strict continuity, where everything is the same, except we have three more years of data, and what we end up doing is it’s just a sensitivity run, and we take the old model, the SEDAR 22 base model, and if we had -- For example, if we used the SEDAR 85 landings stream, because the landings changed, for all the methodology reasons, and what would the effect have been on the model, and so, instead of -- You know, the biggest data issues for this assessment is we had the SEDAR 85 landings, the composition data, and we had to change how we model fishing mortality in the stock assessment, so that we can incorporate uncertainty, and then incorporating that uncertainty in the landings, removing the sex data, and then fixing the hermaphrodism function.

Each of these lines -- Basically, on the top-left, is going to be our fraction of unfished, and so that’s the SSB to SSB0, just to give an idea of, you know, you start at one, and you start right

about one at virgin, and then you can see the change in the population.

The bottom-left is our age-zero recruits, with the uncertainty bars, and the bottom-right is the fishing mortality estimates as an exploitation rate, and so you can see the different changes. For example -- You know, the disclaimer here is that, when you look at the uncertainty bounds, nothing is that different. There is some slight shifts with using the new composition data, and so the red line, and, for example, you get a slightly lower fraction of unfished.

The biggest change for fishing mortality, for example, is when you incorporate the new landings, which we changed that interpolation from 1982 to 1985, and you see that on the bottom-right, but the blue line is totally different, just given the improved methodologies.

Overall, we were able to just show, you know, if we had made those changes last time, here's what the effect would have been, and nothing is too out of -- You know, out of the expectation.

Then, you know, normally in the Gulf, we do do a bridging analysis. We start with the old model, and we did have to update it to the newest version of Stock Synthesis, 3.3, and we got the same answer, and no problem there, and then we slowly build in different changes, and so the top-right is basically our Phase 1 changes, and so just small changes, for example, to the life history parameters, and the solid -- The darkest blue line is basically the SEDAR 22 model.

It stops in 2009, and that's the one converted to the new SS, and then we build from there, and so then we got our -- We threw in all the new data we had, our continuity, or as close to a continuity as we could produce, and then we added in some life history changes, and then we made a small change to the standard error for one of the indices, and then once -- The biggest change you can see in that top-right is when we removed the sex-specific composition data and fixed the hermaphrodism function, and so you see kind of a shift in that fraction of unfished.

For this bridging analysis, I'm just showing the trends in the fraction of unfished SSB. There is plots, later on in the extras, if you're interested in how F changed, and recruitment and such, but, basically, you can see how we built the model up.

In Phase 2, we did some more configurations, and we added the Dirichlet parameters, and we added the weighted length

compositions again, just for the eastern commercial fleets, and we made a change to the recruitment deviations, and we tried to estimate them more recently, and we made some small tweaks to selectivity, and we looked at catchability. We added in the uncertainty for our catches, and then we smoothed out that 1982 recreational estimate, and so not many changes in SSB there.

In Phase 3, the -- So I should stop here. I should say that we kind of stopped in Phase 2 and evaluated what we had and said, okay, you know, we're not very happy with some of the diagnostics, with some of the fits, and this is where we said, okay, well, let's go back and thoroughly evaluate the data and make sure the data we are using are representative and, you know, we're not concerned, such as that 2010 to 2012 age compositions.

From here, we ended up going through the different phases, and so removing those years, and, unfortunately, we put the recruitment deviation estimation back to eight years prior to terminal, because the model was not performing the way we wanted, and we fixed steepness, and we fixed SigmaR, and we -- The biggest change you will see in that bottom-right Phase 3 is when we removed the conditional age-at-length and we put in the nominal age compositions. You see kind of a shift up in the fraction of SSB there.

Then we removed the bottom longline data prior to 2000, the groundfish east age data, because there were only four samples, and then we ended on our base model, and so there was a lot of steps with this model. We really -- You know, it's quite different than the original, but we tried to implement as many best practices as we could, and we tried to use as much data as we could, and we really made sure that what we were using was representative.

CHAIRMAN NANCE: Harry, please.

MR. BLANCHET: Thank you. For the top two graphs, are we just supposed to divide that Y-axis by four?

DR. SAGARESE: Absolutely, and so keen eye. That is just a switch in our Stock Synthesis. That SEDAR 22 just used a fraction of 0.25 at the bottom, the denominator, and, yes, you just have to divide by one, and that's why we switched it in the new model, and it just makes more sense to be on a scale of one, right, and it's not intuitive, but yes. I was wondering if someone was going to catch that, and so great eye, Harry.

Okay, and so, moving into the fits, on the right-hand figure, that's going to be our SEDAR 22 fits, and the black line and the

blue line are the same, because, again, we had very little uncertainty, a CV of 0.01, and the model is treating landings as known. On the left is our SEDAR 85 estimate for each of our fleets, and, again, from 2010 to most recent, we treated them as known as well, and we did incorporate a little bit more uncertainty from about -- I think it's, you know, 1986 to 2009, and the most uncertainty, but, again, only up to about 0.1, or I think 0.2 in the starting years, and you can see that the model is not fitting those landings as known, and, actually, in the east, the model is expecting lower landings, and it's expecting slightly higher landings in the west.

We did incorporate more uncertainty, just because we wanted to acknowledge these landings -- We do not know the landings, but we did do quite a few sensitivities as well, to just kind of demonstrate all these effects on the model, and so, overall, you know, pretty good fits, except for those earlier years, which, again, was by design.

For the indices, and so the same indices for the commercial longline east, and the west were used this time around as well for the bottom longline. Unfortunately, the length of the series nearly doubled, or more than doubled, but, overall, you can see that, for most of the indices, there is not a lot of contrast, and they're pretty flat. The model is really not -- You know, it's not fitting very well, and it's not really capturing the decline in the longline west, but, again, this is kind of similar to what was observed last time, and so we had a lot more data, but, unfortunately, the fits for the indices still aren't -- You know, they're not great. There is high uncertainty in each of the indices, and so the model -- There's just not a lot of information.

The root mean square errors are posted there for each one, but, again, you know, no real big improvements, and it's still we're not fitting terribly well. Yes, Will.

DR. PATTERSON: So a similar question as before. With the landings estimates, you know, because you have logbooks, they should be -- So you're landed in the east, but, if you're caught in the west, shouldn't that be recorded as a west landing?

DR. SAGARESE: So that's a great question. They're not. I'm not sure what the fraction is, and I think the majority of them, of the landings in the east, would be caught and landed in the east, but I wonder if we can get a better handle on how much -- What the proportion is that was caught in the other region and landed in, you know, mismatch.

DR. PATTERSON: The landings estimates are two-and-a-half-fold greater in the east, but, in the Panhandle, a lot of those boats are fishing in the west, and they make ten-day, or two-week, trips, and come back and land in the east.

CHAIRMAN NANCE: That's -- You know, Will, that's true of all the fisheries, and I think some are a little bit bigger than others, but, if you look at shrimp, you know, you talk about catch, and you talk about landings, and they're two separate entities, but I think we need to be careful, in these fisheries, that, when we talk about landings, we're talking about what is landed in that area and not what's caught.

DR. PATTERSON: I think, in this case, it's particularly important, because of the start of the model.

DR. SAGARESE: Yes, and we'll try to get more concrete numbers with that, but we did follow the logic of what was used last time, but, yes, that's a really great point, and that's really important.

CHAIRMAN NANCE: Doug, please.

MR. GREGORY: Thank you, and so that begs the question if -- Given technology improvements with the commercial fleets, could they be landing more of their western-caught fish in the east now than they were five or ten years ago, and that could reflect, or be the reason, for the west landings to be going downward a little bit, and, I mean, I'm just asking.

DR. SAGARESE: So we actually have Micki Pawluk listening, and she's got her hand raised, if we could -- If she could chime-in here, that would be great.

CHAIRMAN NANCE: That would be perfect. She's calling in from Galveston, probably.

MS. MICHAELA PAWLUK: I just wanted to respond about actually both the landings and the compositions. We assign that subregion based on area fished, whenever possible, and so, for the majority of the time, it's going to be -- You know, if it's saying it's landings in the west, it was caught in the west. If it's saying it was landings in the east, it was caught in the east. There are some cases where we just don't have that area fished information, and then we have to default to either -- If we have any latitude and longitude information, we'll use that. Otherwise, we'll default to state and county landed.

CHAIRMAN NANCE: Thanks for that clarification. Roy.

DR. CRABTREE: At least in the more recent times, all these vessels have VMS on them, and so you should be able to tell exactly where they were fishing.

DR. SAGARESE: Okay.

CHAIRMAN NANCE: That helps. Thank you.

DR. SAGARESE: Yes. Thank you, Micki.

CHAIRMAN NANCE: Skyler, please.

DR. SAGARESE: Sure. For this assessment, we're estimating length-based selectivity, and so, for our commercial longline, and NMFS bottom longline, we're assuming a logistic curve, but, because of where the commercial vertical line and the SEAMAP trawl -- They're certainly not necessarily getting the larger fish, and so those are allowed to be dome-shaped selectivity.

The figure on the top-right, and here's another test. The figure on the top-right is for the SEDAR 85 model, and it's the derived age selectivity, and so, again, we're specifying length-based, but Stock Synthesis, because it works in ages, it's then estimating selectivity for our derived ages.

If we specified age-based selectivity, it would be an age-based curve, but this is the derived ages for SEDAR 85, for each of our fleets and each of our surveys, and so you can see the groundfish is very small individuals, very young individuals, and then the commercial vertical line, and so it's kind of domed, and it's not very domed, but that's what we're seeing.

I should mention, and so very important -- Because we've got east and west, we're not estimating separate regional selectivity patterns, and we're mirroring, and so we're mirroring the west to the east, and so they're sharing a selectivity pattern. That's what was done last time, and that's what we have continued to do here, and so another difference from SEDAR 22 is, last time, they had a block on selectivity.

There was a block for the earlier period of I think about 1975 to 1985, and that was supposed to represent when the fishery was kind of mixed. There were both vertical line and longline gears on the boats at the same time.

This time, we did reevaluate that assumption, and it really didn't make much of a difference, in terms of the model outputs, and there

was very little change in the likelihood, and so we ended up dropping that back down to no time-varying selectivity, just for simplicity's sake, but we reevaluated that, and, on the bottom panel, that is a plot -- That's another test, and so this is actually the length-based estimates from the SEDAR 22 model, which I mistakenly put in, instead of 85, but they're very similar to what we're seeing with the more recent model, and just that plot shouldn't be there, and you can tell it's different labels for the commercial longline.

In terms of the length composition fits, we're going to go through the fits for each of the fleets and the surveys. On the right-hand side is our SEDAR 22 fits, and you will see there's three colors, and so the red is female, blue is the male, and then black is the unsexed, and, for SEDAR 85, we just have the black, because we added all the data, and we didn't do sex-specific.

We did some improved fits, and so the top panel is vertical line east, and below it is vertical line west, longline east, longline west at the bottom, and we've seen some improved fits for some of the residuals, and, of course, there is still some points, you know, where we see patterns that we wouldn't -- Ideally, we would see very small residuals, and no patterns, and we do see some funky things, for example commercial longline west at the bottom, and we'll kind of talk about that when we go through some of the diagnostics later on.

In terms of -- For our composition data, we estimate the Dirichlet multinomial parameters, and so we're estimating one parameter per gear type, and so commercial vertical line east and west are sharing a parameter, and then longline east and west are sharing a parameter, and the way that the parameter works is I've got these blue boxes, and so, for vertical line east for example, from the input -- So the Dirichlet multinomial parameter adjusts the input sample sizes, and so we input the number of fish, and it's actually saying that, okay, you input -- Your sample size is too high, and it's actually downweighting, and so by 54 percent, and it's saying, well, your weight for this is actually smaller. Commercial longline is 30 percent. That's how that Dirichlet multinomial parameter works.

Ideally, you would want to see all the information in your sample size, and you wouldn't downweight at all, and I think that's one of the recommendations and why oftentimes -- You're supposed to use the number of trips, but, unfortunately, we did not have that information here for every data source.

For the residuals, and so the closed, grayish boxes are just

showing positive residuals, where the observed are greater than or expected, and the open, the white filling, is negatives, where, actually, the model is expecting larger values than were observed, and it's showing this now for the surveys, and so you can see that those Dirichlet multinomials are actually -- They're pretty close to the weighting that the model would recommend, and so 92 percent and 98 percent for commercial bottom longline and then the NMFS bottom longline survey and the NMFS groundfish trawl survey, but, here, it's very obvious now that you can see that we've gotten a lot more length data from our surveys, our fishery-independent surveys.

You can see, on the bottom two panels, that we've used a lot more length data this time from the trawl survey, versus last time, and, interestingly -- So the trawl survey occasionally catches these really big yellowedge that the model is not really expecting, and so that's why you see those big circles, those big residuals, and I think one of the age plots -- One of the fish you can see that it was a very old fish.

For the SEDAR 85 base model, we did end up using the age compositions, and, you know, going through and building the model and looking at the results, the conditional age-at-length -- We just were not happy with the residual patterns. When we input the nominal age compositions, actually, the residuals were quite small, and we didn't see many strong patterns. There is, you know, a few undesirable issues that we can detail more in the report, but, for the most part, the fits were pretty good, and I will show, in the next slide, sort of wrapping up a comparison of the length and ages, but, again, the Dirichlet multinominal parameters -- You know, they're being downweighted for the fisheries, because we had lots of number of lengths going into that data.

Commercial bottom longline actually is not -- The Dirichlet is not that much different, and, again, the NMFS trawl -- You know, there's just not a lot of data, and that we were fitting to the aggregate of all the age data, and not by year, and so --

You know, wrapping up the fits for the compositions, normally, I think for gag and scamp, we often see these strong tradeoffs between fitting the length comps and fitting the age comps, and I don't think we see as strong of a tradeoff here, and so on the left is our fits, overall fits, to the length compositions for the fleet and surveys, and on the right is the age comps.

Overall, they're fitting pretty well. I think there's some iffiness here on the bottom longline survey west, and so in the first bottom, in the middle, and, you know, there's kind of a

mismatch there, but, overall, we were quite happy with the fits for this species, and that's partly the reason why we switched to the nominal age compositions.

Not so happy now maybe with the recruitment, and so this is a very difficult stock to try to get a handle on recruitment. There's really no stock-recruitment relationship. As I mentioned earlier, we did fix steepness and SigmaR, and we did estimate that recruitment distribution parameter, which results in higher estimated recruits in the east compared to the west.

Overall, you can see, on the bottom-right -- So those are our recruitment deviations, and a lot of those years have very high CVs, and so there's a lot of uncertainty in those estimates. Even with the groundfish trawl survey data that we included, there's still a lot of uncertainty in recruitment.

The highest recruitments are estimated in 1975, 1994, and 1979. What is most concerning, and most relevant, for projections is we can see that the last few years, where we are estimating recruitment deviations -- When you look at 2005 to 2012, they are very, very low. The uncertainty bars are very small, just because it's a low value, and there is a very clear low, you know, pattern of recruitment being projected. Then you see, in 2013, it jumps up there, and it's just a constant line, because that's just the average from the time series. Yes.

CHAIRMAN NANCE: John, please.

MR. MARESKA: So these peaks in recruitment -- Was there any indication that these were in the east or the west? I was wondering why this wasn't broken out by east and west as well.

DR. SAGARESE: So those are broken out in the report, and I believe both -- So that peak, those peaks, would be in both regions. I would have to go back to my report, to the figures, but that would be in there. Yes, you're right that I didn't include east versus west plots in the presentation, but those high peaks would be -- I believe they would be consistent across those two regions, but I can check that for you.

CHAIRMAN NANCE: David had a question, too.

DR. CHAGARIS: Hi, Skyler. Great presentation so far. I didn't see a fit to the SEAMAP trawl index. Was that --

DR. SAGARESE: So the SEAMAP trawl index of abundance was discussed with SEDAR 22, but they did not include the index of abundance.

They only included the composition data, and so we did the same, and we did not include the index.

CHAIRMAN NANCE: A follow-up?

DR. CHAGARIS: So I'm just -- What would be the purpose of just including those composition data, if it's not really like tracking recruitment and --

DR. SAGARESE: Yes, and, I mean, so -- There was a lot of discussion, with SEDAR 22, about that data source, and I think the reason why we ended up including the composition data is at least it was giving us some sense of -- You know, especially in the west. I think there's more length data in the west, but I think the intent was just to try to get some sort of information on recruits, if we could, and so, yes, there's no index, and there was very low occurrence in the survey, but there is some length information. You know, you see some years where there's a lot more lengths, and maybe you could get some sort of signal.

I did mention that I did do a sensitivity run where I pulled out the groundfish data, and it really doesn't make that huge of a difference on the model results, but this is -- You know, this is another one of those uncertainties that we -- This is a stock where we don't really have a lot of information to get at the recruitment, and there's just -- You know, you can see it, and it's -- The estimates are pretty uncertain. We've tried to include any information we could, but --

CHAIRMAN NANCE: Okay. Roy.

DR. CRABTREE: So just so I'm thinking about this right, and so the last recruitment estimates we really have are 2011 or 2012, something like that, and they fully recruit to the fishery at nine, or thereabouts, and so the fish they're fishing on now though would have been recruited ten or more years ago, by and large, and, if we did have some big year classes after 2011 and 2012, they wouldn't really have hit the fishery yet anyway, and so I know, if we decide to use recent years for the recruitment estimates, and it's ten years old or more now, and that really makes you pause, but then, if you think about what they're actually fishing on, maybe it's not quite as worrisome as it initially seems.

CHAIRMAN NANCE: Will.

DR. PATTERSON: So, Skyler, when I look at the age comps, a couple of slides back, it seems like, in the more recent years, there is this slug of eight to twelve-year-old fish that are showing up in

the age composition data, but that doesn't reflect, you know, the pattern that you see ten years ago in the recruitment, and so where is the disconnect there?

DR. SAGARESE: Can you just repeat that, and let me write that down?

DR. PATTERSON: In looking on page 41 of the PDF, which is this figure here on the screen, in the more recent years, the age compositions, the bulk of the numbers, occur in that group of ages between like eight and twelve, when the fish are just recruiting to the fishery, and there are fewer bigger, older fish that are present, and so why then does that signal not carry forward in the recruitment estimates from a decade ago?

DR. SAGARESE: Yes, and so we're not seeing those big cohorts in our recruits here, and so, if they're showing up, we would have expected some of those, what, late 2010s to be a bit higher, and that's the disconnect?

DR. PATTERSON: Yes, and so, I mean, there has to be some other signal, right, that's saying -- But all that recruitment information is coming from the age comps, is it not?

DR. SAGARESE: Yes, most of it, yes. Okay, and so our observed data is showing much higher observations than what the model is seeing in those age comp plots. I mean, in this -- I do worry about -- I think we certainly need to dig in with the composition data, and I have it at the end, when I conclude that -- I think there's more work that we need to do internally, just to get a better handle on our compositions, and I think that kind of comes out with the red snapper review as well.

So, if the model -- We're seeing these clear mismatches, where we're seeing a lot more fish around twenty in the most -- In, for example, vertical line west, and the model is not predicting that, and the model is not seeing that, based on these results, and we see it too in the commercial longline west, and I think -- I mean, I think we need to do more about trying to explain some of those trends, but I understand what you're saying, and I understand the recruits, and it is kind of misleading for the most recent estimates, say 2005 to 2012, and they do have low error bars, but they're pretty low estimates, and so that error bar is not really showing how much uncertainty there should be.

DR. PATTERSON: I just want to make sure that I'm reading this plot right on page 41, and so, when you have the darker circles, it's saying that the observed values are much greater than the

expected values, the bigger the circle, or the darkness, and so the model is saying that it's expecting there to be few fish in those age classes, but the data showed there are more fish in those age classes, and so any idea why the model would not be fitting these better and predicting higher recruitments in those years?

DR. SAGARESE: The model is not -- I mean, maybe -- For one, we're not really seeing the trends in the indices, and so the indices are going down. Our bottom longline indices are going down, particularly in the west, which is that commercial vertical line and longline, where we see those big dark circles in the most recent years, and so, I mean, the indices -- There's high uncertainty in them, but the model is still maybe getting the information from those indices, to say that the abundance is going down, but we're seeing -- This is where I get back to I hope that the composition data that we're using are representative of the landings and that we're using them appropriately.

DR. PATTERSON: Could it be that there's been a shift in targeting, or selectivity, that's not --

DR. SAGARESE: I mean, that's certainly always a -- That's always a potential area, and, at least for yellowedge, looking at their regulations, but, going back to the multispecies nature of these fisheries, it could be that there's regulations on other species that are at play, and, yes, that are changing maybe who is going out for yellowedge, and are they targeting different areas, or are they -- So that's quite possible, and that's one thing that I think we have not been able to really do, because we don't necessarily get comprehensive regulation histories when we do an assessment. We just kind of get here's your target species, and here's the regs that are important, you know, and here's spatial closures, but that's something that, at the Science Center, we are trying to move towards, is a better overall understanding of what could be happening.

I know we have a management history project that we've been trying to work towards that end goal, but that is certainly -- I mean, that raises an important point too, and so, when it comes to us trying to build our models, and trying to fit to these, we don't want to just add time blocks just to get better fits, and we want those time blocks to be informed by a regulation, or a known change in the fishery or something, and that's just something that I don't think we've had the ability to do, and I think Lisa did some investigation with that for Spanish, but I don't think that we ended up blocking it, just because of the same concerns, because we need a better handle on the regulations for the entire fishery.

CHAIRMAN NANCE: Okay. Thank you. Doug.

MR. GREGORY: I was involved in the review workshop for SEDAR 22, and I think, if I remember right, we did tilefish and yellowedge grouper, and the tilefish assessment didn't work out, and I remember, at that time, thinking, well, just because SS lets you chop things up and analyze them separately, should we really be doing that, and I felt that was the problem with tilefish, and I have that same feeling coming back now.

Have you all considered, or have you done any runs, where you just did not look at east and west? I understand, very clearly, you know, vertical line versus longline, even though they both fished in the same area, but, if you don't separate the two, and we've got a data-moderate model, we would be better off.

DR. SAGARESE: So that's a good question, and it something we considered, but, because of the operational nature of this, we went forward with what was done. I did do a sensitivity where I did a single model, but let me just caution that with saying that not all the data inputs that were given to me were given, and so -- It's a bigger question, of then we have to ask all the data providers to provide it Gulf-wide.

I had most of the data sources that I would need, and I did do a run, but I had a lot of concerns, and we would have to really go back and evaluate -- Make sure we're using the right data and make sure, you know, it would -- It did give a different kind of output, but -- I mean, that's something to think about, but I do think, in this case, the east and west is warranted, just from the Prytherch paper about the history of the fishery and the different regions and such, but that would take a bit of work for the data providers to go back.

MR. GREGORY: If I may, just a real quick follow-up.

CHAIRMAN NANCE: Go ahead.

MR. GREGORY: The Prytherch paper, that was done decades ago, and things have changed since then, obviously. I mean, the fleets have changed, and the capabilities have changed, and so that was appropriate in the 1970s and maybe the 1980s. Thank you.

CHAIRMAN NANCE: You're welcome. Harry, please.

MR. BLANCHET: Pass.

CHAIRMAN NANCE: Okay. Thank you. Let's go ahead and finish the

results section.

DR. SAGARESE: Okay. I think we're into the exploitation rate estimates. On the left is from SEDAR 85. The top is just the total fishing mortality estimates. The bars are going to be the confidence intervals, and so you can see -- For our more recent model, you see much higher -- There are larger bars for those early 1980s, where we allowed more uncertainty.

Then, at the bottom, we've got the fleet-specific estimates of exploitation, and on the right is the SEDAR 22, and so, you know, the estimates did change a little bit, and, again, I think that's from the changes in the landings, how we handled uncertainty, and, in this case, what I found interesting is, on the right-hand side, on the bottom, you can see that commercial longline west and east, basically the yellow and green lines, or the yellow and blue, are kind of at the same level, whereas, in our model, we're estimating much lower landings, or much lower fishing mortality, for longline west in those same years, and so I thought it was kind of interesting to see the shifts, but, again, you know, we did handle landings a bit differently.

We had different estimates provided this time, but this is kind of, you know, fairly similar, but it's not exactly identical between models, for the reasons that I mentioned, and then looking at -- I did plot the spawning stock biomass and the fraction unfished, SSB over SSB0.

For east and west is the top figures. On the left-hand side is going to be the spawning stock biomass, and on the right is that fraction of unfished. The middle is going to be eastern trends, and then west is at the bottom, just to show how each model estimates those trends by region. You know, you can see that, and so, for east and west SSB, our model actually estimates higher, and much of that change is due to us fitting to the nominal age compositions.

On the middle, you can see that, for the east, aside from the first few years, the SSB estimates are pretty similar, and then, on the west, we're actually estimating slightly higher estimates in the west, and, then the fraction unfished, you can just get a feel for our model, and we see higher fractions for that middle period, and then much higher fractions in the west, driving the results of this model. Okay, and so that's --

CHAIRMAN NANCE: Okay. We're going to go ahead and take a break now, and so we'll have questions on results, and then, when we come back, we'll do diagnostics, but let's go ahead and break until

quarter to eleven, Eastern Time.

(Whereupon, a brief recess was taken.)

CHAIRMAN NANCE: We need to start gathering for the meeting. We'll go ahead and start, and, Skyler, we'll open it up to you, young lady.

DR. SAGARESE: All right. Are we ready to go through some diagnostics?

CHAIRMAN NANCE: Yes. If they're not at the table, that's the way life is.

DR. SAGARESE: Okay, and so the first diagnostic we'll go through is our jitter analysis, where we run this analysis on multiple iterations, just to make sure that we don't find a model that has a lower negative loglikelihood. Ideally, you want to see very consistent results.

In this case, we were pretty happy. We had seventy-six of a hundred runs within one negative loglikelihood unit, which I think is pretty good, and, in the figure, you can just see -- You know, everything is at the bottom, and you a couple of different runs give us very high likelihoods, and it's probably just some sort of selectivity estimation issue. That generally is what it is, but this was a pretty good outcome for this model, and so we were comfortable moving forward with that.

I wish I could say the same with the likelihood profiles, and so the likelihood profiles -- The top-left is our R0, our virgin recruitment estimate, and the top-right is SigmaR, and the bottom-left is steepness with the prior, and the bottom-right is that recruitment, an apportionment parameter that tells recruits whether it's west or east.

Ideally, the thickest, the darkest blackish line is our total likelihood, and you would want to see a very nice dip. For example, the R0 is not terrible, and we see a pretty nice dip, but we also see some conflict, and so, for example, the age data wants a higher R0, whereas a lot of the other data sources -- Sorry. The age data wants a lower R0, and a lot of the other data sources support a higher R0, and so there is some conflict there, and, I mean, this pretty standard for what we see.

The recruitment distribution parameter as well shows that nice little minimum, where the model is estimating it, and so that's fairly comfortable, and SigmaR -- So this was one of those

parameters where we've had, you know, some uncertainty with this parameter, in terms of the likelihood, and so, in this estimate, I've included a little table that shows the total model when you allow SigmaR to be estimated.

The model wants to estimate a value of about 1.4, and so you see a minimum here, and, actually, the minimum goes from about one to two, and so the model really can't distinguish whether it's a SigmaR of one or a SigmaR of two, and there's just not a lot of information, which makes sense with some of the discussion we've had to this point, that there's just not a lot of data in the model to get at those recruitment estimates, those age-zero estimates.

We ended up fixing it at 0.5, based on some additional diagnostics we had run as we were building the model, and so this is one of those things -- I do have a sensitivity run where SigmaR is being estimated at that higher level, and it does not make much of a difference on the model-derived quantities, but this is something to keep in mind, that, you know, this is still a form of uncertainty for this model.

The bottom-left -- So steepness, we're estimating -- In this case, you're estimating the steepness of each of those values. There's a dashed line just about two -- On the Y-axis, where it's two, and any of those values that falls below that is basically the model can't distinguish it within that frame, and so, basically, a steepness of 0.7, up to about 0.88. When we use a prior, the model really has no support for estimating steepness, and so there's no clear minimum.

There is -- You know, that's why, in this case, we ended up fixing our steepness at 0.827, which falls within this range, based on the FishLife approach to getting a biologically-plausible estimate, and so, overall, you know, we see some conflict, which is pretty normal in our assessments. R0 seems to be pretty well estimated, and so does our recruitment distribution parameter.

For our retrospective bias, the plots on the top-left is showing the overall trend for spawning biomass, and the top-right is just the more recent years. The bottom-left is fishing mortality, and the bottom-right is the most recent years, and so, peeling each year of data off, we get estimates of our retrospective bias for SSB, for recruitment, for fishing mortality, and they are within the acceptable range that's been put out from a scientific study, and so no very concerning trends here for yellowedge, in terms of retrospective bias.

I think we first talked about these during the scamp research

track, and we had a reviewer for the assessment that was one of the primary authors of an SS3 dyads package, which goes through a lot more diagnostics for our Stock Synthesis models, and I'm just kind of summarizing here, and that would take another probably thirty minutes just to go piece-by-piece, but the moral of the story is, for each of our data sources, we do see some non-random patterns in our residuals from the runs tests that we've conducted with that package, for example that bottom longline west index of abundance, some of our age and length data for the commercial longline west, which we talked about some of those residual patterns, and the length data for bottom longline east.

We also, surprisingly, have a lot of poor predictive skill for a lot of our age and length data, and we have good predictive skill for the bottom longline east, and not so much for the bottom longline west index, and so just to kind of give an idea of how each of those pieces is behaving in the model and what kind of predictive ability -- For example, if we wanted to do interims, this is the kind of information that would be helpful to know, which of these indices have better prediction skill. Any questions on diagnostics, or I will go into sensitivities?

Okay, and so, coming kind of full circle, and we talked a lot about the landings, the landings data, and a lot of the work that was put into trying to develop the most plausible, and defensible, time series of historical landings for yellowedge.

We did do a couple of sensitivity runs, and the first one -- So, in these figures, the top-right is our fraction of unfished SSB, and the bottom left is our age-zero recruitment estimates, with the confidence bounds, and the bottom-right is our fishing mortality estimates, and so the SEDAR 85 base model is our blue line, and then, starting with the green line, it's going to be where we removed all the recreational landings and dead discard estimates.

Again, recreational removals are only about 2 percent total, and you can see that, when we did that sensitivity and removed all the recreational data, the lines are essentially right on top of each other, and there's not much of a difference.

Those data are really not doing much, in terms of affecting the model outcomes, and so, even if we removed it all, we would still get a similar result, and I think that -- You know, we just did this run just to demonstrate what would happen, not really saying that we should remove it, because the recreational data are still data, and I think the concerns we discussed earlier, about our recent trends increasing, I think those are completely

understandable, and definitely something to keep in mind as we move forward.

The other sensitivity that we talked about was the low landings for commercial longline east early in the 1980s. If we were to use those reduced landings, we do see some sort of -- A little bit of a drop, and so our fraction unfished -- In this case, we see, comparing it to our blueline, we would actually have a little bit higher of a fraction, and we don't see that many changes in our -- - Recruits are pretty similar, and the fishing mortality -- That's where you see that big change, or, actually, that big change is the next sensitivity, but, overall, we see a little bit of a shift, in terms of fishing mortality in more recent years, as well as the SSB ratio.

The third sensitivity is where we allowed a very high CV for anything before 1986, all the landings, just to demonstrate, if you gave the model a lot more flexibility back there, what would happen, and I think, in this case, it estimates a huge removal in 1981, which is even higher than what we see in the base model, and, you know, the model sees this big drop, in order to fit the data that we have, and then it just kind of drops, and then we see sort of a strange trend, where SSB then rebuilds and goes up.

That was just to demonstrate when you gave a lot of uncertainty, and the model still sees these big removals, and one thing to note is we did look at changing the start year for this model to 1986, because that's really where we have a lot more confidence in our data, but we did hit some snags within the timeframe for this assessment, in terms of when we exclude the data before 1986, we miss a lot of that contrasting data in the eastern area, and so east is primarily where a lot of the landings come from.

If we start in 1986, we kind of miss that, and then we have a lot less contrast. If an earlier start, more recent start, year is something to consider in the next assessment, there would be a lot more decisions, and kind of discussions, on how we would specify the initial equilibrium catches, and questions such as that, and that's why we ended up sticking with a start year of 1975 here.

Per the terms of reference, we also did sensitivity runs looking at steepness, whether it was estimable with a prior, without a prior, and we also did a run where it was fixed at 0.7, which is a sensitivity run that's been done in past yellowedge grouper assessments for the Gulf, and what we end up -- You know, generally, our estimate of steepness does have a strong impact on the results. We see that, as our steepness gets lower, you know, we'll see a fraction of unfished SSB, and we do see changes.

One thing to note is that, when it's estimated without a prior, it's being estimated at the lower bound, and so there's really not a lot of information in the model for us to be estimating steepness. Even with a prior, it being estimated at 0.5, and so these estimates are much different than what was provided by the SEDAR 22 base model, where steepness was estimated much higher, but just, again, you know, we thought fixing it a biologically-plausible estimate was the best way forward, and, at least with the sensitivities, we can demonstrate the effects.

The biggest effect would be if we estimated steepness, which, again, there's no support really to do that with this current model, and, even if we fixed it at 0.7, which is another plausible value that's been used, it's not that different when you compare it to the base. It's still within the confidence bounds for the trends in the fraction of unfished and the fishing mortality and recruitment.

I mentioned, earlier, when we were looking at the likelihood profiles, we did do a sensitivity run estimating SigmaR. The model estimate is a very, very high estimate. I've never seen an estimate this large coming from our models, and so there's really -- This is common, and there's really not a lot of information in our assessment model to estimate SigmaR, and so we ended up fixing it at about 0.5, and, even if we estimated -- You can see the trends in derived quantities, and they're within the confidence bounds of the base model, and so not a huge impact there.

The last sensitivity that I will present here is our jackknife, where we remove one index of abundance at a time, and rerun the model and see what happens, and, ultimately, we do this for each index, but we also pull out all the fishery-dependent indices, to show what that would -- What effect that would have.

On the left, we're showing our trends in spawning biomass, and on the right is our age-zero recruits, and overall -- You know, for the most part, again, when you look within the confidence bounds, the trends are not that different. The biggest change is pulling out all the fishery-dependent, which is our commercial longline for east and west, but, overall, it really does not make a huge difference, in terms of the outputs for the assessment model.

In summary, for the base model, we currently -- We think we've incorporated all the best available information. There's been a lot of modifications and improvements in methods since SEDAR 22, over twelve years ago, and we've addressed the terms of reference to the best of our ability, and we feel that this model shows much

better fits to the residuals, and better diagnostics than the model from last time, and so this can be an overwhelming bullet point, but just to highlight the outstanding issues, and these are more just topics to keep in mind, in terms of uncertainty.

There is a lot of uncertainty for this assessment. Historical landings, as I mentioned, there's been a lot of work to estimate, or provide, the time series. We have some survey data, but we don't have very huge sample sizes. Yes, we doubled the time series of our indices of abundance, but they still have fairly high uncertainty, and the fits are not great. There's, you know, pretty flat fits.

We have the recruitment uncertainty, and we've talked about that quite a bit here this morning, and then the composition data, and, you know, there's just these issues to keep in mind as we move forward with this assessment. We used all the information that we could, and we incorporated as many best practices as we could.

We think that incorporating more uncertainty in the landings is very realistic, and representative, of our region, where we do know that we have uncertainty, particularly for this stock, prior to 1986 for the commercial landings, and, by removing the sex-specific data, for the concerns that we talked about, we did reduce stratification of this model where we could, to try to have a simpler time trying to fit the model, but, ultimately, you know, we think this is an improved product.

There are some issues, but they should not really prevent this model from being used for the consideration for management advice, and I think that is the last slide before -- We've got research recommendations, and I won't go through these in detail, but we do have quite a few research recommendations in the report, some of which are active for not just yellowedge, but some of our other species, and one of the big ones, that we didn't touch on in this assessment, was life history updates, because we did not have any of those data submitted, but there are lots of research recommendations to consider. So that's the conclusion, and so the next section is our preliminary projections that are provided in the stock assessment report.

CHAIRMAN NANCE: Okay. I am trying to think, in my mind, where we want to go right now. We have to come up, as a group, to determine whether this assessment meets the terms of reference, and, if so, whether this assessment represents the best scientific information available, and so we need to discuss that before, I think, we go into projections.

We can talk about projections, and we have, in this presentation -- I think you used F 30 percent SPR, is what the TORs are recommending, and we may keep with that one, or we may want to have 40 percent, or higher, and so we need to first decide whether we want -- Is this model useful, and, if so, then we need to then discuss the projections that we would want to see, and so I will open the floor for discussion. Trevor.

MR. MONCRIEF: I don't know if I've timed it up right, but I want to bring up just one aspect of it, and it's, once again, the recreational side, the sensitivity analysis, and then thinking about it not only from just the application within the assessment itself, but also what it means moving forward.

Combined ACL, and combined landings, all that stuff, and so, even while recreational landings only make up 2 percent of the overall catch, and aren't impactful to the assessment really, and have relatively no impact, to me, what's going to be produced, and recommended, is going to be for the entire fishery as a whole.

Now, what I have drawbacks with, and this is just me speaking, right, and so, if someone has got a counterpart, I welcome to hear it, and, to me, this is a rare-event species in the recreational world, and, right now, it has popped up, every couple of years, and produces an estimate that is tens of thousands of pounds, but, like we've talked about, if a larger proportion of the fleet is beginning to target it, even if we are capturing a large proportion, and let's say that that scenario starts to occur -- Rather than once every couple of years, it starts to occur once a year, or it starts to occur multiple times a year in every state.

All of a sudden, you have single intercepts that are now accounting for tens of thousands of pounds that can add up to potentially hundreds of thousands of pounds, like we've seen in numerous other species, and, to me, it seems like, given that we assess this species every ten years, or there's a long gap, there's a good chance that we go down the route of recommending something that's for both fisheries, when, in reality, one sector might have the potential to jump exponentially, because of the management, or the system, monitoring system, that they're under.

I just wonder if there isn't more merit to removing the recreational side altogether, and not having it in there, and moving forward that way, understanding what the possibilities may be, and so I'm trying to think about it as being proactive, rather than making the decision, and moving forward, and, all of a sudden, five years down the road, we find ourselves in the same situation we are with a couple other species that we're dealing with.

CHAIRMAN NANCE: Just me, but I would think we would want to keep them together, that, when we look at the assessment, we're looking at total capture, whether it's recreational or commercial. That way, we're recommending here's what the total should be taken from the fishery, and then make sure that each of those components, whether they be commercial or recreational, are monitored such that we're making sure that we're staying under what our recommendations are.

MR. MONCRIEF: I just don't think that's there on the recreational side, necessarily, and so I understand the point of keeping them both in, to have them both in, to have a measure that includes both fisheries, but, in this instance, every single estimate that's been produced on the recreational side has been north of 70 percent PSE, and, I mean, I get it, and it's basically because the sample size is low.

At the same time as, you know, those things coming through, and the estimates only being tens of thousands of pounds, there is the possibility that it starts to increase, and you have more than one wave, or more than one year, more than one state, observing those, and that estimate can start to climb higher and higher, and I don't think it's relative to the fishery that it's actually under, and so it leads down the route of, I mean, punitive management measures, to a degree, and I know that's probably not our spot to talk about, but, to me, it's there, right?

I mean, we're talking about recommending management advice for a fishery that we know could have these problems in the future, because they've already presented themselves in the last three decades.

CHAIRMAN NANCE: David.

DR. GRIFFITH: Thanks, Jim. I just wanted to agree with Jim, and I don't like the idea of taking out the recreational fisheries, although, Trevor, I understand the dilemma that you're facing there, but the comment was made earlier that now this is a major -- It's a fish that a lot of recreational guys are targeting, and so, consequently, we could expect this to go up and up and up, like you're talking about.

The reason -- I have another reason for not getting rid of the recreational, and, again, this is all part of kind of the social context of the fishery, and there's very little information on that, on the social dimensions of the fishery, in stock assessments as it is, and so I would like to keep it in, just because there's

going to be more information along those lines as well. Thank you.

CHAIRMAN NANCE: John.

DR. JOHN FROESCHKE: I just wanted to clarify. To my understanding, if you remove the recreational from the stock assessment, that doesn't really solve the issue, because, regardless of where it happens, henceforth, once you have an ACL in place, if a dockside intercept surveys a yellowedge grouper, that estimate is going to be tabulated, and it's going to be expanded, and it's going to count toward the ACL, regardless of if that ACL is tabulated with the recreational data in the assessment or not.

MR. MONCRIEF: So that was separate from what we have to deal with, to a degree, and I know this is still probably separate from what we have to deal with, but, in my mind, you've got an assessment that derives an ACL on the commercial side, and your recreational estimates are all but 100 percent uncertain, and, essentially, they could be 100,000 pounds, or they could be zero, and it seems like those really shouldn't be accounted for, in that sense, when it comes down to it, in the application.

DR. FROESCHKE: That's possible, but, I mean, there's really not a mechanism to do that, and I guess the assumption though is, if you remove those removals, how uncertain they are, you're assuming then that those removals are zero, which we also don't -- At least I don't think that that's supported by the data, but I'm not aware of any precedent where we have removed, for example, one sector from ACL monitoring because we just don't think that the data are precise enough, but that's essentially, to address your concern, what we would have to do, and I don't even know where we would start on something like that.

CHAIRMAN NANCE: Roy.

DR. CRABTREE: I don't see that taking the recreational catches out really solves anything. I mean, they're highly uncertain, and there's no question about that, and that's something you can deal with in terms of specifying the uncertainty in the model, but, like John said -- I mean, if the recreational fishery is growing, the deep-drop fishery, and their catches are going up, then that's a problem, and an issue, the council is going to have to deal with at some point, and the council will have to deal with the fact that the recreational catches are highly uncertain, and, nonetheless, they're going to have to have an ACL.

I'm assuming, John, this is not a fishery that has a recreational and commercial allocation, and so I don't see that taking them out would really get us anywhere, and I don't know what the justification of that is. I suspect it wouldn't change the outcome of the assessment, but then I'm not sure how we come up with an ACL, and the council then would have to come in and somehow deal with some allocation issues and all, but I agree that, with the changes in gear, and boats, and positioning equipment, it doesn't surprise me that recreational fishermen are starting to target these fish, but I don't know that we really accomplish much by taking the landings out, and I'm not sure how we would justify that scientifically either.

MR. MONCRIEF: Just one last comment, because it seems like there's an opinion around the room, but I will say this, right, and, yes, the recreational fishery is increasing, and, yes, they're targeted more, but I guess what I'm trying to say is that it's a rare-event species, so that, as we begin to encounter them more and more, it's not going to be that it's increasing at a rate that is normal, per se, and we're opening ourselves up to having a lot more estimates, on the recreational side, that are likely going to be these anomalies that are high, and this is speculation on my part, just from what we've observed in all the fisheries in the past.

There's a chance that the estimates themselves can shoot upwards into the hundreds of thousands of pounds, which then have an impact across-the-board, which I understand, and we can include them both in the assessment, and that's the prerogative of the group, and just those concerns, I think, need to be raised.

DR. CRABTREE: To that point, I mean, I don't dispute anything you just said, and I think that -- But I don't think the fact that we take it out or don't take it out changes the reality of that situation. I mean, that's just the way it is right now.

CHAIRMAN NANCE: Jim.

DR. TOLAN: I was actually going to stand up for Trevor. I think it's a good idea.

CHAIRMAN NANCE: You still can.

DR. TOLAN: Given what Skyler has laid out in terms of the scale of the recreational side of this, and the boats that were described to us, I just don't see those as boats that are going to be launching off of a trailer at the public boat launch, and so we're not going to catch them in the intercepts.

Even if they do, and those recreational numbers are more and more frequent, again like was laid out, those infrequent events, when they're scaled up, if they become multiple waves each year, and, you know, you may catch one here or there, but I think it's more and more common, I think, the issue that Trevor is talking about, the box we're going to get ourselves in, and, again, if it's such a small part of the total landings now, because the commercial data is the commercial data, and it's, you know, solid. It's the recreational stuff that's just so uncertain, and so I was actually going to stick up for the notion of taking it out. Thank you.

CHAIRMAN NANCE: Thank you, Jim. Doug, please.

MR. GREGORY: Thank you. I wanted to kind of say two different things. One is I think we're going to see a similar trend with the commercial fishery, given what's happened recently with gag and if something similar happens with red grouper.

As we've already been told, there's going to be more of a shift to the deepwater species, possibly, and it's speculation, and, two, if we take it out of the assessment, then we would probably have to treat it as a data-limited situation, and, in the past, we've taken average landings as MSY, or, you know, one-and-a-half standard deviations above the mean, which is, I don't think, going to be a -- It's going to put us in the same bind that you're concerned about now, and so I don't see an easy way out here, but it's definitely worth monitoring, and the intercepts, recreational intercepts, is definitely a problem, in that you're not intercepting behind people's houses.

The Florida program will pick up the fishing effort from those boats, and so there will be some balance there. I mean, that effort is going to be applied to the intercepts caught normally, but I don't recall how the other states are doing it, and so that's an argument for somehow getting access to those vessels that go out of canals and behind their houses. Thank you.

CHAIRMAN NANCE: Thank you, Doug. Harry.

MR. BLANCHET: Thank you, Mr. Chair. I think that we're mixing some metaphors here. For the stock assessment, I think that the recreational information does not currently contribute a whole lot to the assessment, and is a valid, and useful, part to keep as part of the assessment.

The issue of how that recreational harvest is tracked, currently, I believe that MRIP does not publicly report landings information, unless it has a given CV, and that CV is probably under what we're

currently seeing for our yellowedge grouper landings estimates, and so it's going to be kind of interesting if we start using that high-CV information in tracking a harvest limit for a species that's not publicly available, that it's not part of their regular landings reports.

In terms of the earlier comment regarding inclusion of social information, I completely agree that social information should be incorporated more into certainly evaluating some of the recreational fisheries, both for landings, for a lot of the other social values that come from it, and I don't know that having it as part of a stock assessment, in its current form -- The landings themselves do not give me the information that things like targeted trips, or some of the other information, provides.

I think that including other forms of information can be useful. I don't know that landings included or excluded -- We should be looking at this purely in terms of does that landings stream add value to the assessment, and I think it does. Thank you.

CHAIRMAN NANCE: Thank you, Harry. Paul, please.

DR. MICKLE: Thank you, Mr. Chair, and Harry and I were thinking very similarly there, and it's a poignant thing to bring up, and the subject matter really comes down to uncertainty, and I think I will lead into what Trevor's original comments were, but, I mean, I mentioned this to Skyler at the break, in trying to grasp kind of what we're dealing with on the recreational sector, but the uncertainties are unrepresentative of what we see and what we are frustrated with.

When you think about CVs and PSEs, these are all measures, and metrics, of uncertainty. If you go to Slide 43, it's just very clear -- The bottom-right figure -- I think it's 43. It just shows -- It seems like almost -- Just look at that lower-left figure. All of the uncertainty -- It's just, the higher the number, the higher the uncertainty, and, the lower the value, the lower the uncertainty, just as a broad statement on that figure, and then, when you look at the bottom-right figure, when it says, in the red, CVs greater than one are these years, it's just lower your value, and your CVs go down. We see this in a -- We saw it in MRFSS, and we see it in FES. There's a major problem here, and we have to try to figure out, quantitatively, what's driving that.

I've brought it up over my career, and I've just never gotten anywhere. There's a lot more smarter people around than I am, for sure, but, when you start thinking about other ways to look at uncertainty -- I go to the literature, and we have very simple

approaches of standard deviation, absolute deviation, interquartile range, which may be our answer, and, also, looking at it with a paper written -- Sorry, and it will be just one more thing, but written by Zoltan Botta-Dukat, and I can send it out, they say that CV should not be calculated for interval and different scale for log-transformed variables. That's what we're doing, is my understanding, and so there's literature out there saying that we shouldn't even do this, looking at CVs.

We may want to look at it from a different angle, but, just because the recreational sector is catching -- The intercepts are very low, and the CVs being low, I think it's causing all these problems. If we can grasp, and get a more representative understanding of uncertainty, I think that will let us weight these things better, and we can include uncertain data with more confidence. Thank you.

CHAIRMAN NANCE: Thank you, Paul. Will, please.

DR. PATTERSON: I understand some of the discussion here about recreational catch estimates and effort. I'm not sure, for this particular assessment, and this species, that going down this road right now is important for yellowedge in this assessment, and perhaps if we were talking about red snapper, or shallow-water groupers, that might be more germane.

To me, looking at the assessment, there are two areas in this yellowedge assessment that I can't wrap my brain around, and one is this idea, right, that grouper prices are at historical highs, and shallow-water grouper commercial landings are increasingly restricted in the more recent time period of this assessment, and the CPUE has been going up for yellowedge, in the east and the west, although with quite a bit of uncertainty, for at least the last decade, yet, over that time period, the estimates of catch are 80 percent, in most years, of the ACL, and the two most recent years are 60 percent or less. Those things don't seem congruent to me, especially if spawning stock biomass is well above spawning stock biomass at MSY and F is below FMSY.

The second is I still don't understand this issue of estimates of low recruitment, which we can see here in the most recent time period, and what's driving that, and the only thing that I can see is that it's not the age comps, and apparently it's not the age comps, but, if it's the NMFS bottom longline fishery-independent index -- So, if you look at the, you know, couple of fishery-dependent and couple of fishery-independent indices, they're going in different directions, and so the model doesn't know where to go, and so it's sort of a flat line through and it's getting

conflicting information, but the NMFS bottom longline index is trending downward, and I'm wondering if that's where the signal is coming from then for lower recruitment, because the catch rates are going up in the commercial fishery.

Anyway, I'm still trying to figure out what's causing this recruitment signal, and is the stock really estimated to have lower productivity, over the past decade, than -- You know, in the past, we've had estimates of higher productivity, although quite variable, but what's really driving this more recent pattern, and then what implications does that have in the out years, but it's really just trying to diagnose like what's actually driving this.

If it's the longline survey that's doing it, you know, I don't think the longline survey actually samples a large percentage of yellowedge habitat and depth distribution. The yellowedge are typically at 250 to maybe 400 meters, and I don't know how many samples are taken out past the shelf break, and I think the longline survey only goes to the shelf edge, and is that correct?

DR. SAGARESE: I'm just pulling up the working paper, because I know they restrict the depths that they allowed to estimate the index of abundance for yellowedge, and so let me just pull up the actual numbers.

DR. PATTERSON: So, anyway, I'm wondering, you know, with warming, if yellowedge have shifted deeper, and maybe that's causing this pattern, and like what's driving that, or even if it's attributable to the longline survey. Thanks.

CHAIRMAN NANCE: Would there be -- Some of those indices were taken out during some runs, correct, and would that show up -- Would we be able to see the change in recruitment when those were taken out?

DR. PATTERSON: That's a good point, and, when you look at that, they all seem to track -- No matter what index is taken out, they all just kind of track the same.

CHAIRMAN NANCE: So it doesn't seem to be an index problem, per se, but something is driving these low recruitment values over the last ten years. Skyler, please.

DR. SAGARESE: I just want to follow-up on that, and so the bottom longline index of abundance is subset to depths seventy to 387 meters, and so it should cover much of their habitat.

CHAIRMAN NANCE: Okay. Thank you. David, please.

DR. CHAGARIS: I'm glad Will kind of brought up this longline index, because I've been looking at it as well, and wondering, you know, what was going on, and, you know, I don't have major issues with the model, but the concern here is that, you know, the model is not capturing that decline, and it looks to be a consistent decline, and it's not just noisy, which is kind of rare, and so there's some signal there, whether it's a change in abundance or a shift in distribution, and we don't really know, but I wonder, you know, with the model essentially ignoring it, and we're fitting through the higher end of the error bars, and, you know, what are the potential consequences of that?

Is this potentially a stock that could be in decline in a certain region, and, you know, by not picking up on that, you know, is the model potentially painting a more optimistic picture than could be happening?

CHAIRMAN NANCE: I think we're dealing with acceptance of the model, but then what do we want to do with the projections? Do we want to look at like a 40 percent SPR, those types of things, to try to not be so sensitive to where the model is having an issue with recruitment and those types of things? Any discussion from the SSC on that? Doug, please.

MR. GREGORY: Well, one concern is, given the age-at-maturity being about nine years of age, our recruitment index only goes through 2012, as somebody mentioned earlier, and so we really don't know what recruitment has been doing in the last ten or eleven years.

CHAIRMAN NANCE: Roy.

DR. CRABTREE: Yes, that's an issue, Doug, and I wish it were not the case, but it is, and it seems, to me, that -- I mean, I'm fairly satisfied that the assessment has done about as good of a job as you're going to do with it. I look at this, and there's not all that much signal in the data over time, and it hasn't shown any big trends.

The only thing that's really kind of concerning are those low recruitments at the end, and, if that's the case, then that may create problems down the road, but I don't have any real qualms with the assessment as it's done, and I think the Center has done a good job with the assessment, and I think the presentations were pretty thorough, and so, if you're ready for a motion, I could make a motion, Jim.

CHAIRMAN NANCE: Let's go ahead and do that, because I think what

I would like -- We're dealing with two separate issues, I think, of whether the assessment is meeting the terms of reference and whether it represents the best scientific information, and then how do we then deal with the uncertainty we're seeing from the model, and how do we deal with that, and I think we have to deal with that in the projections, and so, Roy, if we had that motion, that would be great.

DR. CRABTREE: My motion is that the SSC accepts the SEDAR 85 Gulf of Mexico yellowedge grouper assessment as the best available scientific information, or I guess as the best scientific information available. Do you want to say "as consistent with"? All right. **Then let's say yellowedge grouper assessment as consistent with best scientific information available.**

CHAIRMAN NANCE: Okay. We have that motion. Do we have a second? Jim will second that. Discussion?

DR. CRABTREE: Just a little wordsmithing.

CHAIRMAN NANCE: Go ahead.

DR. CRABTREE: Consistent with the best scientific information available. Does that work, Lisa? Okay.

CHAIRMAN NANCE: Thank you, Roy. Jim.

DR. TOLAN: I seconded the motion because I think Skyler and her team did a very good job on this, and I really appreciate the fact that, for each of the TORs, there's a little red outline box on a lot of the different slides there, and it addressed it completely, and here's a change that we made from 22 to 85, and here's the reasons why we did it, and here's the difference that it made, and so I thought it was a very well-done presentation, and so thank you.

CHAIRMAN NANCE: I agree, and I think, because of that, we could see the TORs being -- They went through each of those and managed those. Doug.

MR. GREGORY: This seems a little different than what we've done before, and maybe not, and it's just my memory, but do we need to specify that this does not include any estimate of stock status? I mean, the assessment itself, up to this point, I agree with.

CHAIRMAN NANCE: Well, about a year ago, or two years ago, we separated these two things. We're looking at the model, and then the projections from the model are a separate thing. I know we've

got Mara standing up in the back. I appreciate that anyway, but that's kind of what we've been doing, for I think quite a few meetings now, is the two separate entities. Now, we can say that this can be used for management and projections, and we could add that.

DR. CRABTREE: If I could, the reason I didn't include any of that in the motion is because the status of the stock is dependent on the reference point decision that we have yet to make, as to whether 30 or 40 or 50 percent SPR, and so I think that would come in a subsequent motion.

MR. GREGORY: Okay. That says that particular item that we're discussing after this is best scientific information, as far as the SSC is concerned, also.

CHAIRMAN NANCE: The model.

MR. GREGORY: Yes, but the subsequent motion pertaining to stock status, and I think we need to couch it in terms of we think this represents the best scientific information.

CHAIRMAN NANCE: We certainly could with the projection, also.

MR. GREGORY: My concern is about generalizing this to everything, from people outside the SSC. It may be a picayune point, and --

CHAIRMAN NANCE: No, you're fine, and I'm just trying to wrap my head around that. Sean.

DR. POWERS: I agree that they've done the best they can with the information available, which is what I think this motion says, and I wouldn't mind looking into the bottom longline more. I mean, it had more fish than I thought, and Skyler told me about 500, 300 in the west and 200 in the east, and so that made me feel a little better, that there were a few more than I thought would have been caught on that survey, and so I support the motion, although I really had the words "as consistent with". I don't know what it is, and, I mean, I don't know what "as consistent with" means. I mean, it just -- But I will live with it.

CHAIRMAN NANCE: Okay. Any other discussion? Harry.

MR. BLANCHET: Maybe Roy will take this as a friendly amendment. After "assessment", adding "methods and stock status estimates", to address the question about, you know, what exactly is it -- What part of this fish are we frying.

CHAIRMAN NANCE: I think that probably, Harry, would go onto the next motion, where we're actually talking about stock status estimates and things. If we just left "methods", I think that's fine, or "assessment methods", and I'm not sure it adds much to it, but I will let you -- Whether you want that in there or not, Roy and Jim.

DR. CRABTREE: (Dr. Crabtree's comment is not audible on the recording.)

CHAIRMAN NANCE: Okay. Go ahead and take that methods out then. There seems to be something between "assessment" and "as", and I'm not sure what that is. There it goes. Thank you. Anyway, let's go ahead and -- Let me read this.

The SSC accepts the SEDAR 85 Gulf of Mexico yellowedge grouper assessment as consistent with the best scientific information available. Is there any objection to this motion? Will.

DR. PATTERSON: Sorry, but what was the discussion about "as" versus "is", and why do we have to use "as"?

CHAIRMAN NANCE: I don't know.

DR. PATTERSON: (Dr. Patterson's comment is not audible on the recording.)

CHAIRMAN NANCE: Lisa. I think Lisa -- Go ahead.

DR. HOLLENSEAD: Well, that language has been consistent, and so, for example, I'm looking at the summary from the January 2023 meeting, and it's got -- That was for SEDAR 75, Gulf of Mexico gray snapper, and it says "as consistent with BSIA", and so I think that language is sort of some canned language that we've been instructed to include.

CHAIRMAN NANCE: Will, I don't know, but you're absolutely -- **Is there any objection to this motion? Seeing none, the motion passes without objection.**

Before we get into the projection part, Ms. Muehlstein, let's go ahead and do -- I think this will add to our discussion after lunch. We have a -- I know we don't call it Something's Fishy anymore, and I know you have a fancier name, but we'll go ahead and hear that presentation.

FISHERMEN FEEDBACK FOR SEDAR 65

MS. EMILY MUEHLSTEIN: Okay. Thank you. I recognize that I stand between you and lunch now, which is a little bit nerve-wracking, but we'll get there.

CHAIRMAN NANCE: You can do as long as you want, young lady.

MS. MUEHLSTEIN: All right. I will take my time, but not too much. When you look at your meeting materials, we do have the response report, the actual full report, if you're interested in digging into more of what I'm about to tell you today, but, if not, we'll just go ahead with our Fishermen Feedback presentation.

Okay, and so we gathered responses, and I don't think that I don't need to go over what this tool is, and I think you guys have heard that a number of times. We gathered responses from September 15 through October 13 of last fall. We did get sixty-four responses to this tool, but I do want to mention that one of them was dropped, and you will see, in the figures to follow, that we only analyzed sixty-three, because one of the responses just said the number one, and so it was dropped, because it did not seem consistent with -- We couldn't tell with that meant, and so we just -- You know, we dropped it.

We are now submitting our final report to you all, and to the stock assessment analysts, and I'm not sure if they had seen the preview report, and it was done a couple of weeks ago, but I don't know if it was --

All right, and so, as I mentioned, we had sixty-three valid responses. Not surprisingly, a good majority of them identified with the recreational sector. Now, we do not ask people to only select one association with the fishery, and so we did have an N of seventy-three here, because some people double-reported as, you know, more than one sector.

One of the things that I do think is really important is, if we look at this heatmap here, we do break the Gulf up into these twenty-one different areas, and respondents are able to select more than one area in association with the comment that they are giving, and so we did have 185 responses selected, meaning those sixty-three respondents had selected numerous areas, which is allowed, and we do this in all of our tools.

However, I do want to point out, just to give you guys some perspective, that this is absolutely the most areas per respondent that we've ever gotten, and so the fact that we had over double, you know, basically, or at least double the number of areas selected, might be a testament to vessel size or the fact that

these fish, because they're deepwater fish -- You know, folks are maybe moving around more in the Gulf than they would be if they were reporting for a more inshore or shallower-water species.

Okay, and so the first analysis we did was our overall response sentiment, and what you will see is a majority of the responses were neutral in nature. This happens for two reasons, and those responses could have just been observational, and they really didn't have a positive or negative sentiment associated with them, but, also, when we do the analysis, we actually can balance out, and so, if you say one good thing, and one bad thing, in the same comment, that will cancel itself out and make it a neutral, and so that might be one of the reasons that there are a lot of neutral comments.

Then you will see that, you know, coming after the neutral comments, we did have a majority of negative comments expressed. Another thing that I think is important for you guys to recognize here is that we did parse this out, the overall sentiment by sector, and what you will see is a majority of the commercial responses were negative in nature, and I think that's interesting, based on the conversation that you guys just had about the commercial landings, which, you know, may be trimming down, or remaining a little bit steady, and the commercial sector, you know, above all the other sectors, really did see negative perceptions overall.

The recreational sector was mostly neutral, but, again, that could be because the positive and the negative ones cancel out, or because they were observational in nature, and then, finally, for-hire was mostly positive. I do want to note that, usually, the for-hire and the commercial sectors kind of are in agreement with either other, and that's not happening here, and I don't have any explanation, or speculation, to share with you on that. I don't have a lot of wisdom as to why. Yes, Jason.

MR. ADRIANCE: Thanks. Can I ask how they cancel out? Like can you say tastes great and the stock is bad, and that cancels out?

MS. MUEHLSTEIN: Yes, and what it usually is is the stock is awesome, and you guys suck, generally, and so, yes, that's exactly what it is, and so, when we do our sentiment analysis, that's how we do it, because, if we're looking for overall sentiment -- You will see, in a minute, that we go into abundance, which does not suffer the same issue, but this is because, you know, the comments are not prompted, and we don't really paint parameters of what type of feedback we're looking for, and so, oftentimes, they will run the gamut of different things.

CHAIRMAN NANCE: Josh has a question, Emily.

MS. MUEHLSTEIN: Go ahead.

DR. KILBORN: Thanks, and I'm just curious, and so do I understand correctly that these numbers are the total sentiment for the whole comment?

MS. MUEHLSTEIN: Yes.

DR. KILBORN: So do you actually have like the total number of negative comments, or sentiments, I guess, is the word, right, and so do you have total number of negative sentiments, and total number of positive sentiments, as well, or do we just have this kind of aggregated --

MS. MUEHLSTEIN: I only have the aggregated, but that's doesn't mean that's not something I could go back do.

DR. KILBORN: Okay. I feel like that would be useful.

MS. MUEHLSTEIN: Yes, and I actually think you're probably right.

DR. KILBORN: Thanks.

MS. MUEHLSTEIN: Okay. Thank you.

CHAIRMAN NANCE: Go ahead.

DR. SAUL: You know, I hate to belabor this point, because I agree with what Mr. Adriance had to say, and I really don't know that it was optimal to say that, if somebody offered a positive comment, and a negative comment, that somehow they cancelled each other out. I'm sorry, but I'm flummoxed by that.

It would seem, to me, that perhaps it would have been better, in this case, to make your unit the number of comments, rather than the number of commentors, in which case you could have said that you had sixty-three commentors, but ninety comments, because, you know, single commentors offered multiple comments, and then, of the comments, X percent were positive and Y percent were negative. That's just a different way, maybe, of doing it.

MS. MUEHLSTEIN: No, and I do appreciate that. I think the next analysis, because we do run the comments through a second analysis, might satisfy some of what you guys are looking for, when we actually go and look at the comments as they relate to abundance

specifically, right, and so this overall comment sentiment -- I think we can definitely look at how we might want to update this, and modernize the way that we're looking at it. I'm hoping the next way that we do the analysis is going to satisfy some of the unanswered questions that you guys seem to be having.

Okay, and so, with this overall response sentiment, we also parsed it out by location, and sort of one of the trends that I want you to notice here is that the south Texas area, you know, was primarily negative in nature, and, if you're looking for where people were a little bit more optimistic, it's sort of the peninsula of Florida area, the sort of central peninsular Florida.

The next thing that we did is we look as to whether or not the comment is making mention of abundance, or something related to the stock condition, and then we take that specific sentiment, as it relates to stock condition, and we pull that out, and so, in this analysis, only thirty-four of the comments -- Of the sixty-three total comments that we received, only thirty-four of them indicated something about stock condition, and, as you can see, the results were pretty bifurcated evenly between negative and positive sentiment.

Now, if you compare that by sector, what you will see is, again, the private recreational and the for-hire sector seem to be much more optimistic about the condition of the stock than the commercial sector does, and it's -- I mean, that's a pretty glaring difference here. Again, I don't have -- I can't really offer you any rationale for this.

Typically, what I kind of think, in the framework that we work in, is that, oftentimes, these professional commercial and for-hire fishermen are the ones that have more long-term understandings, and viewpoints, of the stock, versus the private recreational sector. I'm wondering if, because the private sector here, and the commercial sector here -- In order to pursue such a deepwater fishery, and I don't know that that normal assumption of the difference between the sectors falls true with a deepwater species like this, and so those are just some of the things that have been going around in my head, as to why this has happened, but I can't tell you for sure.

We then parsed out the stock-condition-related responses by area, and what you will notice is something very similar to what we had with the overall sentiment, is that the south Texas folks seem to be pretty pessimistic about the stock condition and that the peninsular Florida folks, the central peninsular Florida folks, seem to be more optimistic.

The next thing we did is through automated analysis, and we used a modified lexicon library, and we are able to do some automated analysis of the comments, and what we see is the words that contribute most to negative sentiment are less, limits, loss, and hard. This would sort of imply that maybe there's less fish out there, that they're hard to find.

The most common words that contributed to positive sentiment were healthy, plenty, like, and large, and so, again this sort of speaks to the bifurcated responses that we got, right, and they're either great or they're terrible, right, and one thing that I do want to note here, just sort of because I get to see these over and over again, and this is the first time, in a number of years, that "shark" didn't make the top-five or the top-ten list. Usually "shark" is the most frequently used word when it comes to contributing to negative sentiment, and that is not the case here, and so I assume that this is because of the deepwater condition of these fish, and maybe the more common coastal sharks aren't causing the issue that they're causing for the inshore fishermen.

Then, through our manual analysis, we pulled out some themes that became apparent when we were reading all of these comments. Of the comments that were classified as positive, we heard that yellowedge are plentiful and that there's no change in size or in abundance.

The neutral comments, again, a lot of them were because they cancel each other out, but the observational ones in nature -- We did hear, a couple of times, people speculating that small yellowedge stay near structure and that larger ones live out in isolated holes, and I thought that was kind of an interesting speculation that we got from the fleet.

Then, of those comments that were classified as negative, and, you know, these are sort of the things that are to blame, right, I think when people say that the stock is in terrible condition, and this is why, and what we heard most frequently was that the technology is improving, and it's creating greater efficiency in harvest, and they blame them specifically -- This improved technology on really good mapping technology, electric reels, and also faster and more efficient boats.

This is not surprising, and we also heard that commercial fishing is responsible for the decline, and specifically the longline industry and the deepwater shrimp trawls were called out here, and then, of course, we also heard the other side of the coin, which is that recreational fishing is responsible for a decline in the

stock, and so, with that, I am happy and willing to take any questions or any more suggestions on how we can improve these tools and our analysis in the future.

CHAIRMAN NANCE: That was quick. Steven and then John.

DR. SCYPHERS: Thank you, and so two kind of connected questions. One, how does the sixty-three responses compare to other times you've recently ran the tool, and do you think it says anything about interest in this specific fishery?

MS. MUEHLSTEIN: I love that question. I was debating on whether or not I should speculate about that in my presentation, and so sixty-three is probably actually kind of a mid-range number of responses. I was kind of going back through the efforts that we've done, and I think, like for scamp grouper, we got like thirty-six responses, right, and so I wondered if there was any correlation between the prevalence of the species and the amount of our fishermen that actually target these guys, or it's really hard to separate that out from -- You know, the species that we've had really great response are sometimes surprising, but it's because like the state agencies will echo the opportunity, and so I cannot pull out whether it has something to say about the fishery itself or something to say about the success, or the reach, of our sort of advertising communications campaign, which is why I chose not to say anything, because I'm not sure.

CHAIRMAN NANCE: John.

MR. MARESKA: Thank you for the presentation, and so I guess what caught my eye was, when Skyler did her presentation, we assumed that there would be no landings in Stat Zone 7, but yet you got responses out of Stat Zone 7, and so is that -- What are your thoughts on that and why we're getting responses where, potentially because it's too shallow, they shouldn't be catching any of these?

MS. MUEHLSTEIN: So, you know, to be honest with you, these grids are -- I believe they're derived from the shrimp grids that we use, and so, while it would be -- Maybe these folks are looking at the coastal area, when they're asked sort of where they're primarily fishing, and because -- You can see that the areas don't even extend all the way into the EEZ, right, and they don't make it out to 200 miles, and so my guess is that people are mentally extending the grid map that we have, and, to that point, I think maybe that's something that we need to consider, whether we expand the grid areas, so that they actually do cover the entire Gulf area.

CHAIRMAN NANCE: Well, but, if you look at Skyler's presentation, and we don't have to look at it right now, but those grids have been extended clear out to the EEZ.

MS. MUEHLSTEIN: Yes, and so maybe we need to -- I think we need to at least do that visually here.

CHAIRMAN NANCE: Well, you need to do it visually, because it's -- The reason we expanded it is so that we were consistent in how we were expanded, whether we wanted 7 to go this way, or 8 to go this way, and so there is a National Marine Fisheries standard shrimp grid that goes out to the EEZ.

MS. MUEHLSTEIN: Yes, and so I think we probably need to update that on the tool, and so that would be my assumption, is that the people that are responding for that grid were not relegating themselves to that, and they were just maybe either leaving from that coastal area or they were drawing mental lines to the deeper water and fishing offshore of that grid.

CHAIRMAN NANCE: Mike.

DR. ALLEN: Thanks, Emily. I thought this was a really useful analysis, and I had the same sentiment, that the commercial responses, the higher negative responses from the commercial, might be because they have a longer experience in the system, and I wondered, and did you have any question about how long the respondents had been fishing in this, and I wondered if that would show.

MS. MUEHLSTEIN: No, and so one of the things that I guess maybe I haven't shared at this table is that we are bound by the Paperwork Reduction Act for using this tool, and we've been seeking approval, but our approval is only for the tool as it stands, and what that means is, under the Paperwork Reduction Act, I'm not allowed to ask a direct question to more than ten people at a time.

I guess that's sort of the rule-of-thumb, right, and so, if you are to look at this tool, the way that we have gotten around that in the past, and the way that we kind of squeaked under that requirement, is that we tried to model the tool so that it resembled a public comment opportunity, which means that it's very open-ended in nature, and it does not collect that kind of information, not because I don't want to, and I think we could totally get like really great information from folks if we were able to ask more questions like that, but, if you ever look at the tool itself, it's literally saying, hey, we're looking for supplementary information that we can provide to the scientists

and managers as they do this, and what can you tell us about yellowedge grouper fish and fishing in the last couple of years, and so they have just given us these broad responses, which, again, I think is why we end up with these trouble neutral comments that are positive and negative, because it's a very open-ended prompt.

CHAIRMAN NANCE: Dave, please.

DR. GRIFFITH: Thank you. Thanks a lot for this presentation. I really appreciate this, of course, as a social scientist, but I would agree with what was said earlier, that maybe we should think about, you know, not this neutral -- I mean, things canceling one other out, and, also, I was just wondering if this -- Do you have the geographical information on whether or not those people in south Texas are more commercial or more recreational, you know, the ones that are principally negative?

MS. MUEHLSTEIN: So I'm going to give you the answer to the second part first, and then John is nipping at my heels to talk about the first part, and so the second part is we could do that analysis, yes. We haven't done that for sort of our, you know, general response, and we definitely have the information, and, if that's of interest, it's something that we could parse out for you, the sector by location by sentiment, and it's definitely something we could do.

DR. FROESCHKE: Then, on the first part, I agree, and so just a little bit more background for the earlier renditions of this tool, and what we did is we did what Emily has described here, where you go through it manually and look at each comment and assign it either a negative, minus-one, zero, or a one.

Prior to that, we also did more of a quantitative, where we went through essentially using a sentiment analysis algorithm, and you could actually assign a value between negative-one and one on a scale, applying essentially a logistic regression based on it, and so you can get more nuance, if you will.

What we learned is there are some -- It's a learning process with both the library, because things that are used in fishing vernacular may have an opposite connation to what is typical in a library, because, essentially, it's a look-up system, where there's a whole laundry list of words, and each of them have their own sentiment associated, and so it kind of just maps the words and things.

We've kind of worked on that, and we have done that, but what we've found, when we started doing this, is essentially -- What we were

trying to do was see, well, how accurate is that tool relative to if we just manually did it, assuming that we know what we're doing, and what we founds is that mostly they're pretty dang similar, and so we kind of got away from reporting two sets of almost similar identical results with the same -- Or with different methodologies.

It is something that I think we're going to try to continue developing, because my thoughts on this -- Originally, I didn't ever want to be constrained by the number of responses, such that, if we got 10,000 of them, we could just run through the same thing, and it would be just -- It would be no more bandwidth than if we only got ten, because hopefully we can continue growing this, where we get a number beyond the number of responses that it's practical to do it manually.

CHAIRMAN NANCE: Okay. One last question from Jack, please.

DR. ISAACS: I really enjoyed seeing this sort of thing incorporated in the analysis here, and I think it helps a lot to get that social dimensions element, which is oftentimes not available, and the one thing that I'm somewhat concerned here -- I can see why you did the little pie charts by the zones, as they're presented here, but, if I can remember an earlier slide, the sample sizes here were actually really, really small, and like I think the largest one was eighteen, and so these pie charts are probably like little mini moon-pie charts that you're kind of cutting up into different pieces and whatnot, but I guess the only alternative to that would be then to combine zones into regions, or something, and I don't know how you would have been justified in doing that, and this is probably just the best you could do, but, really, a nice job, and I learned a whole lot from what you did here, and I look forward to seeing more of this sort of thing as time progresses. Thank you.

CHAIRMAN NANCE: Thank you. We'll go ahead and break for lunch, and we're going to come back at 12:45 Eastern Time, and so have a great lunch, and we'll see you later.

(Whereupon, the meeting recessed for lunch on February 27, 2024.)

- - -

FEBRUARY 27, 2024

TUESDAY AFTERNOON SESSION

- - -

The Meeting of the Gulf of Mexico Fishery Management Council Standing and Special Reef Fish, Special Socioeconomic, and Special Ecosystem Scientific and Statistical Committees reconvened at the Gulf Council Office in Tampa, Florida on Tuesday, February 27, 2024, and was called to order by Chairman Jim Nance.

SSC DISCUSSION

CHAIRMAN NANCE: Okay. It looks like we're on time and ready to start, and so everybody kind of gather back. Okay. Now we're getting into not necessarily the projections, because we have tomorrow also for those types of things, but I'm going to have Skyler put up Slide 66.

I think this is where we want to dwell on our discussion, and I know you've all read the material, and so you've seen the projections, but we need to figure out if we want to keep F 30 percent SPR, if we want to go to another percentage, 40 or whatever, and we need to determine that, and we need to talk about recruitment assumptions for catch advice, and I think this graph on the bottom is pertinent, what do we want to base our projections on, and we see where recruitment is, and we see where the projections are, and it says 2013 through 2021 is maybe overly optimistic, and that's what the projections are based on, and then whether we want to use the last ten, the last fifteen, those types of things, and so that's where I want to push our discussion, and so I'll open the floor up for discussions. Skyler, anything you want to say beginning this?

DR. SAGARESE: No, and these are really the pressing questions, in terms of for us to be able to provide the benchmarks and the catch advice.

CHAIRMAN NANCE: Yes, and so I've gone through there, and there's a lot of slides in front of this, which have all the projections, but this is what I want to talk -- To have our discussions, and not necessarily on what the projections are, but what projections we would like to see, and so that we can base our discussions on those, and so I will open the floor up. Roy.

DR. CRABTREE: Well, given the discussions we've had in recent meetings with gag and other grouper species, we have generally, it seems to me, shifted towards 40 percent SPR, and it would seem, to me, to be consistent with the decisions we've made on some of these other species, which are better understood and better known, and it seems, to me, it would be -- I can't think of any rationale of why we would stay at 30 percent here, rather than shifting towards 40 percent for the rest of the grouper, and I don't know, Lisa,

and have we -- In any of the recent discussions where we've talked about SPR, have we ever made any more general statements for grouper as a whole, or has it all been species-specific? I just can't recall, but I think we've talked about gag, red grouper, and maybe we got into this with scamp.

CHAIRMAN NANCE: I can't think of general, and I think, as each species has come up, we have kind of gone to that. Mike.

DR. ALLEN: Thank you, and I had a similar comment, and, you know, we hashed this out pretty well, I think, for red grouper, with the Harford et al. paper, and we spent a fair amount of time on it, and I thought that we settled on an SPR of 40 percent, which it seems, to me, there should be some consistency there for these hermaphroditic groupers.

CHAIRMAN NANCE: Doug.

MR. GREGORY: Part of that is based on a paper that was done out of a lab, and I forgot the guy's name, and he came and presented to us twice, and I thought that red grouper was still at 30 percent. Does anybody know for sure if we changed red grouper?

DR. SAGARESE: I don't think it's been changed since 61. I think SEDAR 61 was 30 percent, but my guess is, with 88 coming up in a few months, it's probably going to be rediscussed.

MR. GREGORY: I'm sure it will be, and --

CHAIRMAN NANCE: I think the opportunity to change it hasn't occurred.

MR. GREGORY: Right, and so I wanted to, just quickly, if I can, talk about how we got into 40 percent, other than Harford paper. With gag, we had Fmax as the MSY proxy, and we used FES data, which, in the stock assessment, it indicated that gag were overfished. We looked at the ten-year horizon that Magnuson has put on everything. If you can recover within ten years at zero F, you have to close the fishery, and we didn't want to close the fishery, and so we changed from Fmax to F 30 percent, which gave us eleven years instead of nine, and so we all went home feeling good about that.

Then, somehow, within a very short period of time, the stock assessment was redone using the State of Florida data, and that analysis showed that F at 30 percent took nine years to recover at F equals zero, and so we go, oh, we can't do this, and so we went to F of 40 percent, which gave us twelve years, I think, to

recovering, and it got us out of having to close the fishery. That's how we stumbled into 40 percent, other than the analysis that was done by the Center.

They did a simulation analysis that kind of indicated, and I don't recall the details, and I know we had some discussion of it, and some concerns about some of it, because it wasn't consistently high, and some of the species of grouper were consistently at the higher range, but I think that is the current science behind having a higher SPR for groupers, but it wasn't a -- We just kind of stumbled into it with that, and then, when we got to scamp, somebody said what I just heard, you know, that, well, we did 40 percent for gag, and scamp is not much different, and why don't we do 40 percent for scamp. I would say that we need a better rationale going forward to the council to do stuff like this, rather than we've done it once, and let's do it again. Thank you.

CHAIRMAN NANCE: I thought that we had another species, and not just gag, but about that same timeframe, where we went -- Was it scamp? Roy.

DR. CRABTREE: Yes, and I thought we had a pretty extensive discussion about what the appropriate SPR is, as a proxy for MSY, and I differ a little bit with Doug's recollection, because I don't think the reason we went to 40 percent SPR was because we didn't want to close the fishery, or we were trying to get around that somehow, and my view was that you could have easily made an argument that the fishery wouldn't be closed under any of those scenarios, and so I don't think that was it.

I think the real rationale was the preponderance of the literature has suggested that 40 percent is a more appropriate proxy for MSY, for hermaphroditic species, than 30 percent is, and certainly an Fmax is.

CHAIRMAN NANCE: Sean.

DR. POWERS: So I will go in between these two gentlemen. I'm sitting here, and I remember some discussion like Doug said, and I remember some discussion like Roy. Like Roy, I think all we had was a little discussion on it, and I don't remember that being the driving force in that discussion, but what I do remember is also not having an answer and saying that we should be more cautious with these hermaphroditic species, and more of that caution, as opposed to actual information in the literature, and that was more the driving factor of why we chose the 40 percent than the 30 percent.

CHAIRMAN NANCE: Thank you. Mike.

DR. ALLEN: Didn't we make a motion about this? I thought that we had suggested 40 percent for one of the species would be appropriate, at least, but --

CHAIRMAN NANCE: I think, for gag, we did it, and with scamp we did that, but I think, as being recalled, is that it's been species-specific, and not a general statement that all hermaphroditic that we were going to go for the 40 percent, no matter what. Will.

DR. PATTERSON: So we've had -- We've looked at papers previously, talking about this issue, and sex changers has been, you know, a criterion that some folks cited as a reason to go to 40 percent, but you also have a species here that can live a century, and that's another reason why we've been precautious in the past, and so you have the sex-changer that can live to be a hundred, and it's probably the poster-child for 40 percent, if not higher.

CHAIRMAN NANCE: Thank you. You know, from a -- I can't ever remember having it where it's nine years out before they're captured, those types of things, and it is a very long-lived species, but thank you, and your point is well taken. Did someone else have -- Jim, did you have your -- No? Okay. Harry, please.

MR. BLANCHET: A follow-up on Will's point. The age for a transition to male in this being around forty years old, to me, that -- You know, your dynamics are quite different, in terms of what are you counting as spawning potential, versus, you know, your catch-at-age, and you're hunting elephants and not rabbits.

CHAIRMAN NANCE: Rabbits. Perfect. Okay. Thank you, Harry. Doug.

MR. GREGORY: I would just note that we have SPR 50 percent for goliath grouper, and it would be a stretch to consider, I think, yellowedge to be equivalent to goliath grouper, in that regard, and it may not be, and, I mean, it's a deepwater species, and the environment, from all intents and purposes that I'm aware of, and it's a less-productive environment than say the shallow shelf of the Florida west coast, or Texas, and so, yes, the deepwater species are going to be -- They have been a management problem, but I wouldn't encourage us going to 50 percent SPR at all.

CHAIRMAN NANCE: 40 percent seems to be -- Even from where we've gone with each of the other species, but I think it's a -- Certainly I think 30 percent is low for this one, and I think the utility of

the long life, the hermaphrodism, those types of things, kind of point towards moving towards 40 percent as being a little more precautious. Will.

DR. PATTERSON: So maybe John, or Carrie, can address this, but my recollection, from previous similar discussions, is that we had to use the council -- The current definition of what the OFL is based upon, and then, after that, we could recommend that they change that to 40 percent, and is that not true?

DR. POWERS: That's my recollection of what we were told.

CHAIRMAN NANCE: So what -- Okay. Ms. Levy, would you -- We appreciate you being here.

MS. MARA LEVY: Well, so there is an MSY proxy specified for the deepwater grouper complex, and it was 30 percent, but you can -- So I don't think we have an MSY proxy for yellow alone, because, in Amendment 48, it was for the complex, and so I think it's a discussion to have, like what you think the appropriate MSY proxy might be, and then that goes to the council, and, you know, obviously, there's a lot of weight put on the recommendation, because you're the science committee, and, ultimately, the council is going to have to adopt it in their FMP. Yes, discussion, and recommendation, of what you want to see is certainly very important.

Since I have the mic, I will just say please do not make any decision based on the rebuilding timeline, and, in this case, that's not here, but I'm just going to kind of correct the record, because I'm here. The record showed that there was a lot of discussion about the appropriate proxy for gag, and the reason for the changes, and we've documented that in Amendment 56, and in the record, and so I just wanted to be very clear, for anybody that might be listening, that the agency would not approve a change in an MSY proxy to avoid the ten-year rebuilding time. Thanks.

CHAIRMAN NANCE: Thank you. Jim, please.

DR. TOLAN: Thank you, Mr. Chairman, and I'm slowly recalling some of these conversations, and I remember about the gag and the scamp and how, when it comes to the projections, and the MSY proxy, we were adamant about not showing both and picking after the fact, and so I'm going to push, or I'm going to make a recommendation, for the 40 percent SPR for this species.

CHAIRMAN NANCE: Roy, please.

DR. CRABTREE: So, given that it's the council's choice, and we have -- I mean, it does come down to we could say, at 30 percent SPR, and it's a little contrary to Jim, but 30 percent SPR -- This is what the status would be, and what the ABC would be, and, at 40 percent, it would be this, because we do have those numbers, and, in the council document, where they look at alternatives, and select it, I would think the analysis is going to have to show all of that anyway, and so --

CHAIRMAN NANCE: I kind of differ in that, in the fact that we could base our percentage on science, and not from what we're showing the projections to be, and so -- Because, right now -- What's that?

SSC MEMBER: (The comment is not audible on the recording.)

CHAIRMAN NANCE: Okay. It is still science though, and, I mean, it's not just pulling things out of the air, and we're basing it on the species, and we're basing it on looking at the model and the -- How good the model fits the data and those types of things, a precautionary approach, and those types of things all come into account on why we're picking 40 percent over 30, or 50, those types of things. Doug, yes.

MR. GREGORY: Going to 40 percent requires a plan amendment, and I don't know what's required for changing the ACL. Under 30 percent, it's not overfished, and it's not undergoing overfishing, and so everything seems hunky-dory, and I think we could just go forward with recommending 40 percent, and let status quo ride itself out until that plan amendment gets approved, and it changes. I don't know if we have to do a two-step dance here.

CHAIRMAN NANCE: Tell why -- It's my naivety here, but plan amendment because of -- Right now, it's 30 percent, and, I mean, if we recommend 40 percent, we would have to have a plan amendment to do that?

MR. GREGORY: That's my understanding. It's a council decision. We recommend something, and the council actually decides it, and I think, for status determination criteria, and staff, or Mara, could clarify that, but that does require a plan amendment, but that's not an obstacle, and I'm not saying that it's an obstacle, and it's just a more involved process than changing ABCs, I think.

CHAIRMAN NANCE: Mara, please.

MS. LEVY: Right, and so, if we're going to change the proxy for MSY, it would be a plan amendment, but I will also say that this

-- I mean, this stock is part of a complex, right, and so it's managed as the deepwater grouper complex.

That's how it's managed in the IFQ system, and so you might recall the shallow-water grouper, and we had the assessment for scamp, but then we have the other species included in there, and so, to the extent you're going to update the catch level advice for this particular species, the council is going to have to figure out what to do with the complex, and are you going to be able to update the catch advice for the other species in the complex, and it's more complicated than just catch advice, and so it could end up needing a plan amendment anyway, and so I would not let that deter you, in terms of what you think the appropriate MSY proxy is.

CHAIRMAN NANCE: Thank you, because I think this is very similar to scamp, in the fact that we have taken one species from the complex and done an assessment, and the other ones are assessable, I guess, but I think this is very similar to what we've done with scamp. John.

DR. FROESCHKE: Just to that point, and so the last item today, on the deepwater grouper, kind of speaks to that point.

CHAIRMAN NANCE: Okay. Thank you. Doug.

MR. GREGORY: So would it be feasible to put this off until after we discuss the other deepwater species, because, when we get to that point, we're going to be forced with either changing the reference period for overfished and overfishing for those data-limited species, and one option, and not what I'm encouraging, but one option is sometimes we've used an indicator species, and, if we don't have a stock assessment for anything except for yellowedge, that's an obvious candidate for becoming an indicator species for the other species in the complex, and so we could address that deepwater situation and come back to this, and then it all ties together.

CHAIRMAN NANCE: Jim.

DR. TOLAN: To that point, my only reservation to that is Bullet Number 2, because does that really low recruitment apply to the rest of the complex, and so, again, that's my only reservation with using this as the indicator, and so thank you.

MR. GREGORY: If I may, to that point?

CHAIRMAN NANCE: Yes.

MR. GREGORY: We don't even know if it applies to yellowedge anymore. I'm sorry. You should have kept me on the webinar.

CHAIRMAN NANCE: It's nice to have you here. We can see your wheels turning. From my perspective, I think I would rather vote on -- To have a motion whether we want to move this up to 40 percent now, and then, when we talk about the other species, with that in mind, we can see what we want to do with the complex, if that's where we're going.

This seems like, and I don't want to put words in people's mouths, but it seems like we're all moving towards an SPR of 40 percent, an F 40 percent SPR, and that's kind of where we're heading, and so, whether we talk about the other species or not, I think we just need to decide now, and then talk about that. Roy.

DR. CRABTREE: I think I agree with you, and I don't know for sure, but I suspect the other species in this complex, the catch levels, or limits, are based on average landings over some period, and so I don't think the SPR number factors into that, and I'm not sure if that's correct, but, without an assessment, I don't know how else we would have derived that component of the ACL, and so I don't think this conversation is going to really apply when we come to that, and so I don't see anything precluding us from going ahead and making our decision.

CHAIRMAN NANCE: Thank you. Sean.

DR. POWERS: So do you want a motion, because I think Jim kind of made one, but, I mean, if he doesn't mind, I would say the SSC recommends an MSY proxy of 40 percent SPR for yellowedge grouper.

CHAIRMAN NANCE: Should it be F equals?

SSC MEMBER: (The comment is not audible on the recording.)

CHAIRMAN NANCE: Yes. Will usually brings that up.

DR. PATTERSON: I think Roy said it, and it should be the yield at F 40 percent and not F equals 40 percent.

CHAIRMAN NANCE: Thank you. I'm glad we have the good wordsmithers.

DR. PATTERSON: "At" instead of "of". The "40 percent" should come right after the F and be subscripted.

DR. MICKLE: I will second for discussion.

CHAIRMAN NANCE: Okay. Thank you, Paul. The motion was made by Sean, and I think the whole thing, the "40 percent SPR", is all subscript. Perfect, and Paul has seconded that, for discussion. Paul, please.

DR. MICKLE: I seconded it, but we want to -- I guess we need to -- We've had some statements on maybe why we're going this way, but, in my opinion, we probably need more, whether we need to have some folks chime-in on if it's the recruitment uncertainties for going from 30 to 40, or uncertainties in the data, or the life history strategy of the species, and I just wanted to bring up one point that I don't think we have talked about here today, is age-at-maturity. Maybe I went to the restroom and missed it, and I don't know, but we need to talk about that.

Just because they're long-lived, if they reproduce at a young age, and if it's not sperm limited, then, you know, maybe we don't have to be so conservative, but maybe we do, but I think we have the data to bring that into account, and to be able to make statements on why our justifications are for this metric. Thank you.

CHAIRMAN NANCE: Thank you, Paul. Will.

DR. PATTERSON: So we did talk about the fact that the sex change, the time of the sex change, is pretty delayed in this species, and I think we can -- We can talk about those life history parameters in the report, and I don't think it needs to go in the motion, but I think we've discussed the most important ones there. If there's something else, or a rationale not to go with this, then we need to hear about that.

CHAIRMAN NANCE: Yes, and my biggest one is the recruitment and the uncertainty of it. Paul.

DR. MICKLE: Yes, and I think that Doug made a really good point earlier about -- So why not 50? If we made these statements on why to go to 40, then why don't we go to 50, but he made a good statement of, you know, it's nearshore, and goliath grouper, and the accessibility of this species, because of its proximity, may justify finding that middle area of 40. Thank you.

CHAIRMAN NANCE: Yes. Will.

DR. PATTERSON: Personally, I don't think there's a compelling argument for recruitment uncertainty to be part of this discussion, because there are lots of stocks that have different life histories for which there is recruitment uncertainty, and, really, that can

be as much of a model artifact, especially the recruitment deviations, as the actual life history or productivity of the stock, and so the fact that they're long-lived, they can live to be nearly a hundred, and they don't go through sex change until they're teenagers, and the age at 50 percent sex change is in the twenties, and those are the reasons for me to think that 40 percent is more appropriate than 30.

CHAIRMAN NANCE: Thank you. Any other discussion? Let me go ahead and read the motion. **The SSC recommends an MSY proxy of the yield at 40 percent SPR for yellowedge grouper. Is there any opposition to that motion? Seeing or hearing none, the motion carries without opposition.**

Okay. I think we can -- I don't think we have to decide anything else right now, and so we can then see the projections. Roy.

DR. CRABTREE: What about the recruitment period used in the projections?

CHAIRMAN NANCE: That's part of it, isn't it? Okay. Thank you. Okay. You're right, absolutely right, and I was thinking we could do that after, but we need to do that before she runs the projections, and so we have many choices. We have two listed up here, to use the last fifteen years for our projection, use the last ten years, or we can use the entire time series, and there's a lot of different ones.

It seems like, looking at that data, that using 2013 through 2021, which is that period where we're seeing the dots there, is overly optimistic, and it's a lot higher than the last years we've seen, but we have the option to use it or others. Do we have any recommendations, or discussion, on which years we use for our projections? Josh.

DR. KILBORN: Thank you. Do I understand correctly that we're currently using the entire time series to produce that last estimate?

CHAIRMAN NANCE: I think that time series is 2013 through 2021, or that's the projections. I'm sorry.

DR. SAGARESE: If I could just clarify.

CHAIRMAN NANCE: Please.

DR. SAGARESE: The model, the base model, run that we've seen, and normally how we get our benchmarks, our stock status, we assume,

in our projection period, as well as these late recruitment years, which, for yellowedge, are 2013 to 2021, and so the assessment model is basically putting in the average recruitment from the spawner-recruit curve, and so the stock-recruit curve, and so it's essentially average recruitment over time.

That's why, in that figure, you can see the first dot on the left is the same level as the ones on the right, and so that's just from the overall mean, but, more recently, we tend to, in our assessments, consider those lower-recruitment scenarios for the catch advice, and not necessarily the benchmarks, and so that's kind of just a clarification there.

CHAIRMAN NANCE: I'm glad that you clarified that. I was -- For some reason, I had in my brain that that's the way the projections are. Go ahead, Josh, please.

DR. KILBORN: Okay, and so this isn't the first time we've seen this pattern, and I think it's relevant, right, and we've got something going on after the mid-1990s, and it appears as though we are in some kind of new regime, when it comes to recruitment for this species, but obviously we don't know for sure, and so I don't think it is wise to use the entire time series, especially since we have some really anomalously-recruitment events that we just haven't seen in the last twenty years.

For my taste, I think I would rather see, you know, maybe that fifteen-year estimate from 1998 to 2012 as being the one that we use. I think the ten-year estimate might be a little bit too short, and it loses sight of the fact that we did have some better years of recruitment than what we're showing in the dataset, and, what is it, 2005 on, and so my recommendation would be that fifteen-year period that we have listed there.

CHAIRMAN NANCE: Okay. Any other input? Harry, please.

MR. BLANCHET: I think I will throw my hand in that same direction. My concern with using the more recent, the most recent, ten-year period is we have at least some information in the assessment -- If you're looking at the residuals for the age comp, Figures 84 and 85 in the report, there is that real consistent difference in both the east and the west in the longline data that shows a net positive in that newly-recruited ages in the most recent years of the data, and I don't know how that relates to the -- How that assessment estimates those low recruitments, but, if there are more fish out there than what the model is seeing in those ages, that might end up being a lower estimate of recruitment in the model than what we actually have in reality.

Now, I don't want to just base all of this on that one thing, but that gives me concern, and I don't want to also use just that time set in our estimation of what we should be harvesting into the future. Thank you.

CHAIRMAN NANCE: Thank you, Harry, and, also, the fifteen-year, in my opinion, also looks like a more rational time period to develop the catch advice for this species. We've got years from about 2005, it looks like, and so probably around eight years of data that are lower, and so I think we need to pull in some of those ones from about 2000 into that, so we're basing our catch advice on not just the last eight years, but the last fifteen years. Any other discussion? Do we have a motion? Josh, did you want to make a --

DR. KILBORN: Okay, and so I guess the motion would be that --

CHAIRMAN NANCE: Will.

DR. KILBORN: Go ahead.

DR. PATTERSON: I'm sorry, and I don't mean to step on what you're saying here, but I'm just thinking that maybe we can, as a group, decide what the range of years, and how to --

CHAIRMAN NANCE: Yes.

DR. PATTERSON: How to construct the projections, and then have Skyler run those scenarios, and then we can just put it all in one motion at the end, instead of going through each decision here, and saying why we made it, and just say this was based on this range.

CHAIRMAN NANCE: How would -- Let me ask you this, because I hate to see a whole bunch of projections and then base it on what we're seeing.

DR. PATTERSON: No, that's not what I'm saying.

CHAIRMAN NANCE: Okay. I'm sorry.

DR. PATTERSON: I'm saying let's make a decision about how to construct the projections.

CHAIRMAN NANCE: Yes.

DR. PATTERSON: Then have them done, and then say this is the

result of the projections, given this parameterization, and that we don't actually have to go through here and pass a motion for each one of these decisions.

CHAIRMAN NANCE: Okay. Doug.

MR. GREGORY: Are you saying that because you want to choose a different set of years than what we have before us, because, with the years we've got before us, we've already got all the projections, F 40 percent and 50 percent and 30 percent, or at least 40 and 50. They're in the next document, which raises the point, and I have a request of staff.

In future agendas, don't put multiple documents, and presentations, on the same line, because, in this instance, we had three presentations on the same line, and I just happened to miss one of them, because I was clicking on the middle one all the time, and so, you know, if each presentation that we have to have is on a separate agenda, IV(a)(1), IV(a)(2), and IV(a)(3), that would be nice.

CHAIRMAN NANCE: What you're supposed to do is just look at the one presentation, and don't look at the ones that she has prepared in advance.

MR. GREGORY: Well, actually, I missed the stock assessment presentation, because I was clicking on the second one and not the third one. Anyway.

CHAIRMAN NANCE: I'm just joking. Josh, go ahead and --

DR. KILBORN: Okay. All right. **I guess we're saying here that the motion is to -- The SSC moves to set the -- Recommends to set the period for estimating recruitment for yellowedge grouper to the fifteen-year period of 1998 to 2012.**

CHAIRMAN NANCE: We have a motion. Do we have a second? Will.

DR. PATTERSON: I would just offer a friendly to insert --

CHAIRMAN NANCE: Absolutely.

DR. PATTERSON: It says "estimate mean recruitment for the purpose of constructing projections".

DR. KILBORN: Thank you. **I like that.**

CHAIRMAN NANCE: Thank you, Will. We have a motion. Do we have

a second?

DR. CRABTREE: Second.

CHAIRMAN NANCE: Okay. Roy seconds it. Discussion? We've discussed it quite a bit. Any further discussion on this?

MR. BLANCHET: A minor edit. After "yellowedge grouper", change "for" to "as".

CHAIRMAN NANCE: To what?

MR. BLANCHET: To "as".

CHAIRMAN NANCE: Okay. Thank you, Harry. Is that okay, Josh?

DR. KILBORN: Yes. Thank you.

CHAIRMAN NANCE: Roy? Okay. Jim.

DR. TOLAN: I was going to offer up "utilize", but "as" works.

CHAIRMAN NANCE: Okay. Let me go ahead and read this. **The SSC recommends to set the period for estimating mean recruitment, for the purpose of constructing projections for yellowedge grouper, as the fifteen-year period of 1998 through 2012. Should it say "from", "the period from"?**

DR. KILBORN: That works.

CHAIRMAN NANCE: Okay. **So from 1998 through 2012. Is there any opposition to this motion? Seeing or hearing none, the motion carries without opposition.**

I think, Skyler, we have the period for the MSY proxy, and also the recruitment period to run the projections. Okay, and we'll see those projections tomorrow, and so we'll go ahead, and we appreciate the presentation today, and I appreciate the discussion by the SSC, and I thought we moved forward real well on this particular agenda item.

We now have our next agenda item this afternoon, which is Comparison of Reef Fish and Snapper Grouper Fisheries in the Southeastern U.S., and we have Dr. Christopher Liese here to be able to present, and his collaborator, Scott Crosson, is also -- He's not here, but he's also part of this presentation, and so I'm going to have Lisa read the scope of work, and then we can turn the time over to Christopher.

COMPARISON OF THE REEF FISH AND SNAPPER GROUPER FISHERIES OF THE SOUTHEASTERN U.S.

DR. HOLLENSEAD: Thank you, Mr. Chair, and so, recently, a paper titled *Quantifying the Economic Effects of Different Fisheries Management Regimes in Two Otherwise Similar Fisheries* was published, and that is available in your meeting materials, and so we have Dr. Christopher Liese, a coauthor on the paper, here to present an overview for us.

Broadly, the paper conducted a comparative analysis of commercial reef fishery management between the Gulf of Mexico and the South Atlantic and used landings and revenue data from logbooks with trip-level and vessel-level economic survey data to develop financial statements for each fishery to estimated cost structure profits and resource rents.

CHAIRMAN NANCE: Thank you very much. I appreciate Christopher being here. It's been a long time.

DR. CHRISTOPHER LIESE: Yes, from shrimp, and I've been here before with some of this, but it's been five years or so, and so I'm here, I think, at the request of Bob Gill. He read that paper, and he talked to John Walter, and he wanted maybe --

CHAIRMAN NANCE: Now I know why Bob is here.

DR. LIESE: So, in the process, I also wanted to just talk a bit about sort of the method beyond it, which is our data collections and our economic reports, which we've been putting out for a couple of years now, and just make the management process aware of those again, and so I will start with that.

We've been putting out economic reports for the various federal fisheries in the Gulf of Mexico and South Atlantic, and I just wanted to reiterate that those exist. They were designed sort of to give us a financial overview of these fisheries, sort of like a financial statement for each fishery, at a holistic fishery level, and not individual, and so it's not a business perspective, and it's an economic perspective, and it's not a distributional perspective, and so we're not looking at who gets these gains, or making profits or making losses, and it's just sort of the fishery as a whole. From a societal perspective, how is it performing?

These reports were motivated by coming up with these financial statements, and so like a public company has a financial statement, with a cash flow and income statement and balance sheet, and sort

of just general, basic economic data to figure out what's going on.

The survey questions for the reef fish, snapper grouper, and mackerel fisheries have been sort of added, and so we have these coastal logbooks, as everyone knows, that have been collecting effort and catch data since 1993, and they're mostly a census, and so we use that, and, since 2005, in the Gulf of Mexico reef fishery, we've had an economic section on each logbook. We only sample about 20 percent of vessels, but we skew it towards people who are more active, and so it's 30 percent for active people and 10 percent for inactive people over the last two years.

These questions ask variable cost data, and so stuff that's happening at the trip level. We have to sample people before the year, based on having permits, and so we don't know actually what they're going to catch. After the year, we send them an additional sort of annual economic survey, and that's basically holistic at the vessel level, and so many of these vessels in these fisheries also do other type of economic things, like for-hire fishing, and other commercial fisheries that are not on the logbook, and so this survey is supposed to add the fixed costs and sort of prorate -- Allow us to prorate things to the different fisheries that are happening at the vessel level.

The data that we have is basically for all these permitted vessels, and, as I said, we don't know in advance what fisheries they're going to be working in and who is catching red snapper, and so that's only known after the year, when they actually caught red snapper, and so we built R programs to sort of extract what we call the segment of interest from the census logbook data, and then from our sample data, and then do the statistics, and it was automated in R. It's never as automated as I was hoping it was going to be, but we can do it fairly quickly and come up with sort of like a six-page report for any type of SOI.

Those six pages, I'm just going to talk about the reef fish fishery. The latest numbers that I have are only 2018, and I definitely need to do an update, and it's on the schedule, but we're running into some problems. Things have changed.

In that latest report, there's a whole bunch of different SOIs, which is basically looking at the reef fish fishery from the perspective of people using vertical lines, or longlines, divers, and there is by species, or by IFQ, and, for the rest of -- You know, it's all there in the report, and I think I've -- It's on the website, and so the data is all out there.

The rest of this presentation will focus just on what we call like the mother SOI, like any trip that catches reef fish, one pound of reef fish, either during the trip or during the year, and the vessel would be a vessel of interest, and so this would be the 2018 logbook data.

The first thing that we do is a trip-level summary, which is basically the logbook data summarized, and so there were about 525 vessels catching any type of reef fish in the Gulf of Mexico in 2018, and they took about close to 6,000 trips, and you can see that they generated a revenue of about $55 million.

You can see that most trips in the reef fish fishery are very sort of specialized on reef fish. For any individual species, it wouldn't look like that, but, together, they are clearly one complex that goes together, and so this is all more or less census data, or near-census data, from the logbook.

We complemented that with our economic sample, which, you know, after the fact, it turned out that we had selected 1,500 of these reef fish trips, and we got useful responses from 1,448. Because it's on the logbook, we use all the validation, and the sort of compliance from the logbook, and so we get high response rates. That leads us to create these economic -- You know, since it's sample data, these are all estimates of the population means, based on the statistics, and, you know, I don't want to talk about it all, and it's all in the tech memo, and we have confidence intervals, but you can see that the fishery is pretty profitable, overall, at the trip level.

It's often easier to express these economic values in percentages, percentages of revenue, and so they're like a margin perspective, a profit margin, and you can see that these, you know, trip net revenue at 52 percent means that, you know, there's a cash flow of -- You know, almost half of the revenue is not used for variable costs at the trip, and so it's there for profit or for covering the fixed costs. There is some other productivity and wage -- Implicit wages that we can calculate, you know, about the fishery as well.

We have time series data, and, by now, we have five years, and so we can do five-year averages, and, generally, things don't dramatically change. The prices a little bit, but the economics, the cost structure, stays pretty similar.

Now we can do the same thing at the annual vessel level. Here, we add basically any trip in the logbook that vessels do, and so there's a little bit more, and we also have, you know, a vessel-

level perspective, like length and what the fleet looks like and their permits, and, again, it's the same 525 vessels that touch reef fish during the year, and I added those trips.

These people, those 500 -- Well, we selected 139 of them, and we sent out these annual surveys after the year. We got back 110 useful ones, and, based on those, we can do similar economics at the vessel level, and so this would be much closer to like an actual financial statement, but, again, it's for the fleet, and not individually, because it's a statistical -- You know, we take a sample, and so these are the numbers there, and, in percentage terms, again, you can see that the net revenue from operations, the top-right there, is pretty high, at 29 percent in 2016, and we have time series data. This is the -- 32 percent is the average net revenue from operations across those five years.

We have exactly the same stuff for the snapper grouper fishery, because it's also in the logbook system, and so we can do all these things similarly, and we have those data, and so that motivated, a couple of years ago, Scott Crosson and I to think about, you know, if we have all this econ data out there already, can we use that to compare these two different management structures, that are for this?

You know, snapper grouper and reef fish are really like a very similar fish stock, being fished by very similar vessels, and in similar markets, and it was also motivated by Scott Crosson serving on the South Atlantic SSC for many years, first as a North Carolina representative and then later served independently, when he worked for NOAA, and I think he, over time, got pretty frustrated with the management, because it was still very sort of access before any type of economic consideration, and so access for fishermen, and never stop the fishing, but reduce it and change it, and so the idea was, and the perspective of the paper, was really looking at, you know, the inefficiencies on the South Atlantic regulated open-access management versus, you know, the IFQ fishery management that we see on the reef fish fishery.

Obviously, the flip side of that is, you know, you can say it's not the costs of having a traditional input control management, and you could look at the benefits of an IFQ fishery, and so I will try to skew this presentation a little bit in that direction.

The objectives was to empirically quantify the effects, especially the economic, of the management regime, using this comparative analysis, and I know there's a lot of biologists in the room, and you will probably say, oh, those two, reef fish and snapper grouper, are very different stocks, and they shouldn't be similar,

but, from an economic perspective, they're all embedded in very similar markets.

You know, they sell the fish into the U.S. markets, and they get shipped everywhere, and the labor is very mobile, and it can go on both sides. The fuel clearly costs the same, and fluctuates the same, and the vessels look very similar, and the fishing methods look very similar, and so, obviously, there is going to be some inherent differences in the stocks, in how they look, but, I mean, they are very much the same species.

The Gulf has, you know, a lot of red snapper and red grouper, and you don't have that dominance in the South Atlantic, but, again, from an economic perspective, we felt this was a fairly legitimate comparison, realizing that it's not an exact one-to-one.

Another thing, obviously, is the data collections are the same across these two fisheries, and that made this so there's not that difference, which usually introduces a lot of bias, when you have different data collections, and so it's coming out of the same logbook data collection and economic data collection.

What we thought of is sort of this natural experiment is that, in the Gulf of Mexico, all the major reef fish species have been transitioned into IFQ management between 2000 and 2010, and, you know, the size limits were reduced at the time, and the seasons, those mini-seasons, were reduced, and so all that classical input control fishery management stuff was removed with the introduction of ITQs, while, on the South Atlantic, those have never been changed, and, in fact, they've got more and more restrictive over time, as more have been introduced, and so the management is very different for these two fisheries.

When you compare them, you can see -- You can see that, you know, the landings for the South Atlantic snapper grouper fishery are about five-million. For the reef fish fishery, it's about fifteen-million, and so, you know, the reef fish fishery's size, in terms of landings, is about three-times as much. In revenue, the prices, and the revenue, are similar, though, in the South Atlantic, you only get eighty-two cents on the dollar for the Gulf, but, if you look at trips, you actually see the South Atlantic, even though it's a third the size, has 11,000 trips, versus 7,000 trips in the Gulf of Mexico. Similar, the vessel count is very close, both at 520 vessels, about.

Now, if you adjust sort of these ratios by the pound basis, which is the final column, you can see that, you know, the revenue -- Well, by pounds, it's one, but the revenue is 82 percent on each

pound, and so they get less dollars per pound of fish, but the trips -- They almost take 4.8-times as many trips on the South Atlantic, versus the Gulf, and they have 2.8-times as many vessels, and so that is a huge difference, and, obviously, when you compare trips to each other, you will see that too, and so the days-at-sea in the South Atlantic are 1.7, versus 4.4. The South Atlantic works with less crew and brings in, you know, per trip, 500 pounds, versus 2,200 pounds in the Gulf of Mexico.

The question is why are there so many more trips in these otherwise pretty similar fisheries in the South Atlantic, and the quick answer is -- I mean, the answer is it's the trip limits, and so, just for example, among various other things, it's especially the trip limits, and so this is an example of, if you look at vermilion snapper in 2016, and you compare them on these graphs, and these graphs -- It's basically a plot on the X-axis, and it's the revenue of vermilion snapper on that trip, and, on the Y-axis, it's the share of revenue coming from vermilion.

The top graph is the Gulf of Mexico vermilion snapper, and you see it sort of looks like a scatter plot. There is sort of a line at the bottom, which represents the longliners, which have a bigger sort of scope of landings, but, generally, you can see that most trips, the vermilion snapper, which is the big black box at the bottom, is just a share of overall catch.

When you do the same graph for the South Atlantic, you can see that it looks very different, and there is three things. One is you see these two vertical lines, where these trips clump in the observations, and you see that, overall, the share of vermilion snapper is pushed substantially up, and so, for many of these trips, the share of vermilion snapper caught on the trip is over 50 percent, and another thing is that, really, the scale on the X-axis is not the same, and so, if you actually bring them down, and I did it very quickly, you can see that that would be a more honest comparison, or a direct comparison, is that the South Atlantic trips are all cut off, and the reason for that is there is a trip limit in effect.

It's a thousand pounds, and then it steps down once the quota hits 75 percent of the quota. It steps down to 500 pounds, and so, if you multiply that by about $4.00 a pound, you get these numbers. Because this is in revenue terms, and not in pounds terms, it's not a straight line, but, you know, it clearly shows that the behavior of these fishermen is very much impacted by these trip limits, as that type of management would do, but, quite obviously, that's going to have a lot of effects if you fish this way.

Another thing is that we saw so many more vessels, right, like three-times as many vessels in the South Atlantic, and, again, it's due to these quota closures and the race to fish and the seasons that don't exist in the Gulf of Mexico, and so, if you look at the share of landings across the year, you can see that the Gulf of Mexico -- While it fluctuates, it fluctuates around sort of 8 percent, which, you know, a little bit more or a little bit less, and I think it's a 30 percent difference a times.

If you look at the South Atlantic snapper grouper fishery across the years, and this is 2016, but it differs each year, because the quota closures happen at different times, but, generally, it fluctuates much, much more, and you can see that some of these months -- The ones toward the end of the year, they're catching less than a third, versus some of the earlier months in the year, and so that's a major fluctuation. If you think about fish coming on the market, you know, you're bringing three-times as much product in one month, versus the other one, and so that could be one reason to explain price effects.

If you disaggregate the South Atlantic by species groups, you can also see why. The vermilion snapper, in that year, had two seasons, opening in January and July, and, you know, the vessels went out to fish it quickly, before the quota got hit and closed, and the same as the deepwater species opened at the beginning of the year, and then were fished down, and then the shallow-water species -- They have a closure through April, and, when that opens, people hit that, and so it's these different quota closures.

It's the seasons, that are written in advance, and then the quota closures for each species. Whenever they come in, they reduce fishing, and so, by the end of the year, everything has been sort of fished down, and the fishery slows down, and so, obviously, you need way more vessels if you're going to have to go out and fish when the season opens quickly, before everyone else catches the quota, and so it's that classical tragedy of the commons race for fish.

Then, by the end of the year, you just can't bring any fish to the market anymore, and so I will add another thing, and we didn't look at it on paper, but, obviously, many of these species, as we see in the Gulf of Mexico, are sort of co-caught on the same trip, and so we have no way of quantifying this, but Scott Crosson, and some others, are looking at it in more detail.

Obviously, if there is co-caught and discarding going on in this type of environment, it's probably going to be quite a lot going overboard, because, you know, the Gulf of Mexico is catching it

and landing it. In the South Atlantic, if it's closed -- You know, if you catch a scamp on a vermilion trip early in the year, you're probably discarding it, and so that's a whole other -- That doesn't affect the economic analysis at all.

It's above and beyond that, and, you know, economists really dislike discarding, because, you know, you're just throwing that revenue overboard. Your costs have already been incurred, and so it's a very -- You know, it's not just biologically not nice, and it's terrible for the economics.

We have all these economic data, and so we can compare these fisheries at the economics and, basically, you know, drill-down on where the inefficiencies happen, and I don't think that I'm going to go into depth here, but, you know, fuel use, obviously, is way higher on the South Atlantic, as they have to run out for each trip. You know, trip limits basically says how much you can take on a trip, but it doesn't say how many trips you can take, and so you just take more trips and spend more time steaming out and steaming back and burning through fuel.

We can do the same thing for the annual economic data. You know, what I like is the annual survey is really a separate data stream, because it's a mail survey, and it's coming in, and it validates what we see at the trip level, plus adding the fixed costs to it, and, if you look at this, you can see that the South Atlantic -- Actually, the economic costs are the costs per vessel, because this is all at the vessel level, are actually pretty similar in many ways.

You know, fuel, they spend $7,000 or $9,000. If you look at the overhead costs, they're all pretty much the same as you sort of would expect for a vessel. Each vessel has the same, but remember that the South Atlantic has three-times more vessel, you know, for the same amount of fish, and so obviously that's going to raise costs, and the one thing that really differs here is, if you look at the total revenue from commercial fishing, which is in the middle, the South Atlantic's average vessel generates $57,000, versus $120,000 for the average vessel on the reef fish, and so that's a huge difference, and it explains the net revenue from operations being pretty much breakeven in the South Atlantic and being $44,000 in the Gulf of Mexico.

Again, we did this paper -- We actually wrote it a couple of years ago. At the time, we had three years of data, and so we wrote the paper using sort of the average of three years, and this is the same thing, but just expressed in percentage terms, and so the net revenue from operations in the South Atlantic was about 4.5 percent

in those years, and 34 percent in the reef fish fishery, and so that's a huge difference, and you can argue with a lot of the methodology, and do it slightly different here and there, but, in general, that difference is not going to disappear.

What we -- You know, that's the net revenue from operations. If you want to go to -- You know, what we did here is we took those percentages and applied them just to the revenue in that fishery, and, again, no vessel -- This is abstract, because every vessel is doing some for-hire stuff, and it's doing, you know, mackerels, and it's fishing other things, and so there is no -- You know, there is no pure South -- You know, neither reef fish nor snapper grouper pure fishery, and so this is an abstract concept of the fishery, if it was just those vessels just catching 100 percent of one species, and that's the way to think of this.

We can use that and turn the percentages back into millions of dollars and see sort of where each of these fisheries is spending the money they generate, and, you know, to go from net revenue of operations, which is sort of the profit, to sort of the resource rent, which we economists talk about a lot, is you have to add one other thing, which is sort of what you didn't account for is the opportunity costs of capital, which is sort of the idea that, well, you've invested $100,000 of money in a vessel, and you need to sort of pay interest on that, and, you know, you could have used it for something else if you didn't.

When we add that to those net revenue from operations, we subtract it from each, based on, you know, the share of vessels that are actually fishing in each, and we come down to, you know, an approximate resource rent of -- You know, we used a very conservative percentage of 3.5, which would not penalize the South Atlantic, which has much more capital, and it could have been a negative number, but we tried to stay -- You know, it's a risky endeavor, fishing, and so it should be a pretty high opportunity cost.

You know, you can see that the resource rent was pretty much nothing in the South Atlantic, and it was 31 percent in the Gulf of Mexico, about $20 million, on average, for those three years.

A bit on resource rent, and there's another -- Well, I will leave at -- There are more, and I will -- Resource rent approximate, and there are issues about producer surplus, and all kinds of other ways of -- You know, there's not total agreement on how to calculate resource rent, and you could make many different, you know, nuances, but it won't change any of that major difference, you know, the zero dollars versus $20 million. You might shift

those a little bit, but not -- Fundamentally, you know, that's a big difference in a comparative analysis.

CHAIRMAN NANCE: Christopher, resource rent -- Can you explain to a --

DR. LIESE: I will do that right now, hopefully. I think, but I've never been able to find it, is like Adam Smith, you know, the father of economics, said he called it a gift of nature, resource rent, and, you know, we economists -- Usually, when we talk about rents, it's something we don't like, like monopolist rent, you know, and it basically means that someone, some business, is able to extract some sort of profit out of it somewhere where they're not supposed to be. If competition isn't there, you know, a monopolist can basically overcharge the customer, sell less into the market, and profit at the expense of the common welfare.

There is other types of rents, you know, and I would call rent seeking as trying to change the government's policy to benefit your company at the expense of others, and so on, and so rent is generally -- You know, in a perfectly functioning market economy, these rents should be competed away, and so, you know, everyone is competing on a level playing field, and that producer surplus should go down towards zero, and most of the benefit should accrue to the consumer, at the end of the day, as businesses compete against each other, but a resource is very different, in the sense that a resource is just something there that you can pick up, and you don't have to spend much money, you know, to benefit from it.

You don't have to plan to -- You know, you could do fish farming, but then you have to build the tanks, and grow the fish, and so nature does a lot of effort in generating these fish for us, and we just have to basically pick them up, and, obviously, that's also expensive, but it's a fraction of what it would cost to grow them all yourself, and that's this idea of the gift of nature, but, in what we call an open-access situation, it's the tragedy of the commons, is that everyone will sort of overexploit the renewable resource if you don't somehow limit access, and so this rent gets dissipated, and, you know, rationalizing a fishery, from a purely economic, non-distributional perspective -- Obviously, it's a big efficiency gain, and a benefit to society, if you can capture that resource rent.

This graph, and I don't know if -- It's a very simple graph, and it's just illustrative, and it's not directly derived from equations, but the idea is that, you know, on the X-axis, you have effort, which is basically inverse of stock size. If you're in an equilibrium situation, which means that you're catching every year

the same, I mean, the MSY -- You know, you fish a population at MSY stock level, where you get the maximum growth curve here. In a steady state, that's what you can remove.

If it's a healthy -- You know, if you allow it to grow to carrying capacity, you cannot harvest much at all, because it's not growing much, and, if you pretty much overexploit it, it's not growing much either, and so that's where MSY is. It's in the middle, where the stock size is at that sweet spot where you get MSY.

Basically, if you take this into the fisheries economics side, the stock size -- You know, there is a certain amount of effort that you would put in to extract MSY. If you go over that effort, you will be fishing down the stock, and that's sort of that curve going to the right.

Now, fishermen will put in -- So the circle in that picture is basically the harvest, the MSY harvest times the price, and so we have dollar on the Y-axis, and the total costs of fishing in this effort, which is on the X-axis -- You know, we'll assume that effort is some linear sort of unit, and there's a cost associated, and so that line that goes through the Point A is sort of the total cost, and it's the marginal cost of effort times the effort, and it goes up linearly, and, in an open-access situation -- So whatever profit one can make, it would be between those two lines, the circular one and the straight line, and, in an open-access situation, a fishery would end up being at A, where the total profits -- Where the total revenue equals the total cost, and so there would be no resource rent being generated.

Now, in a regulated, open-access situation, like on the South Atlantic, the fishery managers are actually trying to achieve MSY, but they do this by introducing additional sort of restrictions on how you can use effort, when you can go up, how many boats you need, and all this, which basically means you're effectively -- You're still telling -- You know, people are still competing for the fish, and so they still have to go out there, and so you're raising the cost of fishing, and that's shown in this graph, sort of by moving that line, the total cost upward to Point B, and so sort of the typical input control management of a fishery just raises the cost of fishing for everyone, but you still are not generating any rent.

Economists have long said that, well, what you really want to do is you -- You know, if you could basically -- If you regulate harvest, and not input of effort, such as through ITQs, or like access to the harvest itself, then you can basically impose MSY, that line, but you're not actually raising the costs, and so an

IFQ program would basically lower the costs back to what sort of the natural costs of fishing are, the most efficient that these fishing businesses can do.

You might even, you know, like we see with the gluts and stuff, like from fishing, and you might actually the price, a little bit, that you get for harvest, which means you're expanding that circular line upwards, and, you know, if vessels are now fishing between those two points C there, their total costs of the fleet would be at the bottom C, and the total revenue would be at the top, and the difference between those two would be what we call the resource rent, in economics, and so it would be that pure profit.

You know, generally, we don't want pure profit, you know, for any type of business out there, and we call it -- Like, you know, Microsoft, with its monopoly on operating systems, was having a profit, at times, of 50 percent, and that clearly was a monopoly profit, and it came at the expense of the users, because they had this natural monopoly on the operating system of Microsoft computers.

That is not something that we usually want to see in a good market, but, in a renewable resource situation, that's actually a good thing, to see the profit, and so that's an aside on the theory, and, again, that's what the data sees, and that's what we were trying to quantify.

This was just a little thought experiment that Scott and I did, and I don't think that it actually ended up in the paper, but we looked at, you know, the resource rent that the South Atlantic fishery was making, which was zero, and we said like, well, what if they were fishing with the cost structure, and the technology, of the reef fish fishery, and so you can see they would be basically -- That's the second column, and there would be $3.3 million of rent generated in the South Atlantic fishery if they could fish, you know, with shorter trips, longer trips, more crew, but much more efficiently.

If we added the price effect, and remember that the price in the South Atlantic seems to be 82 percent of what is on the reef fish fishery, then you can see that, you know, it would add another $3.3 million, and so, you know, this is a pure thought experiment, and it's not an exact thing, but that's the magnitudes of what is getting dissipated, in terms of rent, and it's not entirely trivial to a $17 million fishery in the South Atlantic.

The summary from that paper was that, you know, the South Atlantic

management, when compared to the IFQ management, was dissipating about $3 million to $6 million of resource rent, and it was mostly doing this by using at least twice as many vessels than could be used to fish the same amount of fish.

They were using 300,000 more gallons than you could do, and, you know, labor was not so much. They were using 20 percent more labor, but it could be expensed later, and, in the IFQ fishery, they're paying labor more, and so the reduction is compensated by the fact that those who are still working are getting more, and then there's a lower price of fish, but we didn't do any analysis on why exactly that is, but, you know, analyses have been done on the red snapper price in the Gulf of Mexico, which, you know, once the mini-seasons from 2005 and 2006 were removed, the prices popped up by a good chunk.

In the case of the snapper grouper management, it's pretty much limited entry anyway, even though that intent is to keep everyone fishing all the time, and, you know, this comes from Scott's experience, and it's a huge amount of reactive management, and it's very, very complex.

The IFQ management, by comparison, has less vessels, longer trips, is much more efficient, and, well, you all know the IFQ things. It looks that each trip is much more multispecies, and, you know, people get whatever they catch, and bring it back to the dock, compared to the South Atlantic, but, you know, one major caveat is none of what I looked at was distributional, and I just put this was what was being generated at the vessel level, and so, you know, I was totally agnostic to who actually gets this resource rent, and, as we know, and there's a little bit of that in the data, and we know this from other sources, and, I mean, most of it is going to the allocation, or share, owners.

I mean, it accrues up to them, because that is the scarce resource, and so you can always hire another captain to take out another vessel, but you have to buy that allocation, and so economics always says, you know, the scarcest element is going to get the most of the price, and so clearly this is not a distributional analysis, and it was just focused on the economic efficiency of the fishery, and so it's all -- That rent is accruing to shareholders.

Then just another aspect is that the share prices themselves -- So this rent probably should be captured in the allocation prices, the year-by-year quota that gets transferred, or used, by the allocation holders. The share prices actually represent, you know, in economic terms -- You know, because it's a right to continue -

- Well, it's a privilege to continue fishing those shares for the future, the foreseeable future, and the value of those shares actually encompasses all -- You know, the net present value of all those future allocation values, and so it is all future rents sort of discounted back to the present price, and I think -- What is my next slide here? No, that's a different one.

I mean, so this is from the IFQ report, and the center column there is the allocation price over time, and this is just in red snapper, which it's really, you know the dominant IFQ value in the Gulf of Mexico, and you can basically calculate -- If you look at the allocation prices, and you multiply them by the harvest level, you can also come up with more or less an estimate of the rent, and, in 2016, that would have been, based on these numbers, $24.7 million, and so higher, but sort of in the same ballpark. There's a substantial value being generated by the fishery. Again, that's not every allocation is sold, but it's just that that's the average price that the Regional Office has in their database.

DR. GRIFFITH: Is that per share? Is that $4.15 per share?

DR. LIESE: Sorry, but which one? No, and that's per pound of allocation for that year, and so the shares, obviously, are in terms of percentages, and they're not in terms of pounds, because that might change in the future, but the Regional Office's report basically does these equivalent pound calculations, and I thought I had them in here. So this is just the relationship between the allocation prices and the share prices, and, you know, in the report, they put these percentages, what the percentage is, and so, you know, in 2022, the average allocation was $4.15, and the share price, in pound equivalent terms, was $42.00, and so it's about -- You know, the value of all future catch flows of $4.15 is discounted back to like $40.00, you know, and so it's about 10 percent.

You know, when you evaluate stocks, it's usually the inverse of that, the price earnings ratio. When you're buying stocks, you know, and the stock market right now is somewhere -- There is backward-looking and forward-looking, but it might be somewhere between 18 and 30 is the S&P 500, and so, obviously, a fishery is much more risky business, and so you would expect the discount rate to be much higher, and this percentage lower, and not to mention that it's a privilege and not a right, and so, you know, in a public stock, you own part of the company here, you know, and, as a share owner, the council can take it away or change it or remove it.

Another sort of -- This is not in the paper, but I'm going over my

time I think here, and so, long before the IFQ was created, my first supervisor, Jim Waters, and an academic, Quinn Weninger, they basically tried to estimate, and this was before the IFQ, but based on some cost surveys in 1993, of what the potential gains could be if you sort of rationalized, i.e., put into IFQ, the northern Gulf of Mexico reef fish fishery.

We tried, back a while ago, to compare those, because I was just curious how good they were, and you can see here like -- So the first column is what they predicted in their paper, and I brought that forward into 2014 numbers in the second column, and then I measured, based on my methods, what these gains were, based on the cost data in 2014 compared to 2006 or 1993, in the case of revenue, because I didn't -- You know, those gains would have happened, and, sadly, we don't have cost data going much before 2006, and the IFQ came in right then and there, but, anyway, you can see that they were pretty good at predicting the revenue gain, because, at the time, those mini-seasons -- There was data from before the mini-seasons, and so they saw what damage the mini-seasons did to the price, and they could sort of like figure out what probably would happen if that was gone.

In terms of variable cost reductions, they predicted 77 percent. Sorry. They predicted 100 percent, and we saw 77 percent of what they predicted, and so, in terms of predictions, that's not very bad, and I think that's pretty good, actually.

In fixed costs, they predicted way more savings, and we only see 23 percent of those savings, but, that said, that one is compared to -- You know, if you look at the very bottom, the 1993 number of vessels in that fishery, in the northern Gulf fishery, was 387. By 2006, when the IFQ came in, it was already reduced by 130 vessels, and so some of that excess capital might have already disappeared by the time -- You know, we just -- It's outside of the data we have, but I always found it interesting that these savings had been predicted in advance, and I think that's all I had to say about that paper on the economics of the reef fish fishery.

CHAIRMAN NANCE: Thank you. We have ample time for questions. Doug, please.

MR. GREGORY: Before the economists jump in, just something tangent to this, and I'm glad you have that last slide showing the number of vessels in the Gulf of Mexico, because it surprises me that the number of vessels in the South Atlantic is as high as it is, because, starting over a decade ago, the South Atlantic Council implemented a measure where, if somebody wanted to get into the

fishery, they had to buy two existing permits and throw away one of them.

The concern that I had, at the time, was there was no goal, and so, theoretically, you reduced the fishery down to nothing, or one person, and there was no goal, and there was nothing objective about it, and have you all looked at anything that looks at the effect of that measure, and how effective it's been, and what it's supposed to be doing?

DR. LIESE: I don't know of anything, but I can say that we've noticed -- I mean, just sort of anecdotal is most fishermen quickly found a way to avoid that, by putting the vessel, and the fishing business, in an LLC and selling the LLC and not the permits, and I think that's -- I don't think there was a goal, but it was just realized that it was so much excess capacity that you needed to just get down, but I don't think they managed that, and it's just those numbers on the very last slide, and they were -- You know, they were for just the northern Gulf, and not the whole Gulf reef fish fishery, and so they looked a little different, and so just be careful, because that Waters and Weninger research had been mostly red snapper, and it hadn't been the whole Gulf of Mexico reef fish fishery, and so it's not all the vessels.

CHAIRMAN NANCE: Thank you. Dave, did you have your hand up?

DR. GRIFFITH: Thank you, Mr. Chair. Chris, thanks a lot for this presentation. I'm going to have to read your paper, and it's really interesting, but I noticed crew wages, on Slide -- I think it's 21, but crew wages went down from over the period you were looking at there, from 2014 to 2018, and that just struck me as kind of weird, and was that -- Was that because they were hiring fewer workers per vessel?

DR. LIESE: The first thing I will say is it's a sample survey, and so you have noise every year, and so things go up and down, and so, when the managers here at the Regional Office ask which numbers to use, I always say use the multiyear averages, because, again, each year we take a 20 percent sample, and sometimes you have a big vessel, and sometimes -- You know, individual observations, obviously, matter, if you take a sample, but I would have to look at exactly the numbers, and which slide did you say?

I think the problem with the field of hired crew, the amount they give us, is that's one of the more difficult -- You know, we don't ask for depreciation. I tried on the Gulf shrimp survey, and people just don't grasp -- Not enough people grasp the concept and can answer it correctly, and so I gave up, but hired crew we still

ask, but, you know, they get paid by shares.

Sometimes they subtract items out of the cost, and so it's never a perfect measure, and, you know, it's one of the difficult questions for people to answer correctly, and for us to be confident, and so we also -- We have estimation routines when people don't give it to us, and we fill in the gaps, and so that's possibly -- You know, it's not one of -- You know, fuel used, or prices, and fuel prices are exact, by comparison, and that's the problem, and so that's probably one reason why that goes up and down across time too, and it's just not precise.

DR. GRIFFITH: The other thing I was wondering is did you notice -- Was there improved safety under the IFQ program, because you mentioned there was some sort of like derby fishing.

DR. LIESE: I mean, that -- I read the IFQ report, and it said that there was, but none of this research would basically tell you anything about that.

CHAIRMAN NANCE: I'm not sure it was ever documented, per se, but I know that, from some of the fisheries that would go out in really bad weather, just because they were forced to go out in order to capture that fish, whereas, before, or after, you could choose the day, and those types of things, and so I'm not sure there was ever a study on that, but certainly I know the boats went out in poor weather, because they had to, as opposed to going out when they wanted to.

DR. GRIFFITH: That was my experience when -- I talked to fishermen doing the IFQ program, and they said the same thing, but, yes, there's, what, twice as many boats going out in the Atlantic?

DR. LIESE: I mean, again, like the raw numbers were there were about almost three, three-times as many boats going out, but, once you adjust for the fact that they're catching other fisheries, and doing for-hire, it's about two-to-one, and so they're using twice as much vessel capital.

I mean, this whole exercise is sort of like a very careful accounting exercise, right, and it's not super complex methodology, and you just have to make sure that you're really comparing the same thing, and so I just mention that, the safety-at-sea, and a colleague of mine has been spending a lot of time looking at that, and has a whole bunch of papers out, and I don't remember if he has looked specifically at this, but I would be surprised if he hadn't, and, hence, I don't know what he found, but my guess is he did find that the safety-at-sea -- You know,

the CDC puts out fishing mortality, and deaths are usually best documented, and injuries are not documented well, and so I remember vaguely -- You know, there are rates. You can come up with rates by fishery, and, you know, the Gulf of Mexico shrimp fishery is not a very safe fishery, but, you know, it's a very poorly-paid fishery that attracts very -- You know, substance abuse and that sort of thing, and so there's a lot of fatalities on those boats, relatively speaking, and maybe more than in Alaska, but for other reasons, and not because of the fishery.

CHAIRMAN NANCE: Assane, did that cover?

DR. ASSANE DIAGNE: (Dr. Diagne's comment is not audible on the recording.)

CHAIRMAN NANCE: Okay. Thank you. Dan, please.

DR. PETROLIA: Thank you, Mr. Chair. Christopher, this is really good, and I enjoyed it a lot. Just to make sure I understand it, I think what you're showing is, across the two regions, the costs are pretty similar, and the prices are not terribly different, and they're a little bit lower in one of the regions, and so it comes down to quantity. Then, in your paper, in Table 2, you're showing landings per trip are like four-times higher in the Gulf, and so that's --

DR. LIESE: Yes.

DR. PETROLIA: Okay. So, taking that all together, and I think what you're trying to get at is whether it's a policy regime that's explaining this, and, in theory, I would say, yes, probably so, but then that -- It goes to like the last slide that you showed, where you had the reduction in fleet size.

DR. LIESE: Yes.

DR. PETROLIA: That happened before the IFQ, and so I guess I'm wondering, you know, if you can tease those two things out, and maybe -- I think it was Doug, and, you know, did they not see a similar reduction in fleet size in the Atlantic, or did they, and I don't know, and so I think that's the trick though, and is it the quota, or is it just the fact that the Gulf saw a drastic reduction in the fleet, and so you get a higher productivity per trip?

DR. LIESE: Well, I think it's the same thing, because you have that reduction in fleet, because there's a limited amount of quota, and so, right now, you could buy more vessels, but you would need

more quota, and that's the limiting factor to fishing, and so having another vessel in the Gulf of Mexico does nothing to you unless you have quota, and so it's the quota constraints, and that's why I think there is this reduction in advance of the actual implementation, because the control dates -- The writing was on the wall, and there were people who didn't have -- You know, they weren't going to get quota, and they knew what was coming, and so they were fishing -- You know, those vessels disappeared, and some of the rationalization probably did happen before, because vessels just gave up fishing, knowing they would not be getting any of the shares.

I mean, that's not certain, but that's my speculation, and just that comparison with the past -- Those numbers are pretty much separate from the others, and so like they are -- Because, again, there's a like shifting perspective, and one was red snapper northern Mexico Gulf, and so those vessels were really the red snapper vessels, and everything else I did was always holistically at the reef fish fishery, and so that was all the reef fish species, say including the yellowtail snapper fleet out of Key West down there, and, I mean, it was everything, just because I find that a little bit more clearly delineated.

Those numbers are not exact, and, you know, I don't know what those numbers would be going back in time, but, yes, there was a big reduction, and I don't think there was much of a reduction in the South Atlantic ever.

DR. PETROLIA: Okay. I didn't know the history, and so I didn't realize, but you're exactly right. If that was in anticipation, and they knew it was coming, and then -- So, yes, you could attribute it to the quota. Thanks.

CHAIRMAN NANCE: Thank you, Dan. Jason, please.

MR. ADRIANCE: Thank you, Mr. Chair. While Slide 21 is up there, I just had a quick question of if there's any explanation for that change in response rates from the first two years to the last three, and they seem to jump up, and is there anything going on there?

DR. LIESE: Yes. I took over the data collection. I mean, obviously, every data collection goes through some changes over time, and there were some changes made. We hired a staffer, Liz Overstreet, who built all these reports, and, you know, as she was cleaning things, she was finding things that could be done better, and we decided that, you know, we wanted to make sure we get the best data we can right off the bat, and so, yes, that's the response

rate there, you know, and this is the trip level.

The trip level is on the logbook, and so, technically, we can use their whole structure that's build for the logbook enforcement, and it applies to that too, and it hadn't been sort of used as much as we started using it then, and so, basically, people send in blanks, and they had been selected, and we made sure that they got send-backs telling them that, no, we need that data, and, you know, effectively, we also added more -- Liz was hired, and that was more resources, and so I don't want to throw predecessors of mine under the bus.

CHAIRMAN NANCE: Jack.

DR. ISAACS: Just maybe two observations. First of all, this almost looks almost exactly like what we would expect, and, in fact, I was a graduate student, and we were studying IFQ, and, back at that time, in the 1990s, they were largely abstract, and, I mean, is like the type of thing that they would predicted would happen, and here you look at an example of something that's consistent with expectations, and that's not always something that you see in economics, I'm afraid, and this was very, very educational for me, and I enjoyed it.

Then I also wanted to reiterate what Dr. Liese had to say about estimating labor costs on these trips, and it seems like every vessel has a different way of paying its crew. I mean, some do it in cash, and some do it in shares before expenses, and some do it in shares after expenses, and some do it in shares after expenses with a share to the boat, and it just gets to a nightmare, and so they really have to use an estimate on that sort of thing. I would like to learn more about how you did it after the meeting. Thanks.

CHAIRMAN NANCE: Doug.

MR. GREGORY: Is there any renewed interest, on the South Atlantic side, of looking at IFQs, because they had an IFQ committee at one point, and I was on it, and the whole thing fell apart because an environmental organization was also on that panel, and they tried to manipulate the panel, and everybody rebelled, and, by manipulate, I mean they took every panel member to British Columbia on a junket to see an IFQ operation out there, and so, after a while, the fishermen felt like they were being manipulated, and they just said to hell with all of this, but this should show -- I mean, those people were interested in the beginning, and so this should be an incentive for them to reevaluate an IFQ program.

DR. LIESE: So Scott Crosson would be the person to talk to that

with more authority than me, but my understanding is that Bob Gill basically recommended that this paper also be presented there again, and, I mean, we've been -- I think we've taken it there too, at least in parts, when, you know, it was a manuscript, and it's just been published last summer, but their answer was, no, we don't want to hear it, and they recently did not renew Scott Crosson's sort of position on the SSC, and so they've --

I guess he's always told me their interest is to keep the fishery open no matter what, and, I mean, if that's your objective, they might be achieving that, and they do have to close due to quotas, but, I mean, they don't want to, you know, give it out to certain people, or stuff like that, and so, I mean, I'm not saying that IFQ is -- You know, clearly those shares were given to individuals, and they benefitted, and there's -- You know, we're doing a crew survey, and we hear from people that say, you know, that's unfair, and we don't have any shares, you know, and how do we get them, and so on, but, in my presentation, I wanted to just focus on the economics.

You know, like the theory -- Like, when I was in grad school, it was also most theoretic, and people hadn't -- There weren't that many IFQ things, and people had not really quantified it yet, and there were hundreds of publications about what you could benefit, but it was all hypothetical, and so it's nice to see that it actually does work out, and it wasn't just sort of like ivory-tower stuff.

I mean, there's downside to it too, and I think the South Atlantic is very set in their ways, according to what Scott tells me, and they don't want to -- You know, ironically, they have the oldest ITQ program in the nation, with the wreckfish one, which is tiny, and it's five people, or six people, but, nonetheless, they had it, but I guess, after 1993, it stayed on a moratorium.

MR. GREGORY: Well, now you know what happened in 1993. Thank you very much.

CHAIRMAN NANCE: Dave.

DR. CHAGARIS: Thanks for this presentation. There's a lot of really valuable information in these reports, and the summaries and everything, and I don't have a question about anything specific, but I'm wondering -- You know, we're, oftentimes, trying to infer, you know, stock status, or the health of the stock, based off of like imperfect information, whether it be landings or catch rates or size compositions, and I'm wondering. Are there any economic metrics in here that are worth sort of tracking, as far

as, you know, what's happening on the water?

Like, for example, the price-to-earnings ratio has doubled for red snapper from 2007 to currently, and does that mean anything? Can we infer anything from -- You know, from these types of metrics, like what the fishermen are seeing on the water, or what we can -- What does that tell us about the health of the stock, based off of some of the economic information?

DR. LIESE: So, very vaguely, I think yes, but you have to correct for a lot of things going on at the same time, and so it's -- You know, you need a big -- You need a lot of data, and a good regression, to account for all the other things going on, and that's my theory, but, in principle, yes, it should be there. Prices are always forward-looking, and so especially -- I have not worked with the allocation prices, and the share prices, but, you know, any price in the market is really about the future, and not about the past, and so they should be -- Fishermen, you know, especially -- I've always meant to take a look, but, you know, if these stocks -- When they stop being able --

I think it was gag, or red grouper, IFQ, when they weren't getting the allocation, because presumably it was too expensive to hit it, and did that show up in the allocation prices in advance, right, and did they already know, or did enough of them already know, that it's hard to fish this, and I'm not going to spend the full dollar, and I don't know what that allocation is, and I'm only going to -- You know, I will buy it for sixty-cents, because then I might still break a profit, and so, you know, in economics generally, you would expect it to be in the prices, and the prices are the signal in the economy.

They integrate all that data from all these decentralized individuals fishing, but the price should summarize it all up, and, you know, as people trade things around, and so it should be there.

You know, this is maybe a little bit too far off, but I also have economic data for the Gulf shrimp fishery, and we had this SEDAR 87 recently, and they estimated a CPUE, and, now, this is at a very broad level, at the fishery overall for a year, from, you know, the effort data that the biologists and statisticians do, and I basically went to my econ data, using completely different data, you know, fuel use, number of crew estimate on the vessel, but, since the shrimp fishery isn't changing, and they're not buying new vessels, the technology is set.

Any difference -- You know, I ran a regression, and what was left

-- I said, well, that's probably the natural fluctuations of the shrimp stock, you know, because I've accounted for all the economic parts, and that was -- When I mapped, you know, ten or fourteen years of those CPUEs, it matched very nicely.

I mean, if you looked at it, eyeballed it, it was pretty much the same, with one little peak missing, but I don't want to say -- The correlation was 0.9, or something like that, and so that was a case where the CPUE could be derived from the economic data, because, you know, obviously, it has to be in there. It's the basis for what they're doing out there, how much effort they're putting in and what they're catching, and so it should be there, but it's all retrospective. I mean, that CPUE is a retrospective analysis, but the prices should actually be forward-looking.

CHAIRMAN NANCE: Mandy, please.

DR. KARNAUSKAS: Thanks, Christopher, for the great presentation. You brought me back to my grad school class with Juan Agar twenty years ago. I just had two questions, out of curiosity, separate questions, and so, first of all, I'm interested to know how do you deal with all the different mechanisms for securing allocation, and like someone mortgaged their house, twenty years ago, to be able to, you know, invest in shares, and now they have that secure, and like do those trips then appear more profitable, because the financial risk was taken twenty years ago, versus someone who has to, you know, lease shares because they didn't take that risk, and so I'm just curious if those costs were accounted for.

DR. LIESE: Not at all. I mean, because I basically -- As I said, I'm agnostic. I generate that profit margin, and where it goes I have no idea, and so it might be going to -- You know, it's probably going to the share owners, right, sooner or later, but we don't collect that data. We would have to try to link in the IFQ data, and there is other issues there. We could do it in opportunity cost terms, and, again, you can see that -- You know, what I calculate, the $19 million, and, if you look at the allocation prices applied, it's $25 million, and so clearly they're in the same ballpark, you know, and I have never -- A million plus or minus, but, no, I have no idea, because we don't look at that. I mean, I ignore that.

We have -- We ask -- On the econ survey itself, we ask how much do you spend on purchasing IFQ from someone else, but we're not asking how much you have or how much you sold to someone else, and so it's a totally partial perspective, and it's really only there because, when the IFQ came on, people started putting those payments somewhere on our survey, changing our overhead, changing

our miscellaneous costs and so, and so we needed a way to stop them from doing that, and so we added that question, so they could put those costs there, and we can then ignore them, I mean in the sense that they're not incorporated, and so like it's not a distributional perspective, and those sort of things that you mentioned would all be on that side, you know, like how much actually ends up with the fisherman.

It's similarly -- Like we do ask about loan costs on their vessel, but I do not put them into the real costs, because, like when you pay back your principal, it's not even a cost. If you're paying back principal, you own more of your vessel, and so it's a wash on your side, but, even if you pay interest to the bank, it's a -- You know, that value was generated by the fishery, and so it's societal, and it goes to the bank, in terms of interest, and it doesn't stay with the fishermen, but I still want to count it as a benefit from the fishery, because it is. I mean, it was productivity by red snapper, or whatever, and so, again, not looking at that, where that money ends up, and that's a different analysis, if it's worthwhile doing, but it's -- It's just on the efficiency of it.

DR. KARNAUSKAS: I have one more question. On the South Atlantic side, do you account for the lack of working waterfront costs, with like trailering boats to waterfront, because that would be like an additional expense, in some areas, that might make it even less profitable.

DR. LIESE: I mean, we don't -- They just give us the costs, right, and, I mean, if that's in their fuel costs, and some people sometimes put truck costs, but I think most of them don't.

CHAIRMAN NANCE: Will, please.

DR. PATTERSON: Thanks. Thanks for the presentation. It was very informative, and so you're talking about efficiency, and how the IFQ system perhaps imparts greater efficiency in the system, but I'm wondering if you also have looked at externalities that have been brought on by these two different management regimes, because, in the South Atlantic example, you have 33 percent more trips to land a third of the catch as you do in the Gulf, and so the potential to produce regulatory discards is greater, and so that's another type of effect of this.

Also, you're consuming 300,000 more gallons of gasoline, and so the carbon footprint of that fishery is much greater, and so I'm wondering if you looked at like externalities brought on as a result of this and not just the costs in the landings and the

profitability of the system.

DR. LIESE: No, we haven't. I mean, that's the short answer, and, again, we -- You know, as economists, everyone assumes our bias is towards, you know, preferring the rationalized, you know, IFQ system, and so our paper is more like in the other direction, saying like, well, this is the minimum benefits that we can measure, you know, and they're explicit, and they're happening, and there might be more.

Of course, there is also downsides to it. The shares go to individuals, and, you know, it's not equally distributed, and, I mean, I wasn't entirely certain -- I mean, I think the Gulf Council is thinking about the future of the IFQ program, and, obviously, it's to keep also those negative sides in account, but, you know, I think it's -- Like you said, it's important not to -- You know, these efficiency gains should be, you know, taken note of, and they're valuable too, and so, I mean, you don't want to throw them out the window just for fairness. I mean, you need to split the difference.

DR. PATTERSON: No, and I appreciate your comment about being agnostic and just trying to produce the estimates without bias for which one might be more preferable, and, you know, Doug has a perspective, having served on the SSC in the Atlantic, about perhaps how they ended up where they are, but, if the target is to have greater employment, or full employment, in the fishery, then clearly their approach produces greater employment than the Gulf approach. There are more fishermen per resource targeting that fishery, and so that's not a judgment statement, and that's just a statement of fact.

DR. LIESE: Yes, but that extra employment is happening because more of the money is being spent on that employment, right, and, in the case of the reef fish fishery, or any IFQ fishery -- In this case, 30 percent of the revenue is going to someone, and that person is presumably going to spend that money, because this is always the -- You know, there is economic benefits, and then there's just impacts, like employment, and employment, you know, is derived from some sort of demand, and so the person who like gets that money, the $20 million, is probably going to spend that too, in some way or form, and so that will create jobs.

The thing about these impact analyses is that they are basically -- They are only distributional in perspective, while this sort of economic efficiency analysis is about growing the pie, and does that make sense? It's about gaining more for society, but, yes, in the narrow sense, there is more fishermen, more crew members,

employed in the South Atlantic fishery, but you're basically not counting the $20 million that are not spent in the Gulf version of it, or $3 million, if you adjust it down.

Obviously, they're going to be spent somewhere, and so they will create jobs of some sort somewhere, and they're not going to be fishery jobs, but, as a society, we are probably generating more jobs, because, you know, efficiency is what generates our society's wealth. We can employ people, you know, and the old USSR had no unemployment, and they employed everyone, but not productively, right, and we try to put people to their most productive use, so that we overall get as wealthy as -- So that's an important thing, that the cost-benefit difference is what creates wealth. Just hiring people for their own sake is just a distributional perspective, and it's not unimportant, of course, but --

CHAIRMAN NANCE: Okay. We'll take two more questions. Scott.

DR. SCOTT CROSSON: It's good to hear from you again. Just to answer to the previous speaker about the issues of discarding in the South Atlantic, and also the issues of the social costs of carbon, or other ways to externalize sort of all those extra fuel consumption numbers, and those are both research projects that are ongoing right now, actually.

I am working on the second one myself, and that's been kind of on my docket for a few years, because, once we started seeing these fuel consumption numbers, that's the first thing that came up in my mind as well, is that that's an awful lot of excess carbon that's being pumped into the atmosphere.

On the first point of discarding, I'm working with some of the stock assessment folks up at the Beaufort Lab on a big project that's sort of looking at ways to reduce South Atlantic discarding in both the recreational and the commercial fleets, and so, in the *North American Journal of Fisheries Management*, we have our first publication out, and Kyle Shertzer is the first author, and I'm the second, and so that's out right now, and that's looking at both the recreational and the commercial discarding of red snapper in the South Atlantic. Then we're going to be incorporating some other species as well, and so both of those are projects that are ongoing right now.

CHAIRMAN NANCE: Thank you. Luke.

DR. FAIRBANKS: Thanks. I was only able to briefly run through the published paper, but I really appreciated the presentation, and I was curious about something you mentioned at the beginning,

and maybe you could speak to it a little more, and it's kind of the decision of how to conceptualize, and calculate, resource rent in this case.

I ask kind of because my understanding of how you calculated it, and just correct me if I'm wrong, is, you know, it's related to the ex-vessel price of the fish, but that, in and of itself, you know, is kind of a somewhat endogenous part of the system, right, in that changes, and fluctuations, in catch could affect the price itself, and, similarly, changes in the catch across the two fisheries, never mind, you know, consumer preferences and things like that.

I was kind of curious if you could speak a little to that, and what kind of got me thinking about it was toward the end of the presentation, when you showed that, well, if the South Atlantic kind of had the same cost structure as the Gulf, then you would see these resource rents, but that must be oversimplifying things, right, because then you would have -- You know, everything would change about it, and you wouldn't just simply be able to transition one cost profile to the other and, you know, it all comes out the same.

That's kind of my general question, and then I also just wanted to comment on, I guess, two questions ago, and I'm not -- I understand where you're coming from, from an economic perspective, but I'm not sure we can just assume that efficiency, economic efficiency, is going to produce the best and highest-value jobs and employment, and I don't -- I think that's a philosophical, an economically-philosophical, discussion, that I think, you know, we could take issue with, but it is relevant here, because, when you're talking about concentration of wealth and shareholders, fisheries shareholders, it matters.

We can assume that they spend it, and that eventually trickles down to job creation, but we don't know that. Concentration and hoarding of wealth is, obviously, an issue that is increasingly discussed, and so that is just more of a comment that I wasn't going to make, until I heard I am maybe the last person with my hand up, but I thought I would just state it for the record, but, if you could talk more about the resource rent, and kind of how you, you know, settled on that, and if you considered anything else, I would be curious to hear. Thank you, again.

DR. LIESE: I totally agree that there is so many more issues with distributional, and it's not just economic efficiency. All I'm saying is it's one -- I mean, I was always surprised that I think the original objectives of the Gulf of Mexico reef fish IFQ program

-- I don't know if they even state economic efficiency, or, if they do, they say it very vague like that, that economic efficiency should be considered or something, and, you know, we economists, in our many, many papers -- That's always the reason to do anything. It's the one -- But, you know, that's what economists focus on.

I'm clearly saying this is a very partial perspective, and there are many other value judgments that go into making actual policy, and all I'm saying is this is one perspective that should be also looked at, and it's definitely not the only one, and there can be other ones that trump it, for sure, and, you know, again, it's a complicated thing, but, you know, on the question of jobs, yes, if you want --

I mean, one example is the European CAP, the Common Agricultural Policy, and they subsidize, you know -- The consumers pay, in Europe, for maintaining smaller farmers on the countryside, and, you know, those operations are not efficient, and an economist would say this is not the best way to, you know -- In terms of economic efficiency, the U.S. has much more industrial farms, and it's cheaper to do, but the Europeans just want to -- You know, I guess it's a value judgment they made that we want to maintain our countryside with more small farms, you know, more local product.

I'm not saying -- You know, obviously, economics is not all of it, and it's just, you know, the profit is what sort of creates the wealth, at the end of the day, and that you can share out, and so it's always about how big you want the cake, and how you share it out, and so, yes, it's a very complicated thing, and I did not want to imply that this should be the priority, but it should also be considered, and, more specifically, on the question of rent, I mean, revenue is only like -- It's the starting point, right, and it's what the fishermen get.

Then we subtract all the costs that we know are actually costs that happen, and, I mean, I didn't go into all the details, and, you know, some costs they report to us, the fuel costs, are pretty clear, but then things like -- You know, with the hired labor, they give us a cost of the hired labor they paid for hired labor, but then owner-operators also spend time on the boat working, and so we have to account for that time too, because it's a contribution to the productive process, and, if we don't account for it, we're just not -- You know, it will look like we're having more profit if we don't pay the owner for his time.

As economists, we want to, you know, make sure that we account for that, and so we estimate the opportunity costs of the owner-

operator, and we use what they pay the crew. The rate they pay the crew, we pay the owner too, but, again, I'm not saying it's exactly right, but it's a placeholder.

We're trying to get to the right accounting and, you know, have everything in there and not miss out on -- You know, not compare apples to oranges, and we're trying to get it into like apples to apples, and then, you know, realizing that there is many, many estimates, but, once you subtract everything that you should, then whatever is left -- You know, in perfectly competitive economics, once you account for the owner's labor, and you account for the cost of capital that they have to raise, and risk involved, and you should usually come out with pretty much zero, because the competitive market -- There could be -- If there is a lot of profit to be made, then the market would have people arbitrage away.

You know, they would enter that industry, or they would go, and, you know, lithium prices went up, and everyone built lithium mines everywhere, and the news stories were we can't even, you know, continue building electric cars soon, because we're going to run out, and now the price has crashed, like by a factor of ten, because, obviously, the market overbuilt, and, you know, it takes times for mines to come online, and, I mean, so that's the idea of this market signal, and it should be that the competitive market is pretty good at removing these rents, if it functions well, but, in this renewable resource situation, whatever is left -- There should be something left, because it's not -- You know, there is this resource, this gift of nature, in terms of the fish just swimming in the ocean that you just pick them up, and that should be valued, if we want to maximize the value of that fishery, but, again, other things can matter.

I mean, your question was we start with the revenue, and is that legitimate, and, yes, but we subtract all this other stuff, and only if something is left, and so, you know, that's how we calculate rent, and there is many different ways to calculate rent, but, you know, we applied the same method.

I don't think, if we used slightly different methods, and included some more of this or that, and did it on both the South Atlantic and the reef fish at the same time -- It wouldn't dramatically change the results, you know, and we would be at $19 million, or $22 million, or something like that, but it would still -- You know, I never -- You know, the qualitative result wouldn't change.

On your question of if everything is interconnected, you know, a general equilibrium perspective, then yes. I mean, I think, you know, you always have to -- You know, this is a partial equilibrium

perspective. We took that data and looked at it from this perspective, and there could be feedbacks and that stuff.

CHAIRMAN NANCE: Thanks, Christopher, and we appreciate that presentation.

DR. LIESE: Thanks a lot for having me.

CHAIRMAN NANCE: We'll go ahead and take a fifteen-minute break, and so we'll come back at five after three, and we'll start with the review of deepwater grouper landings data and catch limits.

(Whereupon, a brief recess was taken.)

CHAIRMAN NANCE: We'll go ahead and gather back and start. Okay. We'll go ahead and start, and we're doing Item Number VI, Review of Other Deepwater Grouper Landings Data and Catch Limits, and, Lisa, can we go over the scope of work for that activity, please?

REVIEW OF OTHER DEEPWATER GROUPER LANDINGS DATA AND CATCH LIMITS

DR. HOLLENSEAD: Yes, sir, Mr. Chair. In our discussions of SEDAR 85, and we've touched on this a little bit, but, going into this next agenda item, council staff, which will be Dr. Froeschke, is going to present the landings for the warsaw grouper, snowy grouper, and speckled hind, which, as you recall from our earlier conversations, is in the same complex with yellowedge grouper, comprising the deepwater grouper complex, and so these landings will be presented to allow the SSC to consider revising the catch limits for these other deepwater grouper species, such that they are in a similar data currency that is used for yellowedge grouper.

During this time, the SSC may consider the council's acceptable biological catch, the ABC, Control Rule in determining how to establish the overfishing limit and ABC for warsaw, snowy, and speckled hind. The SSC should evaluate whether it is appropriate to continue combining these four deepwater grouper species for management in a single complex or whether the yellowedge grouper should be managed separately from those other three species, and then the SSC should make any other recommendations, as appropriate. Mr. Chair.

CHAIRMAN NANCE: Thank you. John, please.

DR. FROESCHKE: I think Lisa covered most of what I was going to do, but so, in general, the issue -- So we have the yellowedge assessment, and it's part of the deepwater complex. Snowy, warsaw, and speckled hind are the other three components of this. You

don’t have an assessment. Based on our historical practices, we’ve used Tier 3 for these kinds of things, similar to what we did for shallow-water grouper, you took a -- You looked at the data, selected a reference year, and made a decision regarding Tier A or Tier B.

CHAIRMAN NANCE: That’s with scamp?

DR. FROESCHKE: Well, that was the shallow, and so this is the deepwater grouper.

CHAIRMAN NANCE: Yes, but I’m saying what we did with scamp was we did an assessment for it, and it came out of the complex, and then, the rest of them, we did Tier 3 evaluation to come up with OFL and ABCs for it, and is that correct?

DR. FROESCHKE: That’s correct, and so the thing, at the council level, we’re still working through is how to actually do this, and, in the past, it was a single ACL, and so the landings were summed as a group and just added up. Now that we have a separate ACL for scamp, we’re going to have to figure out whether that’s going to have to be a sub-complex, to ensure that the specific ACL that you provided for scamp is not exceeded, and so we’re going to have to work that out in a similar process, maybe, likely, here, and so the other things to think about --

There is the IFQ program, and so it’s going to be -- This would move from the FES, the recreational data, however relatively small that it might be, and so these would be in FES, where the old ones were in CHTS, or MRFSS, and I think they were actually in MRFSS.

One thing that this would facilitate is that there is the shallow-water and deepwater grouper that currently we have in place, where you can land, for example, scamp, I think, in either of those, and so there’s some exchange, and so, to the extent that those kinds of things happen, you would want to have the deepwater grouper recreational -- You would want it all in the same currency, and so that’s part of what we’re trying to do as well.

I kind of just want to open it up for discussion. What we have, what you’re looking at, are the recreational FES data for the three stocks combined, the commercial, the total, in Column D, and the Column E -- I just added that, and just really what that is is it’s just a percent of the landings that are attributed to the recreational portion of the stock, in case you wanted to look at that.

The cells in red -- Ryan put that together, and then there’s a

chart below that, and it kind of shows you the timing, and he made some calculations using Tier A, and I did add, below that, the Tier 3b, if you wanted to look at that, and you could have some discussion about which tier is appropriate as well.

CHAIRMAN NANCE: Can you explain the red versus blank?

DR. FROESCHKE: Okay, and so Ryan put that together. If you look at the -- If you scroll down, the value, and so the ABC, the mean of the values there on that Column B -- I think Ryan did a little formatting, and it essentially highlighted the historical periods that would have been over the ACL, if you used Tier A with the default, is what that signifies, but, in practice, it doesn't do anything.

You know, depending on what years you might select as the reference years, and, you know, it obviously doesn't matter, historically, what it would have been in the past. Just, in general, for your reminder, we've tried to select years that we thought were relatively stationary time series and things like that, and so whatever you all think.

CHAIRMAN NANCE: Okay. I will open it up for discussion. Doug, please.

MR. GREGORY: Can you explain the ReadMe file? I am confused. One, we did this in 2010, using the data we had at the time, and I don't think those red cells are relative to 2010, and they're relative to a new benchmark that you guys, the staff, has developed, and so I don't understand how that works, and if you could help me with that.

DR. FROESCHKE: All it is -- I don't think it's particularly meaningful for this purpose, and all it is is just a conditional format, and he calculated -- Ryan calculated a hypothetical ABC and OFL, using a reference year here that's highlighted, and I would have to look it up, and then he just flagged it that those historical years would have been over that, but it doesn't mean that, previously, those ACLs were exceeded or anything like that.

CHAIRMAN NANCE: Roy.

DR. CRABTREE: Well, just looking at the control rule, and looking at the language in 3A, it says, based on expert evaluation of the recent historical landings, they're without trend, but that certainly does not seem to be the case here. There's a very strong trend, and it's a decline in the landings over the years, and then it says that landings are small relative to stock biomass, and I

don’t think we know that. The stock is unlikely to undergo overfishing, and I don’t know how we know that, although, at least at the 40 percent we ran, that we selected for yellowedge, it appears that yellowedge is undergoing some overfishing, and so, just looking at this, it seems, to me, that Tier 3b is more applicable for this group.

I guess I don’t really have an opinion as to whether you split it all apart or not, and it seems to work all right the way it’s set up now, but it does look like, just looking at the control rule language, that Tier 3b is more suitable.

CHAIRMAN NANCE: It would seem like, from a consistency standpoint, doing a similar with scamp, and we pulled it out, and then we took the other three species in there, and came up with an OFL and ABC for those, that complex, and so I think, as similar -- We would want to do a similar thing here. We took yellowedge out, with its assessment, and we have an OFL and ABC for it, and then the other three species, and we use this to develop that. Roy.

DR. CRABTREE: I mean, I guess, to me, that’s a management issue to figure out, if they want to split it or not, and you could easily apply Tier 3b to this, and then just sum it in with the ABC for yellowedge and continue it as a group, if you wanted to, but that seems to be a management call.

CHAIRMAN NANCE: Trevor, please.

MR. MONCRIEF: I’ve just got a -- I just wonder if there’s anybody uniquely familiar with the commercial fishery for the deepwater groupers that can speak to that observed trend over time. I know Mr. Zales is here, and he’s got a lot of historical knowledge, but, you know, this plays into fleet reduction over time, some shift in the fishery geographically, the market effects in 2020, and, you know, what might be contributing to this that might not necessarily be stock size, that maybe we’re missing or if there’s another story behind it, or if anybody has a hypothesis.

CHAIRMAN NANCE: I am not that familiar with any of these species, for sure. I hear what Roy is saying, you know, and it’s obviously taking the Tier 3b is the least -- Because we don’t have a lot of information, from my perspective, on it, and that would be the recommendation. Does anybody else have a different recommendation on using this? Roy and then Doug.

DR. CRABTREE: No, but one thing I would throw in, and maybe Mara or someone can refresh my memory, but I think there was a petition to list warsaw grouper under the Endangered Species Act, some few

years ago, and the Fisheries Service declined to do so, but there has, at least in some quarters, been some real concern about the status of some of these species.

CHAIRMAN NANCE: Doug, did you have --

MR. GREGORY: Somebody has edited this table, and this is not the same table that we used years ago, and I don't know what has changed, except I do know that, if you look at the ABC box under Tier 2a, we never had that risk of exceeding OFL at different levels, I do not believe, because those numbers are actually wrong.

CHAIRMAN NANCE: Where are you looking?

MR. GREGORY: ABC under Tier 2a, and I'm wondering -- It makes me wonder about Tier 3b, or 3a. I'm sorry. It's 3a. It makes me wonder if the ABC at 75 percent of OFL is actually what we decided back then, and I'm not sure, but something has been added, because, under 3b, I mean 3a, the ABC, what's being misconstrued here is, if you were fishing at ABC on a regular basis, these percentages of exceeding OFL would be true, but, if you're fishing at a mean, and it's fluctuating about the mean, and you happen to exceed ABC, that has nothing to do with these percentages, because you're still having the same percentage if you're fishing on the same mean.

Now, if there's a trend in the fishery, and it's going from the mean up to ABC, then these percentages would be a concern to us, but it's not true that, if you set ABC at one-and-a-half standard deviations of the mean, you have a risk of exceeding OFL at 31 percent, because you're still fishing about the mean.

DR. FROESCHKE: No, and that's -- What that says is, if your mean is just say a million pounds, and your standard deviation is 500,000 pounds, and so then your ABC would be 1.5 times the 500,000, and so that's 750,000, plus the one-million, and so your ABC would be 1.75 million.

Based on the variability, the OFL would be the mean plus two standard deviations, and so that would be one-million plus the 500,000, and so, based on the distribution, the normal distribution and all that, it's saying, if you thought you calculated -- If you're trying to catch 1.75, you have a 31 percent chance of exceeding the two-million. I believe that to be correct.

MR. GREGORY: Right, if you're fishing at ABC and not just randomly exceeding it. If the fishery trends from the mean to averaging at the ABC, then the standard normal curve works, and I think that's the disconnect here in the logic, is we're assuming the mean is

the governing way this fishery is going to operate, but it's going to fluctuate about the mean, and it's those fluctuations where we're trying to capture ABC and OFL. If the fishery was to increase its level of catch to ABC, then these percentages are right.

DR. FROESCHKE: Well, it's --

MR. GREGORY: I'm not going to belabor it, but I'm just saying this is not the same table we looked at ten years ago, or three years ago, or five years ago, because those numbers weren't in there.

DR. FROESCHKE: That's the same -- I mean, that's the document, and it's been on the website for thirteen years, and that's the same one.

MR. GREGORY: I don't think so, but thank you.

MR. MONCRIEF: So, Roy, you recommended 3b? That was what you were --

DR. CRABTREE: Well, it sure seems, to me, looking at it, that 3a doesn't fit, because the landings have a very strong trend, and so, yes, and I think, if we're going to apply this, we would apply 3b.

CHAIRMAN NANCE: It seems to be the most conservative, and it's the only one that meets the criteria that the data are.

DR. CRABTREE: I mean, putting aside whether it's conservative or not conservative, if you lay out these criteria, it doesn't meet 3a.

MR. MONCRIEF: I don't have it in the top of my head, and what was the trend in yellowedge landings during that same time period?

CHAIRMAN NANCE: They're flat, I think.

MR. MONCRIEF: So it was relatively stable?

DR. FROESCHKE: You would have to pull that up from the presentation.

CHAIRMAN NANCE: Do you have that one, Jessica, just real quick? Let's see where it's -- It's 36. There we go. Is there a total? It's not a total.

MR. MONCRIEF: If we look at the axis, the commercial longline

east, there's a fair amount of landings there, and it's stable in the commercial longline, primarily where those fish are targeted, and, to me, these -- If they're commercially caught, then those species are going to be largely associated, probably, with those fleets in the same area, and so, if what we're talking about is true for yellowedge, and let's say they're continuously being targeted more and more, and their catch could potentially go up, which would lead to the commercial catch of these species going up more than they have in the last ten years, we're just kind of running down the same rabbit, it seems like. I get the precaution side of it, 3b, but --

CHAIRMAN NANCE: It looks like it's pretty stable for this one.

MR. MONCRIEF: Yes, and you've got a slight increase over the last ten years in commercial longline east, and so I'm just wondering -- You know, what we're looking at, is it a stock decline that is of a large enough concern to warrant that precautionary measure, or are the factors behind it leading down that road, to make us think that it is, and I know that we've had this conversation multiple times, on multiple different species, but just kind of I'm a little hesitant.

CHAIRMAN NANCE: This is for the other three species.

DR. CRABTREE: Yellowedge would be Tier 2, I guess, and that's not what we're talking here, and we're talking the other three.

MR. MONCRIEF: We're not, but those species, because they are commercially harvested in similar depth zones, they're going to overlap with that fishery a fair amount, I would imagine. I might not be the best expert on it, but they're all occurring in a similar area.

DR. CRABTREE: I think that's true, but, nonetheless, the way the criteria are laid out here, I still don't see how you could say 3a really applies to these species, and the other thing, that it's unlikely that overfishing is occurring, I think that's hard to conclude, given the only one in the complex we know the status of appears to be undergoing overfishing, and, I mean, I'm not even looking at how precautionary, and I guess that would be more in the specification of the ABC, but just, if we're going to apply the control rule, I have a different time seeing how 3a would fit it.

MR. MONCRIEF: It just reminds me of the black grouper conversation we had around the same thing.

CHAIRMAN NANCE: John and then Doug.

DR. FROESCHKE: Jess, can you bring up the slide on the additional projections slide, the Slide 7? For this one. I know Katie always think that I squint at these too hard, but, I mean, the Kobe plot essentially indicates, for this one, that it's been stable, or declining, biomass for a long time, and they were fully exploited, and so, I mean, that seems consistent with the discussion. The landings are kind of hard to put together, because they're all different Y-axes and things, but, to me, that's informative of where the stock is.

CHAIRMAN NANCE: Will.

DR. PATTERSON: It may be informative of where yellowedge is, but, here, we're talking about snowy and warsaw.

DR. FROESCHKE: Yes, and Trevor was just mentioning using this as a proxy for the other one, and so, if you were to do that, that's what I was suggesting, and I'm not suggesting whether we should or shouldn't do that, and I was just following the point.

DR. PATTERSON: I appreciate that.

CHAIRMAN NANCE: John.

MR. MARESKA: I was wondering, and do you have a breakdown of the species contributions here, and so are we looking at, you know, three species equally, or are we looking at predominantly warsaw, and I would like to know that.

DR. FROESCHKE: Jess, can you open up that other spreadsheet? Stand by.

CHAIRMAN NANCE: I think the one that John is using -- That one right there.

DR. FROESCHKE: No, and I sent you another one, to Meetings.

MR. MONCRIEF: It's like 90 percent snowy, John.

CHAIRMAN NANCE: Jessica.

DR. FROESCHKE: Okay. I just sent it to Meetings again. I sent it, but maybe I didn't.

DR. STEPHEN: I have, for IFQ, the breakdown, and I can send it to you, John, or someone else there, the breakdown of the species for

2010 through 2023, and I also have a graph, if that would help, and it is only IFQ though.

CHAIRMAN NANCE: Go ahead and send that. I think it would be informative.

DR. STEPHEN: Okay. Who would I be sending it to?

DR. FROESCHKE: meetings@gulfcouncil.org.

DR. STEPHEN: Perfect. I will send it off right now.

CHAIRMAN NANCE: Is this the one that you wanted to see, John?

DR. FROESCHKE: Yes, and so you can open up the commercial landings, which is the majority, and it breaks them down by species, and so, again, the yellowedge wouldn't be part of the complex, going forward, but just so that they're all there.

CHAIRMAN NANCE: It looks like speckled hind is the lowest, or warsaw, and we just have the percentages, but --

DR. FROESCHKE: Jess, there is also that MRIP-FES landings tab for the recreational, and you can just see that it's kind of an order of magnitude less, in both cases.

CHAIRMAN NANCE: What's this one? What are the values in, John?

DR. FROESCHKE: Pounds gutted weight.

CHAIRMAN NANCE: Okay. It looks like -- It's interesting that, in 2000, warsaw was over snowy, but then now it's the opposite, because snowy was 15, and warsaw was 2.

DR. FROESCHKE: We don't have the associated PSEs with these, but I suspect that they're all enormous.

DR. CRABTREE: I would guess that none of those numbers are significantly different from --

CHAIRMAN NANCE: Okay. Doug, did you have a comment?

MR. GREGORY: Yes. Thank you. I was wrong in thinking that this table had been edited. I went back to my document in 2012, and it had that in there, and I think what happened is I've been looking for an opportunity to address these risk numbers, and I just jumped at it, and I think that's still a valid discussion, but I was wrong that these had been added to the table, and I apologize, and I've

got a question about -- If we're looking at 3b, are we saying that OFL is going to be the average of the landings? I mean, that -- We adopted 2a, 3a, for a lot of the species, because it was less conservative.

DR. FROESCHKE: That's the default. I mean --

CHAIRMAN NANCE: Roy.

DR. CRABTREE: Yes, that is the language in the control rule, and so the OFL would be equal to the mean over some period of time at least ten years recommended, and then we would be -- The ABC we would set at some fraction of that. I have no other solution to this, and so it would be more we could take the entire time series, or, if you wanted to take some more recent portion of it, that would give you a lower number, I suspect.

CHAIRMAN NANCE: Doug.

MR. GREGORY: To that point, my concern is that, if we do that, then every other year, or randomly every other year, we're going to be exceeding the mean. I mean, that's a very conservative level for setting OFL. I mean, it's basically not allowing any increase in harvest.

CHAIRMAN NANCE: Will.

DR. PATTERSON: So, if you use the ten years, the mean is 289,000 pounds, and there is no catch, in the past ten years, until you get to the very early part of that series, and it's only one year that exceeded that as the OFL, and so, because it's a declining trend, if we take the mean across it, and there's some really high early numbers, and it means that, most of the time, even in that time series, you're not going to exceed it. Then, if the ABC is 75 percent, which is the default in this Tier 3b, you still wouldn't have exceeded it in that time period, except in the very first year.

MR. GREGORY: Originally, this was set up for us choosing a ten-year period that had level landings, and so, yes, things would change if they're not level landings.

CHAIRMAN NANCE: No, I think that's 3a. 3a is all that level landing business, and this is we've gone to this is our last resort.

DR. CRABTREE: If the management stays the way it is now, it would be then summed with the yellowedge grouper ABC, and that would be

the deepwater quota under the IFQ program, and I don't remember what the yellowedge ABCs were at 40 percent, but I suspect --

CHAIRMAN NANCE: (Dr. Nance's comment is not audible on the recording.)

DR. CRABTREE: Well, I think there were tables though that were in -- I apologize, and I did cheat and look ahead, but I think the biggest fraction of the quota would be yellowedge, and, I mean, you're right, Doug, that there would be no increase in the quotas, outside of doing an assessment or something to move it into a different portion of the control rule.

CHAIRMAN NANCE: Will, please.

DR. PATTERSON: So there's been some work done, in recent years, on snowy and warsaw, and so Beverly Barnett published a paper, a few years ago, where she looked at the age composition of the warsaw data, and she used a model, tailored out to 2010, to estimate what the fishing mortality rates at MSY were and then what the current Fs were, and then Sanchez later did it by decade, on the warsaw data, and showed a declining trend in F over time.

There are age composition data, and we don't have it in front of us here, for at least warsaw, and there is also snowy grouper data, from an earlier paper by Sanchez as well, and so I don't know that how that plays into our discussions, but, anyway, I just thought I would throw that out there, that there has been some analysis here, and this box that we find ourselves in -- I think there are some data-moderate approaches to examine some of these patterns, where we can actually look at the population dynamics of the stock, just using the archived otoliths that exist.

CHAIRMAN NANCE: Because we have -- It's been pointed out we have a decreasing trend, but I think, as Will pointed out, if we take the mean of the entire dataset, we've got highs and lows, and it's not really been -- No one year has gone over that mean value.

MR. GREGORY: What dataset are you all referring to?

CHAIRMAN NANCE: The one that they were showing.

MR. GREGORY: We don't have that on our computers, or on the website, do we?

DR. FROESCHKE: Yes, and it's on the website in the briefing materials.

MR. GREGORY: It is?

DR. FROESCHKE: Yes.

MR. GREGORY: Okay. I'm looking at -- I've got a file that says "ReadMeOtherDW", and that's landings, and then Tier 3a.

DR. FROESCHKE: Tier 3a is the tab with the chart and stuff.

DR. PATTERSON: I apologize, and I said 289,000, and it's 233,000.

DR. FROESCHKE: No, and that one you don't have.

MR. GREGORY: What ten years did you use?

DR. PATTERSON: The most recent ten years.

MR. GREGORY: That's highlighted in orange?

DR. FROESCHKE: Jess, would you put the other deepwater grouper landings in Tier 2, or Tier 3a?

CHAIRMAN NANCE: Well, we can, and we have the opportunity with using the 3b control rule, and it says a time series of at least ten years is recommended to compute the mean of recent landings, but a different number of years may be used to attain a representative level of variance in the landings, and so we could use the entire timeframe, if we wanted, if we felt like that gave us a good enough variance that we were comfortable with it.

In this discussion, I don't think there's anybody not advocating for something other than Tier 3b. I think that's kind of where we're moving towards, and it's a matter of what timeframe we would like to use in that. Doug, please.

MR. GREGORY: Back to Will, and so you take the average of those ten years, and you get 233,000, and four of those years exceeded that, and so four out of ten, right?

DR. PATTERSON: Yes, and so what I said was -- I miscalculated before, and I said that it was 289,000, and so the 233,000 is correct. I had one extra year in my time series that caused it to shift a little bit higher.

MR. GREGORY: If I may.

CHAIRMAN NANCE: Yes, please.

MR. GREGORY: So my original concern then comes back. With this data, four out of the ten years exceed the average, and so, from a management standpoint, there's a high likelihood of closures.

CHAIRMAN NANCE: But let's pretend we used the entire data stream, and not just the last ten years.

MR. GREGORY: Well, the logic is the same, and if ABC is 75 percent of that --

CHAIRMAN NANCE: Well, the logic is the same, but the number is not.

DR. CRABTREE: I mean, remember too that this is -- Set aside the rec, and this is an IFQ fishery, and so it's -- They're going to fish the quota. When I just look at this, there's not really a stable -- But it does appear, to me, that, from 2010 to present, it's a little more stable, maybe, than the early years, which seem to be quite a bit higher than post-2010.

CHAIRMAN NANCE: Will.

DR. PATTERSON: Doug, I mean, your statements about management are correct, but the control rule was put in place this way because, if there was a declining trend, we felt we should be more precautious. We don't know what's causing the decline, but there's a declining trend, and it could be caused by lower stock biomass, and so, without any other information, the precautionary approach would be to set a more conservative OFL, which would be the mean of this, instead of the mean plus two standard deviations, and the ABC would be 75 percent of this, unless we went to 85, or 65, for whatever reason, but that was the reason the rule was written that way, because, if you had a declining trend, and not a stable trend, you should be more precautious.

CHAIRMAN NANCE: Doug and then John.

MR. GREGORY: I agree. I am also -- I apologize for being so confused by all this, but another thing that has got my attention is I think it was with the data caveats, and we were cautioned not to use any data prior to 2013, or was it just not to use MRFSS data, but it's like the APAIS survey began in 2013, and it's been incorporated in both MRIP-CHTS and FES from 2013 on. APAIS, prior to that, has only been made to FES, and, therefore, don't use MRFSS data, but is the MRIP-FES data valid throughout the entire time series, or just since 2013, because of APAIS? That's my confusion now.

DR. FROESCHKE: Well, I had a chat with SERO, and, Jessica, if she's still on, can jump in, but it's my understanding that the FES is not part of that caveat, and so the MRIP-FES data are appropriate for use, whatever time series you want to use it, and MRFSS -- I mean, for kind of the reasons we discussed, isn't -- I don't think that that's the way you all would want to go anyway.

CHAIRMAN NANCE: John and then Jason.

MR. MARESKA: So, currently, this fishery is being managed as yellowedge, as the indicator species, or no? They're doing it separately?

DR. FROESCHKE: It's a complex, and it's just all the stocks are just added up together.

MR. MARESKA: Okay. Well, we just had this conversation about recommending that yellowedge be moved up to 40 percent SPR, and we've got the two primary species in this aggregate declining, and I don't know how much we know about it, but these landings trends are assuming a 30 percent SPR, right, and so, if these species were also -- If they also required a 40 percent SPR, a more conservative approach is definitely the way we should go.

CHAIRMAN NANCE: John.

DR. FROESCHKE: I mean, when these were calculated, using the data-poor -- I mean, you really can't use the Tier 3a and map that to a particular SPR, and so for whatever that's worth.

CHAIRMAN NANCE: Harry, please.

MR. BLANCHET: I will pass.

CHAIRMAN NANCE: Sorry it took so long. Jason, did you have a question?

MR. ADRIANCE: Thank you, Mr. Chair. In that landings graphic, I don't know if we can look at that entire declining trend as part of this, because I think trip limits were in 2004, and then the IFQ was 2010, and so that 2010 forward might be more reflective of the trend, and I just wanted to throw that in there.

CHAIRMAN NANCE: Do we need to recommend years, John?

DR. FROESCHKE: Yes, and what I was thinking is, if you wanted it kind of similar to the other one, if you give me the years and the tier and the settings, and I will go through and make sure that we

have all the calculations correct and just provide it tomorrow.

CHAIRMAN NANCE: You probably need a motion, but I think we're satisfied -- I mean, I can't hear anybody saying other than 3b. Then it's a matter of the years, the number of years, that we would want to see as our trend. Roy.

DR. CRABTREE: The grouper-tilefish IFQ program did begin in 2010, and so it would make sense, to me, to go with Tier 3b, use the years 2010 to, what is it, 2022 is the last year we have, and then that's the OFL, and the ABC would then be 75 percent of that.

The SSC recommends that the OFL for snowy, warsaw, and speckled hind be based on Tier 3b of the control rule and that the time series be 2010 through 2022.

CHAIRMAN NANCE: Will.

DR. PATTERSON: Do you want to handle ABC in the same motion?

CHAIRMAN NANCE: Yes, I would.

DR. CRABTREE: And that the ABC be 75 percent of the OFL.

CHAIRMAN NANCE: Okay. We have that motion by Roy, and do we have a second? Will. Thank you. Any discussion on that motion? Any further discussion? We've been discussing it for a little while. Yes, Jim.

DR. TOLAN: To that time period beginning in 2010, has the overall quota for this IFQ fishery changed at all, because we're going with that number moving forward, and I just want to make sure it hasn't changed.

DR. FROESCHKE: I'm going to have phone a friend. Carrie, are you indicating that it didn't? I don't know, off the top of my head.

CHAIRMAN NANCE: Jessica.

DR. STEPHEN: I've got the quota, and so the quota went up in 2012, and then it lowered in 2013, and it lowered again in 2014, and then, since 2015, it has remained stable, at just over a million pounds, from 2016 through 2022, and that should be in our annual report, and I think council staff should have access to that, and they can show it from Table 13.

CHAIRMAN NANCE: Thank you. Carrie, did you have anything else? Okay. That doesn't make it very long, but it sounds like -- In my

mind, we put a quota in, and it was quota-less before that. In 2010, there was a quota put in, and it has fluctuated a little bit through time, but at least, with 2010 through 2022, we're at a quota in there. Trevor.

MR. MONCRIEF: Just 75 percent of that calculation is 183,000, which means only the last three years would have not exceeded the ABC. 2020 was large-scale market disruptions, and ultimate chaos, which could be carried through, or there could be a stock concern, but it's just very conservative.

CHAIRMAN NANCE: Sean.

DR. POWERS: Have we come close to meeting the quota? Have they come close to meeting the quota? How close have been approaching the quota?

DR. FROESCHKE: Not a precise figure, but, off the current quota, not close, but, the numbers that we're talking about here, we would be making full use of it, I expect.

DR. POWERS: I guess that's it, because Doug and I were talking about Doug and I were talking about whether to interpret this as a concerning trend, and so it's not an artifact of the quota. I mean, they haven't even come close. Okay.

DR. CRABTREE: John, in one of the IFQ reports, we should be able to pull out what the -- How much of the deepwater quota has actually been caught, and that would include yellowedge, but --

CHAIRMAN NANCE: Jessica, please.

DR. STEPHEN: I have the numbers that Roy was talking about, and so, for the quota for deepwater grouper, since the IFQ program started, we've been between 55 percent, is the lowest, and the highest has been 94 percent. The 94 percent occurred back in 2014. Excluding 2022, we've been between roughly 80 percent to 93 percent, for the more recent years, and the majority of that is yellowedge grouper.

CHAIRMAN NANCE: It's almost like Jessica still works for you, Roy. Thanks, Jessica. I appreciate that. Trevor, on your comment, and kind of were you saying it was too conservative, or I missed what you were trying to -- I apologize.

MR. MONCRIEF: I mean, 183,000 pounds would basically mean that, for the last three years -- Those are the only years that the fishery has been under the ABC, and it just seems like, given --

I'm sure, with the assessment and all that stuff, and overfishing is indicated, and things like that, and it seemed like most of the stuff there was stable commercial catch.

Given 2020's impact on the market and everything else, and being able to move fish, it just seems like either we -- So we recommend it, and we truly -- Things go well, and we're conservative, and things with the population go well, or we make this recommendation, and we're really reading into a potential false signal, and then incurring punitive management actions on this fishery across-the-board, which I know isn't something that we necessarily talk about, but it just kind of sticks out to me a little bit when you put that level that close.

CHAIRMAN NANCE: Will.

DR. PATTERSON: The rationale there of trying to capture what the trend is in the fishery, or in the population, versus external factors, such as COVID and market disruption, et cetera, and so, if you -- One thing that we could do, potentially, is start in 2010, but end in 2019, and, that way, we're kind of skipping over what could be COVID effects, and we're only dealing with that pre-term.

CHAIRMAN NANCE: Doug.

MR. GREGORY: We also have FES effects here that we know about, and don't talk about, and can't do anything about, and I think I heard Trevor say this, because I wasn't paying attention at the time, and I was lost in these tables, but, to me, the most scientific advice we could give would be to have yellowedge grouper as an indicator species for the deepwater groupers, monitor yellowedge, and set the level, and they all live in a similar environment.

I don't know about the maximum ages, and age-at-maturity, of all of them, but we're jumping all over the place here, kind of guessing, and that -- We've done that before, used indicator species, and I don't know what the effects of that would be, but it's the most logical thing that I can think of.

CHAIRMAN NANCE: Roy.

DR. CRABTREE: We have a control rule that's been approved by the council and put into the FMP, and we're applying the control rule. That is the way the council laid it out, and what they set up to guide us in these kinds of situations, and so, I mean, I would be a little worried, Will, if we start tossing out a couple of years

here, and it almost seems like we're trying to do that just so we get a little higher -- That gets tricky, to me, but, I mean, I agree with all these concerns, and it is -- Maybe it's a low number, and I don't view any of this as punitive or anything, and we're just in a data-poor situation, and we've been asked to come up with a catch level, and we're applying the control rule to the data that we have. I'm not sure what else we can do.

CHAIRMAN NANCE: Josh, if we use those other years, what was the change?

DR. KILBORN: It would only get about 30,000 pounds more if you bumped back to the 2010, to that ten-year time series.

CHAIRMAN NANCE: Thank you. I know that having an indicator species -- Do you still monitor the other species, or do you just basically say yellowtail is -- If they're doing well, we assume that everybody else is? John.

DR. FROESCHKE: To my knowledge, we have not used the indicator species in the Gulf. The problem that I see with this is, with an IFQ, you really do have to figure out the poundage, because, when it comes to distributing the shares, and so you're going to take whatever you get for the ABC and just say that's the ACL, and you're going to have to apportion that in some either implicit way, or actual way, between the recreational and the commercial sector, and so, whatever you get, and say it's 800,000 pounds for the commercial sector, if you only use the yellowedge, that's all you would have, but whatever else you would --

If they're using an indicator, there's no way to have any other pounds to put in the IFQ as a share, without having actually some quota, and so, really, your whole quota for all the species, would just come from the yellowedge, as I see it, unless you start making assumptions about the relative percentage of this species relative to another, and, you know, you're pretty deep in assumptions there again.

CHAIRMAN NANCE: Harry.

MR. BLANCHET: I'm not sure that I understood everything that John just said, but maybe that's irrelevant. One of the things Will had said earlier was that there was some additional information, at least on snowy and warsaw, that we might want to take a look at with regard to what the current stock status is, and I think, before we end up jumping up off the shark board, we ought to at least take a look at that.

Maybe that means that we don't do it at this meeting, but we should at least take some look and see if we do see something that requires 3a, and we do the default 75 percent, or do we do higher or lower than 75 percent, and I believe we have information that might give us more information, more guidance, than we currently have for what we're doing. Thank you.

CHAIRMAN NANCE: Thank you, Harry. Doug.

MR. GREGORY: I see the problem that, you know, John highlighted, and it's probably -- The only thing I can think of is you calculate an ABC, a constant ABC, for yellowedge for five years, and you see what percent reduction that is from the current year, or the current past five years, and you do the same think with the other species collectively, and have an overall quota, but that may be overly complicated for the system.

CHAIRMAN NANCE: Dave.

DR. CHAGARIS: I just had a comment, probably along the same lines of Harry, and, I mean, with the information we have in front of us, you know, I think we just follow the procedure, and the recommendation, but, you know, the sad part is that there's a lot of other information out there that we aren't seeing.

There's a bottom longline index, and what does that say these species are doing? There's age data, you know, that we could potentially look at, and so, unless we're going to defer to another SSC meeting, where that information could be provided to us, I don't see how -- You know, we're just going to speculate, and split hairs, until we all agree, and so, you know, I say we stick with the procedure, unless more information is brought to us.

CHAIRMAN NANCE: Josh.

DR. KILBORN: Thank you. I'm curious. In the scope of work for this agenda item, one of the things that it said we should be potentially discussing is moving yellowedge grouper out of the complex altogether and managing them separately.

CHAIRMAN NANCE: Yes.

DR. KILBORN: I don't think we've had that discussion, and I feel like it would be helpful. Did we decide to do it?

CHAIRMAN NANCE: We can't decide to do it.

DR. KILBORN: Right. That's what I thought, and so that was part

of my confusion, was that I thought it was a sticky wicket, when it came to yellowedge, but getting an answer to that would help this conversation drastically.

CHAIRMAN NANCE: John.

DR. FROESCHKE: Well, I kind of mentioned that I don't know how we're going to handle this from a management side, and, you know, we're dealing with the shallow-water, but, in order to have a split complex, we need separate ACLs, which is sort of this would be step-one to even allowing that discussion.

DR. KILBORN: Thank you.

CHAIRMAN NANCE: Will, on those other -- Are you familiar with those other papers and things? Would bringing those to a subsequent meeting help in this discussion?

DR. PATTERSON: I can't speak to how other people would interpret them.

CHAIRMAN NANCE: I mean, does it have information that would be relevant to this discussion?

DR. PATTERSON: I've got them together, and I'm going to send them to Meetings, and then people can do with them what they want.

CHAIRMAN NANCE: Thank you. I think that would probably be -- We could look at those tonight, and we can table this right now, with this motion, and not vote on it, and then, in the morning -- If we have a chance to look at those other items, and does it add to this discussion, and are we happy with what we're doing, or do we want to wait to a subsequent meeting, after we've had time to maybe delve into those papers more sufficiently. Paul.

DR. MICKLE: (Dr. Mickle's comment is not audible on the recording.)

CHAIRMAN NANCE: He said three papers. Sean.

DR. POWERS: But that doesn't get at Dave's suggestion, which is does the bottom longline tell us anything about this? I mean, I'm not sure -- It would be interesting, and, I mean, I know they can't analyze it, but it would be nice to know if it's even possible, and like I'm sure somebody can query and see just how many of these were caught on the bottom longline over the last couple of decades.

CHAIRMAN NANCE: Katie, do you have any idea? I am just throwing

this -- I don't think a lot of these are caught in the bottom longline, but I'm not going to say that, because I don't know, but it just would seem like they're going to be a rare species in that survey.

DR. SIEGFRIED: I can take a look at the data-limited SEDAR 49, or something where they looked at what was available, and then get back to you, but I would doubt it.

CHAIRMAN NANCE: Okay. Skyler, did you -- Okay. It would just be interesting, I think, from the standpoint of is there three over fifteen years, that type of thing. Jason.

MR. ADRIANCE: Thanks. Just more of a clarification question, and did I hear there were two quota regimes in this timeframe, and, if so, if one was higher, and the more recent is lower, is it even appropriate to have those two averaged, if they couldn't even fish to that previous quota? That's just a thought.

CHAIRMAN NANCE: Yes, and I think let's look at that stuff, and let's go ahead and table this for now, I think. Doug.

MR. GREGORY: Katie, is there a table of deepwater species by year with yellowedge grouper just separated out in an adjacent column? I mean, my impression is -- Do we have that?

CHAIRMAN NANCE: Jessica, just bring that table up, the one that --

MR. GREGORY: I can't read that. I'm sorry.

CHAIRMAN NANCE: No, no, no. There you go.

MR. GREGORY: Because my impression is that yellowedge is way the major species. I can read that now.

CHAIRMAN NANCE: Anyway, and so that table gives you all the information, as far as catch for each of the different species.

MR. GREGORY: So the other species really are relatively minor, relatively, and the bottom longline index for yellowedge would probably apply to the other species as well. I don't know if we need to wait for a whole deepwater --

CHAIRMAN NANCE: I was just thinking that the bottom longline probably has miniscule amounts of those other three caught, and so I'm not even --

SSC MEMBER: (The comment is not audible on the recording.)

CHAIRMAN NANCE: Well, I don't know about that, but we'll see, but, at least if it's easy to pull up, we can have it, but there are not going to be very many, in my opinion. Jessica, please.

DR. STEPHEN: I had an answer for you on the differences in the quotas, and so the quota, at its lowest, was 1.02 million pounds, and, at its greatest, it was 1.127 million pounds, and so, really, within the IFQ years, the commercial quota was only different, at the most, by around 100,000 pounds, and it's been relatively stable.

CHAIRMAN NANCE: Thank you.

MR. GREGORY: What year did it change?

DR. STEPHEN: So it changed in 2012, from 1.02 million pounds to 1.127, and that was in early January, and we did a quota increase. In 2013, it went down to 1.18. In 2014, to 1.11. In 2015, to 1.101, and then it remained, in 2016 onward, at 1.024. I will go ahead and grab these out of the annual report and send it to Meetings, so you guys can have it available.

MR. GREGORY: Thank you, but why did the quota change?

DR. STEPHEN: So that was part of the ACL, Generic ACL, Amendment, which set the quota, and it raised it up and then set it on a decreasing stream. Also keep in mind, in 2012, we removed misty grouper from the deepwater quota.

CHAIRMAN NANCE: Thank you, Jessica. Harry, please.

MR. BLANCHET: Thank you, sir. Whenever somebody sends me a spreadsheet, that's dangerous, and so, if you look at that same table you're just looking at, and the three species we're talking about, through 2014, they were somewhere north of a third of the total, or, sorry, north of a third of what the yellowedge groupers were.

After -- From 2015 on, it's more like 20 percent of the yellowedge grouper landings, and it's pretty consistent from about 2016 to 2023, or 2022 at least, at right at 20 percent, and so, if you were talking about how do you set a quota for the group, I think that adding 20 percent of the yellowedge grouper quota to the total, to account those other landings, might be as good at that as you're going to get.

CHAIRMAN NANCE: Okay. Thank you. We'll make sure we don't send Excel to you, and we're just going to send a paper copy.

MR. BLANCHET: PDFs only, and make me copy them.

CHAIRMAN NANCE: Do I hear -- Let me ask you this. Is there any issues with holding this until tomorrow? Okay. The motion, and so we'll have to do -- I want to do it very first in the morning, so that we're not -- We have some big agenda items tomorrow, and so we don't want to have -- We shouldn't have a long discussion on it, but so we'll table this motion until tomorrow, and come prepared to -- We'll talk on this motion for fifteen minutes, or something like that, and then we'll be able to either say yes or no. Trevor.

MR. MONCRIEF: We can talk through the merits, or not, of lumping them in or splitting them out, right, even without making that decision.

CHAIRMAN NANCE: John.

DR. FROESCHKE: I guess, the way I see it, you sort of get back to the same thing, and say, if you have 800,000 pounds of yellowedge, and you say, okay, 20 percent, just for easy math, to make it a million pounds. You lump all those together, and my understanding, if we have a yellowedge quota of 800,000 pounds, when you hit that, they're going to have to stop fishing for yellowedge, and so you're still going to have to have some way to piecemeal this out.

I don't know how that's all going to work, and, I mean, it's the same thing with the scamp assessment, and so we're going to have to work on that, but I don't know the answer, but, based on the discussions, and maybe Mara could even speak to that, but it doesn't seem like there's just an easy way around this, because the question of -- Now that you have a species-specific quota in a complex, and what do you do? You know, once you hit it, it doesn't seem like you can keep fishing.

MR. MONCRIEF: Yes, because, I mean, the most difficult part is, if this one closes, and the main player, yellowedge, stays open, because then you're talking about a mainly bycatch fishery, and, just like our man said earlier, throwing dollars over the side doesn't really make much sense.

CHAIRMAN NANCE: Mara, please.

MS. LEVY: I think we're going to have to talk about it some more, but I will note that, in the Generic ACL Amendment, yellowedge --

The recommendation did come from an assessment, and it came from SEDAR 22, and then the other three came from the control rule, and they got added together, and then we had an ACL that was then reduced to an ACT for the quota, and so you had the rec was supposed to be the difference, and you had the commercial side that had the quota, and we monitor, and we react, based on whether there's an overage of the ACL.

I'm not sure, moving forward, what we would say about justifying that at this point, but we did do it, and so I think that we're going to have to look at the options about how the council wants to manage it, if it's going to stay the same in the IFQ system, how we're going to account for things, and address yellowedge, if it does have an overfishing problem, but all of that needs to get discussed, but, ultimately, you know, the council needs advice from you on what the appropriate overfishing limits and ABC recommendations are for these various components.

CHAIRMAN NANCE: I think what we're looking at -- In my mind, what we're looking at right now is, tomorrow, we will see projections for yellowedge, and we'll be able to have an OFL and ABC for that, and I think, with this motion, moving forward on it, hopefully tomorrow, we would have an OFL and ABC for the other three species in that complex, which I think would be additive for the complex. Will.

DR. PATTERSON: The one thing that causes me heartburn in all this discussion about deepwater groupers is that, for yellowedge, we're projecting for this lower recruitment in the projections, estimated recent lower recruitment, but we can't point to anything in the data that would suggest there are stock dynamics that are driving that signal.

There's nothing that we've looked at yet that's like, okay, well, that's where it's coming from, weak year classes coming through, the age comp, and no, and the observations are greater than the model predicts, right, and so there's nothing there that really is driving that signal that we've been able to identify, and that has big implications for the projections.

If it was a case of lower recent recruitment, and we could actually point to data that said, okay, well, this is what the model is picking up, it would be one thing, but, instead, recruitment deviations are sort of a catchall in these models, and we haven't been able to identify where that's coming from, and that gives me pause.

CHAIRMAN NANCE: Thank you. Okay. We'll go ahead and table this

until tomorrow morning. Do we have -- Let me ask -- Yellowtail snapper, let's do it, and so, basically, we're going to do Item Number X, and it should take a half-hour, which is the Review of SEDAR 96 Southeast Yellowtail Snapper Operational Assessment Terms of Reference and Participants for the Recreational Data Topical Working Group. Who is going to do that one? Is that you, Lisa? Okay, because it's usually Ryan.

DR. FROESCHKE: Let's skip that one until tomorrow.

CHAIRMAN NANCE: Okay. We'll skip it until tomorrow. Okay. Let's go ahead then, and I will -- I'm going to open it up for public comment, and we'll go ahead and open it up for public comment. Jessica, if there's anybody online. Mr. Zales, I know you would like to do that, and so Julie Neer. Okay, let me ask -- Julie. Maybe Julie is the one that is supposed to do it. Anyway, Julie, if you're on.

MS. MATOS: You're unmuted, but we cannot hear you. Maybe you need to log out and log back in.

CHAIRMAN NANCE: We'll wait for just a minute and see if Julie comes back on, and it may be that she's doing that, because the State of Florida is the one that is -- It's an operational assessment, and so it's run out of SEDAR.

DR. JULIE NEER: Can you hear me now?

CHAIRMAN NANCE: Yes, Julie. We can hear you.

DR. NEER: Excellent. Yay. Sorry. I am in the car, and I was racing home to get there, so, if you wanted to do this, I would be there, but I didn't make it, because I'm stuck in traffic.

CHAIRMAN NANCE: We can --

REVIEW OF SEDAR 96: SOUTHEASTERN U.S. YELLOWTAIL SNAPPER OPERATIONAL ASSESSMENT TERMS OF REFERENCE AND PARTICIPANTS FOR RECREATIONAL DATA TOPICAL WORKING GROUP

DR. NEER: No, I can do it. You can drive the presentation, and so just a quick history, and so this is yellowtail operational assessment that got put together kind of at the last minute, and you guys will recall there was a SEDAR 64, I believe, yellowtail snapper assessment, and it took quite a while before it got to the councils for management advice, and the councils were worried that the terminal year was way too old, and so they requested what was called a catch analysis, that you all reviewed in 2022, and they

made some recommendations.

Then the information on the FES potential issues came to light, and both the South Atlantic and Gulf Councils -- This is a joint assessment, and both councils thought it would be a great idea if we could rerun the yellowtail snapper assessment, looking into using the SRFS survey in place of the MRIP-FES survey, and everybody said, yes, let's do that, and so that's what we're doing right now.

It's going to be done as soon as we can get the numbers, and the data will go through 2023, and it's going to be done, and hopefully it will be done by the end of the year. As I said, it's an operational assessment, and it's going to have one topical working group looking at the recreational landings streams, essentially, and weigh-in on whether we can sway MRIP and put in SRFS and then run the assessment again to provide the councils more updated information.

What you have in front of you are terms of reference, and these have already been approved by the South Atlantic, or recommended by the South Atlantic SSC, at their meeting a week-and-a-half or two weeks ago, and so, if you guys wish to add anything, that is perfectly acceptable. If you wish to take anything away, that will require us sending this all back and putting this whole assessment back several months, until it can get back to the South Atlantic, and so please keep that in mind. Additions are fine, and removals are a much trickier topic with a joint assessment, and so you guys can just look through it.

It's your standard operational for the Gulf, but the South Atlantic is the lead for this -- For the management for this, and so it has South Atlantic management requests in there, under that bullet, and so they might look a little different from what you guys normally see, but it's what the South Atlantic requests. If you want to add something else, that's not in there, please feel free to do so.

CHAIRMAN NANCE: Thank you, Julie. Doug.

MR. GREGORY: This does look familiar, but I think I make this suggestion every time, and that is, like where you have "MSY", and you've got "or proxy", put what the proxy is currently, and I think it's 30 percent SPR, but the proxy should be there and not just as a blank. That's all.

DR. NEER: Well, sometimes the analysts recommend some other proxy to what was already on the books, but, yes, your point is well

taken, Doug, and we can look into that, and I don't know what it is with the South Atlantic, and I will check.

MR. GREGORY: I mean, that's fine. I mean, we always look for the analysts, or the SSC, to recommend something different, but the starting point is what we have now, and it's just to be clear, and it's a minor thing.

DR. NEER: No, but it's a good idea, and I will track it down.

CHAIRMAN NANCE: Has each of you looked over this? It was in our packet. I looked over it, and I didn't see anything that I wanted to remove. Does anyone else have anything that they would like to see different in here? This has been going for quite a while now. It's basically we were using FES values, and they're changing it now to SRFS, and that's basically the change.

DR. NEER: Yes, and that's what they're trying to look at.

CHAIRMAN NANCE: They need -- So we've seen this before, but it's just think of the FES is now SRFS, but we -- I think the main thing is we're looking for individuals to serve on a topical working group panel to look at the recreational data, if there is any issues with that during that portion. Doug.

DR. NEER: Yes.

MR. GREGORY: I will volunteer.

CHAIRMAN NANCE: Okay. Doug will volunteer. Jim. I've been doing this for a couple of years, and I will go ahead and volunteer, also. Anyone else? Okay. So, right now, we have Doug, Jim Tolan, and Jim Nance to serve on that topical working group for this species.

DR. NEER: Excellent. Then is the SSC going to -- Do you plan on making a motion saying that you recommend that these terms of reference are acceptable, or whatever language that you guys normally use?

CHAIRMAN NANCE: Okay. Doug.

MR. GREGORY: I've got a question for Julie. With going to SRFS, do you know if the analyst is going to look at the FES and the SRFS data and compare them, the calibration, and see how -- Do the model with both, or in some way, like a sensitivity? Is that in the works?

DR. NEER: Yes, and so the working group, this topical working group, will actually make a recommendation on what to use for the base model, and it's not a guarantee that it's going to be SRFS. We have to get the FES, to use the method that they've been using essentially for gag, and what we're going to use for mutton, to determine and develop a series back in time for those numbers, for the recreational landings, so that SRFS can be applied, and then that group will recommend -- The topical working group will recommend if it should be done, and I would be terribly surprised if the State of Florida did not run a sensitivity using MRIP, if it fact you decide SRFS. If you decide SRFS, then they will likely run a sensitivity using the other one, but that's what that topical working group is supposed to be doing, is making a recommendation on which of those they feel is most appropriate for the base model, versus a sensitivity run.

MR. GREGORY: Thank you very much. That's going to be interesting, because my curiosity is that, when we went from CHTS to FES, it made a big difference in the assessment results, but, in gag, when we did the State of Florida data calibrated to FES, it was a very minor difference, and I don't fully understand how, if you're increasing the numbers, you have a major difference, but, if you decrease the numbers, it makes almost no difference whatsoever in your end result, even though, side by side, Florida data is 40 percent less effort than MRIP, and the end result in the stock assessment was minor, minor differences, and it's just a curiosity of mine, and that's why I'm interested in participating.

CHAIRMAN NANCE: Do we have a motion to accept these terms of reference?

MR. GREGORY: I will move. I will do something right today.

CHAIRMAN NANCE: Okay. Do we need a motion? Doug, go ahead and move to have --

MR. GREGORY: Move to accept the terms of reference for the yellowtail grouper projections, and it's not going to be a stock assessment.

DR. NEER: Yellowtail snapper operational assessment, is what it is.

MR. GREGORY: That works. I even messed that up.

DR. NEER: Well, it's confusing, because the item says "Southeastern Yellowtail Grouper Projections", which is not correct, and so it's not your fault.

CHAIRMAN NANCE: Roy seconds it. **Do we have any opposition to accepting this motion? The motion is to accept the terms of reference for the yellowtail snapper operational projections.**

DR. NEER: Operational assessment, the whole thing.

CHAIRMAN NANCE: Okay. **We'll go ahead and change in the motion, Jessica, "projections" to "operational assessment", and then take out "projections".** Perfect.

DR. NEER: Thank you.

CHAIRMAN NANCE: Okay. **Any opposition to this motion? Seeing or hearing none, it carries.** We'll go ahead and have public comment now. Mr. Zales, we'll go ahead and have you come up. If there's anybody else online, Jessica, please let us know.

PUBLIC COMMENT

MR. ZALES: Bob Zales, II. Thank you. This leads into some of my comments, and clearly we know, without a doubt, that MRIP-FES is just all over the map, right, and, I mean, everybody has got problems with it, from Maine all the way through Mississippi, because Louisiana and Texas do their own thing.

Even though it's not a big thing in yellowedge, or the deepwater thing, it still has an impact, and, when we know it's wrong, to us, we've got a problem with that. Clearly, the State of Florida is stepping up now, and it's nice to see that they're going to look at yellowtail with this, because they're doing gags, and they're hopefully going to end up doing reds, and the other thing is, when you all are discussing the deepwater grouper, please don't rush into any kind of a motion to request the council do anything.

We went through this in January of 2020, when you all rushed to judgment on FES, and it has created a host of problems with the social and economic impact to all the fishers, whether you're commercial, recreational, or charter, and it's created havoc in everything, because of the way those numbers have played out in stock assessments and quotas and closures and the whole bit, and so, before you make your decision, consider the impact on the industry and the people that fish, and so, other than that, that's pretty much it. Thank you.

CHAIRMAN NANCE: Any questions for Bob? Let me ask, and so, from a rush to judgment on FES, and I guess I have a question on that.

MR. ZALES: Okay. If you remember, FES was first used in the red grouper assessment, right, and, at the council meeting in October of 2019 is where that was moved to you all for your meeting in January. Until that time, FES had not been considered as the best available science, and, now that we know for sure certain, because the Fisheries Service's own information says so, FES is wrong, and it overestimates by 40 percent, and so, to a lot of us, we'll still trying to figure out how you have best available science with data that you know is wrong, and so that's why I say the rush to judgement. If it had been considered, and we had waited a little bit, before that designation of BSIA was done, we probably wouldn't be in this mess that we're in now.

CHAIRMAN NANCE: Thank you, Bob. Anybody else online, Jessica? Okay. It's been a productive meeting, and I appreciate all your comments today. We'll go ahead and adjourn for the night, and we'll see you tomorrow at 8:30.

(Whereupon, the meeting recessed on February 27, 2024.)

\- - -

FEBRUARY 28, 2024

WEDNESDAY MORNING SESSION

\- - -

The Meeting of the Gulf of Mexico Fishery Management Council Standing and Special Reef Fish, Special Socioeconomic, and Special Ecosystem Scientific and Statistical Committees reconvened at the Gulf Council Office in Tampa, Florida on Wednesday, February 28, 2024, and was called to order by Chairman Jim Nance.

REVIEW OF OTHER DEEPWATER GROUPER LANDINGS DATA AND CATCH LIMITS (CONTINUED)

CHAIRMAN NANCE: Okay. We'll go ahead and call this meeting to order. We appreciate all in attendance, both at the meeting and online. I'm going to start off this morning with -- We're going to finish up the deepwater grouper complex, and we're going to bring up that motion.

We had the opportunity -- Will sent out three papers yesterday, and we had an opportunity, last night, to look at them, and so I'm going to -- We're going to vote on this amendment that we had yesterday, and either move it forward or be done, and then, after this vote, we're going to then get into our red snapper discussion

this morning.

Let me read the motion. **The SSC recommends that the OFL for snowy, warsaw, and speckled hind be based on Tier 3b of the control rule and the time series be between 2010 and 2022 and that the ABC be 75 percent of the OFL.** We'll take a roll call vote on this and then move on. I think we had enough discussion yesterday. John.

DR. FROESCHKE: I'm not voting, but, just real quick, Lisa has the numbers, if you want to put those in there.

CHAIRMAN NANCE: Okay. That would be good, and so we'll wait for the numbers in there, and then we'll go ahead and -- Harry.

MR. BLANCHET: I believe this will be quick, but I just -- In reviewing the papers last night, there were some differences between the two papers that provided estimates of Z, or Z and M, for warsaw, and, since we have one of the authors in the room, I was wondering if he could comment on what differences he saw between those two papers, if Will might --

DR. PATTERSON: I mean, obviously, the analyses were different. One uses a model that takes the full age comp of all the otolith samples that existed in the National Marine Fisheries Service Panama City archive and computed an F across the entire time series, and it produced a high estimate of the ratio of F to M, whereas the Sanchez paper, and I think it was by decade, and I haven't looked it in a little while, and sorry that I didn't look at it last night, and they showed a decreasing estimate of Z, or F, over time, and so that's the key difference. They used simple catch curves to estimate Z, or F, given the estimates of M, but that's why you saw a decrease in the estimated fishing mortality over time, because of regulations on warsaw.

MR. BLANCHET: Okay. I am just having a hard time trying to guess some of the logic, and trying to mesh the two papers together, and do you think there actually was -- Based on your information, that there is that fivefold difference between F and M?

DR. PATTERSON: Given the model, and the data, that was our estimate, and so over that full time series.

MR. BLANCHET: That's not a pleasant place to be.

CHAIRMAN NANCE: Sean. Go ahead, Harry.

MR. BLANCHET: I'm done.

CHAIRMAN NANCE: I mean, with that in mind, you can vote. Sean.

DR. POWERS: So just a clarification here, and so what -- For this complex, what we would do is, when we decide what the yellowedge ABC is, this will be added to the yellowedge, and so there is the chance -- For some reason, if warsaw just decided to bite hooks a lot more, than you have the possibility that you underharvest yellowedge and you overharvest, for that year. Okay.

CHAIRMAN NANCE: Doug.

MR. GREGORY: I'm curious what other species are caught in this deepwater complex, and I know about misty grouper, and I assume that it's such a minor species that it's not recognized in the IFQ program, and it probably has no consequence on this, and I don't know of any other groupers that occur down there, except for misty.

CHAIRMAN NANCE: John.

DR. FROESCHKE: I think that's just the yellowedge, and then there is the -- I believe it's scamp that you can land either as shallow-water or deepwater, and there's a whole exchangeability thing, and so, just for clarification, as far as how this will be wrapped up in like an amendment to do this, we're not sure, and so, I mean, the logical way, or the straightforward way, of thinking about it, yes, this would probably be added to the yellowedge, and I'm not sure -- There's some IFQ, and all this exchange stuff, and so we're going to have to work that out with the Regional Office, and figure out what the structure is, because of the IFQ program, but I don't think that really weighs into your decision here, but I'm just letting you know, in full disclosure, that we don't have all that worked out, just the same as we don't have it all worked out for shallow-water grouper yet.

CHAIRMAN NANCE: Luiz.

DR. LUIZ BARBIERI: Thank you, Mr. Chairman. John, is there an indicator species in this complex? That would make a difference, right?

DR. FROESCHKE: We've never used the indicator species in the Gulf, and the thing that is difficult about this, and we kind of talked about it yesterday, but the problem is, if you have an indicator species, then, for the IFQ, you still have to figure out how many shares to distribute, and so, if you just base it on the poundage allowed for the indicator, then you don't have any way to allow for the additional harvest in the other months, and so you still have to make some implicit level of allowable harvest for those

other ones, regardless of how you do it.

CHAIRMAN NANCE: Jessica.

DR. STEPHEN: I just wanted to point out that misty grouper is no longer federally managed, and so only the four species we showed you yesterday for the deepwater grouper are considered under the deepwater grouper category.

CHAIRMAN NANCE: Thank you very much.

MR. GREGORY: Thank you.

CHAIRMAN NANCE: Okay, Jessica. Let's go ahead and do a roll call vote, please.

MS. MATOS: Jim Tolan.

DR. TOLAN: Yes.

MS. MATOS: Rich Woodward.

DR. WOODWARD: I will abstain.

MS. MATOS: Steven Scyphers.

DR. SCYPHERS: Yes.

MS. MATOS: Jim Nance.

CHAIRMAN NANCE: Yes.

MS. MATOS: Will Patterson.

DR. PATTERSON: Yes.

MS. MATOS: Sean Powers.

DR. POWERS: Yes.

MS. MATOS: Trevor Moncrief.

MR. MONCRIEF: No.

MS. MATOS: Paul Mickle.

DR. MICKLE: Yes.

MS. MATOS: David Griffith.

DR. GRIFFITH: Yes.

MS. MATOS: Doug Gregory.

MR. GREGORY: Yes.

MS. MATOS: Harry Blanchet.

MR. BLANCHET: Yes.

MS. MATOS: Roy Crabtree.

DR. CRABTREE: Yes.

MS. MATOS: Luiz Barbieri.

DR. BARBIERI: Abstain.

MS. MATOS: Jason Adriance.

MR. ADRIANCE: Yes.

MS. MATOS: John Mareska.

MR. MARESKA: Yes.

MS. MATOS: Jack Isaacs.

DR. ISAACS: Yes.

MS. MATOS: Luke Fairbanks.

DR. FAIRBANKS: Yes.

MS. MATOS: Mike Allen.

DR. ALLEN: Yes.

MS. MATOS: Cindy Grace-McCaskey.

DR. GRACE-MCCASKEY: Yes.

MS. MATOS: Mandy Karnauskas.

DR. KARNAUSKAS: Yes.

MS. MATOS: Steve Saul.

DR. SAUL: Yes.

MS. MATOS: David Chagaris.

DR. CHAGARIS: Yes.

MS. MATOS: Josh Kilborn.

DR. KILBORN: Yes.

MS. MATOS: Dan Petrolia.

DR. PETROLIA: Yes.

CHAIRMAN NANCE: Okay. Thank you. **That motion passed.** That takes care of, for our meeting, the deepwater grouper complex. Do you want to do yellowedge first? Okay. I guess we can do -- I was just thinking to do those after red snapper, but --

SSC MEMBER: You're the chairman.

CHAIRMAN NANCE: I know, but it's just you think it's going to be fast. I'm going to do that after, and we're going to do red snapper. We're going to keep on the agenda like it is, and that was my thought this morning, and so we'll go ahead, and let's do the scope of work for -- Let's see. It's Item Number VIII, which is Review of SEDAR 74: Gulf of Mexico Red Snapper Research Track, and, just as a reminder, this is specific to that item, and the SEDAR process, for discussion, is another agenda item, that we will do separate, and so keep our discussion around each of those topics. Go ahead, and let's do the scope of work, Lisa, for Item Number VIII, please.

REVIEW OF SEDAR 74: GULF OF MEXICO RED SNAPPER RESEARCH TRACK

DR. HOLLENSEAD: Yes, Mr. Chair, and so, on December 12 through 15 of 2023, there was a SEDAR 74 for Gulf red snapper review workshop, and that was when that was held. Three CIE reviewers conducted the evaluation, and their reports are available as part of your meeting materials. The results of that review indicated that the proposed assessment model was not suitable, as presented, and made recommendations for modifying the model.

Today, Dr. Siegfried will present the Science Center's response to that review, and also offer some information for the SSC's consideration and input, and I also want to note that we also have

LaTreese Denson and Matthew Smith here as well, and they were part of that review process, and so they can help field any questions.

Please keep in mind, just as Jim had mentioned, that the first part of this discussion will focus on SEDAR 74. There will be an opportunity for some discussion focused on the reviewers' recommendations on the SEDAR process as a whole, and so, just for now, please focus any questions you have to SEDAR 74, and then we'll pivot that conversation back to the SEDAR process. Mr. Chair.

CHAIRMAN NANCE: Thank you very much. Dr. Siegfried. Katie, we're glad to have you here, and we'll turn the time over to you.

DR. SIEGFRIED: Thank you, Mr. Chair, and I just wanted to point out the reason that I'm presenting is because it's the Center response. LaTreese and Matt were the ones that built the model, and did all that work, and they're here to answer any technical questions, but I didn't want them to have to answer for the Center.

We're going to talk about our responses and our lessons learned, and, just as a recap for everyone, the review workshop participants are listed below. From the Center for Independent Experts, we have three different reviewers: Patrick Cordue, Matt Cieri, and Edwin Fuglebakk, which is fun to say.

From the SSC, Jim was our chair, and we had Mike Allen, Sean Powers, and Steven Saul. I already mentioned the Center team, and then we had a variety of observers. Pat, Dylan, J.D., and Tom Frazer were here.

The general overview, as Lisa mentioned, is their conclusion is that the current model configuration proposed by the team is not ready for further development by the operational assessment process without considerable additional work, and likely re-review by outside reviewers.

What happened, in this room, was a day-and-a-half each of presentations and then deliberations. The CIEs, and the SSC members holed up in Carrie's office, with the door open, for a day-and-a-half discussion, and, at times, from what I understanding, debating and arguing the points of their reviews. We provided -- Matt and LaTreese provided the data and the model presentations, but two supplemental presentations were provided to cover the age and length composition concerns that were brought up during the review and the effects of the MRIP-FES data. That was not presented, but it was available to the reviewers.

What we're going to go over today are both the main issues noted by the reviewers as well as some additional issues, and I grouped them that way because I think the top ones could potentially have ramifications for other assessments, and then the additional is -- - These are somewhat standard for what we see in CIE reviews, but there's a few points that I wanted to lay out there.

First, to start with the main issues, they started off -- A lot of what they went into really came down to a criticism of the research track process. This is all -- These are bullets that we've created that sort of encapsulate the general criticisms, and so there's no continuity, or bridging, analysis, like what you saw yesterday for yellowedge, which is standard practice for us with our operationals. We did not do a continuity, because -- I will explain that in a minute, or a bridging analysis.

The placeholder data are not acceptable, according to the reviewers, for example, unweighted compositions, although there were a lot of placeholder data, as was part of the research track process that were also included that were not mentioned by the reviewers.

There were no projections or catch advice, which is the design of a research track, and we did not provide those. There is no status determination, and there were not the base model diagnostics, and I will go over what those specific complaints were, and then the fact that a research track delays catch advice, and they argue that an operational-type assessment should be run simultaneously, so that catch advice is provided at the end of the process.

What I'm going to do, for each of these sections, is go over their specific complaints, or criticisms, and then provide our responses, and so, first, a research track was meant to start from scratch, in which a continuity is not really necessary or relevant, and true continuities are only useful when only recent data are being updated, and you take new data in the last couple of years, and you crank it through the same model, and make sure the model is not doing anything different, and there is no massive magnitude changes in the responses that you aren't anticipating, just to make sure that your model is basically behaving the same way it did the last time you did the assessment, and so we didn't provide that, for that reason.

A bridging analysis here was not done, but it is a useful tool during model building, and it's done when possible, like you saw yesterday when Skyler presented that extensive bridging analysis.

For SEDAR 74, a bridging analysis from two to three areas would

have been difficult to interpret. As you can imagine, we wouldn't know which data sources caused the shifts in the responses or whether the change is due to model fits or to an additional area, and so we didn't see the value in providing a bridging analysis, as we normally provide, in this case, where there is a difference in general model structure, but that's why we didn't provide that analysis here.

The research track assessments were meant to lighten the load on data providers and allow for preliminary data to be used during model building. The idea here was, for instance, shrimp bycatch was a placeholder. The Center is going over their -- And revamping their methodology for producing shrimp bycatch estimates, and so we used what was used in the last assessment as a placeholder, and luckily we had that last assessment to put in that placeholder.

When we've done a research track, like for scamp, we didn't have anything from before, and so, if we used a placeholder, which we did for some of the ageing data, until the ageing issue with a certain saw type was resolved -- You know, that's been done, and used, for our previous scamp research track.

The preliminary data, they do have their issues, and many preliminary data sources were used besides shrimp bycatch and effort. We used assumptions about rec landings, which was discussed amongst that group, and it explicitly stated that we will revisit these assumptions at the operational assessment.

We discussed composition weighting during our process, and there were survey ages that we're missing, that we said that we wanted to include at the operational stage, et cetera, and there were a bunch of things that we knew that we were going to need to bring in and modify during the operational, and that we let be preliminary, because the idea was to lighten the load on data providers at the research track phase.

Having that OA in the future, we do agree, led to more preliminary data decisions, and, obviously, during a standard benchmark process, none of these things get kicked down the road. There's no can kicking, and it's all done at the data workshop for the benchmark, and so that was different here.

One of the objectives of a research track, according to our guidance, was to create a model structure. The projections, and the catch advice, were provided as a follow-up step for the operational, and that's the same way it was done for scamp, and these reviewers very strongly disliked that.

The status is also not provided, because it's determined by equilibrium projections, which are not run for a research track, and so they're not going to be -- You know, if we're not doing those projections, we can't even provide status, and, additionally, if we don't have all of our data finalized, we shouldn't by providing status. That should only be provided when your model is completely calibrated, full of all the current data, and diagnostics are fully run. At that point only should people provide a status from their models, in our opinion.

We did not provide the final base run diagnostics, but a number of other diagnostics were provided throughout the presentation, assessment report, and assessment process. I will go over some of those, and I will define what base run diagnostics are here in a minute, and, I mean, I think this is obvious, and I know the SSC members of the review panel understand this, but we can't support a research track and operational for the same species simultaneously.

It really does need to be one begets the other, because we're building a model structure, and subsequently using it for management advice, and certainly we don't have the person time to devote, you know, another set of analysts to the same assessment simultaneously.

Okay, and, for diagnostics and sensitivities, this was frustrating to us, because the reviewers wanted more diagnostics, and specifically base model diagnostics, and I think the way that they were defining it was that base run diagnostics are jitters, or starting value analyses in other regions, retrospectives, full hindcasting, and likelihood profiling over all key parameters.

Again, we argue that the base run diagnostics aren't relevant when the data are not finalized, and that's why all of those key sets of base run diagnostics were not provided. An example using likelihood profiling is the profile likelihood will change when data are added, removed, or other data are fit differently. When data are preliminary, the profile likelihoods will only show the best preliminary estimate, and so, you know, showing those -- We didn't see much value in those at this point, over all of the key parameters.

We did provide a number of sensitivities, and, specifically, no further sensitivities were accepted, or requested, during the workshop from the reviewers, even when offered, and then just some examples of the diagnostics that we did provide during the course of this project.

The index residuals were provided, and, here, you can see a runs test, basically, showing whether -- In green, whether the runs were acceptable, and, in red, whether the runs were not acceptable. We used diagnostics to examine the fit to headboat index, specifically provided at the data workshop, and then, during the model building process, it was shown to be conflicting with other data sources, and the hindcasting methods, and the diagnostics package, were specifically used to argue this point during the assessment webinars.

We used -- We showed the residuals and fits to mean length across all of the fleet structure, and we're showing you this because it didn't seem like the CIE reviewers, in particular, thought we used any diagnostics at all, and I think it's important to note where we did, and so we also examined parameter correlations, specifically looking at the -- What you see here is a lot of selectivity parameters, and these were evaluated in order to determine what type of selectivity structure we wanted to apply to the fleets, and what were shown during a variety of either internal meetings or planning -- Sorry. Assessment webinars, and then in order to make decisions about what to do with these parameters that did have high correlations.

We also provided SDNRs, the standard deviations of normalized residuals, at the CIE request, and we had a meeting with them prior to the beginning of the review workshop, asking what else can we provide you that you need to see in order to do your evaluation, and SDNRs are provided, for instance, in the South Atlantic pretty regularly.

Usually, you use them in order to modify the CVs on the indices, to create a better fit, and so the SDNRs here is without any reweighting, in order to just show them what type of, you know, fit you're getting for each of these series, and, in particular, the bottom longlines fit pretty well without any reweighting, and so we provided things like this, at their request, before the meeting.

We did also provide sensitivities, in particular dynamic maturity, and then I will show more Great Red Snapper Count sensitivities later. Based on the suggestions from our life history working group, time-varying maturity sensitivities were conducted, and this was something that seemed to sort of get lost, that this had been produced, first using separate parameter blocks for changes in A_{50} and A_{slope} over three time periods. You can see, on the top right, the three time periods, as well as what the values are for each parameter in the east, central, and western region.

Then A_{50} and A_{slope} as functions of the spawning stock biomass, and fish mature at younger ages when stock sizes are low, is the premise, and so that was something the life history group discussed during the data workshop that was important to evaluate, and those sensitivities were provided.

In addition to -- When they were run, we evaluated the fraction of unfished value, and the spawning biomass on the right, the fraction of unfished on the left, to show the difference between the base run in blue, the SSB linked in red, and then the time blocks in green, and this shows the relative magnitude of the effect, and there's not a huge effect, but it was an important thing that the life history group wanted to evaluate, or to see later, and I will go over -- There were lots of Great Red Snapper Count runs, sensitivities, and I will go over those later on in the presentation.

Okay, and so point-counterpoint, but, given that, we do agree that the research track has not realized its original potential, in that the data providers are impacted more, and not less, and it's really not a lighter load on our data providers, and Shannon has put together a pretty interesting analysis of how long assessments have been taking, and it is actually causing problems with our throughput, and so we cannot look into everything that would like to research during a research track, and it's a misnomer, really, and we aren't able to do a lot of research during a research track.

We're able to incorporate other people's research, if it's provided to us, and, for instance, stock ID was, I know, a big source of frustration for folks, that we couldn't run multiple stock ID configurations through a research track, and we just do not have the person power to do that.

Allowing for the use of preliminary data may cause some delay in addressing data issues. For instance, a lot of those issues that came up during the data workshop probably needed quicker attention, and like, for instance, our age comps that we're going to look into, we could have been working on that at that time, and gotten that ready a little quicker, and a full assessment process without catch advice is frustrating, and it's resource intensive for everyone, and it's -- I guess that just says it all.

We agree that it is difficult to review a model structure with so many inputs and variables that may change. Although I disagree with quite a few of the CIE reviewers' criticisms, I do think it's difficult to make decisions if you don't have diagnostics in place, and it's hard to do that with preliminary data, and so I'm acknowledging, we're acknowledging, that, given all of the

defenses that we've provided here, we do think that there could be a reason to move away from a research track.

For this specific assessment, moving to a benchmark-style assessment process will alleviate a lot of these concerns. The data providers will get polled once. That's sort of informal language, and the data providers will pull data once, and we won't have the expectation of looking into everything, or researching everything, and so that will be alleviated. We won't be able to use preliminary data, and we'll provide catch advice at the end of the process.

Okay, and so that was the first main issue, and the second is the treatment of the age and length compositions. The reviewer criticisms are as follows, and the panel stated that using unscaled, or unweighted, as we call it, composition data made it impossible to evaluate the model, since the data fits, and the derived parameters, would change substantially with finalized data.

They also indicated that the loss of cohort information, resulting from the exclusion of age composition data from directed fleet selectivity modeling exceeding any benefit derived from the improved fits to discards, landings, and composition data obtained by using length composition, and so, in response to that, first, only nominal compositions were prepared for the data workshop, and that's usual. We need to get our landings completed before we can weight our compositions, and, usually, at the data workshop, everything is not ready in order to do our weighting.

The weighted age compositions, conditional age-at-length, and mean length-at-age were provided later for all directed fleets, and you did see the mean length-at-age diagnostic, for instance, and I will show some fits using weighted age compositions here shortly.

Typically, composition development continues into the assessment workshop phase. Like I mentioned, the landings have to be finalized, and there also could be changes in requests for the way that the compositions are weighted, based on feedback during the first or second assessment webinar.

Nominal length compositions were used, because the length frequency distributions suggested that weighting would have a limited impact, and so our nominals, the way that they looked, were approximately what the weighted would look like anyway, and then weighted age compositions were evaluated during the assessment webinars, though we do agree that improvements can be made. It did seem like the reviewers, according to their reports,

both individual reports and their summary reports -- That they didn't think that we showed any fits to weighted age compositions, but that's what we specifically provided that supplemental presentation for.

The treatment of the length compositions, here, this is our justification for the limited impact of weighting, and, if you're going to see a big impact of weighting these modes -- For instance, on the left side, and this is our vertical line east, central west, and that's color-coded by fork length, and these are the densities of each of those sizes, and this is all in centimeters, by the way.

If you expect weighting to have a substantial impact, you're not going to see modes that are that on top of each other. Weighting is really effective, or necessary, when you see modes that change and are not pretty much uniform. The only spot that we saw a need, and that was noted in the workshop report, was, in the left-hand figure, the second row, the second and third column, there's a slight deviation in one of the stat zones for vertical line, but the idea of worrying about that for -- As a reason for not -- That would not have mattered for weighting, and we can show that during the benchmark, but that was the whole point when we discussed this at the data workshop, that going through the process of weighting would have been incredibly ineffective here, and it would have been a lot of effort for just that one stat zone, one issue.

The point here is low variance within areas suggests that weighting lengths would have a limited impact, and we did show this to CIE reviewers, and so we're a bit perplexed by they think weighting was going to change a lot.

This is our response to the omission of age composition, and so we showed that model tension, apparent when trying to fit landings and discards using different selectivity and retention forms, was causing problems, and so, when we used age-based selectivity, and length-based retention, we saw misfits in our -- Especially in our discard data.

We also had some concerns over non-representativeness of our age samples, and that was identified through an internal process, our NMFS length and age composition workshop that we had a couple of years ago, and then, also, the SEDAR 52 report explicitly notes that the age data are likely not representative and that weighting those is pretty essential to even getting there.

Then information on cohort strength is still available through our survey age comps. It begins in 2021, versus 1991, but, if we get

cohort strength from nonrepresentative data, that's not really useful either.

The issues here are illustrated more clearly, and these are the issues of age-based selectivity for our directed fleets, and what you see is highly patterned composition residuals. If you look at the handline central, the central figure there, you see those diagonal solid bubbles, and what that indicates is that you have a problem with the way that your selectivity is being fit, and that's based on this misfit to these composition data, and you don't want to see patterned residuals. Go ahead, Matt.

DR. MATTHEW SMITH: Just for voice identification, this is Matt Smith from the Southeast Fisheries Science Center, and I just wanted to add that -- Just in case people weren't involved in the whole assessment workshop and development process, that you're looking at models that were using age composition that were developed very early on in the process.

When we first starting building these models, we were building ones that used age data, just like we did in SEDAR 52, and then we started building models that used length composition data to inform selectivity alongside of those, and then we started building models that used age composition and length composition, as it seemed advantageous, and we couldn't continue to develop all three of those model structures throughout the entire process, and so, at a point through the assessment webinar process, it was decided to go ahead with the eventual model that was presented during SEDAR 74.

These do still represent models that have all of the data inputs in them, but the age results that you're looking at have not been carried through all the way to the end of the assessment process, and so it's somewhat preliminary results, but the patterns that you're seeing were consistent during the time when we were developing this age-based model, or model based on age data for selectivity.

DR. SIEGFRIED: Thanks, Matt. There was some confusion, among the reviewers, about whether we used a length-based model, and it was not a length-based model. It was a model using length compositions for the directed fleet, and so we want to be clear about that, to avoid future confusion.

The thing is, as Matt mentioned, during model building, we would evaluate these fits, and then we could decide how to proceed with model building, and an option here is to chase that noise, so to speak, by implementing a bunch of selectivity or retention blocks,

but it would have been an ad hoc thing to do, because it doesn't coincide with any management changes.

Now, there are other things that we'll try during the -- If this goes to benchmark, we will try other things. Having more decisions sort of made upfront, we'll be able to explore more about these age data without, as Matt said, having to carry through three different model structures.

The other issue here was the misfit to discards was commonly observed, especially for time blocks with uninformed retention parameters, and not fitting discards well was a main criticism for SEDAR 52, the previous assessment for red snapper, and what we've shown here, in the top-right, is the blue dashes, by year, against the total discards for the longline east fleet, and, there, you see they're very far underestimations, across-the-board, and then, in the central plot, you see, in the early time period, again, a pretty severe underestimation of the total discards for the handline in the central zone.

Then it's not quite as bad on the bottom-right, the total discards for headboat central, and it's really kind of all over the place, and so we were seeing a lot of these misfits to discards, which was a red flag for us, given that it was a pretty big criticism for 52, for SEDAR 52.

Another issue to point out is, as everybody knows, this species has a highly-variable size-at-age. On the right, we have the raw data, fractional age in years by fork length, and the three von Bertalanffy lines are from the three different regions, and then the red line is the minimum size limit, and you see there's quite a bit of the data observed below the size limit, which interacts with our retention assumptions, and so this high variability of size-at-age is thought to contribute to the tension produced by the age-based selectivity using length-based retention.

Ages-zero to fifteen, observed below this red line -- Just the fact that you can be anywhere from zero to fifteen at forty centimeters is pretty remarkable, and so that's hard to reconcile in the model with an age-based selectivity and a length-based retention function. Then, just to show -- Sure.

DR. SMITH: Like Katie was saying, and it was pointed out in that slide, but just to highlight we had composition, and we do get some composition, but, with composition data, and more information about the discards, I think we potentially could reconcile those things, those selectivity curves, but a lot of the issues you see, like the major misfits that are present in the bottom-left panel

here -- During that time period, there isn't any information on the discards, except for magnitude of them, and so there's nothing to inform those retention curves, and the general conclusion that we used in 52, and that we settled on in 74, was to impose knife-edge selectivities at minimum size limits, which then, when you take that restriction, and you layer it over the length-at-age plot that you saw previously, that's where a lot of the tension comes in, with the model trying to figure out how to use knife-edge retention with an age-based selectivity that oftentimes peaked at age-three, or four, for most of the fleets.

In the more recent time blocks, where we do start to get some discard composition data, it allows us to, I think, do a slightly better job of rectifying this tension, but, prior to that, it's very difficult.

DR. SIEGFRIED: Something we could explore during the benchmark is different strategies for the early and late periods, and that would be a good takeaway from the review. Okay, and so basing both those selectivity and retention processes on length did alleviate some of the fit issues.

Just to show you, the bottom-left is one of the plots that I showed you a few slides before of the misfit in the earlier period to those discards, but the top-left shows, when we used length-based selectivity, that we were able to fit our discards, and then it also shows, on the top-right, that we get more of a scatter pattern to our residuals, rather than, on the bottom-right, you see a pattern -- It's sort of a line at a certain age, and I think it's age-three there, and there's a large set of residuals. This was encouraging to us, in that we were trying to fit these discards better and get better results in our diagnostics.

Then, to address the comment that we made about the possible non-representativeness in our commercial handline age subsampling, and I showed this to the CIE reviewers as well, and there's just a lot of issues that we're still trying to work out, that we planned to do in time for the operational assessment, and this is an example.

Prior to 2013, our subsampling was based on region landed in the east, the Florida, Alabama, and Mississippi, and the west, Louisiana and Texas, by interview number. They targeted 100 otoliths per month per region landed, and most port samplers, at that time, were collecting approximately thirty otoliths from red snapper per interview, and so this could result -- This resulted in approximately three trips sampled for a hundred otoliths, and so that's a very small number of trips to meet basic quota ideas, which three trips is just not going to be representative, and so

that’s prior to 2013.

From 2013 on, subsampling is based on individual fish, instead of interview number. Prior to the BSD, the biological sampling database, development, it was necessary to manually enter all individual fish data, in order to subsample by fish, and this was only done for the grouper species, and so we have blocks here, in the way that either sampling happened, or subsampling would need to happen, in order to get at what our age data can tell us, at which point we would be able to weight them appropriately to try to get at some sort of cohort signal, but, at this point, we didn’t have that information that we were confident in, and so dropping them didn’t feel, you know, as cataclysmic as was defined in the review summary.

Through our recent length and age composition workshop, we determined that some potentially biased sampling in 1990s also probably occurred for the directed fleets. Also, otolith sampling eventually did exceed our lab’s capacity to process these samples, resulting in varying subsampling techniques through time, which could arbitrarily bias the resulting age compositions. We needed to get a handle on how the subsampling occurred, and it doesn’t mean that it’s not usable, but, if we don’t know the subsampling, we’re not able to accommodate it appropriately in the model.

The stratification for the subsampling doesn’t match our current stock ID boundaries, and the three areas overlap one of the stat zones there inappropriately, and then we knew that these issues were there and needed to be worked out prior to the operational assessment.

Then, finally, this is just sort of an illustration of sort of an argument back, that we didn’t think that we were losing a lot of cohort information. We will find out more as we proceed with addressing our age data. However, both models, and I will explain what they are on the right here, but both models estimate comparable recruitment dynamics back to the mid-1990s and identify similar major deviations.

On the top-right, we have the recruitment deviations by year for the selectivity-at-length, and, on the bottom-right, we have the same for selectivity-at-age, and, as you can see, we identified similar major deviations. It’s not a perfect comparison, because these models are developed at different times during the assessment process, but that’s pretty interesting, that, even in early versions, selectivity-at-age produced similar major deviations with selectivity-at-length later in the process, and so it’s pretty consistent throughout.

Then, finally, to rebut the comment that age composition are excluded entirely, we did have our survey age composition, and it was included in the assessment, and we did have the hope of including more from the trawl surveys during the operational assessment, and this is another part of our internal revamp of our age data endeavor, in that we don't have our trawl survey otoliths linked to those lengths yet, and we needed to get that done, in our database, in order to provide otolith ages, instead of converted lengths to ages, but, as you see on the right, we do have it for bottom longline and our fall trawl, as they were input as age compositions. The next slide is going to be what we plan to do, and then I will pause for questions, if people have any.

Our plan is we want to finish our work on the ageing data, and we want to complete descriptions of subsampling and address any subsampling issues in general that would affect the usefulness of our age data. We do have a lot of age data, and we can bring this to the table in a better format, and we plan to for the operational. We want to provide all of the work that goes into completing those descriptions and correcting any sampling issues. At the data workshop, it was going to be a topical working group, but a data workshop probably will happen now.

We want to compare the unweighted and weighted age compositions explicitly and then look at -- We can provide a weighted length composition description again, if we need to, more explicitly, although it's very clear that it probably would have almost no effect, and then exploratory data analyses will be provided, plots, distributions, and weighting method descriptions, and this usually is provided for an operational assessment in our working papers.

I do think it's important to provide literature that discusses the use of length and age compositions in integrated catch-at-age models. This is an active area of research, and some of the reviewers seemed to think this has been decided, and there's instances of what we did across the country that are in use, both in SS models and other types of models, and this was not, you know a strange thing to do, and this can be supported by research, and we'll provide those documents as research documents for the next assessment.

During the assessment phase of the next assessment, we will show the impacts of different assumptions about selectivity, which we showed here just in our explorations, but we'll do that again, as well as any changes in fits to composition with our residual plots, as we usually do, and this will also be impacted if we change assumptions about uncertainty in landings and discards data. Are

there any questions about the first two main issues?

CHAIRMAN NANCE: We'll go ahead and open it up to the SSC for questions. Okay. Katie, like I told you, your presentation is very good. I mean, I think it's spot-on, as far as moving us and allowing us to be able to think about these things.

DR. SIEGFRIED: Thank you. The red snapper team and I needed to process the CIE review, and creating this presentation was very helpful to us to do that, and so I'm glad that it's useful.

CHAIRMAN NANCE: It's very useful. Thank you. Let's go ahead and move on then. Thank you.

DR. SIEGFRIED: Okay. The next main issue that was brought up is the stock ID conclusions from our stock ID workshop. Now, this is a bit odd, because the CIE reviewers did not have a term of reference to revisit stock ID.

Although I did place, in this presentation, that we're not opposed to looking at that, given what happened during the stock ID workshop, this is a bit out of bounds for what would normally happen. They normally would not make recommendations about things that they didn't have a term of reference for.

The CIE stated that the data did not support a three-area model, and, in particular, the eastern area was quite data-poor, and many of the parameters had to be borrowed from the central region, and the review panel felt that a return to the two-area model, as a base model, would be more appropriate for now.

Some of the discussion was that the eastern data are lacking on their own in certain sectors, and we did mirror, or borrow, from the central region, where needed, and, in general, the stock ID report was a bit ambiguous about support for the three-area model as well, and it wasn't -- Everybody was not happy about the three-area model, and it was a consensus, but it was definitely -- If it was a vote, it definitely would not have been unanimous.

The research track assessment did allow us to attempt a three-area model, and highlight the strengths and weaknesses of the approach, and we did mention, a number of times during the stock ID workshop, that it may be necessary to collapse the eastern and central, if there were issues with eastern data, and that is definitely what the reviewers stated here, and I do think the stock ID issue may have confounded the review somewhat.

The CIE review for stock ID may have been helpful, and we may have

avoided this change later in the process, and so it could be a recommendation, but it may have been helpful to have a CIE review on its own for stock ID, although, as we all know, CIE reviewers vary, and who knows if the two panels would have agreed, and so I'm not certain that would have solved the problem. Revisiting the stock ID at the review workshop should not have been an indictment on the whole model-building exercise, especially since it wasn't in their terms of reference.

What we plan to do, unless the SSC strongly opposes this, is we can revert to the two-area model that's split at the Mississippi River outflow, as was used in SEDAR 52. Even though they weren't tasked to review this, we did note that we did a lot of borrowing, and it may simplify the model, which was one of their issues, that the model is overly complex, and so we would concede this point and revert to the two-area model, if the SSC agrees.

DR. PATTERSON: Sorry to interrupt, but I would just like to emphasize here that, you know, the statements made were about model construction and not about whether the data supported a stock structure that was more complex than just east-west, and so it's really about do the data support that, and that's part of the research track, was to investigate that, and so, as far as whether there are three subunits within the population, that's a biological discussion. Whether the data support modeling it that way is a different discussion altogether.

DR. SIEGFRIED: I will just note the reviewers were very -- They used very strong language, and they aren't familiar with our SEDAR process, and they thought that the analysts should have just changed it, if they thought that a different stock ID was appropriate for modeling, and why didn't you just change it, but we have a transparent, participatory process to agree on a stock ID, and so the idea of just changing it at the assessment phase has never been available to us, as far as we knew. Go ahead.

DR. SMITH: The other issue with this, that I take also, is, especially in some of the mirrored selectivity parameters, and I know Katie used the term "borrowing" in there, and I don't know what the best term is, but, in those instances, when selectivity is mirrored across areas, it doesn't simply take parameter estimates derived from the data-rich, the central area in this case, and copy-and-paste them over to the east.

There is a likelihood feedback in that process that takes into account the lack of fit in the east area, by imposing those central parameters, and you kind of come to a hybrid selectivity across both regions, which is, for all intents and purposes, identical to

what SEDAR 52 did when we combined those data explicitly and estimated a common selectivity for both of those regions.

There are instances where certain parameters were not directly mirrored, and other approaches were taken, and, in those cases, some things were fixed, but, in other cases, it allowed us to utilize information we had in the east to estimate -- Like, in the retention functions, some east-specific processes that did differ from the central region, and so, just from the technical building of the model standpoint, the constraints, or the problems, seen from the lack of data I think were handled, through the SS framework, in a way that allowed us to, in places where we lacked information, kind of revert back to what we were doing in 52, and, in places where we had additional information, to utilize that effectively to actually explicitly look at the differences in the central and eastern assessment areas.

DR. SIEGFRIED: Thanks, Matt. To Will's point --

CHAIRMAN NANCE: Katie, Luiz has a question.

DR. BARBIERI: Well, it's not really a question, and it's more a comment for us, right, as a group, how we want to handle this, because, I mean, I think, as a committee, right, we're going to have a lot of comments, you know, express our thoughts, suggestions, recommendations, you know, on several of these points, and I do appreciate that there are some comments that are coming up along the way, right, supplementing what is in the presentation, and that's helpful, but are we going to have a time, later on, to go over each one of those points?

CHAIRMAN NANCE: Yes.

DR. BARBIERI: Okay. Thank you.

CHAIRMAN NANCE: Yes, and that's the --

DR. SIEGFRIED: So, to Will's point, we don't -- We didn't get direct, clear feedback as to which data they thought didn't work well in the east, or any of -- It seemed like it was a parsimony argument, and it seemed like they didn't like the idea of having to do the borrowing, or mirroring, that Matt just described. There wasn't a lot in addition to that. It will reduce the number of parameters, but, again, I go over that a little bit later.

The next issue noted by reviewers is the use of the Great Red Snapper Count. From the reviewers' mouths to your ears, it was premature to include the Great Red Snapper Count estimates in the

model, as potential biases have not been quantified, and composition data were not available. They argue that the count is not a true absolute abundance estimate, and it should not be treated as such. The reviewers recommended that more effort is needed, from a separate research team, to determine priors for estimating catchability.

There were discussions, at the review, about whether the Great Red Snapper Count was meant to be used in the assessment or not, and the CIE said that it can be used as an ancillary piece of information, even if the count itself is not fit in the model, and that the comps should be used, and that's my word, the "somehow".

Was it an absolute abundance estimate? The title of the project funded by Congress was estimating the absolute abundance of red snapper in the U.S. Gulf of Mexico, and that's pulled from the Harte Institute's website for the Great Red Snapper Count. That's what we -- That's how we treated it.

There was discussion about the potential issues with the Great Red Snapper Count amongst the assessment development team and other participants during the SEDAR 74 assessment webinars, and I'm going go over some of those for you now, and please, assessment team, jump in. There are so many details here.

The first major question was is the catchability of the different survey methods and gear the same in the different regions? Is the Great Red Snapper Count truly selecting for all age-two-plus fish across the Gulf of Mexico? Is the estimate from the Great Red Snapper Count more reliable than other data in the model that may conflict with it? We investigated those during the model-building process.

As far as length compositions, provided length composition data was not representative of the entire Gulf of Mexico, and it needed to be parsed into three areas, and so we did receive length composition data, and I don't know why the CIEs thought we didn't. We told them we did.

The first dataset includes 2010 to 2020, and you will note that's more than just the Great Red Snapper Count year, or years, and there's no indication, in the dataset, of number measured versus seen or the sampling protocol max size, et cetera. Only Alabama and Texas are represented in that dataset in 2018. We have three different types of gear represented, multiple habitat types, and there is multiple data sources in that dataset listed for you here.

Dataset 2 that we received is assuming from one source across the

entire Gulf of Mexico Florida shelf. The stereo camera lasers, for measurement, were used, and multiple habitat types are represented. The number seen, versus measured, available in the dataset, and then max is twenty-four measured at a site.

Those are -- So we wanted to go over, with you all, what data were provided, what those length comp data looked like, and whether they were or were not representative of the year that the red snapper count was conducted or input into the model.

DR. LATREESE DENSON: I will add to that. The same scrutiny that we looked at with our own length and age composition data -- We used the same scrutiny for the Great Red Snapper Count data, and so, is it representative or not, looking at those -- Looking at those datasets, you know, it's kind of hard for us to come up with for ourselves, and so we definitely thought that a whole team was needed to figure out, well, how do we put this information together, so that it can be representative and put into the stock assessment, and so we gave it a lot of thought, and I just wanted to put that out there.

DR. SIEGFRIED: Okay. This, I don't normally use animations, but I should have probably here, but it just want to go through, line-by-line, how the data reads in the model. First, it's included as an index of absolute abundance in one year, 2018, by region, by the three regions.

It's incorporated as region-specific, with the catchability coefficient fixed at one, and then sensitivities suggested that the model does tend to ignore the input, in order to fit longer-term data, if Q is not fixed at one. That was discovered during our sensitivities.

It's given equal model weight as other data sources. In other words, for SS speak, lambda is one, which was a decision of the ADT after sensitivity analyses, and we do show other lambda values, or other weights, for the Great Red Snapper Count value. The selectivity in the east was fixed at 100 percent for ages-two-plus and set to zero for ages-zero and one. For the west and central regions, selectivity was estimated for ages-two-plus and fixed at zero for ages-zero and one, and so there was a difference in whether it was fixed or estimated for the selectivity of the age-two-plus in the different regions.

Multiple sensitivities were conducted, and we'll go over those, and we conducted an alternate catchability coefficient parameterization, or multiple parameterizations, and this is a proxy for the way the survey methods would encounter the fish. A

team did increase data weighting, and this is to determine the agreement, or the lack thereof, of other data sources with the Great Red Snapper Count.

They also explored 100 percent selectivity of age-two-plus in all regions, instead of estimating. The Great Red Snapper Count was provided as a total count of red snapper in the Gulf of Mexico age-two-plus, and the sensitivity allowed us to test the assumption of all fish age-two-plus. That's hard to read, and I hope you can see it on -- If you have it pulled up on your screen. Would one of you like to go over this sensitivity?

I can go over it, and so the blue is -- We've got west on the left, east in the middle, and central on the right. The blue dot is no Great Red Snapper Count, the green is fixed Q lambda one, the yellow is fixed Q lambda five, and the red is the float Q, and I guess I just wanted you to discuss the float Q option that we talked with the ADT about, if you will.

DR. SMITH: Sure, and so this the first point, the model catchability, and so this is in the absence of priors from the independent experts that came out of the CIE review, which was their recommendation as a way to approach catchability, is to do some sort of deep dive into the methodology from the snapper count to derive appropriate priors to try to inform catchability across the regions.

We didn't have that information available, and so the methods we did have available to us were fixing the catchability coefficient, which is the green and the yellow results, at some value, and we settled on one, because one essentially forces Stock Synthesis to do an absolute index of abundance, which, as we talked about, was the intended purpose of the study, and the other option, the red option, which you can't see the output on the screen, because it is hidden behind the black dot, the model estimate on all of these plots, is the floating Q, and that's where Stock Synthesis essentially estimates a catchability coefficient for a survey. It's something that we use for all of the other surveys in the stock assessment model, with the absence of I think shrimp bycatch, which we estimate explicitly as a parameter.

In this case, when it's allowed to estimate that catchability coefficient, in order to avoid paying a massive likelihood penalty, the model just finds the Q that allows it to fit the data perfect, which is why the red result that you can't see on any of those plots, is because it's tucked right behind the black dot, which is the observed data for the surveys.

Then the difference between the green and the yellow run comes into that data weighting as we increase the lambda, and so the great one has a lambda of one, which is equal weighting to all sources of data, and we did some higher lambdas as well, but the yellow one has a lambda of five, which gives more emphasis to the red snapper count data, and so, essentially, the model continues to misfit it, the overall likelihood penalty increases, and then that kind of forces the model to find the minimum likelihood to try to fit this data better.

You can see the result of that. In all the plots, the green result is further down than the yellow result, and so, as we increase the emphasis on this, it tries to fit it better. In the east and the central, it still fails to get there. In the west, it fits it fairly well, and how you interpret that is how I guess you interpret the results of the snapper count relative to what the stock assessment has been telling us for several iterations now.

Here, the west result from the snapper count roughly falls in line with where the stock assessment has been suggesting abundance in the western Gulf of Mexico is, but the estimates for the east and the central region coming out of the snapper count greatly exceed where the stock assessment model believes that the abundance is in the east and the central Gulf of Mexico, and so the counter to that is, you know, maybe the snapper count estimates from the eastern Gulf of Mexico are close to right, and the western estimate is an underestimate, and it would have the same result, but, again, like I said, it depends on how you interpret the relative accuracy of the snapper count versus the stock assessment results.

DR. SIEGFRIED: Thank you. I wanted to go over that in more detail, because that was a pretty big comment that the CIEs gave us, that the catchability coefficient should not have been assumed to be one, and this is all the work that the team did around that assumption.

I'm sorry this isn't showing up very well, but the main point here, and this is the Great Red Snapper Count weighting, is to show you the tradeoff between the discard component, the length comp component, and those are the two main -- Those are the two data pieces that are most affected by the differences in the Great Red Snapper Count weighting sensitivities, and so there's a conflict there between the estimate and then the discards and length composition likelihoods.

This is also a result of the Great Red Snapper Count weighting sensitivities, where, on the left-hand side, we have the bottom longline survey data fit with two lines, and the baseline is the

blue, and then forcing the Great Red Snapper Count fit, by increasing the lambda, actually makes the fit to the bottom longline survey deviate quite a bit, and, obviously, that wouldn't pass diagnostic fits for the red line, but it's just showing you here that -- Go ahead.

DR. SMITH: The legends aren't great on here, and so, just so everybody is aware, the base is the model that was presented to the CIE, and so this includes the snapper count, and it's not a model that doesn't include the snapper count, but it just has that coefficient with the lambda of one, and then, here, I believe we forced it to fit by putting an emphasis factor of ten on there, which really forces the model to fit, and so when you look, for example, at the bottom longline -- You've all looked at indices, and fits to indices, and it doesn't look great for the last couple of years, in terms of fit, and that's the model without snapper count, and that is still a snapper count effect in all of these that you see, and it's just the red is and then some, additionally.

DR. SIEGFRIED: This is the eastern bottom longline. Again, the conflict between the snapper count inclusion and some of the data in the east -- It's not as affected, and the commercial reef fish index is not as affected, but it's affected in a similar direction.

Then more about the selectivity that we described in a few slides before, and, due to the concerns that the Great Red Snapper Count length comp data did not cover the entire Gulf of Mexico in the year when the count was estimated, two sensitivities were conducted, either excluding it or using Great Red Snapper Count estimates, and the selectivity is assumed to be 100 percent of all age-two-plus fish. The base run is where we estimate it in the west, right?

DR. SMITH: Yes, correct, and so the east -- The base that came out of the ADT, and during the assessment webinars, was that the east fixed at 100 percent for all age-two-plus fish, and zero selectivity for age-zeroes and ones, and then estimated in the west, but, again, zero selectivity at age-zero and one.

DR. SIEGFRIED: Thanks. Then the results on the spawning biomass on the left, and fraction unfished on the right, when the selectivity changes. Here, you see the directional effect of not using Great Red Snapper Count in the green line, and so there's a lower spawning biomass, and a lower fraction unfished, but, in general, the two-plus all selected, or the base run assumption of estimating in the west, are pretty much on top of each other, there in the red and the blue, and so that was interesting, because there was a big discussion of whether to estimate selectivity, or assume

it’s fully selected, and here it shows as it was about the same either way in these key quantities.

We got a number of comments from the CIE reviewers about data available from the Great Red Snapper Count. They assert that there are data for estimating Q and capturing other sources of variability, for instance uncertainty in habitat mapping, that are available from the PIs.

They argue that the biases for methods used by quantified by a separate research team, as that work requires specialized knowledge. The idea that the different gear and the different regions is going to be biased, or need some sort of calibration, was their main argument, and then the biases would then be used to create priors for the catchability coefficients of each survey method, in order to apply that to fitting the Great Red Snapper Count.

What to do next? Of course, I assume that this will be a huge topic for you all to discuss. The CIE reviewers suggest a separate research team, ideally in consultation with the Great Red Snapper Count PIs, to explore and quantify biases in their study, and I don’t know if this is possible.

They recommended length compositions from the Great Red Snapper Count be used to inform selectivity, as they do not agree that the estimate is for all fish age-two-plus. We did explain which data were available to us, and that it did not cover the entire Gulf of Mexico. Therefore, assumptions would still need to be made. As far as we know, there are not other length comps that have not been provided to us that could further inform the selectivity assumptions. If we’re wrong, please let us know.

They suggest that we use the Great Red Snapper Count to groundtruth, or validate, the assessment results. The problem with that suggestion is that, without accurate selectivity, or catchability, both of these being scalars on the abundance, that’s not yet possible. Just comparing the Great Red Snapper Count estimates to what we get in the assessment is not apples to apples, especially with their argument that catchability isn’t one.

It’s a contradicting argument, in our opinion, and then a recent council motion did ask for the Great Red Snapper Count to be considered in the TORs for the next red snapper assessment. We would need SSC feedback on that, as it was considered in multiple ways for SEDAR 74, and we would need detailed suggestions, and potentially data, in addition to what the reviewers suggest, to do anything different than that’s already been attempted, but, again,

please let us know if there's things we're missing.

Okay, and the last main issue is the uncertainty in landings and discards. Again, a point and then counterpoint, and the reviewers recommended fitting landings and discards closely, out of necessity, regardless of the actual level of uncertainty in the data. Their justification is that catch-at-age models have to know the removals exactly, in order to estimate biomass. Otherwise, it can undermine the basis of these types of models, and that's a quote.

They also suggest folding the discards into the landings, in order to eliminate parameters. They argue that we should have the option to smooth points in the discards and landings were anomalies occur, and so here's our counterpoints to those.

Should we fit our landings and discards exactly? We know our removals data are uncertain, and that uncertainty will need to be characterized, especially the recreational landings and discards, and we argue that including uncertainty in the landings and discards, at least in a preparatory step, or in preparatory steps, can help the analysts determine which data may contradict landings trends and why. Integrated catch-at-age models should be able to incorporate uncertainty in landings, and/or discards, if the other data are of good quality.

Punt, and Maunder and Punt, and many others would disagree with the statements in the CIE reviewers' reports that you can't assume uncertainty in removals. That's what integrated catch-at-age models are good at, actually, is using other data sources in the model to accommodate when there is uncertainty in paired -- In other data in the model, and I have cited the Punt and the Maunder and Punt papers there, if you're interested in some light reading.

This is my strongest slide. Should we combine landings and discards? No. Combining discards and landings will make it difficult to provide management advice to the council. That does not include discards, and it ignores different selectivity and retention in open versus closed seasons.

Red snapper has one of the most complicated management histories, and, although you don't need to follow every little thing that has ever happened in history, we do know that there is a very different selectivity and retention operating in open versus closed seasons, and we have data to support that, and we know that behavior around discarding is not consistent year-to-year, and it certainly isn't the same as the way that they go out to capture landings.

Just some backup about that. When we had our SEDAR 68, which was scamp, the review workshop, there was an iteration where the discards and landings were modeled together, and this was for the South Atlantic model that was done along with our Gulf model, and the reviewer statement was "Currently, the model does not support an option to model discards with a retention function and appears to require this catch category to be modeled as a separate fleet. This does not reflect the way the observations are collected and the model needs to be enhanced to allow discards to be modeled with a separate retention function for the fleet concern."

Now, the South Atlantic model doesn't use retention, and this was a comment on that model, and so we're arguing that -- A separate reviewer argued exactly the same thing that this other CIE reviewer has argued, and so it's an open area of debate, and, for us, the Shertzer et al. paper really backs up our assertion.

In that, they state that it's unclear whether it should be combined or modeled separately and that it depends on the error types, observational and process error, in the discard data and whether the data support a separate selectivity and/or retention function, and so that paper argues, as well as the review group for SEDAR 68, that, if you do have different selectivity and/or retention functions, it is best to model them separately. That's in addition to the fact that I can't give you an MSY that includes discards, and so there's a lot of reasons why my strong statement of no is justified, I think.

Okay, and so then the comment of we should be able to smooth anomalous points, we've been doing -- We have been doing that, and, I mean, we showed you yellowedge yesterday, where a point was smoothed early in the process. We've done that for gag, where there was an issue, where there was one intercept early in the process, and it completely affected the historical trend, and that was modified during that assessment workshop. There was a gray snapper issue, where an anomalous datapoint was smoothed, and so we know we can do that, and we do that frequently, based on the uncertainty around either the encounter or the effort that led to the estimation of that point.

This is particularly true for our recreational landings and our discards from both fleets, both sectors, but quite a bit from the recreational sector, and so, on the bottom-left here, we have the landings time series from the central region for the recreational sector, charter, headboat, and private, and we see those private spikes crop up here.

During the operational assessment, that would have been something

that we analyzed during a topical working group about recreational landings, what to do with those spikes, what do the intercepts look like, and do we think those spikes need to be smoothed. Similarly, on the right, total discards for our private closed season in the east, we see that big spike in 2011, and that probably would have been addressed, due to its high uncertainty, and so the CIE said we should be able to do that, and we know that, and we do it all the time. We will continue to examine the data critically and determine that we're smoothing as warranted.

Okay, and so that's all of the main issues, and I'm just going to keep going. If you do have questions about these, please just let the Chair now that you want to speak, and is that okay, Jim?

CHAIRMAN NANCE: That's perfect.

DR. SIEGFRIED: Okay. First, I'm going to go over the treatment of steepness and recruitment deviation constraints. The reviewers disagreed with fixing steepness at 0.99. Their statement was: "While the stock-recruitment relationship may be weak, it is clear that very low stock sizes must produce very low recruitment, and that should preferably be reflected in the model."

We've had different recommendations from different panelists. From this CIE panel, fix to a congener value. With other CIE panels, estimate with an informative prior, or fix it -- So the fix it to a congener value is something similar to what was used for yellowedge, using the FishLife dataset, and so I don't know what they mean by it is clear that very low stock size -- I don't know what data they are using to say that.

We fixed it at 0.99 not because we think steepness is 0.99, but it's to estimate average recruitment, rather than assume a stock-recruit relationship. There's not a switch in SS to turn off -- You know, to turn that off, the same way as you maybe could in other models, and so this is a computational convenience. At no point did we say, wait a second, red snapper definitely have perfect compensation.

The direct cause of shifts in stock productivity are currently unclear, and so the reviewers stated that we should constrain recruitment deviations. We argue that unconstrained recruitment deviations improved our model parsimony. New SS projection flexibility allows forecast recruitment to be decoupled from the stock-recruit parameters, allowing either approach to produce roughly equivalent reference points and stock status estimates, and we have seen, for instance in the South Atlantic, in our South Atlantic counterparts working on BAM, that they have coded in the

unconstrained recruitment deviations and not seen a big difference in the estimates, but it has allowed for that flexibility in decoupling from the stock-recruit parameters.

Now, I didn't produce a what we will do slide for each of these, and our standard approach to steepness is to attempt to estimate it. If it doesn't give us an estimate that doesn't hit the bounds, we look at the likelihood profile, and we will consider priors, and we will consider congeners, and we'll go through the process of creating sensitivities, and that's our standard protocol, and we will do what's best for recruitment deviations, based on model fit and what we would need, as we're developing the model.

The next additional issue was the scaling the index CVs and index reweighting, and so we did not reweight. Again, this is something we do when we're finalizing a base model, but we do see the value in that, and we have done that in our operational assessments, when it proves useful, and we do tend to iteratively reweight our indices, again if it proves useful, and that's based in the uncertainty in SDNR evaluation, although it's a different setting in SS than in other models that are manually coded, but it doesn't -- It's not always effective, but we can start to evaluate our SDNRs and be more explicit about that in our reports.

We also tend to scale the fishery-dependent indices to the minimum CV in the FI indices, the fishery-independent indices, in other parts of our region, in order to not allow fishery-dependent indices to dominate the trends. That's what we were trying to do by scaling them to the 0.2 in this assessment, and we were perplexed that the reviewers thought that was kind of an out-of-bounds sort of thing to do, but there is literature specifically to support that, by Chris Francis and others.

Then we can change the way we scale the fishery-dependent indices, to be sure we don't lose that interannual variability, although this will be a moot point if we drop the fishery-dependent indices, as they suggest.

The next additional issue is the max age specification and our plus group determination. Twenty was used in previous assessments, and it's used for red snapper in the South Atlantic, and it's -- It was surprising to us that it was a problem, because the vast majority of our age data, and all of our life history information, is for younger individuals than twenty. That's the reason we have it cut off at twenty.

It's ill-advised to go beyond that, because it will add to our run times, and it will make our age-length keys unusable, and I showed

some of the age-length key work on the right here for the different ages, and you can see that, for particularly in the third row there, that the amount of data for ages over twenty really starts -- Like those lines, the colored lines, get thinner and thinner and thinner. We have less and less information, really between fifteen and twenty, and then it really drops off after that.

Our nominal ages are very noisy. Expanding to ages greater than twenty will cause problems with our weighting, and we do have a lack of paired age and length composition, or length samples in the east especially. Adding to the number of age bins will cause a problem. Then we think, more importantly, is we just have a lack of age-zero samples in all regions, and I don't think it's important to focus on the twenty-plus group. To be clear, we're not assuming that fish only get to twenty years old, and we just lump everything from twenty-plus into one set of fish that grows and reproduces at similar rates.

The last additional issue is our overall model uncertainty characterization, and so the reviewers indicated that the model is too complex, and they suggest some ways to simplify the model, and so three to two areas is a relatively straightforward -- Okay, and we can do that, if the SSC agrees, and it's a straightforward suggestion.

We don't agree with combining landings with discards, for the reasons that we specified, and so that's not going to simplify the process. We can remove fishery-dependent indices, and we'll try that, and we do that with our jack-knifing anyway, but, generally, we gain insight as to whether the model is overparameterized using model fits and diagnostics and not the number of parameters on its own.

They also state that there are just too many parameters, but they don't discuss an ideal parameter-to-data ratio, and I don't -- I mean, there are models that have thousands of parameters, but they're not overparameterized, because the data are available, and so we plan to address this more pointedly as we approach a base model run, but we don't have like a number of parameters over which we won't go, and I'm not really sure how to interpret their comment, besides keep in mind parsimony, but there's not really a lot of other guidance there for us.

We would like to use the opportunity to investigate characterizing the uncertainty of landings and discards, using their CV, as well as through sensitivity analysis, and so their specific suggestion is to have a high and low of landings and discards and run a sensitivity, and you get a high and low version of sensitivity, of

the model outputs, and I don't know what the SSC would do with that, how that translates to management advice, and it's just like a model exercise, and so we would like to come up with a better way to inform the uncertainty that carries through to the management advice.

The uncertainty in steepness and natural mortality tend to have the largest impact on the models, and not the uncertainty in the landings, and so, if we run sensitivities around natural mortality and steepness, they're going to encapsulate all that we can offer for uncertainty in landings and discards.

It would be useful to discuss more about how the SSC can use uncertainty from the model when setting ABCs, which we do with other discussions, control rule discussions, but, also, we can provide more things, like envelopes of uncertainty, issues with central tendency, distributions around our estimates and such, and this isn't just this SSC, and a nationwide group that I'm on was lamenting that the central tendency of the projections is nearly always used. Without other information from the assessment scientists, I don't really know what else you would use, right, and there's no other information.

I do think we're going to discuss more about how to move forward assessing red snapper in the SEDAR discussion as well, but, right now, we would recommend moving forward with a benchmark-like process, an assessment that has a data workshop, assessment webinars, and a review workshop.

The suggested topics to revisit, we would like to inform the terms of reference, when we start that process hopefully in May, or whenever the group decides to pick red snapper back up again. Recreational landings and discards data, it's very important, and this is one of our key points, to have an agreed-upon approach for red snapper first, and other species afterwards, so that the catch advice is either in the same units used to monitor, or can be converted relatively easily, and we did meet with SERO to discuss, you know, what we assume in our assessments impacts their ability to monitor and such.

We would want to look over, or have focus, on age and length compositions, including the construction of year-specific age-length keys, making sure that our age data and length data are weighted, if necessary, and if it's possible. At this point, reverting stock ID to two areas is up for debate, but we would have to discuss stock ID in the TORs somehow. We would, of course, evaluate steepness, natural mortality, and landings uncertainty through sensitivities and then uncertainty analysis.

There could be a start year evaluation. There could be -- We think that shrimp bycatch probably needs to be discussed explicitly, and there is a separate CIE review happening now for that methodology, and then, based on the council request, the Great Red Snapper Count, but we're not really sure how, at this point, without you all's input, and so that's what we have to say.

CHAIRMAN NANCE: Thank you very much, Katie. Before we get into discussions, we're going to take a break. We'll come back at 10:20 and then start our discussions. That was a great presentation though.

(Whereupon, a brief recess was taken.)

CHAIRMAN NANCE: Okay, gang. We need to all come back to the table, all the little caucuses. Jess, would you bring up Slide 4? Okay. This kind of gives us, I think, some structure to our discussion, as opposed to just random things here and there, but I think, if we kind of follow this, and it gives us an idea of structure, and so let's go ahead and open it up for discussion and questions from the SSC.

DR. BARBIERI: Starting with research track criticisms?

CHAIRMAN NANCE: Starting with research track criticism, I guess. Sean.

DR. POWERS: I guess I will start, and, one, just a clarification. When you all meant the Great Red Snapper Count, can you explain what you mean, because that's not the raw number coming out of that report that was reviewed.

DR. SIEGFRIED: Are you asking for which version of the --

DR. POWERS: Exactly.

DR. SIEGFRIED: So there's -- It's maybe the third revision. This SSC has reviewed that number, after the post-stratification, and then including LGL's supplemental study, and it's not the original count, and it's the prior to -- That count is prior to review. The one that we're using is parsed out by the three regions, and it's a post-stratified value.

DR. POWERS: Thanks, and so, talking about the research track in general, one of the questions I would like us to think about is whether the CIE reviewers are a necessary part of -- Whether we call it a research or a benchmark or, you know, the research -- We

were sold that it was wide open, and we could test pretty much anything our little hearts and minds could think of, and, obviously, Katie brings a good point that that all has to be couched within resource availability, and so it took us a while to digest that, but, being on several review panels, I just really question, in the end, whether it's research or benchmark, the role of the CIE reviewers, and I think a process where the analysts get a little more independence in doing the assessment, and then a more iterative process with the SSC, or a subgroup of the SSC, would be more beneficial.

I mean, CIE reviewers bring up things, and they bring up things that also kind of give you the indication that they're not familiar with how the SSC is going to need to use the product, that the ultimate goal is to give the council management advice, and so I would like to see the process changed. I'm not a big fan of the research track, after seeing a couple of them, and I think we should go back to the benchmark, but I really don't think that the CIE reviewers are a necessary part of that.

I think the CIE reviewers do have a place. I mean, if you're talking about -- Shannon and I talked about this. If you're talking about how you set a natural mortality vector, how do you handle data, how do you handle those type of cross-stock issues, and cross-species issues, I think that's where you need the CIE reviewers to come in and help you figure out what the best practices are, but individual stock assessments -- I'm not sure it's valuable, and I think it can derail a lot of good progress sometimes.

CHAIRMAN NANCE: Thank you, Sean. Josh.

DR. KILBORN: Thank you, and so my question is about something totally different, and so, if you all want to continue talking about this issue, I would be happy to wait.

CHAIRMAN NANCE: No, go ahead.

DR. KILBORN: Okay. My question is actually about the two versus three areas, and I just want to make sure that I understand the methods correctly. The way I sort of understood it was that the three-area approach that's being implemented is kind of like a hybrid between the two and the three, and, in cases where the data are limited, it still kind of produces results that are in line with the two-area model, but, where it has data it exclusively can use, then it produces this kind of three-area result, and do I understand that correctly?

DR. SMITH: Essentially, yes. The three areas allowed us -- Because we lined it up that basically -- We still had the Mississippi split between the west and the central area, and we wouldn't have had to have that for this to work, but it was convenient. In the central and the east area, with the east being our most data-limited stock assessment region, for instances where there was not enough data to support, for instance, estimating selectivity on its own, or retention on its own, parameters were mirrored to those in the central region, which then, like I was describing earlier, essentially, through a likelihood process, pools that data, similar to how it would have been in 52 with the old east.

Then, in spots where we did have more information, we were able to explicitly model those processes in the east, which we would not have been able to do before, and so it allowed us to combine data, through the Stock Synthesis framework, when necessary, and then to explicitly model processes in the east for when the data was available. There are -- Like I said, we probably did incur some additional parameters, and we certainly added a lot of F parameters, because we were estimating all those fishing mortality rates for the east fleets, but, in terms of parameters for modeling processes, biological or fishery processes, we did not add kind of additional parameters by splitting that out.

CHAIRMAN NANCE: Will.

DR. KILBORN: Okay. Thank you.

DR. PATTERSON: Also, to your question, Josh, the stock ID workshop, and Katie is correct that there was a lot of discussion, and there wasn't a really strong consensus, but the consensus was read the population units in the Gulf of Mexico with -- That was -- The strongest evidence for that was the genetic population structure data from Portnoy's work, which was then published in 2021.

However, the line of the border between the east and the central was recommended as Cape San Blas, and so part of the pragmatism that I think you're talking about, Josh, and maybe you're not, was that that boundary had to be shifted to the south a little bit, based on how data came in from the various data collection programs, and so it wasn't the absolute boundary that was recommended from the ID workshop, and there was a pragmatic choice to move that a little farther south.

CHAIRMAN NANCE: Thank you, Will.

DR. KILBORN: Thank you for the clarification.

CHAIRMAN NANCE: Luiz, please.

DR. BARBIERI: Well, continuing on that same topic, what I would like to ask the analysts, because they're the ones most familiar with the model, you know, from the sort of initial idea of coming up with the three blocks, because my interpretation here of how this was supposed to be working, you know, by reading the stock ID report, is that this was not really doing stock ID, per se, as a separation between biological units, and it was more like blocking by area, kind of sort of, right, and so, process-wise, within the assessment framework, the same way that we block sometimes by -- This would be providing some blocking that would facilitate, right, the model to resolve some of the issues in the three different areas that are not necessarily fully compatible when you don't consider the three blocks.

I think that there were, you know, clear advantages of going with that approach, conceptually, initially, right, but what happens is, when you try to break things down into smaller units, you end up with so many data deficiencies at that scale, at that higher-resolution scale, that you're forced, right, to fill in the gaps, and so my question is do you think that it was advantageous to use the three areas, as opposed to using two? I mean, you know, did it -- Was it realized that the three areas actually represented a benefit to the outcome of the assessment model?

DR. SMITH: I guess we'll never know, but, from a model development standpoint, it was extremely challenging to get it going, for a lot of the reasons you said, because, going into it, there's a lot you don't know, and, in a timeline sense, right, stock ID happened first, and so we had to look at what was available, and, like Will said, the genetics, and we looked at a lot of different information, and fleet dynamics, abundance information, all of that played into the final decision, but you have to just kind of take a leap of faith at that point, because we did have some preliminary looks at the data, but none of the data had been fully provisioned, to really know where the data gaps were going to be.

We made that decision, and we moved forward from there, and then, once we got the information that we had, we did the best we could to work with it. In terms of the cost-benefit, I mean, there was definitely a cost. The model development was complicated, and it took us a while to figure out what we could estimate, what we couldn't, where we had to mirror things, where we didn't, what we had to fix, in terms of parameters, and what we could allow the model to estimate, because the data was robust enough to do so.

It was a very iterative process, and it took a lot of time, especially considering how large the model was and how long it takes to run. At the end of the day, it's hard to say if the benefit outweighed the costs. I know, from my seeing the model on a daily basis for a year-and-a-half, or however long we worked on it, there was information being produced by that, results being produced by that, in terms of regional biomass trends, that were very different from what we saw in 52.

If we take it as a whole, and we just look at Gulf of Mexico biomass trends, they were very similar to 52, and there wasn't a lot of difference there, and, since our overall quota is a Gulf-wide quota that's been partitioned into state-specific quotas, through a preestablished process, I don't know if splitting it into the three areas would have had a huge impact on the final recommendations for landings, and how those were divvied up amongst the states, but it did provide, and, unfortunately, we don't have the results to show you, because the model was essentially cancelled, and it did provide different looks at recovery timelines by the regions, when biomass began to --

You know, in the central versus the east, and it provided insights into cohort strengths from different year classes, where those seemed to be stronger than in other ones, and it allows the model, the fleets independently, which do have some different dynamics in how they interact with the fisheries, and the fish, and so, again, it's impossible to say, because we don't get to follow this assessment all the way to the end products, but, from a scientific standpoint, I think it was beneficial, because it allowed us to see dynamics that we thought were playing out actually play out, in terms of model outputs, and many of them played out the way I would have expected, based on discussions we had at 52 and early on in the process.

I mean, things that seemed like they were part of the general conversation around red snapper that were lost in the 52 model became more evident in the 74 configuration, because we were able to separate out parts of the Gulf of Mexico, and so it's an incomplete answer to your question, I guess, Luiz, but it's very difficult to know without following it to the end, but it was a lot of work, but, once we got the final model configured, it was fairly stable and running well.

CHAIRMAN NANCE: Luiz, a follow-up?

DR. BARBIERI: Just a quick follow-up, Matt, and is -- You know, in terms of cost-benefit, and I know that you don't have a complete

answer on that, but I think it would be, you know, helpful for us to get a perspective from the analytical team, because nobody is closer, right, more familiar with that model, the whole process, than you guys, having gone through all of that.

My impression is, at the end, in the cost-benefit, the three-area, the idea of going to a three-area model, created more problems than solutions. It may have benefitted a few things, and provided insight perspective into a few things, but, in the overall picture, it created more problems than solutions, and how would you respond to that?

DR. DENSON: You have to think about did it cause more problems or did it expose areas where we can do better, and so, thinking about what's going in in the east, and sampling issues, if there are any, and so our lack of age-zeroes, our age composition, and so did it cause problems? I don't know if I want to say that, but I would say that maybe it exposed where we can do better, and that last question you asked about, you know, what did we see, and did we see any -- You know, anything new, and so, looking at those three different areas, we were able to see those different trends happening in how the central region actually, you know, differs from what's going on in the east, and so I think it's better for, you know, thinking about the future of fisheries management and how this body moves forward on managing.

Right now, everything is managed as a Gulf-wide stock, but, you know, if we go on, and we want to do more adaptive management, now you have this idea of what a two, versus a three, looks like, and so it's a great starting point, and it shouldn't be just tossed away, and it should be considered and continued to be updated in some kind of way, with more resources and more people.

CHAIRMAN NANCE: Will.

DR. PATTERSON: I mean, to Luiz's question, one thing that the ADT recommended early on, but Sean already alluded to this, is, because of personnel resources, it wasn't feasible, but was to actually run the two-population, versus three-unit, models, parameterize them, and then look for parsimony.

If you had, you know, 1,200 parameters in a two-stock model, versus 2,200, are you tracking stock dynamics better, such that your overall variance is lower, so that your parsimony -- It actually is greater for the higher, more parameterized model, but that wasn't possible, and so we couldn't take that sort of empirical approach to examining that, but, you know, what LaTreese just said I think is important, that that model was picking up -- It actually

was -- It didn't blow up, right, and that's the first thing, right, and it was actually running.

I mean, not necessarily with the actual data that would be utilized, but the parameterization worked, and the second thing was it was picking up different stock dynamics than had been perceived earlier, because you had these three regions instead of two, and I think that's important, because that was part of the rationale for going to three regions, because you had different dynamics in three regions. Just from the empirical data, you could perceive that, and so it showed this.

CHAIRMAN NANCE: Thank you, Will.

DR. BARBIERI: Will, thank you for that. I think that's a good point, but, you know, one of the things that I cannot help but have that bother me, in the back of my mind, is how do we, as an SSC, account for the increased uncertainty, and we're going to be discussing uncertainty separately, right, later on, when we are trying to now fill in so many data gaps, by using that mirroring, right, and so that represents basically the equivalent, I would say, in a gross way, of fixing parameters, right, into the model that you don't -- You cannot actually measure the uncertainty associated with that.

The fact that, you know, we get the impression that we know more, perhaps, than we do, you know, may bring the model to some acceptable solution, but how do we, as an SSC, account for that increased uncertainty, because our framework is designed to explicitly incorporate uncertainty into the management advice, right, and it becomes difficult.

CHAIRMAN NANCE: Dave.

DR. CHAGARIS: I was actually going to comment on the research track criticism, but, with the stock ID -- You know, I feel like what's happened is the stock ID process has sort of happened in a vacuum, and it's all based on the biology, but, you know, it's really -- You know, what actually gets carried through to the model should also consider, you know, the practicality, given the data, but also, you know, how is a two-area, or a three-area, or a one-area model, you know, going to help us with management and addressing stakeholders.

There's really these three components that I think have to be balanced, as far as what spatial structure you would put into a model, and so, maybe going forward, like the stock ID process -- You know, that step in the SEDAR process, you know, I don't think

it should corner the analysts into anything, but it could provide recommendations, you know, and then you've got to figure out what's practical and what is going to help us on the management end.

I think Matt and LaTreese sort of mentioned that, as far as, you know, it's still going to be Gulf-wide management advice, you know, and so what are we really gaining by splitting it up?

I agree with, you know, what Will said, as far as, you know, it did add some more information, and we were able to capture these trends that are probably more realistic than if we hadn't split it out, and, when you have a two-area model, you know, you're basically borrowing parameters anyhow, implicitly, and so, you know, it's kind of like -- Even if you're still mirroring parameters, you're still taking one step away from that assumption that all things are equal across two regions, and so I think there's advantages there.

As far as the research track criticisms by the CIE, I think this is one area where I probably agree with the CIE reviewers' comments, in most cases, and I don't know if there were different expectations for what a research track assessment is meant to deliver, you know, from the analysts and the SSC, versus what the CIE was expecting.

I can say that I was on the ADT, and I thought that process went well, and I want to commend Matt and LaTreese for the work they did, and being responsive to all our requests. You know, we sent them in quite a few different directions, I think, and they took the time, and they were allowed the time, to correct it, and I think, you know, I strongly advocated for a lot of the things that they were being criticized for under the CIE, and so, I mean, there's a lot to sort of get into here, but I do want to commend Matt and LaTreese for their hard work, and I don't think they did anything wrong. You know, they didn't make any mistakes here, and they did everything that was asked of them, as far as the ADT process, and I think that ADT process was really valuable.

I mean, I liked being able to see the development of the model happen in real-time, and get regular updates, and, you know, kind of what Sean was saying is how does the SSC become, you know, more active, or involved, and I think maybe that ADT phase is something that we want to carry forward to future benchmarks and things, because I thought that was valuable.

CHAIRMAN NANCE: Thank you. Will, to that point?

DR. PATTERSON: Katie, I don't know if you can put up the slide

that actually has the research track criticisms listed out.

CHAIRMAN NANCE: It would just be the next one, Jess.

DR. PATTERSON: This isn't the one, but we don't have to search for it, but there was a list of general criticisms of the approach, and I think Katie was like kind of summarizing and putting all of this together, but, you know, the first several of those -- You know, the SSC had weighed in previously, when the decision was to go to a research track, and we had commented that there were potential concerns with things like not producing management advice, or the amount of time, and, you know, Sean raised an interesting point about peer review.

You know, historically, benchmarks got CIE review, in most cases, and the red snapper study, the Great Red Snapper Count, got an external review, but it doesn't have to be CIE, right, and Magnuson calls for peer review, and one thing about the whole SEDAR process is we've gone down this road of transparency to the extreme degree, and there are a couple of ways, you know, I think that we can achieve transparency in general.

One is to have, you know, everybody who absolutely wants to participate be in the room for every decision made over the course of two years, and that's kind of where things have headed, or you could have a process by which everything is documented clearly, and you have a few experts that are contributing, like Dave was talking about, with the model development, and let's be realistic. There are only a few of us around this table here who could participate at the level that Dave can in parameterizing and constructing a stock assessment model. We just don't have that expertise among us in a great extent.

You know, if you -- Anyway, we don't have to have everybody in the room for all of those decisions, but, if it's actually documented, and it's transparent in that respect, then it can be reviewed later.

You know, one of the -- In the early days of SEDAR, one of things that was constantly struggled with was picking up old assessments and there having been some decision made, and even some code written to estimate a certain parameter, and that code was nowhere to be found, and the data that were used weren't actually saved, right, and so our data management practices have increased, and our code sharing and documenting practices have gotten better through time, as they should, but it just seems to me that, you know, the whole SEDAR process, and we've had this discussion here again over the past year in different times, but it just needs to

be reconsidered.

You know, the ultimate goal is to get more analysis done, so that we can track stocks better, that stakeholders have a better idea on where the population trends are being estimated to be, and we can focus on the key uncertainties in the assessments, like the recreational effort and catch data, and put more resources into things that truly need to be fixed, like data inputs and timeliness of data, automating data, the ability to produce data time series that are used in assessments, and focus on the things that are truly scientific bottlenecks and not sort of getting in our own way as a region in this process. I think that's where we've gotten to now, where we're kind of in our own way.

CHAIRMAN NANCE: Shannon, to that.

DR. CASS-CALAY: Thanks. After the review workshop, you know, we also had a discussion with Rick Methot, who is one of the chief scientists for stock assessment in the agency, and he too is asking about where is the appropriate place, or time, for CIE review within the stock assessment process, and, you know, one of the things we've talked about is what we've seen, through how we use CIE now, is that we rehash pretty much the same decisions over and over again, with every single stock assessment, largely, and then there are some broader considerations as well, but, you know, it might be more appropriate to use the CIE to establish best practices where we have problems, right, and like how do we make our age composition data representative, or how do we use it in stock assessments?

We talked about whether maybe it might be productive to go back to some kind of -- Like we had reef fish stock assessment panels, and mackerel stock assessment panels before, and it was a body of the SSC, and probably other members as well, that we presented the stock assessments to, and they evaluated them, but they had -- They had a regional perspective, and they understood how management took place in the region.

I'm very happy that you guys are talking about this, because, at the SEDAR Steering Committee meeting in March, we will be discussing some potential improvements to the process of stock assessment, and the intent is to better meet the objectives of the councils and the Center, and largely the objective is to provide you with management advice with appropriate timeliness and frequency.

I feel like we've gone down the road of such enhanced transparency, and enhanced attention to the process, and it has literally ground

us to a halt, where we're only capable of providing a handful of assessments a year, and we have -- Across the Southeast I'm talking about, and so, to get back to this notion where we're providing stock assessments that are BSIA, but with appropriate timeliness and appropriate frequency, we're going to have to find parts of the process that we can -- That we can -- That we must prioritize and parts that we can compromise, because we can't -- If we continue this way, you know, we'll only be doing three or four stock assessments across the Southeast per year, and I don't think that meets the management needs of the councils.

CHAIRMAN NANCE: Thank you, Shannon. Harry, please.

MR. BLANCHET: Mr. Chair, I think that a lot of this discussion really was to go under the next item of business, but I do like where it's going, and I didn't want to cut it off, but that was -- That was kind of sideways to where I was going, and I lost track of my initial comment, and so I'll just pass on the rest of it.

CHAIRMAN NANCE: Okay. Jim.

DR. TOLAN: Thank you, Mr. Chairman, and a lot of what I was going to bring up has already been sort of addressed, but I want to go back to something that Sean said about the research track, and the way it was explained to me, and my understanding of the research track, was we just have a blank canvas. If you want to do something different, now is the time to do it, and that's, I think, what we did, and I was on the webinar for the review, and I was a little taken aback by the criticisms that it got, and I really applaud the analysts, and the Science Center, for bringing this presentation, and, again, the point and counterpoint, but I think I ran out of fingers and toes trying to count the number of time that the analysts would tell me that, okay, as an ADT member, that's not going to work for this dataset, and that's not going to work for this part of it, and, I mean, they were upfront and said we're going to have problems with this, going to a three-stock model.

As part of the stock ID group that pushed for the three-stock model, I see where it did cause some additional headaches, but, like has been said before, it opened up a lot of avenues that we just weren't looking at in a two-stock model, but, in terms of the research track, I think we did what was supposed to be what a research track was designed for, and so thank you.

CHAIRMAN NANCE: Thank you, Jim. Sean.

DR. POWERS: So let me ask you -- Do you want to continue in this

discussion, or do you want to -- I mean, to Harry's point to delay the process improvement conversations to the next item, because I have one question for each.

CHAIRMAN NANCE: Okay. Why don't we go on to what we're supposed to be talking about? That would be fine.

DR. POWERS: So one of the points that was talked about with this was the Great Red Snapper Count, and thanks for the clarification on what version it is, and I was under the impression, as most of the review committee, that you didn't receive length composition, and you didn't have the uncertainty with habitat assessments, or didn't have access to those studies, those limited studies, in the Great Red Snapper Count that compared gears, and I wouldn't say Q, but compared gears.

That's good that you have all of that, but, getting back to -- Obviously, I am not surprised that the Great Red Snapper Count number is higher, and the model doesn't chase that fully, unless you really, really force it, and then, even when you really, really force it, it has some discrepancies, and so it can't do it.

One of the ideas that I thought of was based on what Clay said when he first saw the Great Red Snapper Count, and he said, when you back out the uncharacterized bottom, which is where we found most of the biomass, most of the numbers -- Sorry, and we didn't do biomass, but most of the numbers, and, if you look at just artificial reef and known hardbottom habitat, he said he didn't think the number was that different than what the assessment would have produced.

It's an interesting way to look at it going forward, because where we don't have a whole lot of length composition, where we don't have a whole lot of understanding, is in that uncharacterized bottom, and then we can think about, well, what does that mean for management, when we have this other biomass that's not being captured in the model, and not exploited, but that's another strategy to use for the Great Red Snapper Count, because, if you did take the numbers from the known natural hardbottom and the artificial reef, and put it in there, would that be a better estimate?

We still have to deal with how we deal with all these numbers of snapper on the uncharacterized bottom, but it's also where, if you look at the report, the PIs have the most data on length comp and other things, and so that was a way that I think we can go, to move further, but I do support that -- I would even call it a working group, just the analysts getting together with a few of

the PIs on the project and just exchanging ideas like that, and so I really am in support of continuing that dialogue, with the recognition that, you know, when the Great Red Snapper Count was funded, we were told not to include NMFS, and it was never -- I agree with the statement that we never did that study to be included in an assessment.

Now, I think the two later count studies, Will's South Atlantic red snapper and the greater amberjack, they relaxed that rule, and we have a lot more interaction, and we do know that the goal is going to be to integrate them into a stock assessment, and so a long-winded way of giving one idea of how to reconcile those two studies, the Great Red Snapper Count and the assessment, and, secondly, just supporting a smaller working group of just a few of the PIs and the analysts to move this forward.

CHAIRMAN NANCE: Shannon.

DR. CASS-CALAY: I just wanted to very quickly respond to Jim's comment, because it is true that, when we put together the research track and operational assessment process, we were expecting that operational assessments would be very limited in nature, and they would be essentially updates, with some small changes that could be reviewed by the SSC, and that larger changes could only happen under a research track umbrella, and I think that's been a very unproductive avenue, actually, for us.

What the Science Center is about to propose, in March, is that we really go back to creating the proper assessment for any assessment, and so we would be working very closely with the council staff, and with the SSCs, to determine what is needed, and we put together an appropriate project schedule, and we just stop thinking of these as research track or operational, and they're all assessments, and the avenues that we can explore are only limited by the resources, which are a challenge.

CHAIRMAN NANCE: Shannon, I think that's appropriate. That's excellent. Did you have something to that, or did you want to skip, Will?

DR. PATTERSON: Well, I think -- I mean, so, in full disclosure, like Sean, I was a member of the Great Red Snapper Count team, and, you know, I found myself, in that process, making arguments that -- You know, I was oftentimes the only one making the argument.

I argued for greater calibration work, and I argued for integration into -- Or at least a reconciliation process at the end of the

study, and I also argued against using the word “count” to describe what we were doing, because it wasn’t a count. It was a population estimation, and it had bias and imprecision, and I just thought the word “count” sounded like a census, and we weren't actually counting fish.

We were counting fish in a sample, or estimating the number in a sample, and then scaling that up to a population estimate, and, also, this -- Using the word “absolute” in the estimate, you know describing it as an absolute estimate -- You either have a population estimate or you have a relative abundance estimate, and so focusing on this idea of an absolute estimate doesn’t mean that it's infallible, or that it’s 100 percent correct, and, you know, it's not a census.

I think some of the sort of trying to figure out how to fit this in -- Context is important, and that’s part of the legacy of this work, is that -- This idea that it was actually a count, but, beyond that, there’s never been a process, and, even through this research track assessment, there’s never been this sort of reconciliation process of, okay, you have two estimates of population size, and they both have biases, and they both have issues with precision, and, you know, an argument could be made that all of the uncertainty in the stock assessment isn’t carried through to that estimate on OFL, the PDF.

The first set of reviewers on the red snapper estimation study also said the full uncertainty in this population estimate is not carried through into the CV estimate, and the directionality of that -- It surprised me, in that review, that the reviewers said that, in the west, there’s an issue, because you’re taking a few samples where you actually can visually estimate the percentage of red snapper that were big targets, seen with sonar, and then we had all of these other samples, farther out on the shelf, where the water was too turbid, where you had sonar picking up big targets, and then we assigned the proportion of red snapper seen in the shallow-water stations across the shelf.

The directionality that they suggested was that we’re underestimating, if anything, the number of red snapper in the western Gulf of Mexico, but a true reconciliation process would be like we need to spend more time actually figuring out what those big targets are in the western Gulf of Mexico, and, also, you know, maybe updating the stock assessment, which was 52 at the time, to see, with new information, new catch estimates, the population tracking upward, where the 2018 estimates would have been, side-by-side, and not earlier estimates versus what was coming out of the Great Red Snapper Count study.

That process of reconciliation hasn't really occurred, and, you know, I think it would be important to look at -- Not just assuming -- Anyway, I know I'm kind of dragging on here, but the idea is like, well, if you just throw out the unconsolidated habitat stuff, and you pick up the natural reefs, known, and artificial reefs, and you estimate what the population is, that might come close to the stock assessment.

Again, there's this implication that the Great Red Snapper Count is more accurate, and that somehow we missed those fish because they're not directly targeted by the fishery, and so they're not in the age comps, and they're not -- They are in the fishery-independent estimates, but I just think that that is too simple, and that we haven't actually dived in here and figured out, okay, where could both of these be wrong, and how -- You know, if we account, and try to mitigate some of those sources of error, how do these line up with that's fully accounted for, and that was never done.

CHAIRMAN NANCE: Thank you, Will. To that point, Luiz?

DR. BARBIERI: Well, and, Will, to add to your point there, I think your main argument there, Sean, was that we are dealing with two completely different things, really, that are different scales, really, because one is set up to look at, you know, sampling some habitats and then expanding, right, to the total Gulf, or the area of the Gulf that was considered, based on the amount of habitat out there, right, and so this is going to give you one number that is bound to be very large, and you use the amount of habitat as a scalar, a scaling factor.

On the other one, the assessment is really set up, not exclusively, but primarily to be focused on the exploitable part of the population, and it does have, you know, information inputs, in recruitment and indices of abundance and fisheries-independent and all of that, but it's really -- Because the scalar within the stock assessment, the age structure assessment model, is really catch, right, and you're really using an expansion factor that is anchored, hinged, on the exploitable population size, and so the two are not necessarily compatible.

I mean, I don't see how you fit that square peg into a round hole. In my understanding, and you brought that up during the review, Sean, is that, originally, the Great Red Snapper Count was never meant to produce data that would fit into a stock assessment framework that was really supposed to be a completely independent estimate of total population size, right, and so I'm trying to

think like how we can reconcile those big differences and not create more problems for the assessment process, especially when our management advice is really focused on that exploitable part of the population. I just don't know how to do that.

CHAIRMAN NANCE: Doug.

MR. GREGORY: I will pass.

CHAIRMAN NANCE: Steve Saul, please.

DR. SAUL: Thank you, Mr. Chair. It seems we have two disparate conversation threads going, and my -- What I wanted to comment on was more related to the prior thread with Shannon's comments, as sort of from the perspective of someone who was on the review panel, as well as someone who has worked on these assessments, but I don't know if this is a germane time to make that comment or you would rather have us finish the Great Red Snapper Count thread. Let me know, Mr. Chair, what your preference is.

CHAIRMAN NANCE: Wait on process, Steve, yes. Let me steer it.

DR. SAUL: Is that topic, the sort of process topic, going to come up again for conversation?

CHAIRMAN NANCE: Yes, that is, yes.

DR. SAUL: Okay. Perfect. All right. Thanks.

CHAIRMAN NANCE: You're welcome. I think what we want to do, and we're kind of migrating a little bit, is, on this topic, we're talking about SEDAR 74, and we need to give our SSC direction to the Center, so that they can start to do the model again, and what are our recommendations, those types of things, so that, when Katie and her team walk out of here, they say, okay, that sounds like -- That's what we're supposed to be interacting with.

The CIE gave some -- Or the review gave some opinions, and the Center has given some opinions, and we, as an SSC, need to give our advice and interact with the Center, so that, when they leave here, they're able to move forward, and that's kind of what we want to be able to do now.

The next topic is SEDAR itself, recommendations for changing the process and those types of things, but I think we need to provide the Center, and Katie did a great job of noting what the review said, what the Center is saying, and are we, as an SSC, in agreement to those things, and how do we want to see this moving forward?

Yes, Roy.

DR. CRABTREE: Well, perhaps it would be useful to put up a specific list of the questions that the SSC needs to weigh-in on, and I think there was a slide that had some items on it, and let's just take them and see if we can come to a resolution. Otherwise, I'm afraid -- It's a great conversation, but I'm not sure we're going to ever get there.

CHAIRMAN NANCE: Katie, is there a particular slide we can bring up that would --

DR. SIEGFRIED: Jessica has it, and I think this is the best overall slide, and I'm happy to go through the issues quickly again, and I do have a few Great Red Snapper Count questions.

CHAIRMAN NANCE: That would be fine.

DR. SIEGFRIED: To us, the most important thing with moving forward, because we really think we have ways forward, and I think the SSC can provide pretty succinct advice on most of the other bullets, but the most troubling, for us, is the recreational landings and discard data discussion, and the bullet there speaks for itself.

The South Atlantic SSC has discussed what to do with this, and then reported to the council, and the council has responded, and I don't think that's happened in the Gulf yet, and so we're looking for the SSC's opinion about what to do with those data.

CHAIRMAN NANCE: Okay, because I know, in the review, sitting there and listening, it was some of the reviewers felt like the landings, and the discards, should be created outside SS, and the assumptions and everything made, and then the stream that's developed from that outside analysis then goes into SS, and, Mike, I don't know if you had that same --

DR. ALLEN: You know, the CIE reviewers were positing that the landings, the total removals, landings and dead discards, should be put into SS3 with an assumption that those are known, those are pretty much known, with very little uncertainty in those, and my understanding is they weren't arguing to just combine discards and landings, and they were arguing to do that process separately, outside the model, and to deal with the selectivity and all those things separately, and then bring in a combined removals trajectory into SS3 that is assumed to be known, and the way I understood it was to actually then evaluate that through some type of sensitivity, where you would assume that each of those landings

trajectories, removal trajectories, is known, but you would try different ones to account for uncertainty in the landings trajectory, and so that's -- You know, but it sounds like there is the ability, in SS3, to actually deal with uncertainty in the landings, and so I think that's something for us to discuss.

CHAIRMAN NANCE: Shannon, yes, please.

DR. CASS-CALAY: So there are really two issues, in my mind, and the first is just how you treat landings versus discards, and that's more tractable, and there are a variety of approaches that could be used. The second is also the recreational landings themselves, and that's a little bit less tractable, in many ways, but maybe we partition those two choices, because I think that there are many ways that we can handle the uncertainty within the stock assessment.

You know, if there is -- You know, we typically use uncertainty in especially the recreational landings, because we are aware that they are quite uncertain, and also potentially biased, but that can also be handled through like an MCBE approach, which is not coded into Stock Synthesis, and so that is an issue, or an uncertainty grid approach, which actually runs a variety of models, and it includes it in an ensemble, to produce management advice, and that is available.

I guess what we need from you is does it need to be a term of reference for the upcoming assessment, which we'll call a benchmark, and does it require -- Does it require potentially a working group to provide input? Is it something that would rise to the level of what we used to call a TWIG, for example? These are the kinds of things -- We don't need to have, necessarily, a solution post-here, but we need to know if you want that to be listed in the statement of work as something to evaluate, and how that evaluation would occur.

CHAIRMAN NANCE: Thank you, Shannon. Luiz, to that point, please?

DR. BARBIERI: Well, thank you for that clarification, Shannon, because I think that helps, but, I mean, I think our discussion here, in some way, needs to be focused on whether we agree with some of these recommendations or not, right, and, I mean, I'm under the impression, or was during the review, that a lot of these comments reflected, you know, very strong opinions from one particular reviewer who has their own, you know, philosophical approach for how to handle assessments, right, and there are disagreements, differences of opinion, on how to handle some of these things.

I mean, this is common in science, and we all agree and disagree with each other all the time, and we have those differences of opinion. I don't agree with that recommendation, and I think that it actually, in terms of considering the landings, recreational landings, or all landings, that is known, without error, right, because this is supposed to be science, right, that is informing the assessment, and we don't want the assessment to become science fiction, right?

All of a sudden, we pretend that one of the most, if not the most, uncertain data inputs into the assessment is known, without error, and so, yes, if we then have the model zero-in on some estimate of biomass that we believe is -- We are like more, I mean less, uncertainty about being wrong, right, and I don't understand how that would lead us in any way.

Our whole framework, under NS 1, is explicit about the fact that we become more transparent in uncertainty, and we present that uncertainty, and we know where we are not certain about things, and then we account for that uncertainty in our management advice, and so that buffer between OFL and ABC is basically saying we are not very sure where OFL really is, right, and so we're going to have to get a buffer, because it could be anywhere around there, and we want to set an ABC that is either equal or below that MSY.

To me, that approach, and that we would consider taking bandwidth, you know, from our Science Center and assessment enterprise to pursue something that I diametrically disagree with, and, you know, I would like to hear other people's opinions on this, because, in my view, this is just not a direction that we want to go, and there would be massive implications for the assessment enterprise as a whole, right, because we have -- We actually assess a variety of stocks, that we have these massive uncertainties with all of them, and are we going to completely change the way that we conduct our assessment process now, based on that one strong opinion? I don't think it's justified, and I would like to hear others, Mr. Chairman.

CHAIRMAN NANCE: Jim and then Mike.

DR. TOLAN: It's to that point, and it's a question that I have for the Science Center, and I don't have the calendar in front of me, but, if we go down this road, and I think you've laid it out pretty well, what gets pushed aside, because the calendar is pretty set for the next couple of years, and so what is going to get pushed aside?

CHAIRMAN NANCE: Shannon, please.

DR. CASS-CALAY: So we're still negotiating the 2026 calendar, and it's not been decided. It will maybe be penciled in, to some extent, in the March meeting, and so I would think that it would be a possibility, you know, to put this back on the calendar, in 2026 certainly, and the question is whether we're going to be able to provide you any information about the recreational statistics by then that is better than what we know now.

CHAIRMAN NANCE: Katie, please.

DR. SIEGFRIED: At the review workshop, we were discussing with council staff -- We had the operational assessment on the schedule for right after, but so the -- Of course, Julie, from SEDAR, was part of this conversation, and the earliest that the data are ready to go would be December of this year, to start the process again, if it was going to follow -- You know, go ahead and do this benchmark-like process. That was scrambling to figure out where to fit it in the current schedule.

Given changes that have happened, we would have to set it up in the larger calendar but that was -- That was the last discussion that we had with council staff, and it's really -- I know Julie is anxious to get things rescheduled, if possible, and get everybody back to the table, but it does cause a cascading effect through everything.

CHAIRMAN NANCE: Okay. Dave, to that point, and then Mike.

DR. CHAGARIS: I was going to go back to what Luiz was speaking towards, as far as, you know, handling uncertainty in landings.

CHAIRMAN NANCE: Okay. Mike, from your perspective --

DR. ALLEN: Well, just a more general, like high-level comment, and my impression was that the CIE reviewers had not -- They certainly were not familiar with dealing with a fishery like the red snapper fishery, with this huge uncertain landings, a huge amount of recreational discards, and then the fact that I think we had a real mismatch that the research track product was not completed, and it had incomplete data, placeholders in there, that were meant to be brought in in the operational assessment, and so it was kind of a fatal situation, where it wasn't really ready to review, with what they expected to review, and it's a type of fishery that was not the kind of situation that they had dealt with before, and so that set us up on where we ended up.

CHAIRMAN NANCE: Okay. Thank you. Please, Paul.

DR. MICKLE: Real quick, and, if it's been said, I apologize, but there's some folks in the room that may not understand the CIE input, and how -- The nuts and bolts of the review, and how many CIE reviewers were there? There was three total, and there was one rejection, and did we go through this when we started, or we just assumed -- What are the details of the review, please?

CHAIRMAN NANCE: Shannon, please.

DR. CASS-CALAY: So there were three CIE reviewers and three SSC, but there is not -- It's not actually appropriate to reject or accept assessments during a process. The intention is to provide recommendations for moving forward, and I do think that it was -- I don't really have any difficulty with them saying that it needed enough work that they thought it was a benchmark process, and not an operational, but I actually think it was the language they used, and the way they expressed themselves, that was very clear that they did not -- Well, at least one of them did not support the assessment process, but what I'm getting at is, actually, rejection and acceptance is not part of the terms of reference that they were meant to do, and so I don't think it's fair to say that this assessment was rejected. They said it needed enough work that they recommended that it be done for a benchmark process.

CHAIRMAN NANCE: That's accurate.

DR. POWERS: Although it was continually stressed to us that this was the end of the whole process, and so I think that -- You know, that was the disappointing thing, to me, was that there wasn't part where essentially Katie could do exactly what she did here, is come back and answer these questions and see if -- There was a lot of pressure, and I might have been wrong, but I think the CIE reviewers --

Where they had to come to a final decision, and I agree with you that it's not rejected, but the review kicked in, and we were specifically told that's it, and this is the end of the process, and so I think the review panel, as a whole, didn't feel like it was an option to start moving back and forth, that we had to come to a decision at the end of the process, and I had this as a process improvement, that that should never been the end of an assessment. I mean, there should be this iterative process that's left, but, I mean -- Mike, I mean, am I wrong? I mean, it was clear that -- We were stressed that this was the end of the process.

CHAIRMAN NANCE: Trevor.

MR. MONCRIEF: I will hold off.

CHAIRMAN NANCE: Dave.

DR. CHAGARIS: I was going to go back to the idea, you know, of, if we're meant to take the criticism of the CIE as recommendations, and, you know, what to do with them, and one of the big ones was, you know, treating landings as known, and I agree with Luiz. I mean, I would like to see us be able to move in the other direction, and be able to acknowledge more of the uncertainty that's going into the stock assessments.

Now, there is -- Obviously, there's a point where the models just won't converge, if you have so much, you know, freedom, and uncertainty, in the data inputs, but we don't quite know where that is yet, and, you know, I think there is a lot of ways in between assuming the landings are known, versus assuming the true error around the landings estimates, and there is all types of room in between to explore how we can accommodate uncertainty, but still have models that are able to converge, potentially weighting the -- You know, weighting the uncertainty -- I mean, rescaling the standard errors on the estimates, so at least you're maintaining the relative uncertainty between the different landings streams, you know, so they will fit certain streams better than others.

I think there's a lot of scope there, and I don't think we need -- I would not take the recommendation from the CIE reviewer to assume that landings are known perfectly. I think that would lead us in the wrong direction.

CHAIRMAN NANCE: Okay. Thank you. Steve Saul, to that point?

DR. SAUL: Thanks, Mr. Chair. A couple of things to note, and so, as I mentioned earlier, as someone who was on the review panel, as well as someone who has sort of worked on these assessments, and has researched some of these species, I think one -- Various people have touched on this, Shannon, Jim Tolan, and somebody else, and I can't remember who, and Luiz, is that I think where the review -- Where the advice from the review panel needs to be highly contextualized, and where the review panel struggled, and where there were important places of disagreement, although, you know, we did the best we can to sort of come to a consensus, given that's what we were, you know, tasked to do, but I think the lack of -- You know, so three of us were SSC members, and the other three were from other places, or regions, and I think the lack of regional context by half of the review panel was challenging.

I think that, as an SSC, as we review the recommendations that the review panel is making, I think it's really important, or not really important, and I think it's incumbent on us, and critical for us as a body, to consider these recommendations in the context of the species that we are managing, and their respective life histories, and in the context of the specific and special challenges that the Southeast Region has with respect to assessing these species and the data streams that are available to us.

This is now my personal opinions, is that some of the criticisms were overly harsh, in that, you know, they did not -- Because there was not full knowledge of these challenges, and the ways that the Center has gone about addressing these challenges, and I think the sort of feedback from the Center response is extremely helpful, and so thanks so much for that, and I think that's really important.

I think what we need to do, as a result, or what's incumbent on us, is to find some sort of middle ground that takes the useful pieces of advice that can be applied from this review, you know, recommends trying to apply those, if and when possible, and then, you know, takes the other sort of feedback and acknowledges that it's sort of outside the scope of what is possible in our region, and for the species that we have, and the data streams that we have available.

I think that's really critical for us to keep in mind going forward, and I think some important pieces of information to come out of this review, that are germane to most of the assessments that are done in the Southeast, and I like this idea of moving towards a more process-based peer review component, where maybe not every species is peer-reviewed, but, you know, some of these process questions, at a higher level that Shannon had mentioned some time ago, and that would probably be more productive, rather than rehashing every CIE review and the same kind of, or a similar, list of things that should be addressed, and that would certainly increase throughput a little bit.

I do feel the need for some level of peer review on these stock assessments, and, however, it looks like some of that might be able to be handled by the SSC, especially, going forward, it looks like there's going to be some additional SSC seats opening for folks that have background or specific experience with these sort of stock assessment models and the intricacies of them, and so perhaps that's a role for those folks who are assigned to those positions, maybe as a subcommittee, or a subgroup, and, at least in that way, the feedback can be balanced within this sort of

regional context and within the challenges that the Southeast Region faces, and so I think that's really important for us to keep in mind going forward. Thanks.

CHAIRMAN NANCE: Thanks, Steve. Katie.

DR. SIEGFRIED: Thanks, Mr. Chair. In light of the fact that we have limitations, compared to what some of the CIEs acknowledged, I think that -- You know, we have the tools, at our disposal, to be creative, to be statistically sound, to approach these data in the best way we know how, and that we, in the future, need peer reviewers who, if it's not their region, who are willing to ask questions about the region that they're reviewing and to be creative with their solutions, instead of apply pat answers from their region, and I found that to be very unhelpful.

The things that -- The main issues that we do need SSC feedback about, besides what David already explicitly noted about uncertainty in landings and discards, and Luiz had, and we do need to talk more about the Great Red Snapper Count, and I wanted to mention some things based on what Sean had asked.

The stock ID still -- I'm not sure that that was finalized, and then the treatment of age and length composition, and so we can run through my slides, and what the Center thinks we should do for each of those, and, if the SSC wants to weigh-in on each of those things, and then we can go over process, with the research track criticisms, but that -- I mean, we would like to move forward with this assessment. We know how to move forward with this assessment, and we need to know what you think about what our stance, and our statement, is for each of those.

CHAIRMAN NANCE: I think that would probably be a good idea, Katie, is to ask specifics on what you would like direction on, so that we can address that. Let me -- I've got two more. Will, did you have -- Then I'm going to have Julie, just in case that's something we need to hear, but Will, please.

DR. PATTERSON: So I agree with the comments that Steve made, and Mike made, earlier, and it seemed, to me, like the CIE process sort of got off on the wrong foot, and I won't rehash all the things that they talked about, that the reviewers were expecting to see, and didn't see, and maybe it just sort of compounded from there, but, ultimately, you know, the SSC is the peer review that goes to the council and provides advice to the council.

I don't see why we, as a group, can't say these are the things that we think are most important to pay attention to in the CIE

comments, and the review panel comments, and these other things are things that, for various reasons, shouldn't be addressed, or can't be, and, you know, Katie presented this from the agency's perspective. Given the tone, and information, and some of the critiques, that could have come across as defensive, but it wasn't, and that's the first thing I would like to say.

The second thing is this isn't a National Marine Fisheries Service, or a NOAA Fisheries, product, and this is a SEDAR product, and a lot of the folks in the room actually made recommendations that the analysts then carried forward into the modeling that then the CIE reviewers said, no, we don't like that, but it was still informed by science and data, but it was just different perspectives.

In the end, I don't see why we can't say, no, the three-stock model is functional, and it is parameterized appropriately, and move forward with it as such, and that the critique and criticisms -- You know, a lot of it had to do with the fact that they weren't looking at a finished product, and so that's not on the list here, and, you know, it's written here to revert to two areas, instead of three, but I don't see why we can't just push ahead.

CHAIRMAN NANCE: I agree with that. Let me hear Julie, please.

DR. NEER: Will, that was an excellent summary, and that was one of the points that I was going to say, is that the CIE reviews are -- The review panel, and let's be clear that this is not just a CIE review, and it was, as Shannon said, three CIEs and three SSC members that served as reviewers.

It often gets looked at like it's CIE review, and they're in isolation. With that said, there are sometimes strong personalities from the CIEs that can push their way through their points, but that's what their independent reports are for, and they all write one in addition to this consensus statement thing.

I just wanted to clarify that, with regard to Sean's comment about this is the end of the assessment, the review panel is tasked with reviewing what is in front of them. They don't get to see it if there is additional work, and so it sounds like, you know, there may be things that need to be adjusted, some of which can be the CIE -- The review panel may have recommended that the SSC will say, no, we like what the analysts did in the first place, and that's fine, but, as far as the review panel's task, it's not this is the end, and nothing else is ever going to be done, and it is you were tasked to review the product in front of you, and I'm sorry if you felt like this is the end, and we're never going to

look at this assessment again, and it's thumbs-up or thumbs-down, which is what Shannon addressed.

They don't -- They should not say we reject this assessment, and, like you said, that's not what they said. They said this assessment is basically not ready for primetime yet to produce management advice, and these are the things that we suggest you fix, and the Center has spent quite a bit of time, since that review, putting together this list that Katie is going to run through with you, and it is, as Will said, your role to please go through and say, yes, we agree that we need to fix this, and I think we should look at this, and it's also your role to say, yes, I understand why the review panel might have recommended that, but we disagree, and here is why.

As long as you lay out your rationale for that, then you should be good, and so those were just a couple of quick like perspective things, and, if it seemed like there was going to be no work on my part, I apologize. I also want to apologize that it was an unusual situation, and we've never had a case where a review panel went away for a day-and-a-half and didn't give any interim feedback of what they were thinking, because some of these things likely could have been addressed while we were there, and so should have been more forceful, in conjunction with working with the chair, to try and get some at least feedback from the panel, as we were going along, instead of letting everything compound until the end.

I apologize, from my standpoint, that I allowed that to happen, because I believe that is also part of what we're struggling with now, is they kind of came out and said here are our recommendations, and we're adjourned, and I won't let that happen again, and I am sorry for the struggle that it is causing you guys now. Thanks.

CHAIRMAN NANCE: Thank you, Julie. Trevor.

MR. MONCRIEF: I guess, just to touch on what Katie has said, and so stock ID, right, and so it's the thought here that we have essentially three choices ahead of us, the pragmatic substitution of going back to two areas, split at the Mississippi River, continue down a path, like Will said, of going to three areas, or redo the entire stock ID process, and is that kind of the universe we're in at the moment?

CHAIRMAN NANCE: I can tell that Katie wants to answer that.

DR. SIEGFRIED: I don't think that redoing the stock ID process will give us a different answer, and so I think we could use the

one that's already been produced, and not redo that, and I know Ryan would like flip around wherever he is in opposition to that too, and it was the lightest thing, if you noticed in my presentation, that if the SSC agrees to revert to a two-area, and I pointed out that the TORs were very clear that they shouldn't reevaluate that, and so I think it's within the SSC's decision to stick with the three or go back to the two. You could recommend to do stock ID, but I very much oppose that, for the reasons I stated.

CHAIRMAN NANCE: I don't think we need to rehash all of that, but certainly we can discuss whether we want two or three, but not to go back through that entire process again, and I think that's a waste of energy. Katie.

DR. SIEGFRIED: Mr. Chair, if you would allow, I could start with Slide 32 and go through the treatment of age and length comps, so we could get SSC discussion on each of the key things, one-by-one.

CHAIRMAN NANCE: Let's go ahead and break for lunch, and then we'll probably start on that, and that will give us -- If we come back at 12:30. Carrie, did you have -- Before we break?

EXECUTIVE DIRECTOR SIMMONS: Yes, and thank you, Mr. Chair. So just a process, I guess, question, and reminder, here, and so we're trying to get ahead of what the SSC would like to see in the terms of reference for a benchmark assessment of red snapper moving forward, and that's what we're trying to aim towards, and then we would bring those back to the SSC in May to review and provide comments on.

I think that's a good idea, and I guess, just while I have the mic, I thought one of the reasons the reviewers were critical of the three split, the three-way split, the three-region split, is because of the data limitations, and so I guess, when we're talking about this kind of high-level -- If you guys would kind of keep us in check on, you know, the limitations, again, to the data we're dealing with, the sample size, and I think with the life history information and that kind of stuff, so that we don't get too far down a rabbit hole with some of that.

CHAIRMAN NANCE: I think let's go ahead and break for lunch, and then -- Bernie, did you have -- Lisa.

DR. HOLLENSEAD: Everyone please allow the SSC members to get their lunch first, so we can start back on time.

CHAIRMAN NANCE: Okay. Thank you.

(Whereupon, the meeting recessed for lunch on February 28, 2024.)

- - -

FEBRUARY 28, 2024

WEDNESDAY AFTERNOON SESSION

- - -

The Meeting of the Gulf of Mexico Fishery Management Council Standing and Special Reef Fish, Special Socioeconomic, and Special Ecosystem Scientific and Statistical Committees reconvened at the Gulf Council Office in Tampa, Florida on Wednesday, February 28, 2024, and was called to order by Chairman Jim Nance.

CHAIRMAN NANCE: Okay. We'll go ahead and reconvene, and I will turn the time over to Katie. I think what we want to do is go through -- It's not item-by-item, because that is, I think, a waste of time, but are there pertinent things, Katie, from the standpoint of the model, that you need our input on?

DR. SIEGFRIED: Sure. Thanks, Mr. Chair. What I was hoping to do, to help with the discussion, if just ask if there's agreement or, if there's disagreement, what is the disagreement with our plan for each of these major points. We can get to the minor points if we need to, if we have time, but the treatment of the length and age compositions was a major point of the reviewers.

Based on the presentation that I provided this morning, here's what we plan to do, and I wanted to get feedback, if there were any omissions in our plan, if there's fundamental disagreements with what we plan to do, if there's any additions from the SSC, or if there's agreement that this will suffice to address the reviewers, both the CIE and the SSC, comments.

CHAIRMAN NANCE: Will.

DR. PATTERSON: So, just in that first one there, you know, you have the bullet to provide that work for evaluation at a data workshop, and so that sort of assumes a benchmark-type of process, where you have a data workshop, an assessment workshop, and a review workshop, but what if this was handled as -- If you stay with the three-population model, the three-unit model, and it's handled as an operational assessment, like was originally planned, then you wouldn't have a data workshop, right, and so do we need

to talk about structure, and sort of the overall approach, first, before we get into these particular -- Because that one -- You know, that affects this.

CHAIRMAN NANCE: Yes.

DR. SIEGFRIED: Yes, that's a good point, and so the first page of this presentation tells you that the reviewers don't think this is ready for an operational, and, as we discussed before the lunch break, it is up to the SSC whether they agree with that recommendation.

If they don't, and if you all don't, and you recommend that we move forward with an operational, then those -- Then the wording that we've used in these slides needs to be modified for our plan. I proceeded based on that review, and then discussions with council staff about what might be requested, based on things like transparency that is provided by a data workshop, but this is not meant to be prescriptive, and so -- I think that it is completely within the SSC's purview to accept or reject the CIE's recommendations, and so consider all of that editable.

CHAIRMAN NANCE: Yes, the first thing is -- I think a lot hinges on that. Jim.

DR. TOLAN: Thank you, Mr. Chairman, and I'll be the first to start this off, and I will throw out there that I don't think the SSC agrees with the CIE recommendation, some of the points they've raised, especially with the landings and discards, and I really appreciate what Will is saying.

If we go forward with the structure we have now, and we fill in the placeholders, the data gaps, the places that we know need attention, but I think we should move forward with what we have now, because we have a working model that is stable. Thank you.

CHAIRMAN NANCE: Okay. Sean.

DR. POWERS: So I agree with almost all of those comments, Jim, except for I think where the reviewers, and the review team, and obviously I'm biased, because I was on the review team, but that the two-area model -- I don't think we should just go forward with the three-area model. The reviewers brought up many valid points about how the three-area model was borrowing so much, or mirroring so much, for the central. I still question how the three-area model will help management of it, because, ultimately, we divide it up by state, but I agree with all of your other points, except for advancing with the three-area model.

CHAIRMAN NANCE: Jim, to that point?

DR. TOLAN: To that point, Mr. Chairman, and thank you. While I don't disagree with that, I think that the analysts, from the beginning, were very, very upfront and transparent in saying these data may not work for the three-area model, and these data may not work for the three, and, through a number of webinars, we sort of worked through that, and, whether the CIE didn't like it or not, and I think that's what we've got, as far as an operational-ready model that can go forward, and so I say stick with the three. Thank you.

CHAIRMAN NANCE: Yes, please.

DR. POWERS: I understand that, but not all the SSC was represented at all of those things, as well as the review panel, and so I don't think that decision is necessarily binding on any of us. As far as my understanding of what's going forward, we're not talking about taking this model and going operational with it, and we're talking about stepping back and going to a benchmark, and so the fact that we have a model up and running doesn't sway me that we should stay with the three areas, because I think the next step is to go to a benchmark.

CHAIRMAN NANCE: Katie.

DR. SIEGFRIED: The stock ID aside, as far as the benchmark versus operational, the whole time that we've been conducting this research track, we've heard a lot of weight being put on what's going to happen at this operational assessment, and it's like the biggest, most complicated operational assessment I've ever heard of, right, with seven TWGs, something like that, and that wasn't actually what operational was designed for.

That's part of why the Center discussions have been like, okay, yes, it's more like a benchmark, and not to argue with Will, but that's why we've gone that way. The amount of effort that needs to be spent on topical working groups probably could be accomplished in a data workshop, and follow-up assessment webinars, more efficiently than having several topical working groups, potentially with different panels, and different experts, and it would be in my opinion, just better to have everybody in the room for that week to hash out all those issues, but, again, I'm not a member of the committee.

CHAIRMAN NANCE: Let me ask, and so, in your opinion, Katie, at a data workshop, it would be an appropriate place to decide on two

or three areas in model, or does that need to be decided before a data workshop, so that the data is parsed out in those entities before?

DR. SIEGFRIED: The problem, for me, is that we had the stock ID, and it came up with a decision. The analysts have worked on that, and tried that out and everything, and they pointed out the flaws in it. Now, the main problem, for me, is the review panel -- It's kind of broad language to say it's too complicated, and so put it down to two areas, or the east isn't supported by the data.

Then the discussions about mirroring didn't seem to reflect an understanding of what we were doing, and it's a lot of -- I know it's a lot to unpack and to understand for the review panel in such a short period of time, and we've been dealing with it for a lot longer, but I didn't see strong -- I did not see strong justification from the review panel to revert, but I also didn't see strong consensus from the stock ID to have the three, and so I'm very torn. I don't have a smoking gun that I can point to and say that's it.

CHAIRMAN NANCE: It seems like, from listening to the discussion, from a two or a three, we're looking at a stock, but there is some utility in seeing the three different things, the three different areas, and what is happening. Shannon.

DR. CASS-CALAY: I think what is still true though is that the bandwidth to create all of the data inputs for both the three-area and for a two-area model is probably pretty prohibitive, and it would eliminate some other projects from our calendar, if we were to go in that direction, and so I do think it would be valuable to look at what information we have right now to inform this decision.

I don't know whether that can take place here at this meeting, and then, you know, I don't want to go to a data workshop and expect people to have two sets of data pulls that are -- That's basically two assessments worth of effort, and it would have to be accounted for in the calendar, and that's all.

CHAIRMAN NANCE: That's why I'm saying is, before a data workshop, somehow we need to decide is it a two-area model or a three-area model. Mike.

DR. ALLEN: You know, I just feel like, in the review, that was a recommendation, to try to simplify the model, but I don't think we were ever able to fully evaluate the three-zone model, and that is the fundamental issue here, is that it didn't have the updated data, and it didn't have the diagnostics, and it didn't have

projections, and so we couldn't really look at how it performed, and that's, to me, the underlying thing.

CHAIRMAN NANCE: Thank you. Katie, to that point?

DR. SIEGFRIED: Thanks, Mr. Chair. To that point, the -- I guess the sort of fundamental things that come to my mind, when I think of the two versus three areas, in addition to the problems of data provision, is, when I watched the analysts sort of going through and trying to manage this very large model, right, and I kept hearing them say forty-seven fleets, and we don't have forty-seven fleets, but it's forty-seven configurations of the fleets, basically, right, and it causes extra work that I'm not sure we really recognized the value of at the time, and it forced us to make all kinds of decisions about to parse data, particularly between the central and eastern.

A few of them are Great Red Snapper Count, and we had to get a new evaluation of the Great Red Snapper Count estimate, and that was parsed in the middle of Florida, which caused problems, and we didn't actually use the true value from that reevaluation, and we used a percentage.

Our age-length keys perform better in the two areas, versus the three areas, because of subsampling issues, and we did have problems with some of our indices just not being available in some of the regions, and so we're really, really stretching the data to get to three-area model, in my opinion. I'm not saying it's not possible, and I fully acknowledge that we did not get to the endpoint and get the full diagnostic package, but it seemed like a lot of bending over backwards, bending over backwards a lot to me.

CHAIRMAN NANCE: Okay. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman, and, Katie, this is exactly -- What you just mentioned is exactly where my brain has been going along this whole process, right, is that going with the three-area model is really a bigger lift, given all the data limitations. It generates complexities that are difficult to be handled, right, and my interpretation, and I know we're going to disagree about this, Will, because of what you mentioned earlier regarding the stock structure, but I reread, recently, Portnoy's paper.

I looked at the dispersal paper, and, I mean, all of that information, to me, indicates that stock structure within the Gulf is still equivocal. There are hypotheses that can be postulated, right, and made about that stock structure, but what is reported

from Portnoy, and I think he was at the stock ID workshop, right, to provide the genetic structure -- That that's not there, right, that there is a lot of variability.

There is some separation by distance, of course, components between the western and eastern Gulf, but that, in reality, there is no smoking gun of justification from genetic structure in the Gulf that justifies that, and so, to me, going to a simpler approach that facilitates, just like what Katie just mentioned, all the improvements, right, to the model that can be achieved by going to a simpler approach, and it would be an easier lift, right, and that it's just easier for everybody to understand what the components are and how they work.

I would, myself personally, lean towards a two-area model. Having said that, I recognize that this issue is very complex for us to be making final decisions here, and maybe that's what you meant earlier, Mr. Chairman, and, if a working group is put together, it doesn't have to be a revisit of the stock ID working group completely, right, but, if a working group is put together, they can discuss all of this, and parse out all these different components. That may be informative, both for us and the Science Center.

CHAIRMAN NANCE: Thank you, Luiz. Roy.

DR. CRABTREE: Well, I agree with most of what Luiz just said, and there clearly are some advantages to going to the three-area model, and some of the things that Will talked about, and we might learn about differences in red snapper in different regions and those kinds of things, but, in the end, I'm not sure how it provides any better advice to management, because we have always managed this as one stock in the Gulf of Mexico, and I don't expect that's going to change.

Now, if the Center said, well, we've gone so far with the three-area model that we think it would be difficult -- We would lose ground to go back to the two, but, with Katie's statements there, I don't think that's what I'm hearing, and so I don't think the case to go to the three-area is compelling enough to do that.

Now, I a little bit disagree -- I'm a little hesitant to kick this off to a working group, or another panel, and we have -- In my view, one of the problems with SEDAR is we tend to have too many working groups, and panels, and, you know, decisions just don't get made.

It's been a long time since we had a red snapper assessment, and,

given that we'll probably be a couple of years getting this one, we're going to be close to ten years out from the last assessment, and so there is some need, and urgency, to try and move, and get this done, and so, to the extent that we could get to a decision here, I think that would be advantageous, and the Center could go forward, but my inclination is to go with the two-area model, just because that's the way we've been doing it for a long time, and, without some compelling reason to change that, I don't think we should.

I think what I'm getting from the Center is that helps them along, and it makes this more doable, and then anything that simplifies models, without -- I think simplifying models is a good thing, generally speaking, although if the complexity is not really giving you a lot of extra value --

CHAIRMAN NANCE: Jason.

MR. ADRIANCE: Thank you, Mr. Chair. Not to belabor the point, and I was part of that stock ID workshop, and to say consensus is probably an optimistic term, and I originally favored a two-stock model, just not at the current border. With all the issues that have been discussed, I can see where, you know, the data mirroring is an issue, but we were trying to look at the dynamics of the stock, but I think, for this assessment, for right now, and until we look at maybe sampling in that third area, or dealing with the data deficiencies, maybe punting back to the traditional east and west might be the way to go.

CHAIRMAN NANCE: Thank you. Will.

DR. PATTERSON: I mean, all of these comments, and concerns, about two versus three-area model -- You know, we had that discussion in the stock ID workshop, and, no, there wasn't a strong consensus, but we came out of that with the recommendation to pursue the three-area model.

Now, we all may have a different opinion around this table, and the folks in the room, and there wasn't one consensus that this is the way to go, and we already did that process, and so I don't like it when we try to reinvent the wheel again and again through these things.

However, there is new information, and the new information is that a three-area model was parameterized, and structured, and there is this issue of the data mirroring that has to occur, or process mirroring, so that you can parameterize the eastern area.

Dave Chagaris said it best earlier, when he said you're either borrowing one way or the other. If you lump them all together, you're still -- You're borrowing from the dynamics of the central to inform the east, or you're doing it explicitly by having separate models, and I agree with Luiz that simpler typically is better, but we don't have the ability here to evaluate parsimony. We can't look at the output from the three-area model and compare it to a two-area model and say, yes, it's got a thousand more parameters, but it fits the data so much better that it's actually more parsimonious, and we're not going to have that ability.

The second thing is about how heavy a lift it is, and it's already been lifted. The lifting has been done, and the model exists, and so I'm in favor of moving ahead with an operational assessment with the three-area model.

CHAIRMAN NANCE: Thank you, Will. Harry, please.

MR. BLANCHET: Thank you, Mr. Chair. My concern with going toward an operational assessment is the issue that we have a peer review that essentially, at best, punted on the existing model, and so, if we carry that forward, that's not the process that that peer review endorsed.

Just as a -- I don't know that that might not open up whatever the results of that process then, as an operational assessment, and I don't know that that doesn't open up that process up to criticism that we have rejected the results of the review panel, which is, you know, the peer review of the existing process.

If we are going to disagree with the results of the peer review, then I think that, under NOAA's BSIA process, we're going to have to step through several steps to demonstrate why we're doing such. To me, because of that, this looks more like a benchmark than an operational assessment.

The other piece of that is the issue of the recreational harvest values, and NOAA is in the process of evaluating those FES values, and potentially coming to some revised methodology, but we're really not going to know that for well over another year, and probably more. If it were my guess, it might be three or four years from now before we're really going to know, and I might be pessimistic on that, but that's just my perspective on it. I just -- I don't see a benefit in trying to move this more expeditiously, because of those two issues in particular. Thank you.

CHAIRMAN NANCE: Thank you, Harry. Julie.

DR. NEER: I just wanted to put something out there with regard to of this goes to a benchmark versus an operational. A benchmark can look like whatever we need it to look like, meaning we wouldn't necessarily have to bring back an entire -- The commercial landings, nobody has an issue with that, and we can just update those. Most of the indices, nobody any issue with, and we can just update those.

We are not required, under a benchmark format, to have the same working groups every time, and we did something different for shrimp, and we've done things differently for sharks, and we do things entirely differently in the Caribbean, and so I just want people to understand, and this kind of goes to Katie's point that it might be more efficient to have a data workshop, but we have the three working groups that focus on just the specific things that you guys need more information, or that was requested by the review panel, the looking into the recreational landings, obviously, the age and length comp stuff, and, yes, we can have a group that focuses on that.

As opposed to having a topical working group under these operational assessments, who would meet for three, four, or five webinars to get this done, bringing everybody together to focus on these topics for four or five days -- That might be more efficient, and it is totally allowed, within the current structure, to sort of modify the data workshop and what working groups we're going to have to deal with the needs of this particular assessment.

We had a very successful data workshop already, and most of the things that came out of it are still valid, and we would likely not change anything, and we would just update the data, and so just kind of keep that in mind, and I just wanted to make sure people weren't under the impression that we've got to revisit every single thing. We can, but we don't have to, if the group agrees that that's not necessary. Thanks.

CHAIRMAN NANCE: Thank you, Julie. Yes, young lady.

DR. CASS-CALAY: Thanks. I'm not sure which hand I raised, and I thought about raising them both.

CHAIRMAN NANCE: I saw it anyway. Shannon, go ahead, please.

DR. CASS-CALAY: I mean, Julie and I are in agreement that a benchmark can be what we need it to be. I do want to bring up though that, if we do go to a two-area model, then we really -- We do need to recreate every stock assessment input, and I don't know whether there would be a need to re-review some of the decisions.

It could happen that we'll have new indices, et cetera, et cetera, and so it could be -- It's a substantial undertaking, and so, if we do change the model structure, we'll need to put the time into the calendar to make sure that we can provide the data inputs and evaluate them, as is appropriate.

CHAIRMAN NANCE: Roy, to that point, please.

DR. CRABTREE: Well, am I hearing, from you folks, that going from the three-area back to the two is a larger lift than just staying where you are at three, because, I mean, Will said the lift has already been done, and do you agree with that, and is the most efficient route now to stay with the three?

CHAIRMAN NANCE: Shannon or Katie?

DR. SIEGFRIED: We're interchangeable at this point. We almost wore the same clothes. There's two parts to that, Roy, the data step and the model step, and so the model lift has been done to the three-area. There is 52 that's in the two-area, but there's changes to that that will need to be made.

The data lift -- I mean, it shouldn't be a bigger lift to do the two-area than the three-area in a standard data pull, and they've done it that way before, and so I -- Do you all disagree with that? It just will need to be re-vetted, because it's a benchmark, right, and the idea is to go through the data workshop, for the full transparency, but they've been pulling -- Our data providers pull east and west pretty standard. They've done red snapper pulls twenty times in the last ten years or so, and so I don't think it's a bigger pull, but it's just different from what we just put together. Do you all want to say something about the model set?

DR. SMITH: Essentially, the model is parameterized as a three-area model, and it's functioning, like Will implied, and so, with new data, we would, obviously, probably be just one step back in the sort of fine-tuning, rather than starting from scratch, which you wouldn't be doing necessarily with the two-area, because we do have 52, but there are quite a few differences, in terms of fleet dynamics and indices that are in there, and so we do have a starting-off point for that, but the two-area is further back in time, but we're familiar with that model structure, and I'm confident that we could get it to work, but I don't think --

I guess Katie was kind of getting at this as well, and I don't think the analyst time, or the data time, are going to be that much different either way, unless you just want to do what Will was suggesting, is move forward with the operational, and just

tweak what we have, and, in that case -- I don't know, and we could be looking at management advice from this within months, rather than years, potentially, but --

CHAIRMAN NANCE: I do think that Will brought up a very good point, in the fact that this thing was worked out over a great period of time, and the consensus, from that group, and we got the same, is a three-area model, and that's what they were going with, and that's what has been parameterized, and so it's -- From hearing that I don't think the lift is -- I mean, it's already working, and I think it does give us -- As has been pointed out, it gives us an insight into a different area, the west coast of Florida, and so, from my perspective, I'm kind of leaning towards keeping the three and moving forward with it, just because we had that working group, and they came up with that, and, if we start to rethink everything that everybody does, we're just going to be kind of stuck in the sand. Shannon, did you have a comment? I saw your hand, but I'm not going to force you to say anything.

DR. CASS-CALAY: Yes, I raised my hand, and, frankly, I'm agnostic, really, about whether to do two or three areas, and I'm almost agnostic about whether to speak about it. I mean, there are advantages to retaining the model structure we have, because, as Matt said, it would accelerate our ability to produce management advice.

I also have to say that, you know, ideally, to really -- If you really wanted to use spatial modeling, we would know something about how animals move between the spaces that we don't -- So we're doing a very limited three-area model in the first place, right, and it's very stationary, in many concepts, and so, if I were an SSC member, and not a Science Center person, I mean, I would probably be more inclined to consider whether this more complicated model is advantageous for how we are going to conduct the management of this fishery.

I think the only factor, in my mind, that complicates this decision is that, currently, the model formulation is in a three-area formulation, and the model is stable, we think, and, you know, it is running, and the data has already been provided, and it would have to be updated, you know, to be finalized, but it does simplify the moving forward, to leave it in the structure it's currently in. It will probably take some additional time to do the two-area approach.

CHAIRMAN NANCE: Thank you. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman, and, since I was not at

the stock ID workshop, and hopefully Julie is still listening in, and I think Julie acted as chair, right, for that workshop, and I would like to have an idea, you know, to hear a little more explanation of why the stock ID workshop report -- You know, two reports were produced, basically.

You know, the way I understand it, there was a report that was produced, and then it was considered not achieving what it was supposed to achieve, and so it was rescinded and amended and released, and what's the difference between the first and the second report, and what would be the justification for that? Julie, are you still there?

CHAIRMAN NANCE: Steve, please.

DR. SCYPHERS: So I will add a couple of comments, and then others can fill in, but I was also on that working group, and the stock assessment report actually includes text to show both versions, and so it shows the summary and what text was changed, and so you can go in and see what was initially written and then how, after some group discussion, it was changed.

Ultimately, I think it gets down to the definition of "consensus". I think that the first version conveyed group consensus, and then I think there was some conversation about two versus three after that draft was put out there, to where some divergent opinions wanted to be expressed in the text, and so the final version conveys more that there was diverging opinions, within the group, of two versus three, in that group, and so I think -- I mean, for me personally, I kind of have the same question that Shannon asked a second ago, of like what's the management benefit of the three, and I certainly, as being part of it, did not -- I understand that we did reach consensus, in terms of not derailing the process from moving forward, but I think there were still some pretty solid disagreements amongst the different people involved, you know, pretty much through the process.

CHAIRMAN NANCE: Thank you. Carrie.

EXECUTIVE DIRECTOR SIMMONS: Thank you, Mr. Chair. Just a suggestion, perhaps, to try to move us forward, and so we are going to be looking at this again in May, right, the terms of reference, and perhaps we could ask the Science Center to bring some more information on what the differences would be regarding workload, data limitations. You know, what we don't want to end up doing, at the end of the day, is having something that's not going to work.

We could also allow the council to weigh-in on this specifically, and I don't think that, you know, as a body, the council has weighed-in on this, and really thought about it, and apparently the Regional Office has had some discussions about it, but I don't know that we have openly with the council, and so that would give us an opportunity as well to do that, and to think about that some more, with the various state agencies too at the council level, because you're going to be seeing this again in the terms of reference, and so I think we'll probably have to revisit this. At this point, that would be my suggestion.

CHAIRMAN NANCE: Thank you, Carrie. I think that's a good suggestion. Julie.

DR. NEER: Well, the previous speaker just said everything that I was basically going to say of why we had those two versions, and so that was great. I just do want to comment that it's going to be incredibly difficult to produce draft terms of reference for the SSC to review if we don't know operational versus research, versus benchmark, and, if we don't know -- Really to have some clue where you're heading with the stock ID stuff, and so just trying to clearly set expectations of when this might come to you with draft terms of reference, depending on how this discussion plays out. Thanks.

CHAIRMAN NANCE: Thank you. Jim.

DR. TOLAN: Thank you, Mr. Chairman. I will just make this final push for using the three-stock model and moving it into an operational. A lot of it had to do with the point and counterpoint presentation that the analysts put together, and we've got some very good rebuttals to the review that it went under, and I think it's the role of this group to review the assessment, and the piece that came in for the CIE review -- That's a piece of it, and, if we have disagreements, and we can justify why we went in one direction versus another, I think it's our role to say we think this is the best path forward.

Julie mentioned that, in an operational point of view, a lot of these specific things can be handled in topical workgroups, and so, from a timeline, I think it really shortens up management advice ultimately going to the council, but I think it's the role of this group to ultimately say we accept this assessment or we don't. Thank you.

CHAIRMAN NANCE: Will.

DR. PATTERSON: I sent a motion, a few minutes ago, to Meetings,

but, as part of that, I understand the argument about a three-area model doesn't match how the stock is managed, but neither does a two-area model. If we wanted to have a stock assessment model that had the spatial structure of management, we would have one unit stock, and everything would be lumped together.

The reason, back in SEDAR whatever in 2009, that we went to a two-area model was because we thought it had more accurately reflected stock structure, and not just population structure, but the recruited animals to the fishery and how the fisheries were prosecuted in different regions, and it matched it better, and the discussions, you know, around population structure, in this case SEDAR 74, also were broader than just genetic population structure, as Matt pointed out.

You know, I understand the argument, but, if we were going to do that, then we should revert to a one-area model, if we wanted to full match. What we're trying to do, in my view, is to best account for model stock dynamics, and, in my opinion, a three-area model has a higher likelihood of doing that, and that's why I support this approach. You know, this could be a close vote, if there's a second and this moves forward to a vote, but at least it gets us past this discussion.

CHAIRMAN NANCE: Thank you. We have a motion. Do we have a second? Jim Tolan seconds. Is there discussion on -- Well, we've been discussing it. Dave.

DR. CHAGARIS: I like Will's, you know, point there, that, if we really wanted to accommodate management structure, we would go to a one-area model, and, even though, you know, we aren't managing on three areas, there are still some advantages to having the three-area model and being able to communicate with stakeholders that, you know, yes, we're capturing, you know, explicitly now what is happening in your region, whereas, before, they couldn't really see that, and so, you know, that could help us in the long-term, and there may also be future changes to management, you know, that this model might be able to accommodate.

The other point that I wanted to make was that, you know, of all the criticism out of the CIE review, almost all of it still would have happened had it been a two-area model, you know, and so it's not like this all fell apart because it was three areas, and then, you know, hearing Matt say that we could have management advice in a matter of months, versus years, and then we're ten years out from the last assessment, that holds a lot of --

CHAIRMAN NANCE: I thought Matt said weeks.

DR. CHAGARIS: Weeks? I think he's got it already.

DR. SMITH: I am not in charge of the scheduling, but months could also be up to and include twelve months, but rather than multiple years, and, I mean, we're ready to go with advice.

DR. CHAGARIS: So that holds a lot of weight with me, as far as where we're at now, and, you know, I would like to see this process through.

CHAIRMAN NANCE: Doug.

MR. GREGORY: I would like to know why you want to go an operational assessment route, rather than the benchmark, as the Center was suggesting earlier.

CHAIRMAN NANCE: Katie, or, Will, go ahead.

DR. PATTERSON: Well, I will just speak to the language in the motion, and we can strike "operational" and just have "stock assessment". You can call it George, and it doesn't matter to me. You know, however it works, it works.

CHAIRMAN NANCE: Katie.

MR. GREGORY: How about Will's stock assessment. Sorry.

DR. SIEGFRIED: Will is welcome to do it if he likes. I don't want to miscommunicate the type of assessment, and all I meant there was the reviewers had recommended that we have additional review at the end, and only type of assessment where we have review, besides -- Or external review, besides the research track, is the benchmark.

Now, if -- That's the other part that needs to be discussed. A data workshop can still happen with an operational, and we have had in-person meetings with an operational, but an operational does not include additional CIE review, and it would just come to the SSC for review, and so I do think it's important to identify operational there or something with an external review.

CHAIRMAN NANCE: I am just trying to --

DR. SIEGFRIED: I don't think we need the external review, frankly, and I think --

CHAIRMAN NANCE: No, I don't either.

DR. SIEGFRIED: I think that everything we presented the CIEs could have been accomplished through an operational assessment.

CHAIRMAN NANCE: Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. I mean, if this, you know, turns out to be the consensus of the group, you know, I will go along with it, not to be disruptive, but I do think it would be important for us to get some additional information, you know, from the assessment team, you know, as part of the assessment report, about the extent -- To be a little more explicit about the extent of data borrowing, because I would, you know, in a gross way, sort of equate that to fixing parameters, right, in a model that don't --

That we don't actually know what the range of uncertainty is associated with those, and so, in this case, to come up with three, and say that we know more, that now we understand better the dynamics, when some of the data is coming from some of the other regions -- It's not easy for me to understand how we know more by parameterizing a three-area model that uses so much data from the other regions, but, you know, if we go with that, I think, as we prepare our, you know, application of our ABC Control Rule, or whatever method we decide to apply to go from OFL to ABC, we need to account for that, because that's data that we did not have, right, going into the assessment that we are having to fill in those gaps.

You know, this is fine, but, if we know that in advance, and had some way to capture all of that, we can probably account for that uncertainty, and so is that possible?

CHAIRMAN NANCE: I don't see any red lights going off down there. Dave, to that point, and then I think Matt or --

DR. SMITH: I apologize, Luiz, and we were having internal deliberations for the first half of your question, and I missed it, but --

CHAIRMAN NANCE: Let Dave say something, and then we'll turn it over to you guys.

DR. CHAGARIS: That will allow you guys some time. Well, just I don't know that it's data borrowing as it is parameter mirroring, is what is going on, and Matt and LaTreese can correct me, and I don't think they're borrowing any data. Fitting the central model to data from the east, they're sharing parameters, and so all

that's doing is taking the assumptions that were implicit in a two-area model, and making the same assumptions, but you're now being explicit about it, and so that's the difference, and I don't think we're borrowing the data.

DR. BARBIERI: Right, and, just for my understanding then, how does that get captured, right, because our job here is to understand the degree of uncertainty, right, and to scale management advice to that uncertainty, and how much can we account for that? I mean, if we can be given some kind of a measure of how much that, you know, that is going on, I think that would make it easier.

I will give you an example. You know, before SS 3.03, right, when we actually had kind of assumed, right, way back when, that we knew landings exactly, or the model would not converge, and we always complained, right, and the agency's assessment enterprise started actually being responsive to the SSCs in making modifications to the SS framework to be able to allow, right, greater CVs be associated with some of the data sources that we know are inherently more uncertain than the others.

This created a problem, in a way, because, you know, now you have space, or whatever, and the model has different ways to go, that we are not forcing it to go a certain way, but that uncertainty, now that we know that we are accounting for those things, and it really helps us in the management advice, you know, and, I mean, if we are trying to be adherent to NS 1, I mean, we're just following those guidelines to say scale from OFL to ABC based on the uncertainty.

To me, a three-area model may be superior in a fitting context, right, because it probably captures some of those dynamics at that smaller scale, but, obviously, data limitations are forcing me to make some assumptions there, and, if I cannot incorporate those into my assessment of uncertainty, I don't think I'm -- I mean, we already feel that we underestimate uncertainty, right, and so this is another thing that's being added on, and am I on the wrong track here, Matt?

DR. SMITH: No, not necessarily, and Dave took the words right out of my mouth, in terms of a response to the initial question about explicit versus implicit assumptions. With the uncertainty -- I mean, ideally, with the added model complexity -- We would introduce that model complexity with the hope of actually eliminating some uncertainty, and so, with 52, we're coming up with a single functional form that smears across different fleet dynamics and different population dynamics, and so some of that

uncertainty gets expanded.

If we can take a component of that, and maybe it's a retention component, or a selectivity component, for a certain fleet sector, and a lot of those could be estimated separately, presumably you're going to fit the data better, and you're coming up with a better population assessment model, and, after all that funnels through, we'll get a better estimate of biomass, and potentially less uncertainty from that process.

Now, we're trying to build uncertainty in in other places, like through the catch data and the discard data, and we could also add uncertainty through natural mortality rate, like Katie hinted on in her presentation, by exploring different steepness assumptions, rather than the ones that we have now, and those are going to be, I think, more -- If you're talking about better encapsulating uncertainty around catch advice, those approaches are going to provide a better envelope of uncertainty, a more appropriate envelope of uncertainty, whereas the tweaks we're doing with the central and the east -- The hope, in those, is to actually do a better job of fitting the data.

The data in the east is getting more robust, as the stock appears to recover, and the fisheries are catching more, and we're gathering more information on those, and it's primarily the more historic time periods where we lack information, and the mirroring is being used to help us bridge those gaps, but, again, it's the same underlying process, right, as what we just assumed implicitly in 52, which is that all of these things work the same and one functional form will cover them all.

Now we're still doing that where we have to, right, but we're giving the additional flexibility of taking data that we have separately, that are robust enough to estimate different parameters, and use that to better accommodate the differences in those regions.

CHAIRMAN NANCE: Thank you. I'm going to go ahead and vote on this. Katie, or Shannon, do you have any words before we take a vote?

DR. SIEGFRIED: Only that we were just discussing how to represent that uncertainty, and that's something we could do by showing which parameters are mirrored, and explicitly representing that uncertainty, as yet another thing we're trying to represent, and, otherwise, please tell us.

CHAIRMAN NANCE: I do think -- But I think the term "mirror" is

important, because, whether it's a two or a three, we're implicitly mirroring something, and so let's go ahead. I'm going to read the motion, and I think we'll need a roll call vote on this.

The SSC moves that the SEDAR 74 process move forward with a three-area Gulf red snapper stock assessment, taking into account the review panel, including CIE, concerns and criticisms to improve the model, where appropriate and possible. Okay.

MR. GREGORY: Does this explicit address a two to three-area model, because the second-half of that sentence is more nebulous. I could read it to say this is the end of the discussion of this, because we're going to let the Center make what decisions they need to make this assessment work, and so is it --

CHAIRMAN NANCE: The way I'm reading that is that we're talking about a -- We're using a three-area model, and that's going to be what we're using.

MR. GREGORY: Right, and that's the first half, but the second-half kind of implies everything else.

CHAIRMAN NANCE: Well, I think it's why -- The way I'm reading it is why we're choosing three. I think it's -- In my mind, it's readable and understandable.

MR. GREGORY: So I accept what you're saying, and I don't have any disagreement with it, and so, after this, we're going to address the next concern that was raised, and then continue to go through that list, right?

CHAIRMAN NANCE: Yes, but this is where we need to go in order to get onto the other list. Go ahead please, Jess.

MS. MATOS: Dave Chagaris.

DR. CHAGARIS: Yes.

MS. MATOS: Steve Saul.

DR. SAUL: Yes.

MS. MATOS: Jack Isaacs.

DR. ISAACS: Yes.

MS. MATOS: John Mareska.

MR. MARESKA: No.

MS. MATOS: Doug Gregory.

MR. GREGORY: No.

MS. MATOS: Trevor Moncrief.

MR. MONCRIEF: No.

MS. MATOS: Sean Powers.

DR. POWERS: No.

MS. MATOS: Jim Tolan.

DR. TOLAN: Abstain.

MS. MATOS: Rich Woodward.

DR. WOODWARD: I am going to say yes, because I trust the process.

MS. MATOS: Will Patterson.

DR. PATTERSON: Yes.

MS. MATOS: Paul Mickle.

DR. MICKLE: Yes.

MS. MATOS: Harry Blanchet.

MR. BLANCHET: Yes.

MS. MATOS: Jason Adriance.

MR. ADRIANCE: No.

MS. MATOS: Luke Fairbanks.

DR. FAIRBANKS: Yes.

MS. MATOS: Mandy Karnauskas.

DR. KARNAUSKAS: Yes.

MS. MATOS: Josh Kilborn.

DR. KILBORN: Yes.

MS. MATOS: Dan Petrolia.

DR. PETROLIA: No.

MS. MATOS: Cynthia Grace-McCaskey.

DR. GRACE-MCCASKEY: Yes.

MS. MATOS: Mike Allen.

DR. ALLEN: No.

MS. MATOS: Luiz Barbieri.

DR. BARBIERI: No.

MS. MATOS: Roy Crabtree.

DR. CRABTREE: Yes.

MS. MATOS: David Griffith.

DR. GRIFFITH: Yes.

MS. MATOS: Jim Nance.

CHAIRMAN NANCE: Yes.

MS. MATOS: Steven Scyphers.

DR. SCYPHERS: No.

CHAIRMAN NANCE: Okay, and so that motion carries fourteen to nine with one abstention. Okay. We need to move through -- So compare the unweighted and weighted age more explicitly, I think that's -- I don't see any issue there. Provide literature, I don't see any issue there, and, during the assessment phase, show impacts of different assumptions, and, to me, those are all -- They're going to be done anyway. Yes, Jim.

DR. TOLAN: Aren't those the things that I was talking about that Julie raised that could be handled a topical workgroup, since we just passed this last motion? I think they're going to be covered, and so I don't think anything needs a motion.

CHAIRMAN NANCE: That's what I'm thinking too, because, to me, the

data workshop -- We've already had a three-model workshop, and so is there anything else, from the Center perspective, that needs to be done before moving forward on working on the assessment? Katie, please.

DR. SIEGFRIED: So the two main things left are the Great Red Snapper Count handling, and it was proposed that we have the analysts work with some of the PIs on that, and I assume -- Again, that motion didn't say "operational", and, if we go operational, then we would have a topical working group on this, but we would have to -- We would have to have some guarantee of participation in that, as we didn't have -- Julie can reiterate this, as she has to the SSC in the past, but we did not have participation from the PIs for the Great Red Snapper Count at that data workshop, and so we would want some sort of -- I don't know how to get that to happen, but some sort of way to get that to happen, where we could form that working group.

The other thing is we did get feedback about the uncertainty in landings and discards, but we still have the outstanding FES versus state survey data issue for our rec landings and discards.

CHAIRMAN NANCE: I know Trevor has an opinion.

MR. MONCRIEF: I hate to be, you know, overly direct with it, but, at this point, it's kind of sticking with FES, and that's the foundation of what everything is built into, and, with the fundamental changes in reviews that are going through with it, there's -- That's the only thing on the table, in my mind, and, I mean, when it comes to the future of it, Harry pointed out that, if it's 2026, you've got the possibility of having more clarity on that situation, but, at the moment right now, you're in the same spot we were when we had these discussions the last three times.

Our state, and others, and I will go ahead and say it, have undertaken the process of piloting LA Creel and moving forward to regional consistency, to the best manner that we possibly can, and those conversations are still ongoing, not only at our level, but well above all of us, and so I think, when it comes down to it, it's going to be FES, and that's what is going to have to be used, until there's some resolution that comes out of this entire thing.

CHAIRMAN NANCE: Any other input from the SSC on that? I am in complete agreement with what Trevor said. Luiz.

DR. BARBIERI: Well, not to repeat what Trevor just said, but just to reinforce that, you know, we had a regional-level workshop, and it was part of the MRIP transition plan, that included their

statistical consultants, and it included all the different parties that are involved in this issue, and that group's recommendation, you know, came out in their report that said that, given all those differences between the surveys, they cannot be properly measured at this point, and that the only thing available, really, for this assessment, will have to be MRIP-FES-based.

We had that discussion in detail, and it involved a number of -- I mean, those are survey statisticians, professional survey statisticians, that do nothing but, and they said, you know, given the current situation, that's the only way that we can go at this point, and I don't have any reason to disagree.

CHAIRMAN NANCE: Katie, please.

DR. SIEGFRIED: I appreciate the feedback. Just to be clear, it's not straight FES that was used in the data workshop. What it was is the state surveys calibrated, in order to get historical data prior to when the state surveys came on. The two main things that were discussed, that were punted to the operational, were going to be whether the Texas calibration factor was still acceptable, and, obviously, we would need to do some sensitivities to address the pilot study, and that's obvious to us, and on our minds.

You know, as receivers of the data, all we can do is try to reflect the uncertainty and bias that they've told us that they were studying at the time, and so I wanted to make sure that we leave those out, and that all of those sorts of issues are discussed.

CHAIRMAN NANCE: I think that is important, Katie, in the fact that I think, at the workshop, we had Jim read in a statement, as far as for Texas, that there was an issue there that needed to be resolved before it moved forward. Jim.

DR. TOLAN: Thank you, Mr. Chairman. Everything I've seen in the report so far has that Texas ratio at one, and we're -- Assuming that we forward with this three-mile structure, it's still going to be one, because that eleven-times number is under great duress from the State of Texas, and so thank you.

CHAIRMAN NANCE: Okay. Katie.

DR. SIEGFRIED: The calibration factor you said is one, and it's still the 10.8 in the data that we're using in the SEDAR 74 model.

CHAIRMAN NANCE: That sounds like something that needs to be worked out, for sure.

DR. SIEGFRIED: That's the main issue.

CHAIRMAN NANCE: Because I know that, when we were at the workshop, we had that around eleven, and that's what is being used, and the State of Texas, in their opinion, feels like the number is one, and so however -- We need to come to agreement with what's in the model and what Texas is saying, and that needs to be worked out.

DR. TOLAN: To that point, Mr. Chairman, I'm going to try to find it, and I know I've read it in one of the presentations, one of the background documents, that there's a table for all the different states and what those calibration ratios were, and it was listed as one for Texas, and so I was in complete agreement with that, and so let me find that.

CHAIRMAN NANCE: Okay, and I think -- I'm not sure if that was earlier than when it was redone and we came up with the 10.9, or whatever the number was, but that needs to be -- That's one thing that I'm not sure the SSC could be involved in that, per se, but that's something that the Center and Texas, and I guess it's the Center, needs to come to agreement on.

DR. SIEGFRIED: We needed the SSC to weigh-in on the use of FES-calibrated state survey data, as was used in our data workshop, and, if that's not an issue, that calibration can be explored through, sensitivities or whatever, and that's pretty -- We can approach that, and we can deal with that in a data workshop or a topical working group.

CHAIRMAN NANCE: Yes. Trevor.

MR. MONCRIEF: To be clear, that's for the states where FES is no longer conducted, and so Louisiana and Texas.

CHAIRMAN NANCE: As far as I think what was made at the data workshop -- The consensus at the workshop with what is being used, FES or state-run surveys, I think that's pertinent, and it should be used. Shannon.

DR. CASS-CALAY: So forgive me if I'm just a little bit confused, but I think that what we're agreeing to do is to continue with the process of SEDAR 74, but that we have not agreed that we're going to essentially move forward in an operational assessment framework, where -- So what I'm saying is we can still -- That there are a number of issues there that were identified by the reviewers that will require further discussion and evaluation, and so we can still address those, either with something like a technical working group, or a topical working group, or another

process, as appropriate, and so nothing is stopping us from addressing some of these concerns with SSC participation.

CHAIRMAN NANCE: That's correct.

DR. CASS-CALAY: All right.

CHAIRMAN NANCE: Is there any -- From the SSC, am I misspeaking when I say yes? Okay. Carrie, please.

EXECUTIVE DIRECTOR SIMMONS: Thank you, Mr. Chair, and so just a bit of a process question, I guess, and so the SEDAR Steering Committee -- This is going to happen before the information goes to the council, and so I guess two parts of that, and so, essentially, the SSC is supporting what we currently have on the schedule, which is essentially to move forward with an operational assessment.

Before we do that, you will get terms of reference and topical working group information, just like you would have if we had gone back to a benchmark-style assessment, and you would approve that, and then we would move forward with an operational assessment.

CHAIRMAN NANCE: Yes.

EXECUTIVE DIRECTOR SIMMONS: So first part of my question. Okay. The second part of the question is does the SSC, or the staff, have to write a documentation that explains the way the outcome of the CIE report happened, and this is why the SSC is moving forward, based on our recent deliberations, and is that necessary, I guess, and that may be a SEDAR question to ask.

CHAIRMAN NANCE: That's probably more SEDAR, I think. Julie, did you hear that question and the others?

DR. NEER: I did. I think the SSC just needs to document all of these discussions that they just had now, with regard to their responses from what the Center provided, based on the report from the review panels and the independent CIE reports, and document this in their report, and this report should be pretty big, I would think, for your SSC, to make sure all of their justifications of why we're saying we think we're good to move forward with an operational assessment, which that's my understanding as well, is that we're moving forward with an operational assessment for SEDAR 74, as opposed to putting this into a benchmark format in the -- You know, as a new assessment.

Now, just to be clear, in the current process for an operational

assessment, topical working groups are structured to provide recommendations for a specific topic, and there is no assessment panel who reviews the production of the assessment under the current structure, unless you put together a topical working group to look at the assessment process, which is fine, but I just want -- And there is no CIE review, which many have said is not necessary, and so that's fine, but I just want to be clear that, if it's an operational, under the current operational structure, you will have to either put together a topical working group to look at the assessment, proper development, with all of these changes, but there is no structure for them to review a draft report or anything, and that's not part of the operational process, and so I'm happy to expound more if people have questions about that, but I will shut up if you're good.

EXECUTIVE DIRECTOR SIMMONS: I have one more follow-up, Mr. Chair, and so what happens if the council doesn't agree with the SSC's recommendation?

DR. NEER: Carrie, you mean if the council requests that this be moved to a benchmark?

EXECUTIVE DIRECTOR SIMMONS: Or something else.

DR. NEER: Or something else? Well, currently, there is nothing else. Currently, there's a research track, a benchmark, and an operational, under our current process structure. That may change, but, currently, there is nothing else, and the council is the one who ultimately makes the recommendations to the SEDAR Steering Committee, with regard to what type of assessment structure and process they would like to see, and then that's negotiated, obviously, between the Science Center and the council, but the council -- The SSC is providing you recommendations, and then the council takes that recommendation and does whatever they wish with it.

CHAIRMAN NANCE: What you're saying is, if the council rejects, then I guess we would revisit this in May.

DR. NEER: Yes. I mean, I would think, if the council has concerns with your SSC recommendation, they'll probably come back. They might come back to you and ask you to consider something else, and there may be some other totally new thing when you come back in May, and the Steering Committee is meeting in March, and I have heard tell that there's a lot of new options that are going to be proposed at that March meeting.

CHAIRMAN NANCE: Doug, please.

MR. GREGORY: Just another question. Are we now, and I apologize to Will for questioning his use of the word "operational", because it seems like that is what everybody is talking about now, and I thought we were going with a benchmark, and are we talking about, and are we going with an operational, in quotes, simply to avoid having a CIE review? I mean, that clarifies it, in my mind, and, otherwise, I don't know why we're -- We've changed direction, in that regard.

CHAIRMAN NANCE: Shannon, please.

DR. CASS-CALAY: So I don't think it's useful to call it an operational, necessarily, because I think that you need to tell us what elements you recommend occur, and so, if you feel that what -- That the assessment requires independent peer review from CIE, then you would make that recommendation. If you feel that it does not require CIE review, then you might make that recommendation, but, as far as the Center is concerned, we don't want to create a perception that an operational assessment is constrained, that we can't look at issues that emerge.

We want to make sure that the assessment that we conduct is thorough and comprehensive and addresses the issues at-hand, and we don't really -- We really want to avoid the nomenclature, and so the key -- The sticking point, in my mind, is that, under the current SEDAR procedures, you need -- Basically, if you're going to call it -- If you feel that it requires peer review, it's going to have to be called something like a benchmark assessment.

DR. NEER: Also, to that point, if you would like an assessment panel, it should also be called a benchmark, under the current structure, but I agree with what Shannon said, is tell us what you think you need, what components you think you need, and we will figure out, among discussions, what that process needs to be.

CHAIRMAN NANCE: Katie.

DR. SIEGFRIED: Thanks, Mr. Chair, and so the nomenclature is getting frustrating. The panel -- I guess, to me, that's a semantic thing too, right, because we were just told, or I think Julie just mentioned that we can have a topical working group that's basically a panel, right, that follows the assessment through.

We've also discussed, at times, having something that's like a heavy operational, where we have an in-person data workshop and then a topical working group that covers the whole panel process,

and so it really is -- As Shannon stated, the only difference is a required CIE review, and that really is up to the SSC, and it's not something we're trying to avoid, but it's just a matter of we didn't get a lot out of this last one, and it's an extra, you know, three months in the process.

CHAIRMAN NANCE: Okay. I think we're -- I know where we're at, and it's a matter of whether the council -- I think, at our May meeting, we need to go through and develop terms of reference for this, so that we can have a good discussion around that as we move forward, and I think that the most critical part is keeping with the three-area model, and I think, moving forward with that, we can develop the terms of reference for that to move forward, whether we call it a benchmark or an operational, and, in my mind, it's an operational, in the fact that it's a new model, but we can go with different working groups and things to move this process along.

Any other -- I think this has been a great discussion, and we still have the SEDAR process, but I'm going to -- I am going to say something, Luiz, and then I will let you -- But I'm going to have -- First, we have some things we've got to get done, and we're going to do those first, and then we'll come back to the SEDAR process, and then we can end with that today, with that discussion. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. I am just thinking about, you know, discussing with the analytical team, the Science Center folks also, the issue of steepness, right, because I thought that those recommendations that came out of the review -- I disagree with them, right, I do, and, you know, we need to, I think, have that discussion, because the interpretation of how that's handled, and how it relates to having proxy reference points, versus our ability to fully estimate, you know, parameters in the stock-recruit relationship, is important, and it has massive implications, right, and so I would like to hear a little more, right, about this.

My understanding of the way the analytical team configured the model for this was basically to set steepness at 0.99, as a way to obtain some average recruitment, going into the future, that -- You know, on those, there would be applied some recruitment variability over the years, right, some stochasticity over the recruitment time series.

I'm not sure that was the interpretation of the review panel, and they made very explicit comments about the value of steepness and the fact that it should be estimated within the model, and the

natural mortality should be estimated within the model, and, I mean, those things are massive, in terms of the implications, and so I'm not sure that we can move on without having some conversation about their recommendations on steepness and natural mortality.

CHAIRMAN NANCE: That's certainly pertinent, and I appreciate that. From the Center's perspective on that issue, Katie, please.

DR. SIEGFRIED: So what I covered was the CIE panel, and it's Slide 57, if you want to move to it, recommended fixing it at a value from the literature, a congener value or something like that, and there was some misunderstanding, on the part of some of the CIE reviewers in particular, because they thought, at first, if we're fixing it at 0.99, it was really a terrible idea, because the MSY was going to be nonsense, but then we reminded them that we use an SPR proxy, and then it's not nonsense anymore, right, and so, if we fixed it at a congener value, we would then potentially use the MSY from that, or we would estimate with an informative prior, which is what previous CIE panels have recommended.

If it's not estimable, without prior, you literally have no choice to either do what we did, and use an average recruitment estimate, and, basically, there is no stock-recruit relationship then, or to do one of those two options that I just stated, and we can provide the value from FishLife, for the first bullet, and we can provide the informative prior from Shertzer and Kahn, and those are two options, and we can provide those results, assuming it's still no longer estimable. Of course, when we get going, and everything is fine-tuned, then we'll provide a likelihood profile to show whether it's estimable, and then we would potentially fix it, or try to estimate it with a prior, and so that's the way that we would proceed.

Estimating M is not -- I've never seen it done in our region, and I rarely see it done in any region, and you certainly are influencing one when you fix the other.

CHAIRMAN NANCE: Luiz, a follow-up, please?

DR. BARBIERI: Thank you, Mr. Chairman, and thank you for that, Katie. This is what I was trying to get clarified, because, you know, I happened to be here in the room when the review took place, and I heard some of the direct comments, and they came across, to me, as very strong in that presentation, right, the summary presentation, of the review panel recommendations, and I was like, oh my gosh, this is going to completely change the way that we actually handle this, and not just here in the Gulf, but in the

Southeastern U.S. as a whole, at the very least, right, and so there would be massive implications, and I want to make sure that, you know, we were in agreement that we can continue looking at things the way that we have been looking at them, right, that it makes sense for them to be handled that way, at least until we can come up with something better, and so thank you for that, Katie.

CHAIRMAN NANCE: Thank you. Harry, please.

MR. BLANCHET: In terms of process, normally, whenever we're going through and creating some -- Or reviewing some terms of reference, we do that in maybe an hour, and I think that this sounds an awful lot more like a lot more extensive discussion at that May meeting, and I'm just encouraging that this not be allocated to an hour, but that we broaden that scope, and discussion, so that we get all of this done at that point.

CHAIRMAN NANCE: I agree, Harry, and I appreciate that. Doug.

MR. GREGORY: I'm not sure I think that's the way to go, because what the reviewers -- According to this Slide 57, the reviewers disagreed with fixing steepness at 0.99, and so I assume the model didn't go to 0.99, or, if it did, I wouldn't be surprised that it went to 0.99, and I like the other alternatives, because we've done that with scamp, and we've done that with yellowedge, and we're doing that with other things, and the second sentence, I think, when it was presented earlier, yesterday or today, was misconstrued by somebody, and they're just saying that, you know, from a theoretical standpoint, in real life, steepness can't be at 0.99, because, at some point, in a low population size, there's going to be an effect on recruitment.

Now, given our experience with red snapper, we can argue that steepness is 0.99, for all intents and purposes, because we rebuilt this fishery from nothing, but I would like to see where the model wants to go, and we've got papers, and we've had papers before us for years now, of different suggestions of steepness for different families of fish, as a starting point, and get something like that, because we seem to be doing it with other species, and not just picking a number ourselves out of the blue, or saying 0.99, recognizing we all know that stock-recruitment relationships are problematic.

I like what Katie said, and I endorse going forward with that and seeing how that comes out in the assessment, and in the review of the assessment, and not at the end of the assessment, but during the assessment buildup, and I don't see much more -- Anything more complicated. Thank you.

CHAIRMAN NANCE: Thank you, Doug. Mike.

DR. ALLEN: You know, I was one of the ones that commented on this in the review, and I'm just -- I was surprised that the model could not give an estimate of the steepness parameter, because it is a stock that has had a huge amount of contrast, a huge depletion, and then a ten to fifteen-year recovery period, and then it just seemed, to me, that, if we can ever estimate steepness, this would be the kind of stock that you could do it from.

Again, we really don't know whether they will be able to estimate it once the data are updated, and they run this thing with all the correct data and all that, and so I like the idea of continuing to try to do that, and then maybe settle on an informed prior, with some of the surrogates from other studies, if we need to down the road.

CHAIRMAN NANCE: Thank you. Will, to that point, please.

DR. PATTERSON: So, in this process of a research track assessment, I was hopeful that, no matter how many areas were in the model, that independent stock-recruit relationships would be fit for each one of them, and I thought that perhaps could get us to the point where we could estimate -- Based on the dynamics of a given area, we could estimate steepness that way, but this continues, because of I guess the structure of SS being a shared stock recruitment model, where recruitment is then divided up among three areas.

I'm not sure -- I mean, I understand what Mike is saying about there's so much data, and it's a data-rich stock, and especially the contrast of low biomass to high biomass, and you ought to be able to model the stock-recruit function such that you produce an estimate of steepness, but I think it's the convoluted nature of how recruitment, and that function, is estimated for red snapper, given those different areas.

CHAIRMAN NANCE: Thank you. Steve Saul, please.

DR. SAUL: Thank you, Mr. Chair. After thinking about it a bit more, I think where the review panel landed was -- First, there was a bit of confusion, in terms of the MSY versus MSY proxy, and that was sort of resolved, or cleared up, during the review workshop, and that sort of helped, for some of us, of the reviewers, but I think an additional sort of recommendation was, which you all -- The Center does it anyway, is to sensitivity test.

You know, if you're going to fix the parameter, or if steepness

has to be fixed, just to sensitivity test around that, which, again, is typically done for most, if not all, of the assessments that we then use to generate management advice, and so that is not too concerning to me.

I wonder, however, if -- So I think, if that's done, that should, you know, sort of check the box that says, you know, that sort of the space was explored, and, for whatever reason, the parameter -- The model cannot converge and estimate the parameter, and it just runs to the upper or lower bound.

I wonder if, during the review workshop, and now I guess it would be a question for Matt and LaTreese, but it would be if -- Maybe this was the point of confusion during the review, but, if you're trying to model something that's representative of average recruitment, and you're fixing steepness at 0.99, I assume that the R zero value is essentially the average recruitment, right, and then the deviations, the recruitment deviations, are just modifying that, or adjusting that year-to-year, to accommodate changes in perceived abundance patterns, you know, age and size structure, et cetera, such that then the R zero value is not a, quote, unquote, true R zero value that would typically represent, you know, recruitment under virgin conditions, and is that correct? Is that accurate?

DR. SMITH: Yes, Steve. That's essentially accurate. R zero just becomes average recruitment.

DR. SAUL: Okay. That's super helpful, and I wonder if that was sort of -- That was not abundantly clear to me until later on, and so I wonder if that was a point of confusion among other people who were reviewers, and I think it's something that we should all, as an SSC, be aware of as we're thinking about this. Thank you.

CHAIRMAN NANCE: Thank you. I think that has addressed that issue. Let's go ahead and move to Item Number XI, which is Review of SEDAR 85 Gulf of Mexico Yellowedge Grouper Projections, and so I think we have those projections, and we'll be able to look at those.

DR. TOLAN: On the incorporation of the Great Red Snapper Count, what did we decide? I missed it.

CHAIRMAN NANCE: We didn't decide, I guess. Let us go through, and then we'll come back to that, because I do think, from that -- I think what we need to do is have the Center and the group work together to incorporate that, but we'll come back to that, and thank you for bringing that up.

REVIEW OF SEDAR 85: GULF OF MEXICO YELLOWEDGE GROUPER PROJECTIONS

DR. SAGARESE: All right. Are we ready to shift into yellowedge?

CHAIRMAN NANCE: Yes.

DR. SAGARESE: Today, we've got another presentation that's just kind of what was requested from yesterday afternoon. The first question that you had addressed, and given us the answer, was to focus on 40 percent SPR for yellowedge for calculating our benchmarks, and so the first thing we've done here is -- I do want to note that -- So there is a previous projections presentation and a projections report, and that was provided for yesterday.

Since then, since yesterday, we've actually updated -- In our projections, we've updated the 2022 landings estimate to be the -- Sorry. For yellowedge, landings for 2022 are actual landings. Landings for 2023, which just wrapped up, instead of using the three-year average, like we have in those reports, of 2020 to 2022, we have backed it down to be the average of 2021 to 2022, because, as the 2023 data have come in, and we don't have them by fleet and area yet, but they're pretty much a bit lower than what we assumed in the projections, and so, by using the 2021 to 2022 average, it gets us a lot closer to what has actually been caught for 2023.

In red, you can kind of see how those new numbers have been put in, and so just to keep that in mind, that that was the request, and I know we didn't discuss it yesterday at the table, but this is just more representative, and the council had requested that we do it, if possible, and this was because we don't have the actual 2023 data by fleet and area, and this was the best approximation that we could do for now, until we get those data.

Based on the 40 percent SPR, in this case, the stock is -- We're just over that one threshold, and so it is undergoing overfishing, but the stock is not overfished, and so, again, these results are based on switching the proxy, and these results are in that report, the projections report, in a similar format as what was provided in the stock assessment report, which was the 30 percent.

Just to kind of visualize what this looks like, again, at 40 percent, the stock is not overfished, but it is undergoing overfishing, and the Kobe plot on the left -- You can see that, most recently, we're just above that threshold for F, and, on the right, it's just showing you how our projections are operating, and so, over time, and over our hundred-year projection interval, we're achieving the target that we're specifying, and so just to

give you an idea to show that our projections are operating the way that we expect.

CHAIRMAN NANCE: There's too many dots there, young lady. I can't even see it.

DR. SAGARESE: So the Kobe plot, and so each of those dots is a different year.

CHAIRMAN NANCE: Yes, I know.

DR. SAGARESE: There is a little blue dot to indicate the terminal year.

CHAIRMAN NANCE: There is, and I see it now, yes. Thank you.

DR. SAGARESE: So I believe this is the end of -- Any questions on the benchmarks? Okay, and so, moving into the catch advice, the request was -- We presented basically three assumptions, and the first is the catch advice could be derived from projections that basically use the spawner-recruit-curve-derived recruitment, which is basically average for the time series. That's how we develop our benchmarks, and that's an option for producing catch.

However, generally, and for past assessments, we've seen pretty low recruitment estimates for our stocks, and, to try to demonstrate the effects, we've provided in our projection report, and the other slides, two basic approaches, and one would be taking the last ten years, which, when you look at this figure, the last ten years of recruitment have been really low, and so kind of maybe a worst-case scenario, if recruitment stays that low, and then we also provided like a middle-of-the-road for the last fifteen years, which kind of gets us in that medium scenario, and that's what was requested for the catch advice, as of yesterday afternoon, and so that's what we've provided here.

Again, we did update those 2023 landings, and so the numbers will be slightly different than what you see in the projection report, but not very different, and, again, just reiterating that recruitment for the catch advice is the 1998 to 2012 average, and the catches will be just slightly lower than what we initially projected.

From these specifications for the projections, with 40 percent SPR, here's what your OFL estimates would be. In the figure, the purple line is going to be the OFL, and the yellowish line is going to be the ABC assuming 75 percent of fishing at F 40 percent SPR, which is normally how the SSC has specified ABC in the past, and

so, based on this information, and making these assumptions, your three-year average catch would be about 4.92 million pounds gutted weight, and the last, the five years, would be just slightly lower. Here we have the annual estimates, and you can see that, you know, average -- The projected recruitment for this scenario is about 700,000 yellowedge each year, and we're fishing at the target, and here is what the trends would be.

The next figure is just -- The next slide is the same figure, but just showing the yields for that ABC projection, and the figure is the same, and it's the OFL and the ABC, but, in this case, your ABC, based on the last three years, would be about 0.373 million pounds, and so, again, these numbers are slightly higher than what's in the projection report, just based on that 2023 landings estimate that we've used.

CHAIRMAN NANCE: Thank you, Skyler. Any discussion? I think we talked about this yesterday, and we had a good -- We moved forward to using F equals 40 percent SPR, and so that's what we've come up with here, and now it's whether we want to use the three or five-year constant catch in the OFL and the ABC for our recommendations. Roy.

DR. CRABTREE: Well, I would be very surprised if there was another assessment done, in the short-term, so that you could respecify the catch levels in three years, and so, given this is likely to be in place for five years, it would seem, to me, to be more appropriate to go with the five years, and it doesn't make much difference on the ABC, and just a little on the OFL.

CHAIRMAN NANCE: It's very similar, and I think five years certainly would be advantageous, to keep it over that five year period, and the chance of having an assessment within that is probably low. Doug.

MR. GREGORY: Thank you, Mr. Chair. I've got a question. The graph shows the declining landings from 2020 to 2023, and what were the landings like in the five or ten years prior to 2020? I don't recall, and I don't know where the graph would be.

DR. SAGARESE: So that graph would be in the assessment report, and I would have to pull that back up, but that is the realized landings through 2022, and then 2023 and 2024 are just averages, based on that 2021 to 2022 average, but I'm trying to remember -- I would have to go back to the assessment report figures, just because I'm used to seeing them split out by fleets, but I know, when we looked at that quota plot -- Like in the last -- I think they achieved the quota maybe a couple of years ago, and then the

landings have been pretty much declining since then, but, overall, they have pretty much landed -- Well, the majority of the quota over the last, you know, at least decade, and they've been within -- Yes, John.

DR. FROESCHKE: It might be some help, but we had that related discussion yesterday on the deepwater grouper landings, and that one file that she sent did have yellowedge grouper in there, even though we didn't focus on that, for both the commercial and the FES landings, and it goes back to 2000.

CHAIRMAN NANCE: Any other discussion? Trevor.

MR. MONCRIEF: What Doug was getting at is the premise of why I voted no on that, on the earlier motion today, and so not only are landings going to be, you know, lower than what they were in a time where the market was essentially shut down, but we also restrict the landings more on the deepwater grouper side, that also follow the same pattern, and, if those two aren't combined, and managed combined, like they are currently, and there is a resulting decision that splits them out, they fundamentally are not split.

You do not target yellowedge without also catching the others, and so, by that, if we're going to move forward in a manner like this, where we passed the motion before, that needs to be iterated. That needs to be a discussion point, that these can't really be separated, or else we're going to be doing a lot more harm than good.

CHAIRMAN NANCE: So, basically, what you're saying is the OFLs need to just be additive.

MR. MONCRIEF: Yes.

CHAIRMAN NANCE: I think that's the intent. John.

DR. FROESCHKE: Can you just give me some more insight on -- You said the market was depressed, or whatever you said?

MR. MONCRIEF: 2020. I mean, COVID, and that was pretty much a large-scale impact across multiple markets, and so you had a decline in landings for deepwater grouper during that time period, and you've got a decline in landings for this one during that time period, and it doesn't make logical sense that the landings will stay that depressed, unless there truly is a stock issue, which we discussed in-depth yesterday on the deepwater grouper side.

DR. FROESCHKE: I mean, I'm just looking at the landings, and, I mean, in 2016, we're 889, 860, 863, 996, and, in 2020, it was 823, and 831. I mean, it's pretty much flat. That's all deepwater grouper.

CHAIRMAN NANCE: I hear what you're saying, Trevor, and I think it's important that we keep that complex together. Do we have a motion to set OFL and ABC? Roy.

DR. CRABTREE: Are we going to provide a separate OFL and ABC for yellowedge and then one for deepwater? Did we already give them one for deepwater? I can't remember.

CHAIRMAN NANCE: I thought we did this morning for deepwater.

DR. CRABTREE: John, did we provide OFL and ABC for deepwater already?

DR. FROESCHKE: Yes, sir.

DR. CRABTREE: So then we're just doing yellowtail now?

CHAIRMAN NANCE: It's right there. You see it right there? So this would be just simply for yellowtail. I mean yellowedge. I was telling him this morning, and I said there's too many yellows in this one. The only one we don't have is yelloweye. Do we have a motion, and would you like to make that? Bob is not here anymore, and so we can't have him. Roy.

DR. CRABTREE: You're going to have to tell me the numbers. I don't have them in front of me. **The motion is, for Gulf of Mexico yellowedge grouper, the SSC recommends an OFL based on five years, which I can't see the years, and what were the years? 2025 to --**

CHAIRMAN NANCE: 2025 to 2029.

DR. CRABTREE: All right. **Based on 2025 through 2029 of --** How many pounds?

CHAIRMAN NANCE: It's one slide up, Jess. Perfect. Thank you.

DR. CRABTREE: All right. **487,000 pounds and an ABC of 372,000 pounds.**

DR. FROESCHKE: Jess, can you add "gw" for both of those, just so it's gutted weight?

CHAIRMAN NANCE: And put an "and" between "pounds" and "ABC", and

we'll see how that reads.

DR. CRABTREE: "OFL" should be capitalized, and "ABC" should be capitalized, I guess.

CHAIRMAN NANCE: I think the motion should start with "for".

DR. CRABTREE: It should start with "for", "for GOM yellowedge grouper".

CHAIRMAN NANCE: Doug.

MR. GREGORY: I would just like to point out, given the table that we were just referred to from John, the ABC is one-half of the historical landings, and, to me, that's -- That doesn't sit well, given that it's a relatively healthy fishery. Even at 40 percent, it's not really -- It's not overfished, and it's right on the cusp of overfishing or not overfishing, and, at 30 percent, it was healthy in both categories, and we've just reduced the fishery by one-half, and that just seems excessive. Thank you.

DR. FROESCHKE: I think Jess posted it on the background materials, on the meeting page materials.

MR. MONCRIEF: The average for yellowedge, for the time series, is 646,000 pounds.

CHAIRMAN NANCE: Will.

DR. PATTERSON: But this results from that issue we talked about yesterday about the recent recruitment is estimated to be so low. I mean, a decade of really low recruitment, and so, if you're averaging across that, plus five years of slightly higher recruitment, and not the highest in the time series, and you project that forward, that's where you get this result.

CHAIRMAN NANCE: So we have a motion. Do we have a second for this?

DR. BARBIERI: I will second it, Mr. Chair.

CHAIRMAN NANCE: Luiz. Josh, please.

DR. KILBORN: Thank you. Will pretty much captured what I was about to say. You know, this might look like a drastic measure, I suppose, but, given what we saw in the recruitment values, and, you know, the longevity of the species, and the conversation that we had about warsaw, I think that applies here a little bit as

well, and this is a long-lived species also, and so, you know, I think this is what we end up with, and so I'm okay with it. Thank you.

CHAIRMAN NANCE: Thank you, Josh. Any other discussion on this motion? **I will read the motion. For Gulf of Mexico yellowedge grouper, the SSC recommends the OFL based on five years, 2025 through 2029, of 487,000 pounds gutted weight and an ABC of 372,000 pounds gutted weight.** Do we have any opposition to this motion?

SSC MEMBER: (The comment is not audible on the recording.)

CHAIRMAN NANCE: Okay. So do we have any opposition to this? Okay. Let's go ahead and do a roll call vote on this one, Jess, please. Okay. Please go through it.

MS. MATOS: Jim Tolan.

DR. TOLAN: Yes.

MS. MATOS: Sean Powers.

DR. POWERS: Yes.

MS. MATOS: Trevor Moncrief.

MR. MONCRIEF: Just a big Negative Nancy today. No.

MS. MATOS: Doug Gregory.

MR. GREGORY: No.

MS. MATOS: John Mareska.

MR. MARESKA: Yes.

MS. MATOS: Jack Isaacs.

DR. ISAACS: Yes.

MS. MATOS: Steve Saul.

DR. SAUL: Yes.

MS. MATOS: Dave Chagaris.

DR. CHAGARIS: Yes.

MS. MATOS: Dan Petrolia.

DR. PETROLIA: Yes.

MS. MATOS: Cindy Grace-McCaskey.

DR. GRACE-MCCASKEY: Yes.

MS. MATOS: Mike Allen.

DR. ALLEN: Yes.

MS. MATOS: Luiz Barbieri.

DR. BARBIERI: Yes.

MS. MATOS: Roy Crabtree.

DR. CRABTREE: Yes.

MS. MATOS: David Griffith.

DR. GRIFFITH: Yes.

MS. MATOS: Jim Nance.

CHAIRMAN NANCE: Yes.

MS. MATOS: Steven Scyphers.

DR. SCYPHERS: Yes.

MS. MATOS: Rich Woodward.

DR. WOODWARD: Abstain.

MS. MATOS: Will Patterson.

DR. PATTERSON: Yes.

MS. MATOS: Paul Mickle.

DR. MICKLE: Yes.

MS. MATOS: Harry Blanchet.

MR. BLANCHET: Yes.

MS. MATOS: Jason Adriance.

MR. ADRIANCE: Yes.

MS. MATOS: Luke Fairbanks. Mandy Karnauskas.

DR. KARNAUSKAS: Yes.

MS. MATOS: Josh Kilborn.

DR. KILBORN: Yes.

CHAIRMAN NANCE: It looks like the motion carried. Skyler, we sure appreciate that. Let's go ahead, while you're sitting there, and do our red grouper interim analysis. This should be pretty straightforward. This is simply for us to look at where red grouper is. Skyler reminded me that an assessment is coming right up here and so, anyway, let's go ahead and take a look at this.

REVIEW: GULF OF MEXICO RED GROUPER INTERIM ANALYSIS

DR. SAGARESE: Just for background, I believe, in 2019, annual interims were requested for red grouper, and so here we are to provide our annual interim. However, we do have SEDAR 88 ongoing, and we're just about getting final data, in the next few weeks, and that assessment is being worked on as we speak, and so you should be seeing it later this year.

This is just -- It should be short, and, well, this should be somewhat short. Just for background, for red grouper, we've been using these interims for a few years now. It was used, in 2021, to adjust the catch advice that came out of the SEDAR 61 assessment.

Basically, right now, we are currently just looking at a health check, and so we're just going to see updated indices of abundance, like what we saw in 2022, and we only really propose to adjust catch advice every other year. Fishermen don't want to have their ACLs changed every year, and that variability can affect their markets, and how they plan, and so we did provide an update last year for catch advice. However, because it was getting further away from the terminal year of SEDAR 61, there just wasn't a lot of comfort with adjusting the catches, especially given that an assessment is coming this year.

Just, you know, for perspective, the health check, we're just going to look through the indices of abundance that we currently have, and we do have the combined video survey for red grouper. However,

it takes too long to get that data processed, and develop the index, and so we don't have that right now, and so we'll just be looking at the NMFS bottom longline survey as well as our summer groundfish trawl survey, which catches a lot of smaller, younger red grouper, and, again, we're not adjusting catch advice, because there's an ongoing assessment.

For perspective, you know, the terminal year for SEDAR 61 was 2017, and we had quite a few red tides since then, and we had the big one in 2018, and we had one in 2021, and, at this point, you can see, from the bottom longline index of abundance, and the red is what was used last time, and the blue is the updated interim assessment, or the interim index of abundance, and it's the same methodology, just updated with new data.

You can see that, you know, the relative abundance has been fairly low for many of the years since SEDAR 61. We did have a bit of an uptick in 2020 and 2021, but it's kind of gone down since then. You know, this catches much of the older and larger red grouper, and so this is -- Ideally, we tend to see these huge peaks, like we saw in the early 2010s for red grouper, and we're not quite seeing that, but, again, we've had quite a few red tide events in the last few years that I will touch on later, at the end of this presentation.

I think, you know, some somewhat positive news here is that the summer groundfish index for this species -- The last three years, we're basically seeing about average relative abundance, and I think, on the water, we're hearing there's lots of small red grouper, and we're starting to see lots of positive signs, and so I think that's being captured here, and, you know, when we get all the data within the assessment, we'll see what is coming out of that, but I think this is somewhat happy news, and it's not all doom-and-gloom, but, you know, overall, we saw pretty low recruitment when this index was produced. Note that it wasn't produced in 2020, because of COVID, but I think the last few years are somewhat -- You know, they can make us a little more comfortable. Yes, Will.

DR. PATTERSON: So the age-at-recruitment to the different gears here -- How do they differ?

DR. SAGARESE: The bottom longline is much older individuals, and I would have to double-check the ages, but the summer groundfish is basically one and two. It's not an age-zero, but it's the lower age classes, and so ones and twos, and so it has kind of been used as a juvenile index.

CHAIRMAN NANCE: It really is nice for this one, to see that pop back up, but it's been below for a while, and, you know, you look at the longline, and it was kind of going around an average, and we see ups and downs on it, but this one is certainly a light, that we see some young-of-the-year coming into the fishery. Doug.

MR. GREGORY: Are these indices moving averages?

DR. SAGARESE: No. These are annual estimates developed from the standardization, with their confidence bands.

MR. GREGORY: Would it be more realistic to have moving averages, to get an idea of trend? The thing that bothers me with the longline is, if you go back to that, everything is level except for two years. We've got two extremely high years that is raising the average and making the more recent years look like they're underachieving, and, to me, that just doesn't make sense. You know, those two years were anomalous, and they're not part of a fluctuating up and down over a period of years normality.

DR. SAGARESE: So, I mean, when you develop the index, you want that year-to-year variability, but what I can say is, when we do the interim analyses with this, it is looking at a moving average, and so, when we're looking at adjusting the catch advice, we are using the last three years, for example, to kind of get a feel for it, and then we're comparing it to our reference period, which was the year before and after that terminal year for SEDAR 61, and so, when we do the interim approach, yes, but, for the index, it is year to year, and, when we produce these indices, we use as many of the years as possible, and it's supposed to be a long-term, you know, idea of relative abundance from year to year.

I do see what you're saying, and this seems to be a pretty big pulse species, where we see these big years, and this is something that we certainly haven't seen, you know, that high relative abundance, but, again, this is sort of a more recent species, where our assessment starts in 1986, and a lot of our fishery-independent data really don't start until later in the time series, and so this is kind of what we have.

MR. GREGORY: Thank you.

CHAIRMAN NANCE: I see it though, like Doug is saying, and, while it's below that line of one, because of those two real big years, it's simply fluctuating around that mean on the bottom, and I don't see a downward trend at all in there, which is good. Okay, Skyler.

DR. SAGARESE: Just some summary, and, you know, the bottom

longline survey seems to be kind of leveling out. The more recent relative abundance is similar, relatively, to the 2019 and 2018 levels, and, for the groundfish survey, I think we've seen, recently, around the average abundance for that.

Then, you know, with red grouper, we always have the issue of red tides, and I did just want to very quickly bring up what we've talked about on our red tide topical working group calls for red grouper, and we do have an official red tide working group call, just to get an idea, and so Dave Chagaris, who is doing a lot of the West Florida Shelf Ecospace modeling, and looking at red tide mortality.

We have been presented with preliminary advice, just to give you an idea of the red tide that we're considering in the assessment, and there's also the potential impacts across age classes differently, and so, you know, there have been a few red tides in the last few years, since our terminal year of 2017, and I think this is going to be something where we're going to focus some of the attention on it, particularly if the younger age classes, as some of Dave's work shows, that they might actually be impacted more by red tide mortalities, given the locations of where they're occurring and where these events happen, and so just kind of a plug for, you know, red tide mortality is very important for this stock.

I think that, with this additional project that Dave has been able to obtain funding for five years from RESTORE, I think this will help us in moving forward with red grouper and some of our other stocks, and so just to give you an idea of what we'll be looking at, because I know, you know, that 2021 red tide mortality was very important when we were doing gag projections, and so I think there's a lot for us to be discussing during the assessment.

CHAIRMAN NANCE: Thank you. I was telling Dave yesterday how important that is to keep that thing funded, because it's the one piece of environmental data that seems to be useful in assessments, and is showing utility, and so having that in it really has added credibility to the assessments. Any other questions for Skyler? Doug.

MR. GREGORY: So is the dashed line is the age-zero mean and the solid line the combined ages in these graphs?

DR. SAGARESE: So Dave can correct me, but I think the solid line will be the mean, and then the other ones will be the bounds, because he does do a bunch of sensitivity runs, to get an idea of the range, and is that correct, Dave?

MR. GREGORY: So it's a confidence limit.

DR. CHAGARIS: Right, and the confidence bounds are derived from alternative red tide mortality response functions in the model.

CHAIRMAN NANCE: Okay. Any other questions? Thank you. We sure appreciate those presentations and all the hard work. We'll go ahead and take a fifteen-minute break, and we'll come back at 2:45 and continue our discussion of red snapper.

(Whereupon, a brief recess was taken.)

CHAIRMAN NANCE: Okay. We'll go ahead and come back and finish out the afternoon. We've got a couple of, I think, outstanding issues. We still need to come to a discussion on inclusion of the Great Red Snapper data within the assessment, and so let's go ahead and have a how we do that, if we do that, those types of things. Jim, did you have any input on that?

DR. TOLAN: I just wanted to make sure that it got covered, going through the things on the list.

CHAIRMAN NANCE: Okay. Thank you. Sean, please.

REVIEW OF SEDAR 74: GULF OF MEXICO RED SNAPPER RESEARCH TRACK (CONTINUED)

DR. POWERS: If we look at the review comment for the piece of the review we're going to keep, they suggested that more work needed to be done, and that -- Katie had a good idea about -- Whether we call it a working group or whatever, but, I mean, Katie's concern was to make sure that, somehow, we got the PIs engaged, and I think, you know, all we can do is try. Will and I are just two of the PIs on that, but we have some ideas, and you can reach out to Sea Grant, the funding agency, and they could probably put some leverage on the PIs to more actively participate, but I think that's the way forward.

Now, whether that PI group, and the analysts, can address all the concerns of the reviewers -- I mean, I don't think we have time here to go through it, to really see if the group decides that, yes, we can address a lot of those, and here's where we can address it, but, I mean, Katie's suggestion of getting a working group together, or whatever we call it, and just seeing if we can get the PIs back engaged, is a path forward that I see with that.

CHAIRMAN NANCE: I think that's certainly -- I think the SSC is in

agreement with that approach. I'm not sure if it would be Center or SEDAR. Katie.

DR. SIEGFRIED: I mean, the Center would, obviously, participate. I know that -- Julie is probably still online, but I know that there's been efforts to incorporate those PIs in data workshops, and so the main thing we would need is the data that the review group thought would help with identifying a prior for catchability.

They did, however, state that, like a collective, we don't have the specialized experience to do that, and so, if the SSC members that were part of the review panel might have some insight as to what type of expert they're talking about, or what type of data they're talking about, that we can specifically ask for, that would be helpful.

The other thing that I wanted to note is Sean's earlier suggestion, and I was looking up -- This is the first revision of the snapper count, the natural and artificial separate from uncharacterized bottom, and it's not separated for Florida, and so we wouldn't be able to just pull those pieces out and just look at everything but uncharacterized bottom, but, I mean, those types of ideas are the types of things that we haven't looked into yet, and you all have seen everything that we've tried, and so, if we give Red Snapper Count the catchability of one, then we're going against the recommendations of the group and basically saying all the gear behave the same on the population.

If the SSC advises to look at different catchabilities, we would need advice from those SSC panelists as to which data are available, and who to reach out to, and then maybe SEDAR could talk about whether they would serve as a liaison, if it was a topical working group, or how we would get that participation.

CHAIRMAN NANCE: Sean, or Mike, any input into that, or Steve? Yes, sir.

DR. POWERS: So we haven't asked council staff to do anything this whole meeting, right?

DR. FROESCHKE: Somebody cut his mic off.

DR. POWERS: Council staff could help facilitate this, and figure out who is going to do what, and organize the meeting.

CHAIRMAN NANCE: Doug.

MR. GREGORY: I was thinking of something similarly. You know,

instead of saying do this, say something like investigate whether this can be done, through the Center and/or staff, because we don't know if they can pull it -- If everybody can pull together and get it done, but we would like to see it done, if they can, and that's what I'm thinking.

CHAIRMAN NANCE: Thank you. Julie.

DR. NEER: I think it would, procedurally, probably be better to do it through SEDAR, simply because then it's part of this ongoing process, and we're following up on the recommendations. I will note that you know, both SEDAR and council staff made efforts to get people involved before, and we set aside specific times to handle this throughout the process of the 74 research track, and we struggled with it, but SEDAR doesn't have to do it, and the council could do it, and I think the key is it needs to be done in some sort of public process, because it is a very delicate issue, what ultimately is going to come out of it, and, if it's easier for SEDAR to handle it, we are happy to do that.

CHAIRMAN NANCE: Katie, please.

DR. SIEGFRIED: I appreciate that, Julie, and I agree. I know that efforts that SEDAR undertook to try to get participation, and Ryan also facilitated a whole bunch of phone calls and webinars and things to put us in contact, and emails to put us in contact with those folks, and so take Sean's point of attempt to do this, and hopefully that's what the SSC agrees to.

CHAIRMAN NANCE: I think it's important to do.

DR. SIEGFRIED: Yes.

CHAIRMAN NANCE: And I think it's -- From an SSC standpoint, we would like to see it happen, and SEDAR can facilitate that, to the best of their ability, and we can only try to get those individuals together to be able to come to agreement on how the data should be used in the assessment. Sean.

DR. POWERS: I think just as important is, if it can't be done, if there's things that can't be done, that the PIs of the Great Red Snapper Count understand that it's not that they're choosing not to, but it's just they're in the room and they can understand why it can't be done, or it can be done.

CHAIRMAN NANCE: I think that's a good point, Sean. Thank you. So there's a discussion that goes on, yes. Katie.

DR. SIEGFRIED: You might be looking at it furiously on your computers right now, but were there data discussed amongst the review panel? I'm really curious, because the report says there is data available to look at catchability across gear, and I've read that report three or four times since that review workshop, and I don't know where it's referenced, and so maybe you all discussed that with them.

CHAIRMAN NANCE: To my knowledge, we never looked at particular data. Individuals, I think, had ideas, in their mind, that there were data available, but there was not any data that was presented or shown or discussed that would facilitate that activity. Sean.

DR. POWERS: Here's one of the many times the word "catchability" is not used correctly, and so, in the conversation we had, and I don't know how it got in, or flagged, but there was some information about gear comparisons that Will did off of Florida, and there was the depletion experiments that we did, where we estimated a Q, and those two pieces of information were out there, but you're right that there is no catchability estimates from there. There is more gear comparisons, and I think that was just translated incorrectly.

CHAIRMAN NANCE: Any other discussion on this particular topic? Seeing none, I think we are -- Harry, please.

MR. BLANCHET: Thank you, Mr. Chairman. Please get LGL an invitation as well, for the Louisiana portion. I think it would be useful to have them in the room as well. Thank you.

CHAIRMAN NANCE: I agree, and they would be certainly part of that discussion, but thank you for bringing that up. I think that covers, in general, the red snapper research track item. I know we've talked a little bit about the SEDAR process. Katie, do you have a presentation? No?

DR. SIEGFRIED: No, and Ryan and I just planned to discuss the research track idea and CIE review at this time.

CHAIRMAN NANCE: Okay. Do you have anything just to bring up in general, or just from a discussion standpoint? I think, from the SSC's perspective, we kind of understand the process, and are there, from a discussion standpoint, things that we would want to see changed by having gone through this research track process, things that we think need to be done differently, better, those types of things, and so I'll go ahead and open up the discussion, particularly for the research track, and that's kind of what we want to talk about. This is our opportunity to get it going, what

do we need to do different, those types of things. Luiz.

REVIEW OF SEDAR PROCESS RECOMMENDATIONS FROM SEDAR 74

DR. BARBIERI: Thank you, Mr. Chairman. I am thinking that it might be more productive if we wait and have this discussion at the May meeting.

CHAIRMAN NANCE: Okay.

DR. BARBIERI: Because, if I remember correctly, Shannon Cass-Calay mentioned that the SEDAR Steering Committee is going to be receiving a presentation, right, that talks about different scenarios for SEDAR assessments, right, that is kind of revisiting the different categories, potentially, and understanding that it's not finalized, Shannon, I'm thinking we could make some recommendations now, but the Center is already presenting a proposal to the SEDAR Steering Committee, and it would be more productive for us to -- After they review that, we can discuss it.

CHAIRMAN NANCE: Thank you. Also, Shannon, before you say anything, but think about would it be productive for us to say something that you could reiterate at that meeting?

DR. CASS-CALAY: So I will just give you a little kind of heads-up on what's been happening, and so, essentially, in December, the Center reached out to both the Gulf and South Atlantic Council staff and requested some feedback listening sessions with the council staff to make sure that we understand the highest priorities of each of our councils with regard to the provision of fishery management data, information, and so that evolved into a discussion about, you know, the current assessment process that we undertake and where we can make some changes that would allow us to better meet the objectives of the councils, and also the Science Center's objectives, which are usually aligned.

What we're going to propose is not really a departure from SEDAR as much as probably just a -- What we're trying to do is get more flexibility, and so I will tell you a few of the things that have come out of these conversations, and one is establishing statements of work, and project schedules, two years in advance has proven incredibly challenging.

It's almost impossible to know what issues will emerge two years, you know, in advance, and, when those issues do emerge, it throws our calendars into chaos, and it delays the subsequent assessments. It has a cascading effect, and so one of the things we're trying to do is, rather than establishing the calendar two years in

advance, we will establish key stocks, and put them on a rotating calendar, and so those assessments will take place every X number of years, and that depends on how many key stocks are identified.

Then there is the matter of what the Science Center can do in the white spaces, so to speak, between those assessments, and we've talked about, you know, putting in update assessments, and we've talked about putting in, you know, a data-limited assessment process, or some other initiative that both the Center and the councils feel is important.

We've talked about non-SEDAR assessments could be put in those slots, et cetera, et cetera, but what we want to do is really get away from this idea that an assessment has to be a research track or an operational and that the constraints of an operational would be that it be conducted with limited changes. That hasn't been a productive way forward for us, and, in fact, it has caused -- It has really, frankly, reduced our throughput tremendously.

What we want to do is work more closely, directly with the councils, with the SSCs, to put together the appropriate project, you know, the statement of work, to address the needs that are possible to address, and then create the calendars that are appropriate for that project, and they would not be, necessarily, constrained.

I guess what I'm getting at is that you're not going to see a major revolution in the process, and this is really just adjustments to remove some of the constraints that we feel have been very unproductive, and so we've seen examples where the research tracks, for example, have taken five years, or three-and-a-half years, to produce management advice, and that may not be desirable, and we've also seen the opposite happen, where we've committed to an operational assessment, and seen it through, met the statement of work, and it be essentially rejected at the SSC because we did not take the time to address emergent issues.

That is all, and, you know, we basically want to get back to -- In some ways, it's back to just a notion that not every stock assessment will have an identical project schedule, that, the more things you want to look into, the longer it will take, and make schedules that are sensible and that utilize our capacity, to the extent possible, to maximize throughput of information.

A couple of things would help, I suppose, inform this discussion, and one is I think the general consensus of the Center, and the council staff that we've spoken to, is that research tracks aren't particularly desirable for most assessments, because they don't

produce management advice, and they take a long time to do.

They might be useful in the case of a brand-new species to be assessed for the first time, and there may be cooperators within SEDAR who still prefer them, but the Gulf Council, and the South Atlantic Council -- You know, they do take a long time, and they don't maximize throughput, and then the operational assessments -- You know, they often have, to us, felt very difficult to -- Let's put it this way.

It's just we want to make sure that we have the flexibility to address the needs as they arise, and that's been difficult to predict two years in advance, and so we would like to have a little bit more flexibility within the operational assessment framework, and so we would just avoid using the nomenclature altogether, but, if you do feel that a CIE review is essential, we think that you should ask for it for a given project, right, and, instead of every benchmark will have a CIE, we could say this assessment, because of the magnitude of changes that are likely to be made, we feel would benefit from a CIE, and so it would be much more of a create the assessment project that's appropriate for the task at-hand. Does that kind of help you understand?

CHAIRMAN NANCE: That's very good. Thank you. I still get confused, I guess, and is operational just using the same assessment that we've used in the past, and just adding new data, and a benchmark is --

DR. CASS-CALAY: There were a couple of things that were introduced with the operational assessment, and one is that we weren't supposed to change the modeling platform, and so migrating from SS to BAM, or BAM to SS, was outside of the framework. We thought that we were not supposed to address things like structural changes to the stock assessment within an operational context.

We would like to avoid any limitations, and, therefore, you know, we don't really support the nomenclature anymore. We would like to just call them assessments, create the appropriate terms of reference for that assessment, and put in the pieces that you would like to see, and so, if you want a data workshop, we would ask for one. If you want an assessment panel, as opposed to TWGs, we could ask for one. If you want a CIE, we would ask for one, and then we would determine the appropriate length of that project schedule.

It's just it didn't -- We found the operational assessment to be too limited, and it wasn't used very often in its actual intent, and it was more often kind of the -- It more often approached a benchmark than an update, for example, and that's fine, but I will

just say one more thing, real quick, since I've got the mic, and I wanted to say that, you know, we also found that there were a lot of misunderstandings in the SEDAR process itself.

In some cases, the interpretations that we had were probably even unnecessary. You know, what we found is there is a much larger need to just communicate directly with, you know, the Center and the council staff and SEDAR, to make sure that we're doing the appropriate -- That we have -- That we're doing the right project at the right time, because I think that -- You know, as I'm speaking, I'm speaking from the Center's perspective that we felt that there were limitations in the process that prevented us from taking -- From doing what we thought were the most needed changes at the appropriate times.

Now, when you talk to council staff, and to SEDAR, they did not think those limitations actually existed, and so one of the things we're trying to do is just communicate better, so that, in the future, we don't come upon these issues.

CHAIRMAN NANCE: I really like the idea of just calling it an assessment, and then tailor that assessment to your needs, and our needs, so that we can come out with the best product at the end, because I know, when we stick them into these columns, and then we're stuck with not being able to do something, as opposed to just calling it an assessment and then working within the framework and allowing us to change it, those types of things, I think it's a lot better, and so I, for one, am all for that. Katie, please.

DR. SIEGFRIED: I just wanted to add, you know, since Shannon is the division director, and she directs multiple parts, you know, in the whole region, right, and so I think, since we're coming at this from a division point of view, all the regions' opinions are taken into account here.

One of things that I think that is important to state to you all is that I think there's quite a bit of flexibility already here. This SSC has been very responsive, when we've brought things to them, and an example is yellowedge grouper. When we said -- We came to you in July and said, look, we don't think we should be using sex-specific comps here, and here's why, and can we get a TWG, and, that way, we don't have to delay this assessment, and turn it into some benchmark or something, and that's not necessarily been successful with other SSCs, and we would like that to happen in other regions, in other parts of the Southeast.

Some of the changes we would like to make will actually be modeled on the flexibility that we've encountered with this region, and

the communication has helped that. If we come to you and say we have an issue, and you're responsive, we're going to keep coming to you with issues, and things won't get delayed, and so that's a positive thing that we would like to see happen in other places.

As far as the review, I don't necessarily think that CIE, even though -- This is me saying this, after going through that last CIE, and I don't think CIE is not useful. I think that particular review was difficult, but I've been through tons of them, and usually there is quite a bit of helpful information, and so some sort of independent review is useful.

We went through scamp, and there was -- They definitely made our model better, when we got the external reviewers, and Doug was the chair of that, and he can speak to that, and so I don't think that this -- You know, that this particular set of reviewers should mess with that.

We also, you know, have a whole country of NMFS stock assessment experts that we could potentially rotate through and provide, you know, some advice as well, and so there's lots of places to get external to the Center advice, and I really wouldn't want to miss out on that, because, otherwise, we're going to become sort of stuck in our own little bubble and miss some nice developments that we could actually use.

CHAIRMAN NANCE: I think yellowedge was a good example, as you pointed out, and we were able to come to a point where we needed some changes, and we were able to go and make those changes, and move on, as opposed to spending a whole new year trying to come to an agreement on that, and I thought it was a very good one. Steve Saul, please.

DR. SAUL: Thank you, Mr. Chair, and, to that point that Shannon just made, I think I agree this makes a lot of sense, this more species or project-specific tailored approach to -- Rather than having these large bins, or categories, that are very limiting, with respect to what the analysts can and cannot do, or produce, or show.

I think it will help quite a bit to increase throughput, to have just sort of one -- Go back to kind of the older way, of having just one category of a stock assessment, and then having the SSC, and the steering committee and whoever else, and the Science Center, come up with guidance with respect to what -- How that stock assessment -- What that stock assessment looks like, what components are needed, what components are not needed, and, in that way, that increases a lot of efficiency.

As we've talking about here, like we don't need to redo the red snapper data workshop, or anything like that, and I think that would be a total waste of time, to throw all the work out that's been done, and so, you know, building on kind of what's been done already, and moving that forward with some agreed-upon adjustments, I think is most efficient.

In terms of reviewers, I kind of see both sides of it, and I suppose that's where it's important to have a bit of a mix of folks, but where this kind of review was not as helpful, I think, was, again, the sort of inability for some of the reviewers to understand the context of the data stream limitations, the species, the sort of specific fishing behavior components of the Southeast, this large recreational component that's kind of unique to the Southeast Region and such, but then, to Katie's point, it's also good to get sort of outsider perspectives as well.

I'm not quite sure how to thread the needle, but I guess the way that this past -- That the research track review went, it was a bit -- Or it is disconcerting, to me, and, you know, I think some important pieces of advice came out of it, and it was useful, but I also think that some not useful pieces of advice came out of it as well, and I wonder if, given the sort of SSC restructuring going forward, to have different layers of, you know, advice.

Maybe specific assessment advice can be reviewed by those that have a heavier kind of technical background. Like the technical aspects of the stock assessment can be peer reviewed by SSC members who have that kind of technical background, and then perhaps external CIE reviewers come in to help with overall -- This kind of idea of overall modeling, and, you know, maybe they review like several assessments, but they're reviewing them for very specific things, like model setup and configuration, you know, where the TOR that they're looking at is very, very, very prescriptive and specific, such that the -- Then the advice that's received by the Center, by the SSC, et cetera, is through that specific lens, such that comments that don't quite reflect -- So as to avoid comments, and feedback, that's just not possible to do, right, and to belabor time, waste time, and waste people's efforts having to respond to these things, or having to consider trying them, when they just may not be realistic.

I think a great example is the idea of aggregating the -- You know, this idea of aggregating the discard data in with the landings, which seemed like a good idea for a very short time, until we thought about, you know, trying to provide management advice, and then it was like, oh crap, you know, that's not really going to -

- That's going to cause more problems than it attempts to solve, and this is why we've been doing it this way up until now.

You know, I think it's a difficult decision, but I do like this idea of sort of customizing, to some degree, what's needed for each assessment, and I think -- I hope -- My hope is that that will improve throughput.

CHAIRMAN NANCE: Thank you, Steve. Josh, please.

DR. KILBORN: Thank you. I'm curious, I guess, because I would like to know this framework of the different nomenclature of, you know, benchmark, research track, operational, all of that, and I know it has changed a few times over the years, and I think all of that happened before my time on the SSC, and so I'm curious, you know, and why was that implemented to begin with?

Was there a problem that was meant to be solved that we're forgetting about, and that, if we go back to that, you know, ultimate flexibility framework, are we going to shoot ourselves in the foot somehow? That's my question. Thank you.

CHAIRMAN NANCE: Shannon has the answer.

DR. CASS-CALAY: I was involved in that too, unfortunately, and so, actually, it was an attempt to improve the efficiency of the process, and, at that time, we thought that, in the research track assessment framework, that CIEs would be willing to review a conceptual product that had preliminary data and no diagnostics.

That has not happened, right, and the scamp assessment actually went ahead and did diagnostics, and, with this assessment, they refused, and so it doesn't seem that that's a useful concept, and it doesn't seem like CIE reviewers feel that that's a productive activity.

Furthermore, to be honest, we also thought it could be a light lift on data providers, and that has absolutely not been the case. It has doubled, or tripled, the workload of our data providers, and made them participate for much, much longer in the process, and so it has not achieved any efficiency in that sense.

The operational assessment, we thought, at that time, that they would be closer to an update, right, that they would be more likely to be closer to an update, and we would do more of them faster, but the reality is that, at least through this period of time, this about five or ten years that we've been doing operationals, and I can't remember how long, but there were a lot of changes

that needed to be made that complicated -- We rarely got very close to an update. They were always much -- Many issues to be considered, right, and it didn't happen in this SSC, but, in the South Atlantic, those terms of reference sometimes were too prescriptive.

If a change needed to be made, you know, they were saying they needed a benchmark assessment to make that change, and so it became too prescriptive there, and so, you know, we made the change because we thought we could achieve better throughput, and, in fact, it has been counterproductive, and so, you know, I think that we're quite happy to go back to assessments that look a little bit more like benchmarks, and that's probably a little bit more honest with where we are, because there are many new datasets that happen, and there are new understandings that we need to integrate.

That said, what we actually want is, rather than creating new definitions of types of assessments, we would like to just put in the elements of the stock assessment that you think are important for that particular project, and so there may be assessments that you don't feel an in-person data workshop is necessary, that there are very few things to be addressed, and it could move forward with webinars.

There are other assessments that you may feel very strongly that a data workshop is absolutely fundamental, and so we would slot in the things that you need. We would slot those into that project schedule, and the only thing that, of course, you have to recognize is this inverse relationship between throughput and complexity, and so, the more elements we add to an assessment project, the longer the schedule will be, and the lower our throughput, but, you know, the thing that we want to -- Putting key stocks, or choosing key stocks, and putting those on a rotating calendar, where our data providers are aware of the schedule that's coming up, right, and they can plan, you know, does -- It will facilitate us getting the age composition data for each assessment project on time.

What limits our flexibility right now, and our ability to react if there's an emergent need, is that it takes two years for our data providers to get that data together once they're told they will be conducting a stock assessment.

I think the most essential thing, for us, is to choose those key stocks you want assessed through age-structured assessments frequently, get them on a rotating calendar, and then, what we do in the white space, we'll negotiate, you know, with the SSCs and the councils.

CHAIRMAN NANCE: Thank you, Shannon. Thanks, Josh. Will, please.

DR. PATTERSON: You know, we've had this discussion, around the table here, several times, about, you know, definitions of assessments, and whether we need to be so prescriptive, and then they have fluctuated through time.

To me, it seems like it's still valuable to have something called a benchmark, and have clear ideas of what's involved in a benchmark, but then, for everything else, you have the flexibility to be able to pursue whatever new data, whatever new approaches, but that's handled in the terms of reference, right, and so, if we perceive that there needs to be some flexibility in a given area, then that's just written into the terms to be able to explore that. Again, not trying to be too prescriptive, but allow that flexibility in the process.

As far as the frequency of assessments, and the certain marquee species, that -- It seems, to me, for our region, it would make sense to have a couple of tiers there, and so something like red snapper, gag, red grouper would be in that top tier, and then maybe vermilion snapper, gray triggerfish, some other species, would be in a tier that are less frequently required to be, you know, fully assessed.

CHAIRMAN NANCE: Thank you, Will. Any other input? Dave, please.

DR. CHAGARIS: So one of the things that I've been thinking about, for the last year or so, is, you know, how we handle the data workshops. You know, I feel like they're kind of redundant, you know, and it starts -- It sort of initiates this whole idea of reinventing the wheel each time, and, you know, the data providers are always having to keep up, and so I'm wondering if this would even work, but what if you had like one data workshop at the beginning of the year, or say around March or something, that would, you know, provide all the data that are available at the time, for all the species that are either going to be assessed or undergo some interim analysis, so that we have all those data.

Like so we're sitting around looking at yield streams, and then we know that there is a data series that's been prepared, and is available, and then that kind of forces the providers, you know, to reproduce these numbers on a regular interval, you know, so that we have all of our indices of abundance laid out, and we don't have to do it every three or four years. It's like SEDAR only kicks in when a stock assessment is requested, but maybe it could serve as, you know, getting data to us.

CHAIRMAN NANCE: Shannon.

DR. CASS-CALAY: You know, so I certainly respect that that -- That's certainly an ideal situation that you're describing, and I think that, you know, ideally, we are making progress towards creating that kind of ability to access our datasets and to prepare data that frequently.

I have some graphics that actually show how the data sources for stock assessment, and how long it currently takes to -- For each step of the process, to collect the data, to aggregate the data, to analyze the data, to prepare it for a stock assessment, and, you know, right now, that can range from, you know, taking only on the order of a few months to eighteen months, in the case of the age composition data.

We are about to roll out a few tools that will, I think, help our councils, and the SSCs, and one of them is a tool for our fishery-independent indices. Many of those are now automated, and they will be made available annually, and so we could start looking at those products. Our removals, in general, we're getting closer to the kind of automation that might lead to an annual report, and so maybe we can start talking about that, hopefully not too long from now, and it's not where we're at right now.

The data automation is just not that complete yet that we could do that, but, you know, I would like, at least at some future date, to be able to deliver something that looks like a report, for our managed stocks, of kind of the current information that's available. That's still an objective that we're working toward, and it's not available yet.

CHAIRMAN NANCE: Thank you. Any other input from the SSC on that topic? Doug.

MR. GREGORY: Thank you. This has been a long time coming. I've been involved I think in four iterations of naming different types of stock assessments, and this is exactly what we need, and I like the idea of bringing people from other regions, particularly if they've worked here in the past, because part of the problem is people, and it can happen with NMFS scientists from elsewhere, and they just aren't familiar with the fisheries.

As I heard you speak in Italy, Shannon, we have fisheries here that other countries don't have to deal with. We have problems here that they don't have to deal with, and so they don't understand that, and I think that's part of the problem with some

of the CIEs. I would say, overall, they've been productive, but they're difficult, and the review workshops have become difficult, particularly -- You know, as a chair and, I think, as a person.

They come into the room, and they open their computer, and then they tell the analysts to give me your data, and they're all running Stock Synthesis. They all know Stock Synthesis, and it's used worldwide, and so, if you -- I don't know how to run Stock Synthesis, and they can go in another room, or they can sit beside you, and you're still left out, and you don't know what they're doing, and, you know, my challenge was to get them to collectively write a committee report, and scamp worked very, very well, and so I applaud all these efforts that you're trying to make, and I thank you very much.

CHAIRMAN NANCE: Okay, and it's great having you here too, Shannon. We appreciate you coming, and I know one of the reasons was that it was cold up there. Any other input? Okay. We'll go ahead and close that, and good luck at the SEDAR meeting. I think you kind of know where we're coming from, from our perspective, and we appreciate your help there, and I appreciate all the SEDAR 74 group being here and being able to help in our discussion.

Let's go ahead and do our last agenda item, is Agenda Item Number XII, Revised Black Grouper and Yellowfin Grouper Landings and Catch Limits. John, you have that one. Do you want to do the scope of work, please, Lisa, for that one?

DISCUSSION: REVISED BLACK GROUPER AND YELLOWFIN GROUPER LANDINGS AND CATCH LIMITS

DR. FROESCHKE: I think I can just kind of walk you through it, if that would be fine.

CHAIRMAN NANCE: That would be fine. Let's go ahead and do that.

DR. FROESCHKE: I've got this whole story, and I'm just going to weave it together in four pages, and it's going to make it clear.

CHAIRMAN NANCE: Okay.

DR. FROESCHKE: I will try to make this so you can understand, and so, back in May of 2023, as part of -- Just like we did for deepwater grouper, we had the other species in the shallow-water grouper complex, and we brought the landings data to you all, asked you to take a look at it, and provide recommendations using -- What you decided to do was Tier 3.

CHAIRMAN NANCE: 3a.

DR. FROESCHKE: 3a. Black and yellowfin grouper, and most of the catch is black, and there are a few yellowfin grouper landings. The result of that is we used the reference years of 2010 through 2021, and the OFL and ABC that you see are provided in this Table 1.

Over the summer, the council began working on a document that was to consider additional management measure for gag, and then, at one point, there was a request to include black grouper in there, because they were potentially landed while -- You know, the species ID part, and so there was some intent to develop more consistent recreational management regulations, and so we started looking at black grouper as that.

In the fall, we made a data pull for that, just as we do for every management action, and so, when we got the landings data for black grouper, what I noticed is that the landings data in those were very different from what you all reviewed in May, and so Table 1 -- If you scroll up, Jess, these are the landings from 2010 through 2021 that you all reviewed.

It's most just the scale of the recreational data in that third column there, and it's kind of in the hundreds of thousands of pounds, the low hundreds of thousands of pounds, and so, when we got the recreational data for this document that we were working on in the fall, I noticed they were way, way lower, the recreational data, and so that's what caught my eye.

I wasn't sure what the issue was, and so, in December, I met with the SERO staff, and we kind of got everything together, and developed what we thought were the best data to be pulled, and that is what is here. The commercial data -- If you want to scroll up to Table 2, and so the commercial data are identical, and I'll show you that in a minute, and the recreational data are much different, and so you can roughly -- It's an order of magnitude different, and so then the question was why.

In black grouper, the hypothesis was that it was the Keys issues, and so, if you scroll down, what we did is we made a data pull for Monroe County, which is actually Table 4, and we can look at that, but we got the landings from Monroe County, and then we subtracted the difference, and so you can see the with or without -- The previous pull with or without Monroe County, and the commercial data were correct, and it's identical. The Column 3 is the fish from Monroe County that were in there, and so, if you scroll down to Table 4, you can see that the difference in the two data pulls

was Monroe County.

The Monroe County landings should have been assigned to the South Atlantic Council, and, in the May one, they were included as part of the Gulf landings, and it's a mostly tropical species, and that's where the bulk of the landings were, and so that's the difference in the landings.

What I am asking you today is if you want to take a look at, for example, the data in Table 2, and make an updated OFL and ABC recommendation, and you did Tier 3a before, and, if you were interested in just carrying forward that same process, with the same reference years, I think the values are specified down in Table 5, if you scroll one more down, and so that's what they would be if you wanted to use a different process, or reference years or something, and we would have to do that, but I wanted to throw it out for discussion, and that's end of my short story.

CHAIRMAN NANCE: Okay. Thank you. I think Dr. Barbieri probably led this discussion in May, because I was gone.

DR. BARBIERI: I did not.

CHAIRMAN NANCE: You didn't? Anyway, let's go ahead and have this discussion. From my perspective, I think -- I don't see any need to change what we recommended. The numbers are going to be a little different, but I think our rationale would be the same. Is there anybody that feels differently? Josh.

DR. KILBORN: Thanks. I'm just curious, and the 3a rule, versus the 3b rule, and what we used yesterday, where we said we thought we saw a trend in the landings data, and that triggered our 3b usage, and so I'm wondering if we should take a look at that again here today.

With Table 2, the total landings look like they have a downward trend now, whereas, in Table 1, they were a little bit more all over the place, showing a much bigger rise in recent years, kind of negating any trend that might have been there, and so, I mean, I don't see a -- We don't have an official analysis of whether or not there's a trend in those data, but it looks like it starts kind of around 100,000 pounds, and goes down to 26,000, and so that sounds like a trend, or it looks like a trend.

CHAIRMAN NANCE: Do we have a graph of that, John?

DR. FROESCHKE: I knew you were going to -- No, I didn't make a graph, and I probably should have made a graph.

CHAIRMAN NANCE: Okay. John, please.

MR. MARESKA: Yes, I looked at that, and I noticed that it was a downward trend, but, when you look at the landings from Monroe County, the last two years were relatively high, and so I think there's probably a high likelihood that some of those fish may be caught in Monroe County waters, but landed back on the Gulf side, and so I don't know if that's fact, but I'm just wondering, and that stock -- You know, they're not paying attention to that boundary at Monroe County, and so, looking at the whole stock, what's happening on the east coast, the Atlantic, and Monroe and what's happening in the Gulf, I feel like we can stick with the 3a.

CHAIRMAN NANCE: Doug, please.

MR. GREGORY: I've got a question, I think for Luiz, because I don't know who else might know this, but Monroe County -- The South Atlantic jurisdiction extends at the U.S. 1 highway and go towards the Dry Tortugas, but the Dry Tortugas, and west of the Dry Tortugas, is all in Gulf waters, but they would be landed in Monroe County, or in Naples, I mean, particularly if they're recreational. They're not going to be traveling across the Gulf. Is that -- Do you all separate that out, and can you determine what's caught in the Tortugas area versus the reefs south of Key West, when you're looking at recreational data? I know that Beverly is the expert here, but --

CHAIRMAN NANCE: Let me ask it a little differently. In your dataset, is it waterbody caught or landed? It's probably landed, isn't it, and it doesn't matter where it's --

DR. BARBIERI: Yes, it's landed, and so you're talking about commercial or recreational or both, Doug?

MR. GREGORY: Recreational mainly.

DR. BARBIERI: To be honest with you, I don't quite remember what the accepted, you know, process is there for you to make those assignments, but there is a -- There is a process, and there is a convention, basically, right, that is used to assign the Keys data, and I think that -- My recollection, and maybe the assessment folks in the room may remember this, but my recollection is that the Keys were, for recreational fishing purposes, were assigned to the Gulf, historically.

MR. GREGORY: That's okay. Thanks. It's something that I guess,

when the stock assessment comes out, you guys will work it out.

CHAIRMAN NANCE: Roy.

DR. CRABTREE: I thought the rec landings in the Keys had been assigned to the South Atlantic.

CHAIRMAN NANCE: It's north of the Keys is Gulf and south of the Keys is South Atlantic.

DR. BARBIERI: I am trying to see if Dustin Addis is listening in. He was earlier, and he may know it by heart.

CHAIRMAN NANCE: John.

DR. FROESCHKE: For the purposes of this, the Monroe County landings are all assigned to the South Atlantic.

CHAIRMAN NANCE: I think it's -- No matter where it's caught, and that's what I was asking, is, no matter where it's caught, if it's landed in Monroe County, and it could be caught off of Texas, if they're fast enough, but, anyway, it's counted there. Shannon.

DR. CASS-CALAY: So we do have staff online who can address these questions specifically, if you want to take the time, and we have some of the staff.

CHAIRMAN NANCE: That would be great.

MR. GREGORY: My concern is, if somebody is fishing on the Gulf side of the Keys, and they're in the federal waters, they're going to be subjected to the Gulf ABC, even though they're landing in Monroe County.

CHAIRMAN NANCE: It's the port of landings, no matter it was caught.

MR. GREGORY: But not if it's closed, I guess.

CHAIRMAN NANCE: Okay. Trevor, please.

MR. MONCRIEF: I think -- I mean, if you look at the commercial side, it's somewhat consistent over the last six or seven years, and, on the recreational side, you've got a blip in the radar that takes it from 500,000 to 50,000 pounds, if I'm looking at this correctly, and so, to me, these are more not observed readily. Therefore, they're probably not known very well, and so a trend in the recreational side isn't necessarily a cause for concern, as

much as it would be if that 2010 commercial estimate started real, real high and cascaded down, like we've seen in --

CHAIRMAN NANCE: Here is the graph of that. It looks like, from the recreational standpoint -- I would think, in my opinion, it's trend-less from 2013 through 2021, in a way. I mean, it's got a little bit of fluctuation, but I don't see any trend.

DR. FROESCHKE: Well, in that spike -- I don't have the PSEs here, but, typically, for this stock, they're very large for recreational black grouper.

CHAIRMAN NANCE: So I think what we have used here, 3a, over the years, I think is appropriate still. Is it the years 2013 through 2021? Is that the years we've used?

DR. FROESCHKE: I think it's 2010 through 2021.

CHAIRMAN NANCE: 2010 through 2021? Okay. That's right, and it has to be a ten-year period, doesn't it? Vivian, please.

DR. VIVIAN MATTER: I am trying to dig up some of our background material on this stock, and I think our interpretation, from SERO, is that the Keys would be treated -- It would be added to the South Atlantic, and I can't remember -- I don't know who already mentioned that, but that's just confirming that understanding, and, yes, it's where they landed, and not where they fished, on the rec side, and so, for recreational statistics from MRIP, that Monroe County has to be treated in whole, and so it either has to go in the Gulf or the South Atlantic.

For a stock assessment treatment, that has been a Florida-assessed species, and so we've always treated it as a unit stock around the entire state, and so that's all the information that I've been able to dig up in the last few minutes from this conversation, but I don't know if that is helpful or not, and I'm trying to remember for headboat, and they do have a distinction in their area, in their logbook program, that would distinguish that U.S. 1 line, in a sense, and so it's not quite as difficult as it is treating the whole county together.

CHAIRMAN NANCE: Thank you. That is very helpful, and I appreciate you being on the line. Thank you.

DR. MATTER: You're welcome.

CHAIRMAN NANCE: Doug.

MR. GREGORY: Thank you. That's probably why it's landings and not catch, because of the confusion. Thank you.

CHAIRMAN NANCE: Okay. Roy, go ahead.

DR. CRABTREE: I mean, I'm looking at the chart of landings, and, I mean, if you take 2012 as kind of an outlier, and take that out, I don't see much trend to it.

CHAIRMAN NANCE: So is there any issue with what we came across with in May as our recommendation for using Tier 3a, and then I think it's 2010 through 2021, as our time period?

DR. FROESCHKE: Table 5, from that little report, is what the values would be.

CHAIRMAN NANCE: Luiz, please.

DR. BARBIERI: John, just to make sure that I understand this correctly, so you recalculated, right, the mean landings here for OFL and ABC following that Tier 3a, and, originally, using the same reference period, we came up with about 360,000 pounds for OFL, and about 308,000 pounds for ABC, but, after you corrected the data for where it should be, considering that we are managing for the Gulf, those numbers dropped to about 92,000 pounds OFL and 81,000 pounds ABC, and I can't see how we cannot accept the new numbers if the quota from Monroe County is associated with the South Atlantic portion of the stock.

CHAIRMAN NANCE: I don't know how we can do what, Luiz?

DR. BARBIERI: How we cannot accept the revised values, instead of sticking with May, because --

CHAIRMAN NANCE: No, we have to use these.

DR. BARBIERI: Yes, and so I move that the original OFL and ABC values for Gulf of Mexico black and yellowfin grouper provided by the Gulf SSC in May of 2023 -- That those values should be revised to reflect corrected landings and that the new values are 91,997 pounds for OFL and 80,717 pounds for ABC.

CHAIRMAN NANCE: I know what happened. Roy and I were both gone in May, and that's what happened. Doug.

MR. GREGORY: I don't want to second it, but we've got two problems, or one problem and then a question. 2012 landings skew the entire analysis, because, if you look at the table, none of those numbers

reach ABC or OFL, because of the 2012 raised the mean so much higher than the rest of the years, and that's the problem.

My question is you've done two black grouper stock assessments, and does it make sense, to you, that the Gulf of Mexico black grouper harvest, commercial and recreational, is less than 100,000 pounds a year? I hate to keep asking you these questions, but, you know, you're the expert here.

DR. BARBIERI: Well, no, not really, but what I do know is that the last assessment had to be terminated before completion, right, because there were so many problems with data that could not be resolved, and so we withdrew that from the assessment process, from continuing. The previous assessment, of course, was completed, and reviewed, and we used those values, but it's, of course, very stale at this point, because it's over ten years old, right, and the last one, I think, came out in 2009 or 2010.

At this point, we don't really have anything else, and we are in the process -- We have contracted a company, right, that's working with us, and this is part of our division of labor with the Science Center, and we have contracted a company that can help us develop some management procedures that can be brought before the SSC for black grouper.

There are so many issues with data, right, uncertainty in landings for the species assignment, very poor composition data, some unknowns on the biology and life history, and so all of these things combined are making it very difficult to complete a model-based assessment, and we are trying to move away from this Tier 3a, or 3b, into something that might be better.

The idea was to contract -- You know, it's actually the firm that Bill Harford, and remember he came and gave a presentation on MSEs for us, and so his company is called Nature Analytics, and so they are running this analysis, and the idea is that they will come and give a presentation, in June or July, to both the Gulf and South Atlantic SSCs, to basically provide a number of options, right, and so, instead of conducting a full analysis at this point, to develop a number of options, talk about all the data issues, challenges, that they have to face, and then take some input from the SSC at that point, and, after those recommendations are provided, we're going to contract them again to conduct the analysis that needs to be conducted. Until then, we don't have anything better, Doug, other than to follow our ABC Control Rule.

MR. GREGORY: What Carrie just showed me says this is in the ballpark, and so that's fine.

CHAIRMAN NANCE: Do we have a second for this motion?

MR. MONCRIEF: I will second and offer a friendly amendment.

CHAIRMAN NANCE: Thank you, Trevor.

MR. MONCRIEF: To revise to reflect corrected landings that remove landings from Monroe County, to be explicit. That's fine, but just a period and then the new values are. I think that would be good.

CHAIRMAN NANCE: Any issue with that, Luiz?

DR. BARBIERI: No.

CHAIRMAN NANCE: Okay. Any discussion, further discussion, on this motion? Carrie, please.

EXECUTIVE DIRECTOR SIMMONS: The years that were recommended from the previous motion? I can't recall what they are.

CHAIRMAN NANCE: We could do that.

DR. FROESCHKE: It's 2010 through 2021.

EXECUTIVE DIRECTOR SIMMONS: No, and I mean for the future. Is this going to -- We didn't do that last time?

DR. FROESCHKE: No, and it's not a projection. It's not a yield stream, and it's just constant --

EXECUTIVE DIRECTOR SIMMONS: It stays in place until -- But it's associated with the scamp, and so how many years was the scamp for? It's not?

DR. FROESCHKE: I don't know, but, I mean, not in the past, and, I mean, it's just going to be what it is until we change it.

EXECUTIVE DIRECTOR SIMMONS: Okay. Sorry. Sorry for all the confusion.

DR. BARBIERI: No, Carrie, but that was a good question, because usually, when we provide this constant catch type of catch advice, based on the Tier 3, it really stays there forever, until it gets changed, and we have an analysis that is now ongoing, and so this is bound to change over the next few years.

CHAIRMAN NANCE: I am going to read it.

SSC MEMBER: Would it help to add the word "recreational" to Trevor's edit, just to make it a little more specific?

CHAIRMAN NANCE: Yes. Thank you. Okay. Let me go ahead and read the motion. **The original OFL and ABC values for Gulf of Mexico black and yellowfin grouper provided by the Gulf SSC in May 2023 should be revised to reflect corrected landings that remove recreational landings from Monroe County. The new values are 91,997 pounds gutted weight for OFL and 80,717 pounds gutted weight for ABC. Any objection to this motion?** Matt, you can't vote, buddy.

DR. FREEMAN: I just wanted to add --

CHAIRMAN NANCE: Go ahead.

DR. FREEMAN: It was a question, and I looked at the SSC's motion for scamp and yellowmouth, and it was recommended for the period 2024 through 2026.

CHAIRMAN NANCE: Thank you. **Do we have any opposition to this motion? Seeing none, and hearing none, the motion carries.** Our last item today is Public Comment. Do we have any public comment for today? Yes, sir. Would you please state your name, please, for the record?

PUBLIC COMMENT

MR. CLAY SHIDLER: My name is Clay Shidler, and I'm the owner of Hang 'em High Sportfishing up in Crystal River.

CHAIRMAN NANCE: We're glad to have you here.

MR. SHIDLER: Just a couple of things that I wanted to touch on, and I did learn a lot today, and I appreciate all you guys allowing me to be here, but the Great Red Snapper Count, and I know there was a ton of conversation about how it all works, and how it all plays out, but, you know, I am just a fisherman, and I'm not a scientist, but it really counted on the fish that were on -- We're going to use the term "sand", or not on hardbottom, and it does create an interesting thing, from a fisherman's perspective, and I will speak for a lot of the guys that I know, recreational and charter fishing.

What you see happening is there is a lot of red snapper, but, at the same time, those aren't exactly targetable fish for the

majority of the people. My boats, and I have four offshore charter boats, and I have two of my four offshore charter boats fish an area where they make a living catching red snapper on the sand.

It is very challenging, and it's a game where you mark two fish on sonar, and you drop two baits, and you catch two fish, and you're never going to have a spot where you catch your whole limit in five minutes, like you may have in a different area up north in the Middle Grounds, but that is something that we have really moved towards, and it is also has dramatically decreased our interaction with predators, such as sharks, and, when I say "dramatically", one of my boats, last year, had less than ten red snapper eaten by sharks in the entire season, and he only fished south of Crystal River, and he only fished on the sand, and I fish mostly north, on my boat, around the northern end of the Middle Grounds, and I had days where I would lose ten fish to sharks in ten minutes.

It is something to say that, you know, the fish are targetable. Now, will most fishermen do it? No, and it's a little bit of a challenge, but they definitely are.

Another thing I will say is that I'm very happy about the way that the gag season has been split out now, starting on September 1, and it's definitely changed the way we fish, in regard to staying away from gags, and, inherently, that keeps us away from red snapper out-of-season. You know, it has kind of worked out, you know, to where it's been kind of a tricky thing to do, a lot of times, but it has really changed the impact that you see of boats having on different areas, as far as bycatch and, you know, catch-and-release mortality on different species, in a positive way.

You know, the gag fishery being closed in the summertime has forced us to fish for red snapper in different areas, to avoid gags, and that's also kind of played into, you know, us fishing more on the, quote, on sand, and on less hardbottom, less large structure, to avoid the fact that now there is, you know, for the foreseeable future, going to be more and more gags available every summer. As we have shorter seasons, we harvest fewer fish.

I think, you know, the spatial distribution of snapper is really an interesting thing, and having four boats that fish eighty linear miles north to south, from the southern end of the Middle Grounds to thirty miles north of it, and being able to see how the different bottom structure, and the different places the fishery, you know, reacts differently.

It is very challenging, if you're north of the Middle Grounds, in an area that has so much hardbottom, to find a pair of snapper out

on the sand, or, if you get down to the south end, you can make a living, every day of snapper season, catching two to four fish at a time on relatively soft bottom, with maybe a little bit of bait on it, something like that, and so, you know, the geographic, you know, distribution of hardbottom and ledges and structure, such as the Middle Grounds and other areas, has a dramatic impact on whether or not the newfound snapper in the Great Red Snapper Count, those fish that are on the soft bottom, you know, whether you can catch those fish or not, and that's all I am really here to provide a little bit of insight on.

You know, there are massive pieces of bottom, massive areas, where you really can't target those fish, those fish that are out on the sand, you know, but there are large areas where you can, and so it's kind of one of those things where you're going to -- You know, you guys all understand, but it is a tricky game to play, to say that, you know, we have all these red snapper out here on the sand, but can a fisherman really do anything with them, and that's something that is going to really come down to where they're at, and, of course, the talent level of the guys on the boat, but that's pretty much it.

CHAIRMAN NANCE: Okay. I do have a question. So when you're saying sand, is there any structure at all, rock, can, or whatever, that they associate with, or is it strictly they're sitting on the sand?

MR. SHIDLER: Well, we can't say that definitively.

CHAIRMAN NANCE: Okay.

MR. SHIDLER: Because we are, you know, limited by the sonar that we're using, but, with traditional downscan sonar, and sidescan sonar, when we, you know, are idling around in an area that we know has fish, and that's literally what we're doing. You know, we've got six guys on the boat, and we need twelve nice red snappers, and that's what we're looking for, and, when you stand there, and you've got two guys in the back, with a live bait on a hook in the live well, ready to go, and you mark two fish, and you put two baits in the water, and, bang, bang, you catch them both.

All right, cool, but you don't mark anything, and maybe a little bit of bait, and that could be migratory bait, and bait is not always on structure. It could be moving, but, when you mark nothing on sidescan, and nothing on downscan, that shows any true definition, we're assuming that it's roughly sand. There could be some sea fans down there, or some coral, but, I mean, we're not -- You know, there's a dramatic difference between that and a bolder

pile that comes up eight or ten feet.

CHAIRMAN NANCE: Sure. Any other -- Yes, Sean, please.

DR. POWERS: So a couple of -- It's interesting, and so, in Alabama, when we talk to the few fishermen that target on non-structure, they usually find some kind of depression, an old anchor hole from a ship or something, and so there's usually -- It's still sand, but there's usually something there, and so are you mainly fishing those because you want to catch larger snapper, or because you want to avoid the sharks, or both?

MR. SHIDLER: It's both, and so, inherently -- Really, the area that I'm speaking about -- If you were to look at a map of the Florida Middle Grounds, and you were to draw a line north and south across the middle, and then the southern half of the Middle Grounds east of that, and so the Middle Grounds is a massive piece of structure in itself, with large ridges and everything else, and the twenty-five miles that's east of that is mostly a sandbox, from the middle of the Middle Grounds down, and it's a large piece of water that's fished by boats from everywhere from St. Pete to where I'm at.

That being said, there is very little structure, and whether -- You know, we don't have anchor holes from ships, because there's no ships out there, but you have a massive amount of fish that traverse that area, you know, either coming out of the Middle Grounds and going east or coming from the south and going to the Middle Grounds, and so that's more or less what we're talking about, but it's red grouper, and it's red snapper, and they are almost all the same size.

You see very few little undersized red snapper, or smaller fish, and they're mostly ten to sixteen-pound fish, and there's usually a couple of red groupers with them, and it's to where -- The reason we'll say that it's sand also is, if you pull up on a spot, and you catch two red snapper and two red grouper, and you mark it on your GPS, and you come back a week later, there won't be anything there.

It's a one-hit-and-forget-it kind of fishery, but I have two of my Freemans make a living doing this, and it's every day, and it's just you make a living at it, knocking them off two at a time, and, by the end of the day, you've got twelve red grouper, and twelve red snapper, and you've had a great day, but you never had a humdinger spot, like you would north of the Middle Grounds, that you pull up on a hardbottom patch, and there's a hundred snappers on it, and you're done in five minutes.

CHAIRMAN NANCE: Any other -- Mandy, please.

DR. KARNAUSKAS: Thanks for coming to share your insights. I'm curious, and have your boats always operated like this, or is this newer in response to some sort of management or other factor, and I'm curious if you're kind of the only one in your area doing this, or if there's multiple operations going out that far to target.

MR. SHIDLER: So, because I have four boats, we make a very strong attempt to stay away from each other. Two of my boats fish north, and two of my boats fish south, and it doesn't change much, but, really, it's been in an attempt to more or less stay away from the sharks, and, you know, about four years ago, our sharks started to get really bad, and everybody understands that they're a problem, but, four years ago, it turned into a dramatic problem, all of a sudden.

That being said, you know, we did have -- You know, two of my boats started fishing south, and they started figuring this out, and two of us stay up north still, and we've gotten pretty good at staying away from the sharks up there, but it is -- It's a -- You know, you stay away from gags now, and there's much less predation, and there's a handful of other boats, like out of the Hudson area, that do it too, but it's something where you've really got to trust your electronics, and you've really got to trust that you're going to find what you need, because it's not one of those things where you've got the ace card in your back pocket that we'll just go to this spot and catch the rest of them.

I mean, you kind of have to be really committed to that gameplan, but, at the same time, you know, we're not seeing a lot of guys saying, you know, hey, there's not as many red snapper as there was, and it's because they're fishing the same two or three wrecks, and two or three ledges, that they've always fished, and, no, those fish aren't there.

They've been caught, or something has happened to them, but, you know, the idea that the public is saying -- In our area, they're saying, hey, there's less red snapper, and there's less red snapper, and, well, it's not exactly true, but you have to, you know, evolve as a fisherman, in order to be successful, you know, on a continuing basis.

CHAIRMAN NANCE: Any other input from the SSC? Mike, please.

DR. ALLEN: Clay, thanks for coming. Can you share your observations about what the gag season did this year, and the gag

numbers that you've seen in that area?

MR. SHIDLER: Yes, I can. Well, I will start by saying that Crystal River, Florida, might be the very heart of the strongest population of gags that there is, and, you know, of course, that's a pretty easy, you know, synopsis to make, based upon the science, and, of course, what we see, but we have seen a ton of fish that came inshore this year, in the fall, and, you know, we caught a lot of fish.

At the same time, there was -- You know, the season was short, and it was in September, for the most part, and, you know, we did not get to catch the bigger fish that would have showed up in the migration in November. You know, we're seeing a lot of fish in places that we haven't seen them in a long time, and, you know, it feels like there's ten-times as many grouper than we would normally see in February, you know, and this is just from the other day.

I mean, there's still tons of really nice, high-quality, ten to twenty-pound female fish inshore that have not made the turn to go west to spawn yet, and so that's something that has been kind of interesting this year. Historically, we do offer catch-and-release shallow-water grouper trips, catching them in eight to twelve-foot of water, in the spring, and it usually does get hard around February, because a lot of the fish have left to make the spawn on the forty break.

This year, a lot of fish seem to have stayed, and I can't say that I attribute it to less fish spawning, as more so that it could be fish just -- You know, more fish came in, and they did not get killed in the fall fishery, and we always have fish, and it's just how many are there in the spring is kind of the question, and so, yes, it's looked extremely strong this spring, and, you know, we're happy about it.

DR. ALLEN: Thank you.

CHAIRMAN NANCE: Any other comments? Clay, thank you for being here. You're always welcome.

MR. SHIDLER: Thank you, sir. I appreciate it.

CHAIRMAN NANCE: Bob.

MR. ZALES: Bob Zales, II. At the last council meeting, on behalf of the members of SFA, I sent the council a request to look, because there is a lot of complaints from the guys fishing with the quota for snapper, or grouper, whatever it is, but the total

quota, and I'm -- This may be a perception, but it's a reality to the fishermen, and this came up with the red grouper initially in 2019 and 2020, when they did all the changes.

When it comes to the recreational discard mortality, because there's no accountability there, right, and you don't know how many people are out there fishing, and you don't know when they're fishing or what they're doing, and so the discards, and the discard mortality, numbers are just essentially fictious, but they're high, eight to ten-times higher than what the commercial discards are.

Commercial discards are not 100 percent, and they have issues too, but, because of the massive discard mortality, the overall quota, from what we understand, is being reduced from what it could be if those discards were better accounted for, and not as great as what they're assumed to be, and so, in essence, the entire fishery, commercial, charter, rec, we all lose fish that we're not able to catch.

The request was to try to find a way to account for those discards in the stock assessment, and, from what I've learned talking to a lot of different people, it kind of starts with the stock assessment, right, because that's where the discards, and the landings, are all calculated and worked in to create -- To figure out what the stock is.

To figure out a way to, I guess, not have the recreational discard mortality impact the commercial side of the stock, and so, where you have allocations, where the commercial side is losing fish, and the charter side is losing fish, and the rec side is losing fish, and so leave those discards over there, but let the commercial guys catch what they could catch if that fishery was there, and, how you do that we don't know, but we would like somebody to look into it and see.

Like I said, it may be up to the Science Center, to see if they could figure out a way, but to see if there's some way to do that, short of requiring permits, and requiring some kind of data system, to where you know -- We know how many people have licenses to fish, right, and we don't know how many of them are fishing in the EEZ, and so, when you account and get a number of the people out there, create a data system, so then you know what the effort is, and you know what the landings should be, and it will never be 100 percent, but it clearly could be better than what it is today, and so we would like for you to look into some of that.

CHAIRMAN NANCE: Thank you. I'm going to -- To me, when we're

talking commercial and rec, landings and discards commercial, and landings and discards rec, they're separate in the model, and so, to me, that is accounted for in the assessment.

MR. ZALES: It's accounted for in the assessment, but what we're looking for is to say, okay, well, whatever the discards on the rec side, leave it on the rec side part of the allocation.

CHAIRMAN NANCE: It is, I think. I would think.

MR. ZALES: From what we understand, the overall quota is deducted by that, and so all of us lose fish, and, like I said, it's not the commercial side losing alone, and it's not the charter side losing alone, and the private rec, and everybody loses, and so what we're trying to do is to get it to whatever sector has the impact and to take it from them.

CHAIRMAN NANCE: Will, please.

DR. PATTERSON: Bob, I think what you're talking about is to have a quota based on total kill, and not based on landed catch, and is that what you're --

MR. ZALES: Well, however you need to do it, but to try to get it to where -- Because the commercial guys, and this is on both coasts, South Atlantic and the Gulf, because we represent the entire state, the Southeast, and so the guys fishing over there -- They feel like that they're not able to catch what they should be able to catch, because their quota is being reduced, because of what is being discarded, but nobody knows what the number is, and so however it needs to be done, and can be done, is what we're looking for.

CHAIRMAN NANCE: Okay. Will.

DR. PATTERSON: For Gulf of Mexico red snapper, Erin Bohaboy, who now works for NMFS in Hawaii, she did some simulations looking at that issue, about, if you had a regulatory structure, and it's based on total kill versus just landed catch, and I can send it to you. It's pretty dense. I can talk to you about it after, but, anyway, there has -- It's very controversial, but there has been some simulation work that shows that.

MR. ZALES: Yes, and I'm sure it would be, especially for the private rec side, because, you know, they've been so reluctant to try to do anything to become accountable, even though, although now, especially with FES being where it is, to where it's overestimating 40 percent, they finally have realized that they're

being overestimated, and so their numbers are higher than what they really should be, and, if you get that number to where you know more of what it is, then their discard numbers come down.

CHAIRMAN NANCE: Shannon.

DR. CASS-CALAY: In addition to the work that Will mentioned, which does show some incentives, right, for -- If you manage in total removals, there is an incentive to reduce discards. There is also work that we've presented to ICCAT, and Nathan Vaughan, who works with us frequently, has contributed to this, where we can calculate essentially conservation equivalents, right, and we can say, for example, that, if you shift the allocation back towards the larger fish, and away from these small discards -- You know, we can give you conservation equivalents, and that's another approach that could be useful.

The complication has always been getting reliable discard estimates. If you're going to manage in units that include discards, you need to have good in-season monitoring of discards, which is clearly not something that the agency has been willing to say that we can do reliably, but, yes, there are -- I think we're very interested in these concepts, and the agency certainly is very interested in working with the various constituents to try to find approaches that better kind of optimize the management objectives, right, and you folks need pounds of fish, and the recreational sector might be looking for fishing opportunity, and, you know, we need to find approaches that can better optimize that calculation. I agree this is -- This is an urgent research objective that you're talking about, and it's something that we're certainly interested in as well.

MR. ZALES: Yes, and I would suggest to you that, on the commercial side, and on the for-hire charter side, you would have some interest in doing that. On the private rec side, I think you would have quite a bit, because most of those people I think now are beginning to realize. I mean, you can look at the grouper closures, and everything else, and they're beginning to realize the impact that it's having on what they're able to do, and so, I mean, clearly it's all about access and opportunity, right, and, if you've got no access, you've got no opportunity, and that's the problem.

CHAIRMAN NANCE: Will.

DR. PATTERSON: Bob, you know, also, on the recreational side, there's a big push for understanding barotrauma better, and to utilize descender devices, or other return-to-depth tools, and

there's a big push with the Return 'Em Right program that the council is involved in, and Sea Grant is involved in, and it's run through Gulf States, and, you know, we've been advocating for the need to do population assessment of the impact of widespread usage of descender devices.

One, understanding, through empirical data collection, what the effect of those descender devices is, for savings, as far as release mortality goes, because, if you're going to incentivize reducing the amount of dead discards, you need to actually be able to estimate how much of a reduction you have, but then, also, to do the population modeling -- There seems to be some resistance to that component, which is surprising to me, but to do the population modeling, to then actually say, okay, how much savings was there, because, again, if you're modeling for -- If you're accounting for total removals, but then the quota is only based on the landed harvest, you're missing some component of that, and, if your idea of total removals is being impacted by the widespread usage of descender devices, and you're not accounting for that, then you don't actually realize the savings, as a stakeholder, and so it's a very complicated issue, but, you know, there are approaches to do that.

MR. ZALES: Another part of the problem is depredation, right, and you've got sharks, and you've got dolphins, and those devices -- They work pretty good, but, at the same time, when -- You know, up in the Panhandle, where I really know about it, when you're dropping a fish down with a descending device, and a guy has got a video, and you can do a grouper, and it goes down to the bottom, and the dolphin follows it, and, as soon as it's let go, the dolphin grabs it and takes off with it, and so you've got that part of the thing that has to do with the mortality that's there too, and the shark part, and the dolphin part, I don't know how you fix, because it's just a consistent and growing problem.

CHAIRMAN NANCE: Bob, thanks. We always appreciate you being here. We appreciate your input. Any other comments, Jess, online? Okay. Then it was really nice having everybody here, and I appreciate that, and I think we had a great meeting. I appreciate your input, and we'll go ahead and adjourn this meeting.

I think the next time we'll see each other will be in May, and, the dates, Ryan or someone will get out here soon, so we'll be able to start planning for that meeting. Right now, and I talked to Carrie last night, but it says virtual for the July meeting, and I think that's probably unwise, since that will be the first time that the new SSC will meet, and so I think it would be good have an in-person meeting for that. Yes, Roy.

DR. CRABTREE: Do we have to reapply for the SSC?

CHAIRMAN NANCE: Yes. They're going to tell you -- They will tell some of you, but, anyway -- No, I'm just kidding. They will -- Carrie, go ahead.

EXECUTIVE DIRECTOR SIMMONS: We'll be sending the applications out probably in late April, because the council will do the appointments at their June meeting, and then we'll let everyone know after that.

CHAIRMAN NANCE: But the announcement is going to go out, correct?

EXECUTIVE DIRECTOR SIMMONS: Yes, of course. A press release, and we'll send you multiple emails that you must reapply, and remember the council did make some changes to the structure, with the Standing, and trying to make it more multidisciplinary, and so the application will be slightly different that you receive this time, trying to mirror that and make sure that we get your expertise and the council understands where you want to be and that kind of thing.

CHAIRMAN NANCE: Do you know when that will come out, just out of curiosity?

EXECUTIVE DIRECTOR SIMMONS: The application?

CHAIRMAN NANCE: Yes.

EXECUTIVE DIRECTOR SIMMONS: I think we'll do it in late April, after the April council meeting.

CHAIRMAN NANCE: Okay. Perfect. Thank you so much, Carrie. Thanks, you guys.

(Whereupon, the meeting adjourned on February 28, 2024.)

- - -