GULF OF MEXICO FISHERY MANAGEMENT COUNCIL

JOINT MEETING OF THE STANDING & SPECIAL REEF FISH, MACKEREL, ECOSYSTEM & SOCIOECONOMIC SCIENTIFIC AND STATISTICAL COMMITTEES AND THE SOUTH ATLANTIC SSC

WEBINAR

JULY 21-22, 2020

STANDING SSC VOTING MEMBERS

Joseph Powers.....
Lee Anderson.....
Luiz Barbieri.....
Harry Blanchet.....
David Chagaris.....
Benny Gallaway.....
Bob Gill.....
Douglas Gregory.....
Walter Keithly.....
Kai Lorenzen.....
Robert Leaf.....
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James Nance.....
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Kenneth Roberts.....
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Jason Adriance.....
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SPECIAL MACKEREL SSC VOTING MEMBERS

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- - -

TABLE OF CONTENTS

- - -

TABLE OF MOTIONS

PAGE 38: Motion that the SSCs determined that the SEDAR 64 assessment of southeastern yellowtail snapper represents the best scientific information available on the stock and based on the assessment results the stock is not overfished and not undergoing overfishing. The motion carried on page 39.

PAGE 98: Motion that the SSC determined that the SEDAR 28 update assessment of Gulf migratory group cobia represents the best scientific information available on the stock and based on the assessment results the stock is not overfished, but is undergoing overfishing. The motion carried on page 98.

PAGE 60: Motion that the joint SSCs estimate OFL to be 4.17 million pounds for the yellowtail snapper stock during 2021 to 2023 based on results of SEDAR 64 and assessment projections. This value is the mean of the annual year-specific OFL (yield at F 30 percent SPR) projections for those years. The joint SSCs set ABC for the same time period to be 4.12 million pounds, which is the mean value of P* equals 37.5 percent applied to annual PDFs of OFL for years 2021 to 2023. The motion was tabled on page 128.

PAGE 130: Motion that the SSC estimates OFL to be 3.03, 3.21, and 3.31 million pounds whole weight for the Gulf cobia stock during fishing years 2021 to 2023, respectively, based on results of the SEDAR 28 update assessment and assessment projections. The SSC sets ABC for the same years to be 2.34, 2.60, and 2.76 million pounds whole weight, respectively, with annual ABC being the projected yield at 0.75 F SPR 30. The motion carried on page 138.

PAGE 200: Motion that the SSC recommends that the TORs for SEDAR 74 stock ID process be accepted as amended. The motion carried on page 200.

PAGE 202: Motion that the SSC endorses the milestone schedule for SEDAR 74 as presented. The motion carried on page 202.

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The Joint Meeting of the Gulf of Mexico Fishery Management Council Standing and Special Reef Fish, Mackerel, Ecosystem, and Socioeconomic Scientific and Statistical Committees and the South Atlantic Fishery Management Council Scientific and Statistical Committee convened via webinar on Tuesday morning, July 21, 2020, and was called to order by Chairman Joe Powers.

INTRODUCTIONS AND ADOPTION OF AGENDA

CHAIRMAN JOE POWERS: Good morning. My name is Joe Powers, and I welcome all of you as the Chair of the Scientific and Statistical Committee of the Gulf of Mexico Fishery Management Council. We appreciate your attendance on this webinar and input in this meeting.

Representing the Gulf Council is Dale Diaz. Council Staff in attendance are Ryan Rindone and Jessica Matos. Notice of this meeting was provided to the Federal Register, sent via email to subscribers of the council's press release email list, and was posted on the council's website.

Today's meeting will include the following topics: Adoption of the Agenda, Approval of Minutes, Discussion of the Scope of Work, Selection of an SSC Representative for the August Council Meeting, Review of SEDAR 64, Review of SEDAR 28, Discussion of IFQ Capacity, Update on the Operational Assessment Process, and Review of the Proposed Timelines and Stock Identification Process for SEDAR 74, Gulf of Mexico Red Snapper. Then, also, we'll have the Review of the Shrimp Stock Assessment Terms of Reference and Request for a Volunteer for Technical Chair for SEDAR 68, the scamp assessment, and then Other Business.

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

For the purpose of voice identification and to ensure you are able to mute and unmute your line, please identify yourself by stating your full name when your name is called for attendance. Once you have identified yourself, please re-mute your line. To signal you wish to speak during the meeting, please use the raise-your-hand function, and staff will display your name. Please remember to identify yourself before speaking and to also re-mute your line each time you finish speaking. Now can we have the roll call?

MS. JESSICA MATOS: Yes. Lee Anderson.

DR. LEE ANDERSON: Lee Anderson, here.

MS. MATOS: Thank you. Luiz.

DR. LUIZ BARBIERI: Luiz Barbieri.

MS. MATOS: Dave Chagaris.

DR. DAVID CHAGARIS: David Chagaris, here.

MS. MATOS: Benny Gallaway. Bob Gill.

MR. BOB GILL: Bob Gill.

MS. MATOS: Doug Gregory.

MR. DOUGLAS GREGORY: Doug Gregory.

MS. MATOS: Walter Keithly.

DR. WALTER KEITHLY: Walter Keithly.

MS. MATOS: Robert Leaf.

DR. ROBERT LEAF: Robert Leaf, here.

MS. MATOS: Kai Lorenzen.

DR. KAI LORENZEN: Kai Lorenzen.

MS. MATOS: Camp Matens.

MR. CAMPO MATENS: Camp Matens, here.

MS. MATOS: James Nance.

DR. JAMES NANCE: Jim Nance is here.

MS. MATOS: Will Patterson.

DR. WILL PATTERSON: Will Patterson is here.

MS. MATOS: Joe Powers.

CHAIRMAN POWERS: Joe Powers, here.

MS. MATOS: Sean Powers.

MR. RYAN RINDONE: Jessica, Sean is CNA today.

MS. MATOS: Okay. Thank you. Steven Scyphers.

DR. STEVEN SCYPHERS: Steven Scyphers is here.

MS. MATOS: Thank you. Jim Tolan.

DR. JIM TOLAN: Jim Tolan is here.

MS. MATOS: Jason Adriance.

MR. JASON ADRIANCE: Jason Adriance is here.

MS. MATOS: Judd Curtis.

DR. JUDSON CURTIS: Judd Curtis is here.

MS. MATOS: John Mareska.

MR. JOHN MARESKA: John Mareska.

MS. MATOS: Kari Buck.

MR. RINDONE: She is also CNA.

MS. MATOS: Thank you. Jack Isaacs.

DR. JACK ISAACS: Jack Isaacs is here.

MS. MATOS: Andrew Ropicki.

DR. ANDREW ROPICKI: Andrew Ropicki is here.

MS. MATOS: Cam Ainsworth. Mandy Karnauskas. Paul Sammarco.

DR. PAUL SAMMARCO: Paul Sammarco, here.

MS. MATOS: Thank you. We also have Dale Diaz.

MR. DALE DIAZ: Dale Diaz, here.

MS. MATOS: Thank you. I will go through the South Atlantic members that we have on today, too. Genny Nesslage.

DR. GENNY NESSLAGE: Genny Nesslage, here.

MS. MATOS: Thank you. Scott Crosson.

DR. SCOTT CROSSON: Scott Crosson, here.

MS. MATOS: Thank you. Churchill Grimes.

DR. CHURCHILL GRIMES: I'm here.

MS. MATOS: Amy Schueller.

DR. AMY SCHUELLER: I'm here.

MS. MATOS: Thank you. Alexei Sharov.

DR. ALEXEI SHAROV: Alexei Sharov, here.

MS. MATOS: Thank you. George Sedberry.

DR. GEORGE SEDBERRY: George Sedberry is here.

MS. MATOS: Fred Serchuk.

DR. FRED SERCHUK: Fred Serchuk, here.

MS. MATOS: Wally Bubley.

DR. WALTER BUBLEY: Wally Bubley is here.

MS. MATOS: Dustin Addis.

MR. DUSTIN ADDIS: Dustin Addis.

MS. MATOS: Anne Lange.

MS. LANGE: Anne Lange, here.

MS. MATOS: Okay. Great. Thank you.

CHAIRMAN POWERS: Thank you. We have had the introductions, and now we'll go through the agenda. Just an aside that this is a joint -- For certain sections of this meeting anyway, this is a joint meeting of both the South Atlantic and the Gulf of Mexico Scientific and Statistical Committees, and, in a couple of minutes, we'll kind of go through what the procedures are when we go through SEDAR 64, and see if everybody is happy with that.

First, let's get through a little bit of business. We have the Adoption of the Agenda, and you'll all see the agenda there, and

is there a motion to adopt?

MR. GILL: So moved, Mr. Chairman.

MR. RINDONE: Mr. Chair, if I could jump in.

CHAIRMAN POWERS: Yes.

MR. RINDONE: Just a point of clarification and a change consideration for you guys. Obviously, a lot of the things that we were going to cover on -- Well, everything we were going to cover on Wednesday has been removed from the agenda, but, because the meeting had already been federally noticed, we've just gone and struck it out, but left it there, and so we, obviously, won't be covering that material right now, and so we'll just continue through the agenda to the next item, which is the IFQ capacity and technical efficiency study, and Doctors Agar and Parmeter have asked if they could speak after lunch on Wednesday, and so that would be a requested change.

CHAIRMAN POWERS: All right. Thank you. With those notifications, I believe there was a motion to adopt from Bob Gill, I believe.

MR. GILL: As modified, Mr. Chair.

CHAIRMAN POWERS: Do we have a second?

DR. NANCE: Second.

APPROVAL OF MINUTES: JUNE 29, 2020 AND JULY 8-9, 2020 WEBINAR MEETINGS

CHAIRMAN POWERS: Any objection? With no objection, the agenda is adopted. Similarly, for approval of minutes of our last two meetings, and this was the June 29 meeting and the July 8 and 9 meeting about MRIP and FES and so on. Again, let's handle it all at once. Are there any -- Is there a motion to adopt both of these items?

MR. GILL: Move approval of the minutes, Mr. Chairman.

CHAIRMAN POWERS: Thank you. We have a second from Jim Nance. Thank you.

DR. NANCE: Yes, I second.

CHAIRMAN POWERS: All right. Are there any objections to

adopting the minutes? Without any, the minutes are adopted. All right. Ryan was going to talk about the scope of work that lists all of the agenda items, and, also, he will speak a little bit about the procedure, and so, Ryan.

SCOPE OF WORK

MR. RINDONE: Thank you, sir. For the South Atlantic folks, the scope of work is just kind of a roadmap for all of the agenda items and what is expected to be accomplished, or at least attempted, but, before we get into that, something that you guys should come to terms with between yourselves is how you would like to vote for the yellowtail snapper items, since that's the joint part of the meeting.

The South Atlantic Council makes recommendations by consensus, whereas the Gulf Council votes by individual -- The South Atlantic SSC is by consensus, and the Gulf SSC is voting by individual SSC members, and so, just amongst you guys, if you want to make a decision about how you want to vote, that will need to be done.

CHAIRMAN POWERS: Thank you. I think, ideally, we could accomplish this by essentially having motions, and, if they're accepted without objection, then that's essentially the same thing as a consensus. If in fact there are objections, then, presumably, we would have to go through a voting process, and I would believe, I guess, that the voting process would have to be done council-by-council. If somebody on the South Atlantic, or anybody, if you want to make a comment on that. No?

Then we'll play it by ear then, but, basically, for SEDAR 64, the idea is essentially that the scientific consensus is there, and we would make our recommendations accordingly. If there's not, then we will fall back to the other situation.

MR. RINDONE: Okay.

CHAIRMAN POWERS: Ryan, do you have anything more on the scope of work?

MR. RINDONE: Just if anyone has any questions, and we can go back to the scope of work before each agenda item, to kind of talk about what's in store for that particular item, but I wasn't going to go through the entire thing in one shot.

CHAIRMAN POWERS: Okay. Great. Thank you. Another bit of business is selection of an SSC representative for the virtual

council meeting towards the end of August, August 24 through 28. Are there any volunteers to be the SSC representative?

SELECTION OF SSC REPRESENTATIVE FOR THE AUGUST 24-28, 2020 VIRTUAL COUNCIL MEETING

MR. RINDONE: Mr. Chair, just as a reminder, for this particular council meeting, the SSC representative is going to be responsible for summarizing the June 29, the July 8 and 9, this July 21 to 23, and the August 11 through 12 SSC meetings, and so put your helmet on for that one, whoever decides to be the volunteer.

CHAIRMAN POWERS: All right. The enthusiasm is overwhelming. One thing that I was thinking about, in relation to this, is that -- Because it's a virtual meeting, there's no reason that more one person couldn't handle certain things, and so what I will do is I will volunteer to be the representative, and, in the ensuing time period, I will probably try to get others to help me through this process, and so maybe more than just myself would be involved, if that's acceptable. All right. Then we begin now with the review of SEDAR 64, and, Ryan, could you just kind of quickly go through the scope of work for this?

REVIEW OF SEDAR 64 - SOUTHEASTERN U.S. YELLOWTAIL SNAPPER STOCK ASSESSMENT

MR. RINDONE: Sure thing. The committees, which is the Gulf and the South Atlantic SSCs, are going to review the presentation, the models results, and the projections from SEDAR 64, which assessed southeastern U.S. yellowtail snapper, and the analytical body for this assessment was the Florida Fish and Wildlife Conservation Commission, and we have Shanae Allen and Chris Swanson on the line to tell you about their great work, and you guys will recommend any modifications to them, as appropriate.

You will determine whether the assessment represents the best scientific information available and inform the councils of the stock status of yellowtail snapper, based on status determination criteria, and you will also decide whether the assessment is suitable for management advice, and, if suitable, recommend values for the overfishing limit and acceptable biological catch.

You guys should consider annual and constant catch yields, and you guys should also take a peek at that stock assessment executive summary and provide any feedback to Chris and Shanae.

Mr. Chair.

CHAIRMAN POWERS: All right. Thank you. There are a number of background documents, the whole SEDAR 64 assessment process, the report of the review committee, and the individual CIE reports, and those are all available for review, and there has been -- There was some response to that review committee, in terms of what the assessment people provided afterwards, and so all of that information is available, and so let's begin now with the presentations, I believe, that we are going to get, and Shanae and Chris will be presenting that information, and so please go ahead.

ASSESSMENT PRESENTATION AND STOCK STATUS DETERMINATION

MR. CHRIS SWANSON: Thank you, Mr. Chair. Shanae and I will be going back and forth and presenting various portions of this presentation, and so I will begin. As you all are very well aware, the southeastern U.S. yellowtail stock is managed as separate stock units between the two councils, with the boundary being U.S. Highway 1 through the Florida Keys and into the Dry Tortugas, and the State of Florida also manages in its own waters, but, in terms of past assessments, as well as the present one being presented here, we're treating the South Atlantic and the Gulf of Mexico as a single stock unit.

In terms of management history, for the South Atlantic, a twelve-inch total length minimum size limit for commercial and recreational fisheries was established in 1983 with the Snapper Grouper FMP, and Florida enacted a similar regulation in 1985. In 1992, an aggregate daily bag limit of ten snappers for the recreational fishery was established, with Florida establishing it in 1986.

In 1999, Amendment 11B set the 30 percent SPR as an MSY proxy, and a 40 percent SPR was established for an optimum yield proxy. In 2013, Regulatory Amendment 15 established the ABC equal to the ACL, which was equal to that OY, and, in 2014, the MSST was modified to be 75 percent of the spawning stock biomass associated with that 30 percent SPR, and that was from Regulatory Amendment 21.

In the Gulf, the twelve-inch size limit was enacted in 1990, with an aggregate daily bag limit of ten snappers, and reference points for yellowtail are currently under development, and the Gulf of Mexico defers to the South Atlantic at the moment.

In terms of the assessment history, for SEDAR 3, an ICA model,

an integrated statistical catch-at-age model, was used for data from 1981 to 2001, and it was found that the yellowtail snapper stock was not overfished nor undergoing overfishing. When the stock was assessed again in 2012, via SEDAR 27A, the ASAP Version 2 model was used for data on 1981 to 2010, and a similar condition was found, where the stock was found to be not overfished nor undergoing overfishing.

This slide just looks at your quota history, and so, since SEDAR 27A, the quotas that were established -- In the Gulf of Mexico, the commercial and recreational fisheries have an ACL of around 900,000 pounds. In the South Atlantic, the commercial has an ACL of around 1.5 million pounds, with some closures occurring in 2015 and 2017. The recreational fishery has an ACL of about 1.4 million pounds.

Now we're going to get into the data portion of the assessment and some of the decisions that were made in that process. In terms of age structure, for Florida waters, we have fish from zero to twenty years old observed, with a max age of twenty-eight off of the Carolinas. In the graph to the right, all of the black circles are the fish length at-age observations within Florida, and the red triangles are observations outside of Florida, mostly coming from off of the Carolinas.

In Florida, 58 percent of our otoliths were between the ages of two and three, while 90 percent were between the ages of two and six. 99 percent of our otoliths were from Florida, and, within Florida, 61 percent of them were from the Florida Keys, and 35 percent were from southeast Florida, and so the observations for the stock are largely coming from the Florida Keys.

This is just a table that shows where these ages are coming from for the different fisheries, and so, for commercial, we got them from TIP, and we got them from the headboat survey, and some from the MRIP program, and you can see that most of them are coming from commercial and headboat, about 21,000 for the commercial and 21,000 for the headboat, and we have some fishery-independent surveys over the years that had collected some, about 1,800 of them, and so you see the ranges there. Our age-zero fish are coming exclusively from these fishery-independent surveys, and there was no weighting added to these ages.

We modeled the length-at-age data externally, using a size-truncated von Bertalanffy growth model, following Diaz et al. 2004, and we truncated the data at the minimum size limit, which is that twelve-inch total length, or approximately 24.8

centimeters fork length, for the fishery-dependent data, starting in 1983, which coincides with the Snapper Grouper FMP.

Some things were inversely weighted, with an age-twelve-plus group, and we used about 45,000 otoliths for this one, and you can see the L infinity was around 42.3 centimeters, with a K of 0.2.

For the length data, we received retained lengths from each of the fisheries, and so the commercial, headboat, and MRIP fisheries, and the sample sizes you can see on the right-hand side, and the fork length ranges, the years that they were collected, and how they were weighted, and so, for the retained lengths, they were weighted by the landings. For the discards, which were coming from the commercial reef fish observer program, they were weighted by the discards, and the MRIP and headboat observer programs -- Those discard lengths were weighted by the discards.

For the surveys that we had, we had length compositions that were weighted either by the landings or the discards, depending upon the fishery, and, for the -- What you will see here is the RVC, the Reef Fish Visual Census Program, and that was a fishery-independent survey that I'll talk more about, but they were weighted by the number of secondary sampling units.

This is showing our whole weight at length relationship, and, in the table down at the bottom that is highlighted in green, that's our -- Those are the AB parameters for the weight-length relationship, and so we used 16,000 fish to produce this relationship in the graph, and the southeast Florida is the yellow, and then the Florida Keys is the blue. The Florida Keys does also go all the way down. It's just kind of being masked right now by the southeast Florida data on top, but you can see that relationship there.

For the maturity at-age and length, we used data coming from Barbieri and Colvocoresses 2003, which used samples off of the Florida Keys and southeast Florida. There was no update to the maturity information for this assessment, and so this uses the exact same information that was done in SEDAR 27A. Maturity at-age had an A50 of 1.7 years and L50 of 19.2 centimeters, or 192 millimeters. The sex ratios in the literature were one-to-one.

For natural mortality, we used Hoenig's all taxa equation from the 1983 paper to estimate instantaneous natural mortality, where we used a Tmax for Florida at age-twenty, and then we used that estimate of instantaneous M as the target M to create a

mortality at-age vector, following Lorenzen 2005, and that gives us our maturity at-age vector that you see in the plot on the left-hand side, ranging from 0.558 per year to 0.198, for the zero to twenty.

Before we get into the landings and discards portion of the presentation, I just wanted to start off with one of the things that came out of the assessment workshop, was that the assessment panel recommended a start year of 1992.

As most of you all are aware, the data for recreational starts in 1981, and even beforehand with the commercial data, but, due to the high uncertainty in the recreational landings and discards prior to 1992, as well as our age composition data becoming really available after 1992, and likewise with our indices of abundance or biomass that we had becoming available, the assessment panel recommended a start year of 1992, and we had a sensitivity run with a start year of 1981. In SEDAR 27A, the assessment started in 1981.

Landings for the commercial fleet come from Florida's Marine Trip Ticket Program and the NOAA ALS, and we used data from Florida only from 1992 to 2017, but we did have it available beginning in 1962, and standard errors in log-space were weighted by the landings.

For the headboat, our landings come from the Southeast Region Headboat Survey, from 1992 to 2017, but we did have it available from 1981. Because there is no variance estimates that come from this survey, standard errors in log-space were assumed equal to 0.25 and constant through time.

For MRIP, for the private, shore, and charter modes, the landings came from the fully-calibrated APAIS, FES, and FHS datasets, from Florida only from 1992 to 2017, and the CVs were transformed to standard errors in log-space.

This is a chart showing the retained landings on the left in numbers in millions and in metric tons on the right-hand side. For the numbers, you can see MRIP and commercial are about half-and-half, with some real high estimates in the early 1980s and late 1980s and early 1990s, and then those values are in metric tons on the right. You can see headboat isn't a very large component at all.

For the discards, for commercial discards, effort and discard rate data from the vertical line trips in southern Florida, that's been reported in the commercial logbooks, and between

2002 and 2017 were used. For the earlier years, 1993 to 2001, the discard rates were averaged over the years 2002 to 2006 and used with the effort data that was available at that time period to produce those discard rates. CVs were provided by the Southeast Science Center using the method from SEDAR 32 that they established. The CVs were pretty high, 1.94 to 5.61.

For the headboat fleet, coming from the headboat logbook data from 2004 to 2017, which was validated using the Florida at-sea observer program, for the years 1981 to 2003, they were hindcasted using that discard ratio between the MRIP charter boat and the headboat discards, and it was a proxy method, and the standard errors for this were assumed equal to 0.5 and constant through time. For the MRIP fleet, the discards came from the MRIP data, that fully-calibrated data between 1992 and 2017, but it was available back to 1981.

This is the discards in millions for each fleet, and you can see the commercial discards were extremely low, and the same thing with the headboat, and MRIP comprises the vast majority of it.

For discard mortality rates, it was decided at the data workshop that, for the commercial fleet, 10 percent would be used, with a sensitivity run of 15 percent, and, for the headboat and MRIP fleets, again, 10 percent would be used, with sensitivity runs using 20 percent and 30 percent discard mortality rates.

For our indices of abundance and biomass for the fishery-independent index of abundance, the data came from the Reef Fish Visual Census Program, where we used data from the Florida Keys and the Dry Tortugas, and this was sampling that was done in 1999 and 2000, and then biannually from 2004 to 2016. From this dataset, we were able to produce a juvenile and an adult index that was split right there at the nineteen-centimeter line.

For our fishery-independent indices, we had a commercial vertical line index of biomass that came from the commercial logbook data from 1993 to 2017 in southern Florida, which includes southeast Florida, through Sarasota, and the Dry Tortugas. Then we used MRIP total catch data to create an index of abundance from 1991 to 2017 in similar regions, southeast Florida and the Florida Keys, including the Tortugas.

This is these indices that are normalized to their own means, plotted, and so you can see there’s a little bit of an initial decline in the early and mid-1990s, and then the indices increased through time, through the terminal year.

This is a slide that's showing some of the modifications or updates that were done with this assessment, as compared to the previous assessment, SEDAR 27A. In terms of data structure, the biggest change comes from the MRIP dataset itself having been changed, where estimates are now two to five-times higher than what they were previously.

In this assessment, it was decided to use Florida-only data to inform this assessment model and to manage the Florida stock, and there is an addition of seven years of data, and so the terminal year in the previous assessment was 2010, and so now we're including through 2017, and, while the decision from the panel was changed to have the start year changed to 1992, which was technically a removal of eleven years of that early data, from 1981 to 1991, it still -- That data is still in the model, and it's being used to inform the early recruitment deviations and to estimate initial population sizes, and so the start year is 1992, but the data do exist in the .dat file for SS, which you will see later.

In this assessment, there was an exclusion of the headboat index of abundance, whereas there was one in the last assessment, and that was a decision made at the data workshop by the index working group. Because we are using SS for this model, we have the inclusion of length composition data to be fit by the model, and, also, in terms of the commercial discard mortality rates, they were changed from eleven-and-a-half percent in the last assessment to 10 percent this time, but the recreational fleet discard mortality remained the same, at 10 percent.

In terms of life history, between the last assessment and this one, the amount of length-at-age information that we had essentially doubled. We went from about 20,000 otoliths to 50,000 otoliths, to be able to use, and so, with this, came updates to the external von Bertalanffy growth parameters used outside the model and within it, and, with this assessment, it was the use of fork length instead of total length to derive some of these life history parameters.

With this update, at the length at age information, it also allowed updates to the constant and age-varying natural mortality estimates, and the methods were the same, but, because the life history information was updated, it changed it slightly, too. We had our update to length-weight parameter estimates, and the spawning timing was changed from the middle of the year to January 1 for this assessment. Before I move forward into the model configuration portion of the presentation, is there any further questions about the data?

CHAIRMAN POWERS: Let me open the floor for questions, briefly. Let me ask a question, quickly, if you could kind of elucidate about why the headboat was -- That the data workshop wanted to exclude the headboat.

MR. SWANSON: The headboat index, the information -- I am trying to remember back from the data workshop, but, basically, the amount of uncertainty associated with the headboat data -- It caused some doubts as to how we wanted to use it, or if we wanted to use it, and the trends that it was showing deviated from all of the other indices, and that's the gist of --

MS. SHANAE ALLEN: I can also add to this for a moment, if that's okay.

MR. SWANSON: Yes. Go ahead.

MS. ALLEN: Okay. The major issue with the headboat survey was that the coverage was very low in the South Atlantic and very -- Over time, how many vessels were involved, and there were a few other reasons as well that are listed in the index working paper, but I would have to dig that up.

MR. SWANSON: The reporting issues.

CHAIRMAN POWERS: Yes, and, as I remember too, overall, the headboat was pretty small, and, also, all the other catches were focused in the Keys. All right. Dale Diaz, did you wish to speak?

MR. DIAZ: Thank you, Mr. Chair. I just had a question. On page 19, we were talking about discards there, and I noticed one year was extremely high, and it seemed to be -- I was just wondering if there was any explanation of why that year, and it looked like maybe 1991, was so high.

MR. SWANSON: I don't have a good explanation as to why. When that datapoint was looked at in the data workshop, there was some -- We were wondering whether or not it was just coming from one interview or what was causing that huge spike, but I think there was a couple of interviews.

MR. RINDONE: There were three, Chris. There was one that had reported a hundred yellowtail discarded in one day and two separate ones that had both reported fifty yellowtail discarded in a day.

MR. SWANSON: Okay.

MS. ALLEN: Let me clarify that I think that was just for the charter mode. In the private mode, which makes up most of the MRIP landings, it was fairly consistent over all strata, and Vivian Matter at the Southeast Fisheries Science Center did a thorough investigation of that year and found that it was a fairly consistent increase in many strata.

MR. DIAZ: Thank you.

CHAIRMAN POWERS: Thank you. Ryan, did you have anything more?

MR. RINDONE: No, that was it. It was just to clarify.

CHAIRMAN POWERS: All right. Thank you.

MR. SWANSON: Thanks, Ryan.

CHAIRMAN POWERS: Then, with no other questions, Chris, go ahead and proceed.

MR. SWANSON: Okay. Thanks, Mr. Chair. This gets into the base model configuration portion of the presentation. For SEDAR 64, the base model was configured in Stock Synthesis Version 3.30.14, and it's a model of moderate complexity for the years 1992 to 2017, with early recruitment deviations starting in 1981.

It's a one-season, one-area model, with spawning beginning in January and settlement occurring also in January, at age-zero, at two-centimeters fork length. It's a combined-sex model with female-only spawning stock biomass.

In terms of life history parameters that were used as initial inputs, these were all coming from the externally-estimated von Bertalanffy growth model. There was twenty ages in the model, with an age-twelve-plus group that was used, and natural mortality came from that estimate of mortality at-age and was fixed within the model as a vector. Maturity at-age was used as a fixed vector, and fecundity was set equal to spawning biomass at length, and the parameters for the length-weight relationship were also fixed, following the analyses that I had presented earlier in the presentation.

We had three fleets in the model, the commercial, headboat, and MRIP, where landings and discards were provided for each of the fleets, and, for the surveys, we used the commercial CPUE, the

RVC fishery-independent indices, with the juvenile and adult, and then the MRIP total catch CPUE numbers.

For our length composition data, we included commercial landings and discards, headboat landings, MRIP landings, and then a combined headboat/MRIP discard length composition, because the length compositions were the same. We had length compositions coming from the RVC survey as well, and conditional age-at-length data was also supplied for the commercial landings, headboat, and MRIP landings, and then we had a fishery-independent source that was not any fleet. This is just a graph that shows the usage of all those data components within the model across time.

For selectivity for the fleets, the commercial selectivity used a simple logistic flat-topped with estimated retention and a discard mortality rate of 10 percent. Headboat used a double-normal, which is a dome-shaped selectivity curve, with estimated retention that was flat-topped and a discard mortality rate of 10 percent, and the same thing with MRIP. A double-normal dome-shaped selectivity curve was used with estimated retention and a discard mortality rate of 10 percent.

For the indices, the commercial CPUE index selectivity was linked to the commercial fleet, and so that simple logistic flat-top, and a catchability time block was included with this from 2009 to 2017, and this was following -- It was to capture the power chumming technique that has become standard within the commercial fishery.

For the RVC adult index, a double-normal selectivity was chosen for that, with constant catchability, and a double-normal for the RVC juvenile index, with constant catchability, and the MRIP CPUE was mirrored to the MRIP fleet, with constant catchability.

For recruitment dynamics, the Beverton-Hold stock-recruit relationship was used to estimate recruitment, with parameters of virgin recruitment in log space and then sigma R, which is the standard deviation of log recruitment, and steepness, and they were all estimated within the model. We used the simple recruitment deviations options, and so there’s no sum to zero constraint on recruitment.

As I said, earlier, we used the early recruitment deviations from 1981 to 1990, which represents this period of lower data richness, and then the main recruitment deviations began in 1991, which begins this period of higher data richness, where all of our length compositions and our indices -- All of that

data comes in. We included bias adjustments within the model. We're following the Methot and Taylor 2011 method.

Out of the 117 parameters that the model used, eighty-five of them were estimated, and we only used symmetric betas on the initial fishing mortality rates for the three fleets, and everything else was estimated. For the lambdas, there was no emphasis on model fit for the initial equilibrium catch for all three fleets, because of the uncertainty with it, not knowing what that initial equilibrium was, and so we made no emphasis on it. Then, in terms of our fishing mortality rates that were reported, we used age-four for that.

For model convergence criteria, we looked at the total likelihood, which uses the sum of the individual data source components likelihoods, and we made sure that the Hessian inverted and had a maximum gradient of less than 0.0001, and, for the error structure, Stock Synthesis assumes a log normal error structure for all landings indices and discard data, unless you specify otherwise, which we did with the commercial discards. If you remember, we had CVs with those which were very large, and so we used those values.

A multinomial distribution was used to fit the length composition and the conditional age-at-length data, and, in terms of data weighting, the length composition, and, as I said earlier, the length composition and the conditional age-at-length data was weighted, either by the initial sample sizes that were equal to the square root of the number of trips or the number of fish, and we also did an iterative reweighting, following Francis 2011. Is there any questions about modeling configuration? Shanae is going to pick up with the base model results.

CHAIRMAN POWERS: Thank you, Chris. Are there any questions? If not, then, Shanae, can you proceed?

MS. ALLEN: Thank you, and good morning, everyone. I will be going through the results portion of the presentation, followed by our MCMC analysis and our sensitivity runs.

Here is a comparison of expected and observed commercial landings on the left and recreational landings on the right. As you can see, the landings fit exactly for all years, except for the year prior to the start year, which is 1991. The start year is 1992.

Model estimates of commercial discards are shown in blue, and

the data inputs are the open circles, with associated approximate confidence intervals. The next several slides will follow the same format.

The fit illustrates a general agreement between the estimates and observed quantities, except in the last few years. However, the uncertainties surrounding these estimates, as shown by the vertical bars here, is very high, off the charts, really.

The fit to MRIP discards is shown on the left, and the fit to headboat discards is shown on the right. As you can see, estimates for most years fall within the data confidence intervals and show no discernable pattern.

The next few slides will show the fits to the indices, and the commercial index year fits fairly well, as estimates fall within the uncertainty intervals. However, on the right, showing the standardized residuals by year, it shows that there are some trends.

The fit to the MRIP index is illustrated on the left, and the trends and residuals are on the right, again, and this shows that the initial years are underestimated, and the following years are mostly overestimated, but not to a large degree. Here is the fit to the RVC adult index, and so the standardized residuals mostly fall within plus or minus-two, which is a good sign, but they do show some minor temporal trends, some temporal trends.

Lastly for the indices, here is the fit to the RVC juvenile index, and, again, the standardized residuals on the right mostly fall within plus or minus-two, and they indicate some minor temporal trends.

Moving on to the fits to the length comps, this slide compares the fits to the length comps aggregated over all years, per fleet and survey, and that is shown -- The fits are shown by the green line, and the data are shown by the gray distributions. This shows strong agreement between the data and model estimates.

Looking at these residuals through time and by length bin, the Pearson residuals here show -- They’re shown for each fleet, starting with the commercial discards, followed by the commercial retained lengths and then headboat discards, and, finally, the last plot there is the headboat retained lengths, and the following slide will be MRIP. As you can see, there is no discernable patterns over time, which is a good sign.

It's a similar story with MRIP discard and retained lengths, as well as the lengths provided for by the surveys, and there are some very large residuals for very small length bins, as shown in the MRIP retained lengths and RVC juvenile, and, again, no obvious patterns over time.

These two slides will show the fit to the age compositions, and, on this slide, the observed mean ages are shown by the open circles, accompanied by confidence intervals that are based on the effective sample sizes, and the fits to the mean age by year is the solid line, and so on the left is the fit to the commercial ages, which shows that most years were underestimated, whereas the fit to the headboat ages on the right are in general agreement. Similarly, the fit to MRIP and fishery-independent ages, on the left and right respectively, show general agreement.

There is quite a bit going on in these plots, but I will talk through it, and so here we show the estimated selectivities for each fleet, and selectivity by length is shown on the left, and so we'll start there, and so, going from left to right, we have the RVC juvenile survey in yellow, which peaks at about fifteen centimeters, followed by the RVC adult index in green, and the MRIP fleet and MRIP CPUE series in orange, with the blue plus signs.

The selectivity for the headboat fleet is in the light blue, and, for the commercial fleet, it's in the dark blue, which shows that the commercial fleet is the only one here with a flat-top selectivity. On the right, the derived age-based selectivity shows the same general pattern. However, most fleets and surveys are estimated to have nearly flat-top age-based selectivity.

Here is the estimated stock-recruitment curve, and the steepness value is estimated at about 0.8, but, as shown by this plot, it is not very well informed, as you see by the points there in the middle.

The estimated number of recruits, in thousands per year, is shown on the left, and the recruitment deviations are shown on the right. The number of recruits shows a slightly increasing trend, with a high period of recruitment from about 2011 to 2014. The recruitment deviations are mostly centered around zero, but they do have a slight positive trend in the later years.

The growth estimated from SS here is shown on the right, by the black line and the dark-shaded area, while the growth estimated from the external model is the blue line and the lightly-shaded area. As you can see, the growth estimated from SS has a lower L infinity compared to the external growth model, but the 95 percent confidence intervals overlap almost entirely.

Moving on to model-estimated quantities, fishing mortality rates for age-four fish are presented on the left, showing that the stock has not undergoing overfishing for most of the time period, and so F current, which is the geometric mean of the final three years, is the red horizontal line, and that line is slightly above the F at optimum yield, and it suggests that the stock, as I said, is not undergoing overfishing.

Estimates of spawning stock biomass is on the right, and it shows a general increasing trend since 1996 and a leveling off since about 2015. Estimates for all years are above the minimum stock size threshold, or MSST, which is defined as 75 percent of the spawning stock biomass at an F of 30 percent SPR.

MR. GILL: Mr. Chairman?

CHAIRMAN POWERS: Go ahead.

MR. GILL: Thank you, Mr. Chairman. Shanae, could you talk a little bit about why the geometric mean was chosen over three years, rather than perhaps a longer timeframe?

MS. ALLEN: If my memory serves me right, I believe that that was used in the previous assessment and was defined in the terms of reference, but, Chris, correct me if I'm wrong here.

MR. SWANSON: No, that's what I remember, too. That's how it was defined.

MR. RINDONE: Mr. Chair, we have used the geometric mean for the previous three years for most of our assessments for probably the last six or eight years, and it's been a while, and we've just tried to make that kind of a standard thing that we put into the terms of reference, to make that particular estimate homogenous across managed species.

CHAIRMAN POWERS: Thank you. Anything else, Bob?

MR. GILL: No. Thank you, Mr. Chairman.

CHAIRMAN POWERS: All right. Shanae.

MS. ALLEN: Okay. That's all I needed to say about this slide, and so, if there's no more questions, we can move on to the next. Here we have estimates of numbers at-age on the left, which shows that the population, in numbers, is mostly made up of ages-zero through four, which, on the bottom there, the key, it will show it's the blue through the yellow colors. The biomass at-age, which is shown on the right, is comprised mostly of ages one through five, which is identified by the orange through the green colors.

Management quantities and their estimated values are shown in this table. As shown, the MSST is estimated to be about 1,400 metric tons, or about three million pounds. The spawning stock biomass, SSB current, is the geometric mean of spawning stock biomass for 2015 to 2017, and it's over two-times the MSST, again suggesting that it's not overfished.

The maximum fishing mortality rate, or MFMT, is about 0.44, and the overfishing limit is about 1,600 metric tons, or 3.5 million pounds. F current is slightly higher than the fishing mortality rate at the optimum yield, at about 0.3, and the optimum yield is estimated to be about 1,500 metric tons, or 3.3 million pounds.

We performed a MCMC analysis to generate posterior distributions of model parameters and quantities, and so, to do this, we ran two chains and assessed convergence using Gelman and Rubin's potential reduction scale factor.

Here are the MCMC distributions of SSB current relative to MSST on the left, and F current relative to MFMT in the middle, and what you can see is that neither of these distributions overlap with one, suggesting a very low probability of being overfished or undergoing overfishing. A distribution of retained catch at F of 30 percent SPR is on the right, and all of these distributions show very little skew and line up well with the base model estimates.

The black line and the solid-gray band represent the median and 95 percent credible intervals from the MCMC analysis, while the dashed lines indicate the base run estimates and approximate 95 percent confidence intervals, and so, for both fishing mortality on the left and spawning stock biomass on the right, this just shows that the base model and the MCMC analysis are very closely aligned. If anybody has any questions about model results, or, if not, I can move on to the sensitivity runs.

CHAIRMAN POWERS: Let's go on with the sensitivity runs. Thank you.

MS. ALLEN: Okay. A few sensitivity runs were explored. First, we changed the start year to 1981, to see the effect of including those highly-variable landings and discard data, and we also compared our base model to a run without the Francis weights on the composition data, and another run was requested by the review panel to change the MRIP fleet selectivity to flat-top, and, finally, to change the commercial and recreational discard mortality rates, as per the terms of reference.

Here we have a comparison of estimated spawning stock biomass on the left and age-four fishing mortality on the right. The blue line is the run starting in 1981, and the red line is our base model, starting in 1992, and so, as you can see, all of these quantities are very similar, and there is very little change in the management reference points.

Changing the start year did, however, affect the stock-recruitment curve, which led to a lower estimate of steepness, to about 0.6 from 0.8, and that was because it filled in more of the region closer to the origin.

The next sensitivity run is removing the Francis weights on the composition data, and, as you can see, that increased spawning stock biomass quite a bit and lowered fishing mortality rates, but the trends remained the same. It also had a large effect on the management reference points.

However, the base model generally fit the indices and MRIP discards better, as shown by the table of log likelihood values on the left, and removing the Francis weights also worsened the fit to the length comps, which is shown on the right here, particularly the commercial retained lengths, the MRIP discard lengths, and the MRIP CPUE lengths. The fits to the age comps are not shown here, and they remained about the same.

Another sensitivity run was to lower natural mortality by increasing the maximum age to twenty-eight. That is the maximum age that was observed in all the age data, including ages from outside of Florida, and so lowering the natural mortality led to slight decreases in spawning stock biomass and fishing mortality rates. However, the MSST, which is the dashed line, increased quite a bit, and the MFMT decreased, which will lead to a change in overfishing status in many years.

Moving on to the next sensitivity run, which is changing the MRIP selectivity to flat-top, this led to a much lower spawning stock biomass, but only slightly higher fishing mortality rates, and so, diving into this one a little deeper, the change in selectivity led to poorer fits to the MRIP discards and MRIP CPUE length comps. As you can see, the peak is not captured very well.

The next two slides reflect changes to the discard mortality rates. As shown, increasing the commercial discard mortality rate to 15 percent made indiscernible changes to these outputs. The same goes for increasing MRIP discard mortality rates to 20 and 30 percent. However, the change to a 30 percent discard mortality rate did lead to a slight increase in MSST and decrease in MFMT. We can move on, and Chris is going to take over this part of the presentation, unless anyone has any questions.

CHAIRMAN POWERS: If not, we can always come back later, and so go ahead, Chris.

MR. SWANSON: Thanks, Shanae, and thank you, Mr. Chair. Yes, I will be talking about the retrospective analysis and some of the other analyses that were performed to gauge model fit, and then Shanae will pick up with the projections at the end of the presentation, and so go ahead with the next slide, please.

For the retrospective analysis, we did a seven-year peel and evaluated the pattern quantitatively using Mohn’s Rho and following the rule of thumb that suggested in Hurtado et al. 2015, which said, for longer-lived species, such as our yellowtail snapper, versus a shorter-lived species, like a clupeid, values ranging from between negative 0.15 to 0.2 are optimal, and so, up in the upper-right-hand corner, we have some of those Rho values for our spawning stock biomass, our recruitment, and age-four Fs, and so you can see they fall within that quantitative rule of thumb, indicating that a pattern would not be present.

The bottom table just shows the gradient in the number of parameters near the bounds for each of the peels that was performed, and so we get a little bit of an issue on the peel that minuses three and four years, and we’ll see that in the upcoming plots.

This is for recruitment, and you can see that the pattern is -- There isn’t a pattern, really, and they all stick pretty close together, except for that run, which failed, and is represented

by this line through the middle here.

For spawning stock biomass, on the left-hand side, you can see that, as the data was peeled back, you get a little bit of a decrease, and then it goes up above the data at zero lines, but they're all pretty much within the confidence intervals, the shaded regions there, and then, on the right-hand side, it's similar with the age-four Fs, and so things are pretty much within the confidence intervals that were established.

Some of the other analyses that we have performed to assess convergence and uncertainty within the model that we didn't feel like we had time to go into for this presentation, but were listed within the assessment report itself, we did a parametric bootstrap, but we found that it was really sensitive to the effective sample sizes that were used and that they must be integer values, and so, because of that, most of the runs did not converge, and so we got estimates and distributions that were very off and quite different than what was coming from the base run or the MCMC analysis.

We did profiling on these estimated stock-recruit values for R zero, sigma R, and steepness, and we also did likelihood profiling on those initial F values, which the results from the profiling suggested that there's little model sensitivity to those quantities, but, for the steepness parameter, the likelihood was pretty flat above 0.65, and this was a point of discussion within the review that we had, suggesting that steepness isn't very well defined.

We also did a jitter analysis within Stock Synthesis, which basically varies the starting points of the parameters, and we did it by 20 percent, as suggested by Rick Methot, and the results found that our model, the base model, converged on global solutions, rather than local minima, for each of the parameters.

We also performed a jack-knife analysis on the indices of abundance, and the indices had a similar influence on trends in the fishing mortality rates and SSB, and so everything looked okay. When we removed -- We did find that, when we removed the MRIP index, the model was most sensitive to that, and it lowered the fishing mortality rates and increased the spawning stock biomass. If there's no questions about that, Shanae will finish up with the projections.

MS. ALLEN: I guess the last item in our presentation is to present the results of several projection scenarios. We did a

twenty-year projection, where the selectivity for the fleet, for each fleet, was taken from the terminal year of the assessment model, and relative harvest rates for the directed fisheries were assumed to stay in proportion to the terminal three-year geometric mean from 2015 to 2017. This is about 0.3 for age-four fish.

The fleet allocations are kept constant and are equal to relative F values of 56 percent for the commercial and 44 percent for the recreational, and this is based on retained biomass, and those values are very similar to the current allocation values in the South Atlantic, which are 53 percent for commercial and 47 percent recreational.

Stock-recruit parameters are assumed to be constant, and recruitment for the first year of the projection is equal to the terminal three-year average.

We compared the following projection scenarios: F current or average F; F at 30 percent SPR, which is the red; 75 percent of F 30 percent SPR, which is the light blue dotted line; F at 40 percent SPR, which is the optimum yield fishing mortality rate defined for this species, and that's in the green. This last scenario, FOY, that was not requested in the TORs. We also added a retained landings in metric tons for each fleet in 2018 and 2019, and so projections really start in 2020.

This plot shows the recruitment values that were estimated by the base model, which is black, and what was used in each projection scenario. As you can see, the recruitment values are equal to, or very close, to the 1992 to 2017 average, and they decrease slightly under the highest F scenario of F at 30 percent SPR.

Here on the left is estimated and projected retained yield, in millions of pounds, for each projection scenario. Again, the projections begin in earnest in 2020, after the gap years of 2018 and 2019.

One thing to note here is we found that, in the version of SS that we were using, there was a bug in the projection code, and so we were unable to input the MRIP and headboat landings in 2018 and 2019 in numbers, and we could only enter them as metric tons. We have recently used a different version of SS that does not have this issue, and we can show some comparison plots. It increased the fishing mortality rate slightly for the gap years, by inputting numbers instead of metric tons.

On the left here, the red is the projected yield at F 30 percent SPR, or the MFMT, and the peak occurs in 2020, followed by a decline. The remaining projection scenarios are driven by lower Fs, which is shown here, and so note that the current ACL is in the previous MRFSS currency, and so based on the Coastal Household Telephone Survey, and so these aren't directly comparable to any other quantity on here. It's just for reference.

CHAIRMAN POWERS: I have a quick question about the one on the right. You mentioned the target there, and do you mean -- You don't mean target, do you? Do you mean -- It's not the optimum yield, is it?

MS. ALLEN: No, and so that should be spawning stock biomass at F 30 percent SPR.

CHAIRMAN POWERS: This will come up again, and I think it's in the executive summary, that you refer to target, and that should probably be changed, but, anyway, go ahead.

MS. ALLEN: Okay. On the right is the spawning stock biomass projected through time, and you can see that most of the scenarios lead to a slight decrease in spawning stock biomass, but the scenario under MFMT shows a quick decline in spawning stock biomass to reach the SSB at F 30 percent SPR, which is what it would be designed to do, and that's all we have, and so please let us know if there are any questions.

CHAIRMAN POWERS: All right. This would be a convenient time to take a break for let's say fifteen minutes, and then it will give people some time to kind of bring their questions to the fore, so that we can go on from there, and so let's take a break for fifteen minutes then and come back at 10:40. Thank you.

(Whereupon, a brief recess was taken.)

CHAIRMAN POWERS: Let me open the floor for any questions and comments and so on, and, while people get their thoughts together, let me interject a couple of things, or really just one thing. During the review meeting, and Chris and Shanae know this, there was some discussion about basic stock ID and the fact that the distribution of this species is quite wide, but, for very pragmatic reasons, both in terms of the fishery itself, it was focused on Florida, and, also, there was the focus on the Keys of Florida, in terms of some of the sampling that's gone on, and that was one of the recommendations that was made. Do you care to comment on that, Shanae or Chris?

MR. SWANSON: Just that you said it well, and that was pretty much it. The decisions that were made between the data workshop and the assessment workshop was to manage -- For the management of the species, which was so Florida centric, and, because of some of the issues with the populations, the life history characteristics of the populations, like up off of the Carolinas, which weren't subject to the elevated fishing pressures that exist down in the Keys and southeast Florida, the decision was made, as you said, from a pragmatic standpoint, that this is a Florida stock with a Florida fishery, and so, because 99 percent of the data was from Florida, the decision was to base all of the data, the life history data and inputs, off of Florida data.

CHAIRMAN POWERS: Thank you. Are there any questions or comments, any further questions or comments? You can't let them off scot-free, you know. Bob.

MR. GILL: Thank you, Mr. Chairman. My question relates to the previous slide, the twenty-year projection yield curves, and I think it's Slide 78. I would note that that version of the yield curves is different than that presented in the executive summary, Figure 3, page 3, and I am presuming that the slide we're looking at is in fact the current correct version, but could you comment on the difference? Then I have another question to follow, if I could.

MS. ALLEN: These are the most current projections, and the one in the executive summary followed what was presented in the report, but I thought that we could update that executive summary prior to the next council meeting.

CHAIRMAN POWERS: What is the difference?

MS. ALLEN: This has it presented in a slightly different way, and it also goes out twenty years, whereas I think what was in the executive summary was five years.

CHAIRMAN POWERS: Okay, and so it's a different looking graph, but it's not different.

MS. ALLEN: Right.

MR. GILL: Mr. Chairman, I would comment that they are distinctly different. They're not even the same graphs, regardless of time scale.

CHAIRMAN POWERS: All right. If we can look at --

MS. ALLEN: To be clear, we added another projection scenario, which was F at 40 percent SPR, which is defined as FOY for this species, and we also added gap year landings, in metric tons, for 2018 and 2019, and we made the projections go out twenty years.

CHAIRMAN POWERS: Okay, and so it seems the big difference is the gap years.

MS. ALLEN: Yes.

MR. SWANSON: Right. I think, Mr. Chair, there was a -- From the review, that, because the terminal year of the assessment ended in 2017, but here we are in 2020, and we had available to us 2018 data, and possibly 2019 data, and there was an interest in having those values included into the projections, and so that was what we had done with what you're seeing today.

CHAIRMAN POWERS: All right. Thank you. Yes, I'm beginning to recall. Bob, you had another question?

MR. GILL: Yes, thank you, Mr. Chairman, and what I'm asking here is whether there is a tabular version of Slide 78, the twenty-year yield curve projections, and I didn't see one, and did I miss it?

MS. ALLEN: You're correct that we don't have that available at the moment, but we could have it after lunch or so.

CHAIRMAN POWERS: When we get to the point of actually deciding on the annual catch limits and things like that, typically we want to look at the tabular versions, to get some indication of whether you want to have a constant catch over a finite time period or whether we take the projections verbatim and so on, and so, yes, if we could get a tabular version, it would be helpful, I think.

MS. ALLEN: No problem, and that's only for retained yield, or for spawning stock biomass as well?

CHAIRMAN POWERS: Both.

MS. ALLEN: Both. Okay. Fred.

DR. SERCHUK: Thank you, Chair. What was the reason for going to a twenty-year projection? I don't doubt that the results

that you presented here are the ones that came out of the projection that you used, but my experience is that, anything beyond ten years we're in fantasy land, and, anything beyond that, we would probably have another assessment done within that time period, and so, while I don't dispute the results that you have here, I am just wondering how useful a projection period beyond ten years is with respect to understanding where the stock would be and so on and so forth. Thank you.

MS. ALLEN: Right, and I agree that anything over probably five years wouldn't be very useful for that purpose, but, for the purposes of defining these equilibrium values, you want to run it out long enough to where things stabilize and are not changing, and so it's kind of arbitrary, using twenty years. You know, you start with a hundred years and keep knocking it back until you can see where the stabilization occurs, and so this would be, after say 2030, there's very little change in these values.

DR. SERCHUK: That answers my question, but I'm still concerned that the assumptions run the model for years way out, and that's the down side of it, and that's one of the reasons that we tend to try to do stock assessment updates or try to look at a new review of stock assessments within a ten-year period, but I understand what you've said. Thank you.

CHAIRMAN POWERS: Thank you. Yes, I always kind of look at it as basically an equilibrium sort of projection, but it does bring to mind, again, about communicating this at the management level in particular, and there is no real inclination that a long-term projection really means all that much, and so we keep that in mind. Next up is Paul Sammarco.

DR. SAMMARCO: Thank you very much. My question relates to the earlier question by Fred. I think one of the things that might show this -- I don't know whether you model will calculate it for you, but we all know that, once you get to the end of your real data and you start projecting beyond that, your variances tend to go up. If you could graph 95 percent confidence limits around these things, based on your data, it might show that. It might get a little messy if you try to stack your graphs up like that, but does your model allow you to do that? Thank you.

MS. ALLEN: Yes, we could incorporate that and update these plots, and we could probably do that today as well, if needed.

DR. SAMMARCO: It just might help to help everyone to visualize what's going on, and twenty years is a long time, but the

confidence limits might show that -- It might actually show where your reliability lies and where it starts to expand a bit much.

CHAIRMAN POWERS: Actually, that doesn't happen all that much, because, essentially, the stock-recruitment projection is run off of a sigma R of whatever it is you pick, and so you tend to see the variance around the recruitment estimates kind of stabilize, which kind of flies in the face of that we know something about the future, when in fact we don't, which is sort of making the same point that Fred Serchuk just made too, and, again, that's -- I think we all sort of understand the process of what goes on here, but there is -- In terms of actually communicating it at the management level, we need to be a little more circumspect, I think. All right. David Chagaris.

DR. CHAGARIS: Thank you. Shanae and Chris, great job with this assessment and the presentation and everything. My question is back to Slide 78, with the projections, and we see the spike there in 2020 that we see often with stock assessments, and usually it is pretty easily attributable to a high recruitment period that's being used in the projections, but that doesn't appear necessarily to be the case, if you were to look at Slide 77, and there's a spike in recruitment maybe seven years prior, but that doesn't necessarily line up with the selectivity, and so I wondered if you know where that spike is coming from, as far as the stock dynamics proceeding the projection period.

MR. SWANSON: On the left, because F at 30 percent SPR, which is that red-dashed line, because that is a higher fishing rate than what has been the case and what is currently -- What is F current, as by the purple line, with that jump in fishing mortality, you're increasing your yield, and so you get this yield spike like that, and you can see, over on the right-hand side, with that red line, you're fishing the population harder, and so it's trending downwards, and so you're increasing your yield, increasing your Fs, decreasing your spawning stock biomass.

For 2020, which is when these projected Fs all come in at the same time, you're getting an elevated level, that spike, as compared to what has been the case for the last several years of the assessment. Then, as things project forward, you're reaching that equilibrium down, and that's how I understand what is going on.

DR. CHAGARIS: That makes sense, and so this is a case where the -- If we think about previous assessments that we've seen

recently, this is a case where that spike is primarily driven by the underfished condition in the terminal year and not so much the year classes moving through, which is sometimes what we see, or sometimes we'll see both of those effects, and then it's even more confounding. I think that explains it, Chris, that it's just the ramping up of F to get it down to that optimum yield. Thank you.

CHAIRMAN POWERS: Thank you. Let's open it up -- If there's no other comments or questions from the committees, then I would open it up for questions from outside. Mike Travis from the Regional Office, do you have a question or a comment?

DR. MIKE TRAVIS: I do, and it's sort of a two-part question for the assessment folks. For this species, we have a jurisdictional allocation between the two councils, as well as a sector allocation on the South Atlantic side, which I think you talked about early on, and so my question is, if there were to be a change in either of those allocations, would that affect your projection results?

MS. ALLEN: That's a good question, and so, because our model is a single-area model, we don't have the capabilities of doing these projections and keeping the apportionment between council jurisdictions and fleet allocations within those, for at least the South Atlantic Council, and so that does create an issue, and we've talked a lot about how to bring these things together.

We think that the projections are very stable, and they stabilize quickly, and the equilibrium values are equal to the management reference points, and that it might be okay to simply divvy up the ACL in whatever fashion you would like, but it's something that is not compatible with our model, to do it properly.

CHAIRMAN POWERS: If you change the allocations, you probably change the balance of the selectivities, which would change your projections somewhat, and probably not a lot in this case, but it would change it somewhat, and so that's one of the issues. If you do change allocations, it affects things sort of indirectly. Mike, did you have any follow-up?

DR. TRAVIS: No, and I have the feeling -- I really didn't expect there to be much of a difference, in terms of the jurisdictional, but I was more concerned about -- The South Atlantic Council, for a while, has been talking about potential reallocation from, in this case, from the recreational sector to the commercial sector, because the commercial sector has

exceeded its current sector ACL in, I believe, three out of the last five years, and they are looking for ways to avoid that down the line, and so that's why I raised the question. It may be just something for the assessment folks to think about.

MS. ALLEN: What is possible is that we can have one sector allocation, and we can specify allocations by fleet, but it would apply to both areas.

CHAIRMAN POWERS: Thank you. Doug Gregory.

MR. GREGORY: Thank you, Mr. Chair. Shanae and Chris, you all did a marvelous job here. I just wanted to emphasize that, for the retained catch tables that we're getting, we'll get all four F levels, F current as well as FOY, even though they weren't in the terms of reference, because I doubt the F current -- I am curious to see what the F current is like compared to our current quotas, and so thank you very much for that. I appreciate the extra work. That's all I have, Mr. Chair.

CHAIRMAN POWERS: Thank you. Are there any other questions or comments? All right. We are at a sort of intermediate stage here. The next agenda item is going through the executive summary, but I think we don't want to get into the executive summary until we're sure exactly what our recommendations are.

Conversely, we had asked for a table with the tabular version of the projections that would help guide us in terms of the annual catch limit kinds of recommendations, and so, at this point, let's deal with some of the basic results of the assessment and the recommendations to the two councils that the SSCs, plural, have in terms of the basic status determination.

At this point, what I would like to do is entertain a motion to make some recommendation about the status, overfished and not overfished, overfishing and not overfishing, and the recommendation of the review panel and the assessment was not overfished and not overfishing, and I haven't heard any suggestions otherwise here, but if somebody could perhaps jot down a motion, and then we can see if everybody agrees with me.

Theoretically, the Chair is not supposed to make motions. However, the motion should be something pretty basic. **The SSCs determine that the yellowtail snapper stock is not overfished and not undergoing overfishing.** Has somebody made this motion?

DR. ANDERSON: I will make the motion.

CHAIRMAN POWERS: Thank you. Is there a second?

DR. NANCE: I will second it.

CHAIRMAN POWERS: All right. Is there any further discussion?

MR. GILL: Mr. Chairman, I have a question. Would it not be important for us to verify that the assessment is considered BSIA, prior to this motion?

DR. NANCE: I would suggest that we do it together in one motion.

CHAIRMAN POWERS: All right. Thank you, Jim.

DR. SERCHUK: Can I make a comment, Chair?

CHAIRMAN POWERS: Yes.

DR. SERCHUK: Just to be very explicit, the SSC determined that the assessment of southeastern U.S. yellowtail snapper represents the best scientific information available on the stock, and, based on the assessment results, the stock is not overfished nor undergoing overfishing.

CHAIRMAN POWERS: Thank you, Fred. Jim, you were the seconder, and I assume you would go along with this?

DR. NANCE: That's very good. I accept that.

DR. PATTERSON: Joe, I would just add "the SEDAR 64 assessment", which I would actually put the first time you see "assessment".

DR. ANDERSON: I concur with the change in the motion.

MS. LANGE: I concur as well.

CHAIRMAN POWERS: Thank you. All right. Is there any further discussion? **If not, are there any objections to this motion? If not, then the motion carries by consensus.**

Now, in terms of the -- Well, we're a little early for lunch, and so let's go through the executive summary, and I'm trying to delay things here, because the tabular version of the projections I was told we wouldn't get until after lunch, and so let's give some time for that, but let's fill the space here --

DR. SERCHUK: May I ask a question, Chair?

CHAIRMAN POWERS: Yes.

DR. SERCHUK: I agree with you, but one of the things that occurred to me while looking at the projection results, no matter which projection results you look at, and, if I'm out of place, let me know, and we can come back to it, but, under any of the F scenarios that were depicted in the projections, they all keep spawning stock biomass above the SSB MSY level, and they all keep the stock from being -- From above the overfishing level, and so it seems to me that, to that extent, where the F level is in the future, based on any one of those scenarios, is a matter of risk, or, if we want to be more specific, I don't know where the uncertainties are, but it seems that all of them are above the overfishing -- They do not represent overfishing, nor do they represent a threat to reducing the SSB below SSB MSY, and so is this a -- Would this be a decision made by managers, or where do we step in on this? Again, if I'm out of place, let me know, and we can come back to it. Thank you.

CHAIRMAN POWERS: I don't think it's out of place. This is a discussion that we have to have in relation to the definitions or our recommendations, in terms of ACL and ABC and so on and so forth like that, and so I would like to defer it until we actually have some of the tables to help guide that discussion a little bit.

DR. SERCHUK: Okay. Thank you, Chairman.

STOCK ASSESSMENT EXECUTIVE SUMMARY

CHAIRMAN POWERS: So, the executive summary. Is there -- Let's go through it page-by-page, or screen-by-screen, I guess, because you can't see the whole page. Are there any particular changes or suggestions that are being made for this portion, where it's talking about what the stock is and stock status? If not, let's go to the next screen. Any comment?

This is where I made some comment before in Table 1, on the left-hand side. It says that target SSB equals SSB SPR 30 percent, and you didn't mean target in terms of optimum yield. You mean basically the proxy for SSB MSY, and is that correct?

MS. ALLEN: That's correct, yes.

CHAIRMAN POWERS: So you should probably refer to it as -- It isn't really a target, according to our rules of the road, but it's a limit, and so you might change that, or just refer to it

as a proxy or something like that.

MS. ALLEN: Okay. I noted that. Thank you.

DR. SERCHUK: Mr. Chairman, do we even need the words "target SSB"? Can't we just refer to it as SSB SPR 30 percent?

CHAIRMAN POWERS: I don't have any strong feelings one way or another. Is there any other comments for it?

DR. PATTERSON: I think this line here is indicating what the threshold value is, and so I think either "threshold" or "limit" are needed here, instead of the word "target". On the first page, that first paragraph, I would suggest changing the word "documents" to "estimates".

CHAIRMAN POWERS: All right. Thank you.

DR. SERCHUK: Can we then refer to it as the SSB MSY proxy?

CHAIRMAN POWERS: That would solve both problems, I think.

DR. PATTERSON: I agree.

CHAIRMAN POWERS: So, instead of saying "target SSB", you would just say "SSB MSY proxy". Have you got that, Shanae?

MS. ALLEN: Yes, I do. Thank you.

CHAIRMAN POWERS: All right. Socioeconomic and ecosystem considerations. Any comments? Doug, go ahead.

MR. GREGORY: It's not about this section, but, looking at the table, I'm not asking that this be done, but, knowing how thorough the St. Pete lab is, I have a question. Did you all consider, Shanae and Chris, doing the assessment with the old MRFSS data? My understanding is that FES and MRFSS are now translatable from one side to the other, like a one-to-one mapping, and did you all happen to do the assessment with the old data, and did it change anything? I wouldn't think it would, since the previous assessments came to the same conclusion, but I'm just curious.

CHAIRMAN POWERS: Shanae or Chris?

MR. SWANSON: I was just trying to think back, because we did so many different sensitivity runs, both with Stock Synthesis and in the ASAP model framework, which is what was used in the

previous assessment, and we looked at using the MRIP catch estimates for the fully-calibrated versus putting the original data, the original MRIP data, or the MRFSS data, and changing up between how the models -- Because there was data changes, and then there was formatting changes, framework changes, between how we handled the data compared to the previous assessment.

From what I remember, the biggest changes that occurred were due to either -- Like they just created a scaling difference, because the model was saying, well, if we've got more fish available, then there's more fish in the population, and it ramped it up that way, but, also, there was an issue just within how ASAP Version 2 was configured that was creating some of those differences. Shanae, maybe remind me. Within ASAP, there's like a weighted age matrix limitation in ASAP too that doesn't exist, or that gets alleviated, in Version 3, and so that, in itself, because of that limitation, was causing an issue.

MS. ALLEN: Yes, that's correct.

CHAIRMAN POWERS: All right. Thank you. Scrolling down, any other suggestions, or any suggestions, for the socioeconomic and ecosystem? If not, we'll keep scrolling. Then the projections we'll have to revisit a little bit. I would suggest -- I mean, I think these figures should be changed, if you're going to use those gap years in the projections that we used for the ABC determinations, and they should be compatible with this, in terms of the gap years, and so these should be replaced. Any other comments?

MS. ALLEN: Mr. Chair, should these run out to twenty years, or just keep it as a five-year projection, and so basically just use the graphs that we presented, but only use five years?

CHAIRMAN POWERS: Let's defer that decision until after we make some determination about the tabular version and what we want to make in terms of the recommendations and the time limit involved.

MR. RINDONE: Mr. Chair, just a reminder to the SSC members and the council reps that are listening in that, when we do the projection periods and those recommendations are made the councils by the SSCs, that the final year -- The landings recommended in that final year of the projections that's passed along to the councils remains in place until such a time as it's changed, and so, if you use a three-year average, and a stock assessment isn't done for five years, then that last year of

that three-year average, or, even if it's an annual estimate, that last year will remain in place as the catch limit until changed.

CHAIRMAN POWERS: Yes, and that was part of my issue, that let's talk about it in the whole context, and so let's delay that. That's an important aspect. Data and assessment. Any other comment, or any comment? The basic biology table. Those are always good to have. Then continuing on to recruitment, and I believe there's a graph below this. If there are no comments, continuing on. Then going on. Then discards and the associated graph. Then continuing on with the tables. Are there any other comments on the tables and figures, all tables and figures? If not, then we don't need any particular recommendations, I don't think, and it's just the suggestions that we've made to edit, essentially, the executive summary.

All right. We're a little early for lunch, particularly for those of you in the central time, and having lunch at 10:30 is sacrilegious, I think, but, I think at this point, let's wait for Shanae and Chris to put together that tabular version, and then we can come back to the ABC and ACL discussions. Let's break for lunch now for an hour.

DR. SERCHUK: Can I ask a question, Chair?

CHAIRMAN POWERS: Yes. Fred.

DR. SERCHUK: I am just wondering if we have any information after 2017, in terms of indices of recruitment that would either strengthen or cast doubt on what we believe recruitment will be, or was, or will be in the future. I think that might have an effect on how we evaluate the projections. Is there any information that's ancillary, outside of what was used in the stock assessment that could give some idea of trends in recruitment? That would be helpful, I think, for us, Chair.

CHAIRMAN POWERS: Yes, and so, Shanae and Chris, think about that as you don't eat your lunch, while you're doing these sorts of things. Doug Gregory, you had a comment?

MR. GREGORY: I've got a question for Ryan. Ryan, could you explain to us how the overall ABC and OFL will be determined between the two councils? All these tables and graphs that we've got in the report are cumulative, for both areas combined, but I remember there was a formula for separating the landings, or the ACL, into a South Atlantic ACL and a Gulf ACL, and could you explain that to us? Thank you.

MR. RINDONE: Sure. In the respective councils' generic ACL and accountability measures amendments, the apportionments for south Florida species were discussed, and, for yellowtail snapper, the apportionment is based on 50 percent of the landings from 1993 to 2008 and 50 percent of the landings from 2006 to 2008, and so that apportionment will basically be re-run, now that we're using the FES projections, and the councils will have to decide whether to adopt a new FES-adjusted apportionment or retain the current apportionment, which I think is 75 percent South Atlantic and 25 percent Gulf, but these will all be done after the fact, after we receive the projections, and that's because of this version of SS and the way the model was set up.

It's designed to look at southeastern yellowtail as a single stock, and it's not further stratified by council jurisdiction and then stratified further by the sector allocations in the South Atlantic, and so what the Gulf SSC saw for red grouper is not something that we are able to do as a function of the projections here. All that stuff with the apportionment will happen after the fact, and then the South Atlantic will have to handle its sector allocations also after.

MR. GREGORY: Thank you.

CHAIRMAN POWERS: Thank you. Before we break, also, I would mention that, in the background information for this meeting, there was a policy directive that has been finalized about what BSIA is, and, essentially, from our standpoint, it really doesn't change things, and I think there's documentation requirements, but the only thing I was thinking about was, if you look at that, in the last appendix, Appendix C, it suggests wording for terms of reference and things like that, and we might keep that in mind as we go forward. I wasn't going to go through the document or anything, but I was just mentioning that, because it wasn't really on the agenda, but it was in the background information.

With that, I think, at this time, it would be most helpful to suspend the meeting for an hour, or an hour-and-fifteen-minutes, and come back at quarter to one, Eastern Time, and then we'll deal with the last parts of the yellowtail snapper issue. Thank you, and we shall return.

(Whereupon, the meeting recessed for lunch on July 21, 2020.)

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July 21, 2020

TUESDAY AFTERNOON SESSION

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The Joint Meeting of the Gulf of Mexico Fishery Management Council Standing and Special Reef Fish, Mackerel, Ecosystem, and Socioeconomic Scientific and Statistical Committees and the South Atlantic Fishery Management Council Scientific and Statistical Committee reconvened via webinar on Tuesday afternoon, July 21, 2020, and was called to order by Chairman Joe Powers.

CHAIRMAN POWERS: Let's go ahead and begin again. Shanae or Chris, where do we stand in terms of those tables?

MS. ALLEN: Chris, you can share your screen, if that's possible.

PROJECTIONS

MR. SWANSON: Good afternoon, Mr. Chair. I've got those tabulated results ready to look at, and it's in an Excel spreadsheet format, and so I can either -- Whatever you want to do.

CHAIRMAN POWERS: You cut off for a second there. Can you repeat yourself?

MR. SWANSON: The thing popped up and asked me if I wanted to share my screen, which was what I was going to suggest, if that's what people were interested in, and can you guys see my screen, my spreadsheet?

CHAIRMAN POWERS: Yes, but can you make it bigger?

MR. SWANSON: Of course. Is that big enough?

CHAIRMAN POWERS: For some. Yes, that's fine.

MR. SWANSON: On the left-hand column, we have the retained yield in metric tons, and, on the right-hand column, we have the same values in millions of pounds. At the top, we have the four different projection scenarios, where we have F at 30 percent SPR, 75 percent of that, F current, which is the geometric mean of 2015 to 2017, or F at 40 percent SPR.

Highlighted in yellow is just to draw attention to these are the years, those gap years, where we filled in recent data that was acquired, and then the green highlighted portions indicate when the projections begin to take place in 2020, and this is for the twenty-year projections. I have got highlighted in green just the first five years of the projections, and that's all.

At the bottom of the table, I have included a terminal five-year average, just to compare with. Again, when we were getting at looking at what values -- What these equilibrium values come out to be towards the end of the projection time series, and so I've done a terminal five-year average for each of those scenarios, and then, also, down at the bottom, just for reference, what the current ACL is, using the old MRFSS data, based on the old MRFSS data, what the OFL is, the retained yield associated with F 30 percent SPR, and then what the OY is, the retained yield associated with F at 40 percent SPR. Any questions on this table format? I will show what it is for the spawning stock biomass as well.

CHAIRMAN POWERS: No questions.

MR. GREGORY: Chris, my only concern is that the projections are in FES units, and, by showing the ACL in the MRFSS units, it's going to be very easy for people to get confused, and a lot of people won't equate it to -- We just need to be careful about that, and I'm saying that to us, and staff as well, and we've got to be very careful, because the current quota is in the older units, but these projections and everything are in new units, and I don't know how they relate to one another, but, anyway, thank you for doing this. This is great.

MR. SWANSON: Absolutely. You're welcome. Yes, I tried to tabulate out just that slide that was shown there at the end that people were very interested in, and so current ACL versus the optimum yield, and then we'll get into this right now.

MR. GILL: Chris, thank you for doing this, and could you send this around to all of us? There is multiple ways of slicing this pie, and, rather than flipping back and forth to work that out, if you could send it to us, we could all work independently, if we're so inclined. Thank you.

MR. SWANSON: Absolutely. Mr. Chair, how would you like me to send this out?

MR. RINDONE: Send it to meetings@gulfcouncil.org.

MS. MATOS: I will email you, Chris, and you can reply to it.

MR. SWANSON: Okay. Great. Perfect. We'll do that.

CHAIRMAN POWERS: Thank you.

MR. SWANSON: Spawning stock biomass, the same format, with the yellow and the green, with metric tons on the left and millions of pounds on the right, and in tabular form, with the terminal five-year average at the bottom, and then, again, for reference points, the spawning stock biomass associated with F 30 percent SPR, and then the MSST value, which is 75 percent of this value, and so I will get this emailed as soon as I get the incoming one.

DR. BARBIERI: Mr. Chairman, may I ask a quick question?

CHAIRMAN POWERS: Yes, go ahead.

DR. BARBIERI: Chris or Shanae, on that table there that Chris just showed, the rows that were marked in yellow, are those the landings for 2017 and 2018, the total landings in FES units?

MS. ALLEN: Those are for the retained yield in those years, 2018 and 2019, and those reflect the retained yield in metric tons, overall fleets, and, of course, councils. Those are based on the total FES weight in metric tons, and so it has to be -- For this version of SS that we used for the base model, it has an error, where you have to input -- Any forecast catch that you specify has to be in retained metric tons. Does that answer your question?

DR. BARBIERI: Yes, and thank you so much, Shanae. That's what I needed to know. Thank you.

CHAIRMAN POWERS: But, for better or for worse, the recommendations we make for the purposes of management are in pounds, in millions of pounds, and so we've used the table on the right.

MR. SWANSON: That was why I included it in here, so we have that to look at.

CHAIRMAN POWERS: Okay. Have we received the --

MS. MATOS: I'm working on sending it out right now.

CHAIRMAN POWERS: Okay.

MS. MATOS: You have a member of the public that has their hand raised as well, Michael Errigo.

MR. RINDONE: Mike Errigo is South Atlantic Council staff.

MS. MATOS: Thank you.

DR. ERRIGO: I am basically Ryan's counterpart in the South Atlantic, and I'm the SSC staff person. Thank you for recognizing me. I had a question for Chris. I was just looking at the retained yield, noticing the retained yield, down at the bottom, where you have the current ACL, and then you have the OFL, retained yield F 30 percent SPR, and is that the equilibrium value?

MR. SWANSON: Yes, and that's coming from the table that was provided in the report, and also in the presentation here.

DR. ERRIGO: Okay, and so that's not the yield per year, and so that's the --

MR. SWANSON: This is associated with the base model.

DR. ERRIGO: I was just asking because we often set OFL, in the South Atlantic, based on the current years, and so the OFL would be much higher, based on the spawning stock biomass, which is significantly higher than SSB MSY, because I was wondering why that number was so low, but it's because it's the equilibrium value. Thank you.

CHAIRMAN POWERS: Thank you. If we go to the top of that table, essentially, this is what we're working with, and, at this point, I believe we're at the point of making a recommendation about what the ABC is, allowable biological catch, and you see the projections. What's the wishes of the committees?

DR. SERCHUK: Can I make a comment, Mr. Chairman?

CHAIRMAN POWERS: Yes.

DR. SERCHUK: Can we go back to the SSB table for a second? Here was my point that I raised earlier. The SSB MSY is 19.04 metric tons, and, if we move up to the top of the table, where we just were, you can see that, under any case in the green, 2020 to 2024, no matter which of these fishing mortality rates are applied, we're still going to be above the SSB MSY level, and, under all cases, we will still be fishing at a level that

constitutes no overfishing, and so this was my point earlier about, in relationship to the two areas that we're concerned about, staying away from being overfished and staying away from overfishing, any one of these projection scenarios does that.

That was the reason I asked about whether we had any information on recent recruitment that suggested that some of these projections might be overly optimistic or right on the spot, because I don't know how, from a point of view of risk, we can say that one of these scenarios is less risky than the other, because they all stay away from being overfished and stay away from overfishing, and they're still all above the SSB MSY. Do I make myself clear? Thank you.

CHAIRMAN POWERS: Yes. Is there any insight about recent recruitment?

MR. SWANSON: I can answer that, Mr. Chair. Fred, for recruitment for yellowtail snapper, this is something that was in the research recommendations, and there is not a whole lot of sources for like surveys for recruitment for yellowtail snapper, and it was a research recommendation. For the RVC survey, because of the way that it was analyzed, because of the way that the data was analyzed and concatenated between the two regions, to create that biennial schedule, because that's when the survey does its sampling, the ending point for the RVC surveys was 2016, and so there would be a 2018 datapoint, and the 2020 data is currently being collected now.

To get that 2018 datapoint would require reanalyzing the data, and that's not something that I have time to do today, and, in addition, because of the methods of what we used, the staff in the Keys were primarily the ones who analyzed and produced those indices, and so I would also have to reach out to them for that 2018 datapoint, and so that's not something that I could provide for this discussion, but that's, unfortunately, for yellowtail, the most viable recruitment estimate that we have.

DR. SERCHUK: Okay. Thank you for that. My own reading of this table suggests that, apart from the F 30 percent SPR, the other three options are not too different from one another, and I don't know whether that means anything, but the F 30 percent is one that I would not recommend, because of that. The others, whether you want to stay with F current or any of the other two, I think we're splitting hairs, but that's my personal opinion. Thank you.

CHAIRMAN POWERS: But the -- I mean, it's a little more

ambiguous in this case, but the ABC is defined in terms of FMSY, which, by proxy, is defined in terms of F 30 percent SPR, and is that not true? That's rhetorical for whoever wants to answer that.

DR. BARBIERI: Mr. Chairman, I agree with you, conceptually, that this is how we have handled ABC coming from our estimated MSY with its proxy, through our ABC control rule, but there are situations where we have departed from doing it that way, and we made a recommendation outside of that, applying our ABC control rule based on those criteria that you just mentioned.

CHAIRMAN POWERS: Thank you, Luiz. We also put this in the context that it is not overfished and not undergoing overfishing, and the current catches are roughly around four million pounds, and so that's below the 2024 level itself, for any of those options.

Now, the kinds of things that we've considered before would be to take one of these scenarios verbatim and make that recommendation, and another is, at times, we've smoothed it out and averaged them, and we could do that for three years or for five years.

Remembering what we were told earlier in the day, that whatever is there at the end of the whatever projection timespan we pick, whatever is there at the end will be in place until somebody else changes it, and so then the question becomes how likely is this to get reassessed over the next five years, three years, seven years, whatever.

I mean, we can be, in terms of the ABC, be more risk-averse than picking any one of these scenarios, and perhaps suggesting that the catches remain about the same or increase a little bit or decrease a little bit.

MS. MATOS: You have Ryan, Doug, and Mike Errigo with their hands up.

CHAIRMAN POWERS: We'll begin with Ryan.

MR. RINDONE: I'm actually going to defer to Mike, because I think he's going to say the same thing I am.

DR. ERRIGO: Well, I don't know what you were going to say, but I was going to say that there is one other alternative to setting the ABC, and that's the South Atlantic Council's method, which was used the last time.

The way the South Atlantic typically would do it would be the F 30 percent SPR, which is basically the proxy for the MSY, FMSY, would be set as the OFL, and that would be -- We typically do it by year, and so it would be from 2020 to 2024, and then it would remain at the 2024 level until modified, and then the ABC -- We would run through the ABC control rule to get a P* value, which is the probability of overfishing, and then run a projection scenario at that probability of overfishing to get the ABC.

CHAIRMAN POWERS: But what you're talking about is actions at the council level, correct?

DR. ERRIGO: No, and this is to get the ABC. The SSC makes that determination. The council then will set the ACL based on that ABC recommendation.

MR. RINDONE: Joe, we do the same thing, but, in the past with yellowtail, we've used the South Atlantic Council's ABC control rule, since the preponderance of the stock occurs in the South Atlantic Council's jurisdiction, and that was what I was going to get to, but, since Mike is the one that runs their ABC control rule for the South Atlantic SSC, he will be the one that will do that for you guys.

One thing that I would have added is just that you guys have some Gulf and South Atlantic council members that are listening in on this, and plenty more that will hear about it at the subsequent meetings, and so, if there is a specific stock assessment interval that the SSCs would collectively recommend, you could certainly make a recommendation on that as well.

CHAIRMAN POWERS: Thank you, and my question about the council action was because of the reference of setting the OY, and I thought he referred to it, but, anyway, never mind. I apparently misconstrued something. Doug Gregory.

MR. GREGORY: Thank you. The numbers in this table look different than the graph, and I'm a little bit confused by that, because the graph has the large peak in 2020 for the F of 30 percent, and it goes to 5.5 million, but, in this table, we've got current landings at 6.4 million, 6.3 million, and then it goes down to 5.5, and then further declining, and so I'm a little confused about this table representing that graph, and then, again, all of these scenarios decline from where we are now, which seems a bit strange if we're not overfishing and we've got F levels that are less than F of 30 percent, but, anyway, I'm just confused by some of this, that's all.

CHAIRMAN POWERS: I mean, the decline is the transition to the equilibrium, and each one of these F levels is somewhat less than what the current F levels is, I believe, but, anyway, that's some of the dynamics. As far as the peak for F 30 percent SPR, Chris, do you have a comment about that?

MR. SWANSON: Yes, Mr. Chair. I can answer that. What's currently being displayed on the screen for everyone to see, the 6.4, this is the spawning stock biomass in millions of pounds, and that lines up with the graph from the presentation depicting spawning stock biomass being at that level and then decreasing as it moves forward.

Then, on the other tab of the spreadsheet, it talks about retained yield, and those numbers correspond to what would be on that left-hand graph on Slide 78, where that peak would come up to about 5.3 million pounds for F at 30 percent SPR and then decline.

MR. GREGORY: Thank you. I'm glad I admitted upfront that I was confused. I certainly was.

CHAIRMAN POWERS: All right. Let's stick to the retained yield table, and if you could make it a little bit bigger, and we're dealing with millions of pounds, and so let's deal with the right-hand side. All right. Luiz and then Fred Serchuk.

DR. BARBIERI: Actually, I was going to just reference to a comment that Fred made earlier about that this is a bit different situation, because, the way that this fishery has been operating, and the level of stock biomass that we are at, now it's really a matter of how the council, or councils, decide to manage the fishery, but I think, Fred, this refers to some of the comments that you made earlier regarding the level of risk the council wants to assume.

If we look at the stock status graphs in the summary, the executive summary page, the right-hand graph shows the distribution of apical fishing mortality there, the Figure 1, it looks like that, since about 2000 or so, we've been fishing -- The fishery has been operating around the level of FOY, fishing around the F at SPR 40 percent, and you can see there, on the left-hand-side graph, how the stock has been responding to that, and biomass seems to be progressively increasing.

This is a case that we have been fishing this stock fairly lightly, and there is room to fish harder and obtain increased

yield, if this is the way the council decides to go, and so, if we go with an ABC recommendation, and maybe that's the way we want to go, but I'm just bringing it up for the group's discussion, but, if we go with an ABC recommendation that is based out of the proxy for MSY, we're going to really be increasing, by jumping up the level of landings, or the projections, by quite a bit.

Some of the decisions that involve really -- I think, Fred, this is what you were talking about, in terms of how much risk the council is willing to take in either continuing the status quo and continue fishing this stock at the same level, and fishing it relatively lightly, and continuing maintaining a stock resilience there, or if there's room for increasing landings, to some extent, without harming the level of stock biomass, but I will stop there, and maybe the next one in line will address some of these points.

CHAIRMAN POWERS: Thank you. Actually, that's a good point, and that's one of the things we could make a comment on collectively, is that, basically, the fishing mortality rates are around what would be defined as the optimum yield now, and that has resulted in an increase in the stock size over the last decade or so, and that's an important for, I think, the councils to note. Fred Serchuk.

DR. SERCHUK: I mean, I think Luiz got the gist of what I was trying to say earlier, and I also think that the 2020 projection scenario is likely to be a bit overly optimistic, simply because I don't know whether the increase in retained yield compared to 2019, which in many cases is sizeable, in terms of increase of over, in most cases, close to a million tons, in some cases, and is going to be realized, because of what's happening this year.

That suggests, to me, that the stock will benefit, because I don't think those yields, those projected yields, will be ascertained, but I also think we're at a point now that maybe the economics should drive the fishery a little bit.

If the fishery feels that it could increase their yields, as I said before, I think, of the four projections, three of them are virtually identical, and none of them really risk being overfished or overfishing, and so I am thinking that the council has to weigh-in on what they believe -- Among those scenarios, what they feel is likely to happen, and there is room, I think, for discretion here. Thank you.

CHAIRMAN POWERS: Thank you. Doug Gregory.

MR. GREGORY: Along the same lines, I just wanted to point out that, on the commercial sector in the South Atlantic, they've had closures, and I think somebody said three out of the last four years, and, normally, we wouldn't consider anything like that, but, given this circumstance, I think it's -- Like Fred said, it's appropriate to look at the economics, or some sociology, and I know we don't have any specific studies, but the industry can take more yield from their sector.

However, the recreational sector has not come close to meeting their ACL, and so I doubt the overall ACL is being approached, but the commercial sector certainly is being hampered by the current quotas on the Atlantic side, and not the Gulf side.

CHAIRMAN POWERS: Thank you. Dale Diaz.

MR. DIAZ: I agree with everything that Doug Gregory just said, and I was going to make some comments similar to what Doug just made, but I agree with everything that Doug just said. I did want to back up for just a minute and maybe ask Ryan to weigh-in on something that Dr. Powers mentioned a minute ago, and maybe give some SSC members some different perspectives, but he said how likely would it be that the stock would be reassessed in the next three to five years, or some other number, and I do know that the Science Center recently has tried to go, and I think I'm using the right terminology, to some interim analyses. That's what I was going to ask Ryan to weigh-in on. Ryan, is this stock going to be a candidate, where we going expect to receive some interim analysis in the future?

MR. RINDONE: I think we would have to explore that a little bit and see if the fishery-independent index is viable for that sort of process, and, since I don't do those specifically, I hesitate to say one way or another, but it could certainly be explored. As far as the interval for the next stock assessment, it's really at the pleasure of the councils, and so we --

I mean, obviously, it's been a little while since we assessed yellowtail again, because, the previous two times, it was healthy, and this time it appears as if it is healthy again, and so we don't typically chase down our healthy stocks with the same amount of fervor as those that may be in rebuilding plans or otherwise, but, like I had stated previously, the SSC can make whatever recommendation to the council they think is appropriate, as far as the interval between stock assessments that may be appropriate for a species.

Knowing what you guys know about how biomass has been increasing under current fishing mortality rates, and what the recruitment for this stock has looked like, that should give you some indication of, at least at the status quo, what sort of condition the stock might be in five years from now, ten years from now, all other things being equal.

If you increase the fishing mortality rate, you change a key component of that whole equation, and so it's really you all's pleasure, but I think you have a lot of information here to help guide that recommendation, if you make it.

CHAIRMAN POWERS: Thank you. I'm looking for a motion, or a recommendation, about how to proceed. How do we define ABC? The issues are the time span over which to do it, starting in 2020, presumably, and going sometime in the future, and then which one of these columns, and then, also, perhaps modification of these columns, averaging whatever, but, again, I am looking for something that -- Some recommendation that we can move forward with, in terms of a motion.

DR. ANDERSON: I have a question.

CHAIRMAN POWERS: Go ahead, Lee.

DR. ANDERSON: In response to what Fred was saying about the higher catch, would it be possible, without damaging the long-term viability of the stock, is there any way we can give more information on how much -- Well, can we do that? Is that allowed, under these things? We have to choose for that, and, if we can, and the South Atlantic commercial industry is pushing up against their limit, I don't see any reason why we can't increase it again, if we're not going to affect the stock, if it's still going to be above the safe minimum.

CHAIRMAN POWERS: Thank you.

DR. ANDERSON: Nobody jumped on that.

CHAIRMAN POWERS: Well, Luiz is going to solve our problems.

DR. BARBIERI: No, but I just wanted to respond to Lee's comment there. I am not necessarily jumping on that suggestion there, but just putting some thoughts on the table for the committees to think about.

I mean, we could, from a biological perspective, from a perceived productivity of the stock, in looking at the history

of exploitation and the current status of stock biomass and all, and so, based on those biological and fishery characteristics, we could recommend an ABC that is derived by applying one of our ABC control rules based on an MSY of F 30 percent SPR, since that is the limit reference point that we would be thinking about, right, and so an MSY limit reference point.

From there, we apply the ABC control rule, and, whatever level P* we get, there will be an ABC from that, and that's going to be a fairly high jump from the level of landings that we have right now, and so, potentially, recommend to the council to develop an ACL from that recommended ABC that will be a little more conservative and represent more of a middle ground between the current level of landings, or basically F SPR 40 percent, to something in between where our ABC is and where the current levels of landings are, if that makes sense.

CHAIRMAN POWERS: Yes. One difficulty that I have with that approach isn't so much the approach itself, but take for example the F 30 percent SPR column in the green, and that starts out at 5.37 and ends up at 3.85. If you take that literally, you're saying, all right, the first year, you can catch a big amount, but, toward the end, you're catching roughly what you caught now.

The implication of that is that we really know something about what recruitment is likely to be in the next two to five years, and that has always bothered me, to specify a strong trend like that, knowing all the vicissitudes of the assessment and how those projections are made, and perhaps we could smooth it out somehow, an average or something like that, but, conceptually, I don't have any problem with what Luiz has said, in terms of making some strong recommendations about how the council might approach an ACL sort of decision. Luiz.

DR. BARBIERI: Just to that point, Mr. Chairman, you're absolutely right. I mean, we could recommend, and we have in the past recommended, a constant catch that represents some average of a number of years that we decide to be suitable that would smooth that yield stream there a bit more over time.

I was just really trying to first address the issue of which one of those columns we would be working off and whether we're going to be thinking about applying the ABC control rule based on an estimated proxy MSY, and so yield at F 30 percent SPR, or if we're going to use some of the other columns there, and I think application of those would be a different approach than we usually apply.

CHAIRMAN POWERS: Thank you. Yes, there is -- I mean, just for consistency's sake, there is some attractiveness to that 30 percent column, because one can justify it, in terms of that is the FMSY proxy.

DR. SERCHUK: Can I make a comment, Mr. Chairman?

CHAIRMAN POWERS: Yes, you may.

DR. SERCHUK: This may sound outlandish, but I don't like the F 30 percent column at all, and it's because, in 2024, if you look at the SSB, it -- That 2,062 tons is just about a hundred tons higher than the SSB MSY proxy, and I think that's -- Given the uncertainty that happens with all projections, I am not very happy about being that close.

If I had to choose, and I were king, but I'm not, I would average across the three other scenarios and take maybe an average of all five years and use a constant catch for those five years. In any case, we're going to be above the SSB MSY proxy at the end, and it will also allow for increased yields over that time as well, without having, in my mind, very much danger to the stock of falling below the SSB MSY proxy at the end of those five years. That's just a thought. Thank you.

CHAIRMAN POWERS: Thank you. Actually, that wouldn't be all that much different from just taking the left-hand column, 2020 to 2024, and averaging over those years, and it would be roughly about the same, to have a constant catch during that period. Paul Sammarco.

DR. SAMMARCO: Thank you, sir. I have been listening to this and watching these graphs and watching these Excel sheets and so forth, and I'm thinking that we're in a position now where we have the luxury of actually leaning a little lightly on this species and ensuring, or helping to ensure, its longevity as a fishery, and I agree with what Luiz just said, and I agree with what the last speaker said, which would be to back off, and we're not in a position where we have to, where we have to allow it to be fished heavily, and so, rather than pushing the envelope, perhaps it's better to go with something that's a little lighter, and I'm looking at the F 40 percent SPR, and it's actually pretty attractive, compared to some of the others, but I realize that we're talking about averaging here and so forth. That's just my opinion. Thank you.

CHAIRMAN POWERS: Thank you. Mike Errigo.

DR. ERRIGO: I just wanted to point out that this is a great discussion, and you guys are -- If you do choose to average and use something else, you are deviating from your control rule. The control rule which uses the P* requires that you start from a base of a 50 percent probability of overfishing, but then you deduct from there, based on the ABC control rule P* analysis, however much you need to.

Let's say you come up with a 40 percent P*, a 40 percent probability of overfishing, and that's how you get your ABC, and so that requires you to use a 50 percent probability of overfishing, which is the F 30 percent SPR, or the FMSY proxy, just to let you guys know.

CHAIRMAN POWERS: That was some of the reason that I sort of focused on F 30 percent SPR, because it is sort of the standard, in terms of what we call a proxy, and then, the ABC, we can adjust that, by whatever means we feel is most appropriate and most justifiable, and go from there. Will Patterson.

DR. PATTERSON: Thanks, Joe. I agree with that last statement. It seemed like, in some of the earlier conversation, we were confusing OFL and ABC, but it seems to me that a realistic, or a reasonable, approach to set OFL as the mean of the five years, 2020 through 2024, which would be 4.43 million pounds, and the Gulf's ABC control rule -- We don't have the flexibility to do some of the things that are being discussed.

I don't understand why we wouldn't just produce a PDF and apply the control rule as it's written, given that this is -- Given the type of assessment that was done here, highly quantitative, and uncertainty was estimated throughout, et cetera, and then recommend to the council that they set their ACL accordingly, given discussions about where the stock is relative to thresholds versus targets, but I don't understand why we wouldn't utilize the methods that we have approved for the council to do this.

CHAIRMAN POWERS: Thank you. All right. Will, you had actually implicitly made a suggestion, and you had taken those averages, and I believe the implication was that, if you took the average of 2020 to 2024 in the F 30 percent column, the average would be 4.43, I believe is what you said, and that one could interpret that as being the overfishing limit, and is that correct?

DR. PATTERSON: That is correct, although it may not make sense to take 2020, since we're past the halfway point in 2020, but

maybe we could take 2021 through 2024, which would be 4.20, but, yes, that's what I would suggest for the overfishing limit, is to take an average across those projected years, so that we smooth out some of the big spike in the first year after the assessment, the first projection year.

CHAIRMAN POWERS: Jason Adriance.

MR. ADRIANCE: Thank you, Mr. Chair. I'm trying to recall, but didn't we have an issue when we averaged, that, if the average was higher than any particular year, that was an issue?

CHAIRMAN POWERS: I believe what we got into was -- I mean, we have to define the overfishing limit in terms of not any in one individual year. Otherwise, if it went over during a subsequent year, then that would imply some legal issues and reaction to it, in terms of the system, and I believe that was where we were going. Ryan, did you --

MR. RINDONE: I did not.

CHAIRMAN POWERS: Okay. Dale Diaz.

MR. DIAZ: Mr. Chair, this is a question for Ryan. Ryan, I think in the past, when we've got -- I'm just asking for some history here for me, but, in the past, when we've got constant catches, it seems like they've mostly been on a three-year basis, and is that correct, or is there a rationale for that, or kind of what's the history of that, Ryan?

MR. RINDONE: When we are looking at projections, and I think Chris or Shanae, or probably both of them, had mentioned at some point that, every year that you move away from the present, like every year in the future that you move, there is additional uncertainty about the accuracy of those projections, because of all of the things that go into creating them in the first place, and all of those things can change from year-to-year.

Further, every year that you see is predicated on the year prior to it having exactly that amount of harvest achieved, and so, for example, in the retained yield in millions of pounds, the 4.254 million pounds in 2022 is predicated on exactly 4.673 million pounds being removed in 2021.

If less than that is removed, then what you have in 2022 is too conservative. If more is removed in 2021, then 2022 is too optimistic, and so to try to stay within a higher degree of relative certainty, the Gulf Council anyway has looked at three-

year moving averages, or the Gulf Council SSC has looked at three-year averages, more often than they've looked at five.

I honestly don't remember the last time the SSC recommended a five-year average for OFL and ABC, but three years has been pretty common, but those are the reasons why, is because the landings can vary, and the information that goes into the projections, things like recruitment and harvest and whatnot, can vary greatly from year to year.

MR. DIAZ: Thank you, Ryan.

CHAIRMAN POWERS: Thank you. All right. What I suggest is we take a ten-minute break, and, at the end of that, I will expect some motions, or motion, that will resolve this, because I think we've discussed it a lot, and there are several different options, averaging this and averaging that, how many years and so on, and so, after ten minutes, and this is a working ten minutes, where I expect you to have one motion or more to proceed with, and so let's break for ten minutes.

(Whereupon, a brief recess was taken.)

CHAIRMAN POWERS: This is where being able to caucus would have been easier with an in-person meeting, but that's the life we lead now. Is there somebody who wishes to be recognized? Bob.

MR. GILL: I have a motion that I sent to Jessica, and, Jessica, it's the OFL/ABC motion, corrected, that I would proffer, and I may need some help with the wordsmithing, but I would proffer it to the group, and, if I get a second, I can talk a little bit about the rationale.

CHAIRMAN POWERS: There is the motion. Is there a second?

DR. NANCE: I will second that.

CHAIRMAN POWERS: All right. Thank you. All right. Bob.

MR. GILL: Thank you, Mr. Chairman. Well, a couple of things. Number one, I thoroughly agree with Will that including 2020 makes no sense. By the time this gets anywhere, we're talking 2021, and it also happens to get a little further off that spike.

Secondly, to Fred's and Luiz's comments, the stock is in pretty decent shape. As Luiz pointed out, it's been underfished a little bit, and hence the choice of ABC, and I think that's all

I have to comment on.

CHAIRMAN POWERS: Thank you. I would open it up for discussion.

DR. PATTERSON: I think, the way this is written, you're actually talking about 75 percent of the yield at F 30 percent SPR. It's written that it's saying that you're taking 75 percent of the F and using that to project the yield.

MR. GILL: I agree, Will. I think you're correct, and so, Jessica, you can write that by 75 percent of the yield at F SPR 30 and delete the "0.75".

CHAIRMAN POWERS: So just say 75 percent, right there where the cursor is, of the yield at F SPR 30, and just take out that -- Okay. All right. John Mareska and then Jim Tolan afterwards.

MR. MARESKA: I withdraw my question.

CHAIRMAN POWERS: Jim Tolan.

DR. TOLAN: I too had sent in a motion, and it's very much in line with what Bob had sent in, and I would only bring up that the motion I sent in covered a couple more years, and it was a five-year projection, and, again, it eliminated the 2020, simply because it does eliminate that spike that Stock Synthesis always seems to be able to find, and, like Ryan and Luiz had mentioned, with the stock being in as good shape as it is, and it's not likely to be on the board for another assessment anytime soon, did we want to sort of handicap it by a three-year window or go with a five-year window, and that's really the only difference in the motion that I had sent in.

CHAIRMAN POWERS: Okay. Before we think about doctoring this up, let's also hear from some other people. Fred and then Shanae.

DR. SERCHUK: Thank you, Chair. I am still having a little bit of a problem with this table, and that is, if I look at the first value under retained yield in millions of pounds, the first thing is, and forgive me if I'm nitpicking, but I would presume that, in the projection scenario in millions of pounds, there has been an error, and that, instead of the 75 percent F 30 SPR, it should be 3.64, and is that correct, because all the values in the first line should be identical.

MS. ALLEN: There is a little bit of wiggle room in those first two years, 2018 and 2019, and is that what you're referring to?

DR. SERCHUK: Yes. Why, if you started from -- I just don't understand it.

MS. ALLEN: Those are considered the gap years, where you only input retained landings in metric tons, and the model estimates the number of discards associated with that, and so they don't differ by very much, but each scenario, projection scenario, is run independently of each other, and so you will get a little bit of wiggle room in those first two years.

DR. SERCHUK: Okay, and I am trying to compare those values, in millions of pounds, to what was on -- I know you talked about we're not going to consider Figure 3 in the executive summary, but those -- Because they were only run out for five years, but it seems to me that these values should be close to the values in Figure 3 for retained yield, or should they? Could you answer that question?

MS. ALLEN: Since 2018 and 2019 had lower overall fishing mortality rates than what would have been projected if we didn't have those years, that is a major reason, especially in the F 30 percent SPR case, because it limits -- It would have shot up, just like you saw in 2020.

If you don't have those gap years, that happens earlier, in 2018, again, just to be able to bring that spawning stock biomass down to SSB at F 30 percent SPR, but, in the other scenarios, it still differs, again, because those fishing mortality rates, the realized fishing mortality rates, ended up being a bit lower.

DR. SERCHUK: Okay, and do we know what the landings were, what the retained catch was, in 2018? Here we are in 2020.

MS. ALLEN: They should closely equal these values here. I have the exact values that I can share.

DR. SERCHUK: I'm sorry to be a bugbear about this, but I just want to make sure that we're talking apples with apples and oranges with oranges, and, typically, when we have information on years after the assessment is finalized, we try to put in what we think the catches might have been in those years, particularly if it's two years back.

MS. ALLEN: I'm in metric tons here, but we can always refer to the one on the left, and so, for 2018, in total retained landings in metric tons, it's 1,651.

DR. SERCHUK: That's quite a bit different from the values that we have in these tables, right?

MS. ALLEN: Yes, but I didn't do the conversion to pounds, and so refer to the graph on the left.

DR. SERCHUK: So that would be a thousand metric tons, is what you're talking about?

MS. ALLEN: 1,651 for 2018.

DR. SERCHUK: Just like -- On page 10 of the executive summary, this landings in pounds, and it looks like there were 4.8 million pounds landed in 2017, and is that correct? I am just trying to -- It's the last column on the right, and I'm just trying to get an idea of what the variability in the fishery has been prior to moving forward with the numbers in 2018, and so it looks like there was a large drop in landings between 2017 and 2018, and is that correct?

MS. ALLEN: Yes, and it does show that, because 2015 and 2017 were included in those figures in the presentation, so you can see graphically the decline in retained yield, and so there's quite a steep drop from 2017 to 2018, and 2019 was even less than 2018.

DR. SERCHUK: Right. Okay. Thank you for that explanation. That helps. I'm just trying to make sure that I understand what's going on. Thank you.

MS. ALLEN: I also need to clarify an earlier point that was written in the motion. The scenario of 75 percent of F at 30 percent SPR, that was run exactly like that. It was not -- That may have been an error on our end, because I was only driving the projections with Fs, and I wasn't driving them with yield.

CHAIRMAN POWERS: But the motion, as it's written, it says the yield at 75 percent of the yield at F 30 percent SPR is 3.79 million pounds, and so I believe, and I didn't do the arithmetic myself, but I believe what was done there is you take 75 percent of whatever that yield was in that table, and that is 3.79 million pounds, and is that correct?

DR. PATTERSON: Actually, the way that Bob had it written the first time was correct, and I mistakenly corrected him, and so it's actually the yield at 0.75, or 75 percent, F SPR.

CHAIRMAN POWERS: Okay. Sorry. So go back to the original thing.

DR. PATTERSON: **If you just take out all the text.** There you go.

CHAIRMAN POWERS: Okay. All right. What's the wishes? Jim Tolan's motion, he said, was essentially the same, except for another year added, I believe, or two years added. If people generally go along with it, what I would like to do, and I wouldn't want to get into separate sort of motions about one with four years and one with five years and so on, but can we agree on a time span? If we do this with 2021 and 2023, remembering what Ryan had told us before, what that would mean is that the 3.79 would be the marching orders subsequent to 2023, and, if that became an issue at that time, then, obviously, one could do an assessment again.

MR. GILL: Mr. Chairman, my rationale for picking 2021 through 2023 was, in part, based on the fact that the last few years of terminal data was 2017 and so, at the end of this one, they're out six years. The advantage, however, of Jim's five-year version is it's slightly more conservative, but, given the status of the stock and where it's been fished in recent years, I didn't think that was necessary, and so I settled on the nearer term and not getting further out and leaving the option open to the council on how to handle ACL.

CHAIRMAN POWERS: Thank you. There is a window there that I can't read, and so how did that window get there, and what does it say?

MS. MATOS: That's Jim's motion. I was trying to put it up there without putting it in the motions, but I can't really make it bigger without covering everything else up.

CHAIRMAN POWERS: All right. Don't worry about it. All right. So we've gotten rationale, and is there any further discussion on this?

DR. TOLAN: I will certainly yield to Bob, and the 2021 to 2023 is fine by me.

CHAIRMAN POWERS: Okay. Will Patterson.

DR. PATTERSON: I am just curious what the rationale is for not actually utilizing the control rule and producing PDFs for the projections and applying the P* approach.

CHAIRMAN POWERS: Doug, I'm sure you weren't going to --

MR. GREGORY: Thank you. My interest in this would be that we've repeatedly run into trouble with trying to estimate the -- We've got the P* of 0.3 or whatever, but then the PDFs are narrow, and that's been an ongoing problem, and one recommendation from the Center has been to follow the method used on the west coast.

This is similar, I think, to what we did with vermilion, and I like the idea of -- I think, Will, a couple of years ago, you suggested this to the council, when you were representing the SSC, I think, and I may have got it wrong, but that we start looking at trying to set ABC at OY and completely get away from the PDF problem that we have, and so I like this motion, because of that. Thank you.

CHAIRMAN POWERS: Is there any other discussion? All right. There's a motion on the board. We do have more discussion. Luiz Barbieri.

MS. MATOS: Luiz, you need to enter your PIN to speak.

DR. BARBIERI: While he's working on that, Mike Travis, you had a comment?

DR. TRAVIS: More of a question. Given the SSC's discussion about allowing the industry to increase its yield, I am a little puzzled by this result, because, unless my math has gotten very bad, I am currently seeing a stock ACL between the Gulf and South Atlantic of approximately 3.94 million pounds -- We're suggesting an ABC that is below the current stock ACL, and how did we get to that?

CHAIRMAN POWERS: Any comments on that? Is Luiz back?

DR. BARBIERI: Yes, Mr. Chairman. I am back, and thank you, Jessica, for reconnecting me. It's just one of those major storms that just went through the area here, and I got disconnected, and so, by the time that I called back and I was trying to enter the new PIN number, it wouldn't go through, and so I had to call again, and here I am. My question, and I don't know if that addresses what Mike just brought up, but I was just going to ask the question about what years had fishery closures for the commercial side.

CHAIRMAN POWERS: What was your question?

DR. BARBIERI: I just want to know which years had fishery closures for yellowtail snapper for the commercial side.

MS. ALLEN: That was the end of 2015 and 2017.

MR. SWANSON: For the South Atlantic.

MS. ALLEN: For the South Atlantic, yes. There's been no closures in the Gulf.

DR. BARBIERI: Okay. Thank you. Yes, that's what I just was trying to find out.

MR. SWANSON: That was Slide 16 in the presentation.

DR. BARBIERI: Right. Thank you.

CHAIRMAN POWERS: Then the other issue that Mike Travis brought up is that defining ABC at 3.7 million pounds doesn't necessarily provide the flexibility that we had talked about before. Dale Diaz.

MR. DIAZ: I am trying to clear all of this up in my mind, so I understand exactly where this motion is going, and I'm looking at my notes from earlier in the meeting, and I had down that the Gulf had 900,000 pounds for their allocation, and then the South Atlantic, if I wrote it down correctly, the commercial had 1.6 million, and the recreational had 1.4, and that's what I am trying to figure out. It's basically the same thing that Mike just brought up. If that's correct, we are making a motion to do a reduction with this stock assessment.

CHAIRMAN POWERS: All right. We'll go to Will and then Doug Gregory. Then let's get Shanae in there.

DR. PATTERSON: You can go to Shanae first. That's fine.

CHAIRMAN POWERS: Shanae.

MS. ALLEN: Thank you, Mr. Chair. I just wanted to point out just one thing, which has already been mentioned before, but the current ACL is made up, of course, of the recreational landings, and that's in MRFSS units, and so they're not compatible with the values that are coming out of our model that are all based on FES landings.

CHAIRMAN POWERS: Again, that's sort of interpreting these

numbers implies a certain allocation, which, that whole allocation, the councils will have to revisit anyway. Will.

DR. PATTERSON: That last statement notwithstanding, the reason that you're getting this -- One of the reasons that you're getting this drop is because the 0.75 F SPR 30 percent is more precautious than if we applied the P* to this, and I still haven't heard any rationale for why we wouldn't actually use the control rule in this case, and we have a stock that the SSB estimates are well above the threshold and are fairly close to the target, and I don't see why we would take this much precaution with this stock.

CHAIRMAN POWERS: Thank you. Doug Gregory and then Luiz, again.

MR. GREGORY: Real quick, I was going to say the same thing that Shanae said, but can we translate these MRFSS ACL quotas into FES numbers, so that we can assess what Mike Travis was concerned about, but, yet, in MRFSS numbers, it's three-point-nine-some-million pounds, but I have no idea what that is in FES numbers.

CHAIRMAN POWERS: Well, the recommendation and the motion says 3.79 million pounds, and the current catches were roughly about -- They were about four million pounds, three-point-nine-something, and they were even a little bit higher in 2017, and those are in the numbers that you should think about, and so what Mike Travis has really suggested, or noted, is that 3.79 million pounds is less than what the current catches are, and, if we're suggesting that there is more flexibility, this doesn't exactly line up with that. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. I was going to just make the same point that Will just made, and I don't see a reason, looking at how this assessment is structured and all the outputs, and it's a highly quantitative assessment, with a lot of uncertainties well estimated, and I don't see why we would have a justification here, really, to not apply our ABC control rule and recommend something that is outside of that framework.

We have, in the past, departed from our ABC control rule when there were indications in the assessment report that said there were uncertainties that couldn't be really properly estimated, and we had concerns about some of the parameters, some of the outputs, and the projections were really super highly uncertain, and I don't see this assessment fitting that profile at all, and so, to me, it's a matter of indicating, for the OFL and the ABC, due to the biological capacity of the stock, and presenting to

the councils some rationale to say there is room here for you to manage this stock at a more precautionary approach, and the approach is OY, but that is your prerogative, as you want to assess the risk that you want to assume for actually managing this stock, and so I am just voicing my support here for that same point that Will had made.

CHAIRMAN POWERS: All right. Thank you. We have a number of people lined up, and you see the list there, but we'll start with Ryan.

MR. RINDONE: Thank you, sir. Just for clarity in your motion, you might consider mentioning the data currency that these recommended catch limits are in, since we are going from MRFSS to FES, and some of the confusion might be coming from that, since, like Shanae had said, our current ABC, which I think is four million pounds total, is in MRFSS, and it's my understanding that the numbers that are on the screen are in FES, and so some of that confusion might be coming from the fact that we typically expect, when we convert something to FES, that there's going to be some magnitude increase in SSB and projected future harvest levels from accounting for a magnitude increase in effort and harvest in the past.

CHAIRMAN POWERS: Thank you. Genny Nesslage.

DR. NESSLAGE: Thank you, Mr. Chair. I just wanted to quickly echo Luiz and Will's concerns, and I am still not convinced that we need to be deviating from the ABC control rule, but I am new to yellowtail snapper, and so, if someone would like to enlighten me, I am open to alternatives, but I think the P* approach would probably make the most sense in this case. Thanks.

CHAIRMAN POWERS: Thank you. Scott Crosson.

DR. CROSSON: I think I'll pass. I think my point has been made by others.

CHAIRMAN POWERS: Shanae.

MS. ALLEN: Without having the ability to see any of the P* analysis, because that wasn't done until after the assessment report and after the review panel, which is definitely a viable option, and we have the code and everything ready to go, if that is the chosen option.

I will just say that the issues that were brought up before,

about it being a very narrow -- The OFL distribution being quite narrow, so that then you're -- Even a P* of 0.4 or 0.3 is going to be about 98 percent of the OFL, and that's just something to keep it in mind, and I just wanted to let you all know that we have all of that up and running, and so it can easily be done.

CHAIRMAN POWERS: Thank you. Fred Serchuk.

DR. SERCHUK: Another source of uncertainty, which I think affects the projections in an adverse way, and that is yields that are too low, and that is that the projected yields for 2020 I think are going to be much higher than are going to be realized in fact, because of the problems that we have with COVID-19.

Therefore, those removals in 2020 that are estimated are not going to be anywhere as high as I think they're shown in the table, and, therefore, the stock size in the following years are going to be much higher than shown for 2021. Therefore, that has a knock-on effect, and so what I'm saying is, to look at an F 30 percent retained yield in 2020 of 5.4, or 4.2, or 3.9, or 3.6, across the table, I don't think those values are going to be realized for those Fs, and, therefore, they're going to be much lower, because the actual yields, in my mind, are going to be considerably lower.

The stock size would be higher, and, therefore, I think the yields, the subsequent yields, that are shown here are too low. I don't know how we express that, but I'm almost sure that the projected catches for 2020 in the projection table are significantly higher than the actual yields will be in 2020, and that affects the estimates for the following years, because the stock size will be much higher. Thank you.

CHAIRMAN POWERS: Thank you. Ryan.

MR. RINDONE: Thank you, Mr. Chair, and this is to Fred's comments, and I don't think that's true, because the initial reports that we've been hearing from FWC and from some of the other states have been that there's actually been more recreational effort during this time period than comparatively to the same MRIP waves the year prior.

There may have been a temporary decrease in commercial fishing effort, but, by and large, from what we've heard from the commercial fishermen, it's that, for the most part, they're back up and running again, and so, with an increase, year over year, in recreational fishing effort, and a temporary decrease in

commercial fishing effort, especially for the South Atlantic, which is, in three out of the last four years, the commercial sector has met its ACL prior to the end of the fishing season.

I would have every expectation that the South Atlantic's commercial sector will probably meet, or get very close to meeting, its commercial yellowtail ACL this year, and maybe Mike or somebody else can speak a little bit more to the pace at which those landings are coming in there, but I don't think that we're observing a decrease in recreational fishing effort due to COVID.

DR. SERCHUK: Okay, and I would defer to those people that know the fishery much better than I do. Thank you.

CHAIRMAN POWERS: Thank you. We're not getting anywhere, and, for that reason, what I suggest we do is -- The one thing that Will and Genny brought up is we do have this control rule, and I think, at this point, we need to look at that control rule, or whatever it is, and evaluate things accordingly, based on that, or if we choose not to do it on that, and then have a reason for not doing that. For that reason, I suggest we table this motion and revisit it later in the meeting. How much later, I'm not sure.

Because of the South Atlantic people were only expected to be here today, we could do it -- We could table it until tomorrow morning, but, if that causes problems for the South Atlantic people, let me know. Also, in terms of actually formulating some sort of table that will help guide us in this, what Chris and Shanae can do over the next two hours, twenty-four hours, or whatever, and so, if you can provide some guidance on that, and we'll start with Shanae or Chris.

MS. ALLEN: Sorry, Mr. Chair, but can you repeat that? Is that a question for Chris or I? I missed it.

CHAIRMAN POWERS: Yes, and what I'm suggesting is we're going to have to revisit or at least look at the control rule, the PDF and what the P* value is and that sort of thing, and so my question is how long would it take to put together some briefing materials associated with it, and it could be -- If you could do it in a couple of hours, fine. If you could do it so that we could do it in the morning, fine, but just give me some feedback

MS. ALLEN: I think we could reasonably have some briefing materials ready by tomorrow morning.

CHAIRMAN POWERS: Okay, and then what about the South Atlantic people? Mike Errigo, you had a comment?

DR. ERRIGO: I just wanted to say, in order to help Shanae and Chris prepare for this, I think what we should do is run through our control rule to get a P* value, so that they can run that, and I think that shouldn't take very long to do, because we only have four dimensions, and so four questions that need to be answered, and one of them comes directly out of the MRAG PSA analysis, and so that's pretty much already answered, and so we just need to do that, and then we can get a P* value for them to run, to see what that looks like.

CHAIRMAN POWERS: Yes, that's exactly what I was looking for. All right. Then, the person that provided the motion, you have no problems with delaying it for a while?

MR. GILL: That's fine by me, Mr. Chairman.

CHAIRMAN POWERS: All right. Thank you. We'll revisit this first thing tomorrow morning. Okay. You already heard, conceptually, what the answer would likely be, that the PDF is fairly small, and so what I would really, really, really like is, whatever option we pick, that we have some words to actually work with in the morning. All right.

DR. PATTERSON: Before we leave this, I thought that Mike had a good suggestion there, that we actually work through the table, and I'm not sure -- It sounded like he was referring to the South Atlantic table, and I assume that our -- I know that our control rules are different, and so I don't know which one we need to work through here to get the P*, but it sounded like that was the suggestion, that we go ahead and do that, and is that what you're thinking?

CHAIRMAN POWERS: Yes.

DR. PATTERSON: Okay. Thanks.

CHAIRMAN POWERS: At this point, I wouldn't want to do it at the committee level, and let's kind of get that moving earlier. All right. So, recognizing that we haven't really done this, we have already looked at the stock assessment executive summary, and we have more or less approved it, except for whatever changes we might make relative to the determination of ABC and OFL and so on.

Next on the agenda is Agenda Item VI, which is the SEDAR 28

Update.

DR. NEER: Mr. Chair, I think we need to decide which of the two control rules the group wants to use, because there is two, the South Atlantic and the Gulf, because they're not exactly the same, as Will pointed out, and I thought the suggestion was that we were going to go through those now, so that you had a number, so that they could actually run those P* analyses overnight and have the numbers available for you tomorrow.

MR. RINDONE: Historically, we have used the South Atlantic Council's control rule for this process.

CHAIRMAN POWERS: That was my understanding too, and they're sort of the lead council anyway. What I don't want to do is go through this at the committee level, because I don't think that would be very useful, and so, if there's somebody from the Gulf side that wishes to characterize this and help Shanae and Chris, in terms of what P* might be on the Gulf side, feel free to do that, but I think, from our historical standpoint, the protocol is to kind of go with the South Atlantic.

DR. ERRIGO: I just want to clarify, Joe. You want us to go through like on email outside of this committee process and come up with a P* and email that to Shanae and Chris and have them run their --

CHAIRMAN POWERS: Yes, and then we can just -- Then, of course, in the meeting, we would like some sort of at least discussion of how the P* was formulated, and, in other words, the application of the control rule.

DR. ERRIGO: Okay. That sounds good. Thank you.

CHAIRMAN POWERS: All right. SEDAR 28. This is Gulf group cobia. There is a presentation and the stock assessment documents and update. Who is giving the presentation?

REVIEW OF SEDAR 28 UPDATE - GULF OF MEXICO MIGRATORY GROUP COBIA STOCK ASSESSMENT
ASSESSMENT PRESENTATION AND STOCK STATUS DETERMINATION

DR. ADYAN RIOS: My name is Adyan Rios, and I work at the Southeast Fisheries Science Center, and we'll be talking about the Gulf of Mexico cobia update assessment. This assessment documents the status of cobia through the Gulf of Mexico through 2018 and projects quotas starting in 2021.

The Gulf cobia stock ranges from Texas around Florida to the Florida/Georgia state line, and I just want to point out that we have streamlined the presentation and are looking for a more standard output and presentation of our assessments, and so your feedback is very welcome as to the content of the documents and of this presentation.

Here is the outline of today's presentation, and we'll be starting with the terms of reference. There were four terms of reference, and the first was to update the approved SEDAR 28 Gulf of Mexico cobia base model with data through 2018, and so the SEDAR 28 base model -- The SEDAR 28 model was through terminal year 2011, and so the update is bringing that terminal year through 2018.

The second term of reference was to document changes or corrections to the model and input datasets and provide updated input data tables and to provide commercial and recreational landings and discards in pounds and numbers, and the third term of reference was to update model parameter estimates and their variances, the model uncertainties, the estimates of stock status and management benchmarks, and provide probability of overfishing occurring at a specified future harvest and exploitation levels. Lastly, the fourth term of reference was to develop a stock assessment report to address these TORs and to document the data and the results of the stock assessment.

First, we'll just get a big-picture overview, and that starts with what was done, and so the approved SEDAR 28 Gulf of Mexico cobia base model was updated with data through 2018. Where practicable, the SEDAR 28 update base model used the same datasets as the SEDAR 28 base model, with updated time series.

Key changes from SEDAR 28 include incorporating the Fishing Effort Survey, FES, to the recreational catch and no longer estimating growth or shrimp selectivity in the assessment. the stock assessment update report fully documents the input data and results of the SEDAR 28 update base model, and the update base model found that cobia in the Gulf of Mexico is undergoing overfishing, but is not overfished.

In 2018, the stock was being harvested at 144 percent of MFMT, and SSB was 111 percent of MSST. This plot on the right shows us the fishing mortality and SSB relative to the SPR-based biological reference points, and it illustrates that, over the course of the years in the assessment, 1927 to 2018, the stock had experienced overfishing every year from 1975 through 2018, with the exception of 1983 and 2009.

The update base model projections indicate that a reduction in yield is required in the near term, to allow the stock to build towards the SPR 30 percent MSY proxy. Forecasts indicate that the reduction build toward the MSY proxy, and so we'll look at these again at the end of the presentation, but I also wanted to have this message upfront.

Next up is data, and the assessment model used SS, Stock Synthesis, with the data inputs listed here. For life history, the inputs were length-weight conversions, growth, reproduction, natural mortality, and release mortality, discard mortality, and, for fishery-dependent data, we have the recreational landings and discards, commercial landings and discards, going down the list.

For life history, the key difference between SEDAR 28 and the SEDAR 28 update is that the growth parameters were not estimated, and we'll talk about this again on the next slide, and again when we talk about the model development, and so you'll be seeing this plot, where we have the growth, and so we have age on the X-axis and length on the Y-axis.

What we see in the black-dotted line is the SEDAR 28 data workshop recommendation, and we also see the red line, which was the values -- Sorry. The blue line is the values estimated in the SEDAR 28, and the red line is the values that were fixed for the SEDAR 28 update.

Underlined here, you will see that there are five alternately-constructed datasets that were provided for the update analysis. These constructed datasets incorporate best practices that have been developed and approved in recent SEDAR assessments, and these updated inputs that we'll look at, and I also want to point out that they are documented in the stock assessment update report and further detailed in their respective working papers.

To summarize the data that goes into the model, we have the removal data, which includes the landings and discards, and we have that for a combined recreational fleet, and we have the landings and removals and discards for the commercial fleet. The main change, that we'll also look at when we look at the more detail, is the FES update to the recreational landings.

We also have a bycatch fleet, which is for the Gulf shrimp fleet, and we have fishery-dependent indices of abundance, one for the recreational headboat fleet and one for the

charter/private fishery.

We don’t have fishery-independent indices at this time, and just to touch on how the recreational age compositions follow the methods in SEDAR 28, where the age composition is made conditional on length, and we’ll touch on those again.

Going over the next slide in the data section of this presentation, you will see this table that kind of documents any differences, and what we see here is that all of these life history attributes and components of the model were unchanged, except age and growth.

In SS, a single von Bertalanffy equation was used, both in SEDAR 28 and in the SEDAR 28 update, to model cobia growth for both sexes. In the update, the parameters L infinity and K were fixed model inputs, based on the recommended values in the SEDAR 28 data workshop.

Stock Synthesis does not use T0 as an initial parameter. Rather, it uses a reference age for the size at-age, the size at the minimum age, which it estimates to describe that initial growth, and an important -- This will come up again later, but what’s important to note in the model development is, when growth is estimated internally, when it deviates, that affects the appropriateness of the natural mortality, which is developed based on the recommended growth from the data workshop as well.

Moving on to the fishery-dependent data inputs, first here we have the recreational landings on the left and the discards on the right. In blue, we have the values from SEDAR 28, and, in yellow, we have the values from the SEDAR 28 update. This is the real change that we see across the data, and it’s 1.5 to three-times higher. The decision on these topics was to use these new FES-adjusted values, and they are further documented in Working Paper Number 2.

To stay on this topic just for a moment, just to give you a sense of what -- That is a combined recreational fishing fleet, in that it has headboat, Texas, and LA Creel, and so, here, we can compare, for the landings on the left and the discards on the right, what values were for SEDAR 28 and what they are for the update, and the majority of the recreational landings all come from the MRIP data, and the same is true for the discards, and that increase is reflected by the FES adjustment.

Staying with recreational, we’ll get a quick summary on this slide of the length and age data, and so annual length

compositions were combined into three-centimeter bins, and, here on the left, it's kind of the cumulative comparison of the lengths used in the update assessment compared to SEDAR 28, and so, overall, there's some subtle differences, but that's also nine extra years of data.

On the right, we have the information for the paired age and lengths, and, following the methods used in SEDAR 28, the age compositions were made conditional on lengths. In other words, a separate age composition was specified for each three-centimeter length bin containing fish whose age had been estimated, and so that's essentially creating an age-length key, and so we're able to link the age data directly to the length data, and so this shows you the distribution of the ages that were used in SEDAR 28, and those went through 2010, that were available at the time, and now they are through 2018, as well as the distribution of the lengths associated with those ages, and the annual sample sizes are in Table 9 of the stock assessment report.

MR. RINDONE: Adyan, in the lower-right, those lengths, are those in inches, or what are they in?

DR. RIOS: No, these are in centimeters as well, and so I can add the -- Interesting. Yes.

MR. RINDONE: Interesting and yes and inches or centimeters?

DR. RIOS: I will double-check that and report back as soon as we take a break, or later today, and so I'm sure it's just a -- It might just be a plotting mismatch in Excel, but I do want to double-check that.

MR. RINDONE: Thank you.

DR. RIOS: No problem. Just to note here that, for the recreational lengths, no sample size caps were used now, and, previously, if more than 100 fish were measured in a given year, the sample size was fixed at 100, to avoid overestimating the length composition, to avoid overweighting the length composition data, but, instead of capping the annual sample size, the SEDAR 28 update used total sample sizes that were later adjusted using the Francis reweighting method, and that method reweights the samples based on variability and the uncertainty in the mean length by year.

Staying with recreational, the MRIP index was constructed for 1981 through 2018, and it was developed using the same delta log

normal modeling approach that was used in SEDAR 28. The Southeast Region Headboat Survey index was constructed for 1986 to 2018 and developed using the same delta log normal -- The SRHS index was constructed, and a new method for the headboat index is now available, following the Atlantic cobia stock assessment.

This method incorporates core vessel identification and uses a zero-inflated negative binomial to produce the index, and it's documented more in Working Paper 6. The time series CVs were relativized to a mean of 0.2, which is another kind of common practice among stock assessments, currently, to give equal weighting among the indices when there isn't more information, and so they were relativized in that sense, because their respective methods influenced their CVs, and so that's one thing that was added there.

Next up, we have -- Moving to commercial data, we have landings and discards, and the commercial landings were unchanged, and so you see that here on the left. For the commercial discards, there were -- There is an update, and so the commercial discards, which are estimated starting in 1993, they used a catch per unit effort expansion approach, using the Coastal Observer Program, in conjunction with total fishing effort from the commercial reef fish logbook program.

While this approach deviates from SEDAR 28, this methodology has been used consistently in recent reef fish assessments, and just to note too that this scale of discards is very small compared to what we saw for recreational, and we'll look at those side-by-side later, when we look at the results, but just to point that out and to note that this method resulted in fewer discards for the commercial fleet.

Moving on to commercial lengths, length compositions were estimated using the same two data sources approved in SEDAR 28, and the process is using recent best practices, and those are documented in Working Paper 4. For example, length samples from the commercial TIP, Trip Intercept Program, are now weighted by the commercial landings. Even though they were weighted, following this new best practice, they do show similar distribution across all years for the length frequencies for the years for each of the models.

We also have information from the reef fish observer program, and, in the SEDAR 28 model, that included landings and discards. For the SEDAR 28 update, it includes only discards. This is consistent with the red grouper assessment, and, just to touch

on this briefly, this is the kind of key information in this model that we have about discards, and so combining it would kind of make it less -- Not less useful, but you wouldn't -- It's more appropriate to have it stand on its own and be reflective of the discards and directly input to the model as discards, to help us understand the retention for this fleet.

Because of low sample sizes, ranging from four to twenty-two, these data were aggregated across all years, and using the super period approach.

The last slide for data is that we have the shrimp bycatch, and this has two components. We have the shrimp bycatch, which goes into the model also using the super period approach, where you provide the mean, but the model still estimates values for each year, and, in order to estimate those values, we also have an effort index, an index for the shrimp effort. You can see, from these plots, that shrimp effort declined sharply from 2002 to 2008 and has remained at relatively low levels.

Just to touch a little bit more on the super year, it's that, instead of fitting each observation directly, a measure of central tendency for the entire time series is fit, and, typically, for the shrimp bycatch, the median is used.

The model still predicts annual values, but it doesn't attempt to fit to those annual observations, and it attempts to fit the mean and use the other information, and so, similar to the recreational indices, the CV of the effort index was also relativized to 0.2, and one change documented in the working paper is that the shrimp bycatch generating this time series has been improved to now include bycatch reduction devices as a factor in the analysis, and so to account for whether to have that as a strata.

Moving on to more information about the base model, and starting with the base model development, we have this table in the report, and we'll build on it as we talk about it here, and so, as noted, a strict continuity was not feasible, due to the FES adjustments to the recreational catch, and the model -- The methods used to estimate that catch were not currently available, or in the timeline of this SEDAR update.

We went through multiple stages, to develop kind of first a pseudo continuity model, and that included updating the recreational landings data in the old model, which you see here in the first line, to the new FES estimates, only through 2011, to demonstrate the impact of these new recreational landings on

SEDAR 28 outcomes.

The first step that we see here is this is the summary line for the SEDAR 28 assessment, and then we have some steps that will lead us to the current SEDAR update base model, and that first step was to look at the SEDAR 28 model with those updated FES estimates, and something that we noticed, that stands out, is the increase in the SSB, the virgin SSB, as well as the big increase in recruitment, due to the increase, a fairly drastic increase, in removals.

When we make just this change, we also see that there are actually differences, and so the growth, estimates of growth, the percent for this changed as well.

The next step was to bring all of the inputs through the terminal year, and there is lots of steps in between, but this table highlights those big steps and helps guide us toward the ultimate model.

After we updated all of the data through 2018, the internal model estimates of key growth parameters, and shrimp length-based selectivity deviated from the SEDAR 28 model, and those were no longer consistent with the approved SEDAR 28 model, and so, to address growth, the parameters for Lmax and K were -- To address growth, the parameters of the Lmax and K were fixed using the L infinity and K values recommended by the SEDAR 28 data workshop panel, and, to address the pattern, the selectivity pattern, for the fishing fleet, the selectivity pattern was fixed to reflect 100 percent selection at age-zero and zero percent selection at the age of one-plus.

Fixing this growth, and I guess I didn’t highlight that the fixed parameters are shown in bold, and so we have a fixed sigma R, and we also explored the model with a fixed steepness of 0.8, because that was also something that was in the model that was used for management advice. It had a fixed steepness of 0.8, but, again, we see that sensitivity in growth, and accurately estimating growth and its associated natural mortality is important, and it’s something to think about, and it’s worth revisiting in future research recommendations as well, but, for now, this was a good way to kind of move forward with the update.

Here we have the next step, which was to use the model tuning, and that is Step 4, and that involved the bias adjustment for recreational deviations and variance adjustments, and, lastly, the Francis reweighting. The model tuning reduced the estimate

of steepness from 0.9 to 0.78, and it increased the SSB, as shown here. Finally, the model in SS Version 3.2, which was used previously, was converted to 3.3, in order to benefit from projections features in the latest version of SS, and so the transition to 3.3 had no discernable effects on the model fit or parameters, but it did allow us to use the features for projections.

Now we'll look at plots showing the model fits, starting with the landings, and so here we have the commercial and recreational landings in metric tons for commercial and numbers of fish for recreational. For comparison, we have the same information that came from SEDAR 28 for this plot, and you see the commercial staying fairly consistent, and the change --

The standard error for the recreational data was set at -- and 0.01 for commercial, and we are accounting for uncertainty and allowing the model to have some flexibility in fitting those recreational landings, which is what you see it a little bit outside of the fit, but it's still overall staying somewhat similar.

Next, we have the fits to the discards, and we have the total discards for commercial and recreational, as well as the estimated median for the time series super period for the shrimp bycatch. We see that these are within the uncertainty bars for these estimates of discards, and I will also point to the difference in the axes, and so we've got this in thousands, and this commercial rate is -- There is a mean of 200,000, and then, over here, we see more substantial discards, primarily from the recreational fishery, and we'll also compare the discards to the landings. These had a standard error of 0.05, the commercial and recreational discards.

Here, we have the fit to the indices, and this red line indicates the terminal year for the model, and so it's just seeing what years there are -- These indices went into the model, with a standard error of 0.2 for each, but what you see here is the errors associated with the rescaling.

-- those show the fit of the indices, and so we have two recreational indices, and they both are showing -- The fit is showing a decline in the most recent decade, and we'll talk about that again later. The fit to the fishing effort is very good, almost exact.

Next, we have the base model fit plots for the length data, and, here on the left, we have the information for the commercial

discards, which came from the reef fish observer program, and again for that super period approach, and so, while information is estimated across those years, it's compared across the initial year, where it's aggregated, and then we have the commercial length fit for the TIP data, and the recreational length information as well, and these fits are okay.

On the right, you see the cumulative fits for the length frequencies for each of these components as well. Individual years of information are available in the stock assessment report, and here we see also the Francis reweighted sample sizes as the N adjusted and the effective sample sizes as the effective N.

Next, we have the age data, the fit to the conditional age data, where we have length and age for the individual years. Next, we have the base model results, and, here, we can see, kind of on a similar scale, what the landings are between the two fleets and what the discards are between the two fleets in millions of pounds, and so we have commercial on the left and recreational in yellow, which is -- Cobia has a drastically larger recreational component compared to commercial.

This plot is actually in metric tons, but it shows all of this information kind of -- Again, you see that both of the removals are from -- This includes the landings and the discards for all three fleets.

Moving on to more results, we have, here on the left, the annual exploitation rate, and, on the right, we have fleet-specific estimates of instantaneous fishing mortality, and so the highest values are for the recreational fleet, and we also see that there's a ramp-up in the fishing mortality, and reaching a peak in the early 1980s.

Next, we have the selectivity plot for the commercial, recreational, and shrimp bycatch. For the commercial and recreational fisheries, they had -- The selectivity was size-based and asymptotic using the two parameter logistic function. The shrimp bycatch was age-based selectivity, and you see here, in the age-based selectivity, where it was fixed at 100 percent for age-zero and zero percent for ages-one-plus.

The selectivity patterns were assumed to be constant over time for each fishery and survey, and no direct length data were used for the shrimp bycatch fleet. The SEDAR 28 base model used the length composition from the SEAMAP groundfish to inform the selectivity, and we did explore using that, but we did see, and

we have seen in other recent assessments, that they don't always use the same configurations between the observer data and the fleet, and that can be reflected in what we see as larger individuals being caught in the observer data, and so another recent assessment was vermilion snapper, and that noted that the groundfish data also had an overabundance of large, older fish, based on trawls potentially not always using the bycatch reduction or turtle excluder devices that are mandated on the commercial boats.

This is base model results for retention, and so discards for the two directed fleets were modeled using size-based retention functions, where fish selected below the retention were discarded, and the model has a discard mortality rate of 0.05, to determine the level of dead discards from each fleet.

Here, you see, over time, we've got the initial year of the model in this bottom-left corner, and going forward in time, and so the retention changes. In this bottom plot, you see what the retention is for the more recent period, for the ending year selectivity and retention are captured here.

In the earlier years, the retention was knife-edge, at forty centimeters, following the methods documented in the SEDAR 28 assessment report. In later years, the inflection was estimated, and it was estimated at seventy-six centimeters for commercial and eighty centimeters for recreational. Note that there is a thirty-three-inch size limit, which is 88.9 centimeters, and so the retention was set slightly below the size limit.

Retention combined with selectivity results in higher discard rates modeled for the recreational fleet than the commercial fleet, and so I can walk through these plots quickly. In blue, we see the selectivity that we saw on the previous slide, the estimated selectivity, and, in red, we see the retention, and so, essentially, this is saying that the retention -- There are individuals selected for the recreational fishery that are then discarded, shown in gray, because they are presumably below the size limit, and so we see that -- Not presumably, but because they are below the size limit, and so the retention is shown here in red, and the difference there is shown in that gray line of the individuals that get discarded, and the natural mortality is also captured in here. Sorry. The discard mortality is captured.

Similar to the magnitude of discards, you see here a lot more fraction of discards are showing up for recreational, and then

for commercial, and that's exactly what we saw in the estimated discards as well.

This is more results. Here on the left, we have the estimate of total biomass and the estimate of spawning stock biomass, and that compares the SEDAR 28 model in blue to the SEDAR 28 update in red, and just noting that the virgin estimates for total biomass, as well as spawning stock biomass, are much higher, and we do see that they follow similar trends, but we do see a large change in the scale, related to the increased removals.

Next, we've got a slide for the spawner-recruitment relationship. Here on the left, we've got a single -- The plot for the Beverton-Holt stock-recruitment function, and you see kind of that shotgun effect, that shows that this relationship is poorly defined. Then, here in the middle, we have the age-zero recruits, and, on the right, we have the recruitment deviations.

We see the highest recruitment was in the first year of the estimated recruitment deviations, and the lowest year was the second year. The recruitment deviations are used only in those years that we have enough data to inform it and use those.

Moving on to some of the other result plots, here, we see the depletion over time, as well as the plot that we saw at the beginning of this presentation, but now we're coming back to it, and so the current base model for the SEDAR 28 update shows that cobia is undergoing overfishing, but is not overfished, because it's not below the MSST. The 2018 value is close though. It's right here.

The terminal year depletion estimate is 21 percent, and that is below the SSB at 30 percent SPR MSY proxy, and so it's below that MSY proxy, but not below MSST, and this would be the MSY proxy for updating the -- We can talk about that later, when we talk about the executive summary.

As we noted from the plot here on the right, we see that, for almost all of the years since 1975, the stock has been experiencing some level of overfishing, and what we see in the depletion is kind of this ramped-up decrease, with a recovery, followed by a decrease in recovery, and, over the last decade, a decrease.

Now we're moving on to some of the diagnostics now, with the first suite of diagnostics we'll look at being the likelihood profiles. Here is the likelihood profile for steepness, across

values from 0.4 to 0.99. We can also zoom in on this, and we can see what it looks like up close, and, while there is the minimum, it's not super well estimated, because of the -- There are lots of other values being similar, providing similar likelihoods.

Next, we have the profile for R0, which shows much more of a defined U that you want to see when you're looking at these likelihood profiles, and, lastly, for these likelihoods, we have the sigma R. I will just point out that the line at the top shows what value is used in the model. The only virgin recruitment appeared to be well estimated, with the data agreeing on a value between 7.3 and 7.8.

These plots down here, these plots show that, across the range of parameter values explored in these likelihood plots, we're showing the SSB over SSB virgin for the three different parameters, and so, by changing those parameters, we do see some similar convergence, and so, while R0 was the parameter that appeared to be most well estimated, some of these we don't need to consider, because they are not values that the model would converge on, but, when we look at the information that we see across the values of sigma R and the values across steepness, we do see a lot of convergence there across those large range of values.

The fact that those models converged, rather than diverged, indicates that the model is relatively robust to those stock-recruitment parameter estimates and that stock size and mortality -- Stock size is not strongly impacted by the -- parameters.

We will also look at the profile likelihood for two parameters, which are sigma R and steepness, and these are often very correlated, and so it's very good to look at the contour plot, and the contour plot shows that steepness values above 0.6 and below 0.6 for sigma R are almost equally probable, given the data, and so these are -- Again, it points to the spawner-recruit relationship being poorly estimated, and so that was taken into account when we get to projections, and that will come up again.

Here, we see the retrospectives, which show a strong level of consistency within the model, and so, as we peel back individual years, we don't see pathological trends or over or underestimation, and, peeling back beyond three years, there is a slight tendency to -- but it's very subtle, though that's good, and the magnitude of difference is minimal, and so there's

no trend that indicates an issue.

Next, we have just a summary plot for the jitters, and the jitters also indicated that the model is fairly stable, and so these panels show the results of 200 model runs, where the starting parameters were jittered by 20 percent, and, in 94 percent of those runs, the model converged to the same likelihood, and no better solution was identified, and so that's good. The cases where the model did not converge means that it likely found like a local minima that is a non-optimal solution, and so this is a good diagnostic for the model from the jitter.

Here, we have a slide showing the sensitivity runs, and so, for the sensitivity runs, we have the low M, and we have the high M, and we also have the high discard mortality, and so these sensitivity runs were also done for SEDAR 28. The Lorenzen natural mortality rate for the low run was scaled to provide the same cumulative survival as the mortality used in the South Atlantic cobia stock assessment, and so that's where the low M comes from, and then the high M did the same thing, but with the higher, at 0.5.

The higher discard mortality, the discard mortality was doubled, from 0.5 to 0.1, and so, here, we see the difference between spawning output and the F over F 30 percent SPR for the sensitivity runs, and so the low M resulted in the largest fishing mortality, and so low M results in the largest fishing mortality, as compared with the base run and the other two sensitivity runs. Given that lower level of natural mortality, the model predicted a higher virgin spawning stock biomass and lower -- These results are similar to what was observed in the SEDAR 28 low M sensitivity runs.

Increasing the natural mortality rate led to a stock that was experiencing less fishing, and, given this level of natural mortality, the model predicted a lower virgin stock size biomass and higher current stock size biomass, relative to the base model, also similar to what was observed in SEDAR 28. Increasing the discard mortality rate from 0.5 to 0.1 had minimal impact on the stock dynamics compared to the base case.

CHAIRMAN POWERS: Let me interject here. This would be a good time to take a break, at least for me, and I think what we ought to do now though is actually stop for questions about the assessment itself, before we get into the projections, but, even before that, let's take a fifteen-minute break, and then we'll come back and take some questions about the assessment itself and then go on with the projections.

DR. RIOS: Sounds good.

CHAIRMAN POWERS: Thank you. Fifteen minutes.

(Whereupon, a brief recess was taken.)

CHAIRMAN POWERS: Are there questions about the presentation and about the stock assessment of cobia? It seemed to me that this would be a convenient place to start taking questions about the assessment itself, before we get into the projections. I would open the floor for comments or questions relating to the assessment. Bob.

MR. GILL: Could you go back to Slide 15? My question is that, in SEDAR 28, we had a number of discards from the observer program that, on the update, all the lengths greater than ninety-six centimeters disappeared, but, since we're adding observations, what happened to all the observations that we used in 28 above -- Well, actually, it's above about eighty centimeters.

DR. RIOS: I am happy to answer that. What you're seeing here is not apples to apples, because the reef fish observer program previously included all lengths, and so retained and discarded, and so that goes into the model. You put it directly in as total catch, and you can use that for selectivity and for retention, but, in order to really inform retention and make the most out of these discard lengths, more recent assessments have been using this dataset with only the discard lengths and feeding it into the model specified as only discards, and so the difference that you see there is related to that, and does that make sense?

MR. GILL: Understood. Thank you very much.

CHAIRMAN POWERS: Thank you. Dale Diaz.

MR. DIAZ: Thank you, Mr. Chair. Could you go to page 20, please? My question is about shrimp discards, and I think that you had talked about -- That might not be the right page, but you had talked about medium discards for shrimp, and then it was noticeably lower after the introduction of fish excluder devices and taking into account a reduction in effort in recent years, and my question was do you use the long-term median in the model, or do you use something that takes into account those two changes?

DR. RIOS: Good question. I think the best slide to go to would be Slide 16. This comes into play in two parts. We are using that long-term median, but the model is also taking into account -- It's estimating what those removals are using information and also fitting the shrimp effort index, and so we can also -- That is the second part that plays into it, and so we don't have two different medians accounting for these two clearly different periods of selectivity, but we do have the effort index that allows the model to also understand and predict what the catch is, based on this effort series that it's also utilizing and fitting to.

MR. DIAZ: Thank you.

CHAIRMAN POWERS: Thank you. Will Patterson.

DR. PATTERSON: Thanks. Could you go to Slide 26, please? For these selectivity fits, I think I can understand the differences here between the length and the age for commercial and recreational, given the growth of the fish, but I am confused about the shrimp bycatch selectivity curves. If you have 100 percent selectivity for fish that are greater than it looks like about ten centimeters, then why don't have the same for ages greater than zero or one?

DR. RIOS: This comes into seeing the larger cobia that are observed in the length data that were used to estimate the previous length-based selectivity for the shrimp bycatch, and so what you see here on the right is what the age-based selectivity was, calculated off of the length-based selectivity, and so what we saw there was that some large cobia were forever selected for by this fleet, which, given the exclusion devices, that's unlikely, but what we do learn from the old assessment is the high selectivity on those age-zeroes, and we are able to kind of force the model to also have that, and we are able to also bring that down at some point, and so perhaps it could be implemented slightly differently, but it captures kind of the overall understanding of which cobia are likely to be caught in the shrimp fleet.

DR. PATTERSON: I still don't understand, but I am probably just being dense. I don't get how you can have the red curve on the left and the red curve on the right applying to the same information.

DR. RIOS: I think the trick there is that SS uses -- I will see if we can also unmute Shannon to maybe complement my description, but I think that the age selectivity trumps, kind

of, the length selectivity in SS, because they apply together, in a way, and so, by this going to zero, it essentially means that this goes to zero, despite it not being shown here, and that's one understanding of mine.

DR. SHANNON CALAY: Adyan is basically correct. In the former model, the SEDAR 28 model, we had selectivity that was a function of both length and age, and now what we're using is essentially a function just of the age of the fish, and so it's fully selected at age-zero, and we're assuming that length -- We're basically setting the length at full selection across all lengths, just so that we can get it, the product of that, to be that the fish are fully selected at age-zero.

The reason for the change was that we doubt that these large fish that were being seen in the observer program data -- It was the SEAMAP groundfish trawl, correct? Anyway, we doubt that there is such large selectivity on those very old fish, the much larger fish.

DR. RIOS: So the left and the right work together to end up with the selectivity.

DR. CALAY: Then, in SS, sometimes you do get a product that is more or less than one, and SS would scale that, essentially, relativize it across the relevant size or age classes, so that you wouldn't get -- You wouldn't cause fish to become selected that don't exist, and so we're probably look at it's just the graphing here is showing you separately the length and age-based selectivity, which later becomes essentially relativized.

DR. PATTERSON: So it's a counterintuitive way to trick SS to do what you want.

DR. CALAY: Yes.

DR. PATTERSON: Okay. Thanks.

CHAIRMAN POWERS: Dave Chagaris.

DR. CHAGARIS: Shannon basically said what I was going to say, as far as the forcing the selectivity on the age-zero, and it's just a different type of selectivity function.

CHAIRMAN POWERS: All right. Jason Adriance.

MR. ADRIANCE: Thanks, Mr. Chair. I had two questions. The first one goes back to I think it was Slide 16, the shrimp

discards. The graph there on the left, is that difference in SEDAR 28 and the update related to now just plugging in the actual discards and not all retained cobia? That's the first question.

DR. RIOS: There is a Bayesian approach for estimating the shrimp bycatch discards, and sometimes those go into the model directly, but, when there is kind of uncertainty, and as that was documented in SEDAR 28, that's why they ended up with kind of this two-pronged approach of using the super year and using the effort index, but, going back to the difference in the plot on the left, what is resulting in the difference here is that Bayesian methodology that uses kind of different strata to assign the different groups of types of trips and things like that, and now we incorporate bycatch reduction devices into that analysis, and so it's a factor that says whether or not that was something that needed to be incorporated when you apply what the CPUEs of bycatch were for the strata, which is defined in the methodology.

MR. ADRIANCE: Thanks, and the second one relates to the commercial landings, and did you all explore how sensitive the model is to the commercial landings, because I noticed, when those commercial landings started dropping, I think that's about the time that the snapper derby days started, and I think, from what I recall, cobia kind of fell to the wayside as an opportunistic catch at that point, as opposed to targeting, as boats were trying to load up on red snapper and get in, in those derby days, and then we went to IFQ, but that's just out of curiosity.

DR. RIOS: I would point to Slide 24, and so, no, we did not explore sensitivity to the commercial landings, because they are just -- They were actually fit with a very low CV, because of the source, which is the logbook program, being a really good source for this information. The recreational data, being a survey, has higher CVs in this model. The dynamics just seem to be really driven by what's going on with the recreational landings, but that's a potential sensitivity that could be requested.

MR. ADRIANCE: Thank you.

CHAIRMAN POWERS: Thank you. Jason, when was that time period that you were referring to?

MR. ADRIANCE: I thought that -- I would have to pull my memory, and I don't have it in front of me, but I thought the derby days

kind of started in those early 2000s, prior to the IFQ, but it's a little late in the day, and I can't recall.

MR. RINDONE: Jason, you're correct. That's about the time that that started, because the council discussions had begun on it, in like 2004 and 2005 especially, and the notion that landings history was going to be important in determining shares was pretty pervasive, and so people were rushing to try to land what they could.

DR. RIOS: The next slide also shows the fishing mortality by fleet, and so it does show that decline, or, well, the increase for commercial in the late 1980s.

CHAIRMAN POWERS: Thank you. Any other questions or comments?

DR. RIOS: I can also comment on the question about the plot on Slide 12. The bottom-right here, what happened is, when we put these into SS, we used bin numbers, and so this actually means Bin Number 10 and Bin Number 12, and so I do have a corrected version that I can share later of converting this to the correct length in three-centimeter bins, and so, since our first bin starts at six, this is Bin 1, 2, 3, 4, 5, and so this was just that was plotted straight off of the table that I used in SS, instead of converting that back, but I do have this plot replaced, and so it's essentially multiplying by three and adding three, so that Bin 1 would become 6, and so that's how we get that discrepancy in these odd units, because these are bin numbers, and I will share a corrected presentation of those later.

CHAIRMAN POWERS: Thank you. Any other comments? If not, then let's go ahead with the projections.

PROJECTIONS

DR. RIOS: Okay. The first slide about the projections are notes about the projection assumptions, and the projections -- The proxies were calculated based on a long-term thirty-year projection, and so that is just to kind of ensure that we know that the model has reached equilibrium, and that is where we get the proxy, and we took -- The equilibrium was assumed to be over those last five years of those thirty-year projections.

MSST was defined as SSB SPR 30 times one minus M, where M was 0.38. Recruitment was fixed as the recent mean at 2005 to 2014, because the stock recruitment function parameters were not reliably estimated, and, for example, the spawner-recruit data

and high correlation that we saw between sigma R and steepness.

We see here the average over the entire period of which recruitment deviations were estimated, as well as what's considered the recent average. You don't want to use recent averages too close to your terminal year, because these values, this information, doesn't have a full timeline of what young fish are coming in or exactly what's going on, and so you can stop a few years before.

A few more settings here, and so, in general, the retained yield and associated depletions that were projected use the assumption that recent fishery dynamics continue, and so, for example, like retention and selectivity, and so we also -- In order to define relative F, we have that as the average from the final three years, and so the relative F that is compared to the proxies later, and so that came from the last three years of the model.

For selectivity, we just have -- Selectivity actually doesn't vary over time, and so the estimate of 2019, the fleet-specific selectivity, and the terminal year are actually the same throughout the model and continue. For recruitment, here is the average from that recent time period, and that was time-invariant in the projections.

The F was defined for the shrimp bycatch at 0.0684, and that was the average over the last three years of the model as well, and that was time-invariant going forward in the projections. Landings for 2019 had to be provided, or calculated, and we were able to do that using the information on the SERO website for the initial ACL information and the quota monitoring, and so we were able to take those 2019 preliminary values, and, for the recreational data, convert those using the three-year recent calibration for FES, and so to convert these into the FES for the apples-to-apples projections, to have those numbers for 2019.

CHAIRMAN POWERS: Before you go on, looking at that bottom row on the left, the commercial, what you're saying is that, when you use a three-year average, the 2020 landings are about twice the commercial landings in the year before?

DR. RIOS: Yes. I think that is correct, based on this table, and we also have a plot that shows -- When we take a break later, I can provide a table that shows what the actual commercial landings are for those final years, and I do have a plot that has everything together, but, when you have everything together, the difference in the commercial fishery is kind of

washed out, based on the --

CHAIRMAN POWERS: That 2017 to 2019 average would include the 15.98, correct?

DR. RIOS: Yes.

CHAIRMAN POWERS: So you're saying that those other two years were really pretty high.

DR. RIOS: We can take a look at the -- Let's go back to the data section for commercial.

MR. RINDONE: Adyan, I have the SERO numbers in front of me for 2017, 2018, and 2019, provisionally, since you have these numbers up, and what I'm about to provide is in pounds, pounds whole weight, and so the provisional landings for 2019 for the commercial sector for Gulf cobia is showing about 35,000 pounds. 2018 is about 40,000, and 2017 is just under 74,000, and so it has decreased from 2017 to 2019, with 2019 being about half of what 2017 was.

CHAIRMAN POWERS: Okay. You forget also that the magnitude here isn't very large anyway. All right. Go ahead.

DR. RIOS: Okay. Forecasting into 2021, because 2019 is complete and the 2020 fishing year is underway, some notes on uncertainty. In this model, we have some fixed parameters, like mortality and growth, and so the uncertainty associated with that information is not carried through into the projections, and, because of the low uncertainty around the forecast yield, it doesn't seem to support the use of a P* approach to setting ABC, but an alternate approach could be using the optimum yield of 75 percent F SPR 30, and so the projections were run doing both.

Here, we have a summary table of the projection results, starting with F SPR 30, which is the equilibrium F that achieves SPR 30 that we got from the equilibrium projection run for the last five years. We have MFMT at F SPR 30, which is the same thing, and it's designed to be that, and that's the proxy. Then F at optimum yield is 0.75 times the directed F at the F SPR 30 proxy. Then we have F current, which was defined as the average of the three most recent years, and then we have the comparison of this F current to the MFMT, showing a value of 1.44, which is larger than one, indicating overfishing.

Moving down the table, we have the SSB F SPR 30, and that is the

equilibrium SSB at the F SPR 30 proxy. Here is the equation used for MSST for cobia, and we mentioned it earlier, and so we also have the SSB at optimum yield, which is the equilibrium SSB when the directed F is 0.75 times the directed F at the F SPR 30 proxy.

We have here the virgin SSB and the current SSB, and then we have the current SSB compared to the values above, and they're starting with the SSB F SPR 30, and so the MSY proxy, and that is 0.69. We see the SSB current over the MSST, and that is 1.1, and so not overfishing, and we also see what the depletion is, which is 21 percent.

MR. RINDONE: Not overfished for SSB. Overfishing is the top part.

DR. RIOS: Yes, and then here it's above one. This slide is a little busy, but we have the top table for the projections at the SPR proxy, and then it's just run through the ABC using the P* previously used of 0.434. These plots have the purple line associated with the top table and the dotted-blue line associated with the bottom table, which is the projections at OY.

Because the stock is below the MSY proxy -- It's not below the stock size threshold, but it is below the proxy, MSY proxy, of 30 percent, and it does show that a reduction in retained yield is necessary to recover, and then that is shown by the two lines, with the caution that the projections at the SPR P* approach do not have a very wide -- It's not capturing very much uncertainty, because of a lot of the fixed information going into the model.

We also ran the projections using the updated FES values on the SEDAR 28 model, and so that's the second line in this table, and so updating the SEDAR 28 base model with the FES recreational landings resulted in notably increased estimates of virgin spawning stock biomass, recruitment, and projected yields.

Had FES recreational landings been available during SEDAR 28, the equilibrium yield would have been about 4.87 million pounds, rather than the 2.66 million pounds estimated at the time, and, assuming the ABC from the SEDAR 28 FES run had been about 4.5 million pounds, the current recommendation of around three million pounds would represent a 33 percent decrease in yield, rather than the large increase that it appears to be. Also, this increase isn't as drastic either when you -- When the ACLs are converted into the FES units.

The last slide here is a summary, kind of capturing the points that we went over, and so the Gulf of Mexico cobia are in a precarious state, with overfishing occurring and biomass at reduced levels of 21 percent depletion.

The transition from the Coastal Household Telephone Survey to the FES recreational landings estimates contributed to a majority of the change in yield recommendations when compared to SEDAR 28.

The current projections -- Just a note here that the current projections should be updated regularly to account for changes in recruitment dynamics and, to just complement the stock assessment, I will note that we do also have a summary of the socioeconomic and ecosystem considerations as supplementary information from the council's survey, which found a negative trend associated with the majority of survey respondents, indicating smaller cobia, or also changes in the migration, and so topics like what's going on with how to account for migration or things like that are interesting topics for further research. The findings from that survey also are compatible with what we're seeing from the SEDAR 28 update assessment, and that is the last slide, and I'm open for questions.

CHAIRMAN POWERS: Go back to the previous slide. Ryan, is this fishery classified as approaching an overfished condition or something? That is a legal definition, I believe.

MR. RINDONE: If the current spawning stock biomass was below MSST, it would be considered overfished. Based on the data that Adyan has shown, the current harvest levels, even though we're seeing some decreased yields in recent years, or decreased landings in recent years, the stock has seen its biomass depressed over that same time period, and, since it's in an overfishing condition, based on the geometric mean of the last three years over MFMT, it would suggest that some manner of reduction in fishing mortality will be necessary to ensure that we do not continue to overfish the stock.

If we do continue to overfish the stock, then it's reasonable to surmise that it could end up in an overfished condition, assuming everything else remains constant, and so, as it stands, if you guys accept these results as they are, the council will be compelled to do something to end overfishing, but, at this point, a rebuilding plan would not be called for.

CHAIRMAN POWERS: The reason I brought it up is I was thinking

that there was a classification that, if a stock was approaching an overfished condition, there were certain steps that had to be taken, and apparently that's an older one.

Clearly, whatever recommendations we make, they would presumably address those sorts of overfishing issues, but I was thinking more about the legal sorts of ramifications. All right. Are there any other questions about the projections, or, before I open it up, one of the recommendations there was that the P* approach -- It was felt that it was not appropriate and that the F 0.75 at F 30 percent SPR be used as an alternative for defining ABC, and is that correct?

DR. RIOS: Yes, and so, just to point to what was done previously, after SEDAR 28, there was an averaging approach that used three different mortality levels, I believe, and so that's another way to kind of get at accounting for the known uncertainty associated with fixed parameters, but so is the OY approach.

CHAIRMAN POWERS: The reason I brought it up is because we just had this discussion about yellowtail, and we may or may not use the P*, and I would like to have -- If we choose not to, to make sure that the justifications line up with that. The first comment is Dale Diaz.

MR. DIAZ: Thank you, Mr. Chair. I just want to compliment the presenter. Page 43 was extremely helpful for me, and I like the way you had that laid out. In the previous stock assessment, I had a hard time really getting a grip on going back and forth with the numbers, but the previous slide, right before where we was at, and, anyway, that really helped me, and thank you for doing that, and I would encourage you to keep that type of information in future stock assessments, for folks like me that don't bounce between these numbers that much. Thank you.

DR. RIOS: Thanks, Dale.

CHAIRMAN POWERS: Thank you. I believe Doug Gregory is next.

MR. GREGORY: Thank you, and I agree with Dale that it's nice to see it in both currencies. My question, Adyan, and it's a very good presentation, and thank you, but where did you get the P* of 0.434 for your ABC slide, and I think it was Number 41?

DR. RIOS: Let me check my notes and get back to you. I believe it was some sort of cobia documentation, but I can't recall exactly where from.

MR. GREGORY: Maybe we used it in our previous assessment, but we have a spreadsheet that we go through to calculate P* ourselves, and, lately, we've been coming up with something closer to 0.3, and I don't know how much of a difference that would make in your comparison between OY and the P* approach. Thank you.

DR. CALAY: We can easily calculate any P* that the SSC specifies.

CHAIRMAN POWERS: All right. Thank you. If we do want to specify something, we should -- Even though she says they can do any one, I doubt if you can do umpty-ump, and so, if we want to do that, let's think a little bit about a single estimate or a suite of a few estimates. Ryan.

MR. RINDONE: First, to pile on with what Dale said about it being a good presentation, I agree, and I specifically want to point out Slide 18, Adyan, and I thought that that was wonderful. That's a really great walkthrough of how you got from where you started to where you ended up, and, personally, I would like to see this every time, and I think this is great.

The second thing, to Doug's point, the P* of 0.434 comes from the SSC's review of SEDAR 28, and we provide summaries of the Gulf SSC's reviews of all stock assessments to SEDAR, and those are stored on the SEDAR website, and so you guys can see those there, and they're essentially just excerpts from the SSC summary reports, but that's where that number came from.

MR. GREGORY: So I doubt it would change if we went through the spreadsheet again. Okay. Thank you.

DR. RIOS: Thanks, Ryan.

CHAIRMAN POWERS: Thank you. All right. We have to go through the -- Doug wants to speak again. Go ahead, Doug.

MR. GREGORY: Well, I just wanted to note that, for the vermilion assessment, we received the same recommendation of bypassing P* and just going with OY, and we did it, I think, without comparing the two, and I think this kind of recommendation is becoming more and more common, and that's why I said what I did about yellowtail earlier. It's certainly much simpler to go with our OY approach, and we end up in the same ballpark, or maybe even a little more conservative, with OY.

CHAIRMAN POWERS: Thank you.

MR. GREGORY: If we ever have our workshop, we'll probably end up going in a direction like that, eventually.

CHAIRMAN POWERS: If we ever stop having these meetings, we might have it. Will.

DR. PATTERSON: Doug mentioned earlier the approach that I advocated for, and I've done it a few times, but most recently last year, about using OY as part of the control rule, but, in that case, the OY was not proposed as the ABC, but as the ACT, and so to work with the council to change the approach so that the target in any given year would be actually the yield, the estimated yield, at the FOY estimate, or proxy, and so, in this case, at 75 percent F 30 percent SPR, you're basically using the OY proxy, but, in this case, for ABC and not the ACT.

It's possible that they could end up being the same value, because the ABC will constrain the ACL, and then, if there's not significant management uncertainty, the council could set the ACT exactly equal to the ACL, and so I just wanted to point that out, for starters.

Secondly, I don't remember the meeting, but it was within the past six months or so, and we had a presentation and some information that was presented, and I think Shannon presented it, but I could be wrong there, but it was basically an idea that was, I think, originally floated by Clay Porch, which was to come up with a simplified control rule that dealt with percentages of reduction in the F from the OFL to our ABC, and one of those would be to have the ABC at 75 percent, but then to have --

That would be in severe cases, where there was a lot of uncertainty, or the stock was in bad shape, and then we talked about the potential for having a range of percentiles between 100 percent of the OFL and 75 percent of the OFL, and so we're not married to this 75 percent FMSY. That's just what we've used in a few cases in the past.

CHAIRMAN POWERS: Thank you. All right. We have to go through the same situation for this document as we struggled with with the yellowtail snapper. My suggestion is that we have a motion very much like the first motion for yellowtail, about this is the best available information and the status is not overfished and undergoing overfishing. Let's try to get that one out of the way first, and it's the SEDAR 28 update, I guess, and it's

Gulf migratory group or Gulf group, or I'm not sure how you --

MR. RINDONE: Gulf migratory group cobia.

CHAIRMAN POWERS: The stock is not overfished, but is undergoing overfishing. Is that a motion that somebody could go along with?

DR. NANCE: Joe, it should be "but" instead of "and".

CHAIRMAN POWERS: Yes, but.

DR. NANCE: I will make the motion.

CHAIRMAN POWERS: All right. Thank you. Is there a second?

DR. BARBIERI: Second.

CHAIRMAN POWERS: All right. Any more discussion on this? **If not, is there any objection to this motion? Hearing none, then the motion carries by consensus.**

Now I'm a little reluctant to get into an ABC and OFL discussion at this late in the day, and I -- Given what we've gone through with yellowtail, and the fact that we'll kind of revisit the yellowtail first thing in the morning, I would suggest that we might adjourn here, with the idea, again, of coming back to the OFL and ABC sorts of discussions second on the agenda tomorrow morning, after the yellowtail. Is there anybody that doesn't wish to do that?

MR. RINDONE: Mr. Chair, we have the Science Center folks tomorrow until about lunchtime.

CHAIRMAN POWERS: Okay, and so we have to get it resolved. Will.

DR. PATTERSON: I was just going to say that we should just go ahead and pull the Band-Aid off right now, if only to work our way through the table, and, if folks are too spent from a day of webinar, then I think at least it would be good if they pulled up the control rule table themselves and tried to work through it, so at least we can hit the ground running in the morning and everybody has had a chance to kind of think about it some.

CHAIRMAN POWERS: All right, and the suggestion from Will is that we -- What was your wording? Luiz.

DR. BARBIERI: I just want to make sure that I understand what you're saying, Will. Are you suggesting that we actually go ahead and use our control rule, ABC control rule, table?

DR. PATTERSON: I am saying that we should, as an option, if that's going to be one of the options to pick from, that we should just go ahead and work through the table to produce the P*, and so Adyan has given us the ABC based on the P* of 0.434, and why not just go ahead and work through the table and give her the P* that we select, based on the table, and then we can discuss the merits of using that approach after the fact, but at least have the P* produced.

CHAIRMAN POWERS: Now I understand.

MR. GREGORY: I have a request for Ryan. Ryan, if you could send us the table we used last time, for comparison, if not just to use it as a base to modify, if things have changed, and that will speed things along.

MR. RINDONE: Please hold for station identification.

CHAIRMAN POWERS: Thank you. I will just wait for Ryan, or, if anybody else has something to say, feel free.

MR. RINDONE: I am sending you the Gulf SSC review, because I don't actually have that table, and for me to dive into Steven's archives will not be a fast endeavor.

MR. GREGORY: I didn't expect it right away.

MR. RINDONE: Well, it's on the way. Again, this is the summary from SEDAR 28, and a screenshot of the table is in there, so you guys can see how you had it parameterized, and you might need to blow it up, for those with waning vision.

CHAIRMAN POWERS: Shannon, do you get tired of this? This spreadsheet has a history.

DR. CALAY: I do regret -- Every time that we open it again, I regret my life sometimes. We had high hopes, Joe. It was well intended.

CHAIRMAN POWERS: All right. Will, are you familiar enough with this to kind of walk through it? I have a hard time seeing the lines there, and so I can't read it.

MR. RINDONE: Mr. Chair, I have the Excel version of it, and I

forget which species this was used for, but I can easily change the inputs, based on what you guys select, and I can do that as you talk, if you like.

CHAIRMAN POWERS: My difficulty is that the printing is too small for me to read, and so I can't really lead the discussion.

DR. PATTERSON: I am happy to read through it, Joe, if you want me to.

CHAIRMAN POWERS: Go ahead, Will.

DR. PATTERSON: In the first dimension here about assessment information, last time, it was scored as quantitative, age-structured assessment provides estimates of either exploitation or biomass, but requires proxy reference points. It seems to me that we're probably in the same spot here. The one above it includes MSY-derived benchmarks, which we don't have, and the one below it is quantitative non-age-structured assessment and reference points may be based on proxies. Does anybody disagree that we should score this dimension the same as last time? Hearing no disagreements, let's scroll down. Now we have the dimension of characterization of uncertainty, and I'm not sure how we got a 999 on that, but --

MR. RINDONE: I just deleted the old reading on it, and so, from the last time, you guys had selected the second-from-the-bottom, and let me go back to the Excel. That states that the OFL PDF provided by the assessment includes an incomplete approximation of observation and process error and uncertainty in important inputs, such as natural mortality, discard rates, discard mortality, age and growth, landings before consistent reporting. Has been described with sensitivity runs, but full uncertainty has not been carried forward.

DR. PATTERSON: The one below that then says the OFL provided by the assessment does not include uncertainty in important inputs and parameters, and the one above it is the OFL PDF provided by the assessment model includes an approximation of observation and process error. The uncertainty in important inputs, such as natural mortality, discard rates, discard mortality, age and growth parameters, landings before consistent reporting. Has been described with sensitivity runs, and the full uncertainty has been carried forward into the projections.

Again, it seems to me that the scoring here should be the same as last time. The OFL PDF provided by the assessment model includes an incomplete approximation of observation and process

error. Does anybody feel differently about this one? I am not hearing any objections.

Now we have some questions about retrospective patterns. Retrospective patterns have been described and are not significant, retrospective patterns have been described and are moderately significant, or retrospective patterns have not been described or are large. What is the sentiment here?

CHAIRMAN POWERS: Patterns have been looked at, and they didn't appear to be significant.

DR. PATTERSON: Yes, I agree, Joe. I think this one moves up one notch, or maybe to the top.

CHAIRMAN POWERS: We could do that, too.

DR. PATTERSON: To the top or to the middle?

MR. RINDONE: Last time, the same result was garnered that the retrospective patterns were described and were not determined to be significant, and so, again, the screenshot you see right here is from the review of SEDAR 28 from 2013.

DR. PATTERSON: Okay. I thought it was the bottom one, and so we're in the same boat. Does everybody agree with that? All right. Lastly, known environmental covariates are accounted for in the assessment, known environmental covariates are partially accounted for in the assessment, or known environmental covariates are not accounted for in this assessment.

MR. RINDONE: Last time, you guys selected that known environmental covariates are accounted for in the assessment, and so, last time, the top one was selected.

DR. PATTERSON: I think the idea here is there were no unknown environmental covariates and not that there were known covariates and they were explicitly accounted for.

DR. BARBIERI: I think you're right, Will. That's my recollection as well. We went around and around and around about whether there were known and not accounted for or unknown and accounted for.

DR. PATTERSON: Yes, the Rumsfeld argument.

MR. RINDONE: So, in seeing no changes, that does get you guys back to the P* value garnered from the original review of SEDAR

28 of 0.434.

DR. PATTERSON: I don't think we've finished up that last one.

MR. RINDONE: Okay. Let me get back.

DR. PATTERSON: We've had a substantial oil spill, and we've had red tide events, invasive lionfish, which may or may not have any impact on cobia, and they are some environmental covariates that folks may think they aren't worthy of consideration or are necessary to consider with cobia, but I think we probably should discuss this one a little bit. Thoughts?

DR. BARBIERI: I don't know, Will. I mean, this is one of those tiers or dimensions of this table that we've always had problems with, but I don't know how to score this one.

DR. PATTERSON: Well, it's definitely not in the middle, from my perspective, because nothing is accounted for, and so it couldn't be partially accounted for, and so we're either in there are known environmental covariates which are accounted for in the assessment or there are known environmental covariates which are not accounted for. My sense is that we're in that last category, but that's only one opinion.

MR. MARESKA: I tend to agree with you. There are a lot of things that have happened in the past ten years that are definitely not accounted for.

MR. ADRIANCE: I would agree with that as well.

DR. PATTERSON: Okay, and so we have a few voices there. Does anybody disagree with that assessment?

MR. GILL: I don't, but why would this tier not be better represented by deleting the word "known"? Even in that context, it would seem to me to be the bottom, but why would that not be a better way to express where we are in the assessments?

DR. PATTERSON: Bob, that may be a perfect point to make in Joe's committee.

MR. RINDONE: Mr. Gill, in the past, as it relates to this part of the uncertainty dimension, you guys have expressed a desire to use the word "known" because it's difficult to try to quantify what you don't know that you don't know, and so, if you know that there is something that could have had an effect, either based on commensurate species or common sense or whatever

it is that you might leverage in that particular case, you at least know that a particular covariate could have reasonably had some sort of effect, and, whether it was able to be estimable or not, you're still aware that some effect probably existed, whereas, if you had no idea that it could have happened, then there's no way to quantify that.

CHAIRMAN POWERS: I do take Will's and Bob's suggestion that this needs to be looked at when we go through revising the control rule, which is a committee that I have yet to start, a sub-committee. Okay, Will.

DR. PATTERSON: Okay, and so, back to the scoring, it sounds like we've completed this, and does anybody disagree?

MR. GREGORY: I just want to point something out. According to the assessment, this stock has been overfished since the 1980s. What environmental covariates would have influenced either since the 1980s or, more recently, that might affect the stock?

CHAIRMAN POWERS: It's overfishing since the 1980s.

MR. GREGORY: Right, and that's what we're accounting for already, and that's not an environmental covariate, and so, unless there was some data that we could use, or something new is available that could go back at least to the 1980s that we could associated, then I am back to the original zero, because we're just guessing.

DR. PATTERSON: Well, Doug, it doesn't say that there has to be a clear mechanism to incorporate that into the assessment. It just says whether there are known environmental covariates which were or were not accounted for, and it seems to me that --

MR. GREGORY: Which means that we would choose the 2.0 for every assessment we do, and we haven't been doing that. I don't know what we've been doing from assessment to assessment, if we've always chosen the zero, and now we're going to flip it and always choose two, and that would be problematic, but I don't -- I was hoping, when we came up with this in the beginning, that this would be used to start looking at environmental covariates in our assessments, because -- Much like we did with red grouper.

I thought that was the beginning, but it's not happening. Ecosystem ideas are going off in a different direction, but they're not coming together, and so that's my concern, just a lack of consistency.

DR. PATTERSON: Thanks, Doug.

DR. NANCE: I think what the intent here was like red tide and things like that, and I'm leaving towards leaving it like it was, just because there are many, many things out there that we don't know, and I can't think of the ones that we haven't accounted for.

DR. PATTERSON: The intent of this, remember, is to discount OFL to ABC, based upon scientific uncertainty, and it's not saying that you have to clearly be able to incorporate any of these parameters, given the state of knowledge and modeling skill, et cetera, that exists in the modeling platforms being used. This is a means by which to discount OFL to ABC based on uncertainty.

DR. NANCE: The intent is just to give us a bigger buffer, right?

DR. PATTERSON: The result would be a bigger buffer. The intent is to score it relative to the rule.

DR. NANCE: Yes, and I said it wrong. Because we don't know all the things, the environmental covariates, that we haven't accounted for, it gives us a larger buffer to be able to fall back on.

DR. PATTERSON: Yes, and, to Doug's point earlier about what the trends have been since the 1980s, what we're saying here is that we don't have the ability to account for this amount of process error in the assessment, and so the productivity estimates, the amount due to some of these environmental covariates, has not been even attempted to be accounted for, and we can't say whether they had an effect or not, just because the trend is going up or down, but we're saying that we haven't attempted to account for them.

DR. NANCE: I agree with you.

DR. PATTERSON: That was a pretty good discussion. Does anybody else feel similarly to Doug about changing back to the original designation, or do we have more or less a consensus? I turn it back to you, Mr. Chairman.

CHAIRMAN POWERS: Okay. What's the number? I can't read that.

MR. RINDONE: 0.398.

CHAIRMAN POWERS: Okay. So 40 percent instead of 43 percent. All right. Then, Shannon, that can be implemented in, and we might deal with that tomorrow?

DR. CALAY: I will let Adyan speak for herself.

DR. RIOS: I think so. Just not first thing in the morning.

CHAIRMAN POWERS: No. All right. Thank you, Will, for reminding me of this spreadsheet. One of the difficulties in this is the scoring, obviously, can be weighted out any way you want to look at it, and the way it was done originally, the way I did it originally, it does sort of compact the outcomes into something closer to 50 percent than general perception would do, and so I think that's the difficulty that we're having and the reason for wanting to revisit all of this. All right.

With that, if there's no other comments, then I would like to adjourn for the evening and come back with the yellowtail snapper at 9:00 Eastern tomorrow morning. Is there any objection to that? If none, then tomorrow morning. Thank you.

(Whereupon, the meeting recessed on July 21, 2020.)

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July 22, 2020

WEDNESDAY MORNING SESSION

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The Joint Meeting of the Gulf of Mexico Fishery Management Council Standing and Special Reef Fish, Mackerel, Ecosystem, and Socioeconomic Scientific and Statistical Committees and the South Atlantic Fishery Management Council Scientific and Statistical Committee reconvened via webinar on Wednesday morning, July 22, 2020, and was called to order by Chairman Joe Powers.

CONTINUED DISCUSSION OF SEDAR 64

CHAIRMAN POWERS: Good morning, everyone. I hope you had a pleasant evening. The way we left the agenda yesterday, we were going to deal with yellowtail snapper first thing in the morning, and where we left it was there was a motion on the floor, which we had tabled, but, before we get to that motion, the reason we tabled it was to explore particularly the South

Atlantic’s control rule process, in terms of developing P*.

I think, at this point, I would like to know what results do we have relative to that, and perhaps because Mike Errigo had originally suggested that he would be able to help in that process, maybe he could talk a little bit about what is the South Atlantic control rule and then also the results, if that’s possible.

DR. ERRIGO: Yes, I can, and that would be fine. If you would like, I could take control of the screen and show you the control rule that we used and then the results of that control rule.

CHAIRMAN POWERS: Yes, that would be helpful.

DR. ERRIGO: Our control rule has a lot of different tiers, depending on the type of assessment that was performed, and so this was a quantitative assessment, and so we’ll go down to that section of the control rule, which is here. There are four dimensions to determining the P* for a quantitative assessment.

The first is the assessment information, and so we just go through and we show does it have estimates of exploitation of biomass, includes MSY-derived benchmarks, and Number 2 is reliable measures of exploitation or biomass, but there are no MSY benchmarks, and we use proxies instead.

That is the dimension that we used for -- That’s the tier that we used for this one, is Tier 2, and so each one of these percentages is how much you would deduct from a 50 percent probability of overfishing, and so, for this one, we deducted a 2.5 percent probability of overfishing from the 50 percent, and so I will go through all the scoring later, but assessment information is basically how much information did the assessment give us reliably.

The second dimension is the uncertainty characterization, and there are very few assessments that fall under a complete uncertainty in both assessment inputs and environmental conditions, and we haven’t run into anything like that yet.

For this assessment, we chose the medium, that uncertainties are addressed by a statistical technique and sensitivities, but full uncertainty is not carried forward in projections, and that’s because the SS 3 doesn’t have a full MCMC -- Correct me if I’m wrong in the newest version, but, as far as I understand SS 3, it doesn’t have a full MCMC resampling in the forward

projections, and it does in the model runs, but not in the forward projections, which the Beaufort Lab does, and so the assessments that do have that get a high Tier 2, but this one we chose medium, Tier 3, and so that's 5 percent, right here.

Just so you guys know, this is our current control rule, and we are revamping our control rule to change some of these things, and third is stock status. For this one, yellowtail snapper was neither overfished nor overfishing, and the stock biomass -- It had a high stock biomass and low exploitation relative to the benchmarks, and so it was zero percent. Tier 1 is a zero percent deduction.

The last dimension is the productivity and susceptibility analysis that was done by MRAG, and so, depending on what category it fell into, that determines how much is deducted from the 50 percent probability, and so yellowtail snapper is a medium risk, and that was a 5 percent, and so here's the full -- Here is Dimension 1, and it was 2.5, and Dimension 2 was 5 percent, Dimension 3 was zero percent, and Dimension 4 was 5 percent, and so that's an adjustment of 12.5 percent, and the P* value was 37.5 percent. That's our P* value that we came up with, using our control rule.

CHAIRMAN POWERS: Thank you. Then, Chris and Shanae, that was folded into another column in that table, or is that we can just apply it ourselves?

MS. ALLEN: Did the document come through? I just sent it not too long ago, and I summarized the new P* scenario projection in a Word document.

MS. MATOS: Yes, it did. Sorry, but I did not see it. Do you want me to pull that one up?

MS. ALLEN: Yes. That would be great. Thank you. The tables are included in the later pages, and the same tabulated version that we had before, but let me preface first by saying that there are some additional changes, and I apologize for these changes that have been -- Each time we present projections, we're kind of presenting something a little bit different, but we are improving them as we go, and this is a learning process for me, of course, and so next time I will know.

I am unsure of how to do the P* scenario using the default SS projections, which is what we have previously presented yesterday, and also what is written up in the executive summary, and so I was working with the Southeast Fisheries Science

Center, Nathan Vaughan in particular, who does their projections, and he supplied us with R code to do the P* projections.

It's a little bit different than what we did before, because it specifies an annual -- Well, it specifies fleet-specific Fs for every single year, so that you match your landings. Whatever that target is, you match that target exactly every year, and, again, this is a learning process for me, and so I'm still figuring it out, all the details and how it differs with the default method in SS, but these plots will look slightly different, and I included F at 30 percent SPR, which would be our OFL, and the P* scenario, and so, in the second paragraph, which is right above the figures, you can see that explaining how we get to the ABC, which is defined as the 37.5 quantile of the equilibrium OFL distribution, and so that distribution is assumed to be normal.

It comes out of the default projections in SS when you run them out to a very -- Out a hundred years, and you see where things stabilize and aren't changing at all, and so, that last year, the OFL is based on the mean and the standard error that comes out of the model, and so that mean is very close to what we presented yesterday, about 1,600 metric tons, or 3.5 million pounds, and a standard deviation of 142 metric tons, or 0.32 million pounds.

Again, if you want to go down to the bottom, actually the very last figure, which is after the tables on the last page, this one just shows how close the ABC is to the OFL, and, again, because of the issues that we talked about before, those standard errors and that distribution being quite narrow. Then you can go back up to the top again, and sorry that we're bouncing all over the place here.

Those figures on the left is the retained yield, and what you will see in the gap years, which is 2018 and 2019, and I know they're quite small, but those years are slightly different than what we presented yesterday, because this method allows you to fit those given landings exactly, and it will let you fit them in biomass or numbers, whereas, our method that we were using before, everything had to be in biomass, and so the MRIP --

It estimates a higher F in 2018 than what it did when retained landings for MRIP were input as biomass instead of numbers, and so things are slightly different using this method, because it has more capabilities, or more flexibility, I should say, but I am still trying to understand why -- The ABC comes out to be

about 97.2 percent of the OFL, but, as you can see in these figures, the green dotted line is the ABC, and the red is the OFL, or F at 30 percent SPR, and they are pretty much all overlapping.

I did expect to see more of a difference there, and I've been poring over everything, over and over again, trying to figure it out, why it doesn't come out to be a little more different than that, but I'm not sure. On the right then is spawning stock biomass, and, again, they are pretty much overlaid, giving the same result.

CHAIRMAN POWERS: All right. Thank you. I think you had some tables down below, which I think we should look at.

MS. ALLEN: Yes.

CHAIRMAN POWERS: All right, and so this is what the projections would be under these circumstances. Shanae, you referred to the ABC and a reduction from the equilibrium yield, and I think it really is more -- You can think of it in terms of the annual projections, basically these numbers, and I think that's something that we should focus on. What was the next table? Is that spawning stock biomass?

MS. ALLEN: Yes.

CHAIRMAN POWERS: I just wanted to know if I was missing something. All right. Thank you. In essence, this is the projections with the P*, the South Atlantic's control rule, which we have suggested that the South Atlantic kind of take preference over this, in terms of these sorts of decisions, and we can compare that to the tables that we had yesterday, and then also compare it to the original motion that we have, but, first up, I think Ryan has his hand up.

MR. RINDONE: Thank you, Mr. Chair. Shanae, can you scroll down a little bit? Okay, and so it gets close there towards the end. I just had a couple of people ask if the ABC is exceeding the OFL in the out years, and it looks like it doesn't, but it gets awfully close, probably closer than we're going to be able to discern from a quota monitoring standpoint.

The other thing was is it possible for you to send the projections file to Meetings, to be distributed to the SSC, so that they can poke around at that?

MS. ALLEN: Yes, absolutely. I can send that to that same

meetings@gulfcouncil.org?

MR. RINDONE: Yes, and then the last thing was -- I am thinking about the current quota that we have in MRFSS, and I'm looking at -- If you scroll back up, I'm looking at what we could presume from a three or a five-year average from the boxes in green there, and I am trying to reconcile in my head how the stock, presumably being as healthy as it is, could be resulting in -- When you consider FES, it's basically going to be a reduction in landings, and I know we haven't really just laid that out there on the table, but, thinking about this on the backend, and how we're going to have to try to describe this and reconcile this, I certainly would like to hear from you guys and some guidance on that, so that we know what to tell the council when we have to present this information to them.

CHAIRMAN POWERS: Thank you. That sort of brings up the point that 2020 is just about over, and, well, not exactly, but a good proportion of 2020 has already gone on, and these projections basically say that the catches in this example will be five million pounds, or 4.9 million pounds.

If they are lower than that, then those projections for 2021, 2022, 2023, and 2024 would be higher, and so my question is, is there any information about what's gone on this year thus far for yellowtail snapper?

MR. RINDONE: I will bring up what I brought up yesterday following Dr. Serchuk's comment about effort, and the State of Florida anyway, which is probably the only relevant one in this case, has reported quite a bit of recreational angler activity during the COVID months, with people being at home and otherwise not working and having time to be able to hit the boat ramps.

I know I saw -- This is obviously anecdotal, and take it for what you will, but plenty of social media posts about lines at boat ramps that were hours and hours long for people trying to be able to get out on the water, and so I don't presume that there would have been a shortage of fishing effort.

How that translates directly to yellowtail snapper, we'll need the data to be able to tell us, and so that's not to say that we couldn't hit that projected 5.007 million pounds, but I certainly don't think that we should expect that we're going to miss it by some considerable margin either.

CHAIRMAN POWERS: Thanks. Doug Gregory.

MR. GREGORY: Thank you. Good morning. A couple of things. I believe the fishing season for yellowtail is from August to July, and so the current fishing season is almost over, and I presume these numbers are calendar year numbers, and so the other thing that -- I don't know what the percentage is, but my understanding is that the ABCs have not even come close to being caught in previous years, and so I don't know how that factors into this, but that's my understanding.

I'm sure that Mike or somebody has those numbers that can give us some insight, but I think what Ryan brought up originally about these estimates, no matter which way we go, seem to be a reduction in current ABC recommendations, and maybe we need to verify that, because I am confused about that part of it. Thank you.

CHAIRMAN POWERS: Bob.

MR. GILL: Thank you, Mr. Chairman. Shanae, could you scroll back to the retained yield curve? When you compare what I call the OFL line, the F 30 percent SPR line yield curve, on the screen now, and you compare that to the one yesterday, they're different, and you were playing with P* affecting ABC, but why is there a difference in the OFL line?

MS. ALLEN: The reason, like what I previously stated about -- For this analysis, we are using code provided by the Southeast Fisheries Science Center and developed by Nathan Vaughan, for a couple of reasons. First is that I am not sure how to -- I am not sure how to do the P* scenario using SS default forecasting, like what we were using before, and I'm new to this, and so, if anybody can chime in and let me know, that would be great, because then we would be more apples to apples, and so that's one reason.

Another reason is because the code is an improvement, and it allows for the gap years to be fit exactly, and it allows the values, retained landing values, to be fit in both biomass and numbers, which, of course, for MRIP makes a difference. As you can see, in 2018, it's quite a bit higher than what it was when you input just the retained biomass in metric tons. That's another reason.

The third reason is it allows for fleet allocations to be specified and kept constant each year in the projection. As I understand it, SS, the default method, what I'll just call the default method, what we have been using, it doesn't guarantee that those allocations are going to be met each year, that are

going to be kept constant each year, and, if we're headed in that direction, if there's going to be some sort of fleet allocation that needs to be applied, then we would probably want to stick with this method. It's more robust in that way. Does that answer your question? Again, I apologize for the changes, and I am just learning through all of this, and so --

MR. GILL: Thank you, Shanae. I apologize, because I wasn't picking up that that was going to change the old OFL curve, and so thank you.

CHAIRMAN POWERS: Thank you. What about the issue that Doug brought up? Apparently I missed that, that the fishing year is different from the calendar year, and so the quota monitoring is done August through July?

MS. ALLEN: As I understand it, that's correct.

CHAIRMAN POWERS: Ryan.

MR. RINDONE: I'm sorry, but we were pow-wowwing. Can you repeat the question?

CHAIRMAN POWERS: The question that Doug brought up about the fishing year, I wasn't totally aware of that, but so the quota monitoring is done on an August to July basis?

MR. RINDONE: Yes, and that has to do with a seasonal change that was done to try to make sure that any closure of the commercial sector for the South Atlantic occurred during the summer months and corresponded with the peak of yellowtail spawning season. Yellowtail spawn year-round, but the most activity is during those summer months, and so, if there was going to be another closure, it would coincide during that time period.

CHAIRMAN POWERS: But the assessment is done on a calendar year basis, correct?

MR. RINDONE: I believe so.

MS. ALLEN: Yes.

MR. SWANSON: That's correct.

MR. RINDONE: So there may be -- Well, there is, I guess for last year, and I didn't recall specifically when that seasonal change went into effect, and it was either effective for last

year or the year before, but it's pretty recent, but there would have been closures for the commercial sector for the South Atlantic for last year.

The Gulf has not closed, ever, but the South Atlantic has seen some commercial closures, and I don't think they've seen a recreational closure in a decade, and it's been a while since I've looked at those data specifically, but Mike might be able to speak to closure history for the South Atlantic better than I can.

CHAIRMAN POWERS: Thank you for pointing that out. David Chagaris, did you have a thought?

DR. CHAGARIS: Yes, and thank you. If you could scroll down to the retained yield table, or, Shanae, maybe you just know it, but does it reach equilibrium at the same point in the 30 percent SPR? What's the last number in that row?

MS. ALLEN: Well, I actually ran this out a hundred years, but I just cut it off in twenty years, to match what we were looking at before, but all are run out to a hundred years, and there is very minor -- There are some --

DR. CHAGARIS: It's in the hundreds of decimal --

MS. ALLEN: Yes, and it doesn't even out until like 2057, and so like another twenty years, and then it's the same for fifty years after that or so.

DR. CHAGARIS: So the difference then is in the trajectory in the first few years, getting to that point, which I don't know how the P* projections are working, but it sounds like, if they're able to fix F and do the allocation thing, then it could be affecting selectivity in one of the fleets, and so maybe it's more of the yield is going to a fleet with the selectivity that's removing the older fish, and I'm just speculating on some potential causes for that, but I don't have any idea why there's such little separation between the P* and the 30 percent projection. I would expect there to be a little bit more difference.

MS. ALLEN: I agree, Dave, and I'm really trying to figure it out.

DR. CHAGARIS: I'm trying to figure it out, too.

CHAIRMAN POWERS: Mike Travis.

DR. TRAVIS: I have a little bit of information to contribute to this discussion, but not as much as we might hope. I was looking at the ACL monitoring data, and, for the South Atlantic commercial, and this is germane to the whole fishing year issue, because the fishing year is getting ready to end in nine days, and so, as of July 20, the South Atlantic commercial ACL has harvested about 87 percent. For the South Atlantic recreational ACL, they have only harvested 15 percent, but be careful, because we only have data for Wave 1 of Calendar Year 2020, and so, what has happened since then, we don't know yet, and it's obviously affected by COVID-19 and the effects on MRIP.

Then, in the Gulf, the combined ACL, they have only harvested about 32 percent of that, as of July 20, and so, as of right now, only about 48 percent of the stock ACL has been harvested, and, again, that's not complete data on the recreational side in either the Gulf or the South Atlantic.

CHAIRMAN POWERS: Thank you. Ryan.

MR. RINDONE: Thank you, sir. It looks like Regulatory Amendment 25 is what implemented the seasonal change for yellowtail snapper, and that took effect on August 12, 2016, and so it would have resulted in a closure in 2017, 2018, and 2019, if the ACL had been met, which I think it did in two out of those three years, and maybe it was 2017 that was the year that didn't have the closure, but I think 2018 and 2019 did.

CHAIRMAN POWERS: Thank you. Could you go back up to the green part of this table? This is the projection scenario that we have, and we also have the projection scenarios that we looked at yesterday, which are close to these. We also -- I mean, there's a discussion about what happened in the 2020 year, or is happening in the 2020 year, and let me paraphrase what I've just heard, and correct me if I'm wrong.

The catches are not expected to -- Well, there's no indication that the catches are especially high or especially low. I mean, there's nothing that really indicates that, and what Ryan just said is that, in terms of the commercial sector, the previous three years, they have run up to the limit anyway. That implies to me that there's really no expectation that 2020 is remarkably different than what the previous catches are.

Where are then? We do have a motion on the floor, which we have tabled. We do have these other projections, and we have the projections that we just looked at, plus the ones from

yesterday. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. I just wanted to add something here, in terms of the motion that is on the floor right now, that perhaps we want to update the figures that Bob recommended there for OFL and ABC, because, if we update the OFL and the ABC yield streams from the new -- Using the new projections that Shanae just provided, we end up with some different figures there for OFL and ABC, as the average of those three years for the period 2021 to 2023, and those figures would be 4.169 for the OFL and 4.127 for the ABC.

CHAIRMAN POWERS: Thank you. I mean, we could do this by doctoring this motion or just having a substitute motion. Because this has some life to it, why don't we just say, Luiz, that you have just made a substitute motion, in which case those numbers are what you just indicated, and so, this way, we would know kind of what the history is of what we're dealing with here.

MR. GILL: Mr. Chairman, I agree with Luiz's basis of updating the numbers in the motion to the new projections, but my sense, from the numbers that Luiz quoted, is he used the P* number, and that's not the same as the motion for ABC.

DR. BARBIERI: I'm sorry, Bob. You're correct, yes.

CHAIRMAN POWERS: All right. Luiz, then say what this motion is, and that was one of the reasons that I wanted to keep it separate. You're saying basically that the OFL is defined as the yield at F 30 percent, and it's 4.169, and then, that second sentence, how would you word it?

DR. BARBIERI: Well, I'm still trying to get my bearings here, because the projections -- I understand that Shanae explained that there's different methods, depending on what they use in the projection methodologies that there are in SS, or you use the code that Nathan provided, but I was just trying to generate -- To go back to the motion that Bob made yesterday that was not based on the P*, and so, if there was no modification to the yield streams, if we go back to using the yield streams for OFL and ABC that we had yesterday, the table that Chris Swanson sent us, then I guess we would go back to the values that were in Bob's original motion.

CHAIRMAN POWERS: You are confusing me, Luiz. Are you making a motion?

DR. BARBIERI: I am not, Mr. Chairman. I am sorry. I am confused with the different yield streams, and so let me try and get my head back together here. Sorry. I withdraw my comments.

CHAIRMAN POWERS: Okay. Then there is no substitute motion.

MR. GILL: Mr. Chairman, one of the questions that Luiz is really raising is are we accepting the new projections, or are we sticking with the projections that we were utilizing yesterday, and where I thought Luiz was going was accepting the new projections, and therefore revising the motion, I guess which is currently untabled, but updating the numbers to the new projections, and, as far as I know, we don't have the 75 percent of the 30 percent curve, and I agree with that concept if we're accepting the new projections, and I don't know if we are or we aren't, but I think that's a topic we need to settle on.

CHAIRMAN POWERS: All right. Thank you. We have several people, and let me deal with Will Patterson, and then Jim Tolan, and then we'll go to Shanae. Will.

DR. PATTERSON: I propose that we do accept the new projections, and I have sent a substitute motion to meetings@gulfcouncil.org.

CHAIRMAN POWERS: Okay. Thank you. Jim, do you want to enter in now?

DR. TOLAN: Thank you, Mr. Chairman. I will withdraw, and I will put my hand down, and I would like to see the substitute motion that Will has offered up before I say anything else. Thanks.

CHAIRMAN POWERS: While we're looking at that, Shanae.

MS. ALLEN: Thank you, Mr. Chairman. I was just saying that we could have, potentially, another scenario prepared very shortly about -- If there was interest in having the 75 percent at F of SPR scenario in this new method, and we could have that available, and it's more of what Will said yesterday, where it's actually 75 percent of the OFL, and so there's a slight little difference in the definition there.

CHAIRMAN POWERS: Thank you. There is a substitute motion on the floor from Will Patterson, and is there a second?

DR. NANCE: I will second it, Joe.

CHAIRMAN POWERS: There is a second. All right. You can read

it. Is there more discussion about this? Do people understand what we have here? Will, do you want to say anything further about it?

DR. PATTERSON: No, and I think it's pretty self-explanatory. I mean, this is the traditional approach that we used for years, and we've been utilizing the mean over that time period when we get a spike in projections, like we see here, and so this is pretty much standard operating procedure in recent years from us.

CHAIRMAN POWERS: All right. Genny.

DR. NESSLAGE: Thank you, Mr. Chair. I appreciate both SSCs entertaining our ABC control rule, and this motion, if I'm understanding, looks good to me. I guess the one thing that I would just want to say is that, because the -- I think Shanae was trying to say this yesterday, but, because the uncertainty around the OFL is so tight, and so the distribution is so narrow, as you can see, our P* of 37.5 percent is actually very close the OFL, and, hence, the projections overlap, but that also implies that we're probably not capturing all the uncertainty in the OFL, which means that P* of 37.5 percent is probably not being achieved, and we're probably underestimating our probability of overfishing.

We wouldn't be going over 50 percent, and so we're still within our bounds, but I just wanted to bring that up, because I think, at least in the South Atlantic, when we're tasked with reviewing an assessment and setting ABCs, we're typically asked to also characterize the uncertainty, not just in the assessment, but in the ABCs and the overfishing/overfished status estimates, and so I guess the council is always looking for some information about how uncertain these projections and the ABCs are.

I'm fine with this motion, but I just would suggest that Joe and I, when we characterize this, or describe and explain this, to our respective councils, that we also let them know that this probability of overfishing is probably underestimated, just so that they have that information in their back pocket and they understand what they're doing when they're setting their ACLs, and so thank you.

CHAIRMAN POWERS: Yes, and I think that's an important point. I mean, this has always been an issue with these P*s, is how well they really characterize the uncertainty, but I think there are a number of people, and Jim Nance had his hand up first, and then Jim Tolan, but we'll start with Jim Nance.

DR. NANCE: Joe, thanks. I like this one, only because of the fact that, instead of just arbitrarily choosing 0.75, you're using a P* value, and you know how it's been calculated, and so that's why I like the substitute motion, is we know where these numbers are coming from. Thank you.

CHAIRMAN POWERS: Thank you. Jim Tolan, did you have something further to say?

DR. TOLAN: Yes, and thank you, Mr. Chairman. I think the substitute motion that Will has put together really captures it well, and I will only bring up one other point, and I brought this up yesterday, to Bob's original motion. Given the discussion we've had about this species, do we still want to operate on a three-year window, or should we stretch it out to a five-year horizon for these projections? Thank you.

CHAIRMAN POWERS: Thank you. Will and then Paul Sammarco.

DR. PATTERSON: I think the points that Genny made are important, and, in the language here, in the report, we certainly should stress that it's unlikely that the PDF, given how pointed it is, is unlikely to fully capture all the uncertainty in the assessment.

A couple of things on the other side of that, as far as how conservative or precautionary the 4.12-million-pound ABC would be, it's that the landings for this stock have been around four million pounds, plus or minus a bit, for quite some time, and the stock isn't showing signs of being overfished or overfishing, and it's estimated to be well above, in fact, its threshold value for SSB, and, also, we didn't use the 2020 year in the projections, from the projections, to estimate this.

Based on the rationale that was discussed yesterday, I stuck with that. However, the projected OFL for 2020 was around five million pounds, and so some of that is going to be left on the table as well, and so that kind of balances out this issue, I think, of how much precaution is actually in that 4.12-million-pound ABC.

CHAIRMAN POWERS: Thank you. Paul Sammarco and then Chris Swanson.

DR. SAMMARCO: Thank you, Mr. Chairman. Just a couple of small points. The first thing is I think that really both of these motions are pretty good, and I just lean probably towards the

second one, but I think a lot of thought has gone into them, and they hold up pretty well.

The second thing is just a quick point. I also think it's good that the projections sort of are curtailed at 2037, I think it was, and the reason for this is because it's really hard to predict beyond this, because of environmental conditions, which may change over the next fifty years or a hundred years or whatever, and seawater warming, which is not the least, and I think, by 2040, seawater temperature is predicted to go up by about a half a degree Fahrenheit.

Of course, it will go up more after that, and so you just never know what these outlying factors, or environmental factors, are that may affect these populations. Probably small bites into the future is best, because they're the most reliable, and that's just the point that I wanted to make, and thank you very much.

CHAIRMAN POWERS: Thank you. Chris Swanson.

MR. SWANSON: Thank you, Mr. Chair. This is just a question, more of a number check, for the substitute motion. For the OFL that is presented on the page here, at 4.27 million pounds for those year periods, I get that value for the average years for 2020 to 2024, and so the five-year average. The three-year average for 2021 to 2023 would be 4.17.

CHAIRMAN POWERS: Will, do you want to comment on that?

DR. PATTERSON: I am just checking my math.

CHAIRMAN POWERS: Okay. Let's go ahead then with Luiz. You were next up, before we change anything.

DR. BARBIERI: I was trying to also find down here what the size of the buffer is, in percentage, and, now that Chris made that correction there, I am unsure of what the actual OFL and the ABC values would be for this motion, but the values that we had before, 4.27 and the 4.12, were giving us a buffer of about 3.5 percent, which I think is well below the buffers that we usually have when applying our ABC control rule and the P* methodology to come up with our ABC recommendations.

I think it is important for us, before jumping into proposing the use of some alternative method that departs from our ABC control rule, for us to see what values we get from the P*, from applying the P*, first, because that will give us a more

objective way to evaluate what the actual magnitude of the buffer is and then evaluate whether we are being able to capture the uncertainty.

I think that's the point that Genny, and I agree with her, but that Genny was trying to make, that we need to -- If we were to approve and pass this motion, it would be good to give the council a better idea that most likely this buffer is so small that we are not properly capturing the uncertainty, and so I am not in support of this motion, and I feel that the previous one that Bob originally presented would provide a more reasonable buffer, and that was 12 percent, which is about the size buffers that historically, when we use the application of the ABC control rule, when the P* methods are applied, within the range of buffers that we want to accept between the ABC and the OFL.

CHAIRMAN POWERS: Thank you. Ryan.

MR. RINDONE: Thank you, Mr. Chair. Chris and Shanae, I was looking at the presentation that you guys gave yesterday, specifically the last two slides, Slides 97 and 98, where you compared the non-calibrated and calibrated recreational landings for the Gulf, including the Keys, and then the Atlantic separate from the Keys.

I am looking at these differences between the base ACAL and FCAL numbers, which the SSC got to learn a little bit more, or the Gulf SSC got to learn a little bit more about a couple of weeks ago, and the South Atlantic SSC learned more about how this is done last August, and, again, just going back to that question that I posed before about trying to reconcile what we're looking at here, a 4.27 -- Well, a four-point-anything-million-pound catch limit in FES is going to be -- It's going to be equivalent to a decrease in catch compared to the current MRFSS catch limit of -- It's about four million pounds combined for the Gulf and the Atlantic.

We're going to have to be able to explain this, about why we're seeing a reduction in the catch limit for a stock that's, if I recall, is at about twice what it needs to be, and I forget exactly what the ratio of SSB to SSB MSY was, but the stock is quite healthy, and we're looking at what will, in effect, be a reduction in catch, and both Mike and I are going to need to be able to describe why that is when our councils ask, and Genny and Joe probably as well, and so they're going to want to know, and so any light you can shed on why that is is going to be critical for us.

CHAIRMAN POWERS: Thank you. Jason.

MR. ADRIANCE: I think Ryan answered my question in his comment, and I had confused myself, and maybe I haven't had enough coffee, but I was curious about the units we were in for the motion, but I think I have figured it out.

The other thing that I wanted to mention is I think Jim makes a good point about potentially looking at five years, for those reasons that he mentioned. Thank you.

CHAIRMAN POWERS: Thank you. Points of clarification then. Will, did you want to -- You said you wanted to check the arithmetic.

DR. PATTERSON: Yes, and I don't actually have the table. I couldn't open the file that was sent, and so I don't have the numbers in front of me.

CHAIRMAN POWERS: Okay. What we're looking for there is average of what?

DR. NANCE: 2021, 2022, and 2023.

CHAIRMAN POWERS: So 4.399, 4.086, and 3.897.

DR. PATTERSON: So Chris is right. It's 4.17.

CHAIRMAN POWERS: Okay. Then what about the 4.12?

MR. SWANSON: The 4.12 was correct in the bottom portion of it, but it was just the 4.27 that I saw was based off of 2020 to 2024, instead of 2021 to 2023.

CHAIRMAN POWERS: Okay. Thank you. All right. Shanae, go ahead.

MS. ALLEN: Thank you, Mr. Chair. Just two little pieces of clarification to some questions that got brought up. To Luiz's point, a P* value of 0.75 would equate to 97.2 percent of the OFL, meaning that there would be a buffer of 0.028, or about 3 percent, and so I think he said that.

Also, to the other point about why the current ACL is so high compared to our results, the previous assessment was orders of magnitude larger than what -- Well, perhaps not that much. Chris, if you can chime in and remember what the average SSB was from that, the previous model, compared to what we have, and I

forget how many times higher it was, but it was quite a bit, and so keep in mind that that was what was informing the current ACL that we have now, and also to keep in mind too that I don't think that a lot of the fleets have met the ACL in the Gulf, and the recreational in the South Atlantic.

CHAIRMAN POWERS: Thank you. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. Shanae, thank you for that clarification, because I was going to raise this question. I am still confused about what the landings have been in the years prior to the assessment and then how they compare with the projected values there that we have the yield streams for, the OFL and the ABC and the different scenarios there.

I think your statement there, Shanae, clarified to me that this assessment actually updates estimates of stock productivity and standing biomass, the SSB, in a way that perhaps adjusts that what has been estimated before to something that is perhaps more realistic, and so that would explain why the values are not continually increasing here.

Then I wanted to make another point. The 4.17 and the 4.12 there, we have a buffer of about 1 percent between ABC and OFL, just to reinforce my previous point that I think that Bob's motion, that way, gives us a better buffer between ABC and OFL, more realistic, and kind of allows us to acknowledge that, for one reason or another, the P* approach applied to yellowtail snapper in this assessment is not properly capturing the uncertainty that should be there. Thank you.

CHAIRMAN POWERS: A clarification only, Shanae or Chris Swanson.

MS. ALLEN: Go ahead, Chris.

MR. SWANSON: This was just a clarification to talking about the previous assessment, if you could share my screen. This was part of the presentation that we gave to the review workshop that was discussing some of the model-bridging exercises that we did to try to figure out how the results between the ASAP Version 2 and the data change with MRIP was affecting model results and the conclusions that we have reached.

What I will show is, here in this graph, the gray line here is the spawning stock biomass estimated by the SEDAR 27 age-based model, and this is in metric tons, and so we're between 6,000 and 10,000 metric tons, versus, if you took that same data stream that was in there and configured it in the way that we

had it for SEDAR 64, it brings it down much lower, to what we're actually seeing now, and these numbers were really inflated.

What we discovered that had to do with was the configuration of ASAP Version 2 only let you have like one weighted-age matrix that encompasses all of the fleets, whereas, if you updated it to Version 3, and you got to create a weighted-age matrix for each fleet, and that's the same idea that we can do with SS, that type of flexibility, and so what we saw is that, on the left-hand plot here, if you took that data here in the gray, and this is spawning stock biomass, and, if you took that data, and then you allowed it to have separate weighted-age matrices for each fleet, that same data produced these results, which is more in line with the results from the previous SEDAR, SEDAR 3, done in 2003 using the ICA model, and our results that we presented in SEDAR 64.

Because of the version difference and limitation with ASAP Version 2, it kind of created this situation where it inflated the stock size estimates as to what was available, and, thus, what the ABC was set at, and so, in that scenario from the previous SEDAR, it predicted much higher biomass and much lower Fs than what either of the SEDAR 3 ICA model or ours are, and so, just with updating that weighted-age matrix capability, that same data will bring it down to what is more in agreement with what we're seeing, both in the past and now, and it brings those F values up to what we are seeing in SEDAR 3 and now, and so I hope this provides some clarity into some of the issues being discussed regarding the numbers for the last SEDAR.

CHAIRMAN POWERS: Thank you. We have already decided that this represents the best scientific information available and there is no overfishing and no overfished. We're getting to the point that we need to move ahead here, and so I will continue discussion for a little bit more, but we need to move ahead. Scott Crosson.

DR. CROSSON: Mr. Chair, I'm not a stock assessment scientist, and I'm an economist, but I can see some of the discomfort about the numbers we're batting around and what the management impact is going to be for the councils, and so I'm wondering whether it might be appropriate for this joint meeting to table this measure, this ABC setting entirely, right now and just send it to the South Atlantic SSC or to a joint sub-committee, because I'm not sure that the outcome of this is going to properly reflect our SSC's input.

We lost a couple of stock assessment people today that are not

here for the meeting, and I'm not sure that this is going in a constructive direction, and I might be wrong, and, again, I'm not a stock assessment scientist by background, but that's just something that I was thinking about.

CHAIRMAN POWERS: Thank you. Perhaps Genny can help us here.

DR. NESSLAGE: I think I was going to say something similar, and Scott said it well, and I'm becoming less comfortable with my understanding of the assessment that I thought I had yesterday, and we did lose two of our stock assessment folks from the South Atlantic, and, given your process and your structure with voting, I'm a bit concerned that there's underrepresentation of the South Atlantic at this meeting right now, and I personally would like a chance to look more closely at the change in the magnitude and what's causing that.

I guess I have questions about ten weighted-age matrices being used and whatnot, and I can hear that you're -- It sounds like you have other things on your agenda that you're worried about covering as well, and so I don't know, procedurally, if staff could speak to how we could move forward with this in a more productive fashion and make sure that there is adequate review by both SSCs.

I just worry that, if we continue and we make a decision here, that the council is going to bounce it right back at us, and then so maybe we could put a little bit more work into this before we make a final decision, and that's just my recommendation and my question to staff, if possible.

CHAIRMAN POWERS: Thank you. I tend to agree with you. Then it becomes a question of timing and things like that, and is there a scheduled SSC meeting for the South Atlantic sometime soon?

DR. ERRIGO: We do have a scheduled webinar coming up. This wasn't noticed on it, but I can see if I can get that changed, to put this on there, on the agenda.

MR. RINDONE: You guys should really try the SSC meeting every week approach. It's fantastic.

CHAIRMAN POWERS: You may think so.

EXECUTIVE DIRECTOR SIMMONS: Mr. Chairman, we talked about this for a long time, I think, with Mr. Carmichael, and I believe Chip, in various emails, and, I mean, the folks that are representing the South Atlantic SSC, and I think, Luiz, you're

also on both SSCs, correct, Dr. Barbieri, and that you were going to represent and take this information back to your standing SSC at the South Atlantic, and so I don't think that should be a reason that you don't vote and take action on this today, but, if there are other deeper reasons and concerns about the assessment, that's different.

CHAIRMAN POWERS: Thank you. I understand what you're saying about representation and things like that, but concerns about the assessment -- I think there are obviously concerns with not so much the assessment, and let's get the wording right, but it's really about the interpretation of the projections and things like that, and that is, as you say, another issue. Genny.

DR. NESSLAGE: I just wanted to follow up on Carrie's comments, and so is the idea then that whatever motion is made here that we would bring that back to our SSC for final approval, and so we would have a chance to adjust it, or this is the final -- I am confused on the process, and is this the final decision then that would be binding, essentially, for both SSCs, and then it would go forward to the council, or would the South Atlantic SSC have an opportunity to review and possibly change this recommendation?

EXECUTIVE DIRECTOR SIMMONS: Mr. Chairman, my understanding is that you are representing the South Atlantic SSC, and this is the motion that is final, and you are deciding on yellowtail snapper, and you can take this information back to the council as it stands, and that's my understanding of your process, but maybe Mike or Chip should jump in.

DR. ERRIGO: It was my understanding that this was the final decision to be made. It could be reviewed again at the South Atlantic SSC, if the -- Which would happen after the council meeting, if the council wants that to happen, but it was my understanding that this was the final decision.

CHAIRMAN POWERS: All right. Anne Lange.

MS. LANGE: I think that this should be held off until we have more time, as Genny suggested in her previous comment, to review. The assessment is fine, but the question, to me, is what we're looking at for OFL and ABC.

These two motions that are standing here are significantly different, and we have a P* from an ABC control rule that we use, and it has come up with the second results, the results of

the second motion, and I think it is worth further discussion within both, or among both, SSCs on what the final motion should be, and I think that discussion is warranted, and that's not to necessarily go against what Carrie was saying, but we haven't necessarily come to a conclusion as a group here today.

CHAIRMAN POWERS: Clearly. We need -- The suggestion that I have heard here is, one, that there is confusion, unclarity, about how one approaches the OFL and ABC process, as indicated by these two motions, and some of the differences in it, and some of the questions about that. There has been a suggestion that we table this, or to essentially punt it to the South Atlantic SSC, and those are kind of the options. Will Patterson.

DR. PATTERSON: From the discussion, it seems to me that the different sources of consternation, or anxiety, about actually voting on this, there are really three. One is different processes are used in the Gulf SSC for the South Atlantic, and, when we've met before, this issue of developing consensus versus voting on motions, and there's that sort of conflict that exists, and so I understand that, and I don't want to force anybody from the South Atlantic SSC to vote on something they are not ready to.

Also, there's this issue of whether you have a sufficient representation here at this meeting, and the second issue is really about methods for the projections, and I think Shanae did a good job of saying where she was uncertain, but then also filling in details of why the differences between the original projection with the default tool in SS versus the code that she got from Vaughan from the Southeast Fisheries Science Center and why there was a little bit of a divergence there, which made sense to me.

The third thing seems to be the one that people are most worried about here, or concerned about, is this idea of there being an insufficient buffer between OFL and ABC, and, while the P*-computed ABC here really isn't a true target, in the sense of what Caddy talked about and others, of thresholds and targets and actually trying to achieve your target and avoiding the threshold, we can kind of think of it as such here, at least on an annualized basis.

As stocks approach their target SSB, which would be 40 percent SPR in this case, the difference between the threshold value for the overfishing limit in a given year and the target value is going to shrink, and so we have a stock here that's estimated to

be well above its spawning stock biomass threshold. Therefore, the small target here is not as concerning to me as it would be for a stock that had a much lower relative to its threshold SSB estimate.

I understand the consternation about this limited buffer, and we seem to always deal with this, because the PDFs tend to be not very broad in the assessments that we do in the region, but, in this case, I am less uncomfortable with it, because of that issue of where the stock biomass is estimated to be.

CHAIRMAN POWERS: Thank you. Doug Gregory.

MR. GREGORY: Thank you, sir. I am willing to punt this over to the South Atlantic Council SSC. This was scheduled for yesterday, and it's gone to a second day, and we've lost some people, and we have relied on them to, I guess, take the first cut at in the past, is my interpretation of what Ryan said yesterday, and why we're using their control rule, and so I'm comfortable with them reviewing it at their meeting and making a decision for all of us.

MR. RINDONE: Mr. Chair, just to provide more clarification for what Doug said, the last time, when we did SEDAR 27A, and it was reviewed in 2011, and it was a joint meeting then as well between the Gulf and South Atlantic SSCs, which each voted separately on the motions for OFL and ABC for the results from that assessment, and so it was done jointly then.

If you guys send this to the South Atlantic SSC to consider, it will still have to come back to the Gulf, and you guys will have to make a formal recommendation, either in concurrence or not, whatever the circumstance might be, to the Gulf Council, but, if the recommendations between the SSCs don't line up, because we do share this stock and we manage it by apportionment, we will have to come to a mutual agreement, in some fashion or another, at some point, which is why we met jointly last time and why we're meeting jointly this time.

CHAIRMAN POWERS: Carrie, to that point?

EXECUTIVE DIRECTOR SIMMONS: Thank you. I think Ryan covered it.

CHAIRMAN POWERS: Well, Julie.

DR. NEER: I think I'm good. Ryan and the others have basically said that, yes, this is a joint stock, and we need to come to

some resolution. I think one of the concerns is that this was scheduled for yesterday and that the South Atlantic has lost some of their representation today, since this ran over, and I understand that concern, but, yes, it is joint, and so we need some combo deal from you guys at some point, and how we make that happen is, I guess, up to you guys.

CHAIRMAN POWERS: Scott Crosson.

DR. CROSSON: To that point, I guess, we have dealt with other issues with the Mid-Atlantic SSC on our side of Florida for blueline tilefish and coming up with a joint ABC, and, in that point, we did it sequentially, where one SSC came up with a number and then the other SSC agreed with it, and so that is possible.

CHAIRMAN POWERS: All right. I want to shut this off. The sense that I'm getting is that, basically, let's punt this to the South Atlantic SSC, and that it will have to come back to us, and hopefully their arguments will be so convincing that we will accept that by consensus. Is there any objection to recommending that this be addressed by the SSC of the South Atlantic Council? Carrie, did you want to speak?

EXECUTIVE DIRECTOR SIMMONS: Mr. Chairman, I would just suggest that we handle this together, and I will get with John Carmichael and his staff, and we'll try to figure out when we can get an SSC meeting together. In the virtual world we live in, hopefully we can get a meeting together and take care of this.

CHAIRMAN POWERS: A joint meeting?

EXECUTIVE DIRECTOR SIMMONS: Yes, and that would be ideal at this point.

CHAIRMAN POWERS: I would -- Okay. All right. Fine. Is there any objection to that protocol, and, essentially, both the substitute motion and the motion would be tabled until such time. **Is there any objection to that? No objection.**

All right. Let's take a ten-minute break, and then we have to come back to the cobia, and hopefully we can move much more quickly, because we have to finish before noon Eastern time, and so let's take a ten-minute break.

(Whereupon, a brief recess was taken.)

CONTINUED DISCUSSION OF SEDAR 28 UPDATE

CHAIRMAN POWERS: We left this with a similar sort of situation, that we wanted to look at the P* sort of approach to the cobia, and do we have anything to look at there?

DR. RIOS: I believe this is the Version 2, and so the slide that has the projections table near the end has the updated values. The far-right column here has been updated to have the P* of 0.398, and so that's the ABC series there.

CHAIRMAN POWERS: Thank you. All right. Let's take a moment to kind of peruse this, because this is the first I've seen it. Remind me again, real quickly, what, more or less, the current yields have been?

MR. RINDONE: One second. In 2020, and this is only through a couple of days ago, and it probably only includes MRIP Wave 1, there have been 550 pounds reported landed for Wave 1. For last year, for 2019, the recreational landings were just under 600,000 pounds, and commercial landings were about 35,000 pounds, and so a total of about 630,000 pounds, and then 2018 -- Let me get to the historical. In 2018, it was a total of about 537,000 pounds, and 2017 was about 716,000, and 2016 was 964,000 pounds. This is all from the SERO data.

We do have -- In the Gulf, another thing, just to remember, is that a portion of the Gulf migratory group of cobia occurs off the east coast of Florida, and, because this was an update assessment, there wasn't an additional stock ID effort or anything like that that was coupled with this that would have looked at modifying that, and so the current jurisdictional boundary -- Well, the current apportionment boundary between the Gulf and Atlantic migratory groups is at the Florida/Georgia state line.

The stock ID workshop for SEDAR 58 had looked at where the mixing zones occur, around St. Augustine, and north of Cape Canaveral is where a lot of mixing is thought to occur, and so, for the ease of enforcement and for fishermen and management, the boundary was set at the state line.

What that means though is that some portion of the cobia stock, of the Gulf cobia stock, is apportioned to the South Atlantic Council to manage on the east coast of Florida and in the Keys, and I just got an email saying that the landings that I gave you for cobia are in APAIS.

DR. RIOS: Right, and I was going to suggest Slide 44. It doesn't break it down by -- It does show some of the more recent years, and then the values for 2019 and 2020, some of them.

CHAIRMAN POWERS: What are we supposed to be looking at in this graph?

DR. RIOS: In the bottom-right, this should be the OFL and the OY yields. The projections are the ones starting in 2021, and those values -- The OFL is -- The ABC is calculated off of the OFL, and it's currently quite similar, and so, if we were to go back to the other table, I believe it just levels off slightly below the red line, but, on the left side of this plot, in the lower right, you see what the recent years have been.

CHAIRMAN POWERS: Okay. Thank you. All right. Basically, in terms of the P*, we're operating off of the right two columns in the upper graph. How do you wish to proceed? Do we have a motion associated with this?

DR. PATTERSON: I just sent a motion, Joe.

CHAIRMAN POWERS: Okay. Thank you. This is a motion by Will Patterson, and is there a second?

MR. MARESKA: Second.

CHAIRMAN POWERS: Okay. Second by John Mareska. Will, do you want to say anything more about it? It's pretty straightforward.

DR. PATTERSON: Yes, I think it's pretty straightforward, although I want to make sure that I have that P* value correct. Adyan, can you confirm that, the 39.8 percent?

DR. RIOS: Yes. We have, in the spreadsheet, 0.398. That was used to generate those values.

CHAIRMAN POWERS: All right. Thank you. Luiz Barbieri.

DR. BARBIERI: Thank you, Mr. Chairman. Will, I appreciate you putting this motion forward, and it's consistent with the previous motion that you made for yellowtail snapper, but I think we are facing the same situation here, in terms of what seems to be very small buffers, and I know that the P* method is what is explicit in our ABC control rule, but we are in the process of trying to revise that, for this very reason, because we are not happy with how this approach is actually

materializing, in terms of results, and it's kind of difficult to explain, I think, to the council and to stakeholders, how this is really capturing the uncertainty in creating buffers that are scaled to uncertainties in the assessments.

In this case here, the buffer percentage, while it varies between about 3 to 7 percent, which I think is small, we heard from Adyan yesterday that the stock is not overfished, but it's just slightly above MSST, in terms of depletion from virgin biomass, or unfished biomass, and it's at about 21 percent.

It has been undergoing a long-term pattern of overfishing, for decades, and it's still undergoing overfishing, and so I am not supportive of this motion, and I just want to suggest, Will, that perhaps we go with an ABC that's based on OY, which would give us buffers between about 14 and 23 percent, an average of 17 percent of a buffer between OFL and ABC.

Just to clarify, to repeat, and so just substitute the ABC yield stream with the values that Adyan had provided for OY, if the committee -- If you accept, Will and the committee, to go with that. Thank you, Mr. Chairman.

CHAIRMAN POWERS: Just for clarification, when you say you're basing it on OY, no, you're not. You're basing it on 0.75 30 percent SPR. Don't use the word "OY" in there, or "optimum yield", because that implies that we're messing around with something that's in the council's purview. There is a counterexample that the ABC should have a buffer based on 75 percent of F 30 percent SPR. Is there any other suggestions? Let's not change this right now. Let's hear some comment first. Will.

DR. PATTERSON: If the comment from Luiz is would I consider editing this to effect the change he just mentioned, then, no, I would like the motion to stand. I don't really fully understand Roberts Rules and the whole idea of substitute motions, but, if there was going to be a change here, I think it would have to be offered as a substitute motion.

CHAIRMAN POWERS: All right. At this point, let's hear some other comments, before we go that route. Dave Chagaris.

DR. CHAGARIS: This discussion that's playing out now, I guess I'm a little bit confused. I mean, I feel like there's some process in place here that we should be following, but yet we're sort of deviating from it, based off of our feelings and intuition about the level of uncertainty, and, I mean, is it

possible to stick with the process, the P* process, as it's done, and then we capture that uncertainty in the narrative, but then the managers can take it into consideration?

CHAIRMAN POWERS: Yes, and it's my understanding that basically the process, as defined by the control rule, is what is being -- Is what is in Will's motion. Is that correct, Will?

DR. PATTERSON: That was the attempt.

CHAIRMAN POWERS: Okay. Thank you. Doug Gregory.

MR. GREGORY: Thank you. In the last two years, we used the P* process for red grouper, but, for vermilion snapper, earlier this year, we did not. We went with the OY, which was defined at 75 percent of F of FMSY.

In the past, I don't know how often we have deviated from the control rule, but I do recall a conversation of the SSC at some point about how often we did deviate from the control rule, and the control rule is not effective. It's not working, and we've been wanting to have a workshop to address this.

One, there is no way these models will ever capture any semblance of real uncertainty, and so we have this problem with -- You know, we tried in the beginning of taking, I guess, the variance about all the sensitivities and combining them into one large envelope of uncertainty, and that turned out to be problematic, and so, the quicker we can drop this spreadsheet that Joe loves so much, the better off we'll be, and I'm leaning -- The other things that bothers me about what we're doing is, with these projections, and with recruitment, and then always having this peak in the first year, because of lower landings earlier on, or estimated lower landings in the gap years, we seem to be chasing our tails.

I'm leaning toward, and this is not a motion, but, in general, whenever we get to that workshop, I am leaning toward just picking out equilibrium values and running with it. We're like chasing something, and it never made sense for landings to be high and then gradually go down, but the explanation is that we're fishing down to F of MSY, and so that's when we went to averaging years.

I think we've got a situation that's fragile, and we need to fix it, and so, in essence, agree with what Luiz said as a substitute motion, and the P* method just is not effective, and we've been criticized from the beginning by certain managers

about not having a sufficient buffer, and our buffers started out at 10 percent, and they're getting smaller and smaller. Thank you.

CHAIRMAN POWERS: If I heard you correctly, Doug, you made that in terms of a motion, a substitute motion.

MR. GREGORY: I would support that as a substitute motion.

CHAIRMAN POWERS: All right. You didn't make it as a motion. Luiz.

DR. BARBIERI: Then I will go ahead, Mr. Chairman, and make that substitute motion. Just copy what is there, but substitute the ABC values for the values that I will be providing you, and those will be 2.34, 2.60. 2.76. The annual ABC values are provided by yield at 75 percent or whatever the definition of -- I'm sorry, Mr. Chairman, but I think, in the terms of reference for this assessment, that was defined as OY, and I don't remember exactly.

CHAIRMAN POWERS: What my comment was is that OY and F 75 percent 30 percent SPR can be the same, but, for us, it's not OY. For us, it's ABC. **You also want to change the last sentence, when it says annual ABC values computed with and then the 0.75 30 percent SPR.**

DR. BARBIERI: Right.

MS. MATOS: So no P*?

DR. BARBIERI: No P*.

MR. GREGORY: I will second the motion and provide support that we're deviating from the control rule procedure because of the inadequacy of the PDFs to capture real uncertainty.

DR. BARBIERI: Just to add to that, Mr. Chairman --

CHAIRMAN POWERS: Wait a minute. Let's get the actual wording there, to get it so we know what we're looking at, because it isn't actually applied to PDF.

DR. PATTERSON: I would just say here "with ABC being the yield at 0.75 F 30 percent SPR.

DR. BARBIERI: That sounds good, Will. Thanks.

DR. PATTERSON: Perhaps you want to put "the projected yield".

MR. RINDONE: Mr. Chairman, just a point of clarification.

DR. PATTERSON: Then delete everything after the "30".

CHAIRMAN POWERS: All right. Ryan, clarification?

MR. RINDONE: Just, since we are changing currencies in which the quota will be monitored, maybe you guys might consider noting that somewhere in the motion. This would be in millions of pounds whole weight.

CHAIRMAN POWERS: Okay. **That's fine.** All right.

DR. BARBIERI: Mr. Chairman, I think that Doug Gregory seconded it.

MR. GREGORY: Yes, I seconded it.

CHAIRMAN POWERS: All right. Luiz, go ahead.

DR. BARBIERI: I just wanted to say that, in terms of the process, yes, there is a process in place, which is called the ABC control rule, and, in our ABC control rule, I don't remember, and we would have to check, what language is actually there in the actual rule, but it does give us the opportunity to depart from applying the ABC control rule when we feel that that is not appropriate for setting ABC, and I would say, over the last ten years, we have done that multiple times.

Also, to clarify, National Standard Guideline 1, which sets this process for ABC determination by the SSCs, also provides language there that the SSCs are allowed to depart from their codified language for application of the ABC control rule when the SSC can provide a justification, and, as Doug pointed out, we did just that when we set ABC for red snapper, because, just like Adyan told us yesterday, the Science Center analytical staff felt that the assessment had not been able to properly capture uncertainty, and, thus, the PDF would be too narrow.

CHAIRMAN POWERS: Thank you. Was there a second for this? I don't recall.

MR. GREGORY: Yes. I seconded.

CHAIRMAN POWERS: Okay. Thanks. I would also note, just to remind people, the assessment team themselves, in the review

process, recommended that the PDFs not be used, because they essentially were making the same argument that Luiz made, and Doug. All right. Is there any other comments? Dave Chagaris.

DR. CHAGARIS: I will let the motion go, and then I will comment later on the process.

CHAIRMAN POWERS: Ken Roberts.

DR. ROBERTS: Thanks, Mr. Chairman. The question I've got is the buffer is extremely large in the last two years under this motion, and is that where -- Luiz, do we really want to have that big of a buffer?

CHAIRMAN POWERS: Go ahead, Luiz, if you want to answer that, and then I'll go to Will Patterson.

DR. BARBIERI: Well, in this case, looking at the numbers that I have here, Ken, in front of me, there would be, in order, for the last couple of years there, it would be in the order of 17 to 20 percent buffer.

Now, keep in mind that this assessment -- Cobia has no fishery-independent index of abundance informing the assessment, and the assessment is based solely on fishery-dependent indices, and so it's really -- To me, there are a number of data deficiencies there that, considering the status of the stock -- Somebody here sent me a text to say that only about 40 percent of the ACL are being landed at this point, and that might be because the stock is at low abundance and that finding fish hasn't been that easy, and so I am not unhappy with that, Ken, that buffer, considering all the factors that I just discussed.

CHAIRMAN POWERS: Thank you. Will Patterson.

DR. PATTERSON: I will pass.

CHAIRMAN POWERS: John Mareska.

MR. MARESKA: Ryan had brought up earlier the SEDAR 58 stock ID, and so this is kind of outside the assessment, but it definitely deals with uncertainty. It's a known unknown, and so the Atlantic stock is not an Atlantic stock, and there is actually five sub-groups of cobia within that stock, and so what we know that we don't know is, in the Gulf, we don't have enough genetic samples to determine if we have sub-groups within the Gulf of Mexico, which may very well be the case, and so the council also needs to consider that, when they're thinking about setting

limits, because their stocks may be regional, and the fishing effort is not going to be the same across the Gulf.

CHAIRMAN POWERS: Thank you. Paul Sammarco.

DR. SAMMARCO: Thank you, Mr. Chairman. I just wanted to comment on something which Doug Gregory said, and I support his views, particularly concerning buffers. It's important to keep buffers strong and intact, and that will ensure the sustainability of the population in the future. If those keep getting pushed down, and get pushed down below levels which are acceptable and which are not viable for the population, I mean, as you all know, you can push a species to where not only are they not commercially viable, but they have adapted to low densities, and they won't bounce back.

They might be there, but they won't bounce back in high numbers, and I think they're facing this with the diadema populations, which crashed in the tropical western Atlantic in the 1980s, and they really haven't come back yet, but they used to be in very, very high numbers, and so it's an important consideration, and it's better to err on the conservative side. Thank you very much.

CHAIRMAN POWERS: Ryan Rindone.

MR. RINDONE: Thank you, Mr. Chair. I was just going to mention something about the control rule. There's a note at the bottom of our one-pager that details the different tiers for the Gulf's control rule that says there may be situations in which reliable landings estimates do not exist for a given stock, and, also, the approach or methodology for setting OFL and ABC will be determined on a case-by-case basis, based on expert opinion and the best scientific information available, and you guys can decide the latitude given to you by that note.

CHAIRMAN POWERS: All right. Thank you. Is there any other discussion? Jason.

MR. ADRIANCE: Thank you, Mr. Chair. To John's point about the genetics and the regional stocks, and then that ties into what was mentioned regarding this being so heavily fisheries dependent on the indices, and I think this assessment picks up a lot of potentially regional trends in fishing that have altered, for one reason or another, and, to me, this buffer in this motion seems a bit extreme, in that sense, and I don't think I will support it.

CHAIRMAN POWERS: All right. Thank you. All right. Given the comments, there would not be some sort of consensus here, and so I guess we should go ahead and vote. Let's do a regular vote then for the substitute motion, as you see there. We'll go through the list, please.

MS. MATOS: Luiz Barbieri.

DR. BARBIERI: Yes.

MS. MATOS: David Chagaris.

DR. CHAGARIS: Yes.

MS. MATOS: Bob Gill.

MR. GILL: Yes.

MS. MATOS: Doug Gregory.

MR. GREGORY: Yes.

MS. MATOS: Walter Keithly.

MR. KEITHLY: Yes.

MS. MATOS: Robert Leaf.

DR. LEAF: Yes.

MS. MATOS: Kai Lorenzen.

DR. LORENZEN: Yes.

MS. MATOS: Camp Matens.

MR. MATENS: Yes.

MS. MATOS: Jim Nance.

DR. NANCE: Yes.

MS. MATOS: Will Patterson.

DR. PATTERSON: Yes.

MS. MATOS: Joe Powers.

CHAIRMAN POWERS: Yes.

MS. MATOS: Sean Powers.

DR. POWERS: No.

MS. MATOS: Ken Roberts.

DR. ROBERTS: No.

MS. MATOS: Steven Scyphers.

DR. SCYPHERS: Yes.

MS. MATOS: Jim Tolan.

DR. TOLAN: Yes.

MS. MATOS: Jason Adriance.

MR. ADRIANCE: No.

MS. MATOS: Judd Curtis.

DR. CURTIS: Yes.

MS. MATOS: John Mareska.

MR. MARESKA: Yes.

MS. MATOS: Jack Isaacs.

DR. ISAACS: Yes.

MS. MATOS: Andrew Ropicki.

DR. ROPICKI: Yes.

MS. MATOS: Paul Sammarco.

DR. SAMMARCO: Yes.

MS. MATOS: Okay. That's everyone.

CHAIRMAN POWERS: The motion carries. All right. Moving along, do we have to take a look at the executive summary for the --

MR. RINDONE: Please.

STOCK ASSESSMENT EXECUTIVE SUMMARY

CHAIRMAN POWERS: For cobia, let's take a look at the executive summary and see if we have any comments or suggestions or recommendations. Like we did before, let's go through it screen-by-screen, beginning with the first screen, and I will make my comment that I always make about this isn't really the management target, and it's the limit, and you should make that distinction. Dale Diaz.

MR. DIAZ: Thank you, Mr. Chair. I guess this question is for Ryan. I haven't pulled up the scope of work, and I might have the scope of work confused between yellowtail, but is a constant catch something that you were looking for on this species? I know we get it a lot of times when we get some recommendations, and I was just wondering if that was something you had in the scope of work.

MR. RINDONE: Mr. Diaz, we asked that the SSC consider it, but, if it's under their judgement that annual yields are more appropriate, then it's certainly within their prerogative to recommend that to the council instead of a constant catch, and they can provide justification for doing so, for the council to better understand that recommendation.

CHAIRMAN POWERS: Thank you, and, in fact, in this case, those -- The annual deviations aren't that much, and so it wouldn't surprise me that, when you get to the actual annual catch limits, that one might choose something constant over the years. Thank you. Then I mentioned that the vertical line on the right and the horizontal line on the left should be references of target, and are there any other comments through Figure 1? Luiz.

DR. BARBIERI: Just the same point and if Shannon and Katie and John Walter and other folks from the Science Center can clarify this for me, or for us, or perhaps Adyan is here on the line, too. If this is language that comes out of the projection software, where they enter something there that says, you know, that's the target they are reaching towards with your projection, when the figures actually print, they -- We have made this point several times in the last perhaps couple or three assessments, and I think that this keeps showing up in the assessment presentations and the executive summaries, basically because it's something that is already hardwired in the code for how those figures are labeled. Can somebody clarify if that's the case?

CHAIRMAN POWERS: Well, the issue is fix it, however it needs to get fixed.

DR. BARBIERI: Correct.

CHAIRMAN POWERS: Will.

DR. PATTERSON: I think it's in that first sentence, where the report is documenting the assessment or estimating the status.

CHAIRMAN POWERS: Okay. Doug.

MR. GREGORY: On the left-hand graph, that's referring to F of MSY, and so that is a limit, but, when you talk about spawning stock biomass, it's more dubious, because we have MSST, which is clearly a limit, which leads one to think about BMSY as a target, rather than BOY, and so I think that's part of the point of confusion.

CHAIRMAN POWERS: Adyan.

DR. RIOS: I believe, yesterday, there was a recommendation to change the word "target" here to just "MSY proxy", and these figures, just to clarify, these can be changed, and so we absolutely can change this terminology, but I just wanted to see the MSY proxy as something that would follow the comment brought up yesterday.

CHAIRMAN POWERS: All right. Thank you. Let's go to the next screen and then going down to the table. All right. If there are no comments, going down to the socioeconomic and the ecosystem considerations. No comments? Directions? Then, again, the same issue about management target. Adyan.

DR. RIOS: Thank you. I just wanted to kind of clarify. The management target here, would we want that changed to SSB MSY proxy, or we want to be more descriptive?

CHAIRMAN POWERS: I don't have a strong feeling, and MSY proxy I think is fine.

DR. RIOS: Okay.

MR. RINDONE: Mr. Chair, I think, in this case, since there is a defined proxy, we should probably just go ahead and list what that proxy is, and so SSB at 30 percent SPR.

DR. RIOS: Okay.

CHAIRMAN POWERS: That brings up another point. On the right-hand graph, the horizontal line, the one is labeled "management target" right now, has a 30 percent. The depletion, SSB over SSB zero, is also 30 percent. Do the two coincide in that? One is an SPR and one is an SSB, I guess is what I'm saying. Anyway, the management target should be listed, as Ryan suggested.

DR. RIOS: Thank you.

CHAIRMAN POWERS: Okay. Skipping on down and continuing on. This is all pretty straightforward. Then landings. Then continuing on. Then discards. Then the next screen.

MS. MATOS: That's the end.

CHAIRMAN POWERS: Okay. Any other recommendations or comments about the executive summary? Katie Siegfried.

DR. KATIE SIEGFRIED: Thank you, Mr. Chair. I am hoping to get more comments from the SSC about the content and the length, in particular. We're hoping for this to be a quick overview, and it's already getting to the six-page point, and I don't want people to stop reading, and are there any things that can be cut? Is there any constructive criticism for us?

CHAIRMAN POWERS: I think it's reaching the limit, and I've gone through this in other forums too, where you develop an executive summary, and there's a tendency, over the years, to get longer and longer and longer, but there is benefit in having consistency, so that people know where to look immediately, if they're used to looking at these things, and particularly at the management level, and so consistency, I think, is a big deal. It's important, and, because the issues are kind of separated, it's easy to skip things if one is not interested. Jim Nance.

DR. NANCE: I was going to say the same thing. I mean, I like the way these are presented. It gives a nice overview of what's in the assessment, and I think the length is appropriate, and so I don't see anything that needs to be changed.

CHAIRMAN POWERS: Ryan.

MR. RINDONE: Thank you, Mr. Chair. Just to remind everyone about the intended user groups for this particular document, you're looking at council members, council staff, SERO staff,

folks from academia, et cetera. It's a wide group of people, and, to Jim's comments, we've gone through a few iterations of this now, and I find the length to be -- As one of the users, I find the length to be appropriate, and the content therein is definitely helpful for things like the amendment development process and being able to show landings trends and things like that, and I think it's hitting on all the things that we were hoping that it would.

CHAIRMAN POWERS: Paul Sammarco.

DR. SAMMARCO: Thank you, Mr. Chairman. Just a real quick question for the author of the report on Figure 4, and that is there is some interesting data that runs from say 1980 probably 2018 or 2019, and I was just curious as to where the data -- What's represented by the data from about 1925 to 1980, which shows a very different -- Is it an estimate, or is that just the way the data were on the books? I was just curious, because, obviously, they are two very different forms. Thank you.

CHAIRMAN POWERS: Thank you. Adyan. It's a burn-in period, basically, but, Adyan.

DR. RIOS: Figure 4 is the question, and so the difference between -- It's the period over time in which the estimate recruitment deviations, and, in the other part, it uses just kind of the spawner-recruit relationship, which takes into account the parameters estimated in the model for that relationship, which think about, again, during this later period, we have the length information and the length-age information. By having those on an annual basis, you have enough data to estimate these individual year differences. Earlier, it is just assuming the average from the spawner-recruit relationship.

DR. SAMMARCO: So, in a way, it's hindcasting on the basis of current information which you have in hand, and is that right?

DR. RIOS: Yes, and you would only want to estimate annual deviations, like we do on the right side, when you have that year-specific information that tells you about the lengths and ages, or lengths or ages, that can inform what's happening to those cohorts over time, and so we really don't have that detail of information going back in time, and so it just uses the average.

DR. SAMMARCO: Okay. Great. Thank you very much. I appreciate it.

CHAIRMAN POWERS: That suggests that, particularly for this kind of graph, that, obviously, your eye is immediately brought to that long period of smoothness, and maybe there is some better way to project this, so that, psychologically, you're focused more on the right-hand side, but I will leave that up to you. Jim Tolan.

DR. TOLAN: Thank you, Mr. Chairman. I think six pages is, again, sort of pushing the limit, and, if I recall yesterday, I think the yellowtail went on for ten-plus pages, and so I think this is sort of getting at the limit of an executive summary.

The one place that I would say could be shortened has to do with the socioeconomic section, and I would say it's a part of it, but it almost always starts off with "While no socioeconomic data was used in the assessment", and there's this long explanation of the Something's Fishy anecdotal information, and, while that's important, it's really not very much, in terms of quantitative, as it goes to the assessment, and so that's the only place that I could say that you could probably cut down some. Thank you.

CHAIRMAN POWERS: Dave Chagaris.

DR. CHAGARIS: I was just going to say that I think that the length of these executive summaries are appropriate with the text and the figures, and one suggestion would be to maybe include more hyperlinks in the document, if folks wanted to get at the actual assessment itself quicker, and maybe move that socioeconomic and ecosystems considerations down a bit, towards the end, but that's all.

CHAIRMAN POWERS: Ryan had mentioned before that there is multiple audiences here, and, I mean, generally, if you're writing an executive summary for a decision-making body, like a council or a commission or whatever, you try to not use jargon and that sort of thing, but, in this case, you're also -- They're things that council staff and others in NMFS need to have quickly at-hand, and so, for example, the table of the weight-length conversions and things like that, I mean, you have to use jargon there, and so I think the balance is, as you've done, with having defined sections, so that certain sections will probably be more read by a commissioner or a council member or whatever, but, again, like I said, there's the tendency, over time, for these things to get longer and longer, because people feel like they have to explain a bit more and bit more, and so guard against that, I guess. Ryan.

MR. RINDONE: If my hand was still up, it wasn't on purpose.

CHAIRMAN POWERS: Okay. Thank you. Dale.

MR. DIAZ: Thank you, Mr. Chair. I just wanted to comment, and I think the summary is very good, and there are council members -- I am the representative from the Gulf Council, and council members do have a lot of information to go through in a short amount of time, but these are well put together.

As a new council member, the hardest thing I had to deal with was getting used to dealing with acronyms all the time, and these things typically have a lot of acronyms, and I'm pretty much used to it now, but there's a learning curve, for folks that come to the council that don't operate in the world that uses a lot of acronyms, but, all in all, they are well put together, and I do appreciate these summaries, and they are very helpful to me, and the length is appropriate. It's not problematic for me. Thank you.

CHAIRMAN POWERS: That's a good suggestion about acronyms, and Will suggestion of perhaps getting links, and maybe you could have a link to an acronym glossary or something like that. All right. Are there any other suggestions or comments or recommendations? Katie.

DR. SIEGFRIED: Thank you, Mr. Chairman. I appreciate all of the feedback, and hyperlinks is a great idea, and we can probably get a lot more information in a small package with that. If I may also request feedback on the presentation length, and we were specifically asked to make it shorter, after the vermilion assessment presentation, and we did. It seemed like it went over okay, but can you all let us know about the length of the presentation as well, because we're trying to standardize all of these things for you.

CHAIRMAN POWERS: I think it's hard to pre-specify what the length should be, and it really depends on the issues at-hand. Luiz.

DR. BARBIERI: Joe, I agree with that. Katie, it will depend on the assessment and how involved it is and how much information you need to put in there because it's more complicated and there are more situations there that the SSC would need to consider, but, having said that, I have to say that I really enjoyed Adyan's presentation, and I thought that the length was very appropriate.

As other people pointed out yesterday, I think it was great, and some of the types of information, some of the tables, some of summaries of the information that she put there, I thought were very, very helpful for us to understand the issues that she wanted to bring up and then, in comparison, in terms of how to propose catch levels or yield streams coming out for OFL and ABC would compare with what would have been, had the previous assessment used the FES-calibrated data, that was extremely helpful, and so, yes, it was a very good presentation, and I think it was spot-on.

CHAIRMAN POWERS: Thank you. Also, the length and detail of a presentation, to some extent, is going to be negotiated when the agenda is being developed between the council staff and, in this case, the Center, and so keep that in mind. Will.

DR. PATTERSON: I really liked Adyan's presentation, the length of it, and the amount of detail, but not getting into the fine details and the weeds of the presentation, and I think sometimes, when there are potential issues or things that are driving changes, perhaps, in productivity estimates, or maybe you see spikes in recruitment, and sometimes, when the analysts are presenting those types of assessments, where there's some kind of change or there's a potential sensitivity, they sort of try to head that off by discussing it as they go, but, instead, I think, if you have a streamlined format like this, and they just anticipate what are going to be the follow-up questions, they can have extra slides at the end, to go into those details, but keep it streamlined on the frontend and just sort of anticipate that as follow-up, but not necessarily in the main presentation, and I think that would be a good approach.

CHAIRMAN POWERS: Good point. All right. I hope that's been helpful then, and I believe we're finished with this agenda item. The next agenda item is something that we have to deal with after lunch, the IFQ capacity presentation with Juan Agar and Dr. Parmeter.

MR. RINDONE: Dr. Powers, I reached out to Julie Neer, and she's ready to proceed with the agenda item following that, if you would like to take that up now, which is the update on the operational assessment process.

CHAIRMAN POWERS: That's what I would like to do before lunch. Agenda Item X will be Julie Neer's update on the operational assessment process.

UPDATE ON OPERATIONAL ASSESSMENT PROCESS

DR. NEER: Thank you, all. I thought we were going to go to lunch, and so I apologize if my dogs bark, and I will take a break if I need to. So, anyway, the point of this presentation is that, at the May SEDAR Steering Committee, Clay Porch came to us with some clarifications that he wanted to make regarding how the operational assessment process has been running the last few years that we've been implementing it and trying to provide some clarifications as to how the intent was initially designed by the Science Center and how we might have to tweak the process a bit to make that happen.

This first slide is just a real brief summary of the things that SEDAR overall is always trying to do, and you guys have seen this before, but the big thing is robust and transparent assessments, stakeholder involvement, scientifically rigorous, independent peer review, at least for the big, the full-blown, research track assessments. Then trying to make them as timely as possible and still have thorough documentation for you guys to have available for your review, as well as for the next time around, so that we know what was done last time, when we re-do an assessment, and provide sort of a consistency in how all the approaches work.

The challenge continues to be that you always have limited resources and limited time for everybody, and we strive to be transparent and thorough and timely, but you can't really be all three of those in any given assessment, unfortunately.

The research tracks that we're using now are very transparent and quite thorough, and we believe that's a great way to move forward when you're initially developing stuff. The operational assessments were somewhat thorough and timely, and the goal is to try and make them, with this new change process modifications, to make them even more timely, so that we can provide more information to the councils, scientific advice to the councils, on a more regular and frequent basis for making management decisions.

As I said, the research track is pretty thorough and pretty transparent, and you guys are fairly familiar with that, and it was similar to the benchmarks that we did in the past, but now they're even more thorough, with regard to the fact that we have built in time to explore additional components and not rely on the most recent data to do the analysis and the prepping, but it's essentially developing that tool.

The way we're going to move forward after this research track is we take the time that is needed to produce really well-documented, well-researched tool to be used moving forward, and then we will update that tool as we move forward. The big thing about the research track is, as you guys sort of already know, they don't give status or fishing level recommendations, and, hence, the lack of need for that most current data year, and it gives us a little flexibility, and it allows them to develop a schedule and a thorough process.

After the research track, the next step is the operational assessments, and these are -- They used to be the standards and the updates, and they got merged into this one category of operational, and the goal of the operational assessments is to update the accepted research track, or benchmark, assessment with the latest data. That's the function.

It's at this stage that we provide the management information, and it comes to you for review, for the status and fishing level recommendations, such as you've been doing today for cobia, and it is the default approach for a sort of follow-up assessment. Those are those two assessment types, in a nutshell.

The Science Center wanted to make sure that everyone was on the same page with regard to what their intent was when we switched from the update and standard processes to this one category of operational assessments, and it's important to remember that operational assessments are based on a previous benchmark or research track assessment that has already undergone peer review, and so it's the development of that tool, as I mentioned, and that's what we use.

If it's already undergone peer review, an independent peer review, and there was that extensive development process, the thought is that, therefore, unless there is a justified reason for making changes to the model or the data, operational assessments should normally be limited to updating the existing assessment framework with the most recent data and only minor modifications to the framework and supporting information.

Basically, the Science Center's intent is to have things more towards the update end of the scale than the standard end of the scale within this range.

The reason the Center thought that we needed some clarification on what their intent was is because the Center did not anticipate having assessment panels for every operational assessment, but that's increasingly -- That's what has been

happening, and, therefore, increasingly, the panels and the in-person meetings are requested, and they have been incorporated over the last couple of years in these operational assessments.

The Center noted that the panels and the workshops result in the operational assessments taking much more time than originally anticipated. What that translates into is that we're not getting the increased throughput that the Center had hoped to achieve by coming up with this new category of this combined operational assessment grouping.

As a way forward, what the Center recommended is eliminating the assessment panels for all future operational assessments, and so, instead of having the assessment panels as we normally understand them and have been using them, they recommended having topical working groups, which are working groups assembled to discuss specific topics that are identified in the statement of work.

Basically, instead of having the assessment panel put together of twelve individuals who review the entire assessment, the approach would be to have specific panels put together to address specific topics, such as selectivity or discard mortality, and those groups are targeted on those topics specifically, and, therefore, do not review the entire assessment as a whole.

We're still fleshing out some of these details. This, as I said, was proposed at the -- This approach, of course, was discussed at the May 2020 Steering Committee meeting for SEDAR, and so it's a new topic, and we're still working out some of the details, but this is sort of where we're at now, and the topical working groups will be tasked to review and make recommendations on specific topics identified in the statements of work, and they will be comprised of members of the SSC, stakeholders, and other technical experts, as needed, and so, depending on the topic, the composition of that group might vary.

They may meet via webinar or in person, depending on the topic as well, and whether you think you need an in-person workshop, versus a series of webinars, should be included in the statement of work, and so, basically, you guys think through how you think that process should work when you're identifying the topical working group in the first place.

The topical working groups may utilize a planning-team-style approach to facilitate some of their discussions, and so we'll still have publicly-noticed webinars, where people can weigh-in

and share their views, but it's also possible for the groups to work via email or conference call to facilitate their discussions and to review interim data products and that sort of thing, and so it's similar to the approach that we ended up using for scamp, when we had to move from an in-person data workshop to an online webinar-based data workshop, where the working groups worked offline, sort of independently amongst the groups, and then came to the publicly-noticed webinar, plenary webinar, to share their work products and get final recommendations and approval.

The topical working groups will need to produce a SEDAR working document, a SEDAR working paper, to document their discussions and recommendations. As always, SEDAR is all about the documentation, and so we want to make sure that something is written. How involved that working paper will need to be will certainly depend on how involved the topic is, and it might simply be -- It might be a five-page document that someone writes up, with a bunch of tables and figures, or it might be a one-pager with we approve this index and here it is, and so that will, obviously, depend on the topic at-hand, but we need that documentation, again, so we have it for a future of what was discussed and what was decided and why.

The timing of the topical working groups will need to be set so that report documenting the discussions and the recommendations that are coming out of that topical working group are available in time for the analytical teams to incorporate that information in the assessment, and so when topical working groups will meet within the general process will depend on the topic.

If it's a data issue, clearly it needs to meet earlier in the process, so that, if they are making recommendations to changing how the landings are calculated, then that has to be done in time for the data providers to actually incorporate that stage and get the data to the analysts. If it's a question that is more modeling-based, then clearly that group would have to meet later in the process, after data compilation and some model work needs to be done before they can do their task.

Finally, basically, the last point I'm going to make is that the topical working groups should be organized through the SEDAR process, probably built in within an individual assessment, since SEDAR is already set up to deal with appointments and noticing webinars and that sort of thing, and so management of those groups will be similar to how we managed the assessment panels, with SEDAR sort of taking the lead.

There may be occasions when things are done externally to SEDAR, like if there is a topic that is covering multiple species, and then perhaps the council might run that and provide that information to the SEDAR process, but, for the most part, we think they're going to be housed within the SEDAR process.

That's sort of the background and the most up-to-date hot-off-the-press where we're at with the groupings, and I want to touch base, just quickly, with regard to how the SSC roles will be in this updated process.

You have three main components, and the first one is to provide guidance on the issues for consideration in the statements of work. That happens early in the process, and that's something you're already doing, but you're going to even have -- As an SSC, you're going to have an even, hopefully, greater role in defining what those topics will be, and I will go into that a little bit more in the next slide.

You guys, right now, already weigh-in on the statements of work, but that role is going to be kind of increasingly important for you to give it consideration as we move forward with this new process, and so detailed statements of work are required for every operational assessment, because they define the scope of the assessment, clarify the expectations across-the-board, and it helps with scheduling. Like I said, depending on the topic, these groups might need to be organized with different time steps within the process.

You guys are definitely going to be needed, and your input from the SSC is going to be incredibly important when we're trying to identify what possible issues may even need a topical working group, and so not everything that you might be interested in seeing done in an operational assessment needs a topical working group. Like some of the key things that the SSC will be asked to weigh-in on, regarding if something needs a topical working group, might be is there new information available for us to consider?

An example would be is there new life history information that's new, or is there a new reproductive study that someone is working on that's going to, perhaps, change the way we model reproduction in the assessment? That would be the kind of thing that I would think that we would think that, yes, we need a group together to look at the new method, versus the old method, and come up with a recommendation. That would be a good use of a topical working group.

We're also going to ask the SSC to provide suggestions on who might be needed to participate in a topical working group, and it's the same sort of scenario. If you know that so-and-so has a grad student who is working on reproduction of greater amberjack, then it would probably be important to either get that professor or his student on that topical working group. Ultimately, it is still the councils that make the appointments, but the SSC really often has the pulse on what sort of new research is out there, and council staff and SEDAR staff often rely on you guys to know that information and share it with us, so we can try and get the people we need on these panels.

That's one of your big roles that's going to be coming up, is trying to figure out which things need topical working groups, but you're also going to try and give some feedback with regard to the statements of work regarding topics that the SSC thinks would be useful to potentially have examined in the operational assessment, but doesn't necessarily require a topical working group.

Let's say something along the lines of this species hasn't been assessed for ten years, and you might like to see an updated growth curve, but you don't necessarily need to have a group put together to review that updated growth curve, and so it's going to take a little bit of work, between us, the Science Center, and council staff, to figure this stuff out as we start implementing these topical working groups, but I think the SSC's role is going to continue to be important in figuring out the type of data that should be included and what needs workgroups and what doesn't as we move forward, and so we're going to continue to rely on the SSC's feedback at that early stage of the process.

Again, this is things that you might consider that might need topical working groups or examination. If you're aware of a new dataset, perhaps that should be included. If you're aware of a new modeling technique, specifically one that may have been used in another assessment that you think might be relevant to be incorporated in this one, that's the kind of thing you might recommend, or, if you want to request additional work on the stuff that came out of the previous assessment, either the review by the SSC or the CIE, and the data may have found that, you know, we really wish that you had looked at this, and maybe you can look at it next time. Those are the kind of things that should be considered in your initial -- In the SSC's recommendations for what should be included in the statements of work.

Granted, the statements of work are prepared, and council staff works with them, and the Science Center works with them, and they're submitted -- The council reviews them, and they're submitted to the Science Center for review, and then there's negotiations back and forth between the Science Center and the councils, regarding what they can actually accomplish in a timely fashion and whether there is new information and that sort of thing, before they are ultimately approved, but, at the very first stages, you guys are going to be critical in trying to develop those to begin with.

You provide guidance on the issues that may be considered, and that's going to be a really critical role for you guys, and then, of course, you're also going to be participating in the topical working groups, to some degree, and any particular assessment might have one or two different topical working groups.

The nice thing about the topical working groups is we're hoping that it will allow some more people to become involved, because, often, people will say, well, I'm not really an assessment person, and so I don't feel that I can contribute, and so they don't volunteer to participate at all.

Now, if you're sort of a data person, but you don't feel you can contribute to the assessment, you might volunteer to participate in a data topical working group, and others might choose to participate in more of an assessment modeling topical working group, and so we're hoping that we can actually spread out some of the involvement of the SSC members who have perhaps been hesitant to join initially, because they always felt they maybe couldn't contribute to the modeling component. Well, there will be data components too now, and so hopefully that will allow more people to get involved in the process.

Then, ultimately, the SSC is still the review body for operational assessments, and so the assessments will come to you, and we'll have a report, and you will receive a presentation, and you will ultimately make your review, such as you did today for cobia, all the way through to the management advice components that you recommend to the council.

Where we are sort of in the process is we're having discussions with you, and I'm going to give a similar presentation like this to the South Atlantic SSC in August, to see if they have any recommendations or concerns or issues, and try and continue to have these conversations with the cooperators as we're developing the process, and we're also in discussions with the

Science Center staff to work out the logistics of how this is all going to work, in terms of scheduling the webinars, building in the data review components, all of that stuff that happens sort of on the backside, to make sure that the topical working groups, when they meet, have the information they have for their review.

We started that process last week, with the discussion with some of the Science Center folks, and those discussions are ongoing. As always, you say this is what we're going to do, and that sounds awesome, and then you try and implement it and a lot of questions arise that we need to figure out, and that's what we're working on now.

One thing I should have pointed out is that full implementation of these topical working groups will be starting with the 2022 assessments. Any of the assessments that were already sort of approved and moved forward, those are going to go forward with the panels, because they were recommended initially having panels, and we've all had that conversation about switching currency midstream is difficult to deal with, and so the new assessments going forward for 2022 are going to be developed around this approach.

The ones that are underway and starting in 2021, we may try and implement components of this, but, if it was approved with a panel, it's probably still going to have a panel going forward at this point.

That's it, in a nutshell. As I said, this is a new process, and it was just discussed for the first time at the Steering Committee in May, and we still have lots of the details to work out, but that's the general approach, and I'm happy to try and answer any of your questions, if I know the answers yet. Thanks.

CHAIRMAN POWERS: Thank you, Julie. Are there any questions? First off, before I go to John Mareska, let me ask a pretty basic question. Are there any budgetary implications of this for the council and the council staff?

DR. NEER: I would think that the budget implications will be somewhat similar. If there is an in-person meeting, SEDAR will continue to cover the costs for in-person meetings, and so it's participant travel and that part.

I guess the potential budget implication for any individual cooperator could be if we have webinar meetings and they

suddenly send nine SSC members, instead of three, and they have to now pay for nine instead of three, and I guess that's up to that individual council to determine that, with regard to SSC stipends for those SSC members who get them, and SEDAR does not cover SEDAR stipends, but, with regard to meetings, physical meetings, SEDAR would still be covering the cost of those, and I don't know if Ryan wants to chime in.

CHAIRMAN POWERS: John Mareska.

MR. MARESKA: Thank you. Mine is kind of a general question, too. In the presentation, as well as in the briefing document, there is this term "cooperators", and I'm just trying to figure out exactly who the cooperators are, because, in the bullets, it indicates that the topical working groups are going to be appointed by the cooperators, and it says SEDAR will serve as a liaison between the cooperators and the lead assessment agency, and so, just generally, who are the cooperators?

DR. NEER: I'm sorry. I should have identified that. A lot of this text came straight out of the SEDAR Steering Committee meeting report, and the cooperators are the -- Within SEDAR, we have the cooperators are the councils, the commissions, HMS, SERO, and NMFS.

Those are our cooperators, and so, essentially, it's the council, but, because they're not all councils, and there is also commissions involved and HMS involved, we use the term "cooperators", to basically identify the lead group, and so we have NMFS, which is both the Science Center and SERO cooperators, the three councils of Gulf, Caribbean, and South Atlantic are cooperators, HMS, and the two commissions, and then the State of Florida is a cooperator-like group, because they do lead assessments, and they are on the Steering Committee as well, but they're not -- They're on the Steering Committee as well, and so those are what I meant by cooperators, and I'm sorry. I should have explained what that meant, and so, when you see "cooperator", you can think council.

CHAIRMAN POWERS: Dave Chagaris.

DR. CHAGARIS: Thank you. Julie, how many active technical workgroups do you -- How many do you anticipate being active at any given time?

DR. NEER: Well, that depends on the assessment, the number of assessments going on, and we really envision that, for any given operational assessment, there will probably be maybe one to two

at a time, and we wouldn't think that there would be more. I did have a conversation earlier this week, on Monday, with Clay, and we're sort of the opinion that, if the SSC puts forward seven things that they need topical working groups, and the Center agrees that these are seven topics that probably need to be delved into, then it's probably not an assessment that should be going under the operational track anyway.

We're envisioning one to two, probably, for most operational assessments, or perhaps three, for any given one. If there are, say, two operational assessments running at the same time for the Gulf, there might be four, but the other thing to think about is some of them are going to be staggered as well, we believe, and so there might be four total for those two operational assessments, but there might be two data ones and then two assessment ones, and they might be offset, depending on the project schedules.

We do try and offset the project schedules a bit, when we build them in the overall planning call, and so I would hope that, even if there were multiple assessments going on, and each had a topical working group, that hopefully there's no more than two or three at any given time overall that might be occurring, so that people would have time.

We are cognizant of not overloading people, and it's the same issue with the Science Center staff as well. We can't really have nine topical working groups going on at the same time and expect all the data needs and the assessment people to be available as well, and so I'm hoping it won't be that many actually overlapping. That's a good point though. Thanks.

DR. CHAGARIS: One of the concerns I have is say you have an assessment that has two working groups, and then, if they needed to meet, if there's overlap between those working groups, then you basically have one working group that's in two topics, which then kind of sounds more like the ASMFC model, where they have species technical committees, and that is a group of state and federal, and sometimes academic, scientists that often serve on that committee through several rounds of assessments, and so they maintain the history, whereas, here, I am concerned that there could be a lot of people dropping on and off these workgroups, and so you have to start kind of hashing through some of the same decisions over and over again after five or ten years, and you don't maintain that history. I am wondering if you all considered like a species technical committee approach, to help basically do these operational assessments within committee?

DR. NEER: We didn't specifically consider that. I do see your point, and I agree, and I should have made clear that it's possible that one topical working group could address more than one topic, and they don't have to always be separate topical working groups for each topic.

I would think that, since the council are the people that make that recommendation, the council might wish to -- The SSC might wish to make those recommendations when we select the participants, and maybe it would be wise for the council to develop either a species-specific group of people that always show up whenever that assessment comes up, provided they're still on the council and the SSC and stuff, or, conversely, the councils could consider putting together a topical working group, sort of like a standing group of people that they pull from, for topical topic-specific things.

Like maybe they have a core group of people that, if it's a life history question, those folks are always involved in that life history thing, and I think that's actually something to consider and perhaps make those recommendations to the councils, regarding, when they are selecting people to serve on these topical working groups, to consider that consistency and that institutional memory and overflow among those groups, and that would be actually a really good idea for something for them to consider when they are making those appointments. Thanks, Dave.

CHAIRMAN POWERS: Thank you. Carrie.

EXECUTIVE DIRECTOR SIMMONS: Thank you, Mr. Chairman. Thank you, Julie, for putting this presentation together, and I have kind of two questions, and along the same lines I think with what Dave was asking about earlier, and the assessment panel approach, where we have I guess a group of people that's involved through the whole process, I guess, in my mind, that seemed to work pretty well.

There was continuity, like we talked about, and not everybody was probably available for every single webinar meeting or whatever it may be, but it seems like that process worked fairly well, and, although it might have slowed things down a little bit during that process, it seemed -- If you read, like for instance the vermilion snapper assessment, the most recent one, in my mind, it said the assessment panel asked for this or this to be explored, and that might have taken some more time, but then this decision was made, due to X, Y, or Z.

I understand that's being captured in the report, but the analysts are now being left to make this decision on their own, and is there any concern about, once that gets to the SSC, if you don't have a topical working group involved, that it has to go back or be redone or reconsidered, which could in fact slow down the process? Have you all talked about that at all, or talked about that with your analysts at all?

DR. NEER: That particular issue, we haven't really gotten that far with regard to that. I guess we're still figuring out the process of how these are going to function, but one of the components that we did discuss, and I believe it's viewed favorably so far, is that, if a topical working group makes a recommendation, say do dome-shaped selectivity, and they write-up their paper, and they provide that working paper to the analytic team, and they go and try and implement that recommendation, the thought would be that there would be sort of a follow-up webinar, where the analytic team, after they have tried to implement the recommendation from the topical working group and analyzed the results, will hold a webinar for the analytic team, and, most likely, they will be on the topical working group as well, but the analytical team and the topical working group, in which case the analysts will sort of report back.

They will say you guys recommended this, and it worked amazing, and awesome, and here's the results, or you guys implemented this, and we tried it, and it blew up the entire model, and here's our suggestions of how to fix it, and this is the approach we're going to try, and so we're hoping to have that feedback loop in the process, so that that doesn't happen.

What we're hoping -- I think everyone is in agreement that we don't wish to have a recommendation coming out of a topical working group and then they go try it and it doesn't work and they don't report back.

How the mechanism of that feedback loop and the timing is all going to happen, we're still -- We don't know yet, but I think, in general, everyone is in agreement that that feedback loop is necessary to make sure that we don't have that issue. What we don't want is topical working group recommends this, and the analysts don't do it, for whatever reason, most likely because they can't, but we don't find out about it until the report comes back to the SSC at the end. That could, I agree, cause an issue of having things be sent back or assessments be rejected.

The goal is not -- The goal is still to have a bit of

communication, have some communication back and forth between the topical working groups and the full analytic team, but we're only going to be focusing those webinars on the topics, the specific topics, that are identified, as opposed to looking at all the data and all the runs of everything in the assessment.

EXECUTIVE DIRECTOR SIMMONS: Mr. Chairman, a follow-up?

CHAIRMAN POWERS: Go ahead, Carrie.

EXECUTIVE DIRECTOR SIMMONS: I guess what I was asking, Julie, is what happens if the analysts make a decision, and there is no topical working group, and then it gets to the SSC and you have to go back? That was what I was asking.

I guess, along the same lines, when you develop the statements of work, I believe it's roughly two years out, and so, at that time, we're being asked to identify the need for a topical working group at that time, the way I'm understanding it, and so what happens if we get into the assessment and we don't know, until we're in there, that we need a topical working group for a specific issue?

How is that going to be communicated to the cooperators and the council and to us, and who would be responsible for getting this group together and organizing it, as soon as possible, to try to address that issue?

DR. NEER: I think, in response to your question of what happens if the analysts make a decision and the SSC disagrees, essentially, in the review and asks for more things, I don't know. I don't know what happens, and I guess we would have to see if that happens and deal with it at that time, and so that's all I can say about that one.

With regard to the timing, I agree that we do these topical -- We're sort of finalizing statements of work and working on these things twelve to eighteen months in advance, and how do we possibly know that there might be a new study that we don't know about, because, when we're finalizing the statement of work, the grad student who is going to do that work isn't even in the program yet, and that is on the list of questions that have been provided, that we're working with the Science Center folks, with regard to how do you deal with new information that comes up, a new study that becomes available between when the statement of work is finalized and when the assessment begins.

I guess we don't know that's going to be incorporated at this

time, and we don't know if it would be that, okay, we're now aware of this study within the council and then we would write a memo to the Science Center, saying we're now aware of this information and we would like it to be included and develop a topical working group.

I would assume that would be the process, though we haven't -- We don't have those details yet, and those, again, are some of the things that we need to work out. My suggestion would be, for example, if there's new information, then find out there's a new study, and the council writes a letter to the Science Center, saying this is the new information, and we think this should be considered, and we would like to set up a topical working group, and, if the Center agrees, then I guess I get that memo and SEDAR starts working with the councils to put together a topical working group.

That would be my -- Again, this is me thinking off the top of my head, but that would be my suggestion of how it would go, procedurally, and I think part of it would also be based on timing, whether we might make a request, and the Science Center says, yes, let's try and get that going, or you might make a request and the Science Center says, I'm sorry, but we're too far into the assessment at this point to add new information.

Again, that will be up to the main analytic team, and the Science Center is responsible for producing the assessments, and so decisions on those sort of scales I think would come to them, and, depending on the answers, SEDAR would implement it as they can and make it happen, if it's approved. Sorry that I don't have a better answer yet.

CHAIRMAN POWERS: Thank you. Will Patterson and then Shannon.

DR. PATTERSON: SEDAR has been the peer review process in our region for nearly twenty years, to try to ensure the best scientific information available is used for assessments and to make management decisions, but, almost from the start, there's been this challenge or these tradeoffs between transparency and participation versus throughput and production, the timing of production, to speed it up.

It seems to me like, every three to five years, we have these types of discussions about how to modify the SEDAR process, but these modifications tend to be actually pretty incremental and minor, and, many of the times, it just feels like we're renaming things that already existed in a fashion that wasn't as efficient as we wanted it to be.

In this case, just the comments from Carrie a moment ago highlight this issue of where do you actually first perceive this issue that you perhaps need to have one of these technical working groups, and it may not happen until you're in the process of reviewing an assessment, and so then what do you do?

It seems to me that we always face that, like trying to do too much, and that slows the process, but the information is there, and let's incorporate it, and how do we do it, are we allowed to do it, and those questions seem to come up repeatedly.

Twenty years ago, the model that Dave mentioned for Atlantic States was how it was done in the Gulf and the South Atlantic, where there were actually -- There was a Mackerel Stock Assessment Panel, which was the coastal pelagics of cobia, Spanish mackerel, king mackerel, amberjack, and there was a Reef Fish Panel.

Oftentimes, the Reef Fish Panel dealt with red snapper and then something else, but those panels, while they didn't encourage as much transparency as the SEDAR process, they were efficient, and you had a lot of institutional knowledge, and it seemed to me, if you merged that process with whether you called it a benchmark or a research track, and the name doesn't matter, but, every five years, especially for marquee species, you had this large-scale, very transparent process, where you invited expertise from a wide variety of people, and you had user groups at the table, et cetera, and you incorporated that into the assessment process, but then, in the intervening years, instead of looking at CPUE or some other interim analysis, you actually did operational assessments, where the assessment was done based on the methodology that had been created, and then, at the stock assessment panel, you could then get into details of things that needed to be adjusted.

Again, it wouldn't be quite as transparent as the process of SEDAR, any of the types of SEDAR assessments that have occurred, but it would be transparent, and people could attend, and it would be documented, and so it would still be a peer-reviewed process.

Anyway, this is kind of a long-winded statement, but it seems to me like, unless you make a radical change, like a pretty drastic change, in what SEDAR is and how it's done, you're not really going to get the desired effect.

DR. NEER: Thanks, Will. I mean, I agree with a lot of your

statement there, and I do agree that we seem to be chipping away around the edges of some of this stuff, and, again, back to having a sort of standing panel, it's something that the cooperators, when they make their appointments, could always try to strive to appoint the same people for the same species, or the same group of species.

For a while, SEDAR was trying to hold assessments for more than one species at a time, and the benchmark and research, like more than one species at a time that had similar life histories and within the same management and that sort of thing, and that has fallen by the wayside.

You're right, and I do agree that SEDAR is an ever-evolving process, and perhaps a consideration of a widespread change is something, maybe, that is something that the groups could consider moving forward.

Up until now, our biggest issue, with regard to increasing throughput, has been a big -- There is a block that is the data stage, of trying to get more done, and so I know Clay has invested a lot of time and money in trying to get that improved, with new staff and new programs, and so we're hoping that, with the improvement of the data stage, as well as perhaps this approach, we'll get more done, but your points are well taken.

CHAIRMAN POWERS: Thank you. I was actually around and transferring from the mackerel stock assessment panel sort of approach to SEDAR, and, being at the Center at the time, it was clear to me that the tradeoff being made was that, with SEDAR, it's that you're increasing transparency, but you're slowing the throughput, and that's inevitably going to happen. One of Julie's first slides is you pick two out of the three, or two out of the four, or whatever it was, and go with that. All right. Shannon.

DR. CALAY: Thank you, Chair. I think that Julie's presentation was quite good and consistent with what the Science Center has been working on. I wanted to respond a little bit to Carrie. The process isn't really going to differ that much, and we are sacrificing an element of transparency to achieve more throughput of stock assessment, and that's the goal.

We do intend to essentially use standard accepted practices, and so, when there is a change to an accepted practice, that would be something that would be brought up in one of the plenary sessions, which I assume would be publicly noticed, and my vision at least, and I think Julie expressed the same, is that

the technical working groups would make recommendations, and they would have the discussions that are needed to justify those recommendations, but they would also come in front of a plenary session for the decision-making process, and so that will remain transparent.

Another question that Carrie had was what happens if something is essentially missed and it's brought to the SSC and the SSC disagrees with the treatment. Well, that's the same process that has always happened. I mean, that can happen now, and, when that has happened, the SSC can either send us back for additional work, or they can reject the assessment and send the process back for further consideration.

I mean, it isn't different than what is happening now, and so, I mean, I think that we're striving to increase the assessment throughput, and we do need to create some efficiencies, and you're seeing some of it. You've seen some automated documentation, and we're trying to automate presentations, so that that's more streamlined.

We're trying to refine efficiencies of calendars, but I did want to emphasize that one thing that's going to continue to be very important is that we are very careful to review the statements of work that go into these assessments and that we identify those topics that are going to require a topical working group, because it will still be quite difficult to include brand-new ideas or new information during the process, and I agree, and I think Julie proposed that a council could write a letter to Clay, and that can certainly be done, asking us to examine something, and we can do it, if we have time, or we can say that simply isn't possible at this time.

I see this as a process that will use the transparency somewhat, but it really is necessary to try to achieve the increased throughput that all of the councils have requested. Julie, if I said anything that contradicted you, please feel free to speak up, because that was not my intention.

DR. NEER: No. I pretty much agree with what you're saying.

CHAIRMAN POWERS: Thank you. I think this has been very useful. One other thing I would mention, and as SSC member, is it's unclear to me how this is going to affect the amount of participation by SSC people. Basically, how much time would be involved?

There is different classes of SSC people, in terms of whether

you work for a state agency or a federal agency or a university or otherwise, and how you approach these things will be different, depending on how much time is involved, and I don't think that anybody can answer that right now, but it's something to think about. Carrie.

EXECUTIVE DIRECTOR SIMMONS: Thank you, Mr. Chair. I know you're trying to wrap this up, and that is a very good point, because we do try to budget for those things, and so I guess we will be using the scopes of work and trying to get a handle on the topical working groups as they come up, our statements of work I guess I should say, with that.

I guess I would just urge Julie and the Science Center staff to take a look at some of the other operational assessments and when the stock assessment panel has made recommendations for other operational assessments, and, just doing a quick read, it seems to me it's not when new information is available, but it's maybe changes in recruitment and such, and the analysts are falling on those assessment panels to explore those things and to make recommendations and then move forward with the assessment.

I don't think we want to be convening a topical working group every single time. We're looking at things that are already in the assessment that may need to be tweaked, and I think the same thing could be said for discard mortality, et cetera, and so I think us trying to come up, two years out, with how many topical working groups we need to address those things that far out may be difficult, and so I think we should take a close look at that when we start this new process. Thank you.

CHAIRMAN POWERS: Thank you. I think that discussion has been useful. This would be a good time, or not only a good time, but this is the time to break for lunch, and let's break for an hour, and then we're going to come back with Agenda Item IX, which is the presentation about capacity, and so, at 1:20 Eastern, we'll come back. Thank you.

(Whereupon, the meeting recessed for lunch on July 22, 2020.)

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July 22, 2020

WEDNESDAY AFTERNOON SESSION

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The Joint Meeting of the Gulf of Mexico Fishery Management Council Standing and Special Reef Fish, Mackerel, Ecosystem, and Socioeconomic Scientific and Statistical Committees and the South Atlantic Fishery Management Council Scientific and Statistical Committee reconvened via webinar on Wednesday afternoon, July 22, 2020, and was called to order by Chairman Joe Powers.

CHAIRMAN POWERS: We're at Agenda Item Number IX, which is the presentation about the fleet capacity and technical efficiency, and this is part of a review, periodic review, of the ITQ systems for red snapper and grouper-tilefish, and so we'll go ahead with the presentation then.

IFQ CAPACITY AND TECHNICAL EFFICIENCY STUDY

DR. CHRIS PARMETER: If anyone has any questions or comments during the talk, please feel free to ask, so I can address them in real time, or you can wait and do it at the end, either way. I was told that I had about twenty minutes or so for Juan and I to present these results, and so I'll do my best to stay on time, because I know you guys are excited to think about other things fish related than this stuff.

Just as a background, and this is just more for myself, being the statistician working with Juan, but, essentially, all we're doing here is just assessing the catch shares under the MSA, and we're going to do this for the two big -- At least, to my understanding, the two big catch share programs, the 2007 for the red snapper and the 2010 for the grouper-tilefish.

There was a previous assessment that was done five years out for both of these, and they found that both of these catch share programs were effective at getting ready of derby fishing, but there was still substantial overcapacity, and some of the earlier work that Juan had done from the earlier five-year assessment for the red snapper fleet found that about 20 percent of the fleet could harvest the full quota.

What we're doing to do in this brief talk here today is talk about two assessments, and one is going to be a direct assessment of the red snapper IFQ, and we're going to be looking at essentially five years prior to the IFQ being implemented, and so going all the way back to 2002, up until 2018, which is the last year that we have a full dataset, at least when we had originally started this.

Then what we're also going to look at is a combined Gulf reef fish fishery analysis, which is essentially going to look at the red snapper and the grouper-tilefish as sort of one species of fish and look at how overcapacity looks in that regard, and, beyond that, we're also going to look at technical efficiency and various measures of capacity in these two catch share programs.

What we're going to be using here to assess technical efficiency and overcapacity is some new econometric methods that have been developed in the last five or six years, and they certainly wouldn't have been around the last time that the capacity was assessed for either of these fisheries, and so that brings a little bit new to the table methodologically.

The big thing to keep in mind with this is that, when we assess technical efficiency, as I like to sort of put it, when you tell somebody that they're inefficient, it's usually not a nice thing to say to somebody, and so you need to have some sort of quantification of that, and so what these methods that we're going to be using are going to do is they're going to try to separate out what might best be characterized as just pure heterogeneity and what could also be classified as inefficiency, and, in the past, some studies that have looked at this and have access to data, they don't adequately do a good job of that, and so this is one of the things that we're going to try to do.

Especially when you have persistent inefficiency in various settings where there is a regulatory body, what can happen is that well-intended policies can have very unintended consequences if you're not adequately accounting for persistent inefficiency, and this was shown in a recent paper by Kumbhakar and Lien in an electricity context.

How are we going to do all of this analysis? Well, we're going to use what's called a stochastic output distance frontier, and the reason that we need to use this output distance frontier is the fact that we're going to be treating output, in this case, as not one gigantic catchall, but we're going to be treating it as separate types of output broken down by various fish, and so, in that regard, a standard production function wouldn't necessarily work, because, there, we have a singular output, which could be total tons of fish, but that doesn't necessarily help us to understand what's going on in let's say the fishery for red snapper or for grouper-tilefish or for let's say them all combined.

Now, the way that this stochastic output distance frontier works

is it’s essentially looking at a maximum amount of an output vector that can be proportionally expanded, where we hold input vectors fixed, and so, in this case, it would be how much more of each type of fish could I catch by keeping the length of my ship fixed, the number of days at-sea fixed, the number of crew fixed, and so on and so forth.

The key with an output distance frontier is that outputs are either expanded or contracted radially, and so, in this case here, all outputs would go up by the exact same proportion, and so let’s say a 5 percent increase, and it would not be only a 5 percent increase in let’s say red snapper, but it would also be a 5 percent increase in any other type of fish that I was interested in looking at.

In the empirical literature that looks at stochastic output distance functions, we have to specify this, and the most common is the translog functional form, and a translog functional form, in its most basic essence, is just a quadratic function in logs, and so, if you’re thinking of a standard quadratic function, it’s the same thing, except we have logs everywhere, and I have written it here in a very generic style for you, so you can see the Ys here would represent our outputs, and the Xs would represent our inputs, and so, because it’s quadratic, we have each Y appearing by itself, and we have each input appearing by itself, and then we have all the cross products.

This, by itself, is not quite usable, because distance functions have to satisfy various axioms of producer theory, and so there’s a little bit of handwaving and algebra and whatnot that goes on, and so we’re going to do that, and then we end up with what Juan and I are actually estimating, which is our final form of our output distance function.

The main thing you’ll see here are these Ys now have tildes, and that is because what we do is we put them in ratio form with respect to one particular output. Now, you don’t have to worry. The way that the output distance function works is it’s invariant to which output we pick to normalize by, and so anything that Juan and I discuss today would be exactly the same if we were to use a different normalization, and so this is normalization invariant, which is pretty good.

Then, at the bottom, we have a few extra things that have been added, and this Z vector here is just a bunch of other things that we would be including in our analysis that we might think would factor in to how good or bad these fishermen are, and these would be things like the estimated stock of the fishery,

as well as things like which particular area of the Gulf they're fishing in, what time of year they're fishing in, and so on and so forth.

Then we have our stochastic terms, and so these are the things that we're going to be a little bit interested in for calculating overcapacity, and so V_{IT} it your standard sort of shock, and it's things that we're not really capable of modeling that go in here. U_{IT} is what we could call time-varying inefficiency, and this is basically that I should be able to catch more, but I can't, and it's going to vary by vessel, which is our I index, and it's going to vary by time, and then we have the alpha-I, and the alpha-I is what really is going to distinguish this model from some of the earlier work that's been done on these fisheries in the Gulf of Mexico.

Here is kind of basically what I just said, but we're going to include some IFQ dummies as well inside of that Z variable, either for red snapper or for grouper-tilefish.

What I will do now is just sort of hack up the rest of the talk, and the set of results that I'm going to show you will focus first on the red snapper, and then we'll move on to the combined analysis.

For this setting, for the red snapper, we're going to have four species groupings, and so the main species we're interested in is going to be red snapper, and then we're going to have three additional catchall output groups, and one will be other snappers, and the second will be grouper-tilefish as its own separate output, and the fourth will be all other species that are caught and landed at the docks. When we switch to the model that looks at red snapper and grouper-tilefish together, we'll have three groups, mainly because we're combining the red snapper and the grouper-tilefish together.

Before we move on, I want to come back and talk about this alpha-I here at the very bottom, this last term in this analysis. This last term, we're going to further sub-divide it into two pieces, and so the first thing you might notice is there no time component on this, and so this alpha-I is going to be fixed over time. Not only is it fixed over time, but we can decompose it into two separate pieces, and so we're going to have our C_I, and C_I is going to capture vessel-specific heterogeneity.

Our T_I is going to capture time-invariant inefficiency, and the ability to break this up into two pieces is pretty good,

because, for one, if we ignore alpha-I completely, part of alpha-I will go into the error term in the model, and part of alpha-I will go into the generic time-varying inefficiency term, and part of it will be poor estimation of all of those coefficients of the output distance frontier, which you're going to need to be able to calculate things like technical efficiency and overcapacity and quota utilization and so on and so forth.

Just the ability to include alpha-I is nice, but then, to decompose it, we can take it and sort of say, okay, part of this alpha-I is going to be differences across the ships that has nothing to do with how good or bad you are at fishing, but it's just sort of quirkiness as it pertains to the vessels, and it won't change over time, and then another part of it will be sort of the fact that you might imagine that some of these vessels, these ship captains, are just better at catching fish than other ship captains are, and this is why we sort of call it as persistent, because it remains year over year, period over period, and it doesn't go away.

Now, one of the basic things we're going to assume though is that -- We have these two different types of inefficiency, and you might say to yourself, well, we're looking from 2002 until 2018, and it's likely that, over those seventeen years, we would not necessarily anticipate that somebody could be persistently inefficient for that entire range of time. Well, again, we're not assuming that completely, because we have this U_{IT} term, and this U_{IT} term can exhibit all different types of behavior over time.

It could be completely random, or it could be growing, or it could be shrinking, and we're going to allow for these various types of behaviors in our statistical analysis, and so there's going to always be these sort of two components that are competing with each other that capture inefficiency in the fishery that we're looking at.

There are many ways to estimate this model. If we were not interested in inefficiency in any way, the simplest thing to do is just ordinary least squares, and so we could get rid of the U_{IT}, and we could get rid of the T_I, and we could estimate this using just very simple regression techniques. However, if we really want to recover technical efficiency, and we want to decompose it, this U_{IT} term and this T_I term, then we're going to need a little bit more structure on the model, and we're going to need a different estimation methodology.

What Juan and I are doing here is we're following the approach

of the *Journal of Productivity Analysis* paper that was published in 2014 by Kumbhakar, Lien, and Hardaker, and what this essentially does is it just breaks down the estimation of this model into three separate steps.

In the first step, we estimate the output distance frontier, remaining ignorant as to what U_{IT} and T_I are, and then, in the next two steps, we recover U_{IT} and T_I, through a series of distributional assumptions. For our purposes, we're going to assume that V_{IT} and C_I are distributed normal, and we're going to assume that U_{IT} and T_I are distributed as half normal, and those assumptions are enough to provide identification of all of these terms that we care about, and we have a lot of -- I mean, I can go into this in more detail, but, otherwise, I will just skip over it at the moment and let you ask questions later.

In terms of capacity, there is a lot of literature that is focused on capacity, and, unfortunately, one of the problems with capacity is there is many different definitions, but what we're going to do here is just follow sort of a standard definition from Terry 2008. Basically, it's the maximum amount of fish that the fishing fleets are reasonably expected to catch, if they're operating at normal, fully utilizing all of their inputs.

In this case, that's going to be our measure of capacity, how much can you catch, and then, beyond that, we have a measure of what's called excess capacity, and that's simply the difference between your harvesting capacity and your estimated catch, and we're going to have overcapacity, which is going to be the difference between your harvesting capacity and some short-term target catch level.

Now, in our case here, what we're thinking about doing -- The issue is I'm going to observe fishermen catching a certain amount of red snapper and other types of fish, and then what I want to know is how much more could you catch, and so there are lots of different ways of doing this, and so, for instance, in a paper in the *Journal of Productivity Analysis* by Felthoven et al, what they did is they said suppose I fish for one more day, and how much could I catch extra, and then they used that as their measure of capacity, which is fine, but the issue there is you are sort of forcing the fishermen to fish for another day, when they don't necessarily want to fish for another day, and so there's sort of a behavioral quirk that's going on.

Another way to think about this is that, when I talk about capacity, I can look at this from the standpoint of I can give

you more output, by letting you use your inputs more, or I could hold your inputs fixed and you can figure out where your absolute maximum is, and this is sort of the notion of a frontier and going back to it, and so this is -- In some sense, there's an output-oriented movement towards producing more, and there's an input-oriented movement towards producing more.

For instance, the Felthoven paper and some other papers, they measure capacity by looking at input movements. What we're going to do in this paper is look at output movements, and so, in this case here, we're going to essentially ask ourselves if suppose we eliminate technical inefficiency in the model, how much more would be able to fish, in terms of catching the fish and bringing it in.

That's going to be what drives us, in terms of our measures of capacity, and so we're going to hold all inputs fixed, and we're not going to change any of those, and then we're going to ask ourselves to eliminate inefficiency, and then how much more would we actually observe these fishermen catching if we did that.

What we're going to be doing here is using the PIMS database, and this has -- I'm sure most of you know it has how much fishing effort is done, in terms of the various landings of all the characteristics, measures of revenue for each species that is landed, a bunch of vessel characteristics, where they fish and so on and so forth, where the boats are registered.

For the red snapper fishery analysis, we're only going to use vertical line vessels, and, when we switch over to the combined fishery, which has red snapper and grouper-tilefish, we're going to include both vertical line and longline vessels, and, for the vertical line, what we're going to -- Juan and I have done a bunch of stuff, and so feel free to ask questions about why we made the decisions we did, but, in the estimates that I'm going to present to you, what we're going to assume, and we've tested this and looked at various measures, is we're going to assume that, after the IFQ went into place in 2007, that there was a different technological frontier for the fishing.

What this basically means is that I'm estimating separate output distance frontiers before and after the IFQ was implemented, and we're going to do the exact same thing, and we have statistical evidence for this, in the combined fishery case, except, there, we're going to have four different technologies, and I'll explain that when we get to it in a minute, but, here, what you're going to see is just the basic raw statistics.

We have our four inputs of red snapper, other red snapper, grouper-tilefish, and all other species. We then have three inputs of what I would consider to be a fixed input, which is vessel length, and then two variable inputs, which would be days away and the crew size, and then we have some measures of the health of the fishery, through various measures of the biomass that are also included.

What's not shown in this table are other things like the region, the location of the ships, where they depart from, the time of year in which they're fishing, the various IFQ dummies that we're using, and so on and so forth.

The first thing that we're going to look at, and this just kind of gives us a sense of if we're done a fairly good job of capturing technology, and we're going to look at the input and output elasticities and returns to scale, and so what I've done here for you in these slides is I say, well, let's look at output elasticities for all the years across all the ships, and remember this is for the red snapper vertical line only.

What we see is the two biggest species, in terms of responsiveness as an output elasticity are red snapper and grouper-tilefish, and, to help you maybe interpret this, just ignore the minus signs. The minus signs theoretically are correct, but, if you're thinking of the magnitude, this is sort of a response in one species relative to another, and these are calculated as the average across all of the ships, which there is well over 90,000 observations in this database, and so I'm trying to distill this down to a single number for you.

In terms of the input elasticities, we basically see a one-to-one correspondence with the vessel length, but, again, keep in mind this is fixed, and so it's going to be hard for the ship captains to really change anything about their ship manifest before they go out, but there is also almost a one-to-one return in days away for the whole sample, and much less so for the crew, and, for returns to scale, we see that these ships could probably be doing a bit more, in terms of their inputs in terms of catching, and so there's an increasing returns to scale.

Then, if you look sort of pre-IFQ and post-IFQ, you will notice various changes arising, in terms of how these fishermen are behaving, and so you will notice that, originally, pre-IFQ, there was less returns to scale. Post-IFQ, there is greater returns to scale.

One natural implication of this is just that, pre-IFQ, you could go out whenever you wanted, and so you might have had a tendency to stay out a bit longer and do more fishing, and that's going to lower your returns to scale, and you see a big difference in terms of the input elasticities for the length of the boat and the number of days away pre and post-IFQ, and so, clearly, the implementation of this was having some behavioral implications for the ship captains.

Now, if we switch over and we look at technical efficiency, what we have is, here, this is the plot of the time-varying technical efficiency, and you're going to see a rightward shift from pre-IFQ to post-IFQ, and this is just telling us that the fleet is becoming more technically efficient as the IFQ was implemented, and so this IFQ is sort of leading, in some sense, to fishermen, because they have a more limited catch share, having to do a little bit better with the limited resources that they have, whereas, prior to that, they couldn't.

What you can't tell from this graph, but the average of this is about a five to six percentage point increase in technical efficiency over time between the time the IFQ went in to today, or to the end of 2018, I should say.

These are just sort of our raw measures of what's going on, in terms of capacity now, and so let me explain this table for you. In the left column that says, "actual catch", this is what we observe in the data as an average, and so this would be sort of an average over the whole fleet for the entire period of time, and it would be let's say 4,251 pounds of red snapper.

Then the column that is labeled "C^{OTE}", this is the capacity. This is how much they could catch if they were fully efficient, and fully efficient here means that I assume that you have no persistent inefficiency, and you have no time-varying inefficiency, and so it's almost double the actual catch, and then, just as a reference, I also have this column here that is C^{TVE}, and what this does is this says, well, persistent inefficiency may be a much harder concept to eliminate, but suppose we could at least get rid of time-varying inefficiency, and we're still going to see that it's above the actual catch, but it's below this C^{OTE}, and so this middle column here should be the biggest, and the last column, C^{TVE}, should be in the middle, and then we have our actual catch.

Then what I've done is I've just broken it down for you, and so we look at actual catch pre-IFQ, we look at actual catch post-IFQ, and then, within this post-IFQ, I have broken it down into

two specific time periods, and so 2007 to 2011, which would be the five years right after it went into place, and then the next five years after, or six years after, it's been in place.

What you will notice is a big increase in actual catch, but also a big increase in terms of the overall capacity of these ships, and so it seems there is some learning that's been going on from when the IFQ was first implemented until behavior of let's say now, and, of course, this 2011/2012 split is arbitrary. Our rationale for doing this is just that 2011 corresponded with Juan's earlier study, and so this gives us a nice basis of comparison with the earlier published work that Juan did.

Now, beyond this raw measure of capacity, the next thing we can look at is getting how big the fleet is relative to how big it would need to be to actually catch the amount of fish that NOAA wants to be caught, in this case the quota, and so what we've done here is, over the years, what I have listed for you is the quota that's in place, and then I have this column here that says "total vessels", and this is the total number of longliners that are going out, and the column that says "efficient vessels" is -- This is the number of vessels, if they were fully efficient, that would be needed to catch this specific quota here.

Then we have -- This here is a raw measure of the percentage of the vessels, and this is the quota utilization that is the actual catch relative to the quota, and so what you see here, basically, and this is very consistent with the work that Juan did earlier, is that the fleet is much too large relative to catching this quota, if the vessels were to be fully efficient, and this trend continues from the time of Juan's initial study until up to 2018. Even with the quota increasing, we still see that there is only about 20 percent of the fleet that is actually necessary, if the goal were just to catch this specific level of the quota.

Now, let's move into the combined, and so, again, this is all going to be sort of the same types of analysis, and it's just that what we're doing here is we're combining red snapper with grouper and tilefish, and so we're just going to drop one of our inputs, and we're also going to include longlines, and so what this is going to do is add about 50,000 observations to the dataset, and so, before, we were using on the order of 90,000 observations, and now we have about 140,000 observations, and you will notice that the fishermen are catching more of the prime species here, because we're combining it, and so that makes sense.

If we look at our elasticities, what we'll notice now is that this combined elasticity for red snapper and grouper-tilefish is much more responsive, as it should be, because we're not making a distinction between catching red snapper versus catching grouper-tilefish.

We see sort of similar patterns. The returns to scale for the whole sample are above one, and so this is sort of suggesting that these fishermen could more than proportionally increase their input by using a little bit more of their inputs, and, if we break it down between pre-IFQ and post-IFQ, we sort of see similar types of patterns.

One thing that I will mention here that's important to keep in mind is this is for longline and for vertical line, and what Juan and I are assuming here is that longline has its own separate technology and vertical line has its own separate technology, and so I'm not assuming that the vertical line and the longline are in any way the same. They are allowed to be completely different, and we're allowing them to be different pre and post-IFQ. Here, my split for pre and post-IFQ is the year 2010. For the red snapper only, we were looking at 2007, and so, here, we're going to look at 2010.

Again, instead of just looking at pre and post-IFQ, what I can also do is take that post-IFQ and split it up into just a couple of arbitrary, let's say four or five-year, increments for you, and you sort of see that, after the IFQ went into place, versus a few years past that, things are pretty much -- There is some minor differences, but they don't change too, too much at this post-IFQ, and so you'll notice very little difference in output elasticities. You're talking about a three percentage point change for the prime category, and you're talking about a three percentage point change for the other snapper category.

The only real big difference is there is a somewhat substantial drop in days away, and so it becomes sort of less responsive in the later periods, versus the earlier periods post-IFQ, and there's a much bigger response post-IFQ in the later periods for the length of the vessel.

In terms of crew size, there is almost no difference, which you would perceptively think makes sense, because the number of people on the ship is not really being directly impacted by the IFQ.

If we look at what's going on in terms of technical efficiency

in the fishery, what I have plotted here for you are the densities of the time-varying inefficiency, but persistent inefficiency, and then the overall, which is nothing more than the multiplication of these two, and so it's natural that this overall is going to be a little bit shifted to the left.

Our measure of persistent inefficiency, on average, is quite high. There are many boats that are determined to be fully efficient in the time constant domain, and so some people might be happy about that, and that's pretty good.

Then we can further break this down by pre and post-IFQ and by vertical line and longline, and so what you'll see here is, if we focus on the vertical line, they are very similar to the results that we had, although there's a slightly larger increase in efficiency, going from the pre IFQ to the post-IFQ, and, for the longline, there's an even bigger jump, and, primarily, this bigger jump is due to the fact that there's a lot of ones that we have in here, and that's why you see this sort of spiking at the end. We have a lot of vessels that are determined to be very high levels of time-varying efficiency in our analysis.

Now, if we look at capacity for this, again, this is the same setup as before, and the actual catches are going to be higher, because we're combining red snapper with grouper-tilefish, and we also see much larger capacity, as expected, because their efficiency is being measured relative to a larger catchall, and, again, we have the overall, which combines time-varying technical efficiency and persistent inefficiency, versus just time-varying efficiency, and we do this for all years.

There's not too much that I would say is surprising from these tables, at least in my opinion, but you might want to pepper me with questions on that later.

Then, if we just break this down, and, instead of year by year, if we do it by sort of the pre-IFQ and the post-IFQ and then we break it down, we sort of see similar -- We see, over the entire period, about 10,000 tons per vessel per trip, and pre-IFQ is 10,900, and post-IFQ is 10,500, and it was slightly smaller than that when the IFQ was implemented, and it grew marginally. Capacity seems to be much higher post-IFQ than pre-IFQ, and it seems that the increase in that is that capacity initially dropped after the IFQ went into place and then it increased. This is true whether you do overall technical efficiency or if you do time-varying technical efficiency.

Then, lastly, we do the same concept with our fleet size here,

and so we have our quota, and then we have the number of efficient vessels that we would have, and we have the total number of vessels, and then we have the percentage of vessels, and we have a much different story here than we have with the red snapper, and so, in the red snapper, you remember that the size of the fleet only needed to be about one-fifth the size of the actual fleet.

Here, we don't really observe that, and the primary reason we don't observe that, and we have these hundreds here, or these very large numbers, is that the quota is so high that, even if Juan and I were able to eliminate all technical efficiency in the fleet, they still couldn't catch the quota, and that's why you see the number of efficient vessels is equal to the total number of vessels, and so, even if we eliminate time-varying inefficiency, and we eliminate persistent inefficiency, those gains in producing more catch would not meet the quota.

They would still be under the quota, and so, in that sense, there is -- Our way of quantifying how many additional boats, or how many fewer boats, there would need to be doesn't change, and that's why these numbers are essentially the same, and so this growth in the quota over the last four years sort of makes it seem as though there is more than enough -- There is actually not enough ships in the fleet, according to this metric, and you can see this too by the quota utilization.

In let's say 2018, only about 60 percent of the quota was actually caught, and so there's that whole sort of excess capacity there that could be caught by these fishermen, and they're just not able to catch it, and that sort of concludes my talk, and hopefully I stayed on time, and I think I went over a few minutes, but I'm happy to take any questions that you might have, and I should say too that anything in here that you really like, that was all Juan, and anything that you dislike was all Mike Travis, and that's the end of it.

CHAIRMAN POWERS: Thank you. Just so I can get some technical understanding, you made some reference about if the probability distribution is normal or half normal, and could you kind of explain that again? Particularly, I was wondering if it requires that these distributions be normal or half normal, or was it just that they're symmetric or half symmetric?

DR. PARMETER: That's a good point, and so there's many different ways to answer this question, and there's many different things that we could try to kind of allay any concerns that you might have. The biggest thing that we need is we need

there to be some type of asymmetry between what we're calling heterogeneity or noise and what we're calling inefficiency.

The reason for that is inefficiency, in our concept, works in one direction, and so, if you're inefficient, it's always pulling you in the wrong way in which you want to go, and so you want to produce -- More inefficiency is pulling you down from producing more, and so, if noise is symmetric, it can pull you up or pull you down, and we can identify these types of inefficiencies just by using this very simple notion of a symmetric and an asymmetric.

Now, there are many, many, many distributions that are asymmetric that can produce these types of things, and so this is where you kind of get into some issues as to do I need half normal, or could I do exponential, or various types of other statistical distributions, and so what I would answer to that, or maybe to caveat it, is to say that one sort of weak rationale for using let's say half normal is that the vast majority of everything that's done in terms of the calculations has a simple closed form solution. This makes, computationally, things very nice. Models go pretty easily, and we don't have to spend a lot of time doing sort of non-linear optimization and things of this nature.

If we get into more complicated distributions, we can have sort of more complicated shapes and things of this nature that might mimic reality, but what we lose is, essentially, the more complicated your distribution that you pick for inefficiency, the much harder it becomes to unravel all of these pieces together.

From a very technical standpoint, I have a lot of research that I've done that basically says the following, and it says that, as long as the V is symmetric, the distribution of V is not that important, and so all of the concern would be on the U. If we can agree on the symmetry of the V and the CI, then we can have a more clear discussion of the importance of distributional assumptions for the U_{IT} and for the T_I.

I would say another argument that some people use for the half normal is the half normal has a mode at zero, and so the implication for that would be that, if we're looking at the probability of being inefficient, it's much more likely to be less inefficient, i.e., more efficient, than to be heavily inefficient, right, and so that's one of the intuitive uses of let's say a half normal, is we're starting off a priori allowing the vessels to be believed to be less likely to be grossly

inefficient than we otherwise would be if we picked a different distribution.

CHAIRMAN POWERS: Thank you. That was interesting. Andrew Ropicki.

DR. ROPICKI: Thanks. That was a very good presentation, and I missed some at the beginning, and I was having some technical difficulties, but what was the requirement for a trip to be included in the dataset for say the red snapper model?

DR. PARMETER: Good question. What happened is, when I got this data, and I was working on it with Juan, we had sort of this conundrum, which was I might observe -- Let's say you're a fish captain, and I might observe you taking two trips in the year, and, in one trip, you catch red snapper, and, in another trip, you didn't catch red snapper, and so there's a question of do I include both of those trips or not.

I ran through various scenarios and tested them out, and the results that I presented to you today make the following assumption, and the following assumption is, if you made at least one trip in the year where you landed at least one pound of red snapper, then I include all of your other trips. If you made thirty trips, and in fifteen of them, you catch red snapper and in fifteen of them you don't, I still include you. You only need to have one trip in the year where you land red snapper, and the same is true when we do the combined model, and so you have to have one trip where you landed at least one pound of red snapper, grouper, or tilefish.

DR. ROPICKI: So there's no annual minimum on how much red snapper you had to --

DR. PARMETER: We don't do a minimum. I have another analysis where I only used the trips where you actually land that particular fish, and so I have a smaller -- It's probably like a third of the size, where you only are catching the red snapper, and so, if you don't catch red snapper on a trip, then I don't count that as part of the analysis, but I view that as more of a robustness check, for the simple fact that what we have here going on is sort of an identification problem, which is, if I observe you going out to fish, and you don't catch red snapper, there is sort of two states of the world that you -- I mean, there's probably many more, but I try to keep it very dichotomous.

There are two states of the world, and State of the World 1 is

you went out and you intended to catch red snapper, and you just didn't catch any, because they weren't where you thought they were going to be when you went out to go fishing.

State of the World 2 is you had no intention of catching red snapper when you went out, and, as the economist here looking at the data, unless I go and talk to all of these fishermen, I don't know which one of those two is actually going on.

DR. ROPICKI: No, you're definitely right on that point. What I was trying to get to more so is it's kind of an odd fishery. I am curious as to how many of the vessels -- When you talk about the overcapacity and too many boats still out there in the red snapper fishery, I am curious how many of them are catching less than a hundred pounds a year, 500 pounds a year, and, as someone who has looked at this data before, there's some oddball outliers in it.

There are people who have basically -- Currently, they are basically charter fishermen who still have a reef fish permit, from the days when they commercially fished, and they have eighty pounds of red snapper quota, and I don't know what they do. Maybe they go out with their friends on one Saturday and catch their quota.

DR. PARMETER: That's a good question, Andrew, and so we did a couple of things to try to guard against this, and I don't know if all of this would sort of address your question fully, but, for instance, if anybody went out for like one day, just one day, and they have like a very odd crew size or something like this, we cut them out, or like anyone who goes out for like two weeks, and they get cut out.

We tried to really trim up the data, to get rid of those types of trips, but I don't know that that would completely rectify your issue. What I will say is that it's easy enough, if the council is interested, to go back and change the minimum, and so, for me, the minimum is one pound, and that's nothing more than like push a button in my -- I realize I'm making more work for myself and Juan, but Juan likes to work, and so it's okay. He told me that.

I could easily change the minimum to 500 pounds for the year, or 500 pounds for a trip, and redo it that way, and that would probably cut out maybe 6 to 7 percent of the observations.

DR. ROPICKI: I would really be curious to see what it does, in terms of the technical efficiency.

DR. PARMETER: Sure, and the other thing I will say is, if you go to that slide that has the table with the technically-efficient vessels, and I believe it's like Slide 32 or something like this, and I forget the number now, but, if you go there, and so the way in which that table is calculated -- It's past 32, and it's 37, maybe.

What happens is, here, in order to calculate the number of efficient vessels, there's a few assumptions that are going on behind the scenes that I have to make, in terms of how I want to rank-order the boats.

For instance, I could say let's rank-order the boats based on how much they catch, starting with the biggest catch down to the littlest catch, and another way to do it is, and this is how it's presented here in the tables for you is, is I say let's start with the fishermen who is the most efficient and make them fully efficient.

If you happen to be the most efficient, and you're only catching twenty pounds, and, by making you more efficient, you catch twenty-one pounds, you're not really having a big change on this table, right, and so, in this case, I don't think it will change the percentage of vessels too much, because, if I take your scenario, where somebody is only catching let's say fifty to seventy pounds, and I make them fully efficient, and so now they're catching a hundred pounds, they're not really eating into the quota in a way that's going to dramatically affect the percentage of vessels, because my goal is to say how many vessels do I have to have to eat up this quota.

These little guys that are out there, whether they are fully efficient or not, they just catch so little that, even if I make them better, they still are not catching a lot, and so the vast majority of this quota is being eaten up by these vessels that have to go out and catch a good chunk of the fish, if that makes sense.

DR. ROPICKI: No, that was good, and I don't want to hold up too much longer, because I see that lots of people have their hands up, but I did have one other thing. You talked about the intent, and not knowing if they were actively targeting red snapper on a trip, and all you can observe is whether they caught it, and I'm wondering if there's some way to look at trips from a trip level catch portfolio and if you can find different types of trips based off of those -- Maybe make some assumption about what they were targeting based off a group of

things that they caught. Like, if there are certain species that they go after, and those trips never have a red snapper catch associated with them, or it's very small, maybe those aren't red snapper trips.

DR. PARMETER: I could do that. I mean, the other thing I will say is that there are many trips in the data where they are catching some red snapper and almost no grouper-tilefish, or vice versa, and that's quite correlated with vertical line versus longline.

What we could do, to address your question, is sort of put in some kind of like a percent of their total catch, and so I observe the total amount of fish landed, regardless of species, and that's in the data. It's like I caught 4,000 pounds of fish, and so then I could take that, and I could say how much red snapper did you catch, and I could convert it into a percentage and only consider those trips which the percentage of red snapper was above some threshold, whatever that number might be that seems reasonable, and we could easily do it that way.

DR. ROPICKI: That could be interesting to see, actually.

DR. PARMETER: I can do it that way, because I have access to the total amount of fish that's landed per trip, and so that's a way of getting at somewhat of the intent, right, that you're referring to. The issue there would just be where's my cutoff? Is it 5 percent, or is it 20 percent, or is it 50 percent, but, again, that's just a number to be addressed, but it can easily be done.

CHAIRMAN POWERS: Thank you. Next is Walter Keithly and then Ken Roberts.

DR. KEITHLY: Thank you, Mr. Chairman, and thank you, Dr. Agar and Dr. Parmeter, for a very interesting presentation. I have a number of questions, and I'm going to try to limit myself, but I want to start with a larger aspect, and Juan and I have discussed issues with capacity many times, and he knows that I have some concerns regarding measuring capacity in fisheries.

Let me first get your thoughts, and I have my own thoughts, about what causes, in your opinion -- What factors lead to vessels being consistently off the production frontier? Do you have any thoughts on that?

DR. PARMETER: I guess, if I was to re-interpret your question a bit more broadly, it would just be why are people inefficient?

DR. KEITHLY: Yes.

DR. PARMETER: It doesn't really have to be even confined to the fishery, but it's just why, in general, are people inefficient, and that's a great question. I mean, the researchers who work in this area more broadly always sort of bump up against this question, is why do we believe it, and so one reason I would argue that it can exist is that, if there's not a market mechanism in place to penalize you for being inefficient, it's more likely that it will happen.

It's like if you're a grunt in bootcamp, and you're very lazy and can't keep up, the boot instructor just keeps harassing you until, eventually, you either get on the frontier or you quit bootcamp, and so there's like a mechanism in place to weed out the really bad performers.

I don't know enough of the behind-the-scenes stuff with fishing in the Gulf, and I don't really know much about fishing at all, but I don't know enough about that to argue if there was some kind of a mechanism in place where somebody who is just really bad at fishing can hang around the fishery, year over year over year over year over year, but, if there isn't a mechanism like that in place, it's certainly conceivable that you will observe fishermen who just aren't as good as some of their peers, holding everything else fixed, in terms of the size of their ship and the number of days that they fish and the crew and all these other things.

If there is not a mechanism in place, it's for sure that you can be inefficient, because you don't have a penalty, and so some economists like to call this the quiet life hypothesis, which is, if no one is going to make me work hard, I have no incentive to work hard, and so I'm always going to appear to be inefficient, because there's nothing that is driving me to be better, so to speak.

DR. KEITHLY: Okay, and so, basically, I think we're talking about the skill of the captain, to some extent at least.

DR. PARMETER: The skill here would be wrapped up not necessarily in the time-varying component, although, I mean, it could be. It could be like let's say a skill to reading the weather, and that could be a time-varying component, depending on which time of the year you're going out in the Gulf to fish, but I look at the skill more as like with farmers and knowing how to like plant seeds in a particular way and how to like

rotate their crops and things of this nature.

I would imagine that, as with any industry, there is some inherent skill to be good in that industry that some people just have and some people don't have, per se, and so --

DR. KEITHLY: Now, with respect to skill, in the captain or crew, and I don't think it's measured, and, in fact, in one of your slides, I think you said that the innate skill of the captain, or the skipper maybe, you considered fixed.

DR. PARMETER: Yes, that's right. We're assuming that is fixed, yes.

DR. KEITHLY: It may be more of the crew, and there's no way to test it, I don't think, but I suspect that, with the IFQ, crews become more constant, as vessels make, or the owner of the vessel, which comes into the whole issue of fleets versus owner-operators, but as -- We'll assume they're all owner-operators.

As profits are enhanced to the owner-operator with an IFQ, then some of that would be passed down to the crew, I would think, at which point I would expect, and, again, I may be wrong, that the crew itself would become more efficient from learning. Is that the captured in the model?

DR. PARMETER: Well, the unit of observation here, the I, is the ship, and so, if the ship and the captain are sort of wedded together, then you could argue that the unit of observation is the captain, and so I guess that's something that I wouldn't know, per se, is that, every time I observe the vessel, is it the same captain, and I don't know that I ever looked at that in the data, if there was a column that has like the captain's name in it, and I don't believe so.

DR. KEITHLY: I don't think so, which is one of the problems that I have with feeling, and I'm not sure exactly -- I have used the data, but I can't remember myself now whether share or quota can be moved from one vessel to another on a fleet. I don't want to take up all the time, and there's a number of people to ask questions, but let me just ask who -- I can't remember one of them that I had, but let me just go with one simple question while I try to think of the other one. I assume that this model imposed a number of restrictions in it.

DR. PARMETER: Yes.

DR. KEITHLY: What restrictions did you use, just the normal

ones, in terms of symmetry and all?

DR. PARMETER: Yes, and so the output distance function has sort of a set of axioms that it must satisfy, namely that the output distance function is monotonic in outputs, and number two is that the output distance function is homogeneous of degree one in outputs, and that was that slide -- I had the magic guy waving his hands, and then you saw the Ys appear with the tildes. That was sort of rewriting it in a way that was consistent with imposing homogeneity of degree one.

I mean, we could have a nice debate as to whether or not that's a restriction. I mean, in the production literature, we call it an axiom, and so that's like more from the theory of production, and so it's thought of less as a restriction and more as like something that must be true, kind of like transitivity for utility functions, but do utility functions have to be transitive? Not necessarily, but that's an axiom of utility theory, so that, if you didn't have transitivity, we would be more skeptical, and so the homogeneity of degree one is more thought of as an axiom than a restriction.

The actual restrictions that we have going on are -- What I would say to the council are the places where there is certainly room for scrutiny of what I've done would be assuming, over the course of seventeen years, that there is this strong level of persistent inefficiency that exists, and that's sort of a reasonable place to sort of push back on and say that you mean to tell me, starting in 2002 and up to 2018, that there's this sort of innate thing where people just are not very good at fishing, and they never get better at that. That's an assumption that we've built in here that can certainly be scrutinized.

Then there's the distributional assumptions that are equally sort of -- They deserve scrutiny, and they can be assessed, and then there's the use of the fact that -- I didn't have time to talk about it, but it's in there, and it's that we're using an output distance function, except the problem is that we have lots of zeroes in the data, and you can't take logs of zero, and so we have to somehow deal with this issue, and the standard way in the literature -- It's not one that I am really a fan of, but it's done here, and that's just to add a small number to the zero, such that, when you take the log of it, it's no longer undefined.

DR. KEITHLY: I have done that many times myself, and I guess my question was, on the restrictions, were they valid restrictions?

Did you test them?

DR. PARMETER: Well, there is different ways to test them. Testing homogeneity of degree one is extremely difficult, because it's an axiom, and so, if I were to estimate a model without HOD1, the elasticities become much more thorny to interpret, and then to test that, and so that's a hard restriction to test. It can be done, but that one is difficult.

Let's say the normal and half normal, that can be tested, and we can test that in a variety of ways, and I did not test it, only because my implicit working assumption here was that, if were to switch to a different distributional assumption, most likely the results would be somewhat robust to that, and so I wouldn't really be able to discriminate between the two models, meaning exponential and half normal. They tend to always look the same in practice, and so favoring one over the other is not that insightful, and it's more of a statistical mechanism, but I could go back and do it.

The biggest assumption that I did implement, that I did test, that we have lots of evidence for, is this difference in the technology pre and post-IFQ, and so, originally, when I was working on this, I was running all kinds of various things related to the IFQ, and then I made the simple assumption that the actual mechanism of fishing that's inherent in this data changed from the time before the IFQ was instituted to after, and there is very strong evidence in the data that there is some change in technology after the IFQ was implemented, and this is true in the red snapper analysis that I showed you, and this is also true in the combined reef fish analysis that I showed you, and those are tested. Those are tested, and they are very strongly suggestive of there being these differential technologies going on.

I will say this too, that those are tested without having to rely on any distributional assumptions whatsoever, and so those tests actually are independent of any assumptions that I make on the -- I am not even worried that, if I erroneously assume let's say half normal versus exponential, that that would in some sense invalidate these differences in technology.

DR. KEITHLY: I think you're correct with half normal. It's been a while since I've looked at the literature, but I have just one more question, again going back to general, and then I would let everyone else ask their questions, and I may come back at the end. How does the concept of labor-leisure tradeoff fit into determining the efficient number of vessels?

DR. PARMETER: That's a good question, and so I've had a lot of discussion with Juan about this. When I talk here about the number of efficient vessels, what's missing, or maybe not missing, and "missing" is a subjective term, but what is not in these tables is anything related to behavior.

DR. KEITHLY: Right.

DR. PARMETER: What I mean by that is, if I were to -- If a fisherman was deciding to spend one more day at-sea, there is probably all kinds of ideas running through their head as why they may want to send one more day at-sea. It could be maybe they didn't catch as much as they had anticipated when they left port, or it could be that maybe they heard on the radio that there was a spike in price or something, and they want to get back and offload their fish.

There could be many reasons for that, but, here, we're not making any behavioral assumptions as to why the fishermen are doing what they're doing, and this is a pure output distance function, and so, from our sense, the fishermen are robots, and we're trying to get them to just produce as much as possible, regardless of what the mechanisms are for producing a certain amount.

If we were to take in prices, then we could get at something like that. If we were to sort of look at the price of grouper and the price of tilefish and the price of red snapper and so on and so forth, we could potentially unravel why fishermen are spending more or less days out there and do that. We could do that, but that's not done here, and so we're not making any behavioral assumptions.

DR. KEITHLY: Thank you. That kind of answered my question then, and you said it very well, that they're treated as robots.

DR. PARMETER: I don't know if robots would appreciate being compared to fishermen, and I'm not sure, but I'm sure that someone will be upset at being called a robot or a fisherman.

DR. KEITHLY: The fixed number of vessels is also problematic. Thank you.

CHAIRMAN POWERS: Let's move on then. Ken Roberts, and then Paul Sammarco after him.

DR. ROBERTS: My question relates to the matter that the

vertical -- Let's just stick with the vertical red snapper, but there are exchanges that allow people to short-term rent or lease quota, and that obviously -- You were just talking with Walter about behavior, and I don't think this is a behavior.

I think, for a captain to use that to his advantage is a technical efficiency matter, and I'm wondering if, at any point, you were able to incorporate information as to the amount of fish that is traded on the exchanges and link that to vessels and see if that's telling you anything about the efficiency of any of the vessels. Have you been able to do that?

DR. PARMETER: That's a good -- The short answer is no, and we are -- Juan and I are not presently looking at anything related to who is catching what as it pertains to the IFQ, or at least not to my knowledge, and so it would be hard to address that right now directly, since I haven't looked at it, but it's a very interesting question, because, if it happened to be in the data that I could figure this out, then it could be linked to inefficiency, for sure, and that's definitely a connection that can be made, and it's just a question of what would that look like in the data, and I don't know if Juan has any thoughts on that, but I am not familiar with a variable that's inside the dataset, the PIMS dataset that we have, that tells me that this was leased out to somebody else. Like I don't know who the IFQ is connected to, but this could be my ignorance of the data.

DR. JUAN AGAR: The Regional Office has that data, but I don't believe we have it at the trip level, necessarily, but I agree with you that maybe, later on, we could so some sort of clustering, like Andrew suggested earlier, looking at whether people who are leasers tended to be more technically efficient than people who weren't, for example, people who were grandfathered in.

DR. ROBERTS: Well, the reason I bring that up is, in catch share programs, there's always a debate about whether to make things transferable or not on a long-term or a short-term basis, and I think, when it's in a system, and it's allowed on a short-term basis, or within a year basis, it's something more than behavior. It's a very deliberate business decision as to how long you stay out and when you come in and what input costs you are able to economize on if you had additional shares or can sell some of your share in the short term. Anyway, that's one thing.

I just think it's an intriguing thing when we have an exchange, that we don't know much about for people who are using it or how

it overall affects efficiency.

The other question I've got is is it correct that, if excess capacity, as I read your report, is really a short, year-to-year, type of measurement?

DR. PARMETER: That is how we're calculating it. We're calculating it as a year-to-year measurement, yes.

DR. ROBERTS: Okay, and longer-term overcapacity is really part of your analysis, correct?

DR. PARMETER: It's long term in the sense that there is this persistent inefficiency term in there, and so, as much as that lingers across time, yes, that sort of adds to that, yes.

DR. ROBERTS: Okay. In your analysis, answering the -- You had, I think on the first slide or the second slide, and I'm not where I can see the slides right now anyway, and so don't put it up, but one of the things that Congress, I guess, wants the catch share analyses periodically to look at is -- Is it more a focus of technical efficiency or capacity, and that is of issue here.

DR. PARMETER: This is exactly sort of the issue that I was talking about, and there's not like one uniform definition of capacity, and so, for instance, in other papers that have existed, what happens is that you can think of fishermen as moving in various -- Moving not in the ocean, but you can think of them as moving in input-output space.

The question is, okay, let's suppose that I give you more inputs to use, and how much more could you produce, and so let's give you a longer boat, and let's give you more crew, and let's give you more days at-sea.

Naturally, you're going to produce more, and there's a question of, okay, that's one way to measure capacity, but the argument that I would put forth in that regard is that, by implicitly assuming that the fisherman goes out for one more day, there is a question there of like, well, they already could have done that when they went out fishing in the first place, and yet they didn't, and so the question is why, and so I'm basically saying that, of course, you could fish more, but you chose not to do it, but now I'm going to make you do it anyway, whereas the technical efficiency argument is, well, you went out and you caught this much, and had you just been better at your job, you would have caught even more.

In that case, I am keeping your boat the same, and I'm keeping your days at-sea the same, and everything I'm keeping the same, and it's just that you're just implicitly doing better at your job when you catch more, and so, in this case, in the pure output-oriented case, technical efficiency and capacity are basically one and the same thing, because, to get capacity, I need to get rid of technical inefficiency, and so, once I have, I implicitly get the other one, whereas, in the input direction, even if I'm inefficient, I give you another day to fish, and you're going to catch more, regardless of whether you are technically efficient or not.

There, I am implicitly assuming something different about your behavior than what I observed in the data, and so that's sort of the distinction between these different notions of capacity.

DR. ROBERTS: Well, the reason that I bring up the capacity/efficiency issue is, one, that you can always think of capacity as coming from fixed-asset packages that they've got to deal with, and it's very likely the size of the boat, the net, the credit line, whatever it's got, and it's more of a fixed thing.

With efficiency, there are a lot more variable costs and variable decisions that can be made, and I think that there's just a bit of a difference, and I would disagree that they evolve into the same thing in the long run, but that's my view. I think capacity is more of a fixed-asset, inflexible asset, thing, and I think efficiency is -- A lot more decisions about efficiencies are made on variable costs and short-term decisions. Thank you for your comments, and I enjoyed it. I appreciate it. Thank you. Thank you, Mr. Chairman.

CHAIRMAN POWERS: Thank you. Paul Sammarco.

DR. SAMMARCO: Thank you, Mr. Chairman. Just a couple of questions that I wanted to get clear, if you will excuse me, and can you go back to your table on red snapper, please? There's one where you have a long list there. Your quota here is going up, and did you have another listing of landings or catch through time?

DR. PARMETER: In what sense?

DR. SAMMARCO: In other words, how much was being caught per year.

DR. PARMETER: By being caught per year, do you mean by vessel or by the whole fleet?

DR. SAMMARCO: By the whole fleet and not by vessel.

DR. PARMETER: That would be another table up. That is the average catch per year per vessel.

DR. SAMMARCO: Yes, and I remember that you had summarized the years there, and I guess my question is -- I got the feeling from several of the tables, and that's why I'm trying to find the numbers, that the catch was actually decreasing, but the quota was going up, and is that right? That's what I am trying to clarify.

DR. AGAR: Just look at the quota, and you are dividing landings over the quota, and so that's why it's below one for the red snapper, or actually for both, for the combo fleet and for the red snapper, on the following table.

You see pre-IFQ, 2006, you had basically we went over the quota, except in 2004 and 2005, but, after the IFQ, we never had any more quota overages, and so that's why it's below one on the last column. Does that answer your question?

DR. SAMMARCO: All right. Thank you very much. I was a bit confused on that, because it was counterintuitive, and that's all. Thank you very much.

CHAIRMAN POWERS: Thank you. Mike Travis, who apparently gets blamed for things.

DR. TRAVIS: Apparently without me being told that I was being blamed for things, but, since I am being blamed, now I get to throw some questions back. Can you go to Slide 40, please? I wanted to point out a couple of things here.

You will notice that the quota utilization rate between 2010 and 2018 is essentially the same, and, yes, 2010 is the first year of the grouper-tilefish IFQ, but, as I think most people on this call also remember, that is the year of the BP oil spill, and I guarantee you that the BP oil spill has a lot to do with what was happening in 2010.

Now can you go back to Slide 38? One of the things that you will notice here is this ramping-up of the annual catch from 2010 through 2015/2016, and then we have this noticeable drop-off in the catch level in 2017 and 2018, and so now can you go

back to Slide 40 again?

These results on Slide 40 say that, as of a handful of years ago, we only needed about half of the boats to catch the entire quota, and now, granted, the quota has gone up, quotas actually have gone up, a little bit, but now, all of a sudden, we need every boat in this fishery to catch these quotas, and, actually, based on the results, probably more than the current number of boats in the fishery. What are we saying here, that, all of a sudden, these boats became incredibly less efficient, all of a sudden, in the last few years? Is that what that says?

DR. PARMETER: No, not at all. The reason why the numbers look so weird in 2017 and 2018 is that -- The quota utilization here is basically saying that, all told, we're catching about -- Let's take 2018, and let's say we have seventeen million as the quota, and the quota utilization is 60 percent, just to keep it as a round number.

What this is saying is that, in 2018, the amount of fish, grouper-tilefish and red snapper, that was caught is about ten million pounds out of the seventeen million pounds, and what this is saying, in terms of the percentage of vessels, is just saying that, even if all the vessels were fully efficient, they are not going to catch all seventeen million pounds.

DR. TRAVIS: The question is why?

DR. PARMETER: Well, partly the reason is they're not that inefficient by 2018, and so, by making them marginally more efficient, they are still not catching enough to make up that gap from the ten million that they're catching to the seventeen million that they're allowed to catch.

DR. TRAVIS: Why?

DR. PARMETER: I mean, there is not really a behavioral component to this analysis here to help you, and like there's no prices here, and there's none of that.

DR. TRAVIS: I don't think this has anything to do with behavior.

DR. PARMETER: It might not, but I would be cautious of like, for me personally, to try to sort of spin any kind of interpretation on like a one-year or a two-year of like why something is happening so far out from when the IFQ was implemented, and, I mean, it's certainly not -- I think what's

going on in 2018 is not necessarily what's going on in 2010.

DR. TRAVIS: So then let me bring up a related point. Can you go back to Slide 32? In the model setup, and correct me if I'm wrong, you use a single biomass estimate for these four primary species. Is that correct?

DR. PARMETER: No. I used two. There is a red snapper biomass, and then the other three, the gag, the red grouper, and the yellowedge grouper, are combined into a secondary biomass.

DR. TRAVIS: Right, but it's a single point in time estimate of biomass, correct?

DR. PARMETER: For each year, yes. That's correct.

DR. TRAVIS: For each year?

DR. PARMETER: Yes, I have biomass by year for the whole Gulf for each one of the four groups of fish.

DR. TRAVIS: So these are mean estimates over the entire period of time considered in the analysis?

DR. PARMETER: Yes, and so the Z1 through Z4 are not really the most representative way to present average biomass, because it's from 2002 up to 2018. It does vary by year.

DR. TRAVIS: Okay, and so then my question to you is does the model control for changes in known biomass over time?

DR. PARMETER: Yes.

DR. TRAVIS: Well then, if that's the case, then I can't explain those results on Slide 40 either, because I would have expected that that was somewhat related to the recent decreases in the red grouper stock and the fact that there is simply not -- According to the assessment, there is simply not as many fish out there to catch, and that has hampered the ability of these vessels to catch that species, and I thought, potentially, there might be something going on with other species as well, but, if your model takes into account the changes in biomass over time, based on recent assessments, then that's not a good hypothesis either, and so it sounds to me like we don't have an answer.

DR. PARMETER: It's a good point. The only thing that I could probably do to maybe address your point would be some type of an interaction between the biomass and some of the inputs or the

outputs, although that would be kind of a wonky sort of a setup.

I mean, we could even have technical efficiency sort of being dependent on the biomass, and you could make the argument, Mike, that, if there was just fish everywhere in the ocean, and no gaps in fish, and I drop a line in, I am more likely to catch fish than if there's like particular places where the fish are at particular points in time, right, and so I could look efficient simply by the fact that there's a larger biomass than if there's a smaller biomass, so to speak.

DR. TRAVIS: I get that, and that sounds interesting, and what if the relative biomass --

DR. PARMETER: Sorry to cut you off, but that would have to be linked to the persistent, because the biomass does not change in the year. Like it changes over time, but it doesn't change within the year, and so, even at the trip level, the biomass is always the same within a year, and so it would be more apt to link biomass with let's say persistent inefficiency, knowing where to fish at a particular time of the year, than it would be this trip-by-trip-by-trip technical efficiency.

DR. TRAVIS: Right, and so I'm going to ask a follow-up question, and then I'm done. Does it matter if there were changes in the relative biomass between these species, particularly between red snapper and everything else?

DR. PARMETER: That's a good question, but I'm not doing that, and I have no ability to speculate on that, because I don't even know the numbers, because I only include red snapper biomass as its own variable, and I only include the grouper/gag biomass as its own variable, and so there's not a relative notion between these that I would even know the changes year over year, but I could easily plot that.

What I could do is I could say, okay, let's look at the stock of gag and grouper as a biomass relative to the stock of red snapper over time, and then I could look at capacity over time, and we could see if there's a big change in that, relative, because, if you look at the red snapper fishery only, we see that those numbers are basically much more consistent over time, in terms of how they behave.

DR. TRAVIS: Right.

DR. PARMETER: When it gets wonky is when we bring in the longliners and we tack on the grouper-tilefish with the red

snapper, and so you could be right. It could be a relative assessment of the stocks, but I don't know the answer to that off the top of my head, because I have never looked at the ratio of those, to see if that is constant over time, going up, going down, fluctuating. I don't know.

DR. TRAVIS: Okay. Thanks.

DR. PARMETER: But that could be addressed, for sure.

CHAIRMAN POWERS: Next up is Dale Diaz and then Andrew Ropicki again.

MR. DIAZ: Thank you, Mr. Chair. Dr. Roberts addressed the point that I was going to make. Thank you.

CHAIRMAN POWERS: Okay. Andrew.

DR. ROPICKI: Just a couple of quick things. What Mike was saying, the 2016 to 2018 thing, I mean, it's got to be red grouper related. I mean, it has to be. We saw the allocation price drop to nothing, because, even though the dockside price was still high, you couldn't catch it if you wanted to, and so I think that's what is going on in those later years, and, I mean, I don't know how to account for it, but that's definitely what it's got to be.

The other thing that I wanted to ask, and maybe this is for both Chris and Juan, is what would it look like if we wanted to do a cost or profit, and how many observations would we lose in the dataset, because we do have some of that data, right? I mean, we could look at it.

DR. PARMETER: I don't know about the cost. We have revenue, and you could estimate a revenue frontier. The basic idea would be that we would hold inputs, and we would have inputs fixed, and then the goal is to maximize revenue, however they choose to do that, and so, in this case, you could put in more categories of fish if you wanted to, and we have data, and there is revenue by fish broken down.

The issue there is I'm not aware, at the moment, and I'm sure it exists, but I'm just not aware, at the moment, of a paper that has looked at capacity through revenue, and so I would have to go back and sort of derive how to measure capacity from a model where the focus is on revenue. Like what does capacity look like the in the context of a bunch of revenue maximizers?

DR. ROPICKI: Okay. There is a subset of the data, and maybe I'm wrong, but I think there is a much smaller subset of the data that has cost in it.

DR. AGAR: 20 percent.

DR. PARMETER: Yes, and we have that too, but I know, from the PIMS data, that pretty much all the observations have attached with it revenue, and so that wouldn't really entail much of a drop in observations, unless they're not reporting it. That would be something that's like beyond my -- That would be like a question I would ask the council, before doing any stat work for you, is are the fishermen revenue maximizers? Is that the behavioral objective of the fishermen?

DR. ROPICKI: I would guess profit maximizers, but --

DR. PARMETER: For profit, we would have to have costs as well as revenue to do that, but the profit would be easier, because, in the profit, you have the outputs that are directly in there, and so it would be much easier to scale out for capacity, I believe.

DR. ROPICKI: Thank you so much. That was good stuff. I appreciate it.

DR. PARMETER: I would just say that, if we had a behavioral model tacked on top of this, there's probably a lot of various ways in which we could address capacity that would be different than the way we're doing it here, where we're not imposing any type of behavior on the fishermen.

CHAIRMAN POWERS: All right. Thank you. One thing that strikes me is, in some ways, the analytical model is very similar to the catch per unit effort standardization that is done in order to get indices of abundance, and the difference is all these things that you're looking at as a signal of efficiency and so on is considered noise, and you try to eliminate those and standardize them out, but it kind of suggests to me that those that do the standardization for CPUE for indices of abundance might look at this in terms of what kinds of variables might contribute more greatly to that standardization process. The final little question I have is, just procedurally, there is a report for this, and is that going to the council, or to whom?

DR. PARMETER: I think that's Juan's question.

DR. AGAR: We are happy to make it available to the council.

Chris is helping us here to inform the council, and so, yes, we'll make it available once it's ready.

CHAIRMAN POWERS: Okay. Thank you. All right. That was interesting, and I appreciate it. All right. The next agenda item is -- Let's take a short break, because my goal is to finish this afternoon, and I don't want to take this over into the morning, and the next agenda item is Item XI about timelines and stuff like that, but let's take a quick seven-and-a-half-minute break and then come back for Item XI.

(Whereupon, a brief recess was taken.)

CHAIRMAN POWERS: This is Item XI about the proposed timeline for the SEDAR 74 stock ID. Ryan.

REVIEW OF PROPOSED TIMELINES AND STOCK IDENTIFICATION PROCESS FOR SEDAR 74: GULF OF MEXICO RED SNAPPER

SEDAR 74 STOCK ID PROCESS TERMS OF REFERENCE

MR. RINDONE: SEDAR 74 is going to be a research track assessment for Gulf red snapper, and, just to recap, the research track is designed to be a deep investigation into whatever is identified as being critical for either determining or revisting for the species, and we've had several assessments, obviously, for red snapper, and, along the way, we've built quite a few research recommendations, but what we're looking at right now are the stock ID terms of reference, and these have been developed by the SEDAR 74 planning team, which is a few folks, and it's me, Julie Neer, Judd Curtis, Latrice Denson, and Matt Smith, and we have put these together for you guys to consider for the stock ID process.

You can see these terms of reference here, and, again, the purpose is to review the stock structure of Gulf red snapper and the unit stock definition and try to determine whether changes are necessary, and, for those that aren't aware right now, the way that red snapper is assessed in the Gulf is as an eastern and a western stock assessment, and then they're merged, at the end, into a Gulf-wide holistic view of what's going on with the species. In lieu of reading all of these out, I would ask if there are any questions. If there are no questions, are there any edits or recommendations?

CHAIRMAN POWERS: Hearing none.

MR. RINDONE: Then perhaps a motion saying these are just the most outstanding stock ID terms of reference that you've ever

seen.

CHAIRMAN POWERS: Okay. You want a motion?

MR. RINDONE: I would, please.

CHAIRMAN POWERS: Doug Gregory.

MR. GREGORY: Thank you. Is it possible that this -- It looks like, to me, this could end up recommending that we have two stock assessments for red snapper in the Gulf, and I know it's treated in SEDAR as two assessments, but then they're combined, due to some recruitment estimations, and is it possible that, out of this, could come a recommendation that there's two stocks in the Gulf and they should be managed as two?

CHAIRMAN POWERS: It's possible, presumably, and I think anything is possible. It's where the information leads you. I mean, but, also, management has the flexibility that they can manage it -- They could manage it separately now, if they chose to, based on the single stock, a Gulf-wide stock assessment, or a Gulf-wide management recommendation, and so the answer, short answer, is, yes, it could happen. No follow-up, Doug?

MR. GREGORY: Thank you. I remember the first stock assessment did treat the Gulf as two different stocks, and then subsequent stock assessments combined it as one, because of, among other things, a lack of differences in growth rates, but then -- I don't know, but about ten years ago or so, NMFS started analyzing them separately, but then combining them at the end and making single-stock recommendations, and we've looked at how the western Gulf is behaving differently than the eastern Gulf, and I think it has significant ramifications that at some point should be addressed.

CHAIRMAN POWERS: That's probably the reason you see these terms of reference here, I guess. Will.

DR. PATTERSON: After the first red snapper benchmark assessment, and I think it was in 2005, the SSC recommended that not only should the eastern and western Gulf be assessed as separate stocks, and, currently, I think they're called sub-units, and not only should they be assessed as separate stocks, but they should be managed separately as well.

Then, in that update assessment in 2009, we also made that recommendation to the council, and so, while there is this issue of a lack of recruitment data for the east, and most of the

recruitment data comes from the west, and the kind of workaround to that, and sharing a stock-recruitment relationship, but treating the deviations separately between the east and the west -- Despite that, the recommendation, from the science perspective, has always been that they should be assessed and also managed as separate stocks, and the SSC has made that recommendation to the council in the past.

I think one thing that may be looked at here is actually whether there are different populations in the east. There is some information from the West Florida Shelf that the population there has some different dynamics than perhaps the north-central Gulf, and so I think that can be fully explored in this stock ID workshop.

CHAIRMAN POWERS: Thank you. Luiz.

DR. BARBIERI: Thank you, Mr. Chairman. I just want to ask Ryan about the assessment panel for the SEDAR panels for this, and I guess I'm a little unfamiliar with these new developments in the SEDAR process. Do we still have a panel, a data panel and an assessment panel, for these benchmark assessments? If so, have we put one together for this assessment?

MR. RINDONE: We will, yes, but we just haven't had those populated yet. We're not -- We are going to review the milestone schedule next, and we're starting off with these terms of reference, and then I was going to ask for some bright-eyed and bushy-tailed volunteers to participate in the stock ID portion, and then we were going to review the milestone schedule, and we would look to you guys for volunteering for the data and assessment portions later on.

CHAIRMAN POWERS: What I am looking for now is Ryan needs a motion basically recommending that these terms of reference be put forward, or, if not, then suggest something different, and so can I see a motion adopting these terms of reference?

DR. PATTERSON: Joe, this is Will. I just have a quick comment about some of this. In these goals here, you refer to stock structure, right, and I think probably you want to distinguish population structure from stock structure, and so the stock is just a portion of a population that is recruited to the fishery, but, here, what you're really talking about is what's the population structure, perhaps the meta population structure, for red snapper, and then what are the implications of that for assessment and management? Some may see that as a subtle difference, or splitting hairs, but I think it's an important

distinction that we should make.

CHAIRMAN POWERS: Thank you. I think the language has sort of evolved over the last couple of decades, because people started talking about meta populations and things like that, and so you might keep that in mind. Julie.

DR. NEER: Just to address Will's question, I think that's addressed in Term of Reference 3, where we're looking at differences, if there are any, between the biological stock, the assessment unit stock, and the management boundaries, and so those can be different. We can have a biological stock as well as saying which may be Gulf-wide, and then assessment stock units, and those definitions may not be the same.

I think I agree that Will was maybe suggesting that, under the process goal, that very first statement, maybe we need to be biological to that very first process goal, and I think that would address Will's concern, because we have unit stock definitions under that first process goal statement. I think it's taken care of in the actual terms of reference, but, in the process goal at the top, it's a little unclear.

DR. PATTERSON: What I would suggest then, for Number 3, is actually to say, if they result in a mismatch between population structure, assessment, and then, in parentheses, unit stock, and existing management boundaries, and, I mean, that's the way I would phrase it. I think population is what you mean by biological stock.

DR. NEER: Yes, that's what we were referring to.

CHAIRMAN POWERS: Okay. Any other suggested changes?

MR. GREGORY: The thing that strikes me is this is very broad. In Number 1, I would like to suggest, in the second sentence, that it read "potential sources, including" then all that, and then, right after "CPUE", insert "be considered".

The way it reads now, this report could come out and say we looked at growth patterns, and they fulfilled the terms of reference, but I would like to have them look at everything that's available, and, very easily, they can say there was no otolith chemistry data available to look at, and so it's not a potential source, and so I would like to change the word "include" to "including", and, at the end of the sentence, say "be considered or evaluated", if there's no objection.

CHAIRMAN POWERS: Thank you.

MR. RINDONE: Perhaps "should be considered", just thinking about how the sentence reads.

MR. GREGORY: Fine.

CHAIRMAN POWERS: Thank you.

MR. GREGORY: Thank you.

CHAIRMAN POWERS: All right. Again, we're looking for a motion, or something to that effect, saying these are the terms of reference that we recommend. Can you put up the motion page for me?

The motion is that the SSC recommends that the terms of reference for -- You are going to have to fill in the details here, but the SEDAR 74 stock ID, be as in document XXX, as amended.

MR. RINDONE: How about the SSC recommends that the TORs for the SEDAR 74 stock ID process be accepted, as amended?

CHAIRMAN POWERS: Okay.

MR. GREGORY: I will make that motion for you.

CHAIRMAN POWERS: All right. Thank you. Do we have a second?

MR. GILL: Second.

CHAIRMAN POWERS: Thank you. **Is there any objection to this motion? Okay.** Then the milestones.

SEDAR 74 MILESTONE SCHEDULE APPROVAL

MR. RINDONE: Yes, sir. We will pull that up next. Understanding that some of these milestones are set far in the future, this is our -- This represents our best intentions, and so the stock ID process would begin with scoping in November, with data scoping in November, followed by a data deadline in March of 2021, and then webinars in May and June, to try to resolve the issue of stock ID, and these would be plenary-style webinars.

I am just kind of hitting the highlights here, and so, in the late summer or early fall of 2021, we would look to have a data

scoping call and webinar as a precursor to the actual data workshop, along with a discard mortality webinar prior to the data workshop, which is scheduled for the middle of November of 2021, and you guys are largely familiar with what goes on at the data workshop.

In the interest of not seeing Matt Smith's famous graveyard of past deadlines, we'll need to make sure that we keep a good eye on when all those data products are due.

Moving on, we'll have a post-data workshop discard mortality webinar, if necessary, and a further distillation of anything that's remaining from the data workshop process prior to model development really kicking off in early 2022.

Final analytical products will be due that March, along with continued model development, which will continue through the spring and into the summer of 2022, with a couple of assessment webinars to review modeling progress.

The assessment report will hopefully be delivered to SEDAR for the review workshop after finalization by the assessment development team, which some of you are on, in late 2022, and then, in January of 2023, we'll review the assessment report and any changes that are necessary, following the review workshop, will take place in the spring of 2023. Then the SSC will receive the -- They will have a chance to review everything that's gone on in late spring of 2023.

Following that, the operational assessment for red snapper would begin, and that's what will yield actual management advice, but that operational assessment is not listed here yet. Are there any questions about the schedule? I know it's kind of drawn out over an extended period of time, and, again, this is our best intentions, and so some of this may progress more quickly and may not require quite as much time as is presently prescribed.

CHAIRMAN POWERS: Or vice versa.

MR. RINDONE: Optimism, Joe. Come on.

CHAIRMAN POWERS: All right. Are there any comments or questions? If not, it looks good to me. You didn't need a motion or anything for this, did you?

MR. RINDONE: It makes it cleaner.

CHAIRMAN POWERS: All right. Can you go back to the previous

motion?

MR. RINDONE: You might just say something to the effect of as presented, understanding that the schedule may be amended in the future, depending on the progress of the assessment, or something to that effect.

CHAIRMAN POWERS: Okay. Just start off with the SSC recommends that the schedule, as presented, and we're going to have to fill in about what schedule I'm talking about, but as presented be enacted, or I don't know, something like that.

MR. RINDONE: If I can help.

CHAIRMAN POWERS: Yes.

MR. RINDONE: The SSC recommends that the milestone schedule for SEDAR 74 --

DR. PATTERSON: Why don't we just say that endorse the milestone schedule as presented to us?

MR. RINDONE: Yes. That will do too.

CHAIRMAN POWERS: Okay.

MR. RINDONE: The SSC endorses the milestone schedule for SEDAR 74, as presented.

CHAIRMAN POWERS: Okay. Is there a second?

DR. NANCE: I will second it.

CHAIRMAN POWERS: All right. **Any objection to this motion? Seeing none, the motion carries.**

SEDAR 74 STOCK ID PROCESS VOLUNTEERS

MR. RINDONE: The last thing, Mr. Chair, is volunteers for the stock ID process. We have a list of academic and state and federal reps that we have already identified for the council to consider for appointment, but we would certainly welcome participation from the SSC, and so, if anyone is interested in leveraging their expertise to this effort, it would be most appreciated.

DR. PATTERSON: I am interested.

CHAIRMAN POWERS: Thank you. Anybody else? Benny Gallaway, are you volunteering?

DR. GALLAWAY: Yes.

CHAIRMAN POWERS: Thank you.

DR. TOLAN: I will go ahead and throw my hat in the ring.

CHAIRMAN POWERS: Okay. Anybody else?

MR. RINDONE: Jason Adriance had sent me his name as well.

CHAIRMAN POWERS: Okay. Great.

DR. BARBIERI: Mr. Chairman, is this for the SEDAR 74 stock ID process?

MR. RINDONE: Yes.

DR. BARBIERI: I would like to volunteer as well.

CHAIRMAN POWERS: Okay. Then we will move on then. I don't think there is anything else for this item. The terms of reference, et cetera, for shrimp, Item XII.

REVIEW OF SHRIMP STOCK ASSESSMENT TERMS OF REFERENCE FLOW CHART DRAFT STATEMENT OF WORK - SEAMAP TRAWL

MR. RINDONE: Up in front of you now, you guys should see the shrimp research and assessment plan and a projected timeline for how the Center is proposing to move through this process. Special working groups will be convened by the Southeast Fisheries Science Center to look at SEAMAP trawl surveys, catch and effort, observer coverage on the shrimp vessels, and life history and environmental covariates.

We will hold an assessment workshop to review all of the items that the special working groups have covered in 2020 and refine the existing models and recommend future work, and then, in 2022 and 2023, a research track for penaeid shrimp will take place, with an assessment workshop and a review workshop to develop the next generation stock assessment model for penaeid shrimp.

Then there are some scopes of work for specific working groups that are mentioned for 2020. The first statement of work is for the SEAMAP trawl survey, and so you guys can see that here, and

so what we're looking for is approval of these draft statements of work, and you guys can think of these as the guiding principles for each of these five topical working groups. I am just looking for some input on these, if you guys have any edits.

CHAIRMAN POWERS: Carrie.

EXECUTIVE DIRECTOR SIMMONS: Thank you, Mr. Chair. We first started talking about this, I guess, in May, during the Steering Committee meeting, and at the council meeting in June, and so maybe Ryan or Shannon or Julie could remind me, for the first year, the -- NOAA is going to do these meetings, and can we appoint -- Are we asking for SSC volunteers, after we get through the statements of work, to participate in these meetings? Can you remind me again of what the process is going to be?

MR. RINDONE: I am going to defer to Julie.

DR. NEER: My understanding is the Science Center is convening these groups already, and some of them have started their work, or at least the preliminary stages of it, and so these will be managed by the Science Center, and they did indicate that they would be seeking outside input for a few of these working groups, but not all of them, and I do not recall which ones specifically they are doing, but I believe the process would be, if the Science Center is interested in having someone outside the agency participate, then they're going to reach out to those folks and request that they participate, and maybe they reach out to the folks directly, or maybe they reach out to the council, but this is a Science-Center-run effort, this first stage, and so it is not -- It doesn't necessarily have to follow the SEDAR rules of appointment process, and Shannon can correct me if there is other comments, but that's my understanding.

CHAIRMAN POWERS: Thank you. Then that means these draft statements of work are the Center's draft statements of work?

DR. NEER: Yes.

CHAIRMAN POWERS: Shannon.

DR. CALAY: Julie is quite correct, and so these are the Center's draft statements of work, and the process that Julie described is correct.

CHAIRMAN POWERS: All right, and so, in this case then, to speed

things along, I don't think we need motions or anything for somebody else's responsibility. What I would like is, if you have some recommendations to things that you would like to be considered, then bring them up, and then they can be conveyed to the Center. Let's start with the first statement of work about the groundfish trawl indices. Are there any sorts of recommendations or comments? No? Then going on to the next one. Leann.

MS. LEANN BOSARGE: I just had a question, since Shannon is on the line. Number 2 on the SEAMAP trawl statement of work, I noticed, in that one, it just says to justify indices are representative of the fishery, and is that shrimp abundance indices, as it states in all the other bullet points there?

DR. CALAY: That is my understanding, Leann.

MS. BOSARGE: All right. As long as that's your understanding, I think that's good, and so that will work. Thank you. While I have the floor, I know we have this new procedure that we're using, and I'm excited about it, as far as how our process will work through SEDAR, but I just wanted to throw out there and highlight the fact that we do have a couple of members on our SSC that have a lot of background in this area, and I don't mind naming names, but Dr. Nance and Dr. Gallaway, and Mr. Gregory as well, and, believe it or not, that's his family background, and his father was a commercial shrimper.

I think it's important to have not only that scientific perspective, but also that working water perspective, and I think you can garner some of that from your SSC members, and I know that Dr. Nance and Mr. Gregory and Dr. Gallaway have all been on a shrimp boat before, and I think that actually, in this particular setting, is really important.

You don't want those two things to be too disjointed, and so I hope that we will have some people that maybe voice some interest in participating in all of these five working groups, because how they're utilized in the stock assessment does kind of overlap a lot, and so I think it would be an excellent idea to have some continuity there, and I hope some people will step up to the plate and let Shannon and any other Science Center reps on the call know that they're interested. Thank you.

CHAIRMAN POWERS: Thank you. Benny, I think you've just been volunteered. Go ahead, Benny.

DR. GALLAWAY: I concur with what Leann said, and I would

particularly appreciate the opportunity to work with Jim and Doug on each of these groups, because I think it's critical that, whatever the recommendation comes up, is that we work closely with the industry to ensure that it's understood and adopted as best available science or not, and so I would like to participate in each of those groups, if possible. It may not be possible.

CHAIRMAN POWERS: Well, we'll see. Jim Nance.

DR. NANCE: I like what Benny said, and I would be happy to participate any way I can, and so, Shannon, you're welcome to call on me, and I would participate in any way you would like me to.

CHAIRMAN POWERS: Thank you.

DR. CALAY: Thank you very much.

DRAFT STATEMENT OF WORK - EFFORT ESTIMATION

CHAIRMAN POWERS: All right. Can we go to the next draft statement of work? This was the effort working group, basically. Any comments about this draft statement of work?

MS. BOSARGE: Mr. Chairman, I had my hand up again. Would it be okay if I speak?

CHAIRMAN POWERS: Surely. Yes.

MS. BOSARGE: Thank you. This is, I guess, for Shannon, since these are your statements of work. For this effort estimation, the bullets that you have here, will they also allow you to consider an independent estimation of effort, via a very robust random sample of electronic logbooks, since we are about to shift over to a new type of electronic logbook platform of some sort, because our 3G is phasing out.

Will this statement of work be broad enough to let you discuss not only that independent estimation of effort, but also the stratification of that random sample, and really get into some of the nuts and bolts of that, because I think that's going to be important, and it will need important input from people like Dr. Nance, that really understands the demographic of the fishery, the types of vessels, where they operate, the ports that are more offshore ports, versus nearshore ports, all sorts of different things, and so will you be able to do that with this scope of work?

CHAIRMAN POWERS: Shannon.

DR. CALAY: I see that Michelle Masi is on the call, and I think that she organized these statements of work out of our Galveston Laboratory, and I could defer to her. I would also like to say, before I do defer to her, that I think the SSC is welcome to draft an additional bullet point for the statement of work. These come back to the Science Center for our consideration, and so, if it was not possible, we would be able to let you know at that time, but Michelle Masi I think is on this phone call, and perhaps she would like to weigh-in.

CHAIRMAN POWERS: Michelle.

DR. MICHELLE MASI: A couple of things. Back to the SEAMAP statement of work, I just wanted to mention that, on Point 2 that Leann brought up, that, actually, I wrote that Number 2, and that was in reference to a suggestion made by Rick Methot and whether or not we could successfully use the SEAMAP groundfish trawl as an alternative to incorporating the fishery CPUE in these models, and he suggested this was the first step in understanding whether we would be able to do that. It would really be just to look at the SEAMAP index itself and not necessarily state indices at this time.

Then, as far as the comments about having members of the SSC, including folks like Benny and Jim and Doug, I am definitely supportive of that, and it was my understanding that these working groups were being developed and not being developed in an internal capacity, but as a working group that would be open to the public, because I feel like it’s important to have support, and also representation from people that probably have a better understanding about this data than myself, and I certainly don’t want to be the only one doing all the work.

Then, for the third comment from Leann about whether or not this particular one that we’re looking at now is going to be robust to account for potentially a new method of acquiring our effort data from the shrimp fishery, this statement of work was actually put together based on a review of the methodology that is used -- That is looking at the ELB effort data, and so the intention is that, whatever the data stream is, whatever the source of that data is, that this model would be robust enough to work for either data source, and so, essentially, we could apply this method to the ELB data or we could apply it to whatever input data that we have.

CHAIRMAN POWERS: Thank you. I think the overall recommendation is to make sure that that ELB data is looked at in the context of being able to integrate it into the effort estimations or indices, either one.

DR. MASI: Yes, and so I guess what you're suggesting is that we compare whatever -- Well, for starters, we don't have a new data source, but what we could do, assuming this working group started this year, would be to use this with the ELB data, and so, essentially, this method would be used, assuming that -- Even though it's not, but that ELB data would be continuous in the future, and then, whatever data source that we switch to, whatever that method is, we would have to then re-run the same method and show, I guess, a trend that the two effort methodologies for each data source are showing the same results.

I guess, right now, this draft statement of work is specifically going to have to be looking at ELB data, because we have no other data inputs to go off of at this time.

CHAIRMAN POWERS: Okay. Thank you. I think that Leann Bosarge's comments will be conveyed to that point. Anything else on the effort? Then going on to the next one. Benny, did you want to continue on on effort?

DR. GALLAWAY: Yes, I did. I wanted to speak to the point of matching landings with the effort, and it seems to me there is -- A big part of the problem is getting the landings data. The quality and timing of reporting varies tremendously, and can anything be done to streamline that process, or make it more formal, or make it required, or is it going to always be just what you get is what you get?

CHAIRMAN POWERS: I am not sure who that is being directed to.

DR. GALLAWAY: I guess I don't know either, and maybe that's the problem, is that we don't know who to approach to require those data, and so I would speak to the members of the council maybe first.

MS. BOSARGE: Dr. Gallaway, I think, when we get to that next statement of work, where we go into shrimp catch estimation, I think it's going to speak to some of those exact questions that you're bringing up.

CHAIRMAN POWERS: All right.

DR. MASI: That's correct.

CHAIRMAN POWERS: Okay. Then let's move on to that one then. Jim Nance.

DR. NANCE: Thank you, Mr. Chair. This one is not involved with the shrimp assessment at all, but it does involve the shrimp stocks, and I mean the catching of them, and so is that how this one is being looked at, is that it's part of the shrimp fishery, the bycatch, but it really isn't part of the stock assessments?

CHAIRMAN POWERS: Say what's on your mind. I'm not sure what you're getting at.

DR. NANCE: I'm just saying this one seems a little out of sync, and it's being put here as a research for the assessments, but it really is not part of the assessments, and it's part of the shrimp catch, I guess.

CHAIRMAN POWERS: I see what you're saying. All right. Michelle, do you want to address that?

DR. MASI: Yes, and thank you, Mr. Chairman. I think the wording on the agenda today for just a little bit misleading, and so some of these working groups are actually, as Dr. Nance mentioned, are actually addressing shrimp data in general, and so, for example, even the effort working group is addressing just the overall shrimp effort estimation, which is used in other assessments in the Gulf of Mexico and not for the shrimp effort going into the assessment models.

DR. NANCE: Thank you.

CHAIRMAN POWERS: Shannon, did you have anything further?

DR. CALAY: No. That's exactly correct.

CHAIRMAN POWERS: Okay. Thank you. All right. We've taken a look at the --

MS. BOSARGE: Mr. Chairman, I had my hand up again, but it won't show up on your screen, and I'm so sorry.

CHAIRMAN POWERS: I can't see that anyone, but go ahead, Leann.

MS. BOSARGE: I just wanted to ask Shannon and Michelle -- I was looking at some of the people that are on this initial working group, and I wondered, and I see where there might be some participation at the Gulf States Commission meeting, and I

wondered if you would consider adding someone to the working group, when it's appropriate, maybe even from ACCSP, since we are starting to move towards ACCSP for some of our other landings information, with these electronic logbook programs that are going to go in. If there's some overlap there, it maybe could be useful for the Gulf, for the shrimp fleet. Thank you.

DR. CALAY: As Michelle said earlier, we are very open to adding additional recommended members, and so, if there are others with expertise that would be useful to these working groups, we would be very happy to reach out to them.

CHAIRMAN POWERS: Thank you. Dale.

MR. DIAZ: Thank you, Mr. Chair. I guess my question would be for Dr. Gallaway. I have not been made aware of problems with getting the shrimp effort information, and so is it that -- I mean, it should be coming in through trip ticket systems, which are throughout the Gulf, and so, I mean, what exactly is the problem, or maybe you want to get with me offline, and I would like to understand it better.

DR. GALLAWAY: It's been my observation that the quality and timeliness of receiving the trip ticket data varies considerably among the states, and it makes it very difficult to make the matches that should be easily done, and I think you saw the numbers, where there is less than 50 percent of the matches being available, or being enabled, nowadays, and I think most of that has to do with the trip ticket data, or the provision of those tickets, and so that's what I was referring to, and I may be wrong, but that's been my experience.

MR. DIAZ: Thank you.

CHAIRMAN POWERS: Okay. Yuying.

DR. YUYING ZHANG: I just wanted to say that I had a project about the red snapper, and I recently was interested in the estimated bycatch, and I contacted some of the initial working group members about the data, and my point now is I don't want to make any commitment before I get some interesting preliminary results, and I don't know whether I can be counted as an expert, but I don't want to be excluded from this.

CHAIRMAN POWERS: All right. Shannon, keep that in mind. Okay. Ryan, where do we stand?

MR. RINDONE: I think the observer data is the one that's next.

CHAIRMAN POWERS: Okay.

MR. RINDONE: We're just going through these one at a time and seeing if anyone has any proposed modifications or additions, et cetera.

DRAFT STATEMENT OF WORK - OBSERVER DATA

CHAIRMAN POWERS: Are there any comments? If not, then the next one. Would that be environmental? No, this is the catch estimation.

MR. RINDONE: Yes, it should be catch estimation.

DRAFT STATEMENT OF WORK - SHRIMP CATCH ESTIMATION

CHAIRMAN POWERS: If we could go down to the objectives, and, Benny, is there something here you want to add?

DR. GALLAWAY: No, but just to emphasize the importance of the bullet that says that the landings be reported earlier in the calendar year for the prior year, as well as produce monthly landing estimates in a more timely fashion. That's critical, and it's not being uniformly done, or it wasn't when I was working directly with the data, and I believe it's gotten even worse, perhaps, from what I hear.

CHAIRMAN POWERS: Which bullet was that?

DR. GALLAWAY: The one that talks about the timeliness of the data, and it moved, and I don't see it now, and let me find it again. It's talking about --

MR. GREGORY: It's in the first paragraph.

DR. GALLAWAY: The first paragraph, yes. I'm looking at my cellphone, and, as you all know, I'm late to the meeting because my computer is unavailable, and so I'm having to do it on my cellphone, and so the objectives is what I want to emphasize, and I believe this objective is critical and that it be thoroughly explored and improved.

SHRIMP LIFE HISTORY/ENVIRONMENTAL DATA

CHAIRMAN POWERS: All right. Thank you. I think the last one was the environmental module.

MR. RINDONE: Life history and environmental data, yes.

CHAIRMAN POWERS: Okay. Any comments or expansions or deletions, et cetera? All right. Michelle.

DR. MASI: Thank you, Mr. Chair. My only comment is that, if there's any volunteers or recommendations for folks who are interested in participating in these working groups, if perhaps maybe you could just email them to me, and it's michelle.masi@noaa.gov, but, that way, we can just easily keep track of who is interested, and I know there's been some recommendations discussed, but I didn't have anything ready to write those down, and so, if you could please just email me or Shannon, that would be great. Thank you.

CHAIRMAN POWERS: All right. Thank you. Okay. Unless somebody wants to volunteer now, I think we have dealt with these things. Ryan.

MR. RINDONE: I think we're there.

EXECUTIVE DIRECTOR SIMMONS: Mr. Chairman, just one final question. Michelle, did you say that the working group efforts would be open to the public, and, if so, could you just share that information with us, so we can put something on our website? Thank you.

DR. MASI: Carrie, I can't confirm or deny, but I would suggest that you confirm that with either Shannon or Clay.

CHAIRMAN POWERS: I don't think you mean participation, and I think you mean it might be open for the public to attend, but not necessarily participation, and that's -- You've got to limit it a little bit.

EXECUTIVE DIRECTOR SIMMONS: Correct.

CHAIRMAN POWERS: All right. I believe we have finished with this agenda item, and then the next one was the volunteer for technical chair of the SEDAR 68 joint Gulf and South Atlantic scamp. Ryan, can you sort of -- Was this one of the research tracks?

REQUEST FOR A VOLUNTEER: TECHNICAL CHAIR FOR SEDAR 68: GULF AND SOUTH ATLANTIC SCAMP ASSESSMENT WORKSHOP

MR. RINDONE: It is our first research track.

CHAIRMAN POWERS: So it's a rather -- The chair for this would be a rather extended commitment, correct?

MR. RINDONE: That is correct. We're looking for somebody that is committed to the long haul, and so, essentially, what we're talking about here is the SEDAR 68 assessment for scamp is a joint assessment between the Gulf and the South Atlantic, which is defined as there is to be a Gulf stock and an Atlantic stock for scamp, and, absent any other information, it's being delineated at the council jurisdictional boundary. That's what was determined through the stock ID process.

The technical chair for the assessment would be expected to participate in all webinars and calls, to help complete the body of work for creating the base models for the assessment and leading discussions of panel members and other efforts, as necessary, during the assessment process.

We have had -- It's been a little difficult, at times, to have someone consistently who can serve as the technical chair. As you guys are aware, it's quite a body of work to do these assessments in the first place, and so the Science Center certainly would appreciate the help of someone with some assessment experience to be able to help lead this process.

Scamp has been delayed in its progression until August, due to COVID, but, at that point, we plan to get it back up off the ground, and Julie can speak a little bit more as to what the schedule might look like going into the fall, but we would be honored and appreciative to have someone volunteer to be the technical chair, and so you might want Julie to weigh-in on what the projected schedule would look like in the fall.

CHAIRMAN POWERS: Julie.

DR. NEER: It's looking like we are going to reconvene the data portion of this process at the last two weeks of September, is kind of where we're shooting for now, and we're hoping to get a doodle poll out in the next week or so, and I'm just waiting to get a few more details from the Science Center to do that.

We're hoping to only have one more data plenary webinar to wrap this section of the workshop process up, the assessment process up, and then we'll begin the assessment stage, and we thought we were going to begin the assessment stage in July, and clearly that's not going to happen, but we were hoping to begin the assessment stage in say November or December.

Initially, we thought we would have a review workshop in March, and that's probably more going to be like June, and so essentially sliding everything three months back, and so the chair would be involved, as Ryan said, in running the actual assessment webinars, and they are webinars. There is no in-person workshop, and there was never an in-person workshop, and there certainly isn't one now.

We're also looking for someone who is the chair who is not on the assessment development team already and someone who does not wish to participate as a reviewer. If you're hoping to get appointed as a reviewer down the line, don't volunteer for this, and, if you're already an ADT member, you're already on the panel, and so don't volunteer for this, and so we're looking for someone who is not already embedded in scamp or wishes to be embedded at the end, just to be clear. Thank you.

CHAIRMAN POWERS: All right. Thank you. Jim Tolan, are you volunteering?

DR. TOLAN: No. Having been part of the original scamp SEDAR 68, I was just curious if we -- I know COVID is sort of the reason it got pinned down, and the brakes got put on it, but I was just curious if there was any other clarification as to why it just got tossed to the side, if it was our first full new method assessment, and it was fairly unsatisfying on my end, from that.

CHAIRMAN POWERS: Shannon.

DR. CALAY: Thank you. Essentially, we had an in-person workshop scheduled, and that got cancelled, due to COVID, and then we did attempt to have those workshops meet electronically, virtually, but it did come to a point where the demand for the webinars actually exceeded the capacity of our data providers and stock assessment leads to meet other project deadlines, and so, in order to have king mackerel in the South Atlantic and Gulf and cobia and vermilion snapper turned in on time, we asked for a delay.

DR. TOLAN: Thank you for that, because I know, on my calendar, there was a whole bunch of SEDAR 68 webinars penciled in, and so thank you for that clarification.

DR. CALAY: It got a little bit away from us, and so, as we reconvene, we'll have to think about how to make the process a little bit more efficient.

CHAIRMAN POWERS: Thank you. I am not hearing people jumping up and down to volunteer. Part of it, I think, is the idea of what sort of commitment that is for somebody and how that relates to their other obligations. It would be nice to have sort of a very rough estimate of how many days over the next year you would expect this to be, and not just in webinar meetings, but also other days.

DR. NEER: Mr. Chairman, the chair is mainly going to be working and focusing on running the meetings, running the webinars, when they are actually happening, so that the analytic team and the ADTs can focus on the discussions and not worrying about whose hand is raised.

There shouldn't be a great deal of time outside of it. The bulk of the report will probably still be reading by the analytic team, as has always been the case, with the help of the ADT, and it's not over the next year. It's probably, I would say, over the next six months, or maybe seven months, once we wrap up -- It won't start until we wrap up the -- It's about a six-month time window, and it won't start until we wrap up the data portion, which I anticipate being done hopefully by October, and so we're talking about a six-month time window, with maybe four -- We initially had three or four webinars on there, and so it shouldn't be a great deal of time outside of the webinars, unless they're interested and wish to read all the working papers that may be available, in which case they certainly can, but I don't feel it's a requirement. I hope that helps a little.

OTHER BUSINESS

CHAIRMAN POWERS: Judging from my experience chairing meetings, I think you're underestimating the amount of time it takes to prepare for these sorts of meetings and chair them, but, be that as it may, I am just grousing a little bit. Are there any volunteers?

If somebody wishes to pursue this, then I would suggest that they talk to either Julie or Ryan or Shannon, to kind of see what's going on, and pursue it after that, if that's okay. All right.

Then we have Other Business. Under that, we give the opportunity for public comment. Let me open this up to public comment, and the process, I guess, would be to click the little raise-hand button, and the people at the council will inform me

who has raised their hand.

There is none, and we've got through this, and it's been an interesting meeting. Thank you all for participating. The Gulf SSC will have another rendition of this in three or four weeks, when we go over the MRIP calibration sort of process, and I think it's August 13, and we also have the MRIP calibration workshop that's being run by, I believe, the Gulf States Marine Fisheries Commission, and I think that's August 5, which is not a bonified SSC meeting, but there are several representatives that we will have there. Jim Nance, did you have a comment?

DR. NANCE: I just have a question. Has the webinar for the August 5 meeting, the registration for that, has that been sent out yet?

CHAIRMAN POWERS: I'm not sure. Carrie.

EXECUTIVE DIRECTOR SIMMONS: Thank you, Mr. Chairman. No, it has not been sent out yet. We are going to have the materials posted, and we're hosting it on our website. If you go to Meetings, and then go down, it's the bottom one, the MRIP state/federal calibration workshop, and it's actually being hosted by NOAA Science & Technology.

CHAIRMAN POWERS: Excuse me. Okay. You have thirty seconds for any last comments. If not, then --

MR. DIAZ: Dr. Powers, I just wanted to thank the group for their participation and all the work that you all are doing to help further the fisheries of the Gulf of Mexico. I appreciate you all putting up with me for the last couple of days. I always learn a tremendous amount by participating in these meetings, and this one especially, and so thanks for you all's hard work, and it is appreciated by the council members. Thank you, Dr. Powers, and you run a good meeting, Dr. Powers.

CHAIRMAN POWERS: Thank you very much. All right. I am not asking for a motion, and I am declaring that the meeting is now adjourned, and thank you very much.

(Whereupon, the meeting adjourned on July 22, 2020.)

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